Attachment 3.A.1

Mathematics Subject Matter Committee

May 19–20, 2021

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# Summary Table of Public Comments from First 60-Day Review

Public Input on the Draft Math Framework

This table provides a summary of the public comments on the current draft 2021 *Mathematics Framework for California Public Schools, Kindergarten Through Grade Twelve* (*Math Framework*) received February 8, 2021, through April 8, 2021. Comments provided via the online survey are provided in their entirety. Emailed comments in excess of 1,000 characters have the initial text from the comment posted in the table; the full comment was posted to the California Department of Education (CDE) Box.com account at <https://cde.box.com/s/ouayumic9kerndzwdyg4dgk904kepaj3> and provided to the Instructional Quality Commission (IQC) in their original form. Personal contact information was redacted from the posted comments, but they were not otherwise edited. The comments appear in tables 3–16, in the order that the chapters were posted online, with comments listed in the order that they were received. Where possible, specific suggested line edits have each been given their own entry in the table. The “Recommend Action” column contains recommendations by the staff and writers for the IQC to consider at its May 19–20, 2021, meeting.

**The following abbreviations are used throughout this document, in accordance with state and federal accessibility guidelines.**

* <bh> = highlighted text begins
* <eh> = highlighted text ends
* <bs> = strikethrough text begins
* <es> = strikethrough text ends
* <br> = red text begins
* <er> = red text ends
* <bbl> = blue text begins
* <ebl> = blue text ends

The underlining in the original submission was removed from this table for compliance with CDE accessibility requirements for web posting. Note that due to CDE web posting requirements, embedded hyperlinks were not included in the summary table, but a note directing readers to the original comment was provided.

**The following definitions clarify the recommended actions provided throughout this document:**

* **Recommended** = CDE recommends that the Mathematics Subject Matter Committee (Math SMC) include the additions, edits, and/or changes as stated in the public comment.
* **Not Recommended** = CDE recommends that the Math SMC does not include the additions, edits, and/or changes as stated in the public comment.
* **No Motion Recommended** = CDE does not have a recommendation.
* **Writers’ Discretion** = CDE recommends that the Math SMC permit the Mathematics Framework writers and CDE staff to determine how to include the additions, edits, and/or changes as stated in the public comment.
* **Non-Actionable** = the public comment does not include actionable edits that include specific additions, edits, and/or changes that can be applied to the framework and no action is needed.

All recommended actions were made based on the California *Education Code*; the Guidelines for the California Mathematics Framework for Public Schools, Kindergarten through Grade Twelve, approved by the State Board of Education in 2020 (<https://www.cde.ca.gov/ci/ma/cf/mathfwcfccguidelines.asp>), and the California Common Core State Standards for Mathematics (CA CCSSM) (<https://www.cde.ca.gov/be/st/ss/documents/ccssmathstandardaug2013.pdf>). Questions regarding the process can be sent to [MATHFRAMEWORK@cde.ca.gov](mailto:MATHFRAMEWORK@cde.ca.gov).

## Table 1. Mathematics Framework Ratings Table

| Rating Area | Excellent | Good | Fair | Poor |
| --- | --- | --- | --- | --- |
| Overall | 43 | 35 | 32 | 30 |
| Format and Clarity | 36 | 54 | 30 | 18 |
| Facilitating teaching and learning of the CA CCSSM | 38 | 37 | 33 | 27 |
| Providing guidance for instruction for ALL students | 36 | 26 | 29 | 53 |

## Table 2: Input Sources: Includes Survey Respondents and Email Comments

| Source (Name shortened for easy reference in the tables) | Name | Affiliation, Current Position, and Credentials (if applicable) | Input Method: Public input survey (Survey) or email (EM) |
| --- | --- | --- | --- |
| Polotskaia | Elena Polotskaia | Professor, Department of Sciences of Education  Université du Québec en Outaouais Pavillon Alexandre-Taché | EM |
| Dai | Yif Dai | Moonshot Academy | EM |
| Murphy-Shaw | Marian Murphy-Shaw | Educational Services Director, Siskiyou County Office of Education | EM |
| Lepsch | Don Lepsch | NA | EM |
| Stewart | Andy Stewart | NA | EM |
| Leckenby | Eileen Leckenby | Teacher on Special Assignment, Education Services, Redondo Beach Unified School District | EM |
| Ponseti | Deanna Ponseti | Teacher, Warren T. Eich Middle School, Roseville City School District | EM |
| Kim | Emma Kim | Parent, San Francisco Unified School District | EM |
| Nah | Li Nah | NA | EM |
| Wysong | Holley Wysong | NA | EM |
| Ghose | Tia Ghose | Parent | EM |
| DiOrio | Andrew DiOrio | Math Teacher, Bay Shore High School | EM |
| McIntosh | Peter McIntosh | Teacher, Oakland Unity High School | Survey |
| Horwitz | Sarah Horwitz | Teacher, Oakland Unified School District | Survey |
| Murphy-Shaw | Marian Murphy-Shaw | Teacher, Curriculum Specialist | Survey |
| LaMar | Tanya LaMar | Teacher | Survey |
| Murray | Vicki Murray | Teacher | Survey |
| MacMahon | Jeremiah MacMahon | Teacher, Fillmore Unified School District | Survey |
| Hill | Alason Hill | Teacher | Survey |
| Emerson | Michael Emerson | Teacher | Survey |
| Holmstrom | Megan Holmstrom | Teacher, Independent, Curriculum Specialist | Survey |
| Nagatani | Nancy Nagatani | Teacher, Kings River-Hardwick Elementary | Survey |
| James | Ray James | Teacher, Community Member | Survey |
| Tegen | Dawn Tegen | Teacher on Special Assignment | Survey |
| Medeiros | Kim Medeiros | Teacher, Curriculum Specialist, District Administrator, Community Member | Survey |
| Nussbaum | Brian Nussbaum | Teacher, Curriculum Specialist, District Administrator, Harrisonburg City Public Schools | Survey |
| Katz | Brian Katz | Faculty, CSU Long Beach | Survey |
| Regus | Dennis Regus | County Office of Education Administrator, Community Member | Survey |
| Bernard | Joshua Bernard | Teacher | Survey |
| Brousseau | Pam Brousseau | Teacher | Survey |
| Hsieh | Cynthia Hsieh | Community Member, Parent Guardian/Caretaker of TK–12 Student | Survey |
| Wang | Avery Wang | Community Member, Parent Guardian/Caretaker of TK–12 Student | Survey |
| Daro | Phil Daro | Mathematics Educator | EM |
| Gilberte | Nina Gilberte | NA | EM |
| Ruelas | Heather Ruelas | Teacher, Grade Eight | EM |
| Min | Susie Min | Teacher, NBCT Math 8HP, Statistics & Probability, & AP Statistics | EM |
| Foster (multiple files) | David Foster | Silicon Valley Mathematics Initiative | EM |
| Raigoza | Veronica Raigoza | Teacher, School Principal/Vice Principal/Other Site Administrator, Polk Elementary School | Survey |
| Colunga | Christine Colunga | District Administrator, Calexico Unified School District | Survey |
| Bracey | Michael Bracey | Teacher on Special Assignment, Weaver Middle School | Survey |
| Davalos-Lemus | Erika Davalos-Lemus | Teacher, Merquin Elementary | Survey |
| Lundell | Cindy Lundell | Teacher on Special Assignment, Hilmar Unified School District | Survey |
| Evans | Stephanie Evans | Teacher on Special Assignment, Sierra Foothill Charter School | Survey |
| Ellis, Ellis Attachment 1, Ellis Attachment 2 | Mark Ellis | Professor, ATMALA | EM |
| Burnison, Burnison Attachment 1, Burnison Attachment 2 | Erica Burnison | Program Manager, Math Curriculum Instruction, Solano County Office of Education | EM |
| Honig | Bill Honig | NA | EM |
| Fuson | Karen Fuson | Professor | EM |
| Ward (multiple files) | Alan Ward | NA | EM |
| Buck | Lindsay Buck | Middle School Teacher, San Pasqual Union School District | EM |
| Beckmann | Sybilla Beckmann | Emeritus Professor of Mathematics, University of Georgia | EM |
| Statham | Kelli Statham | Curriculum Specialist, Fresno County Superintendent of Schools | Survey |
| Vaudrey | Matt Vaudrey | Teacher, Fontana Unified School District | Survey |
| Cates-Darnell | Denise Cates-Darnell | Curriculum Specialist, San Bernardino County Superintendent of Schools | Survey |
| Dube-Robinson | Angela Dube-Robinson | Teacher on Special Assignment, Moreno Valley Unified School District | Survey |
| Tietjen | Emily Tietjen | Administrator, Merced County Office of Education | Survey |
| Medeiros | Kim Medeiros | Teacher, Gustine Unified School District | Survey |
| Habecker | Duane Habecker | Curriculum Specialist, Merced County Office of Education | Survey |
| Miller | Ginger Miller | Teacher, Tulare City School District | Survey |
| Fosnot | Catherine Fosnot | NA | EM |
| Commons (multiple files) | Joan Commons | NA | EM |
| Jason M | Jason M (no last name provided) | NA | EM |
| Newell | John Newell | Classroom Teacher | EM |
| Chiles | Patricia Chiles | NA | EM |
| Grip (multiple files) | Bruce | Retired Math Teacher | EM |
| Simeon | Araceli Simeón et al | Parent Organization Network and other organizations | EM |
| Saul | Mark Saul | Teacher | EM |
| Solberg | Caroline Solberg | NA | EM |
| Becker | Joanne Rossi Becker | Professor Emerita, San Jose State University | EM |
| Fisher | Kim Fisher | Co-Director, UC Berkeley Product Management Program | EM |
| Hull | Julie Hull | Parent and Educator | EM |
| Muller | Stacy Muller and 228 others (form letter) | NA | EM |
| Vine | Luther Vine | NA | EM |
| Malione | Mike Malione | NA | EM |
| Gerien | Julie Gerien | NA | EM |
| Walters M | Malinda Walters | NA | EM |
| Walters C | Charles Walters | NA | EM |
| Nowak | Kate Nowak | Illustrative Mathematics | EM |
| Rubalcava (multiple files) | Christina Rubalcava et al | Curriculum and Instruction Steering Committee (CISC) Mathematics Subcommittee | EM |
| Stern | Lillis Stern | NA | EM |
| Muthig | Paki Muthig | NA | EM |
| Struble | Susy Struble | NA | EM |
| Landgraf | Krista Landgraf and 4 others (form letter) | NA | EM |
| Marks | Rick Marks | Professor Emeritus, Mathematics and Education, Sonoma State University | EM |
| Sacro Swem | Honey Sacro Swem | Coordinator, Curriculum and Instruction (Elementary), Fontana Unified School District | EM |
| Lieberman (multiple files) | Gerald A. Lieberman | Director, State Education and Environment Roundtable | EM |
| Sampson | Cole Sampson and Kyle Atkin | Mathematics Coordinators, Kern County Superintendent of Schools | EM |
| Lay | Van Lay | Curriculum Specialist, Elementary Mathematics, Sacramento County Office of Education | EM |
| Rodriguez | Heather Rodriguez | TK-5th Grade Math Instructional Coach, Kings Canyon USD | EM |
| Barger | Ellen Barger | Assistant Superintendent, Curriculum & Instruction, Santa Barbara County Education Office, and Chair, CISC Mathematics Subcommittee | EM |
| Uy | Frederick Uy | Director, Educator Preparation, Department of Educator Preparation & Public School Programs, CSU Office of the Chancellor | EM |
| Parker | Ruth Parker | CEO Emeritus, Mathematics Education Collaborative | EM |
| Rodgers | Sherry Rodgers | Math and STEM Coordinator, Instructional Services, Shasta County Office of Education | EM |
| Cole | David Cole | NA | EM |
| Foster E | Elizabeth Cha Foster | NA | EM |
| Caskey | Julie Caskey | NA | EM |
| Kempster | Vriana Kempster et al | San Francisco School District Middle School Math Team | EM |
| Daniels | Robert Daniels | NA | EM |
| Gonzales | Julie Gonzales | Vice President of Government Relations, Amplify | EM |
| Barnes | Lizzy Hull Barnes et al | San Francisco Unified School District Mathematics Department | EM |
| Fraser | Sherry Fraser | Mathematics Educator | EM |
| Shook | Elizabeth Shook | NA | EM |
| Akins (multiple files) | Karon Akins et al | Riverside County Office of Education, Educational Services Division, Instructional Services Unit | EM |
| Williams (multiple files) | Debbie Williams et al | Coordinator II, Mathematics, San Joaquin County Office of Education | EM |
| Lavadenz (multiple files) | Magaly Lavadenz et al | Executive Director, Center for Equity for English Learners | EM |
| Arrillaga | Elisa Smith Arrillaga et al | Education Trust-West and other organizations | EM |
| Huang (multiple files) | Lin Huang | NA | EM |
| Meyers | Lori Meyers | Educators for Quality and Equality | EM |
| Michelena | Joe Michelena | PK-12 Math Coordinator, Modesto City Schools | EM |
| Allen | Toni Allen | Middle School Mathematics Content Specialist, San Francisco Unified School District | EM |
| Moschkovich | Judit Moschkovich | Professor, Education Department, University of California Santa Cruz | EM |
| Roberts | Christine Roberts | President, California Mathematics Council | EM |
| Welch J | John Welch | NA | EM |
| Welch A | Alissa Welch | NA | EM |
| Lovett | Pamela Lovett | NA | EM |
| Arnold | Michelle Arnold | NA | Survey |
| Lofing | Kari Lofing | District Administrator | Survey |
| Alba | Jacqueline Alba | Curriculum Specialist | Survey |
| Chhabra | Lalit Chhabra | NA | Survey |
| Webb | Kim Webb | Curriculum Specialist | Survey |
| Cruz-Ardoin | Amanda Cruz-Ardoin | Teacher | Survey |
| Herrera | Yolanda Herrera | Teacher, Delano Elementary School District | Survey |
| Sedig | Rebecca Sedig | Teacher | Survey |
| Walters | Tessa Walters | NA | Survey |
| Hull | Julie Hull | County Office of Education Administrator | Survey |
| Woods-Palumbo | Robyn Woods-Palumbo | Teacher | Survey |
| Davalos | Erika Davalos | Merquin Elementary | Survey |
| Wasson | Michael Wasson | NA | Survey |
| Coates | Veronica Coates | Special Education Administrator, Tehama County Department of Education | Survey |
| Solberg | Caroline Solberg | NA | Survey |
| Landgraf K | Krista Landgraf | Teacher, California Association for the Gifted | Survey |
| Heasley | Jessica Heasley | Teacher | Survey |
| Clair | NarAn Clair | California Association for Gifted and Talented | Survey |
| Walker | Josh Walker | Teacher | Survey |
| Flores | Eugenia Flores | Faculty Member, University of Southern California | Survey |
| Peeters | Jana Peeters | Teacher | Survey |
| Hanna | Terri Hanna | Teacher, Placentia Yorba Linda Unified | Survey |
| Latorre | Alia Latorre | Teacher | Survey |
| Landgraf A | Allie Landgraf | NA | Survey |
| Chapman | Kyle Chapman | Teacher | Survey |
| Bussey S | Sue Bussey | Teacher | Survey |
| Bussey R | Ronald Bussey | NA | Survey |
| Simka | Paula Simka | NA | Survey |
| Askew | Esther Askew | Teacher, Jurupa Unified School District | Survey |
| McManaman | Karen McManaman | Teacher | Survey |
| Lomas | Randy Lomas | Teacher | Survey |
| March | Cristie March | NA | Survey |
| Patterson | Dayonna Patterson | Teacher, Pasadena Unified School District | Survey |
| Hanson | Richard Hanson | Teacher, Pasadena Unified School District | Survey |
| Reyes | Gauri Reyes | Teacher | Survey |
| Di Paola | Michael Di Paola | Teacher, Amador Valley High School | Survey |
| Helfrich | Alexander Helfrich | NA | Survey |
| Anagnostopoulos | Athena Anagnostopoulos | NA | Survey |
| Newell | John Newell | Teacher, Jackson School | Survey |
| Hadley | Stephanie Hadley | NA | Survey |
| Daniels S | Susan Daniels | Faculty Member, Bridges Graduate School of Cognitive Diversity | Survey |
| Andrews | Steve Andrews | Teacher | Survey |
| Hammervold | Linda Hammervold | Teacher | Survey |
| Flitcroft | Catherine Flitcroft | NA | Survey |
| Filho | Mauro Filho | NA | Survey |
| Veit | Julie Veit | NA | Survey |
| Reed | Angela Reed | Teacher | Survey |
| Paisley | Lisa Paisley | District Administrator, Curriculum Specialist, Site Administrator | Survey |
| Beth | Josh Beth | NA | Survey |
| Nakasuji | Heather Nakasuji | Teacher | Survey |
| Chao | Lynn Chao | NA | Survey |
| Evans L | Laura Evans | Teacher, San Mateo Foster City School District | Survey |
| Richardson | Craig Richardson | Teacher | Survey |
| Hull N | Natalie Hull | NA | Survey |
| Garcia | Debra Garcia | NA | Survey |
| MacArthur | Julie MacArthur | Teacher, Baywood Elementary | Survey |
| Villarin | Antoinette Villarin | Teacher | Survey |
| Stucke | Debra Stucke | Teacher, Hillsdale High School | Survey |
| Simka | Harsono Simka | NA | Survey |
| Chavkin | Nancy Chavkin | Faculty Member | Survey |
| Fu-Tomlinson | Yingxi Fu-Tomlinson | NA | Survey |
| Sanders | Amy Sanders | NA | Survey |
| Keating | Brian Keating | Teacher, San Mateo Foster City School District | Survey |
| D B | D B | Site Administrator | Survey |
| Silverman | Lisa Silverman | NA | Survey |
| He | Ming He | NA | Survey |
| Arreola | Anthony Arreola | Teacher | Survey |
| Gunadi | Daniel Gunadi | NA | Survey |
| Washington | William Washington | Faculty Member | Survey |
| a a | a a | NA | Survey |
| Yurk | Timothy Yurk | Teacher | Survey |
| Wu | Liana Wu | NA | Survey |
| Vierra | Vicki Vierra | Faculty Member, County Office of Education Administrator, Curriculum Specialist | Survey |
| Gelb D | Dan Gelb | NA | Survey |
| Pesquie | Anne Pesquie | Teacher, Balboa High and Hillsdale High | Survey |
| Magee | Jermaine Magee | Teacher | Survey |
| Rodrigues-Jackson | Carrie Rodrigues-Jackson | Special Education Administrator | Survey |
| Tomao | Victoria Tomao | Teacher, Curriculum Specialist | Survey |
| Centeno | Jennifer Centeno | Teacher, Santa Marita Bonita School District | Survey |
| Chang | Julie Chang | NA | Survey |
| Roe | Jesse Roe | Teacher, Partners in School Innovation | Survey |
| Smith A | Ann Smith | NA | Survey |
| Dergun | Marina Dergun | NA | Survey |
| Walton | Lori Walton | Teacher, Colton Joint Unified School District | Survey |
| Gelb S | Suzanne Gelb | NA | Survey |
| Bohanan | Adrienne Bohanan | Teacher, Elsinore Elementary | Survey |
| Velasquez | Nancy Velasquez | NA | Survey |
| Sheffield | Linda Sheffield | Faculty Member, Curriculum Specialist, Teacher | Survey |
| Gold | Roberta Gold | Teacher | Survey |
| Hanson-Smith B | Brenda Hanson-Smith | Faculty Member | Survey |
| Lofing M | Max Lofing | NA | Survey |
| Hanson-Smith V | Victor Hanson-Smith | NA | Survey |
| Lofing J | Jackie Lofing | NA | Survey |
| Wright | Lisa Wright | NA | Survey |
| C J | C J | Faculty Member, Curriculum Specialist | Survey |
| Kulawik | Susan Kulawik | NA | Survey |
| Kanji | Firoza Kanji | Curriculum Specialist, Teacher, Los Angeles Unified School District | Survey |
| Oliver M | Oliver M | NA | Survey |
| Taniguchi | Umeji Taniguchi | NA | Survey |
| Thomas | Vanessa Thomas | Teacher, Northern Summit Academy Shasta | Survey |
| Aoki | Marisa Aoki | Curriculum Specialist, Teacher, Office of the Fresno County Superintendent of Schools | Survey |
| Cai | Juan Cai | NA | Survey |
| Hill J | Jennifer Hill | NA | Survey |
| Yamachika | Bart Yamachika | Teacher | Survey |
| Rambac | Alexis Rambac | NA | Survey |
| Pede | Dana Pede | Teacher | Survey |
| Posamentier | Rebecca Posamentier | NA | Survey |
| Anonymous | Anonymous educator | Teacher | Survey |
| Smith C | Chelsea Smith | Teacher, Golden Hills Elementary | Survey |
| McDonald | Sheri McDonald | Faculty Member, District Administrator, Teacher | Survey |
| Ortega | Courtney Ortega | District Administrator, Curriculum Specialist, Teacher, Oakland Unified School District | Survey |
| Hoffman | Kevin Hoffman | District Administrator, Teacher, Aspire Public Schools | Survey |
| Perez | Rodney Perez | Teacher | Survey |
| Lele | Ajay Lele | Hindu Education Foundation | Survey |
| Musale | Mugdha Musale | Hindu Education Foundation | Survey |
| Yurek Z | Zeynep Yurek | NA | Survey |
| Mangold | Erik Mangold | Teacher | Survey |
| Weiler | Michelle Weiler | Faculty Member, Curriculum Specialist | Survey |
| Tomlinson | Rich Tomlinson | NA | Survey |
| Sher | Stephen Sher | Curriculum Specialist, Teacher | Survey |
| Chavez | Patricia Chavez | Parent Institute for Quality Education | Survey |
| Perez | Kristina Perez | Curriculum Specialist, Teacher | Survey |
| Bates | Abigail Bates | Teacher | Survey |
| Yurek T | Tolga Yurek | NA | Survey |
| Morris | Kathy Morris | Teacher | Survey |
| Gupta | Neha Gupta | NA | Survey |
| Albert | Larry Albert | Faculty Member | Survey |
| Zaks | Michael Zaks | NA | Survey |

## Draft Math Framework Table of Contents

Chapter 1: Introduction

Chapter 2: Teaching for Equity and Engagement

Chapter 3: Number Sense

Chapter 4: Exploring, Discovering, and Reasoning With and About Mathematics

Chapter 5: Data Science

Chapter 6: Mathematics: Investigating and Connection, Transitional Kindergarten Through Grade 5

Chapter 7: Mathematics: Investigating and Connection, Grades 6 Through Grade 8

Chapter 8: Mathematics: Investigating and Connection, Grades 9 Through Grade 12

Chapter 9: Supporting Equitable and Engaging Math Instruction

Chapter 10: Technology and Distance Learning in the Teaching of Mathematics

Chapter 11: Assessment in the 21st Century

Chapter 12: Instructional Materials to Support California Common Core State Standards for Mathematics

Chapter 13: Glossary

## Table 3: Chapter 1: Introduction

| # | Source | Page | Line Number and Comment on Chapter 1 | Recommended Action |
| --- | --- | --- | --- | --- |
| 1 | Polotskaia | 3 | [This comment has been excerpted for length; see the Box link above for the full text of the comment.]  **Idea 1 nature of mathematics:** The document positions mathematics as a toolbox and the learner as a user of the toolbox. E.g. **Introduction line 49** : « to become **powerful users of mathematics** in order to better understand and positively… ». **Line 54, 55** : « Mathematics provides **a set of lenses** that provide important ways to understand many situations and ideas. **The ability to use** these mathematical lenses …». This represents an “commercial” way of thinking about mathematics and its teaching and learning. It was stressed by many (Mukhopadhyay, & Greer, 2001) that mathematics is a way(s) of thinking, and learning mathematics is the thinking development, even though they name it “critical tool” 😊. Yes it is a tool for many adults in their professional settings. However for growing children, learning mathematics is a way to grow their thinking and reasoning.  Mukhopadhyay, S. & Greer, B., 2001. Modeling with purpose: Mathematics as a critical tool. In B. Atweh, H. Forgasz, & B. Nebres, eds. *Sociocultural Research on Mathematics Education: An International Perspective*. Mahwah, New Jersey: Lawrence Erlbaum Associates, pp. 295–311. | Non-Actionable |
| 2 | Dai | 22 | [The comments from this submitter below contained multiple hyperlinks. Please see the Box link above for the full comments with links.]  Page 22, Line 622-624:  Wiggins maintained a different definition of a “big idea” that is worth pondering and disputed “4 big ideas of algebra” proposed by a math teacher.  The definition offered here is already better than “big concept” as it emphasizes a meaning making inside mathematics---“link numerous understandings into a coherent whole”. However, an idea identified as “big” following this definition may not be that “big” lacking the power to provide a transfer according to Wiggins. | Not Recommended |
| 3 | Dai | 27 | Page 27, Line 756-758:  I think many people do not distinguish “rigor in mathematics” and “rigor in mathematics education”. It seems the definition here belongs in the latter category, while the recent publication, “What Is Rigor in Mathematics Really?”, by the Data Center Mathematics Pathways belongs in the former. Of course, a rigorous way of mathematics education is to foster students’ ability to achieve and maintain mathematical rigor when doing mathematics. | Writers’ Discretion |
| 4 | Dai | 30 | Page 30, Line 837-839:  These four categories look similar to the four content themes of the PISA 2021 Mathematics Framework, with Quantities absorbed, Uncertainty and Relationships omitted. Why the omission if you are aware of PISA’s work? | Not Recommended |
| 5 | Dai | 33 | Page 33, Line 902-903:  As already stated, this is more a strategy than content. It may apply in various contexts as exampled hereafter, but does not connect content. | Non-Actionable |
| 6 | Murphy-Shaw | NA | Thank you for accepting my comment,  I wish to express my overall support for the Draft CA Mathematics Framework, its intent and attention to learning equity, promoting positive student feelings about math, along with research-based approaches to greater student success in math.  Over the last year I have had the chance to hear workshops and presentations, as well as see some previews of the work underway on the Draft CA Mathematics Framework. I now look forward to looking more deeply at chapters and submitting my specific comments online during the public comment period. | Non-Actionable |
| 7 | Lepsch | NA | “All students are capable of making these contributions and achieving these abilities at the highest levels.”  This is logically illogical. Show me the zip code and I’ll tell u about the students. I did not read the whole chapter because it is based on a false premise...every one can do it ...NOT TRUE...I could not make it in Medical school ...why I’m not smart enough. Some kids want to achieve...some don’t. For some kids to be in algebra 1, or geometry, or algebra 2, or trig, or calculus, or diffy Q ...it is not going to happen. Some parents don’t care, some can’t...Get real...we need more targeted education for those who can’t or don’t want to or have nothing at home but TV. I’m always willing to try new ideas but don’t forget the work ethic. | Non-Actionable |
| 8 | Stewart | Page 3, Line 62 | [This comment has been excerpted for length; see the Box link above for the full text of the comment.]  An excerpt from the Introduction to the new math framework:  <bh>To develop learning that can lead to mathematical power for all California students, the framework has much to correct; the subject and community of mathematics has a history of exclusion and filtering, rather than inclusion and welcoming. There persists a mentality that some people are “bad in math” (or otherwise do not belong), and this mentality pervades many sources and at many levels. Girls and Black and Brown children, notably, represent groups that more often receive messages that they are not capable of high-level mathematics, compared to their White and male counterparts (Shah & Leonardo, 2017). As early as preschool and kindergarten, research and policy documents use deficit-oriented labels to describe Black and Latinx and low-income children’s mathematical learning and position them as already behind their white and middle-class peers (NCSM & TODOS, 2016).<eh>   * We can’t say anyone is “bad” at math, but can we say some are better, or better equipped, or more talented? * I missed the meeting where we were going to tell Girls, Black, and Brown children they are not capable of high level mathematics.  Was it when we said, “Be quiet and listen”???? | Non-Actionable |
| 9 | Leckenby | NA | I wanted to comment about the 2021 Revised Mathematical Framework. The social justice and data science approach will help our California students make sense of the world they live in and develop strong reasoning skills.  I am happy to see the recommendation AGAINST compacting middle school Math classes.  We know that tracking students leads to great inequities, and middle school is far too early for students to choose a path.  I am so grateful for the work of the authors in writing a math framework that will help teachers make Math learning meaningful and joyful for ALL of our learners. | Non-Actionable |
| 10 | Ponseti | NA | [This comment has been excerpted for length; see the Box link above for the full text of the comment.]  After reviewing the proposed mathematics framework for California I am excited about many of the suggestions. However, I *strongly* feel we need to allow for differentiating within middle school math classes, allowing for acceleration as appropriate. I am a mom of two middle school students, a teacher of 6th grade math, and am married to an 8th grade math teacher (who teaches 8th grade Common Core AND IM1 at the 8th grade level). We need to be able to provide rigorous coursework for middle school students.  Our district removed honors math from 6th grade a couple years ago, and accelerated math is now offered starting in 7th grade. In my opinion, this is.a disservice to all of our students. About half of my students come to me below grade level, and approximately 25% of them are more than 2 grade levels below. Therefore a large portion of my time is spent teaching foundational skills to support the 6th grade curriculum. Even with differentiation, there is not enough time to have deeper level discussions and explore the depth of concepts for the 20% of our students that come to us well above grade level. At the same time, there is not enough time to meet the needs of those struggling students. | Not Recommended |
| 11 | Kim | NA | [This comment has been excerpted for length; see the Box link above for the full text of the comment.]  I am writing to express concern over the adoption of the proposed mathematics framework, particularly as it relates to the elimination of Algebra in 8th grade. We have a daughter in SFUSD (San Francisco Unified School District) and is now a senior. She was affected by the implementation of the SFUSD policy to eliminate Algebra in 8th grade. Our daughter is STEAM oriented and as a result of this policy, we reluctantly enrolled her in a private UC A-G accredited Algebra class. She is now enrolled in Calculus BC and wishes to pursue a degree in engineering.  As a parent, I have seen inequity grow in our district as a result of this policy. Many families who had previously been committed to public schools withdrew their children from SFUSD and enrolled in private schools solely due to the elimination of Algebra in 8th grade. Many families who stayed in SFUSD and had the financial means enrolled in private Algebra classes during 8th grade. Adoption of this proposed mathematics framework will ultimately lead to furthering a two-tier system where wealthier families seek private education and low income families will be stuck with fewer and fewer resources. | Not Recommended |
| 12 | Nah | NA | Please require every middle school in California to offer 8th grade algebra. | Non-Actionable |
| 13 | Wysong | NA | The job of educators and schools is to challenge students, and to allow them to rise to the level their talents, hard work, and opportunities allow.  By removing Algebra from grade 8, you are removing an opportunity for students to excel, and possibly preventing them from getting the high school and college education they are striving for.  The ongoing "dumbing down" of the curriculum is an insult to teachers and students.  Please reconsider this unfortunate policy. | Not Recommended |
| 14 | Ghose | NA | I'm a parent of an elementary school student and am writing to urge you to keep Algebra 1 as an option in 8th grade! Pushing it back to 9th grade will mean that California students are behind all peers in the rest of the country.  Why are you trying to lower the standards, rather than increasing the educational attainment of the lowest performers?  Math is so core to everything we do; the failure to understand math (exponential growth, testing rates, etc.) is one of the big reasons we're in this huge mess with the coronavirus. Why do you want to make the biggest state in the country full of children who will be less math literate?  Or do you only want private school children to get a rigorous math education? | Not Recommended |
| 15 | McIntosh | NA | Have not had chance to read it all, but one very important issue/question. Many (most?) of our students enter high school multiple years behind grade level, especially in math. However many want to work hard. Some want to work VERY hard. Some want the chance to study business, Engineering or other STEM fields in college in spite of the fact that they have already fallen behind the pace to achieve that goal. So, some are willing to put in the extra work to get back on track and take AP Calculus. Should those students be denied the opportunity to take AP Calculus if many of their classmates do not want to meet that challenge? How can they be allowed to take AP Calculus if all students must take the same classes? If it is wrong to track these students into a Calculus track, shouldn't it also be wrong to let other students "track" themselves into higher performing high schools? If all classes must be at the same level, should all high schools also be at the same level? What level? | Non-Actionable |
| 16 | Hill | NA | The idea that fluency is based on flexibility instead of speed/accuracy is ludicrous! All that does is make higher levels of mathematics laborious as students struggle through each step - like continuing to sound out sight words throughout a lifetime of reading! Why must something so awesome, like growth mindset, be destroyed by completely changing EVERYTHING? USA will be left in the dust globally! | Non-Actionable |
| 17 | Tegen | NA | While it is important to explain brain theory and types of mathematic investigation. We must also explain/include the developmental stages of brain development as related to mathematics (ie. concrete to abstract development by age). | Not Recommended |
| 18 | Regus | NA | The Drivers of Investigation and Content Connections are excellent ways of looking at math through big ideas. This chapter sets the stage for the continued progress that we need to make in math education. Great ideas throughout this chapter that need to be examined deeply by educators. Excellent chapter that is needed Suggestion: I know this is not normal practice but in order to make the document more helpful to users can the reference also be organized by topics such as mindset, acceleration and pathways, etc. So that if a district or county is working on one of these initiatives they can find research on the topic easily. The meaning of "Mastering" starting on line 340 is excellent. Line 166 consider including the phrase "yet erroneous" in the sentence "This passive, yet erroneous, belief..." in order to make the statement seem more assets based. Based on generalized stereotypes and data should Asian be included with White and male in the list on line 53? | Recommend comment related to line 166 (actually line 196) |
| 19 | Brousseau | NA | This is the way math should be taught. | Non-Actionable |
| 20 | Wang | NA | Outrageous insanity. This is a racist manifesto. | No Motion Recommended |
| 21 | Daro | NA | explicit continuity with previous Framework should be articulated for implementors sake. How does this extend what the previous one did? what’s new? where is there a change of direction? | Writers’ Discretion |
| 22 | Daro | NA | the role pf progressions in identifying highest priority content should be emphasized. we cannot prioritize in grade level slices."The key to prioritizing learning is to move beyond grade-level check lists and instead think of progressions of important learning that cut across grade levels. Kindergarten “ from Unfinished Learning”, Council of Great City Schools, 2020. | Writers’ Discretion |
| 23 | Daro | NA | reformulate the discussion of ‘power standards’, focus, coherence and progressions to emphasize the positive importance of how every important mathematical topic is embedded in a progression and should be taught as part of a progression. These means including teaching connections to earlier grade concepts of the progression, and this year’s concept as an extension of earlier grade level ideas. Not as an isolated grade level slice. What is important about a topic in mathematics very much includes how it grows out of easier work and how it extends to later work. This implies that picking power standards for each grade is misguided and superficial. Achieve efficiency by focusing on the most critical progressions, and within a topic, the concepts that cohere to other concepts in the progression from earlier and later grades. | Writers’ Discretion |
| 24 | Daro | NA | algorithms feel kind of isolated from conceptual understanding. One reason to be patient before introducing the algorithms is to wait for adequate conceptual foundations. Also, the way algorithms take advantage of fluency with single digit number fact families deserves some attention. You only ever need the single digit facts to calculate any number thanks to place value. Maybe a reference to earlier Framework on this point? | Writers’ Discretion |
| 25 | Min | 8-9 | [This comment has been excerpted for length; see the Box link above for the full text of the comment.]  I want you to know that I fully support your draft Ch 1 Lines 206-226 below.  A fundamental aim of this framework is to respond to issues of inequity in mathematics learning; equity influences all aspects of this document. Some overarching principles that guide work towards equity in mathematics include the following:   * Access to an engaging and humanizing education—a socio-cultural, human endeavor—is a universal right, central among civil rights. * All students deserve powerful mathematics; we reject ideas of natural gifts and talents (Cimpian et al, 2015; Boaler, 2019) and the “cult of the genius” (Ellenberg, 2015). * The belief that “I treat everyone the same” is insufficient: Active efforts in mathematics teaching are required in order to counter the cultural forces that have led to and continue to perpetuate current inequities (Langer-Osuna, 2011). * Student engagement must be a design goal of mathematics curriculum design, co-equal with content goals. * Mathematics pathways must open mathematics to all students, eliminating option-limiting tracking. | Non-Actionable |
| 26 | Foster | 38 | The current citation is in Chapter 1 p38 lines 1062 & 1063 is incorrect and not accurate. It currently reads: <bbl>MAC & CAASPP (2015) Technical Report, Years 2014 and 2015, Educational Data Systems, 15850 Concord Circle, Morgan Hill;<ebl>  We request that the corrected citation reads: <br>Silicon Valley Mathematics Initiative’s Mathematics Assessment Collaborative, MAC & CAASPP Technical Report, Years 2014 – 2015; Educational Data Systems; www.svmimac.org.<er> | Recommended |
| 27 | Colunga | NA | Love the components of Mathematical Science, Drivers of Investigation (making Content Connections and relevance for students and teachers, Conceptual Understanding, Cultural Diversity and Rigor. This is really giving us a lot of tools as well as incorporating the conceptual understanding of teaching and learning. | Non-Actionable |
| 28 | Burnison Attachment 1 | 3 | Line 6  There is so much that is important in this chapter I want teachers to read it, but if it is called the Introduction, I fear they may skip it like they did with the old frameworks - they only read the grade level chapters. Could it be called something that describes the chapter content illustrating shifts in math instruction and the rationale behind them? | Writers’ Discretion |
| 29 | Burnison Attachment 1 | 19 | Line 525  Love the title of this section - it emphasizes the idea that math is meant to make sense | Non-Actionable |
| 30 | Burnison Attachment 1 | 19 | Line 529  Is there a way to pull this sentence about curiosity out in a call box to make it stand out more? | Not Recommended |
| 31 | Burnison Attachment 1 | 23-24 | Line 661-665  This is such useful material for teachers - it says ‘what to do’ - especially the first sentence, but the idea feels buried. Is there a way to draw attention to it? | Writers’ Discretion |
| 32 | Burnison Attachment 1 | 26 | Line 722-725  This is a really important shift for teachers - I wonder if an analogy of some sort like the standards are a list of ingredients not recipes to follow. Recipes include ingredients that go together …. | Writers’ Discretion |
| 33 | Burnison Attachment 1 | 26 | Line 737-751  This is great!Again, it tells teachers what to do/look for, but it seems buried. Is there a way to emphasize - call out box, visual? | Not Recommended |
| 34 | Burnison Attachment 1 | 27 | Line 753-754  This quote is too esoteric and i don’t think it helps teachers distinguish rigor what real rigor is - they may still think rigor is just more difficult | Not Recommended |
| 35 | Burnison Attachment 1 | 28 | Line 793-806  This is great - telling teachers what to look for - helping to define a shift - but is buried | Not Recommended |
| 36 | Burnison Attachment 1 | 25 | Line 707  This quote is excellent and gets to the heart of focus | Non-Actionable |
| 37 | Burnison Attachment 1 | 27 | Line 763  This is a perfect way to think about and define rigor, and is completely opposite of the more common understanding of ‘all the way to the top’ - a visual would really help make this idea clear | Not Recommended |
| 38 | Burnison Attachment 1 | 27 | Line 772-773  this idea is buried - consider bolding or pulling it out in a sidebar box | Writers’ Discretion |
| 39 | Honig | 23 | This framework needs language that mentions the previous framework positively and connects to and builds on it. We don’t want to lose the beneficial content in the previous framework and the huge investment in professional development of so many California’s teachers based on it. Chapter 1, 653-658 is confusing. It says the previous framework developed concepts and strategies for important standards but then seems to say that a different approach is now warranted without being specific. This could be interpreted as a negative take on the previous framework and the specific concept development presented for important standards. That content is still crucial for effective instruction. I think some of the problem is that the writers and developers were so worried about relentless drill and kill for remediation based on a rigid interpretation of the sequence of a learning progression.. While some students learn portions of progressions in different sequences and that can be taken into account, it doesn’t justify sacrificing the benefit of attention to specific standards and the learning progressions underlying them and the importance of that to deeper understanding. | Writers’ Discretion |
| 40 | Honig | 22, 26 | [This comment has been excerpted for length; see the Box link above for the full text of the comment.]  Learning progressions appear in earlier grades but aren’t that specific in later grades. The statement early in the framework that curriculum and instruction shouldn’t emphasize or build instruction around the most important standards is highly problematical and will hamstring effective curriculum. (Chapter 1, Line 608-620 and 729 et seq) Many of our best districts stripped down standard instruction and focused on the most important standards based on learning progressions during the need for virtual instruction. The draft framework only emphasizes progressions that span grades but many are handled within a grade. (For example, percentage takes about 5-6 weeks to teach effectively and the strategies should be specific to that grade level goal but proportional thinking on which percentage is based is a big idea spanning grade levels.) Thus, some progressions are grade specific and should be included. A major problem is that the draft is not specific about what these big ideas are or states them in such generality that they aren’t as useful to teachers and material developers. The previous framework did designate some standards as power standards and subsequent research and practice have more fully developed this strategy. | Writers’ Discretion |
| 41 | Honig | 25-27 | Along the same lines, Chapter 1, lines 706-751 on rigor has some good advice for teaching in depth using investigations incorporating multiple standards. But it suggests that that is the only way to get depth of understanding. Some standards or the concepts underlying them can be taught directly and investigations or discussion can center on that power standard such as percentage. It is not either or. | Writers’ Discretion |
| 42 | Honig | 33 | The unit fraction basic strategy is mentioned briefly (Chap 1, 905) but not elaborated. Some discussion of adding and subtracting fractions but not about the concepts behind multiplying fractions and why invert and multiply works for division. That latter algorithm actually is elegant and a useful thinking and conceptual exercise (a fraction is a division problem so making the divisor or denominator 1 by using the reciprocal and then multiplying both denominator and numerator to keep the same balance or ratio leads to the denominator being 1 and numerator multiplied by the reciprocal of the denominator as the quotient.) Not much discussion of the various meaning of fractions. (part/whole, ratio, etc.) | Not Recommended |
| 43 | Fuson | 30 | [This comment has been excerpted for length; see the Box link above for the full text of the comment.]  Characteristic 1: The CMF identifies teaching many different unrelated standards with little understanding of relationships among concepts and structures as a danger for implementing the CA CCSSM. The solution proposed by the CMF to avoid this danger is the very complex new overlying structures shown in Figure 1 on page 30 of Chapter 1. Teachers are supposed to relate 8 Standards for Mathematical Practice, 3 Drivers of Investigation, and 4 Content Connections, all while orchestrating investigations. These are all in addition to the many CA CCSSM which are not changing. This is overwhelming at TK to G5. At these grade levels the CA CCSSM follow the research on learning paths of children’s thinking about specific concepts and of relationships among mathematical concepts. Supporting children through learning paths of increasingly accessible and mathematically desirable methods is vital for equity. These learning paths involve big ideas and relationships. There is a lot of research about what these paths are and how to help children through them (for example, in the CCSSM progressions). | Writers’ Discretion |
| 44 | Parker | NA | [This comment was submitted in response to the comment above and has been excerpted. See the Box link above for the full comment in context.]  Mastery is not an idea that makes sense to me at the K-5 level, or at any level of mathematics for that matter. Walter Denham once said, “When we talk about mastery in mathematics we’re talking about more trivial ideas. The big ideas are never fully mastered…they deepen in complexity over time.” I agree with this. In a recent interview on the Math Teacher Lounge blog, Megan Franke says, “This idea of mastery gets us into some trouble because it keeps young people from exploring their mathematical ideas.” | Writers’ Discretion |
| 45 | Statham | NA | The focus on equity is very important and I'm excited to see equity addressed throughout this entire framework. | Non-Actionable |
| 46 | Vaudrey | 14 | Line 367 uses the phrase "mentally re\*\*\*\*ed," which is considered an ableist slur by many disabled people. Consider adding asterisks instead of spelling it fully. Our team described the need for an clear communication plan once the Framework is published. Every adult in the state--from Sacramento all the way to classroom teachers--needs to understand \*why\* de-tracking middle school is important. Every district must agree, otherwise families with means will transfer their kids across town so they can get IM1 as an 8th grader. Also the University system needs to be aware that this is a \*solution\* to the current problem: Only 19% of college freshmen who took Calculus 1 as seniors can go on to Calculus 2. That's the most powerful datum in this document to breakdown the value of a sprint to Calculus in High School. Teachers may also need a mindset shift (particularly the 1/3 of elementary teachers with some math anxiety, Zager 2017), but that may be beyond the scope of this framework. | First item: See CDE-recommended edit #1954. |
| 47 | Cates-Darnell | NA | I really appreciate the direction of the framework. The connections to Big Ideas across the grade levels ( Number Sense, SMPS, Data Science) is great. The "quilt" representation (pg. 22) of how the Content connections, SMPs, and Drivers of Investigation (the what, why, and how) really helps to understand how these are all connected and how you should see each represented in student investigations and exercises. | Non-Actionable |
| 48 | Miller | NA | I thought that this was a helpful overview and gave a good understanding of what the framework revisions strive to accomplish. | Non-Actionable |
| 49 | Newell, Chiles | 9-10, 15-17 | The language included in Chapter 1 (lines 234-236, 247-50, and 414-488) reinforce harmful myths about gifted students, and gifted mathematicians in particular (Sheffield, 2017). | Writers Discretion |
| 50 | Solberg | 15 | In chapter 1, I feel that that the lines 414-418 on pages 15-17 should be removed. It shows a lack of understanding of this group of students. And when you don't serve this subgroup, those that are most hurt are those in the most fragile subgroups -- Special Ed (autism), English language learners, and socio-economically disadvantaged because SPED, ELL, and socio-economically disadvantaged kids can also be students with advanced math skills. Unfortunately their parents don't always have the time or resources to make their voices heard.  I strongly urge you to take these lines from the MathFramework. | Writers’ Discretion |
| 51 | Wang | NA | [This comment has been excerpted for length; see the Box link above for the full text of the comment.]  The Critical Race Theory that permeates the proposed CDE Math Framework is a racist disaster and an outrage.  Consider this disgraceful statement in Chapter 1:  Mathematics education in the United States was initially structured for a narrow purpose: to prepare privileged, young, white men for entrance into elite colleges.  This statement should disqualify the seriousness of the entire proposal as being a racist, woke, leftist, hack. Math is truly color, race, gender, and species blind. Couching it in terms of white supremacy versus victimhood is outrageous and goes against thousands of years of the development of human civilization.  For an example of what works really well, especially for underserved minorities, look no further than Success Academy in New York City. Underprivileged brown kids from Success Academy attain the highest scores, eclipsing even “white-privileged” districts where the median income is 5x higher. But why are the progressives trying to destroy Success Academy? Because it is a charter school. The formula for success in lifting brown kids out of the cycle of disadvantage and oppression is staring at you in the face, but the establishment, funded by Teachers’ Union campaign donations, seeks to destroy such shining beacons of success. Success Academy proves that math does not belong to white supremacists, never has. | Non-Actionable |
| 52 | Becker | NA | My major comment on Ch 1 regards lines 82-115. This section gives the reader the impression that the epitome of high school math is calculus, and that it should be sought for and by all students. I know this is not the impression you want to give because of later sections and hearing the authors speak about different pathways. But I have read this section multiple times now and it still gives me the impression that you want all students to take calculus in 12th grade, and that only tracking and other impediments are keeping them from achieving that. I think this needs a major rewrite, especially since many parents and administrators may not read beyond the introduction and in particular may not read Chapter 8 where the issue of calculus is made clear. | Commenter’s page and line references refer to a previous draft.  Writers’ Discretion |
| 53 | Becker | NA | That said the introduction is too long (as is the document as a whole.) Unless you plan an executive summary of the Framework I don’t think you will find most teachers reading the whole thing and many may not even read the whole introduction. I think the main points in this chapter can be made much more succinctly, perhaps in 10 pages. Consider critical information enhanced by a deep dive through additional readings such as those in the reference list for those who want more information. | Writers’ Discretion |
| 54 | Becker | 30 | I think Figure 1 is unnecessarily complex by having three dimensions. I agree that the eight Mathematical Practices should be emphasized and reinforced in this document. I don’t see that crossing these with the Drivers of Investigation and the Content Connections adds anything to the reader’s understanding of these elements or of the MPs. The way the figure is drawn, one might infer that, for example, MP 1 does not help one make sense of the world while exploring problems that utilize data. Or that MPs 7 and 8 have little or no use in discovering shape and space. I don’t think that is what the authors intend. Let’s reiterate the MPs and perhaps use a matrix for crossing the CCs with the DIs. Examples could then be put in each rectangle but not in this introductory chapter. | Writers’ Discretion |
| 55 | Becker | NA | Concerning the terms, it would be preferable if all of these could be parallel in form of speech, i.e., all nouns, all adjectives, or all verbs, not a mixture of the three. Similarly, on pg. 16 the bullet points could all begin with a noun, perhaps with a modifier. Reading it as is was awkward and I had to re-read to fully understand the points. And again on pg. 18, the bullets are worded poorly, both the major ones and the minor ones. | Not Recommended |
| 56 | Becker | NA | Minor corrections:  Line 144 students’ should not have apostrophe | Does not appear in current draft. |
| 57 | Becker | NA | Line 243 videos to u this… | Does not appear in current draft. |
| 58 | Becker | NA | Line 247 space needed between University and have | Does not appear in current draft. |
| 59 | Ward | 3 | Page 3, lines 47-48: Can anything be said about how *exposure* to a concept does not equal *mastery* in addition to the key words of *focus, coherence* , and *rigor* ? | Not Recommended |
| 60 | Ward | 3 | Page 3, lines 60-61: “All students are capable… at the highest levels.” **YES!** As long as the students are also willing to put forth effort. There needs to be a return of expectations on parents and students to do their parts for the success of the student. Otherwise, the teachers have become the target and are expected to work miracles and do feats of mystery and magic that are humanly impossible. | Non-Actionable |
| 61 | Ward | 3 | Page 3, line 61: “As a guide to implementing the Standards…” in other words, this is just more work for teachers to try and juggle, without any change in the massive hodge podge of standards students are supposed to know? | Non-Actionable |
| 62 | Ward | 3-4 | Page 3-4, lines 66-68. “Bad at math” mentality. Totally bothersome and false. Absolutely true! Thank you. | Non-Actionable |
| 63 | Ward | 4 | Page 4, lines 78-81: I don’t know how students can self-select out of math when the current push is for all students to march in lockstep through the math curriculum until their third year of high school. This seems to be a ridiculous statement (that students self-select out, when no options are available to do so). Can there be a push to have students not move on when they reach the end of a grade level? Could not we value the mental development of each individual over their age? It shouldn’t be surprising that students will hate math and think they can’t do it if, developmentally, they have been placed inappropriately (based on age, not brain preparation). | Non-Actionable |
| 64 | Ward | 4 | Page 4, lines 96-97: So doing away with placement at each student’s zone of proximal development, and lumping them with peers, assuming an assembly-line production where all students are academically ready for the same heaping of standards each grade level means what to those students who are mentally developed and thus prepared for higher maths than their peers? Claims of differentiate instruction! can be thrown about, but do we expect humans to seriously be able to push a group (who, when pushed, need additional support) while also working with the on-grade level students (who, at their limit, need support) simultaneously, somehow, also working with the students who have been pushed along and are thus way beyond the scope of math they can presently comprehend with the lack of solid mathematical foundation (who, then, no doubt, need support and scaffolding to try and put bandaids on gaps of missing prior knowledge)? The world is asking for magicians and divine beings when all that can apply for the positions are humans (in addition, humans who may not have a solid grasp of the mathematics concepts as they didn’t have to go so far to develop their own math understanding to become elementary educators). | Non-Actionable |
| 65 | Ward | 5 | Page 5, line 98: Do we need examples? Is this a veiled attempt of society pulling a trojan horse sneak attack at trying to infiltrate the pure beauty of mathematics and ram a novel of context and confusing walls of text to convolute the clean and unadulterated true mathematics? People have short attention spans, even more so our current society who think that it’s a shame if one can’t read but roll their eyes and agree when one can’t do math. How can it be expected that they will sift through *forty pages* of content, ***for an introduction*** ? | Non-Actionable |
| 66 | Ward | 5 | Page 5, line 113-115: Yes, let’s have data science courses! That is an exciting, relevant option for students (I hope)! Please, though, can we consider what to do about the students who are floundering once they reach high school and do not have the background knowledge for success because our current education system has social promotion until students hit Integrated Math 1/Algebra 1 in high school? Can we consider the impact on such students who get passed along and then when it comes time that they must actually produce forms of comprehension and some level of math attainment when they never have before, that they won’t survive? How will that impact them? What will that do to the math classes when all students are mixed into one? | Not Recommended |
| 67 | Ward | 5 | Page 5, line 116+: I’m noticing my eyes glaze over. So many words. What is the message? It’s lost. Being concise should be more praised than being wordy. | Non-Actionable |
| 68 | Ward | 12 | Page 12, line 321: While it shouldn’t be limited as it was, that is the past. But here’s the thing. There was a focus on results. That part, I think, should become a prized consideration again. Let’s have students actually learn and not just try to stuff kids into classes disregarding their academic level. Some students may take longer to comprehend content; that should be okay. We should not keep pushing conflicting messages of 1) students are individuals and must be seen as such; while also 2) we’re standardizing the educational assembly line production even more and ignoring some students of a certain grade level are ready for further topics than peers; likewise some students are not yet ready for that grade level standards. Which is it? | Non-Actionable |
| 69 | Ward | 13 | Page 13, line 357: Agreed. But here’s an issue: special education adults need to realize that giving the answers is harming the student. It’s ridiculous to consider mainstreaming students only to pull them out for assessments where the aide or SpEd teacher will tell the student step-by-step instructions of what to do. Miraculously, the student scored “perfect” on the assessment. That helps nobody but I perceive it as a major issue of academic prostitution of ethics and the truth. | Non-Actionable |
| 70 | Ward | 13 | Page 13, line 365-367: Couldn’t it be something to do with genetics and biologically how boys and girls are different? I thought that’s what I learned that girls succeed in the school environment; how it’s been designed and structured helps them to thrive while boys struggle. | Non-Actionable |
| 71 | Ward | 15 | Page 15, line 414-416: High Achieving Students - how about we just banish these students? That’s what schools seem to be doing. Ignore that as there is **only** focus on the lowest academic students. No, more rigor and work to the high achieving students isn’t going to help them unless there is a seriously intrinsic desire; but let’s be honest and face facts: that’s very minimal and rare. So they get more work to do and become spiteful. We’re harming our country at the current rate and process of school. | Non-Actionable |
| 72 | Ward | 15 | [This comment includes an illustration. See the Box link above for the full comment, including the illustration.]  Page 15, line 417+: Again, too many words. Eyes glazed over a second time. This is the droning on of adults in Peanuts. | Non-Actionable |
| 73 | Ward | 16-17 | Page 16,17, lines 457-464: New York and California’s Bay Area aren’t exactly representative of everywhere. Don’t you think if you got out of the city with the wealthy families and the on-the-side tutors and got so that there were majority students *not* ready for the content with a small handful of students ready for more than the grade level content… you would get different results? I foresee sacrificing the most “best and brightest” to make sure everybody gets the same watered down content. | Non-Actionable |
| 74 | Ward | 18-20 | Page 18-20: This is more like a draft of a book than a framework to help anybody. The book is targeting the elite, as well. *“Nothing for those worthless peasants; pish! I shall bestow upon the best of them this work of art and return to my bubble where I issue edicts to apply to them, not me!”* the book writer tittered to themselves (there, non-binary inclusvie). | Non-Actionable |
| 75 | Ward | 22 | Page 22, line 621: Here we get to another piece of actual valuable information. Introducing us to a glossary to work at comprehending the new jargon. | Non-Actionable |
| 76 | Ward | 23 | Page 23: lines 640-643: Are we supposed to care? That’s just four more lines used up. I can’t help but notice there's a 1000 character limit in the general feedback section. So this has to be emailed in. But, why expect minimal feedback when there’s so much word vomit in this massive multi-chapter epic? | Non-Actionable |
| 77 | Ward | 23 | Page 23, line 658-660: Yes, the need is different. I think the mark is missed. We need to realize standards cannot be mastered in two days. That’s assuming students come with all previous standards mastered so that seven weeks don’t have to be spent on trying to backfill the lack of knowledge. | Non-Actionable |
| 78 | Ward | 23 | Page 23, line 661: That can work for the nerdy who love this. But then the other 97% of students who are there just because it’s a requirement; you can’t honestly expect that they will be driven to seek out content and try to understand, do you? I don’t even do that on topics I have some level of interest in, yet I’m an adult. If anything, I should be a model sample who would be driven to learn and grow and develop myself in topics just for the pure love of learning and growth. When I get a break, though, what do I do? Video games, surf the Internet, watch YouTube or other mindless entertainment that is the norm in our society. | Non-Actionable |
| 79 | Ward | 24 | Page 24+: More fantasy. Unrealistic content. *A+* at getting my eyes to, yet again, glaze over. | Non-Actionable |
| 80 | Ward | 29 | Page 29, line 807-817: And how can that be done using technology to speed the process up and give the human a chance to have a life and not spend it slaving away at grading and trying to decipher the student work? Multiple choice questions are so common because they’re easy. Not because they’re an ideal assessment method. | Non-Actionable |
| 81 | Ward | 30 | Page 30, line 832: Weird graphic. If it’s true to what it shows (as three different variables in play), it seems that we should toss stories and making sense of them, as that’s the top left corner and has no effect on understanding, predicting, or affecting… I think that’s what it is saying. What’s with the puke-looking colors, by the way? | Non-Actionable |
| 82 | Ward | 33 | Page 33, line 925: Two separate chapters from the 2013 framework sounds divine to me right now. Less content to wade through and try to make sense of. Seriously. The wordiness. (Do you like what I’m doing with the feedback? Apparently this is all the rage for 2021, to be so verbose; doing as I see!) | Non-Actionable |
| 83 | Hull | NA | [This comment has been excerpted for length and includes hyperlinks; see the Box link above for the full text of the comment and the links.]  As an educator and a parent of children who are gifted, I have some concerns regarding the language used in Chapter 1 as it pertains to ability, interest and readiness of students who are working above grade level in math.  As I reviewed the section of the Math Framework on High Achieving Students, it seems to negate the idea that advanced learners need specialized instruction, just as student with disabilities and English learners may need specialized instruction.  The section seems to negate the idea that some students who are gifted and talented may have a greater potential to learn and may learn faster with less repetition.  **Myths around gifted education are perpetuated in this document and are not based on research by experts in the field of gifted education (National Association for Gifted Children):**   * Gifted education does not advocate tracking, it does advocate for the use of flexible groupings (note last bullet as it pertains to math at link) as a strategy. * Gifted Education does not advocate fixed notions regarding ability but recognizes that all students can learn using high yield strategies. It also acknowledges that students may learn at different rates or be working above grade level. | Writers’ Discretion |
| 84 | Malione | 5-6 | Chapter 1, Lines 122 to 129:  Note: The evidence evaluates “learning calculus” by the criteria of achieving a passing grade in the class, and it makes no distinction with regard to the more stringent requirements of STEM-readiness. It is disingenuous to say that “denial of opportunities” exists, without specific consideration of whether or not such requirements are being met. Likewise, it cannot be established what makes the existing hurdles “arbitrary or irrelevant” without considering the actual level of competency necessary for successful pursuit of a career in each of these fields. | Non-Actionable |
| 85 | Malione | 3 | Chapter 1, Lines 57 to 61:  Note: It would appear to this writer that the lack of any mention about the reliance of our modern-day infrastructure on STEM-informed technologies here is a glaring omission. Either the authors believe the social relevance of these life-sustaining technologies to be lacking, or they cynically understand that it’s beyond the reasonable expectations of this framework to prepare students to that end. | Non-Actionable |
| 86 | Malione | 6 | Chapter 1, Lines 140 to 144:  Note: Further descriptions of the data science course, appearing in the referenced later chapters, make no mention of any potential to open STEAM pathways as indicated here. | Non-Actionable |
| 87 | Malione | 15 | Chapter 1, Lines 419 to 422:  Note: A more telling statistic would be the percentage of practicing professionals in STEM fields, broken out by race and gender, who attended gifted programs, relative to percentages of those in each demographic who came through non-accelerated pathways with top grades. Questions about the perceived relevance of the preparation they received would also be quite valuable. | Non-Actionable |
| 88 | Nowak | 14 | line 372: "learning differences" is stated as preferred over "disabilities.” In our conversations with researchers, advocates, and learners with learning disabilities, we have encountered a strong preference from members of this community for using the term “disability.” The funding formula in the Individuals with Disabilities Education Act (IDEA) also necessitates that materials are expressly designed to provide greater access to students with identified disabilities, so using a less well-defined term like “differences” would make our materials harder to adopt, in some cases. Just providing this perspective to the extent it’s interesting or useful to your writing team. | Recommended |
| 89 | Nowak | 20 | Line 560: Our team all expressed confusion over broad theme 4, and recommend revisiting the wording and revising for clarity. | Writers Discretion |
| 90 | Nowak | 30 | Line 831: The visual that entwines SMPs, Connections, and DI parts (Figure 1, also appears in later chapters) is pretty difficult to make sense of. The colors don't seem to mean anything, and the diagonal regions don't touch every cell like they're supposed to. We gathered more insight into how to interpret this diagram by attending the webinars (thank you!) but wonder if there is room for improvement in the diagram itself. One idea we had was to present the three categories as columns and show sample combinations of one item from each column. Another idea would be to use a tree diagram. | Writers’ Discretion |
| 91 | Landgraf | 9-10, 15-17 | [This comment has been excerpted for length; see the Box link above for the full text of the comment.]  After reading the section of the Math Framework on High Achieving Students, it seems to negate the idea that advanced learners need specialized instruction. I don’t believe anyone would question the need for specialized instruction for students who are English Language Learners or those students with learning disabilities. Why would you not offer the same opportunities for those that require more advanced educational opportunities? Gifted learners have the potential to learn at a faster rate and with less repetition than many of their age level peers..  Myths around gifted education are perpetuated in this document and are not based on research by experts in the field of gifted education (National Association for Gifted Children):   * The language included in Chapter 1 (lines 234-236, 247-50, and 414-488) reinforce harmful myths about gifted students, and gifted mathematicians in particular (Sheffield, 2017).   Gifted Education does not advocate fixed notions regarding ability but recognizes that all students can learn using high yield strategies. It also acknowledges that students may learn at different rates or be working above grade level. | Writers’ Discretion |
| 92 | Marks | 9-11, 17-18 | Successful school mathematics teachers have some understanding of learning processes and use this knowledge to design, carry out, assess, and improve their instruction. Acknowledgement of this is essential to the Framework. Thus the two sections of this chapter that discuss research on brains and learning (1.227–302 and 1.488–523) are very important and should be carefully developed. This discussion may carry more weight if these two sections were combined, and perhaps expanded, into a single section with a title something like "How students' brains affect their learning." Some of the key ideas here are the rejection of stereotyping (being good/bad at math), the role of self-perception in learning, and the centrality of connections and multiple representations for developing deep understanding. | Not Recommended |
| 93 | Marks | 20 | Line 1.552 states, "The broad themes of this framework encompass four points:" This statement signals an important summary of key ideas, and readers will naturally focus on any summary of this form. However, what follows is not a good summary of the broad and dense content of Chapter 1. These four points do mention important ideas, but they're not clear, sharp, well-organized, or complete. Furthermore, this is an odd location to insert such a summary; it's out of place. Hence, delete 1.552–560. | Writers’ Discretion |
| 94 | Marks | NA | The four "Content Connections" used throughout the Framework seem like a clear and comprehensive rubric for the broad areas of mathematics that we want students to learn. However, it's not obvious how connections fits this idea. Maybe "Content Clusters" communicates the point more clearly; please consider renaming this set of content areas. In any case, the "Drivers of Investigation" are useful, and the 3-dimensional diagram linking the CC's, DI's, and SMP's (Figure 1 and its caption, 1.830–844) is excellent. | Not Recommended |
| 95 | Lieberman | 14 | Page 14, line 404  Text as Currently Written  Lesson design should be built to elicit that wondering.  Rationale  To have conformity of definitions among various chapters  Request  Add the following sentence after existing text:  For example, environmental observations and issues on campus and in their local community provide rich contexts for student investigations and mathematical analysis as they concurrently help students develop their understanding of California’s Environmental Principles and Concepts. | Not Recommended |
| 96 | Lieberman | 20 | Page 20, line 574  Text as Currently Written  … affecting their worlds.  Request  Add the following sentence after existing text:  Connecting mathematics instruction to local issues like social and environmental justice allows students to experience and understand the diverse factors that they must influence to improve their communities. | Recommended |
| 97 | Lieberman | 24 | Page 24, line 662  Text as Currently Written  of these big ideas, elicit wondering in authentic contexts, and necessitate mathematical investigation.  Request  Replace text with:  of these big ideas, elicit wondering in authentic contexts such as social and environmental justice, and necessitate mathematical investigation. | Not Recommended |
| 98 | Lieberman | 24 | Page 24, line 680-681  Text as Currently Written  … Lesson design should be built to elicit that wondering.  Rationale  To have conformity of definitions among various chapters  Request  Add the following sentence after existing text:  For example, environmental observations and issues on campus and in their local community provide rich contexts for student investigations and mathematical analysis as they concurrently help students develop their understanding of California’s Environmental Principles and Concepts. | Writers’ Discretion |
| 99 | Lieberman | 26 | Page 26, line 746  Text as Currently Written  Drivers of Investigations, or exploration of patterns, or games), or should  Request  Replace existing text with the following.  Drivers of Investigations, or exploration of patterns, or games, or real-world problems such as environmental and social justice), or should | Writers’ Discretion |
| 100 | Lieberman | 35 | [This comment has been excerpted for length; see the Box link above for the full comment.]  Page 35, lines 968-973  Request  Replace existing text with the following:  Explicit Focus on Environmental Principles and Concepts (EP&Cs). While the Drivers of Investigations and Content Connections are fundamental to the design and implementation of this framework and the standards, teachers must be mindful of other considerations that are a high priority for California’s education system including the EP&Cs which allow students to examine issues of environmental and social justice.  [additional 600 words in original comment] | Writers’ Discretion |
| 101 | Sampson | NA | Strengths:  Updated definition of rigor from procedural fluency to strategies for problem solving and computation. | Non-Actionable |
| 102 | Sampson | NA | Boldly calls out the widespread inequities within the inequities of Mathematics and provides the research to support. | Non-Actionable |
| 103 | Sampson | NA | Growth mindset messages are explicitly called out and emphasized. | Non-Actionable |
| 104 | Sampson | NA | Updated description of “Students with learning differences” as opposed to students with disabilities. | Non-Actionable |
| 105 | Sampson | NA | The new framework addresses the coverage-vs-depth challenge posed by the principle of focus by asking teachers and math leaders to design instruction around big ideas rather than using the standards as a design for instruction and assessment. | Non-Actionable |
| 106 | Sampson | NA | Considerations for refinement:  Include guidance to support educators with the transition from the work of 2013 Framework to the new ideas, beliefs, and approaches discussed in the 2021 Mathematics Framework. | Not Recommended |
| 107 | Sampson | NA | Be more explicit about the relationship among DIs, CCs, and SMPs. The visual prompted more than a few people to ask if there are 96 total combinations that are expected to be taught now. Some believed this a structure for lesson design or a way of fitting in previously taught lessons. Consider a new diagram to describe how the SMPs, Content Connections, and Drivers of Investigations work together. | Writers’ Discretion |
| 108 | Sampson | NA | Focus and Coherence: Include the Big Ideas work included in the Distance Learning Guidance by Boaler and Williams to support both focus and coherence of content connections, big ideas and the content standards in grade band chapters. | Writers’ Discretion |
| 109 | Sampson | NA | Rigor: Be more explicit about the interplay of the rigor components. See https://davidwees.com/content/conceptual-understanding-procedural-fluency-and-application/ as opposed to a Venn diagram where the circles are the same size, all the time, for each day of instruction | Writers’ Discretion |
| 110 | Barger | NA | In Chapter 1, mathematics as a gatekeeper and a launchpad is a good starting point to reflect on ways to develop learning that can lead to mathematical power for ALL students. The emphasis on “ALL” students as capable contributors to impact our community locally and the world globally and achieving these abilities at the highest levels promote the beliefs that enable students to engage in mathematics to their full potential. | Non-Actionable |
| 111 | Uy | NA | This section gives the reader the impression that the epitome of high school mathematics is calculus, and that it should be sought for and by all students. After having read this section multiple times, it still gives the impression that all students need to take calculus in 12th grade, and that only tracking and other impediments are keeping them from achieving that. This needs a major rewrite, especially since many parents and administrators may not read beyond the introduction. | Writers’ Discretion |
| 112 | Uy | NA | The introduction is too long Unless an executive summary is planned, most teachers will not be reading the whole thing and many may not even read the whole introduction. Consider critical information enhanced by a deep dive through additional readings such as those in the reference list for those who want more information. | Not Recommended |
| 113 | Uy | NA | Figure 1 is unnecessarily complex and could be improved. The eight Mathematical Practices should be emphasized and reinforced and crossing these with the Drivers of Investigation and the Content Connections adds nothing to the reader’s understanding of these elements or of the MPs. The way the figure is drawn, one might infer that, for example, MP 1 does not help one make sense of the world while exploring problems that utilize data. Or that MPs 7 and 8 have little or no use in discovering shape and space. I don’t think that is what the authors intend. Let’s reiterate the MPs and perhaps use a matrix for crossing the CCs with the DIs. Examples could then be put in each rectangle but not in this introductory chapter. | Writers’ Discretion |
| 114 | Uy | NA | Concerning the terms, it would be preferable if all could be parallel in form of speech, i.e., all nouns, all adjectives, or all verbs, not a mixture. Similarly, on pg. 16 the bullet points could all begin with a noun, perhaps with a modifier. Reading it as is was awkward, requiring multiple times to fully understand the points. | Writers’ Discretion |
| 115 | Rodgers | NA | Noteworthy features:  We like the outline structure for the entire framework! | Non-Actionable |
| 116 | Rodgers | NA | Research was present, but not overwhelming. | Non-Actionable |
| 117 | Rodgers | NA | We liked the big overview and then how it was broken down into chapters. | Non-Actionable |
| 118 | Rodgers | NA | We liked the message that, “You’re not BAD at math” | Non-Actionable |
| 119 | Rodgers | NA | We like the voice of Jo Boaler heard throughout the document. | Non-Actionable |
| 120 | Rodgers | NA | We liked that the Growth Mindset was present and a focus. | Non-Actionable |
| 121 | Rodgers | NA | We liked that it addressed ALL students needs (ELL, Student Differences, GATE, etc) | Non-Actionable |
| 122 | Rodgers | NA | We liked the focus on process is more important than the product! | Non-Actionable |
| 123 | Rodgers | NA | By Line 609 the reader feels that ALL learners can love math. | Non-Actionable |
| 124 | Rodgers | NA | This chapter nicely set the stage & background knowledge. | Non-Actionable |
| 125 | Rodgers | NA | Common Core Math Standards have been taught separately, but the framework shows that Big Ideas and connections are possible and necessary! | Non-Actionable |
| 126 | Rodgers | NA | Broad themes & Big Ideas help keep the content standards connected. | Non-Actionable |
| 127 | Rodgers | NA | We liked that mastery over time was the focus, not the “teach once and done model.” | Non-Actionable |
| 128 | Rodgers | NA | Intro is directed to changing math to be all inclusive, tracking shouldn’t be happening, and that all students can be good at math when supported. | Non-Actionable |
| 129 | Rodgers | NA | We felt the rigor section is a strength. | Non-Actionable |
| 130 | Rodgers | NA | Problems vs. Exercises- With exercises, you have the tools to solve, whereas problems we don’t have the tools. | Non-Actionable |
| 131 | Rodgers | NA | Math for ALL- Inclusive practices-UDL | Non-Actionable |
| 132 | Rodgers | NA | Shift from acceleration to depth of learning | Non-Actionable |
| 133 | Rodgers | NA | More exploration, breadth- | Non-Actionable |
| 134 | Rodgers | NA | Build and expand on the process of learning | Non-Actionable |
| 135 | Rodgers | NA | There’s a difference with differentiation and UDL | Non-Actionable |
| 136 | Rodgers | NA | Content Connections (TK-5, 6-8, 9-12) | Non-Actionable |
| 137 | Rodgers | NA | Designing instruction is bulleted | Non-Actionable |
| 138 | Rodgers | NA | Needs clarity or improvement:  Structured well, but contains a great deal of information ~ Suggestion to possibly have an appendix with supplemental information. | Not Recommended |
| 139 | Rodgers | NA | Sense of Agency is defined, but still a little hard to follow. | Writers’ Discretion |
| 140 | Rodgers | 20 | Line 560: Should it be assessing of mathematics (sentence structure??) | Writers’ Discretion |
| 141 | Rodgers | NA | DI is used for Differentiated Instruction and Dual Immersion, so now we have DI: Drivers of Investigation (Like the meaning but will it be confused with other acronyms?) | Non-Actionable |
| 142 | Rodgers | NA | How are we going to transfer this into grading, college, assessment, report cards?? | Non-Actionable |
| 143 | Rodgers | NA | Increase the use of visuals to supplement and support the text. | Writers’ Discretion |
| 144 | Rodgers | NA | Text heavy. | Non-Actionable |
| 145 | Rodgers | NA | Possibly break chapter 1 into two chapters. | Not Recommended |
| 146 | Rodgers | NA | Different Learner groups in its own chapter. | Not Recommended |
| 147 | Rodgers | NA | Possibly develop a chapter that gives background and history/next chapter leads into the new direction of where math is heading. | Not Recommended |
| 148 | Rodgers | NA | There needs to be more of a focus on what we’re doing correctly, not just what we need to do instead. | Writers’ Discretion |
| 149 | Rodgers | NA | How to transition from tracks to all-inclusive TK-College. | Non-Actionable |
| 150 | Rodgers | NA | Spell out the need for training for teachers? | Not Recommended |
| 151 | Rodgers | NA | How to provide a sense of agency. | Not Recommended |
| 152 | Rodgers | NA | New textbooks should have growth mindset, micromessaging and stereotype embedded and included in Teacher supports for teaching this with this awareness. | Non-Actionable |
| 153 | Rodgers | NA | Can the idea of jumping to the abstract too soon as damaging be included in teacher education, K-12 curriculum and a focus for the publishers. | Non-Actionable |
| 154 | Rodgers | NA | Standards based assessments and report cards are problematic. | Non-Actionable |
| 155 | Kempster | NA | + This document takes a strong stand and will provide cover for real policy changes, especially detracking. We appreciate the beautiful framing of: how all students, including high achieving, will benefit from detracking; l earning as growth and development; the historical design of mathematics education for elite white males; centering on big ideas instead of discrete skills; defining rigor; using Drivers of Investigation. We are looking forward to seeing examples of investigations and assessments. | Non-Actionable |
| 156 | Kempster | 8-9 | 209-229: + We strongly support the principles that guide this framework. It names equity, brilliance of all students, rehumanizing work, and detracking as central. Yes! | Non-Actionable |
| 157 | Kempster | 8-11 | Δ We encounter many critics of detracking in our roles as math leaders in SFUSD. How can we make controversial statements more bulletproof so they are less subject to critique? Examples:  214-215: “We reject ideas of natural gifts and talents” – this is framed as a statement of belief; allude to evidence which will be presented later in the chapter or framework.  244-245: “all people possess the capacity to l earn mathematics to very high levels”: Does “all people” include severely intellectually disabled students? (Related: How do we fund and provide early intervention for dyscalculia and other l earning differences that affect math achievement, statewide?)  287-289: “when adults were taking tests, they experienced more brain growth and activity when they made mistakes than when they achieved correct answers”: What are the conditions for this to be true? Do they have to i nspect and reflect about their mistakes? Or does the act of making a mistake cause more brain growth? | Writers’ Discretion |
| 158 | Kempster | 3 | 52-53: Δ The first three out of four quotes (Lines 52-53, 231-236, 307-313) are all from white people. We don’t understand the quote from Erich Heller and how it applies. Recommend taking out the Erich Heller quote or replacing with a person of color. | Writers’ Discretion |
| 159 | Kempster | 17 | 486: Δ “ questions that reflect different levels” implies that math has levels, and students have levels. Suggest: Questions that allow for a variety of learning opportunities | Writers’ Discretion |
| 160 | Kempster | 11 | 277-302: Δ Discussion about productive struggle can sometimes be deficit-based (“students don’t have enough grit”). Suggest: Michael Jarry-Shore’s research on productive struggle (Stanford). The research by Jason Mozer looks at assessments; consider not leading with this framing of productive struggle. Suggest leading with the research by Coyle because it applies the idea of productive struggle not just to traditional schooling or assessments, but as an attitude toward life. | Writers’ Discretion |
| 161 | Kempster | 17 | 478-478: + Δ We appreciate SFUSD’s hard work to detrack reflected in this Framework. It is more accurate to say, however, that before Algebra 1 was repositioned as a 9th grade course, 40% of students had to retake Algebra 1 in 9th grade after taking it in 8th grade, not because they failed the class but because they did not score proficient on the STAR test. Suggested change: “After making this change the proportion of students <bs>~~failing~~<es> who had to retake algebra fell from 40 percent to eight percent” | Recommended |
| 162 | Kempster | 18 | 494: + We appreciate this section on multi-dimensional mathematics, and the research that using different parts of the brain makes you smarter (true for all students, not just some students). | Non-Actionable |
| 163 | Kempster | 18 | 491-493: Having robust grades 6, 7, and 8 math courses is really important. Consider adding: and focusing on a deep understanding of math concepts in grades 6, 7, and 8, rather than speeding through these courses, will support all students to succeed in high school mathematics courses. | Writers’ Discretion |
| 164 | Daniels | NA | [This comment has been excerpted for length; see the Box link above for the full comment.]  The draft makes good points and useful suggestions, but is marred by a tone of resentment against high achievers. “The subject and community of mathematics”, it says, “has a history of exclusion and filtering, rather than inclusion and welcoming.” (lines 65-66) The draft discourages rapid learning and acceleration, and to call a student “gifted” is damaging and discriminatory (ll. 415-419).  The draft framework greatly overstates the role of mathematics education, both as a cause of the inequities we see in the world, and as a remedy for them. It assumes that recognizing ability and effort must inherently be unfair: “All students deserve powerful mathematics, we reject ideas of natural gifts and talents.” (ll. 211-212) Rather than addressing and curing inequities in making advanced studies available, the draft would force high achievers go slow, lest they “suffer from a faster paced (and often shallower) mathematics experience” (ll. 424-425). But will they “take work to deeper levels rather than speed ahead with superficial understanding of content”? (ll. 484-485.) The more likely result is boredom, disinterest and under-achievement. | Writers’ Discretion |
| 165 | Daniels | NA | [This comment has been excerpted for length; see the Box link above for the full comment.]  A related vulnerability has to do with the way the draft framework uses evidence. It appears to make bold assertions which go far beyond the references offered to support them. This could divert critical attention away from the many useful aspects of the framework, and emesh the framework in contentious assertions of “sloppy science.” See, e.g. “Youcubed is Sloppy About Research” and “Multiplication and Math Practice”. Such disputes could undercut the whole exercise and render it unpalatable, just as few consumers would venture to purchase a bag of chocolates marked “99% Rat-Free”.  For example, brain imaging technology is said to prove that: “All people possess the capacity to learn mathematics to very high levels. Multiple studies have shown the incredible capacity of brains to grow and change within a short period of time.” (ll 241-243) The cited study by Huber et al. gave intensive (4 hours/day, 5 days/week for 8 weeks) one-on-one training in reading skills to 24 children ages 7 to 12 with reading difficulties. | No Motion Recommended |
| 166 | Barnes | 17 | [This comment has been excerpted for length. See the Box link above for the full comment.]  In chapter 1, lines 471 - 476, the Framework says, “Educators in the San Francisco Unified School District found similar benefits when they delayed any students taking advanced classes in mathematics until after tenth grade and moved the algebra course from eighth to ninth grade. After making this change the proportion of students [who had to retake] algebra fell from 40 percent to eight percent, and the proportion of students taking advanced classes rose to a third of the students, more than any other number in the history of the district (Boaler et al, 2018).” And again, in chapter 8, lines 203 - 206, the Framework says “An NCTM case study of the San Francisco Unified School District’s move away from middle-school acceleration and high-school tracking demonstrates that such an approach can result in increased numbers of students continuing in higher-level mathematics courses (Barnes & Torres, 2019).”  We are indeed very proud of these outcomes. Aligned with our social justice mission, our policy against tracking in mathematics aims to interrupt the racialized outcomes associated with tracking and fixed beliefs about what it means to be “smart at math.” | Non-Actionable |
| 167 | Shook | 15-17 | [This comment has been excerpted for length. See the Box link above for the full comment.]  In your introduction (Chapter 1, lines 414-488), I disagree with your statements about high-achieving students. Labeling of giftedness is not the issue, and has not led to "fragility." The issue is not identification or labeling, it's meeting every student where they are, and ensuring that every student is challenged, that they actually learn something new, during the school day. My sons may know that their brains work differently (one is gifted, and one is twice-exceptional), but this doesn't affect how they learn or interact socially.  YES, we need to do more to bring children of varied economic and ethnic backgrounds into gifted programs -- and into more advanced math courses. We should NOT do away with the classes and programs themselves. That does a disservice to ALL children.  I also disagree with your statement that faster paced math is a shallower experience. It all depends on the teacher, the school environment, and the composition of that particular class. Do not paint everyone with the same broad brush. | Non-Actionable |
| 168 | Williams | NA | We support  The entire chapter is a powerful tool for having conversations to change the system that will support the shifts.  pp.3-6 access for all students via detracking, esp 219-220, 467-476  132-133 math relevant for all, including non-college bound  176-178 active learning experiences--math is more than calculating  207-226 overarching principles for math equity  245-249 brain research, every student is on a growth pathway  263-265 fixed to growth mindset increase math achievement  291-293 struggle = optimal approach to accelerate learning  348-350 culturally responsive math education  370-374 learning difference vs learning disability  415-426 detrimental effects of labeling high achieving students  433-454 negative effects of a rush to calculus  503-508 multi-dimensional math  661-669 tasks/lessons that focus on big ideas, not isolated standards | Non-Actionable |
| 169 | Williams | 4 | We wonder  77-78 Is it bad that it is “rare” to go from hate to love? It is rare for anyone to go from hate to love in anything. Consider from hate to don’t hate or don’t fear. | Writers’ Discretion |
| 170 | Williams | 7 | 162-164 all stakeholders need to shift away from acceleration and focus on depth of learning, esp. the rush to Calculus pp.16-17 What resources will help us educate parents and board members, minimize parent push-back? What resources can you provide to help district leadership understand and value this? Block schedules in grades 9-12 really limit instructional time--can you provide guidance to districts on structuring courses so math can be taught deeply? | Not Recommended |
| 171 | Williams | 14 | 370-395 intensive additional support helps students but current systems and structures struggle to provide this--what guidance can you give district leadership to establish these support systems for teachers and students? | Not Recommended |
| 172 | Williams | 15 | 407-413 importance of teaching in a more multi-dimensional way (UDL). Can you provide more math specific examples and resources throughout the grade levels (esp. Secondary math) of UDL-designed lessons? | Not Recommended |
| 173 | Williams | NA | Secondary math is innately tracked since students can’t move on to the next class unless they pass a prerequisite class. How does this framework address this? | Not Recommended |
| 174 | Williams | NA | In the grade level chapters, can you provide more examples, resources, and guidance on developing culturally relevant lessons? | Writers’ Discretion |
| 175 | Michelena | 30 | Line 831  Figure 1 does little to illustrate the relationship between the Math Practices, Content Connections and Drivers of Investigation. It seems to confuse more than it clarifies. | Writers’ Discretion |
| 176 | Michelena | 34 | Lines 941-946 (and Chapter 4)  The idea of learning progressions for the Math Practices could be very useful for teachers. It would be great for someone to develop learning progressions for all of them. | Non-Actionable |
| 177 | Lofing | NA | The removal of Gifted and Talented learner supports and pathways in the domain of quantitative reasoning/mathematics is shocking and will only further the excellence and equity gaps that are already pervasive in California. This will put California's students at a nation-wide disadvantage when other states are establishing pathways for acceleration, and ensuring that advanced students are able to receive appropriate educational settings. Removal of pathways for acceleration and advanced placement will deny opportunities for advancement most of all for those students who need them the most. Finally this language is antithetical to language in CA's ESSA Plan. It flies in the face of Excellence Gap research, ESSA, and everything we know about research based benefits of accelerative opportunities for students. | Non-Actionable |
| 178 | Cruz-Aduin | NA | Excellent explanation of the content and the reasons for the needed edits. | Non-Actionable |
| 179 | Herrera | 20, 24 | I really appreciate that from the outset this math framework (the guidance for teachers) outlines four themes (Line 553) that move students away from just memorizing procedures which can perpetuate the idea that only some people are good at math. In Updating Coherence, Focus, and Rigor we are introduced to a different way of thinking centered around Big Ideas. This is very different from many teachers planning around a specific standard or assessment target. Therefore, I would like to see a graphic organizer or lesson planning template included in this framework. It could begin with a space to fill in the Big Idea with a Driver of Investigation, space for an "open, engaging task," list of related standards (or Content Connections), possible questions to ask and anticipation of various strategies. Finally, I also loved the quote related to music [Line 673] for people who do not have that mathematical mindset yet. | Writers’ Discretion |
| 180 | Hull | NA | I am concerned that advanced learners (GATE) are not recognized for specialized instruction for academic needs that are typically beyond the grade level standards. Many gifted students are working well above the grade level standards or learn at a quicker pace with less repetition, math teachers need to account for these differences with strategies to meet their needs. Not recognizing this group of unique learners will have detrimental consequences for all gifted students (like under achievement, boredom) but dire consequences for students of color or living in poverty as services will be privatized if not offered in public schools which will leave out students who cannot pay for the services. Students' education should be based on ability, interest and potential, not age. We cannot assume that every 10 year old will benefit from the same math instruction, we must account for individual differences for advanced learners and call advanced learners out explicitly in the framework. | Writers’ Discretion |
| 181 | Wasson and 44 others | 15-17 | Lines 414-488 on pages 15-17 must be completely removed, as they reinforce harmful myths about gifted math students (Sheffield, 2017). The lack of advanced curriculum and talent development services in mathematics, as described in this document, will further exacerbate the excellence gap in California and fails our advanced learners, with the greatest consequences for our students in urban, rural, and Title I schools and for our American Indian, Alaskan Native, Black, Latinx, Native Hawaiian, and Pacific Islander students (Gentry, Gray, Whiting, et al., 2019; Wright, Ford, Young, 2017). By offering advanced mathematics, reinforced by gifted and talented services, California ensures that its next generation of diverse, innovative producers are equipped with the conceptual foundation, critical thinking, and real-world problem-solving to effectively contribute as dynamic members of the workforce and as individuals who can address problems critical to the future of STEM. | Not Recommended |
| 182 | Heasley | NA | Concerned about adding Drivers of Investigation and Content Connections. Don't the Standards for Mathematical practices address this? | Non-Actionable |
| 183 | Flores | 15-17 | From my personal experiences I have seen my son (a Latinx male from an immigrant family) who excels in mathematics, not be challenged in any way by his teachers. Math instruction caters to those who need the foundational remedial math skills and not in advancing mathematical skills of those who are ready. As a professional developer I have seen the same across many schools in CA. I am not advocating for the need to isolate, but to accelerate. Lines 414-488 on pages 15-17 should be removed. It is inaccurate and can continue to harm students like my son as well as the thousands I have worked with. The lack of advanced curriculum and talent development services in mathematics, as described in this document, will further exacerbate the excellence gap in California and fails our advanced learners. We would not deny a gifted athlete access to advanced trainings but you are asking us to do it here to mathematically gifted students. | Not Recommended |
| 184 | Hanna | 15-17 | You deny our gifted students the opportunity to choose advanced math courses if you do not remove lines 414-488 on pages 15-17, they reinforce harmful myths about gifted math students (Sheffield, 2017). The lack of advanced curriculum and talent development services in mathematics, as described in this document, will further exacerbate the excellence gap in California and fails our advanced learners. (Gentry, Gray, Whiting, et al., 2019; Wright, Ford, Young, 2017). By offering advanced mathematics, reinforced by gifted and talented services, California ensures that its next generation of diverse, innovative producers are equipped with the conceptual foundation, critical thinking, and real-world problem-solving to effectively contribute as dynamic members of the workforce and as individuals who can address problems critical to the future of STEM. | Not Recommended |
| 185 | Latorre | 13-14 | Lines 366-367 state "The group most likely to be classified as “mentally retarded” or “learning disabled” are boys of color." The term "mentally retarded" (MR) is no longer used in special education. The updated term that means what MR used to mean is "intellectually disabled" (ID). Here is a link to go to to see this change in terminology: https://www.disabilityscoop.com/2010/10/05/obama-signs-rosas-law/10547/ | No Motion Recommended  (See CDE-recommended edit #1954.) |
| 186 | Lomas | 17 | I am stunned that the state of California has no middle school students capable of taking algebra. We went from all 8th grade students take algebra to none in two frameworks - remarkable and frightening. What about students that are "gifted" or those that have a penchant for mathematics - students that qualify for AIME in middle school for instance (I've had 24 students take AIME the last three years). Are you telling me those students are better off taking just math 6, math 7 and math 8? Your document references (473-476) that the district was failing 40% of their algebra students (our school fails less than 2%) - how is that even comparable? This one size fits all approach is appalling - neither all nor none is the answer. | Non-Actionable |
| 187 | Hanson | NA | Rather than slowing everybody down, we should be lifting all students. We are facing an increasing demand for well-prepared, mathematically mature students to meet the needs of our society. A one-size-fits-all framework does not allow for our flourishing students to engage in new, appropriate challenges that they are capable of meeting. Our students and our community demand these opportunities. | Non-Actionable |
| 188 | Flitcroft | NA | All students deserve a level of instruction that fits them. Denying acceleration to talented students is unjust. It would be like saying we should let all kids play on the varsity football team, or eliminate the varsity team altogether because it filters out students and denies them access to high level competition. Highly capable or gifted students learn faster and are capable of mastering concepts at greater depth and complexity. They are neurodiverse and should be given special instruction to meet their needs , just as special ed students are. When these kids aren't identified or assessed, they can be given coursework that is not challenging enough for them. This can lead to behavioral problems at school. Children from historically underrepresented groups are less likely to have parents who are able to advocate for them, or provide supplemental opportunities outside of school, leading to even greater disparities in STEM fields. | Non-Actionable |
| 189 | Beth | 15-17 | As the working-class solo parent of a profoundly gifted African-American child in East Oakland, I am appalled by lines 414-448 in Chapter 1. My son was always years beyond the one-size-fits-all curriculum in our local public schools. Not having access to gifted programs or any ability to accelerate in school caused extreme anguish for him and us as a family. He "acted out" in frustration for years. Special ed testing showed that he had an IQ >99.9th %ile. None of his teachers, nor anyone in the district, was equipped to meet his needs. \*DO NOT\* continue demolishing gifted programs in CA. This is the \*wrong\* direction, and does not bring equity. Gifted students of affluent families will pull their kids from public schools, while us lower income families and families of color cannot find appropriate services for our kids. Lines 414-488 should be completely removed. After years of desperately switching schools and begging for services for my son, he is finally thriving as a 12 year old 9 | Not Recommended |
| 190 | Richardson | 15-17 | In my 30 years as a teacher in an intercity school setting, I have worked with many students of promise who needed specialized math and science instruction due to their advanced ability. many of the students on our campus need remediation but for the ones who are working above grade level it is imperative for them to be able to have pathways in math and science that are for those who are advanced. Lines 414-488 on pages 15-17 must be completely removed, as they reinforce harmful myths about gifted math students. The lack of advanced curriculum and talent development services in mathematics will exacerbate the excellence gap in California and fails our advanced learners, with the greatest consequences for our students in urban, rural, and Title I schools. By offering advanced mathematics, reinforced by gifted and talented services, California ensures that its next generation of diverse, innovative producers are equipped with the conceptual foundation and critical thinking skills. | Not Recommended |
| 191 | Hull N | NA | As an student who was identified as Gifted in elementary school I was able to work at an accelerated pace in math and science classes, work with like minded peers of similar ability and interest so we could challenge and push each other. Being in honors classes and AP classes in high school was more interesting and rigorous and prepared me for my college and graduate school experiences. In truth the general Ed classes were boring and way too easy for me. Now at 22, I am graduating with my MA and working at a University as the Disabilities Coordinator. This was possible due to an accelerated pathway. By offering advanced mathematics, reinforced by gifted and talented services, California ensures that its next generation of diverse, innovative producers are equipped with the conceptual foundation, critical thinking, and real-world problem-solving to effectively contribute as dynamic members of the workforce and as individuals who can address problems critical to the future of STEM. | Non-Actionable |
| 192 | Chavkin | NA | Math must be differentiated in order to increase achievement fir all. Do not lower your math education goals. Raise your goals and admit more kids to higher level, advanced courses. If you stop differentiating in math, you will have a huge exodus from public schools. The research is not on your side. Gifted kids need to learn higher math skills early. | Non-Actionable |
| 193 | Fu-Tomlinson | NA | To lift California’s math education out of its current near bottom position in the nation, we need to instill in our students a belief that being good at math is cool and important; and our schools need to continue offering multiple pathways for students at all levels to excel at a pace that would bring the best out them. Unfortunately, this Framework has flaws: First, too imply that the current math education reflects what this Framework believes to be the historical “narrow purpose” of “preparing privileged, young white man for entrance into elite colleges” could risk turning students away from math on the basis of a false assumption that being good at math is not good socially. Second, eliminating various pathways and fast tracks puts unrealistic in-class differentiating burden on teachers who are already overworked and this would ultimately lead to students’ loss of math education choices. | Non-Actionable |
| 194 | D B | NA | Re mathematically gifted children: CDE is cherry-picking studies that justify depriving truly gifted children access to advanced instruction. The idea of de-tracking by putting all students in "advanced" classes sounds good in theory, but in practice the classes will be dumbed down as necessary to produce the desired pass rate. Children that are capable and desirous of more complexity and abstraction will be left wanting. Thanks to Covid, CA public school parents have less patience with the public school system and fewer reservations about ditching it for the alternatives, and this especially applies to parents of GATE-identified children. | Non-Actionable |
| 195 | Washington | NA | I teach math in a post-secondary institution in SoCal. The biggest problem here is lack of motivation to learn English among unassimilated Hispanics. English is necessary to learn math in school in the US. Period. In my classes I see the effects of growing up in households where only Spanish is spoken and the future is not bright for these young adults who are still struggling with algebra at age 21. You may call them English learners, but among parents and educators in the area we call them English refusers as there is no learning going on. My local school district coddles English refusers and assures them that they are Very Special Snowflakes who don't have to learn English if they'd rather not, LOL. Administrators are too afraid of being called racist to suggest that this policy doesn't work. We put our kids in private school because our local publics are failures. The CDE needs to develop programs to get immigrant parents speaking English at home so their kids will follow suit. | Non-Actionable |
| 196 | Wu | NA | Fundamentally, we all agree that our education is inequitable. Eliminating courses do not solve the inequity. The California DoE needs to focus on the root of the problem, that the schools in Black and Latinx communities are not funded properly. How can one believe that if CA eliminates calculus, this solves the problems in West Oakland or East Oakland? In addition, by decreasing opportunities in public school, one is actually INCREASING inequity; those who can afford to send their children to private school will do so, which will actually increase inequities further. | Non-Actionable |
| 197 | Gelb D | NA | This proposed framework would be a disaster for California. We would be shortchanging our students by dumbing down our education and making it impossible for our students to compete in the global marketplace. Critical skills would never be taught in the race to the bottom. | Non-Actionable |
| 198 | Malione | NA | There are many general problems with this. There's an implication of career readiness resulting from the approach put forward in the framework, with no evidence to support it. STEM career readiness is most likely to suffer, and the specifics of how the new framework would meet these needs must be addressed. Reliance is made on the preparatory strength of the Common Core Standards, even though those standards specifically do not pertain to STEM readiness. No mention of this limitation is provided whatsoever. Gifted students are grossly mischaracterized. The draft Framework challenges the belief that learning experiences should be individualized based on a student’s readiness, interests, and domain-specific abilities (Tomlinson, 2014). Furthermore, the draft reinforces myths about gifted math students (Sheffield, 2017). For some students who are ready to move beyond the grade level curriculum topics, limiting that opportunity is unjust and delays or diverts their intellectual growth. | Non-Actionable |
| 199 | Smith A | 9, 10, 15-17 | The language included in Chapter 1 (lines 234-236, 247-50, and 414-488) reinforce harmful myths about gifted students, and gifted mathematicians in particular (Sheffield, 2017). The lack of advanced curriculum and talent development services in mathematics will further exacerbate the excellence gap in California and fails our advanced learners, with the greatest consequences for our students in urban, rural, and Title I schools and for our American Indian, Alaskan Native, Black, Latinx, Native Hawaiian, and Pacific Islander students (Gentry, Gray, Whiting, et al., 2019; Wright, Ford, Young, 2017). | Non-Actionable |
| 200 | Dergun | NA | I think the writers of this document are deluding themselves. Kids and adults have different aptitudes and different strength. And, yes, for some students, math is more intuitive than for others. I see it at home with my two children. Why would you want to dumb down children? This proposal erodes California's education further. I feel like the goal of the writers of this proposal is to make us rank at the very bottom. | Non-Actionable |
| 201 | Walton | NA | Line 1329 - 1352: This is a strong statement of change for practitioners of mathematical experiences designed with all ages, and is of primary importance as children enter education. In an effort to differentiate experience to meet all students where they are, often times this results in labeling and tracking. While allocation of resources at times does follow, it is more often the case that fixed mindsets about students are not only developed by one teacher and the student and the family, but by our institutions as a whole as communicated through systemic structures of conferences and grade reporting. I would caution however in using too much "Growth Mindset" as this phrase has been co-opted by grit and reformy folks, folks seeking to monetize training materials, and others who use it as a weapon against students who don't "show it enough". Lines 1516-1556: provocative and productive change suggested here that must occur for all to mean all. | Non-Actionable |
| 202 | Daniels R | 3, 8, 15-17 | The draft makes good points and useful suggestions, but is marred by a tone of resentment against high achievers. “The subject and community of mathematics has a history of exclusion and filtering, rather than inclusion and welcoming.” (lines 65-66) Acceleration is discouraged, and calling a student “gifted” is damaging and discriminatory (ll. 415-419). Recognizing ability and effort is thought inherently unfair: “[W]e reject ideas of natural gifts and talents.” (ll. 211-212) Rather than curing inequities in availability of advanced work, the draft tells high achievers go slow, not “suffer from a faster paced (and often shallower) mathematics experience” (ll. 424-425). Will they “take work to deeper levels rather than speed ahead with superficial understanding of content”? (ll. 484-485.) The more likely result: boredom and under-achievement. See Reis, “The Underachievement of Gifted Students” in High I.Q. Kids (2007). Pages 15-17, ll. 414-488 should be completely re-written or removed. | Writers’ Discretion  (See other edits to this section.) |
| 203 | Sheffield | 9, 10, 15 | I am very concerned about the negative references to gifted students in lines 234, 248, 249, and 416. The film referenced in line 418 is not research-based and quotes a small number of very successful students who had been labeled gifted. The percent of students from different ethnic groups noted in line 420 might worsen if "gifted" students are stigmatized. Many students from these under-represented groups (as well as many girls from other groups) already feel that it is bad to be good at math and this could make it worse. In 1995, the NCTM Task Force on Mathematically Promising Students characterized these students as having traits that needed to be maximized, including aptitude and opportunities. Thus the "growth mindset" was a critical component long before the term became popular. The current NCTM position paper on Opportunities for Students with Exceptional Promise notes the importance of serving these students during as well as outside the school day. | Non-Actionable |
| 204 | Gold | NA | Where is the research that doemonstrates that this curriculum will produce superior knowledge and performance of mathamatic skills and mathmatics principles in CA minoerity students? Where is the research that demonstrates that this curriculum will provide CA minority students with greater opportunities in careers which require mathmatic skills? | Non-Actionable |
| 205 | Wright | NA | The introduction is littered with unsupported (and incorrect) statements that suggest that mathematics in the US has been primarily a tool to instill and perpetuate white supremacy. This is incorrect, divisive and distracting from the mission of increasing access to math by the many diverse members of our state. Math can and should be a universal language. The goal should be improving education for ALL rather than inserting CRC language into mathematics to further divide us. If you believe in the power of a growth mindset, it is irresponsible to indoctrinate elementary age children with the belief that the system is and has always been stacked against them. How are they to believe they can overcome such odds? Yet, our history is replete with successes achieved by members of every race and socio-economic class. | Non-Actionable |
| 206 | C J | NA | As a Hispanic parent of 2 Hispanic GATE students I am saddened by the characterization of ability grouping and tracking as racist. My children are naturally very quick learners. Why should their access to accelerated programming be curtailed just because some children are slower learners than others? Why does the CDE believe that speed is at odds with depth? GATE children have higher cognitive abilities and do indeed go deeper as well as faster. GATE programming isnt even that much and we end up doing more enrichment at home on our own time with other a few other parents of gidted children. Why take away the one thing that makes school tolerable for gifted children? Going as slow as the slowest learners is torture for some children and not equitable. | Non-Actionable |
| 207 | Kulawik | NA | General comments: 1) This document is concerned that inequitable tracking limits students' possibilities. Given all the recent findings on equity and equality it seems like a good thing to consider the fairness of selection for advanced math classes. This document should also consider inequity in heterogenous classes in the assignments offered to students. I have noticed that my daughter (7th grade) needs teacher encouragement to try the harder assignments and I would guess that it is common for teachers to make decisions on who to encourage to try the harder work. 2) Within lines 50-488 of this document, there are many statements like, “all students are capable of becoming powerful mathematics learners and users” or “all people possess the capacity to learn mathematics to very high levels”. These statements are too vague to have any actionable meaning or consequence. Additionally, a statement that everyone can learn a particular topic does not imply that everyone can learn it | 1) Writers’ Discretion  2) Not Recommended |
| 208 | Thomas | NA | Please spell out the need for training for teachers. | Not Recommended |
| 209 | Aoki | NA | It is great to FINALLY see what we know to be true through research stated clearly in an official math document for California. Teaching that creates access and equity ALSO creates engagement and student success. I do wish the formatting was chunked in a way that made this more palatable for teachers, administrators, and the other people who are "on the ground" actually doing all of the stuff this is talking about. With the length of the chapter and key ideas being kind of buried, I feel like many will just not take the time to bother reading what's here, and that is just sad because the content is fantastic. | Non-Actionable |
| 210 | Cai | NA | The problems of match education in California are all correct. The solution that the frame work proposed are not the right direction. I feel in the end the frame work is loosen the math standard for high school graduation and college admission to show that more student get better in math. It is not the right way. Math is a science. It has an absolute right and wrong. If the standard is lowered in elementary or middle school, how would you expect high school student suddenly becomes good at it. More practice, more test and assessment is needed, instead of less practices and test. | Non-Actionable |
| 211 | Yamachika | NA | Several years ago, our school was forced to have ALL students take algebra in 8th grade and we were told as teachers that we had low expectations for our students when we didn't want to conform to this protocol. But, this new framework is the other extreme as gifted training seminars always talk about challenging students with their "gifts." Students who are not can become bored, complacent, and ultimately become disinterested in school. Less than 10% of our school population is in advanced math and they must meet stringent requirements from year to year. Additionally, we have an algebra support class where the advanced learners can sign up for and receive more depth while filling in any potential gaps that show itself on standardized tests. What I haven't read in the framework is how much training the upper HS teachers are receiving because that could play a major role in why students "slide back." The old school teaching is how my son was taught in HS and this needs to be fixed. | Non-Actionable |
| 212 | Vierra | 15 | - Very appropriate that there will be a new Framework very soon, since "the needs in 2021 have changed." (p.15) - The importance of mathematics as a launchpad toward students' dreams for the future does need to include all students! I appreciate the emphasis on inclusion of all students in the math community through a growth mindset. - As foundational as Jo Boaler's research is and as important a resource as youcubed is, there are other researchers and practitioners promoting growth mindsets. The rest of the chapters seem to have a greater spectrum of researchers, e.g., Darling Hammond, Smith & Stein, Moschkovich, Lambert, Kelemanik and Lucenta. How many of the researchers cited are people of color? - Overall, the introductory concepts and guiding principles in chapter 1 carry consistently throughout the entire document. | Writers’ Discretion |
| 213 | anonymous | NA | I teach honors math classes in a public school and do not agree with certain things in the set of proposed revisions, particularly the idea that math must be made culturally relevant in order to appeal to Black and Hispanic students. My classes are racially and ethnically diverse and I find that many simply enjoy math for its own sake, much like poetry or fine arts. The push to promote it mostly as a tool for social justice will be a turn off for the many students who already have a deep and wide understanding of math, nor will it make math click for struggling students whose home life is mostly to blame. Also, adding "cultural relevancy" is bound to be offensive and insensitive when we make assumptions that all members of a race/ethnicity think/feel/experience as one. I know that a lot of "comrades" (wink) in our profession just want more s.j. taught in the schools, so give it to them in a more appropriate form. Math classes are not an appropriate vector for s.j. propaganda. | Non-Actionable |
| 214 | McDonald | NA | "we reject ideas of natural gifts and talents" I understand the context-the desire to convey the message all students are capable of doing math. I am very familiar with Boaler's work and agree with her approach to teaching kids to the point that I had all my middle school teachers take her course and purchased her book. Having said that, the idea there aren't some students who understand math at deeper levels than their grade level peers seems to me to be setting up some students for a path that would be less rigorous and not sensitive to their needs. With a robust system of MTSS, we strive to meet the needs of ALL students including those that have a giftedness or talent in ANY area. We are working hard to ensure the use of local norms, universal screeners, and multiple measures as we develop a program to challenge all students through enrichment. We do not separate out gifted/talented students. While this is math specific is this to be said of those in the arts as well for example? | Non-Actionable |
| 215 | Hoffman | NA | This is very cool and similar to the NGSS 3 dimensions. It'd be useful to include examples of what these changes look like, or at least callouts to where those changes will be illustrated further in the document. It would also be useful to include something similar to what NGSS did - they had a "less of" and "more of" section that illustrated how these changes would manifest. | Not Recommended |
| 216 | Yurek Z | NA | As a community, we need to understand that some kids NEED the accelerated math track. Without a challenging math program, we will be doing a great disservice to the kids who will be extremely bored and as a result disengaged in math classes. On top of that, the kids who will get hurt the most are the academically inclined ones without the financial means to go the private route. Equity means supporting the needs of all the kids, supporting the kids who need help and also supporting the academically inclined kids who need an advanced curriculum for it to be engaging for them. This is not privilege, this is support. I am speaking for all the little girls and boys, who want to learn more, and NEED to be challenged, but cannot have that if the public school system does not support them. | Non-Actionable |
| 217 | Barnes | 17 | In chapter 1, lines 473 - 474, the Framework describes detracking efforts in SFUSD using this quote, "After making this change the proportion of students failing algebra fell from 40 percent to eight percent... (Boaler et al, 2018)." While this is a quote from a published study, it is actually more accurate to say "After making this change the proportion of students repeating algebra fell from 40 percent to eight percent." Please substitute the work "failing" with "repeating" (or if you prefer "who had to repeat"). It is a more accurate representation of our story in San Francisco. We did as a team submit lengthier, more holistic comments via email as well. | Writers’ Discretion |
| 218 | Perez | NA | Like it. | Non-Actionable |
| 219 | Bates | NA | line 162-164 regarding all stakeholders- wondering if there are suggestions for communicating these shifts with teachers, counselors, and families as it seems so engrained in our culture about the push to calculus. Love the ideas of de-tracking and instructional resources described on 661.Love the part in 726 about depth and connections. Line 800- what does this phrase actually mean in a classroom context? Line 803- how do we address teachers' (and parents') concerns about the need for lots of practice problems? | Not Recommended |
| 220 | Yurek T | NA | It's definitely important to raise the level of math provided in the regular track. It's also supremely important to foster mathematical enthusiasm and aptitude in those kids who are striving to get more. Please note that there are areas in the state (such as Silicon Valley) where a lot of exceptionally bright individuals with top notch engineering and science backgrounds have congregated and started families in the new millennium. Now their kids are also exceptionally apt at STEM. Among them are future scientists, inventors and engineers who will make our society even better in everyway including finding cures for diseases such as we are experiencing worldwide this past year. Please support these kids' enthusiasm and skills. This is NOT about privilege - I guarantee you that as the child of an underprivileged family who excelled in math and science through a rigorous advanced path in middle and high school. Be proud of these kids. They will make you even more proud one day. Thanks. | Non-Actionable |
| 221 | Morris | NA | I fully support the changes in the 2021 framework outlined in the Intro including shifts which emphasize a depth of learning approach as opposed to a race to calculus approach (eg, line 103-115). Likewise the explicit connections to changing messaging for women and BIPOC while humanizing the field as a means of actively seeking to change the inequities (e.g., lines 180 & 209-214.). Emphasizing a growth pathway for all students is well articulated. (248-255). It is also well justified in terms of the current disconnect between 2ndary and tericary math teacher goals and expectations (lines 415-420 and 460-490). Removing algebra as course for 8th graders promotes depth. Demphasizing call for seniors enables data science courses! The examples of student worthy tasks that are provided are illustrative of many key idea and the graphic with the DIs, CCs and SMPs has the potential to leverage meaningful conversations among teachers, administrators, and curriculum specialists and authors. | Non-Actionable |
| 222 | Gupta | NA | The evidence evaluates “learning calculus” by the criteria of achieving a passing grade in the class, and it makes no distinction with regard to the more stringent requirements of STEM-readiness. It is disingenuous to say that “denial of opportunities” exists, without specific consideration of whether or not such requirements are being met. Likewise, it cannot be established what makes the existing hurdles “arbitrary or irrelevant” without considering the actual level of competency necessary for successful pursuit of a career in each of these fields. | Non-Actionable |
| 223 | Albert | NA | The section on "High Achieving Students" suffers from fundamental logical flaws. The experiences of these students are cast in a bad light ("students who achieve at high levels can still suffer from a faster paced . . . experience"). But the actual evidence presented refers only to cohorts among which high-achieving students are present, or to students who are grouped into high-achievement classes but fail to achieve. (e.g., "The overall achievement of the students after the de-tracking significantly increased.") A group's overall achievement is important, but the use of that metric when focusing on the specific outcomes of \*high-achieving students\* is misleading and irrelevant. High achieving students should be afforded just as much consideration as other groups. What resources will be devoted to students who are not "rushing to calculus" but are instead simply bored with a homogenized curriculum? What will happen to them if and when advanced math pathways are eliminated? | Non-Actionable |

## Table 4: Chapter 2: Teaching for Equity and Engagement

| # | Source | Page | Line Number and Comment on Chapter 2 | Recommended Action |
| --- | --- | --- | --- | --- |
| 224 | DiOrio | 7-9 | [This comment has been excerpted for length; see the Box link above for the full text of the comment.]  In Chapter 2, you detail a lesson by a HS Geometry teacher (lines 173-217), how long is this geometry class period per day?  Also, with all of the focus on real world and problem solving, younger students struggle with the fundamentals of math that comes from the idea of "drill-and-kill" meaning just continuous practice solving problems without the applications.  Without these fundamentals, there is a huge discrepancy between those who can and those who can't.  Unfortunately, this gap gets larger and larger as students go to middle school and then the high school.  The students without the fundamentals begin to get frustrated and then enter their math class with the preconceived notion of "I hate math".  How do you plan to help all students with math fluency, i.e. fundamentals, because Common Core does not focus on fundamentals?  Here is an example, students can get through 2nd and 3rd grade without knowing their multiplication tables or facts.  This is something that is assumed when they get to 4th and 5th grade and start dealing with fractions, which is going to be an instant failure when they can't figure out Common Denominators due to the lack of multiplication facts.  This is where the frustration starts and the "I hate math" attitude begins. | Non-Actionable |
| 225 | Nagatani | NA | Eliminating acceleration at the middle school level will increase the mindset and skill level of ALL students and I cannot wait to push for the change in my own district. | Non-Actionable |
| 226 | Tegen | NA | while social justice and cultural relevance are important in our daily lives there are times when it is MORE IMPORTANT to teach the BASIC CONCEPTS of MATHEMATICS. These skills are essential for success in facing all the issues presented in our daily lives. After those are understood/mastered we apply them to the rest of our lives. These social applications will be more successful with students grade 3 and up when they have transitioned beyond the concrete comprehension/thinking levels of mathematics. | Non-Actionable |
| 227 | Katz | NA | I appreciate the ways that "growth mindset" is used here, but I think it's vitally important that we also include the most salient critique of this idea in this document. Namely: growth mindset (and grit) can make teachers focus on individual characteristics and ignore the structural issues that cause harm to children. Even worse, sometimes mindset framing can lead educators to implicitly assert that individual students are at fault when they struggle with the system because they over-generalize mindset framings to assert that mindset is the ONLY thing that matters AND it's within the individual's power to just change it. Gutiérrez, R. (2017). Political conocimiento for teaching mathematics. Building support for scholarly practices in mathematics methods, 11. | Writers’ Discretion |
| 228 | Bernard | NA | I think the entire framework should be scrapped and rewritten from scratch. Our average students will never use the skills we teach beyond the concepts in 7th grade. We go too quickly K-7 and many (most) students cannot keep up. We should focus on life skills and focus on financial literacy 7-12. Students that wish can take advanced math classes (ie Algebra, Geometry, Trig, etc) as electives or through local junior colleges I know my suggestions will be ignored but I have shared my opinion with many other stakeholders and most agree. | Not Recommended |
| 229 | Brousseau | NA | This it is the most important piece and should be empathized because inequity is a huge problem in our schools and our communities. We must address this in our teaching to empower our students. | Non-Actionable |
| 230 | Raigoza | NA | This update is so key to shifting our teaching for students. The updates to stop labeling, mindset, fluency definition, data science literate is amazing!! | Non-Actionable |
| 231 | Bracey | NA | I really enjoyed the focus on open ended tasks and allowing a student centered approach that fosters curiosity and wonder. | Non-Actionable |
| 232 | Davalos-Lumus | NA | I really appreciated having the section on Using Open and engaging tasks. I think these tasks lead to student thinking and shifts away from our traditional "Lecture" approach. I am super excited that Number Talks was mentioned in there and believe it is one of the most powerful math strategies that we can incorporate into our daily math routines. Thank you!! | Non-Actionable |
| 233 | Lendell | 12, 13, 16 | I love that Number Talks are included as a significant way to "open" problems and expand student thinking. (Line 420 and 421) Line 346-347 Important statement: "Planning to teach in this way means educators must attend to the ways they can support - rather than control - student thinking!" Line 326-327 "Using open tasks represents a shift in instructional practice, away from a traditional "lecture" approach." --- This is a critical statement, and curriculum that is developed will need to provide those "rich, authentic, culturally relevant tasks" so that teachers don't fall back into the familiar lecture style that typically requires students to mimic rather than think. | Non-Actionable |
| 234 | Evans | NA | I was pleasantly surprised to see the emphasis on big ideas like looking specifically at Social Justice. I found the vignettes to be super helpful and absolutely necessary as ways to model how this new non-neutal way of teaching can really look like. Thank you for helping to help us all make math more relevant to all students. | Non-Actionable |
| 235 | Ellis, Attachment 1 | Page 2, lines 25-27 | Angela Reed, NBCT  Suggested change:  “California classrooms combine diverse communities and students who bring a rich variety of cultural and linguistic resources that teachers must draw on to create culturally-relevant lessons (Ladson-Billings, 2009; Hammond, 2020; Milner, 2011).”  Comment: This relates to building on students' funds of knowledge relating to CRMT | Non-Actionable |
| 236 | Ellis, Attachment 1 | Page 2, lines 30-31 | Mark Ellis  Suggested change:  “A focus on equity recognizes that school mathematics , over the years, has developed in a way that has excluded many students (see Chapter 1).”  Comment: It is not inherent in mathematics but mathematics education - the system created to stratify students on the basis of artificially constructed measures of so-called ability and its inequitable allocation of access to rigorous learning. See https://openjournals.libs.uga.edu/tme/article/view/1880/1786 and https://www.tandfonline.com/doi/full/10.1080/13613324.2013.818534?scroll=top&needAccess=true for explications of this system. | No Motion Recommended |
| 237 | Ellis, Attachment 1 | Page 2, lines 31-33 | Jairo Aguayo  Comment: We should keep because this gives explicitly directions to teachers and specifies it must be on going. | Non-Actionable |
| 238 | Ellis, Attachment 1 | Pages 2-3, lines 38-41 | Angela Reed, NBCT  Comment: This addresses humanizing mathematics for/with student | Non-Actionable |
| 239 | Ellis, Attachment 1 | Page 3, lines 52-55 | Guadalupe Serrano  Comment: Funds of knowledge- getting to know students culture/background, and strengths will provide us to key to support students to be successful | Non-Actionable |
| 240 | Ellis, Attachment 1 | Page 3, lines 57-59 | Jairo Aguayo  Comment: Keep: I think this will open up doors to challenge the status quo defining what we do or not do for subgroups intentionally or unintentionally. | Non-Actionable |
| 241 | Ellis, Attachment 1 | Page 3, lines 61-65 | Phil Turner  Comment: I love that finally there is a framework is explicit and specific about this! | Non-Actionable |
| 242 | Ellis, Attachment 1 | Page 4, lines 81-87 | Phil Turner  Suggested change:  “When students are engaged in all these kinds of experiences, they can come to view mathematics, and their own relationship to mathematics far more positively. The contrasting approach—of students sitting in rows watching a teacher demonstrate methods before reproducing them in short exercise questions through passive student engagement––has led to widespread mathematical disinterest, perpetuating the perspective that mathematics is merely a sterile set of rules.”  Comment: It is great again to specify the approach NOT to take. Leaving it up to teachers to make their own, non-research-based decisions based on their own skewed view of mathematics has proven over over again to perpetual all the negativity and inequality that has existed in math too long. | Non-Actionable |
| 243 | Ellis, Attachment 1 | Page 4, lines 88-89 | Suggested change:  “Students must view mathematics as a meaningful, inter-connected, beautiful, relevant, and creative set of ideas.” | Writers’ Discretion |
| 244 | Ellis, Attachment 1 | Page 4, lines 97-98 | Angela Reed, NBCT  Comment: This is how we will address the systemic issues that are hindering our students. | Non-Actionable |
| 245 | Ellis, Attachment 1 | Page 5, lines 117-118 | Mark Ellis  Comment: This may need more unpacking. When is it important to allow native language use and when it is important to introduce academic language in English? There is research (sorry, cannot locate it at the moment) showing that native language use during exploration and peer sharing phases of learning has a positive impact on engagement while introducing academic language (e.g., via sentence frames and key vocabulary) during whole class discussions - effectively bridging from students' informal language (whether in English or another language) - helps to develop content literacy skills. | Non-Actionable |
| 246 | Ellis, Attachment 1 | Page 30, lines 691-692 | Mark Ellis  Comment: This is great but seems dropped in without elaboration or connection to some set of claims or expectations. | Non-Actionable |
| 247 | Ellis, Attachment 1 | Page 37, lines 857-861 | Jairo Aguayo  Comment: Textbooks need to change to tailor students in their respective communities OR the teacher needs to change the text to make it accessible to students. For example, a students shouldn't have an example about boat without any additional support or ensuring opportunities to experience using a boat prior to using the example about a boat. | Non-Actionable |
| 248 | Ellis, Attachment 1 | Page 37, lines 872-873 | Mark Ellis  Comment: Again, the graphic is a powerful model but unexplored as to how it might inform the sort of instruction being sought. | Non-Actionable |
| 249 | Burnison Attachment 2 | 2 | Line 25-27  “students who bring a rich variety of cultural and linguistic resources that teachers can draw on to create culturally-relevant lessons (Ladson-Billings, 2009; Hammond, 2020; Milner, 2011).”  This concept of learner variability being an asset in designing learning experiences is echoed in later lines as well, which is such an important shift in education that has historically viewed learner variability as a barrier - including this mindset we are trying to shift away from may cement the message. | Non-Actionable |
| 250 | Burnison Attachment 2 | 3-4 | Line 61-74  This (the drivers) is what is new for teachers - the how recommendations - this needs to be called out. The NCTM position in the box immediately previous is already known by many teachers and doesn’t contain any recommendations leaving them feeling hopeless and helpless - it’s the recommendations that need to be bolded - anything relating to the how and what to do.that need to be bolded | Writers’ Discretion |
| 251 | Burnison Attachment 2 | 4 | Line 82-87  This is a really important contrast and it identifies the IRE method that remains most widely used in the majority of math classrooms. This distinction needs to be front and center - not at the end of a paragraph - an example or visual would be really helpful - something to draw attention to the do and don’t. Teachers still think this is what math class is supposed to look like. Teachers need to see that the frameworks are telling them not to continue this form of teaching. In Principles to Actions there is a table of unproductive vs. productive beliefs - maybe a table like that clearly outlining the do’s and don’t’s. | Writers’ Discretion |
| 252 | Burnison Attachment 2 | 5 | Line 113-122  Yes, thank you for this! - this very clearly presents what is desirable for math instruction and helps to guide professional learning | Non-Actionable |
| 253 | Burnison Attachment 2 | 6 | Line 128-130  “How does a teacher create an equitable and engaging mathematics environment that supports all students? The following sections describe five important components that based on research and supported by practice.”  This and the entire section following is perfect! It provides teachers with what to do, gives examples of what it looks like, and backs it up with research. The only thing i think that might make it better is an exhaustive list of big ideas and the linked standards, for example the maps in JBoalers books | Writers’ Discretion |
| 254 | Burnison Attachment 2 | 6 | Line 141  This is the link to Boaler’s introduction of her mindset maths series. I would love to see a quote from the article linked here in order to give some guidance for teachers as well as an invitation to click the link to the article. It is hard for teachers to wrap their head around the idea of teaching to big ideas rather than a list of standard/skills, not to mention the difficulty in identifying what big ideas in math are. Again, examples of the big idea maps would be helpful.  Maybe this quote from page 4 of the article:  “Framing the big ideas in each grade was a critical first step for us in writing curriculum. We couldn’t begin to think about activities, puzzles, or investigations until we knew how to anchor the lessons into a coherent set of mathematical ideas. We began by looking at the Common Core State Standards and considered what connections existed within and across the standards that built on ideas from a previous grade and were pivotal to ideas in later grades.”  Also, could the frameworks recommend areas for potential professional learning? This would definitely be one of them | Writers’ Discretion |
| 255 | Burnison Attachment 2 | 6 | Line 148-152  Thank you for explicitly stating that instruction should be designed around big ideas that integrate multiple individual standards. This is one of the hows that teachers need - buried at the end of paragraph - call out/emphasize)  LOVE the vignette following - 36 fences - really helpful in giving teachers a sense of what it looks like and the shifting roles of students and teachers | Non-Actionable |
| 256 | Burnison Attachment 2 | 10 | Line 241-245  “When questions are narrow and focused, only some students are cognitively challenged at an appropriate level, and the questions are often not very interesting. When tasks are open, they allow all students to work at levels that are appropriately challenging for them, within the content in their grade.”  providing a brief definition or example of what is meant by “narrow and focused” will help teachers make the distinction here and identify what it is in their own instruction they need to stop doing in order to engage students with rich tasks. Most teachers will be confused that ‘narrow’ seems to have a negative connotation whereas they view ‘focused’ in a positive light.  Consider including the task analysis guide from Smith & Stein’s Standards Based Instruction. When i use this in professional learning I just divide into two parts - lower/higher - I find it easier for teachers to think about. | Writers’ Discretion |
| 257 | Burnison Attachment 2 | 10 | Line 250-260  Thank you for clearly identifying the why of teaching with tasks including the opportunities they provide students and teachers. I would love for the formative assessment piece to be highlighted but maybe that is in a different chapter. I love that Peg Smith’s work is cited here and maybe this is another professional learning opportunity to mention. | Not Recommended |
| 258 | Burnison Attachment 2 | 10 | Line 262-265  This is a section on getting to know students and I particularly love that curiosity is mentioned as important again. It feels like there is a missed opportunity here to bring in the idea of listening to understand student thinking. Could we add here that listening to questions students wonder about can provide opportunities to design learning experiences around those? | Writers’ Discretion |
| 259 | Burnison Attachment 2 | 12 | Line 302-317  This is where you talk about ability grouping. This is so important and is unfortunately tied to how master schedules and intervention classes are set up. The idea is buried here and it doesn’t do enough to clarify what ability grouping means such that teachers and school admin would recognize that what they are doing, especially with segregated intervention classes that focus on basic fact memorization, qualifies as undesirable ability grouping. Creating a separate descriptive heading for this section and including a description of ability grouping would help to clarify. | Writers’ Discretion |
| 260 | Burnison Attachment 2 | 29 | Line 685  This whole section is great! I wonder if adding a quote from the linked reading might entice readers to access it.  “Finally, mathematics for young children must involve play in order to open up opportunities for non-routine problem solving, practicing perseverance, and connecting mathematical ideas (Parks, 2015; Wager, 2013). Therefore, we situate social justice mathematics at the prekindergarten level as developing powerful mathematical identities, developing critical mathematics agency, honoring and connecting to children’s family and cultural histories, and centered around play. “(from ***that’s not fair and why***…. article) | Writers’ Discretion |
| 261 | Burnison Attachment 2 | 39 | Line 916  Really appreciate the vignette following and the focus on the student - centered nature of the discourse - the opportunities for the teacher to elicit student thought (say-mean-matter) and to make decisions about letting student interests and views guide the learning. | Non-Actionable |
| 262 | Burnison Attachment 2 | 44 | Line 1014 - 1022  Thank you for continuing to emphasize and illustrate what it looks like to foster and follow student curiosity!!!!! One thing that is hard for teachers to shift is their questioning and it is the first thing they notice when I model lessons for them. The idea that questions that don’t sound mathy and use informal language can be authentic questions worthy of investigation definitely comes through. Teachers really appreciate question samples - Consider referencing books that contain good math questions like those by Peter Sullivan and by Marion Small | Writers’ Discretion |
| 263 | Burnison Attachment 2 | 47 | Line 1080-1086  “o why is this true?  o will this always work?  o does this work for other operations, or only for multiplication?  o how can we know?  o how are these numbers related?”  It is so hard for teachers to transform the questions they ask in respond to or to prompt deeper student thinking - this is really helpful. Consider acknowledging this difficulty and suggest writing them on a card and carrying it around during class for reference (back pocket questions) or posting them on the wall as a reminder for the teacher until they become automatic. It is something I include in many of my trainings. | Writers’ Discretion |
| 264 | Burnison Attachment 2 | 48 | Line 1111  This is the table connecting Math Teaching Practices with Equitable Teaching. This is probably my favorite part so far. I specifically liked the emphasis on ‘positioning students as competent/contributors to learning experience) and ‘students positioning one another as capable’, ‘making space for student interaction’, ‘listening to understand’ student thinking - this is so different from how teachers often listen for a narrow right answer or for specific words/terms, ‘verbally mark student ideas as interesting or identify important aspect of students’ strategy’, ‘their thinking is valued and makes sense’, student ideas are ‘worth exploring’, ‘mistakes and errors are viewed as important reasoning opportunities’ - consider adding that mistakes and errors are not just viewed but are ***used*** as instructional tools to examine for deeper understanding and maybe suggest as a PL opportunity | Non-Actionable |
| 265 | Burnison Attachment 2 | 54-55 | Line 1114-1123  Consider pulling out in a quote box: ‘we need to change classroom approaches from work on short questions to instruction that engages students in rich, deep tasks’. - this is something teachers tend to reserve for students they perceive as advanced and consider it a culminating event to be done after the series of short questions - need to emphasize that the short questions are being replaced, not that rich tasks are to be included if there is time. | Writers’ Discretion |
| 266 | Burnison Attachment 2 | 33 | Line 772  I love that the teacher asked who tried a rule that didn’t work! I wish they had investigated it. | Non-Actionable |
| 267 | Burnison Attachment 2 | 6 | Line 141-142  It looks like big ideas are mapped out for k-8, but high school really needs the big ideas mapped out. | Writers’ Discretion |
| 268 | Burnison Attachment 2 | NA | Vignettes in general:  My favorite things about the vignettes are the elevation of student voice. Student words are very authentic and it is nice to see how a teacher responds in a way to honor and deepen thinking. I also really appreciate being able to see what student work/strategies might look like. | Non-Actionable |
| 269 | Honig | 23 | The idea that thinking and discussing math equations (just numbers) can also help develop conceptual understanding and mathematical thinking is missing. (Although, the rhetoric champions investigation and authentic tasks the draft cotains a specific example of a number only task on Chap. 2, 510 (how to figure 7+3)) For example, asking students how they would solve finding the height of a pole which casts a 9ft shadow when a 2ft stake casts a 3ft shadow written as 2/3=?/9. Some could solve by saying 3 is 50% more than 2 so 9 is 50% more than what (six); or 2 is 2/3 of three so what is 2/3 of 9; or 9 is 3x the denominator 3 so multiplying 3x the numerator 2 gives six; or even the traditional algorithm of cross multiplication. These strategies are invaluable in developing proportional reasoning. | Writers’ Discretion |
| 270 | Honig | 6 | There is no emphasis on the need for review and reinforcement of earlier learned material which can be incorporated in problems with new material. There is one mention of the importance of earlier math topics in later grades and by implication the need for reinforcement in Chapter 2,line 148-154 but that isn’t sufficient. If you ask many eighth graders or high school students for example about a percentage problem many have forgotten (or never learned adequately). Reinforcements can easily be built into investigations or challenges in the later grades. | Writers’ Discretion |
| 271 | Tietjen | NA | I appreciate the clear, direct focus on social justice and equity in math. As a county office mathematics coordinator, having a framework that takes a bold stance on what it critical for our students will help me maintain high expectations for the teachers, sites, and districts that I work with to provide the equitable math education that our students deserve. I recommend no changes to this section (aside from typos or inclusion of more information). I do not want to see any of the bold, direct commentary, language, and recommendations removed from this chapter. | Non-Actionable |
| 272 | Miller | NA | This is also a good list of resources that many have been using over the past years. In equity discussions, we seem to leave out consideration for equity of advanced students. I agree that the other student categories needed concern but I have mixed feelings for a successful detracking in my district and I know that we are not alone in that situation. I think that more suggestions need to be addressed. | Writers’ Discretion |
| 273 | Commons | 4 | 72-79 Keep this is an important description of the mathematics that will benefit far more students than the current ‘I do, we do, you do”. | Non-Actionable |
| 274 | Commons | 5 | 99-104 Keep thank you for the connections to ELD standards, and UDL. | Non-Actionable |
| 275 | Commons | 5-6 | 127: ADD. Because this section is long, give an overview of the 5 components before getting into the details. Help the reader see the big picture.  “Five Components of Equitable and Engaging Teaching: 1) Plan Teaching Around Big Ideas; 2) Use Open, Engaging Tasks; 3) Teach Toward Social Justice; 4) Invite Student Questions and Conjectures; 5) Centering Reasoning and Justification.” | Writers’ Discretion |
| 276 | Commons | 6 | 142: KEEP: it is essential for teachers to have time to collaborate and learn together | Non-Actionable |
| 277 | Commons | 6-7 | 154-171 Keep: This is a good description of building the ‘need to know’ in students, building on what they already know. | Non-Actionable |
| 278 | Commons | 7-9 | 172-236 Keep\_ The vignette helps us see into a classroom, how the learning actually plays out. | Non-Actionable |
| 279 | Commons | 18 | 460 Change\_The answer to the question “Can you…” is yes or no. Change the question to “How many solutions can you find…” | Recommend |
| 280 | Commons | 23 | 513 Change the same question starter: “Can you…” to “How many solutions….” And you are not ‘finding’ but creating number expressions that have the value of…” | Recommend |
| 281 | Commons | 23 | 523 Change “find”, they did not ‘find’ a number but created an expression with the value of | Recommend |
| 282 | Commons | 27 | 599-601 ADD: Turner, Dominguez, Maldonado, Empson. English Learners’ Participation in Mathematical Discussion: Shifting Positionings and Dynamic Identities. NCTM JRME Special Equity Issue.2013. | Writers’ Discretion |
| 283 | Commons | 32-33 | 750-52. KEEP: “sending the message that learning is always unfinished and that it is safe to take mathematical risks.” | Non-Actionable |
| 284 | Commons | 47 | 1096-1101 KEEP: this statement of 21st century skills is valuable | Non-Actionable |
| 285 | Becker | NA | This chapter is unnecessarily long. Please edit to about 10 pages. One way to edit is not to have more than one example, as you do for open tasks. Many of these vignettes could be optional further reading of a basic chapter that makes all the key points. | Not Recommended |
| 286 | Becker | NA | This chapter and the document as a whole is replete with references to youcubed.org and its tasks and other materials. While I agree that many of these materials are indeed indicative of the points being made and useful, it gives the reader the impression this is one of the only resources for finding rich and engaging tasks and it almost sounds like an advertisement for youcubed. One author should not dominate the document. | Writers’ Discretion |
| 287 | Becker | NA | Why is nonbinary language not used in **this** chapter? | Non-Actionable |
| 288 | Becker | 2 | Line 36: I don’t like girls here as we are also talking about young women in middle and high school. They should not all be referred to as girls. | Writers’ Discretion |
| 289 | Becker | 4 | Line 83: suggest a comma after mathematics | Recommended |
| 290 | Becker | 4 | Line 89: I would add human-made | Not Recommended |
| 291 | Becker | 5 | Line 106: brings | Non-Actionable |
| 292 | Becker | 6 | Line 136: among them | Non-Actionable |
| 293 | Becker | 33 | Line 763: I think the figure should be referenced with the page number, not the secondary source by Berry. | Writer’s Discretion |
| 294 | Becker | 43 | Line 984: Reference the document by full name and year and provide the page number for the table. | Writer’s Discretion |
| 295 | Ward | 2 | Page 2, line 30-37: Mathematics is just our understanding of the foundations of our universe. If the claim is that how we’ve implemented trying to have people learn math, to play up the ridiculous notion that some people are “math people” and other people aren’t, then I agree. But if this is saying anything beyond that, it is ridiculous. Mathematics is just our way of putting a “language” to the universe we live in. | Non-Actionable |
| 296 | Ward | 3 | Page 3, line 41: Color-blind approach isn’t bad. All students can succeed, if they choose to put forth the time and effort to comprehend the concepts and practice to create the connections in their brain that allow them to come back and see, remember, and comprehend. It seems stupid otherwise; making a big ordeal about melanin which has nothing to do with neural pathways in brains to comprehend how we can put concepts to natural phenomena. | Non-Actionable |
| 297 | Ward | 4 | Page 4, line 96-99: Garbage. When students are never given time or pushed to master the foundational concepts and just get pushed along, there’s no time to waste with getting into current societal concepts when *high school students* can’t identify what terms are on the same side of the equal sign with the variable; or *high school students* who don’t comprehend what an exponent is, or how to figure out what the *square root of four* means, or yields. There’s major foundational mathematics deficiencies in California public schools and this framework is sounding more like a waste of time; garbage that’s pushing away from having all students be able to comprehend a set flow of procedures, or logically reason, because the next thing I may end up reading is how logic or math are racist (absurd; how can a concept be such?). | Non-Actionable |
| 298 | Ward | 5 | Page 5, lines 113-122: #2. Group work needs to be considered not the end-all, be-all. I know there are many who hate group work; especially in school when the students who are duds can coast; “Oh, but that will happen in real life,” No, at a job, they don’t do their job and are fired. #3. Make work visual? Absolutely; yes! #5: Then students try to cram any thought into the sentence frame/starter and it turns into incoherence because their thought does not mesh with the starter they used. #6. Then the issue comes with complaining that a teacher is overwhelming the student because there’s too many concepts happening - the current content in class and upcoming frontloading? Oh, woe is them; how terrible the teacher is! | Non-Actionable |
| 299 | Ward | 6 | Page 6, 131: What about how students aren’t mentally ready to see big connections? That just happens with adults. It wasn’t until I was substitute teaching in my 20s, that I saw any form of connection between Algebra and Geometry. I think the concepts of being integrated could be fine, but most student’s brains are not ready for those types of connections; they’re just working at comprehending the material they’re being presented. | Non-Actionable |
| 300 | Ward | 7 | Page 7, 175-177: How much time can be given to asking questions about only related concepts when there’s so many standards expected and thoughts of, exposure=mastery, when in reality no; that isn’t the case at all. There’s so many standards it’s like students need to master a new standard every other day if we will really get through the entire hodge podge of standards teachers are expected to have students learn. | Non-Actionable |
| 301 | Ward | 8 | Page 8, 188: I thought I heard that Ceres, California was big on direct instruction, stand and deliver, and sentence frames; having *DATA* tell them that was good (that rumor has it was just data from their own district); but then I thought I heard more recently they’ve discovered it wasn’t working and helping students so they’ve dumped it and moved on. Are sentence frames really that helpful, then? Or are we creating mindless drone zombie students? | Non-Actionable |
| 302 | Ward | 10 | Page 10, 237: Where is the textbook with open ended tasks providing the correct time to use them? Don’t be expecting teachers to make all of this; the last WASC review dinged us as teachers aren't curriculum experts and masters of content creation. So don’t make teachers do more work. Give them the resources they need to do these new chapters-full of demands of how to teach. | Non-Actionable |
| 303 | Ward | 12 | Page 12, 313: Ability grouping is unnecessary? That sounds insane. How can a teacher successfully run a high school Algebra 1/Integrated Math 1 class when students range from *KINDERGARTEN* math level up to *beginning ninth grade* math level? Does anybody ever consider that it’s rather unrealistic to expect a sole individual teacher to manage an ability range of **eight years** with students at all different levels of unprepared for the course content standards and expectations? | Non-Actionable |
| 304 | Ward | 12 | [The comment below has been excerpted for length. See the Box.com link above for the full comment.]  Page 12, 319: Progress, not perfection is what we’re targeting now? Does that mean we need to be more pushy in asking qualifications of people; say, did the engineer who did this bridge progress to x, y, z? Yes? Okay, how about the progress of the construction crew who put it into place; oh, they only progressed to third grade content? Yeah, I’m not going to risk going on that bridge then. Oh, look, it lacked structural integrity. Welp, glad to see those dead folk were part of a worthy cause of passing kids along instead of actually requiring them to learn. Who cares what dead scattered about are, with the grand scheme of not hurting feelings and promoting because of grace and oh well if they ever really learn.  THIS IS RIDICULOUS. Math was wonderful. I never feared going to class. Why? We would be introduced to a concept, be guided with it, and then do practice. That was safe, inviting, comforting, and predictable. I loved math class because of it. If I learned, a byproduct would be a good grade. If I didn’t, I needed to do more work. I worked hard, I passed the class. | Non-Actionable |
| 305 | Ward | 13 | Page 13, 338: Lecture must work, if it have been the standard means of transmitting information since the ancient Greeks up through universities in the present day. Don’t bash it just because we want to be different. This is moronic. | Non-Actionable |
| 306 | Ward | 29-44 | [This comment contained a hyperlink. Please see the Box link above for the full comment with links.]  Page 29, 673 - page 44: More garbage. Math IS A NEUTRAL DISCIPLINE. It’s patterns, quantities. There’s nothing beyond that, unless HUMANS interfere and push context or other matters on it. Just because we have pi doesn’t mean anything beyond seeing this repeatedly occur in our NATURAL WORLD. Pages 13 through this and beyond; **garbage**, **waste** of space, **waste** of my life reading it, **waste** of words. Just cut this. Trim it down; advocate for engagement with open tasks and that can be a perfect (CONCISE, SHORTER, TOLERABLE) chapter two. I think the issue is well noted in this Real Time with Bill Maher: Losing to China (cued to 5:16) which talks about the progressive trend sacrificing merit for equity. It certainly is a concern when it is showing up as the butt of jokes in late night television shows. | Non-Actionable |
| 307 | Ward | 54 | Page 54: Conclusion - *this is a waste of life that is just in existence to make some people feel better about themselves as they spout off worthless words into the wind. We waste our own time and yours to feel better about ourselves, love this chapter as it is ourselves patting our own backs*. As the audience fumes at having wasted the truly valuable finite resource: time. *Oh wait, the audience wonders, is that acceptable or is time classified as racist or inequitable now, too?* | Non-Actionable |
| 308 | Nowak | 6 | [This comment has been excerpted for length and includes hyperlinks. See the Box link above for the full text of the comment and the links.]  Lines 142-145:  The emphasis throughout the framework on organizing mathematics around big ideas is appreciated. Would it be appropriate to use this framework to outline what the big ideas are, grade by grade? For educators, it would help offload the expectation that they figure it out school by school. As curriculum developers, it would help us provide better-aligned materials.  Regarding the recommendation that educators create a classroom experience by choosing rich, deep tasks, research shows that curriculum is a critical factor in student academic success (Steiner, 2017), and that teachers infrequently offer activities that lead to grade-level mastery (TNTP, 2019). Since it would be research-supported, we would be thrilled to see a recommendation to use high quality instructional materials. If that isn’t possible, perhaps the framework could acknowledge that it is a viable option, instead of the sole recommendation being that educators figure out the big ideas and select tasks? | Non-Actionable |
| 309 | Nowak | 15 | Related: Lines 408-411 mentions that teachers need "resources." A curriculum to draw from is an important resource that has been shown to make a big difference. | Non-Actionable |
| 310 | Nowak | 18 | Line 460: The 4 4's task is aligned to standards from 6 different grade levels. It is not clear whether the suggestion is to use the same task in each grade or pick one of them. | Writer’s Discretion |
| 311 | Nowak | 38 | Line 896: Modeling is summarized as “I can use methods and tools to arrive to solutions.” Consider revising this to be better aligned to the way modeling is defined in mathematical practice 4. Perhaps something like “I can represent situations in everyday life mathematically to make predictions and solve problems.” | Writer’s Discretion |
| 312 | Rubalcava | 2-3, 4-5, 29 | **Items/Areas of Strength in Chapter 2 Include:**  Lines 33-42, 89-99, & 676-684 Discussions around social justice may be difficult for many well-intentioned educators to hear. It is important to begin these discussions with research-backed reasons that point to the need to go beyond “color-blind” math instruction in order to create systems that actively promote inclusion for *all* students. Specific guidance regarding teacher moves that help to build an inclusive mathematics community are necessary to support educators in turning research into action. | Not Recommended |
| 313 | Rubalcava | 4 | Lines 70-77 & 83-89 Shifts in mathematics instruction begin with a change in mindset about what mathematics (and math teaching) is and is not. Seeing math as a visual, creative, open-ended experience is much different than the mathematics many have experienced. | Non-Actionable |
| 314 | Rubalcava | 6 | Lines 142-145 No matter how beautiful and important are the ideas in the mathematics framework, if teachers do not receive the support they need in order to implement these shifts in instruction, it is likely that the changes envisioned in this document will not be as widespread as is hoped. Frequent reference to and emphasis on the importance of providing time for teachers to collaborate, quality curriculum that supports the spirit--not just the letter--of the framework, and on-going support in both content and pedagogy for all math teachers at every grade level, may help leaders successfully plan for the launch of this iteration of the framework | Not Recommended |
| 315 | Rubalcava | 6-7 | Lines 154-157 When thinking about teaching math around big ideas, particularly for SWD, teachers may wonder how they will ensure students have the mathematical knowledge they will need to reason through these tasks. This discussion about direct instruction will be critical to this understanding. | Writers’ Discretion |
| 316 | Rubalcava | 7-8 | Lines 179-190 Providing guidance for including images to support vocabulary development and sentence stems to support discourse are strong implementation supports for teachers of SWDs and ELs. | Non-Actionable |
| 317 | Rubalcava | 10-11, 16 | Lines 261-269 & 416-424 Engaging students in math by including tasks that relate to their lived human experiences, such as tasks around data they gather, is a way to include all students and reveal the value of mathematics in their lives. | Writers’ Discretion |
| 318 | Rubalcava | 15 | Lines 379-378 The inclusion of Moschkovich’s work strengthens a reader’s ability to see how to implement the Talk Move of Revoicing. | Writers’ Discretion |
| 319 | Rubalcava | 17 | Lines 443-444 Including the number talk image, highlighting the use of the visual and symbolic notation, strengthens the reader’s ability to implement a meaningful number talk for all students. | Non-Actionable |
| 320 | Rubalcava | 18-21 | Line 459-466 The tables included to highlight the opportunities for math content learning, math practice learning, and language development strengthen teachers’ ability to implement concrete actions by providing specific guidance around questions teachers can use. | Non-Actionable |
| 321 | Rubalcava | 23 | Lines 500-506 Calling out the specific ELD standard here strengthens the connection between math and language development | Writers’ Discretion |
| 322 | Rubalcava | 24 | Lines 525-530 Including the 3 Reads resource here provides a strong support for providing students access to open tasks. | Writers’ Discretion |
| 323 | Rubalcava | NA | **Use the Mathematical Teaching Practices, published in Principles to Actions by NCTM, as an integral part of this entire document. Listed below are some specific opportunities to embed this actionable resource:**  Embed the table on page 11 from NCTM’s “Principles to Actions” on productive vs unproductive beliefs in chapter 2 prior to introducing the 5 components. | Writers’ Discretion |
| 324 | Rubalcava | NA | [This comment included a graphic; see the Box link above for the full comment including the graphic.]  Embed the tables from NCTM’s “Principles to Actions” for each Math Teaching Practice (MTP) within the 5 components where appropriate. See sample from page 35 below: | Writers’ Discretion |
| 325 | Rubalcava | NA | NCTM’s publication Principles to Actions includes a Discourse Rubric that would be a strong addition to this chapter, as it provided concrete examples of shifting the work from teacher led to student led learning. Here is a link to this resource: https://robertkaplinsky.com/wp-content/uploads/2016/05/Levels-of-Classroom-Discourse.pdf | Writers’ Discretion |
| 326 | Rubalcava | 4 | **In order to support teachers in using this document include visuals, tables or figures to call out specific strategies for implementing this guidance. See specific line items below:**  Line 81 Embed the UDL table image from SFUSD into the document, in addition to linking it. http://www.sfusdmath.org/universal-design-for-learning.html | Writers’ Discretion |
| 327 | Rubalcava | 6 | Line 128 Include a table or image that outlines the 5 components of equitable and engaging teaching prior to writing lengthy sections about each component. | Writers’ Discretion |
| 328 | Rubalcava | 6 | [This comment included a graphic; see the Box link above for the full comment including the graphic.]  Line 141 Include a sample image of one of the Big Idea “webs” to strengthen the visualization of this concept. | Writers’ Discretion |
| 329 | Rubalcava | 10, 12 | Lines 253-254 and also lines 300-301 Embed an image, along with the link to the site, of the UDL Guidelines within this section, rather than adding it at the end of the chapter. | Writers’ Discretion |
| 330 | Rubalcava | 14 | [This comment included a graphic and a hyperlink; see the Box link above for the full comment including the graphic and the link.]  Lines 358-364 Here and in many several other places in this chapter, Talk Moves are referenced (e.g. Revoicing). I suggest adding an image of the Talk Moves in this section, as it supports meaningful group work for all students. Here is an example of an image to include: | Writers’ Discretion |
| 331 | Rubalcava | 25, 28 | Line 555 Talk Moves appear again here, providing more reason to include the image as suggested with lines 358-364. Also, bringing lines 630-644 would be more well connected to the Peer Revoicing vignette if they were moved prior to the current line 555 when the vignette is introduced. | Writers’ Discretion |
| 332 | Rubalcava | 6 | **In order to more strongly develop the support for Students with Disabilities (SWD) and English Language Learners ELs), make the following changes:**  Lines 142-145 See Rachel Lambert’s work on Design Thinking and UDL around planning inclusive instruction. | Writers’ Discretion |
| 333 | Rubalcava | 7-8 | Line 178-190 This section includes explicit ideas for supporting ELs, but doesn’t provide any guidance on supporting SWDs. I suggest updating the language to include that the optional sentence frames (line 182-183) support both ELs and some SWDs, as well as seek advice from a SWD expert, perhaps Rachel Lambert, to provide more guidance on how this vignette could provide stronger guidance for SWDs. | Writers’ Discretion |
| 334 | Rubalcava | 16-17 | Lines 432-449 Embed specific supports for SWDs and ELs. Examples of supports might include using sentence frames, using visual and symbolic notations in tandem, and using Talk Moves. I suggest consulting experts in both SWDs and ELs to find the best supports for these student groups. | Writers’ Discretion |
| 335 | Rubalcava | 18-20 | Table on pages 18-20: Add a column to this table that focuses on supports for SWDs and/or a column that makes direct connections to components of the UDL guidelines. | Writers’ Discretion |
| 336 | Rubalcava | 21-22 | Lines 466-473 Math Language Routines from Stanford would be a strong resource to include in this section. These routines provide access to the mathematics for all students, and include examples of several you have mentioned in this chapter (including 3 Reads and Number Talks). https://ell.stanford.edu/sites/default/files/u6232/ULSCALE\_ToA\_Principles\_MLRs\_\_Final\_v2.0\_030217.pdf | Writers’ Discretion |
| 337 | Rubalcava | 22 | Lines 481-486 The text states that Tracy “planned her lesson carefully, making it accessible for her students with learning differences, as well as language learners.” but doesn’t provide examples of what she did to plan for these students. Include examples of her intentional planning for ELs and SWDs. | Writers’ Discretion |
| 338 | Rubalcava | 25-26 | Lines 555-588 Include the use of sentence frames in this vignette to strengthen the access SWDs and ELs have to the discourse. | Writers’ Discretion |
| 339 | Rubalcava | 28-29 | Lines 645-672 This section on supporting SWDs feels like an afterthought, as it is placed at the end of the chapter, rather than being embedded throughout. In the suggestions above, several notes refer to sections in which support for SWDs can be embedded. Additionally, seeking the advice from an expert in the field of teaching SWDs in mathematics, like Rachel Lambert, to provide concrete examples of supporting SWDs throughout the chapter is highly recommended. | Writers’ Discretion |
| 340 | Rubalcava | 10 | **In order to strengthen the understanding and use of the UDL principles, make the following changes:**  Include in lines 249-260 some explicit connections between the UDL guidelines and Open Tasks. For example, there is a strong connection between engaging in different ways, using multiple ways of representing mathematical ideas, and expressing understanding” (lines 255-256) connecting strongly to the following Action & Expression items:   * Use multiple media for communication * Use multiple tools for construction and composition * Vary the methods for response and navigation | Writers’ Discretion |
| 341 | Rubalcava | 12 | Lines 319-322 The reference to the UDL is superficial and doesn’t provide support for implementation for aiming for progress over perfection in an inclusive setting. Call out specific elements of the UDL guidelines and provide an example of how this looks in the classroom. Seek the support of an SWD expert, perhaps Rachel Lambert, for guidance. | Writers’ Discretion |
| 342 | Rubalcava | 18-20 | Table on pages 18-20: Add a column to this table that focuses on supports for SWDs and/or a column that makes direct connections to components of the UDL guidelines. | Writers’ Discretion |
| 343 | Rubalcava | 5 | Lines 105-124 This framework offered by Darling seems disconnected from the rest of this chapter. In order to make this chapter more well connected, I would suggest one of the two following changes:   * Explicitly connect the Five Components of Equitable and Engaging Teaching to the Darling framework. For example, I see the focus on Use Open, Engaging Tasks (starting on line 237) supporting items 1-3 on Darling’s framework. I suggest making the connection explicitly in the text about open tasks to make the connection clearer to the readers. Another connection I see is Teaching Toward Social Justice (starting on line 673) connecting to items 1, 4, and 5 in Darling’s framework and I suggest adding explicit language in the Teaching Toward Social Justice section to make that connection more clear as well. * Eliminate the inclusion of the Darling framework altogether and instead use the Mathematics Teaching Practices (MTPs) as the frame that connects to the Five Components of Equitable and Engaging Teaching. | Writers’ Discretion |
| 344 | Rubalcava | 13 | Line 333-337 The link that is offered, https://www.youcubed.org/evidence/our-teaching-approach/, does not provide clear guidance on how to structure group work or how to provide appropriate language scaffolds. I suggest removing it. | Recommended |
| 345 | Rubalcava | 16-17 | Lines 432-449 Number Talks are also a type of open task and should be grouped with the other two open tasks offered on pages 18-24. | Recommended |
| 346 | Rubalcava | 45 | Line 1070 Include a list of the norms that the teacher used. | Writers’ Discretion |
| 347 | Rubalcava | 48-54 | Table after line 1111 Consider shifting your table to use this Innovation Configuration Map from the Charles A. Dana Center. https://nsiexchange.org/wp-content/uploads/2019/01/maps.pdf | Writers’ Discretion |
| 348 | Rubalcava | 10 | Line 248 Add the list of websites here of the link to the reference page so teachers have a direct location instead of trying to find the location in the framework. | Writers’ Discretion |
| 349 | Rubalcava | 18-21 | Line 459-466 For the table in example 2 add specific guidance on the teacher actions, including questions teachers can ask, to mirror the format of the table in example 1. | Writers’ Discretion |
| 350 | Sampson | NA | Strengths:  Emphasis on mindset, accessibility, sense of belonging, and mathematical identity. | Non-Actionable |
| 351 | Sampson | NA | Equity and social justice in mathematics are emphasized throughout the framework. | Non-Actionable |
| 352 | Sampson | NA | Referencing NCTM Principles to Action content validates the important professional development work essential to elevating the math practices through the research-based math teaching practices. In addition, the provided examples of Orchestrating Discussions and the 3 Reads Protocol will support educators with implementation of the 8 effective teaching principles. | Non-Actionable |
| 353 | Sampson | NA | Clearly identified multilingualism as an asset for students. | Non-Actionable |
| 354 | Sampson | NA | Resources for additional tasks, vignettes and snapshots are helpful to see the guidance in action. The elevation of the mathematical practices as being equal to content is essential when planning for instruction. | Non-Actionable |
| 355 | Sampson | NA | The authors have also nicely articulated the importance of implementing high quality tasks that promote reasoning and problem solving. | Non-Actionable |
| 356 | Sampson | NA | Considerations for refinement:  Center the focus of this chapter around the 8 effective teaching practices and how one might plan a lesson series utilizing the 8 practices while incorporating the “five components of equitable and engaging teaching.” | Writers’ Discretion |
| 357 | Sampson | NA | Include additional concrete examples to support leaders and teachers visualize a year-long, sustained approach to teaching Mathematics for equity and engagement. | Non-Actionable |
| 358 | Sampson | NA | When referencing tasks in vignettes, consider linking to the task or lesson plan with the task so teachers have a more detailed understanding if needed. This also helps model both the approach to the mathematics and the layering of additional instructional considerations. | Non-Actionable |
| 359 | Sampson | NA | Emphasize Rachel Lambert’s work around leveraging the assets of neurodiverse students to a greater extent throughout the framework. UDL is a design mindset and approach to planning that can build upon the assets of all learners. We recommend supporting teachers to embed UDL practices by providing math-specific examples of instructional design. Please Include examples of the 4 components of UDL (reflection & goal setting, mini lesson, self-differentiated learning, and self-differentiated assessment) in CH 2 and UDL vignette in each of the grade band chapters. | Not Recommended |
| 360 | Barger | NA | In Chapter 2, additional references to students’ experiences, knowledge, and native languages have been included. The references to the ELD Standards generally is an improvement over the past framework. Sample vignettes and snapshots that highlight strategies for language acquisition and non-linguistic supports are helpful in understanding instructional practices that support emergent multilingual learners. | Non-Actionable |
| 361 | Barger | NA | Consider including one of the sample lessons from “Connecting Critical Intersections: The interconnectedness of English language learning and the development of mathematical thinking” (in *A Pathway to Equitable Math Instruction*) in the body of Chapter 2. The resource provides a template for teachers to use in their own development of lessons. The tool was created for teachers to use to address the need for English Learners to engage in rigorous language and mathematical learning in order for them to progress towards proficiency. | No Motion Recommended |
| 362 | Barger | NA | Chapter 2: Include tables from NCTM Principles to Action that show teacher actions and student actions for each of the 8 effective teaching practices (these are found at the end of the chapters that highlight the practices). These tables can be embedded into the five components where appropriate. | Writers’ Discretion |
| 363 | Barger | NA | Chapter 2: Include table from NCTM’s Principles to Actions page 11 “Beliefs about Teaching and Learning Mathematics” (around productive vs. unproductive beliefs). | Writers’ Discretion |
| 364 | Rodgers | NA | Noteworthy features:  Vignettes - helpful to show the process of student discourse and teacher as guide on the side. Looking for student self image and agency. | Writers’ Discretion |
| 365 | Rodgers | NA | Placement to the front of framework vs. the end makes it front and center. | Non-Actionable |
| 366 | Rodgers | NA | We liked the push of students working together more, team effort! | Non-Actionable |
| 367 | Rodgers | 4 | 73-74 Our goal is for students to view mathematics as a vibrant, inter-connected, beautiful, relevant, and creative set of ideas. | Non-Actionable |
| 368 | Rodgers | NA | Links to resources “just in time” links. | Non-Actionable |
| 369 | Rodgers | NA | Math is visual for all grade levels. | Non-Actionable |
| 370 | Rodgers | NA | As in chapter 1 we liked the Big Ideas and connections. | Non-Actionable |
| 371 | Rodgers | NA | Engaging Tasks: the what, the why, the how, examples, resources | Non-Actionable |
| 372 | Rodgers | 4 | We like the lin to San Francisco curriculum (line 81) | Non-Actionable |
| 373 | Rodgers | NA | Vignettes allow to see what the text looks like in a classroom | Non-Actionable |
| 374 | Rodgers | 18 | We like the chart on line 462 (pg 18) | Non-Actionable |
| 375 | Rodgers | 48 | Equitable teaching practice- page 48, line 1,111 | Non-Actionable |
| 376 | Rodgers | NA | We like the 5 components of Equitable and Engaging Teaching | Non-Actionable |
| 377 | Rodgers | NA | Useful information, tangible | Non-Actionable |
| 378 | Rodgers | NA | We felt that teachers would be able to connect with how this might look in the classroom. | Non-Actionable |
| 379 | Rodgers | 38 | Appreciated the Math Identify Rainbows- Line 883 | Non-Actionable |
| 380 | Rodgers | NA | Number Talk examples were helpful, | Non-Actionable |
| 381 | Rodgers | NA | Visuals/situations/examples help simplify. | Non-Actionable |
| 382 | Rodgers | NA | Great resource, but not likely that all people will read word for word if everything else. | Non-Actionable |
| 383 | Rodgers | NA | Role of Productive struggle, discourse and multiple strategies. | Non-Actionable |
| 384 | Rodgers | 29 | Needs clarity or improvement:  Line 674 “imperative to impart upon (had to read multiple times). | Writers’ Discretion |
| 385 | Rodgers | 45 | Is snapshot the same as a vignette: are they interchangeable or ? (line 1040) | Non-Actionable |
| 386 | Rodgers | 55 | Line 1124: The 5 ways of organizing classrooms at the end of the chapter is referenced different at the beginning of the chapter as components. | Writers’ Discretion |
| 387 | Rodgers | NA | We would like to see links to some classroom video examples. | Not Recommended |
| 388 | Rodgers | NA | Be aware if acronyms used in earlier chapters, people may have skipped the earlier chapters. | Writers’ Discretion |
| 389 | Rodgers | NA | Graphically align charts better. | Writers’ Discretion |
| 390 | Rodgers | NA | Color coding headings to help read. | Not Recommended |
| 391 | Rodgers | NA | UDL could be explained a little better and how it relates to math, perhaps add a vignette to model that or incorporate it into a vignette to demonstrate it more clearly. | Not Recommended |
| 392 | Rodgers | NA | Love the Big Ideas, but how to get teachers to shift to student led vs teacher led and the training that goes with it. | Non-Actionable |
| 393 | Rodgers | NA | Curriculum needs to be written in UDL format? Jo Boaler, Illustrated Math | Non-Actionable |
| 394 | Rodgers | 39 | Vignette on pg 39 may cause issues with more conservative teachers/schools. | Non-Actionable |
| 395 | Rodgers | NA | Examples should be gender neutral. | Writers’ Discretion |
| 396 | Rodgers | NA | Will support for “look for” prompts about this be in the texts? | Non-Actionable |
| 397 | Rodgers | NA | Hoping curriculums provide visuals. | Non-Actionable |
| 398 | Rodgers | NA | Another summary statement and/or graphic for the Five Components (recap) | Writers’ Discretion |
| 399 | Rodgers | 47 | Center Reasoning and Justification (what do you mean by “center”) Make it the heart of your classroom?? Focus vs. Center\*(line 1087) is this from UDL or other work? Is it anchoring? About grading too? | Writers’ Discretion |
| 400 | Rodgers | NA | Clarify language, like “center” in this context that is new to the field | Writers’ Discretion |
| 401 | Grip | 2 | “…to create culturally-relevant lessons.” (26) <br>This is a welcome growth area for our profession. Let’s make the learning of mathematics about the students we teach. More support for this found in lines 261-267, 338-344, 416-418.<er> | Non-Actionable |
| 402 | Grip | 2 | “…because of these inequities teachers need to work consciously to counter racialized or gendered ideas about mathematics achievement…” (32) <br>Begin with awareness that leads to action and positive change.<er> | Writers’ Discretion |
| 403 | Grip | 3 | “Students learn best through active engagement with mathematics and one another.” (61) <br>I agree with this statement but would like to qualify by leading with the word “Many.” It is my belief that students (and adults) learn in different ways. Many students learn best through active engagement and collaboration. These are the students whose needs are often ignored in a more traditional, desks-in-rows, no interaction, direct instruction-only classroom. I believe the learning experience for all students is enhanced using active engagement and group strategies yet I wonder If this is “best” for all students. I appreciate the intent of UDL and the many places in the document that emphasize a variety of learning approaches to meet the needs of a variety of students. (72, 78, 90, 290-292, 645-647, 665-672).<er> | Writers’ Discretion |
| 404 | Grip | 5 | I agree with Items 1, 2, 3, 4 of the framework outlined by Darling (113-118) but I have a couple of minor concerns about items 5 and 6 (119-122) and not with the items themselves but how teachers tend to implement. <br>I have observed teachers using scaffolding and pre-learning to lower the cognitive demand for students through “just in case” instruction rather than “just in time.” I found it more effective and meaningful to teach vocabulary as needed in context for language learners and all learners. Regarding “pre-learning” it seems to fit with the logical building-block structure of textbooks rather than learning through context. See also lines 157-171.<er> | Non-Actionable |
| 405 | Grip | 6 | “Rather than preparing a set of many problems to work through in a lesson, one rich task may be planned as the basis for an entire lesson, or at times worked on through several days of exploration, sense-making and discussion.” (150-153) <br>Thank you for calling attention to this. My own teaching was evolving in this direction before I retired and I began to see the benefit to students of this approach. I wish I had done this more and now encourage this approach for new teachers.<er> | Non-Actionable |
| 406 | Grip | 7-12 | Commentary such as “achieved at significantly higher levels” (163) and “highest achieving people” (279) and “achievement increased” (284) or a “low achiever” (304) appear in several places in the Framework. <br>I often wonder how we are measuring such achievement. Who decided what achievement to assess and how it would be assessed? I wonder if there is a lot of amazing achievement that goes unrecognized because we have fixed ideas about achievement. If students do not improve their scores on a standardized test does that mean they have not increased achievement? Our goal in teaching should be to increase understanding and achievement for all students; I just hope we are inclusive in what and how we measure achievement.<er> | Writers’ Discretion |
| 407 | Grip | 10 | “Two examples of such tasks are given below; one based in a real-world context, and one that encourages exploration of mathematical ideas through numerical patterns.” (245-247) <br>I so appreciate that you distinguish different types of investigations and encourage you to continue to ask teachers to do BOTH. Stated again in lines 428-431.<er> | Writers’ Discretion |
| 408 | Grip | 12 | “…what educators perceive as an apparent lack of understanding in a student may not indicate an actual absence of knowledge.” (306-307) <br>Love how this phrase encourages us to dig deeper into the thinking and reasoning of the student. When we shift from assessment of procedures and skills to “understanding” it presents a huge challenge to how we recognize understanding.<er> | Non-Actionable |
| 409 | Kempster | NA | + We strongly agree with the Equity and Engagement, especially Darling’s frameworks and the Five Components of Equitable and Engaging Teaching (some questions and exceptions are stated below) | Non-Actionable |
| 410 | Kempster | 5 | 121: Δ “ 6. Give opportunities for pre-learning (opportunities to learn prerequisite material ahead of time)”:  We wonder how this advice gets taken up by teachers, sometimes in ways that damage a student’s identity as a math learner, or in ways that are ineffective (reteaching previous learning quickly with the whole class). | Non-Actionable |
| 411 | Kempster | 8 | 195: Δ “ Susan works alone”: What happens when students are given the option to work individually on a group task, or not supported to include everyone in collaborative discussions? Who engages, and with what mathematics? Who is left out of this story? | Not Recommended |
| 412 | Kempster | 10 | 254-258: + This sentence about multiple reasons to use open tasks is very compelling. | Non-Actionable |
| 413 | Kempster | 10, 12 | 239-231: “Open tasks are those that enable students to take ideas to different levels (Vale, et al, 2012). When tasks have a low floor and a high ceiling, it means that any student can access the task but the task extends to high levels.”  Δ This language about “levels” implies that math is a ladder with levels, which implies that students have levels. Suggest: When a task has multiple learning opportunities and access points, there are many ways for students to access the task and grapple with rigorous mathematics.  314-315: Δ Same language about levels: “open tasks students can engage with at different levels”  316-318: + Contrast with: “These environments create discussions enriched by the range of strategies and perspectives that students offer. For example, students benefit from discussing connections between direct modeling and more abstract reasoning strategies.” This language is very strengths-based. | Writers’ Discretion |
| 414 | Kempster | 13, 24 | 543 etc 345 etc: + Supporting Student Partnerships and Small-Group Work section: This section is so important. Δ In several cases before and during the Open Tasks section, we felt there was not enough reference to supporting participation and mitigating for status  issues. In what ways can you reference this section earlier? | Writers’ Discretion |
| 415 | Kempster | 12 | 324-327: Suggestions for expanding:  ...rely on the different strategies students bring and the ensuing approaches they take to articulate their thinking. When grappling with multidimensional tasks, collaborative student groups will also need ongoing support with participation structures in order to mitigate the status issues that can interfere with equitable participation. These  participation supports will be discussed in the next section, Supporting Student Partnerships and Small-Group Work. This approach of providing open tasks while supporting participation not only supports learning, it serves to position students across a range of backgrounds as mathematical thinkers. | Writers’ Discretion |
| 416 | Kempster | 13 | 354: The teacher launches a problem (or problem context) and participation structures to support equitable engagement. | Writers’ Discretion |
| 417 | Kempster | 14 | 373: When students are supported to participate as audience members... | Non-Actionable |
| 418 | Kempster | 14 | 400: ...thinking about one’s individual students and <bs>~~what is known about them~~<es> their mathematical strengths, in order to ensure that all students have access to the task. ” | Recommended |
| 419 | Kempster | 14 | 403-404: + Δ The section on Open Tasks is very focused on supporting English Learners. While this is incredibly important, all students and particularly other underserved groups benefit from open tasks as well. Can we use a UDL focus to change some of the language to be inclusive of more students? Example: “support all students, including <bs>~~the~~<es> English learners, as they learn the content.” | Writers’ Discretion |
| 420 | Kempster | 16 | 441: Δ “ ...ask if anyone would like to defend their answer.” To me this feels like a white culture discourse style – like a debate. How about, “ask if anyone would like to explain their thinking. ” | Writers’ Discretion |
| 421 | Kempster | 22-23 | 495-499: + This is a good example of supporting equitable participation where students see each other as resources. | Non-Actionable |
| 422 | Kempster | 28 | 633-635: Δ Black students are almost not mentioned in this chapter, even though the strategies described can be immensely beneficial to their inclusion in the intellectual community of the classroom. Can you be more explicit about practices that support Black students?  Example: “Approaches described in this chapter can benefit all students, but they may be particularly useful for vulnerable students, including students learning English, <bs>~~and~~<es> students with disabilities, and students who have often been marginalized in traditional math classrooms such as Black students.” | Writers’ Discretion |
| 423 | Kempster | 34-35 | 795-801: + We appreciate this explanation of how a teacher valued mistakes as part of learning math. | Non-Actionable |
| 424 | Kempster | NA | + We really appreciate how this Framework offers multiple opportunities for further learning, with references and l inks to resources. We are looking forward to going deeper into Social Justice resources and research on why inquiry-based learning is more effective than direct instruction. | Non-Actionable |
| 425 | Gonzales | NA | Question: Chapter 2 Teaching for Equity and Engagement  ● Q: In Teach Toward Social Justice (in the “Five Components for Equitable and Engaging Teaching”), how important is it that “math is [seen as] a tool that can be used to understand and change the world”?  In particular, we are curious to learn more about your guidance regarding grades K-5. For example, should we explore the “and change” part of this, or is focusing more so on using math and literature in math to provide mirrors and windows (opportunities for students to see themselves, their communities, and other cultures in the math) more appropriate for K-5? | Non-Actionable |
| 426 | Akins | NA | [This comment has been excerpted for length. See the Box link above for the full comment.]  Having a chapter so early in the framework that recognizes that engagement is an issue of equity is commendable. This chapter presents the opportunity to center equitable practices as a pathway to social and racial justice in math instruction, curriculum and assessment. As well as an opportunity to advocate for a critical paradigm shifts in “what mathematics is taught” and “how mathematics is taught.” The *Five Components of Equitable and Engaging Teaching* is a starting point to reflect about the ways in which teachers create equitable and engaging learning environments for all students. These shifts in mindsets amongst all stakeholders, calls for a need to go beyond access and engagement, and develop deeper dimensions of equity. The 8 Competencies of Culturally Responsive Teaching Practices is a more complete, interconnected and robust framework for this chapter. | Writers’ Discretion |
| 427 | Akins | NA | The *5 Components of Equitable and Engaging Teaching seem unnecessary in light of the 8 Competences for Culturally Responsive Teaching,* which provides a more thorough and interconnected approach to equitable practices. | Not Recommended |
| 428 | Akins | NA | Areas of importance are vague and underdeveloped such as Culturally responsive teaching (CRT) practices and UDL. Areas such big ideas and vignettes seem disjointed, rambling and mismatched. This chapter would be difficult to use as a practical tool to guide teachers and therefore possibly ignored. | Writers’ Discretion |
| 429 | Akins | NA | The vignettes in this chapter should focus on highlighting the CRT competencies and connect to UDL. Currently, the vignettes do not adequately showcase equitable practices. For example a vignette can be used to advance an educator's understanding of diverse identities modeling how to center an educator’s knowledge of who their students are in order to develop culturally responsive and asset-based instructional approaches. Find vignettes that clearly, strongly and explicitly showcase equitable practices like the 8 competencies. | Writers’ Discretion |
| 430 | Akins | NA | Need a vignette that describes how to teach diverse student population | Not Recommended |
| 431 | Akins | NA | In the implementation of equitable mathematics, students’ mathematical experiences should center the SMP and not merely mention an SMP in a table that lists the content. SMP are the difference between a thinking/problem-solving experience and memorization/practicing skills. We know that one common inequitable practice is limiting access to cognitively demanding mathematics. One way to address this is to keep the SMP in their fullness, central to classroom mathematics. Likewise, it is not enough to say "SMP 5." This is the place to describe how that SMP is experienced by the learner in the context of the lesson and how this supports equity. | Writers’ Discretion |
| 432 | Akins | NA | In the section that discusses the misconception of talent and giftedness, and the section addressing rigor, we suggest the expansion of the discussion and inclusion of information on how these ideas and biases also impact educators’ perceptions of traditionally marginalized groups of students along the lines of race, class, language, and gender. | Writers’ Discretion |
| 433 | Akins | NA | There are many references to YouCubed. There are other sites/organizations/researchers who have expertise, and in fact have authored the tasks, etc. now found on Jo Boaler's website. How about introducing the TRU Framework (a state-wide framework) and use the expertise Rachel Lambert is developing with Math and UDL, and Julia Aguirre, Karen Mayfield and Danny B Martin (*The Impact of Identity in K-8 Mathematics*), Kathryn Chavl (*Teaching Math to Multilingual Learners*), or Debra Coggins (*Teaching Math to English Learners*) or the *Access and Equity: Promoting High Quality Access* Series from NCTM, and so on. Use Vignettes from these publications and authors who are experts in their field. YouCubed is not the answer to everything. | Writers’ Discretion |
| 434 | Akins | NA | The current framework states the cluster headings as the appropriate grain size for instruction. This chapter mentions the cluster headings and “Big ideas.” It is unclear what the recommendation is. Is the suggestion in this section to rename cluster headings as big ideas? Is the recommendation in this section to forget cluster headings and replace them with Big ideas? What are the Big Ideas? Have they been developed? Are they inclusive of SMP? Does a collection of Big Ideas develop mathematical understanding in coherent ways, is there a progression of mathematical and cognitive development? It seems that the Big Ideas are a way of addressing one of the five comments of equitable and engaging teaching. However, it still seems disjointed and forced. | Writers’ Discretion |
| 435 | Akins, Arrillaga | 2 | [The comments below were organized into a table. See the Box link above for the original table structure.]  11-15 Reframe the Chapter so the 8 Competencies of Culturally Responsive Teaching is the framework for chapter 2 Equitable practices should go beyond access.  Reframing mathematics so that in includes culture, linguistic diversity | Writers’ Discretion |
| 436 | Akins | 3 | 63-64 Drivers of Investigation align with teaching math for social justice and Culturally Responsive teaching (CRT) practices. | Non-Actionable |
| 437 | Akins | 4 | 83-87 Great statement to acknowledge how a lack of understanding diverse culture leads to devaluation of cultures and disconnects students towards mathematics which reduces their options to engage in global society. | Non-Actionable |
| 438 | Akins, Arrillaga | 4 | 98 develop :lessons or parts of lessons, a task that showcases an “equity lens” or the use of “culturally and linguistic resources.”  This will help make this chapter a tool teacher can use to Teach Math for Social and Racial Justice by implementing CRT and UDL | Writers’ Discretion |
| 439 | Akins, Arrillaga | 5 | 113-122 Develop these framework in practical ways These are very specific points to create and deepen a teacher’s understanding of how to address and engage in culturally and linguistic diversity. | Non-Actionable |
| 440 | Akins | 6 | 131 -171 not sure what to suggest  How are big ideas and cluster heading connected? How does this build on what the current framework states? Ambiguous component and although an argument can be made that this is important to equity there seems that this chapter should be addressing issues and competencies, other than big ideas. | Writers’ Discretion |
| 441 | Akins, Arrillaga | 7 | 172 Vignette  Rewrite or explain how this vignette is addressing this section.  In the fields of the Imperial Valley and Central Valley, fences are not commonly seen if present at all. It feels this is a transcript of a good task/lesson that was contrived to seem culturally relevant. Would recommend caution as it may mislead teachers to think that this task is culturally relevant, or it may offend a teacher, student who knows this is not culturally relevant. Love the use of geometry. Recommend looking into the book *Rethinking Mathematics* or *High school Mathematics Lessons for Teaching Social Justice* or books recommended in the above section. Refer to the statement made in lines 261-265 to determine if a vignette is hitting the mark | Writers’ Discretion |
| 442 | Akins, Arrillaga | 10 | 261-265 Say this earlier in the chapter  This should be a driver for this chapter. | Recommended |
| 443 | Akins | 11 | 279-282 Excellent statement | Non-Actionable |
| 444 | Akins, Arrillaga | 14 | 365-372 Vignettes should show what making use of cultural and linguistic assets look like this will make this chapter a tool | Writers’ Discretion |
| 445 | Akins | 15 | 390-415 Good stuff | Non-Actionable |
| 446 | Akins, Arrillaga | 16 | 416-418 In the same vein instruction should include geometric perspectives to support algebraic thinking, especial for multilingual learners  In the book Beyond Good Teaching, the authors state that in mathematics there is a 5th language demand: Representation. Geometric perspective is a way to support this language demand. | Not Recommended |
| 447 | Akins, Arrillaga | 30 | 691-692 Use this competency as the outline of topics to discuss in this chapter.  The 8 Competencies are a better option for this chapter than the 5 components listed at the beginning of this chapter. They are also the lens that should be repeatedly linked throughout all the other chapters as is social and racial justice. | Not Recommended |
| 448 | Akins | 37 | 857-882 Good stuff but connection is vague. | Non-Actionable |
| 449 | Akins | 55 | 1138 Standard graphic, is it useful?  Develop little more but not by linking me to the UDL website which is huge and overwhelming. Connect with Rachel Lambert and the work she is currently working on with Math and UDL. | Writer’s Discretion |
| 450 | Akins | 31 | 697 Explicitly explain the difference between multicultural education and Culturally Responsive Teaching (CRT) | Writers’ Discretion |
| 451 | Williams | NA | We support   * 33-37, 41-42 color-blind approach allows inequities to continue * 70-74 powerful statement * Line 88--Vibrant, inter-connected, beautiful, relevant and creative set of ideas * 89-92 important statement * pp.10-13 using open tasks, esp. 261-, 269-, 275 tasks that connect to students’ lived experiences and interests and 428-rich pure math tasks * 313-315 no ability grouping, flexible grouping like literacy groups * pp.14-15 connecting to ELD standards, Taking an asset-based approach that recognizes student strengths and backgrounds * 358-359 powerful statement--help students think, not think for them * 405-415- good message * 409 - Very powerful line and ideas. We need to be supported and have this done over time * 615-618 guidance on effective questioning * 675 use math for social justice--math as a tool to understand & change world * 693 good graphic about culturally responsive teaching * 738-749 resources to connect literature to math and culture * The vignettes provide a great visual idea of what could be * We appreciate all the resources and links provided for further exploration | Non-Actionable |
| 452 | Williams | 5 | We wonder  125-126 Equitablemath.org mentioned but not expanded on Could you highlight some recommendations or resources from this source? | No Motion Recommended |
| 453 | Williams | 14-15 | pp.14-15 connecting to ELD standards. Can you provide grade specific examples to help teachers understand how to do this, esp. secondary teachers who do not teach ELA/ELD? | Writers’ Discretion |
| 454 | Williams | 16 | 424-427 trauma-informed pedagogy. This is briefly mentioned. If it is included, can you elaborate on this more? | Writers’ Discretion |
| 455 | Williams | 22 | [This comment included an embedded hyperlink. See the Box link above for the full comment with hyperlinks.]  589 revoicing talk move is mentioned. Can you include a table and reference to other productive talk moves. For example, the Seven Productive Talk Moves from, Classroom Discussions: Using math talks to Help Students Learn by Suzanne Chapin | Writers’ Discretion |
| 456 | Williams | NA | Teaching around big ideas, equity, culturally relevant pedagogy, and social justice will require lots of new resources and professional development. | Non-Actionable |
| 457 | Williams | NA | Current curricular resources do not support the recommendations of this chapter. What resources are currently available to teachers to help them start planning around these ideas (relevant tasks, etc.)? How does teaching the big ideas fit into the curriculum in our classrooms? | Non-Actionable |
| 458 | Williams | 23-24 | p.23-24 not clear how this task addresses the ELD standards described. Can you elaborate. | Writers’ Discretion |
| 459 | Williams | 29 | p.29 Teach Toward Social Justice, esp. Line 29--Please provide more clarification and specific examples, esp. For elementary level. | Not Recommended |
| 460 | Williams | NA | How does teaching the big ideas fit into the curriculum in our classrooms? | Non-Actionable |
| 461 | Williams | NA | How to provide for students who need acceleration? | Writers’ Discretion |
| 462 | Williams | 5 | 121-122 recommends giving opportunities for pre-learning. Can you provide examples of this? | Writers’ Discretion |
| 463 | Williams | 48-54 | pp.48-54 table of Effective Teaching Practices at the end of the chapter. Can you move it to give it more prominence and reference the practices as they occur in the chapter | Non-Actionable |
| 464 | Williams | 55-56 | pp.55-56 UDL is referenced in both Ch1 and 2 and the graphic is provided at the end. Can the table be referenced with specific UDL math lessons to help us understand how to use the guidelines? | Not Recommended |
| 465 | Williams | 13 | 354-355 add a note to provide individual think time before peer talk | Writers’ Discretion |
| 466 | Williams | 17 | 443- would love to see a different or additional example graphic for a number talk (ex. More visual representations, like open number line, break apart, etc.) Here is a resources that will help: https://www.sfusdmath.org/visual-model-progressions.html | Writers’ Discretion |
| 467 | Williams | 37 | 873-874 Berry’s approach mentioned and diagram provided of what leads to Teaching math for social justice. Please provide additional info on the four bodies of work, esp. complex instruction and critical math education. | Not Recommended |
| 468 | Arrillaga | NA | We appreciate the explicit focus on equity within the chapter, including the recognition that engagement is an issue of equity and the centering of equitable practices as a pathway to social and racial justice in math. However, we see an opportunity within the chapter to add more specific and practical guidance for educators and school staff, and to elevate culturally responsive practices. | Non-Actionable |
| 469 | Arrillaga | NA | Reframe the chapter around the Eight Competencies of Culturally Responsive Teaching Practices. While the Five Components of Equitable and Engaging Teaching is a starting point to reflect about the ways in which teachers create equitable and engaging learning environments, the Eight Competencies is a more complete, interconnected, and robust framework for this chapter. It is important to note that there are instances that could be detailed and developed further to address several of these competences. However, the following competences are not addressed: Reflect on one’s cultural lens, Recognize and redress bias in the system, communicate in linguistically and culturally responsive ways and collaborate with families and the local community. | Not Recommended |
| 470 | Arrillaga | NA | [The following comment has been excerpted for length. See the Box link above for the full comment.]  Ensure that concepts of culturally responsive teaching (CRT), Universal Design for Learning (UDL), and others are practical and explicit. These concepts could use more development and offer clear connections to practice for educators. Providing concrete examples, details, and tools that teachers can use to meet the diversity in their classrooms will ensure that equity is actionable and not just mentioned. This can be improved by ensuring that the vignettes highlight CRT competencies, connect to UDL, and showcase equitable practices. he following concrete examples could be provided:   * Modeling how to center an educator’s knowledge of who their students are to develop culturally responsive and asset-based instructional approaches. * Examples of how to build on students' identity and naming student thinking visible, student voice. * Identifying the systemic issues that need to be dismantled, how to dismantle and rebuild them, and the impact that policies outside the classroom impact classrooms. | Writers’ Discretion |
| 471 | Arrillaga | NA | Center student’s math experiences in the SMPs and not merely mention an SMP. One common inequitable practice is limiting access to cognitively demanding mathematics. This can be addressed by keeping SMPs in their fullness, central to classroom mathematics. The mention of SMPs should describe how that SMP is experienced by the learner in the context of the lesson and how this supports equity. | Non-Actionable |
| 472 | Arrillaga | 6-7 | [Note that many of the comments from this group were identical to the ones submitted by Akins, and are noted above.]  131-171  Clarify the connection between the big ideas and cluster headings. This chapter should be addressing issues and competencies, other than big ideas. | Writers’ Discretion |
| 473 | Arrillaga | 37-38 | 857-882  Great language but it can be improved by clarifying the connection. | Not Recommended |
| 474 | Arrillaga | 56 | 1138  Linking to the UDL website is not as helpful since the site is huge and overwhelming. Suggest connecting with Rachel Lambert and the work she is currently working on with Math and UDL. | Writers’ Discretion |
| 475 | Michelena | 5, 44 | Lines 125, 126, and 1013  The Five Strides of Math on equitablemath.org seem more political in nature than research in nature. It does not seem like something that should be included in this Math Framework. Any other such websites or articles should also be carefully considered before including. | No Motion Recommended  (This document is currently under review; no recommendation at this time) |
| 476 | Michelena | 48 | Line 1111  The table does a good job of linking the 8 Mathematics Teaching Practices with Equitable Teaching Practices. | Non-Actionable |
| 477 | Webb | NA | Love the details of how equitable math instructions should look like. | Non-Actionable |
| 478 | Cruz-Ardoin | NA | A very vital portion. | Non-Actionable |
| 479 | Herrera | NA | During distance learning a question on many teachers' minds has been how to get students engaged. Chapter 2 puts forth investigating content as the answer. Students would become curious, motivated and could reason and question math that is relevant to them. This is the basis to make mathematics "vibrant, inter-connected, beautiful, relevant and creative" [Line 88] instead of so procedural. | Non-Actionable |
| 480 | Sedig | NA | Honestly, I feel like this is being pushed as the agenda across this nation. Of course teachers want all students to have equal access and it to be equitable. We are taught this in the process of getting our credential as well as life. I'm assuming most colleges have an ethnic diversity class as a component. Anyone living in California embraces the diversity. I think this isn't going to help our educational system. | Non-Actionable |
| 481 | Coates | NA | Gifted students should not be forced to take the math that their grade is being taught. for instance in some districts, ALL 6th Graders MUST all take the same math and do not offer any acceleration opportunities.... this is not equitable and GATE students actually disengage- this needs to be addressed within the framework. | Non-Actionable |
| 482 | Heasley | NA | I like the value put on Number talks and references to learn more about this. As a Christian, I feel that the section on social justice is a veiled attack on Christian beliefs. I support de-tracking. | Non-Actionable |
| 483 | McManaman | NA | Middle school students that want more math are now going to take classes at night - AoPS, and a number of tutoring centers are thrilled for the business you're going to generate. Of course, the only people that will take those courses are students that have parents able to pay for them ... because that is equity. Teach all the students one thing and let those that want more pay for it. Sounds like equity to me ... | Non-Actionable |
| 484 | Hammervold | NA | I am a big supporter of creating equity and engagement in the classroom through real world situations and creating a classroom that is more student centered - this can be implemented without removing accelerated courses. | Non-Actionable |
| 485 | Flitcroft | NA | Because California does not mandate identification of gifted students, many districts neglect them. Without assessments, students may be given coursework they have already mastered. Every child deserves to learn a year's worth of new material. When they are not challenged enough, students can become frustrated, bored and depressed, leading to behavioral problems at school. Children from privileged backgrounds often have parents who are able to supplement their coursework at home or advocate for change at school. Parents of Children from underserved communities, however, often can't advocate for their children or provide enrichment. Therefore, gifted kids from disadvantage backgrounds are not getting the education they need or deserve. This widens the gap in STEM fields. | Non-Actionable |
| 486 | Reed | NA | I am very excited about the focus on equity and engagement that this new framework is built upon! I agree that when we are not focused on countering systemic/personal bias, we are excluding people from their education, which is unacceptable. It is critical that we are building communities with our students, facilitating instruction that build on their funds of knowledge, improving the depth of intellectual reasoning, and creating lessons that are relevant to our students' lives and their communities. Love this and its explicit language: Students learn best through active engagement with mathematics and one another (Freeman, et al, 2014). As such, this framework highlights the importance of students’ active engagement in classrooms. When teachers launch investigations into relevant content with the Drivers of Investigation (DI) identified in this framework, they elicit students’ curiosity and provide motivation for them to engage deeply with authentic mathematics. | Non-Actionable |
| 487 | Beth | NA | If you really want equity, then mandate gifted ed in CA and fund it, so that students in low-income schools and districts have access to the same opportunities as their peers in affluent communities. It is criminal that you have removed the GATE funding stream, so that only affluent districts continue to offer programming. | Non-Actionable |
| 488 | D B | NA | Injecting politics in mathematics instruction will lead to lower proficiency in math and lead to further decline in enrollment in the public school system. Classifying students as "oppressed" and "oppressor" based on skin color and then using this as a foundation for math instruction is not going to give students the idea that math is both beautiful and useful, but instead repulse students and their parents. Thanks to Covid school closures, a large proportion of public school parents have no faith in school teachers and administrators, and have fewer reservations about ditching the public school system for the alternatives. You need to create standards with the idea that you are competing with other modes of education outside the public school system, rather than the idea that you can do whatever you want because parents have no other options for educating their children. | Non-Actionable |
| 489 | Arreola | NA | In response and in support of gifted students of color, I support equity and engagement by identifying and instruction to gifted or potentially gifted students by providing instruction and content that meets their individual needs, as it is now and within the new framework-GIFTED or potential GIFTED students of color are not identified , challenged or supported in this very important area of educational equality | Non-Actionable |
| 490 | Washington | NA | "In Ms. Madlangbayan's 1st grade class, 15 students think 2+2 equals 4, while 10 students think 2+2 equals 5. What percent of the class is racist?" "In 1990 there were 2 genders. In 2020 there were 62. If the number of genders grows exponentially, how many genders will there be in 2100?" I'm afraid injecting critical race theory, wokeism, and anti-white politics into mathematics is not the way to make it more relatable or interesting to the demographics that typically do poorly in math. A better way to sell math is to show its beauty. More of Brahmagupta and Emmy Noether, less of Twitter and Slate. | Non-Actionable |
| 491 | Wu | NA | To be honest, again, I am thinking that this framework was probably developed by "nice white people". To me, it actually seems like a racist approach, speaking as a person of color, and as someone who works with communities of color. Again, I believe that we are not resolving the root cause, which is that the AA and Latinx communities need more funding to have better teachers and more resources. Ca can fix that and be a model for other states. Math should be a neutral subject; in the real world in STEM careers, they will be required to provide specific answers. This framework seems a bit contrived. | Non-Actionable |
| 492 | Gelb D | NA | A one size fits all solution is clearly not the solution California needs. What is proposed here wouldn't help those who are struggling nor would it help those who are excelling. | Non-Actionable |
| 493 | Pesquie | NA | "Researchers even found that after four 15-minute sessions of playing a game with a number line, differences in knowledge between students from low-income backgrounds and those from middle-income backgrounds were eliminated ..." Wishful thinking, provide more hours in class and students and teachers will have the time to play game during 15 minutes. | Non-Actionable |
| 494 | Roe | NA | I am very inspired by the fact that so much direct language is being used about equity and cultural responsiveness in this chapter and throughout the framework. | Non-Actionable |
| 495 | Malione | NA | Efforts to artificially stimulate engagement fall flat on students who find the material engaging in its own right, and the forced community discussion format penalizes introverts and rewards extroverts. Problems with the main tenets: Planning around “big ideas” and student discussion fails to provide adequate practice with key procedural and operational skills; Engaging, open-ended tasks, with low floor and high ceiling instill only a very rudimentary level of proficiency; Framing mathematics as a tool to change the world, without conveying the procedural discipline to use statistics wisely and correctly, invites abuse; The appeal to “broaden perceptions" turns the subject of math to something more akin to appreciation than performance. The broad forms and patterns of a sonata or a minuet are much easier and more enjoyable to take in than the discipline and practice required to conduct or perform that same music. No justice is done to the former when it fails at the latter. | Non-Actionable |
| 496 | Smith A | NA | By offering advanced mathematics, reinforced by gifted and talented services, California ensures that its next generation of diverse, innovative producers are equipped with the conceptual foundation, critical thinking, and real-world problem-solving to effectively contribute as dynamic members of the workforce and as individuals who can address problems critical to the future of science, engineering, technology, and mathematics. | Non-Actionable |
| 497 | Dergun | NA | The whole "big idea" goal has to go. Big idea is where you start. But the students then need to get to specifics. It would greatly help our equity if everyone were to learn these specifics well. | Not Recommended |
| 498 | Walton | 29 | Lines 664-672: Strengthen by naming AAVE, Code Switching, and Translanguaging. | Writer’s Discretion |
| 499 | Walton | 29 | Starting with Line 673 - topic CRT. This entire section is necessary and demands the strength of the voice and scholarship of Black educators, especially with respect to the Ready for Rigor Framework (Z. Hammond), and the Cultivating Genius framework (G. Muhammad), research on Black Boys (K. Childs), and Teaching for Black Lives (J. Hagopian et al.) | Not Recommended |
| 500 | Walton | 54 | Lines 1114-1117 should include the word "create" alongside of contribute and belong. | Not Recommended |
| 501 | Gelb S | NA | If you actually want equity you need to offer support to our lowest learners. If approximately 60% of education success is due to environmental factors, why isn't there after school support in a funded, maybe grants, to assist these kids with additional learning and homework. Obviously if a child's parents speak spanish they cant help much. Bringing all kids down to the dumbest common denominator is crazy. Inequity will only grow with the wealthy leaving public schools. | Non-Actionable |
| 502 | Bohanan | 4, 6, 29 | Lines 83 - 87 is assuming that teachers arrange the desks with the students sitting in rows all lined up facing the front of the room. I've been teaching for over 20 years in grades K-5 in California and Indiana. Never once has my classroom arrangement been this way or the classrooms of my colleagues. For over 20 years, my colleagues and I have provided equitable instruction, even when it meant purchase resources out of our own pockets. The fact that the framework is implying that we are not providing equitable instruction is an insult. Why doesn't the Department of Education provide a framework for parents to teach them how they can be a good role model and provide basic values, such as respect, honesty, kindness, and responsibility? In regards to lines 142-153 - Many teachers consistently meet (usually outside of contractual hours) to discuss the Big Ideas and develop lessons that are engaging for ALL learners - I know my team does. Line 673: Teach Toward Social Justice - Real | Non-Actionable |
| 503 | Daniels R | NA | “Equity” is a very amorphous concept. Does it mean equality of services provided or equality of results? Are the socially constructed and changing categories of race and gender the best or only criteria for measuring equity, however defined? The draft framework claims to be infused with “equity”: seemingly a mysterious virtue that no one can oppose because no one understands it. “Equity” has a long history in the law, where it refers to principles of fairness, of justice. It was defined long ago, in the Institutes of the Emperor Justinian (535 AD): “Justice is the set and constant purpose to give every one what they deserve.” | Non-Actionable |
| 504 | Sheffield | 7, 12, 53 | Productive struggle is critical (lines 166, 309, table p. 53), but there is no acknowledgement that it is often the most successful students who are not given the opportunity to struggle. They often languish doing repetitive, unchallenging work as they wait for others to catch up. Gifted programs are often the only place where these students are challenged with mathematical problems that give them the opportunity to think and reason at a deep, complex, creative level. If these opportunities are not available in public schools, wealthy parents may be able to find these opportunities elsewhere, but low SES students will suffer the most and may never develop their full potential. In 1980 NCTM stated, "the student most neglected, in terms of realizing full potential, is the gifted student of mathematics. Outstanding mathematical ability is a precious societal resource, sorely needed to maintain leadership in a technological world." This is even more true now, more than 40 years later. | Non-Actionable |
| 505 | Wright | NA | Using math as a tool to propagandize young students is antithetical to notion of developing critical thinkers. Teachers are actively encouraged to present problems with a left-leaning political bent in the name of equity. “Who is silenced?” Students who want to learn math and not talk politics at the tender age of 7. Sad and wrong. | Non-Actionable |
| 506 | C J | NA | It's insulting and tone deaf to assume that Hispanic people are incapable of higher level math abstraction and that the only way they can learn is to make it "culturally relevant" by tying it to left wing political activism. If anything, that makes the language issue worse for immigrant children who are still struggling with English because all this proposed social justice math is very language based. More abstraction and less context would help English learners learn fundamental skills. With a solid foundation in number sense and algebraic thinking they can apply their knowledge to real world issues they deem personally important. This idea of "let's teach kindergarteners geometry by telling them about gerrymandering!" is laughable if they havent first learned that any polygon can be decomposed into triangles. Math is politically neutral. To insist otherwise is essentially a religious belief. | Non-Actionable |
| 507 | Thomas | NA | Vignettes allow us to see what the text looks like in a classroom. | Non-Actionable |
| 508 | Aoki | NA | I like the inclusion of Vignettes - I think this is really helpful for illustrating what it "could" look like when teachers haven't experienced this themselves. | Non-Actionable |
| 509 | Vierra | 2 | - Important statement (p. 2) "Students learn best through active engagement with mathematics and one another." | Non-Actionable |
| 510 | Vierra | NA | - The UDL Guidelines from SFUSD could be further enhanced with a link to their color coded chart that includes examples specific math | Non-Actionable |
| 511 | Vierra | NA | - A powerful part of this chapter and the entire Framework is the integration of the ELD Standards and the UDL Guidelines. | Non-Actionable |
| 512 | Vierra | 8 | - Wondering about the use of "leant" vs "leaned" on line 205. My reference says its an outdated British version of the word | Writers’ Discretion |
| 513 | Vierra | 12 | - It is crucial to emphasize the idea in line 313 that ability grouping is unnecessary. So many schools marginalize students and use deficit language when they try to group by ability. | Non-Actionable |
| 514 | Vierra | NA | - Videos, e.g., 3-Reads enable teachers to see what the recommendations look like when implemented | Non-Actionable |
| 515 | Vierra | NA | - "Abuelo's Birthday Present" generates a lot of discussion as students consider and debate differentiating the amount that each person should contribute. It's a rich, culturally relevant problem. | Non-Actionable |
| 516 | Ortega | NA | I appreciate the way Big Ideas are a theme across all grade levels and courses. This will help us make better sense of the coherence of math within and across courses. | Non-Actionable |
| 517 | Hoffman | NA | This is really exciting work! Is there a list of resources for the professional learning that this document says will be necessary? | Non-Actionable |
| 518 | Lay | 20 | Pg 20 - is it possible to find a reknrek picture that matches the reknrek described in the vignette? | Writers’ Discretion |
| 519 | Lay | 21 | P 21 - consider moving line 507-510 to before the vignette , line 473, or within the vignette, after line 479, to help clarify lines 490 - 491 when they use “mmmmm” | Writers’ Discretion |
| 520 | Lay | 24 | P.24 line 593 disagree with “neutral discipline” also a clunky statement and doesn’t make sense, how can it be neutral and occlude, needs a transition word or restated. | Writers’ Discretion |
| 521 | Lay | 26 | P. 26 line 628-629 “as well as had family members living on the other side of the Mexican border.” possible rewrite as well as had family members living “south of the US-Mexico border” to include Mexico, Central and South American countries or “in Mexico” if only Mexico was mentioned. | Recommended |
| 522 | Lay | 26 | P. 26 space needed between Lopez and Leiva | No Motion Recommended |
| 523 | Lay | 27 | P.27 644 “learning is always unfinished” maybe state as “learning is continuous” | Writers’ Discretion |
| 524 | Lay | 29 | P, 29 674 add “:” after Ms. Wong | Recommended  (incorrect line number indicated – see line 787) |
| 525 | Lay | 56 | P.56 788 very powerful vignette | Non-Actionable |
| 526 | Perez | 4 | 88-90 include students' FOK | Non-Actionable |
| 527 | Perez | 4 | 97-98 expand on dimension 8 of the CRMT (Aguirre & Zavala, 2013); it elaborates on teaching math for social justice | Non-Actionable |
| 528 | Perez | 6 | 150-153 cite | Writers’ Discretion |
| 529 | Perez | 7 | 161-162 can cite Mathematical Teaching Practices discussed in Principles to Actions | Writers’ Discretion |
| 530 | Perez | 7 | 167-171 example not using math to solve social justice issues but rather contexts to introduce/reinforce math concepts; include students' cultural FOK for learning math (ex. Social Justice & Math, Johnson, 2011) | Not Recommended |
| 531 | Perez | 10-11 | 266-267 include CRMT | Writers’ Discretion |
| 532 | Perez | 12 | 304-305 cite 3 pillars of CRP where educators teach for mastery and have high expectations of students (Ladson-Billings) | Writers’ Discretion |
| 533 | Perez | 12 | 307-310, cite | Writers’ Discretion |
| 534 | Perez | 13 | 352-357 encouraging math reasoning is lacking; include ideas of groupworthy tasks discussed in Smarter Together! (2011). | Writers’ Discretion |
| 535 | Perez | 14 | 381-384 uses reproductive rather than productive question; build fluency through context, discussion and sentence frames | Non-Actionable |
| 536 | Perez | 15 | 385-387 cite | Writers’ Discretion |
| 537 | Perez | 16 | 432 include variations supplemental strategies; ex. graph talks (Marzocchi et al., 2019) and math movement (Vanderwerf & Luzniak, 2019) | Writers’ Discretion |
| 538 | Lele | 31 | Line Numbers: 696-706 We strongly support the recommendation to highlight contributions of diverse cultural groups in the field of Mathematics while teaching to increase the engagement and interest of students from diverse linguistic and cultural backgrounds. However the guidelines are very light on specifics of breadth & depth of what should be covered. Because of this, it is very likely that when publishers use these guidelines for creation of textbooks, contributions from some cultural groups will be missed out. Ask: Provide concrete details with examples of which historical contributions from different cultures should be included. Examples of few prominent Hindu/Indian Mathematicians and their contributions that can be included: 1) Pingala (300 BCE): In connection with Sanskrit prosody, described binary numeral system and Fibonacci sequence [1000 years before it was popularized by Italian mathematician Leonardo Fibonacci in 1202 CE]. 2) Aryabhatta (476-550 CE): Renowned fo | Not Recommended |
| 539 | Musale | 32 | Lines: 745 - 747 Minor comment: Replace “raja” with “king” so that it is more easily understood by native English speakers. | Writers’ Discretion |
| 540 | Perez | NA | Like it. I eagerly await guidance on how to prioritize high school standards and align them with big ideas so that high school teachers have guidance on where to place emphasis and how to strategically allocate their instructional time. Teaching all standards as if they have equal importance is not conducive to teaching with the depth required for developing mathematical habits of mind and maintaining retention of important math concepts. | Non-Actionable |
| 541 | Bates | 6 | Love the focus of this chapter on active engagement and the strategies/ideas presented. Line 132- love the idea of teaching around big ideas Line 142- I know it says "helpful" to have release time, but I'm wondering if there are sample schedules or ideas from schools that are doing this well that could be linked/included so districts could see how to make time for collaboration while still meeting required instructional minutes, etc. | Not Recommended |
| 542 | Bates | 9 | Line 228- can the link to the game be included? | Non-Actionable |
| 543 | Bates | 14 | Line 358-359- how do local county offices/districts/coaches help support teachers in this shift since many were never given training after the switch to common core? Are there resources that could be added? | Non-Actionable |
| 544 | Bates | 17 | Line 443- I like this graphic, but wondering if there could also be a different graphic showing various strategies used in number talks (not just the area model)? For example, open number line, break-apart, etc. | Non-Actionable |
| 545 | Bates | 23 | Line 515- love this example for teachers to see what they can say/do in the classroom | Non-Actionable |
| 546 | Morris | 10, 12, 13-14 | The focus on asset based approaches to understanding learning is essential. And it represents a fundamental change in our approach to viewing learnings on a growth pathway. As noted, it is too easy for teachers to misinterpret perceived learning gaps and thus narrow students’ opportunities for meaning making. The emphasis on open tasks rather than practice exercises as a means of learning and growing is profound. (Lines 240-248, 302, and 345-358). There is growing research suggesting the significant role of student to student discourse, and framing students as the audience of their peers explanations is important (e.g., 373) . Vignettes (e.g., from 918 on) provide a clear example of the role that math instruction can play in empowering youth to understand diversity while simultaneously supporting diverse learners! Extremely important! For today’s youth!!! Kudos. | Non-Actionable |
| 547 | Gupta | NA | Doesn’t the classic definition of equity mean not lowering the fence for everyone so they can see over but rather boosting up the shorter child so he can see over the fence just as well as the taller child. Why would we penalize all kids, gifted learners or not, by reducing the standards around math for everyone? Why not boost the children that need it so they can also learn math? Why bring those that are math-inclined down by not having options for them? Public education is supposed to serve all children - portraying gifted learners as the ones to not serve just as much as any other population just goes against the whole spirit of equity. | Non-Actionable |
| 548 | Albert | 16 | Lines 417-427 describe a lovely approach to a math-themed classroom experience. However, a math-themed experience is not necessarily an experience during which a student will learn math, nor a pathway to actual understanding of it. Understanding math at specific levels of proficiency is a necessary precursor to a wide variety of STEM and non-STEM careers -- each of which has its own requirements. To the extent that this document ignores that fact, and instead emphasizes math-themed experiences, it does a disservice to its students. The actual value of mathematics for the vast majority of adults is its ability to serve as a scaffold for study in other fields. Ignoring this (which this document appears to) puts at risk the careers of students who find themselves ill-prepared because math-adjacent topics (and time spent negotiating answers with classmates) interfered with their ability to get to topics critical to their desired future careers. | Non-Actionable |
| 549 | Zaks | 35 | In lines 805-814, you write: "However, even within a classroom that utilizes these approaches, inequities can manifest through patterns about whose ideas are attended to and become influential, and ultimately who is seen as relatively more mathematical (Langer-Osuna, 2011; Shah, 2017). Students from social groups that have been historically affiliated with the discipline of mathematics can come to have undue influence over those from social groups not stereotypically associated with mathematics (Esmonde & Langer-Osuna, 2013). These processes are often unconscious, based on stereotypes and implicit bias, and get in the way of creating robust, productive, and inclusive sense-making mathematics classroom communities (Shah, 2017)." How do you define inequities? Is it that some students will understand the material while others will not? Of what "undue influence" do you speak, and why is this at all relevant? | Writers’ Discretion |

## Table 5: Chapter 3: Number Sense

| # | Source | Page | Line Number and Comment on Chapter 3 | Recommended Action |
| --- | --- | --- | --- | --- |
| 550 | Murray | NA | Like seeing less emphasis on timed tests | Non-Actionable |
| 551 | Tegen | NA | We are pushing the "Standards" of Number Sense knowledge down to younger and younger grade levels. The ides that Tk students(4-5 year olds) are now doing work that was a 6-7years olds expectation of understanding seems to set them up for failure in mathematics success in grades 5 and higher. We are digging the Grand Canyon for math knowledge deficits by forcing them to learn number sense long before their brains are ready for the concepts. Just because they can play a math game on a computer doesn't show/demonstrate their deep comprehension of Number Sense. Where is the time for building numbers with blocks, manipulating concrete tools (blocks, clocks, tiles, etc) to make sense of mathematics? | Writers’ Discretion |
| 552 | Brousseau | NA | This is important because many teachers still thinks this means timed tests and drill and kill. | Non-Actionable |
| 553 | Daro | NA | The key to helping students understand how whole number number knowledge extends to fractions is the concept of ‘unit fraction’ as something they can count just like apples or people. I know 3 of 1/8 plus 2 of 1/8s is 5 of 1/8 or 5/8 because I know 3 of apples plus 2 of apples = 5 apples. This critical to connect fractions to the knowledge students have most confidence in: whole numbers. Furthermore, the unit fraction is key to understand that and how fractions are numbers and how they are located on the number line. Unit fractions need more attention. | Writers’ Discretion |
| 554 | Daro | NA | Estimation is crucial for making sense of quantities as numbers get large and small. It is an expertise that needs explicit development. Not just rounding or guessing. | Writers’ Discretion |
| 555 | Daro | NA | What’s important about the big challenge of place value? see the Roger Howe brief attached. Ditto for arithmetic with negative numbers. | Non-Actionable |
| 556 | Daro | NA | I wish we had given more attention to per cent in the Common Core. Real people rely on % more than any other math to reason about proportional relationships. Studies of the math demands of 2-year community college programs like nursing, IT, technicians of all sorts found per cent as one of the most used ideas from mathematics. (NCEE). | Non-Actionable |
| 557 | Honig | NA | Subtraction is both taking away and difference. The framework in the part of chapter 3 on the early grades only describes subtraction as taking away neglecting difference and comparison. For example of a number line showing 5-3 can be illustrated by moving three steps down from 5 getting to 2 (taking away) or by counting up from 3 to 5 (difference).  In contrast, there is a good treatment of building and understanding the four part (algebraic) procedures in multiplying 45x36.  There is a need to include mental math. For example, in multiplication 10 times a number, 100 times, divide by 10 or 100 by adding or taking away a zero. (This also helps in determining magnitude crucial for estimation and using number sense to see if the result is correct) So 20 x 10 is 200, or 2000 divided by 10 is 200. Or 35 x 5 is 5x 30 plus 5x5. Or 35 times 20 is 20 x 30 plus 20 x 5 etc. | Writers’ Discretion |
| 558 | Fuson | NA | Finally this is a small thing, but it is confusing and raises equity and other issues (are some of these learning supports better than others? If so, why?). In Chapter 3 lines 382 to 385 some things are in bold and others are not. “Some strategies to help students develop understanding and fluency with addition and subtraction include the use of **10-frames** or math drawings, **rekenreks**, comparison bars, and **number-bond diagrams**. The use of visuals (e.g., **hundreds charts**, **0–99 charts**, number paths) can also support fluency and number sense.” This looks like the bold are better, and they are not. Please eliminate the bolding of some words here. | Writers’ Discretion |
| 559 | Ward | NA | First off, overwhelming in length. Deters readers because it is so massive. It seems more like trying to tell a story instead of the previous version that laid out the standards each grade was supposed to cover. | Non-Actionable |
| 560 | Ward | 3 | I appreciate the beginning (page 3) starting off talking about fluency; it is so important. Hurdle that would be great to address is what to do when it comes to our current educational system where students have social promotion and move on until they reach high school. Students come completely unprepared and then society/testing results all point the finger at teachers (not. cool.). | Not Recommended |
| 561 | Ward | 3 | Page 3, line 66: Disagree with such a shift away from speed. With great fluency speed shouldn't be an issue, I agree, but I'm concerned we're a pendulum and the current complaining about speed equaling fluency, so having no timed tests has resulted in students taking unrealistic gobs of time to do things that should be simple. | Not Recommended |
| 562 | Ward | 6 | Page 6, line 156: Big ideas for each grade band. What should be done when students get to high school and they still haven’t mastered the 3-5 grade band big ideas? There are a whole lot of standards once students hit eighth grade and high school wasn’t touched in terms of pairing things down to provide the option between the integrated and traditional pathways. Yet, now, it seems that it’s just another layer of work of additional things that must be done without removing anything off of the plate of expectations for students to master. Our educational system is so wide and so shallow, I don’t see how pushing for more number sense and data science will be successful when the statistics part of the year, always at the end, never is reached because they’re the nice to know that aren’t given much importance on state testing or other benchmarks that gather data. | Non-Actionable |
| 563 | Ward | 63 | Page 63, starting line 1697: *By complementing an increased understanding of decimals, fractions, … they are equipped to understand financial concepts, tools, and products*. This is a great, noble, and applicable goal.  This dovetails nicely to the concept of preparing students for whatever will come next in their life--college **and** career ready.  Again, however, I have concerns about execution of this when students come to high school, struggling to comprehend concepts they should have mastered in late elementary school and middle school. (Side note: fractions covering third through fifth grade; is that really ideal? Fractions seem to be the first real abstract concept students encounter, and success with fractions can be used to predict success with Algebra; but are students mentally developed enough to handle fractions at such a young age?) | Non-Actionable |
| 564 | Ward | 64 | [This comment includes a graphic; see the Box link above for the full comment.]  Page 64, line 1719: “...that were developed in earlier grades while…” is great for the hypothetical situation. But what about in reality, when most students are not ready for their grade level curriculum. See Figure 1, which I read to say that the performance of 5,750 out of 8,705 schools rated on the California Dashboard (also known as about two-thirds) are yellow, orange, or red, which means two-thirds of the students in the state are not prepared for success in the mathematics in the grade that they are in. How is that fair to students to push them along without ever giving them a chance for success because each subsequent grade has even more standards and expectations for students; but they have yet to attain any solid grasp (say nothing of mastering) past year’s content?  Figure 1; from https://www.arcgis.com/apps/opsdashboard/index.html#/c1ab918656a84316aeebf2629172266a showing the mathematics indicator. | Non-Actionable |
| 565 | Ward | 67 | [This comment contained multiple embedded hyperlinks. Please see the Box link above for the full comment with links.]  Page 67, starting line 1811: “It is difficult to overstate the need for students to be comfortable with fractions…” is so very important, so valuable (especially when there are studies that talk of the importance of fractions like Fraction skills predict math success later; Fraction competency and algebra success; Early math matters: Top researcher discusses his work; and Early math skills predict later academic success). I think this needs to be broadcast to administrators in district offices across the state, and heavily pushed to elementary schools because too many want-to-be teachers in credential programs express their desire to be elementary teachers because the “math is too hard” elsewhere and other terrible excuses that will transfer down to negatively impact the leaders of tomorrow (see: Teacher Math Anxiety Relates to Adolescent Students’ Math Achievement and Stop telling kids you’re bad at math. You are spreading math anxiety ‘like a virus.’) | Non-Actionable |
| 566 | Ward | 68 | Starting on line 1845 (page 68), talking about financial literacy: I really appreciate this being brought to the forefront in terms of importance. | Non-Actionable |
| 567 | Ward | 70 | Page 70, lines 1894 through 1922 is a great resource that can be relied upon by teachers in attempting to incorporate this into their teaching. Appreciated. | Non-Actionable |
| 568 | Ward | 71 | Page 71, line 1923: This is shocking that California doesn’t have standards for financial literacy. I appreciate having it seem to take such a prominent role in the high school section of this chapter three. | Non-Actionable |
| 569 | Ward | 73 | Page 73, line 1986: This games is such a brief section that seems more like an advertisement of a passing thought. It seems that there is a lack of specifics when it comes to representations or high school “stuff” in general (not just about this section, but here too). | Non-Actionable |
| 570 | Dube-Robinson | NA | Number sense is the key to understanding early math concepts. I am so excited to see that an entire chapter is dedicated to this topic. | Non-Actionable |
| 571 | Medeiros | NA | Love the inclusion of Math talks as formative assessment and ways to develop strategies. The visual approach is extremely important for developing understanding 9-12--The emphasis on financial literacy is great and very important for students' futures. The vignettes and examples are helpful. Educators need examples if they are going change how they learned math. | Non-Actionable |
| 572 | Habecker | 14 | Line 376: I love the phrase "using strategies as distinguished from formal algorithms" THANK YOU. This is very appropriate for Grade 1. | Non-Actionable |
| 573 | Habecker | 32 | Line 837: How might you provide in the framework visual examples for building understanding of multiplication and division? This paragraph only has words. | Writer’s Discretion |
| 574 | Miller | NA | This is a good summary of what many have been doing over the past years as well as good list of resources. | Non-Actionable |
| 575 | Fosnot | 19, 43, 74 | [This comment contained multiple hyperlinks. Please see the Box link above for the full comment with links.] in Chapter 3: Lines 494-5, Lines 1145-1146 and the reference page line 2020 where they cite   *Conferring with Young Mathematicians at Work: Making Moments Matter*, by C.T. Fosnot for discussions of  strings. Please correct the reference. You have listed my book on conferring as a resource for number talks/number strings. That book is only about conferring, not about number strings. Please list instead my resources for number strings throughout the year. I have published a set of 6 resource books for strings, 1 for each grade: *Minilessons: a Yearlong Resource, Fosnot and Uittenbogaard* (5 books) and anew book for k-1 on number strings with the rekenrek entitled, *From Fives and Tens to Automaticity: Working with the Rekenrek, Fosnot.* | Recommended |
| 576 | Fosnot | 2-3, 9 | Intro in Chapter Three should include at least a brief discussion of the research on subitizing (for example work of Stanislas Dehaene and/or Susan Carey. The example in the text of ages is a bad one because children do not experience age as a quantity. Time is continuous, not discrete. Yes they hold up 3 fingers as a way to quantify the word they are told when they hear “You are 3” but that does not mean they are understanding three years as a quantity. Research on subitizing by several researchers has proven without a doubt that even infants can perceive 3, 2, and 1 as amounts. Infants even know when one has been removed or added. It is this research that underlies the emphasis on developing the prioritizing of 5 because just prior the subitizable amounts are composed and decomposed in a variety of ways (4+1, 2+3, 5-1) using the child’s prior knowledge and building on it with quick images. This comment is also related to pages lines 203-205 where it is stated that children in kindergarten learn to subitize through the use of quick images. This is an erroneous statement contradicting the research. You might use text something like the following instead: With quick images of small amounts such as 1, 2, and 3, children use what they can perceive innately as subitized units to compose and decompose larger amounts, such as 5 and then 10, as they work to develop more fluent and flexible strategies than counting all and counting on. | Writers’ Discretion |
| 577 | Fosnot | 15 | The diagram in line 390 is mathematically wrong. It shows one red becoming blue which is the associative property—a reassociating of 1 cube. The first line should just be flipped with no color change if you want it to illustrate the commutative property. It is also not the fact that the answers are the same that matters; it is the equivalence: 4+3 = 3+4. It doesn’t matter whether you add 3 onto the f, or 4 onto the 3. Order doesn’t matter for equivalence to hold. For the associative property in the following description, the associative property is being confused with the commutative property. The example given currently in the text is that 8 + 4 + 6 = 8 + (4+6) = (4+6) + 8, or that 8 +10 = 10+8. This is an example of the commutative property, not the associative property. An example of the associative property could/should be 8+ 4 +6 = (8+4)+6 = 8 + (4+6); or that (8+2) + 8 = 8+ (4+6). In the former the 4 is being associated with either the 8 or the 6; in the latter the 2 is being associated either with the 8 or the 4. This is also why it is important to use parentheses with children so they can see what is happening, instead of just focusing on the answers being the same. | Writers’ Discretion |
| 578 | Fosnot | 16 | Line 408: If you are going to use + and – for the jumps on an open number line, you need to use arrows for the jumps to show direction. Otherwise, the mathematics is wrong. Usually children’s thinking on an open number line is represented with absolute difference, not with integers, and then arrows are not needed. To help children understand the connection of addition to subtraction (the part/whole relations) it is important that the representation on the open number line be able to be read correctly from left to right and from right to left. | Writers’ Discretion |
| 579 | Fosnot | 19 | Line 516: The teacher anticipates that the students will use several strategies for adding two-digit numbers greater than ten: they may take the numbers apart by place value, they may use a “counting-on” method, they may count by tens, and some may count by ones.  Counting by tens doesn’t make much sense as a strategy here. I think you mean “counting on by jumps of ten and adjusting” and I would also add using compensation 38 + 42 = 40 + 40. Both of these strategies make use of the associative property and since earlier in the text you emphasize how fluency is developed with the use of the properties and how these are big ideas, it is important to help teachers see the connection. Most of what you have listed in at 516 (splitting, counting on, counting by ones or tens) are very low-level strategies. Teachers need to learn how and why the strategies I mentioned above are important to support. | Writers’ Discretion |
| 580 | Fosnot | 26 | Line 687: The example of decomposing or splitting is quite low level here. It is better to emphasize strategies based on adjusting to landmarks using associativity, for example: 67 + 84 = 70 + 81. There is far less memory load for mental arithmetic and associativity and compensation are emphasized | Writers’ Discretion |
| 581 | Fosnot | 26-27 | Line 698: 423-195  Why aren’t you emphasizing strategies like 423-200+5 (jumps of hundreds back and adjusting), or 428 – 200 (constant difference)? These are strategies that children easily develop with number strings, but won’t if they are supported to do so. I think the standards document should explain the important strategies and why they should be developed and supported. | Writers’ Discretion |
| 582 | Malione | 3 | Chapter 3, Lines 58 to 63:  Note: This redefinition does not say that students need to be able to apply the strategies accurately. The above reads “if they know 2 x 6 = 12,” but nowhere does it state that they are required to know these number facts. The definition goes on to specifically divorce any norms regarding speed or response time from this new definition of fluency. | Non-Actionable |
| 583 | Malione | 4 | Chapter 3, Lines 72 to 77:  Note: Connecting in ways that make sense to them is considered more important than being able to arrive at the correct answer. Explanatory talk about concepts they’ve been forced to memorize and regurgitate does constitute conceptual understanding, and even more so when they can’t do even basic arithmetic on their own. Counting on their fingers, or on a number line is not an effective computational strategy. | Non-Actionable |
| 584 | Sacro Swem | 35 | [This comment contained graphics that could not replicated in this table. See the Box link above for the full comment including graphics.]  Ch 3 lines 913-931  Differentiating the Mathematics Terms *Numerator* and *Denominator*  *I learned this from Dr. Ban Har Yeap\**  Singapore Math Workshop (2014) | Writers’ Discretion |
| 585 | Sampson | 6 | Strengths:  Grade-levels are connected and progression of big ideas can be visually seen in the table on page 6. | Non-Actionable |
| 586 | Sampson | NA | Emphasizing that number sense should not be taught directly, but through curiosity, play, game, and experience. | Non-Actionable |
| 587 | Sampson | NA | Heavy on language and literacy that supports math learning and integrated ELD. | Non-Actionable |
| 588 | Sampson | NA | Emphasis on Mathematical Practices. | Non-Actionable |
| 589 | Sampson | NA | Fluency description-calls out what we shouldn’t be doing and the research to support the work moving forward. | Non-Actionable |
| 590 | Sampson | NA | Boldly identified the dangers of timed tests and the long-term impact they have on students. | Non-Actionable |
| 591 | Sampson | NA | Including a growth mindset message that number sense can be improved, but not necessarily by direct teaching. | Non-Actionable |
| 592 | Sampson | NA | New definition of Number Sense: “A form of intuition that students develop about numbers.” This informs so much of what will follow in the next chapters. | Non-Actionable |
| 593 | Sampson | NA | Call out strategies and tools including counting collections, math talks, and number lines to support development of numeracy. | Non-Actionable |
| 594 | Sampson | NA | Infusing the “5 Practices for Orchestrating Math Discussions” | Non-Actionable |
| 595 | Sampson | NA | Precise language for students to “speak like mathematicians” | Non-Actionable |
| 596 | Sampson | NA | Including Open Ended Questions/Tasks in various vignettes and examples. | Non-Actionable |
| 597 | Sampson | NA | Call outs to ELD, SWD, UDL, Formative Assessment. | Non-Actionable |
| 598 | Sampson | NA | Calling out the Content Connections of exploring changing quantities and taking wholes a part, putting parts together in relationship to the progression of number sense. | Non-Actionable |
| 599 | Sampson | NA | Resources and references provided throughout the chapter to support implementation of ideas discussed. | Non-Actionable |
| 600 | Sampson | NA | Considerations for refinement:  Focus and Coherence: The references to the progressions documents, written by the CCSS authors are noticeably absent from the framework. We cannot assume that teachers new to the profession have seen them. Reference mathematics progression documents in both the progression and grade level chapters. http://ime.math.arizona.edu/progressions/ These also give meaning to the Big Ideas and provide greater granularity in how mathematics ideas develop across grade spans. | Writers’ Discretion |
| 601 | Sampson | NA | Include links to Gfletchy Progression videos as a resource to show teachers a visual of the progression of basic operations.  https://gfletchy.com/progression-videos/ | Writers’ Discretion |
| 602 | Sampson | NA | Bring in more of the “Pitfalls” like they called out on Page 55. Bringing in the article “Nix the Tricks” and showcasing some of the pitfalls within the subcategories of each grade span will help teachers understand Why they should not teach tricks! | Writers’ Discretion |
| 603 | Sampson | NA | Grades 6-8 had a lack of resources and links compared to other grades. | Writers’ Discretion |
| 604 | Sampson | NA | Whenever possible please add links and/or videos for vignettes and snapshots to support educators and leaders visualize what these routines look like in action. | Non-Actionable |
| 605 | Sampson | NA | A better format/structure to help plan for more effective lessons that align with the shifts away from I Do-You Do-We Do | Non-Actionable |
| 606 | Sampson | NA | Connecting the ELD standards, Mathematical Practices, DI, CC, and Content standards | Non-Actionable |
| 607 | Sampson | NA | Please consider adding links to the 2013 framework where appropriate to show examples, visuals, descriptions, etc. | No Motion Recommended |
| 608 | Sampson | NA | After each subcategory a call out for future grades saying how it applies to future grade spans. | Writers’ Discretion |
| 609 | Lay | 2 | P2 Math Talks 3-5 is missing from Table of contents | Writers’ Discretion |
| 610 | Lay | 3 | P3 line 96 - consider changing “mileage” to “ transportation” | Non-Actionable |
| 611 | Lay | 10 | P10 line 280 “How do students in grades K–2 learn to compare and order numbers on a line?” The subheading implies K-1 teachers need to teach numbers on a number line. I don’t disagree with an introduction or exposure to number lines in early grades, teachers using the framework to guide their planning might think number lines are part of their standards. Perhaps rephrasing the subheading to “in a sequence”? Or perhaps describing using a number path or 100-/120- chart in the narrative portion in K-1. | Writers’ Discretion |
| 612 | Lay | 16 | P16 line 415: include some indication about the length of a Math Talk. Teachers new to math talks tend to let it go too long. The length of vignette suggest that a number talk takes longer than it actually does | Writers’ Discretion |
| 613 | Lay | 22 | P22 line 578 -missing the letter i in the comparison- “h” and “”" visible, | Non-Actionable |
| 614 | Lay | 27 | P27 line 703 add “to” between “students talk” | Recommended  (L742) |
| 615 | Lay | 28-29 | P28-29 Line 761-764 Consider moving these to before line 711. Help set up the reason for spending any amount of this framework on rounding. | Not recommended |
| 616 | Lay | 30 | P30 line 798 add ”.” to (SMP 2, 3). | Recommended  (L834) |
| 617 | Lay | 30 | P30 line 809 change “>” to “.” in SMP>7 | Non-Actionable |
| 618 | Lay | 31 | P31 line 848 consider using a different shaded bar model to show Gina’s mother’s bike ride. I do not believe the green and red portions are accessible to green and red color-blind people. | Not Recommended |
| 619 | Lay | NA | I wonder if Math Talks and Games resources might be chunked together as a section at the end of the chapter. The same resources get mentioned at least 3 times, if not more, in this chapter. Although resources are free, some have ads and some ask for donations. I wonder if that is equitable to other websites that also host free resources.  http://ntimages.weebly.com/  https://mathforlove.com/  https://berkeleyeverett.com/math/ | Writers’ Discretion |
| 620 | Rodriguez | 3 | Line 66 & 67 thank you for addressing the misconception about speed and fluency | Non-Actionable |
| 621 | Rodriguez | 9 | Line 207 Thank you for calling out Counting Collections; this activity is critical for students to develop and explore their understanding of how numbers can be grouped and provides opportunities for students to organize their thoughts of grouping quantities. | Non-Actionable |
| 622 | Rodriguez | 10 | Line 233 - 235 by including "varied and frequent counting opportunities using games... along with focused mathematical discourse," encourages teachers to let students have fun with math. This is so important for the growth mindset of what Mathematics is. | Non-Actionable |
| 623 | Rodriguez | 10 | Line 235 Thank you for including Choral Counting. (This is powerful throughout the grade levels when used effectively.) | Non-Actionable |
| 624 | Rodriguez | 10 | Line 241 Great inclusion of questioning to bring out thinking | Non-Actionable |
| 625 | Barger | NA | Chapter 3: Highlight the work from the CCSS Progression Documents to a greater extent. | Writers’ Discretion |
| 626 | Rodgers | NA | Noteworthy features:  Liked the definition of fluency being called out in this section. | Non-Actionable |
| 627 | Rodgers | NA | Useful resources - can use them right away even! | Non-Actionable |
| 628 | Rodgers | 3 | Line 66-70 remember fluency is not always speed, or memory it can put a pressure on students. | Non-Actionable |
| 629 | Rodgers | NA | Encouraged daily number sense activity to engage varied types of learners at early ages to build fluency. | Non-Actionable |
| 630 | Rodgers | 6 | TK- 1-2-3 graphic a help Line 156 | Non-Actionable |
| 631 | Rodgers | NA | This section felt better organized that CH 1 and 2 - the grade span sections helped pick what to read. | Non-Actionable |
| 632 | Rodgers | 13 | Line 323, Each skill building on prior grades appreciated - felt deeper than spiraling - also a helpful thing for teachers or teams looking across grades. | Non-Actionable |
| 633 | Rodgers | NA | If games are promoted to publishers and professional development providers this will be great but a lot to prepare. The program pacing needs to value the time games require. | Non-Actionable |
| 634 | Rodgers | NA | Agree that fluency as literacy can accelerate pacing when present and time given to it. | Non-Actionable |
| 635 | Rodgers | NA | Organized by grade level chunks lowest to the highest, delineated further by Number Sense focus for specific grade level | Non-Actionable |
| 636 | Rodgers | NA | We liked the glossary in Chapter 13. | Non-Actionable |
| 637 | Rodgers | NA | Alignment with preschool is a good thing. | Non-Actionable |
| 638 | Rodgers | NA | Dedication of a chapter on Number Sense is positive. | Non-Actionable |
| 639 | Rodgers | NA | We liked that the importance of subitizing is included. | Non-Actionable |
| 640 | Rodgers | NA | Vignette titles not in boldface type | Non-Actionable |
| 641 | Rodgers | NA | Number Sense: whole numbers, decimals and fractions (separate sections) | Non-Actionable |
| 642 | Rodgers | NA | We like the grade band resources, examples, and modeling using UDL strategies. | Non-Actionable |
| 643 | Rodgers | NA | Wealth of resources was fabulous. | Non-Actionable |
| 644 | Rodgers | NA | Scenarios that allow teachers to try examples of the expectations is valuable. | Non-Actionable |
| 645 | Rodgers | NA | We liked the grade level examples. | Non-Actionable |
| 646 | Rodgers | NA | Vignettes are a helpful way to show what they mean and to see “what it looks like.” | Non-Actionable |
| 647 | Rodgers | NA | Table of Big Ideas is a quick reference to learn from. | Non-Actionable |
| 648 | Rodgers | NA | A lot of parallels between this and the NGSS standards. Will make it easier to tie things together. | Non-Actionable |
| 649 | Rodgers | NA | This seems like a really valuable chapter for cross grade level conversations. | Non-Actionable |
| 650 | Rodgers | NA | Great resources listed (activities, sites, games). | Non-Actionable |
| 651 | Rodgers | NA | Needs clarity or improvement:  Acronyms seem like they might get a little confusing. On the final version, could those be linked. | Non-Actionable |
| 652 | Rodgers | NA | It is a little wordy. Are there ways to get to the Nuts and Bolts (concise language)? | Writers’ Discretion |
| 653 | Rodgers | NA | Some of the tables (like the Big Ideas table) could be useful. Maybe a table specific to just those grade levels. | Not Recommended |
| 654 | Rodgers | NA | Math Talk paragraphs repeat. Perhaps put Math Talks as one section, then the grade span examples come right after. | Writers’ Discretion |
| 655 | Rodgers | NA | Snapshots vs. Vignettes….same or different? | Non-Actionable |
| 656 | Rodgers | NA | A lot of information to digest. | Non-Actionable |
| 657 | Rodgers | NA | Better use of hyperlinks to navigate the document. | Non-Actionable |
| 658 | Rodgers | NA | Strategies vs algorithms (In grade 4, students begin more formal work with algorithms called strategies in the standards) Needs to be clear what is meant by standard algorithm vs alternate algorithms and alternate strategies. | Not Recommended |
| 659 | Rodgers | NA | More conceptual development of fractions other than a number line or play games. Need more robust ideas for understanding fractions (and decimals) | Writers’ Discretion |
| 660 | Rodgers | NA | Be more clear about when the traditional algorithm is necessary (for more efficient work) and request that publishers understand this placement. | Writers’ Discretion |
| 661 | Rodgers | NA | Not satisfied with generalization of varying grade levels. We know what we teach but maybe need more as varying from grade level focus changes. | Non-Actionable |
| 662 | Rodgers | NA | There is a need for an overarching idea between grade level groupings. | Not Recommended |
| 663 | Rodgers | NA | Definition of quotitive vs partitive division is not clear, suggest examples and where each applies. Example: If you start with 8 cookies and two people, how many cookies would each get? OR If you start with 8 cookies and what to give each person 2 cookies, how many people can you give cookies to. | Not Recommended |
| 664 | Rodgers | NA | Conclusion missing. The chapter needs a summarizing effort. | Writers’ Discretion |
| 665 | Rodgers | 6 | TK not included in line 151. It is in the chart on line 156. | Recommended |
| 666 | Rodgers | 5 | For teachers (maybe not like us at a meeting like this) who do not have a comfort level with mathematics there is a concern. Agreed the teacher background could influence comfort with what is illustrated/expected. Line 106 | Non-Actionable |
| 667 | Rodgers | NA | Concern about conceptual understanding being developed along the way | Non-Actionable |
| 668 | Rodgers | 6 | A table like 156 would help illustrate the bundled SMPs and Content - it was a lot of text to expect teachers to read | Writers Discretion  (This comment actually doesn’t apply to Ch 3, it applies to Ch 1 and other places that the grid diagram appears. Will be addressed in appendix) |
| 669 | Rodgers | NA | Will some valuable resources get overlooked if not cited here? | Non-Actionable |
| 670 | Rodgers | NA | Consideration by publishers to make pacing reality manageable - can this be addressed? | Non-Actionable |
| 671 | Williams | NA | We support   * Including guidance on TK * Organizing the chapter around the big ideas of number for all grade spans and including math talks and games * Progression of numbers to functions and financial literacy. It is helpful to see Number Sense through 12th--what it looks like in the higher grades. * The focus on the “linear” model was appreciated starting in TK. * Appreciate referencing the SMPs in addition to the content standards throughout the chapter as examples were given * Vignettes and free resources were helpful. * 1597-1603 The beginning of algebra should be rooted in sense-making about how numbers work--could you provide an example of how number could be used to scaffold an algebra task? * Appreciate building the idea of respectful discourse; we can disagree and be respectful | Non-Actionable |
| 672 | Williams | NA | [The comment below contains an embedded hyperlink. See the Box link above for the full comment with hyperlinks.]  We wonder  Would Graham Fletcher’s Progression Videos fit here or in the grade level chapters? | Non-Actionable |
| 673 | Williams | NA | [The comment below contains embedded hyperlinks. See the Box link above for the full comment with hyperlinks.]  Could you include some of these additional Math Talk resources:   * Number Talk Images * Number Strings * Would You Rather * Math Mistakes * https://padlet.com/dwilliamssjcoe/mathtalks (a collection of more resources) * 9-12 math talk resources   + https://howweteach.com/mathtalks/   + https://sites.google.com/henrico.k12.va.us/hcpsmathematics/number-sense-routines?authuser=0 * Games: Desmos Polygraph | Writers’ Discretion |
| 674 | Williams | NA | We are concerned that the importance of fluency may be isolated to this chapter. In the grade level chapters, can you reference back to the ideas in this chapter? | Writers’ Discretion |
| 675 | Lavadenz | NA | **1. PROFESSIONAL LEARNING**  We propose including specific guidance throughout the chapter to emphasize the **HOW** to develop number sense, to advance educators’ understanding and skill in the practice of developing number sense, **specifically** in connection to language development, with considerations for the use of EL appropriate strategies and scaffolds.  This chapter offers a broad description of best practices and mentions EL’s. However, clear guidance is needed for specific pedagogical practices and connections to classroom protocols, procedures, and strategies in connection to **language use and development** during math talks, number talks number strings and games.   * **Understanding Language:** Language, Literacy, and Learning in the Content Areas https://ell.stanford.edu/teaching\_resources/math * **Math Instruction for English Language Learners,** Kristina Robertson, https://www.colorincolorado.org/article/math-instruction-english-language-learners | Writers’ Discretion |
| 676 | Lavadenz | NA | [The comment below has been excerpted for length. See the Box link above for the full comment.]  **2. CULTURALLY SUSTAINING AND ASSET-BASED EXAMPLES AND REFERENCES.**  In order to counteract the overall Eurocentric approach to the teaching of mathematics, it is important to acknowledge pervasive traditional pedagogical approaches and to clearly identify the impacts in relation with cultural, political, social and economic forces that have excluded traditionally marginalized groups of students from access to quality and equitable mathematics instruction. Specific connections should be made to other chapters in the framework where these topics are addressed.  We suggest that specific connections re made to student’s real-world experiences where they can make meaning through appropriate language development scaffolds and strategies.   * **Ethnomathematics,** D’Ambrósio U., Knijnik G. (2020). In: Lerman S. (eds) Encyclopedia of Mathematics Education. Springer, Cham. https://doi.org/10.1007/978-3-030-15789-0\_60 * **Scaffolding Learning for Multilingual Students in Math** https://wida.wisc.edu/sites/default/files/resource/FocusOn-Scaffolding.pdf | No Motion Recommended |
| 677 | Michelena | 68-71 | Lines 1843-1928  Is there more in this framework regarding financial literacy? It would seem this topic is more important and warrants more of a discussion. Is the Appendix A from the 2013 CA Framework referenced anywhere? | Writers’ Discretion |
| 678 | Allen | 4 | [This commenter provided comments embedded in a copy of the chapter. Line numbers might have been affected by the commenter’s edits. See the Box link above for the full comment in context.]  94-101 Clear defininition | Non-Actionable |
| 679 | Allen | 5 | 104-106 Shows growth mindset  Strength-based thinking- not deficit | Non-Actionable |
| 680 | Allen | 5 | 107 I appreciate how games as well as math talks are offered as powerful practice and collaborative learning opportunities through HS | Non-Actionable |
| 681 | Allen | 5 | 113-116 other words: the SMP early 2010 draft goal stating: “Proficient students expect mathematics to make sense. They take an active stance in solving mathematical problems. When faced with a non-routine problem, they have the courage to plunge in and try something, and they have the procedural and conceptual tools to carry through. They are experimenters and inventors, and can adapt known strategies to new problems. They think strategically.” | Non-Actionable |
| 682 | Allen | 6 | 150-156 Recognizing that numeracy (defined as flexibility-- extends into MS/HS is important) | Non-Actionable |
| 683 | Allen | 7 | 178 Great to have this linked. | Non-Actionable |
| 684 | Allen | 9 | 207 Can you link the book as a resource? | Writers’ Discretion |
| 685 | Allen | 9 | 224 Valuable to cite SMP with Standard. I see that you have done this throughout this chapter as well as shown connections to the DI and CCs | Non-Actionable |
| 686 | Allen | 10 | 243-244 Can you link resources or show an insert of how this questioning technique is both validating, powerful and accessible. I was able to build a unit for a 7th grade MARS task in a 6th grade SDC class upto creating ratio tables 6RP through the power of Notice and Wonder. | Writers’ Discretion |
| 687 | Allen | 10 | 252 Powerful! To state this and to cite Van de Walle | Non-Actionable |
| 688 | Allen | 11 | 265-266 In Chapter 6 the idea of Number Paths is discussed but not here, why? Below this heading, the concept of cardinality and magnitude is discussed and organization which supports place value. “numbers on a line” of this heading is not clearly supported in the paragraphs below. | Not Recommended |
| 689 | Allen | 12 | 294-295 Can this deeper concept/strategy be briefly explained as to why it is important? | Non-Actionable |
| 690 | Allen | 14 | 371-378 Very important! This should be heavily noted. Great that you cite research. | Non-Actionable |
| 691 | Allen | 15 | 385 Number paths briefly mentioned here | Non-Actionable |
| 692 | Allen | 15 | 386 It might be explained that though students are “discovering” the properties, it is not required that they know the actual name. However, by third grade using the names of properties should be natural (though not required). Confusion among teachers who take the Standards literally and refuse to use the names of properties. If a kindergartener can name dinosaurs, a third graders must not have mathematical properties names denied them. | Not Recommended |
| 693 | Allen | 16 | 409-417 The use 3 examples of flexible strategies throughout this chapter well supports the definition of numeracy stated in the introduction of the chapter. | Non-Actionable |
| 694 | Allen | 16 | 424-425 Good to connect to previous Framework’s good work. It implies that this Framework is an evolution of previous work. | Non-Actionable |
| 695 | Allen | 16 | 427-430 Throughout this chapter, the connections of the SMPs and the Standards as well as the connections of concepts and the flexibility demonstrated in the examples support the connects that math is a web not a ladder. Also, this supported writing connects to UDL mentioned in the other chapters. You may want to call that out as well. | Non-Actionable |
| 696 | Allen | 17 | 442 Also in the pair share, there is the opportunity for student explanation “rehearsal” which benefits all students including EL students prior to whole group share. | Non-Actionable |
| 697 | Allen | 17 | 443 See listening in definition below | Non-Actionable |
| 698 | Allen | 18 | 465 Great to give these valuable resources | Non-Actionable |
| 699 | Allen | 19-20 | 519-536 Excellent resource cited here. Listening is included as an important language skill. Receptive- SMP1 and # not just productive speech. | Non-Actionable |
| 700 | Allen | 20 | 540-543 Important clarification. | Non-Actionable |
| 701 | Allen | 25 | 665 Suggest to use another phrase. This phrase has absorbed a leveled- deficit connotation over the use these past years. A suggestions is “Multidimensional and accessible” | Writers’ Discretion |
| 702 | Allen | 29 | 761-762 Important math concept-ESTIMATION based in relevance | Non-Actionable |
| 703 | Allen | 31 | 808-811 Connecting SMP 7 with in how place value grows in sophistication is valuable. | Non-Actionable |
| 704 | Allen | 31 | 814-817 Connect to SMP#6 here too | Writers’ Discretion |
| 705 | Allen | 32 | 832 Referencing Math Talks with open number line here (Van de Walle?) would be valuable | Non-Actionable |
| 706 | Allen | 32 | 837-845 Excellent connections- SFUSD elementary math curriculum incorporates this connection | Non-Actionable |
| 707 | Allen | 32 | 850-851 Which supports the idea of scaling and ratio as it progresses into MS | Non-Actionable |
| 708 | Allen | 32 | 856 This repeated mention of estimation amplifies the real life math value and gets away from naked number procedural disconnected calculations | Non-Actionable |
| 709 | Allen | 33 | 866-867 Thank you for connecting the DI to the situation. This is helpful have examples which help make sense of these over arching ideas | Non-Actionable |
| 710 | Allen | 36 | 952-957 These examples show the value of flexibility in mental math. One might mention that math talks develop this flexibility and context may favor a particular strategy thereby validating different strategies. Even having students identify which strategy would best fit which context. | Writers’ Discretion |
| 711 | Allen | 37 | 975-976 Good statement | Non-Actionable |
| 712 | Allen | 44 | 1157 This may be interpreted as deficit minded. <bs>~~low-floor/high-ceiling~~<es> <bbl>multidimensional<ebl> games offer rigorous mathematical opportunities which embolden approaches to support students <bs>~~at different achievement levels~~<es> <bbl>with diverse understandings.<ebl> | Writers’ Discretion |
| 713 | Allen | 44-45 | 1179-1193 This progression explanation is valuable. | Non-Actionable |
| 714 | Allen | 52 | 1369-1373 I wonder if this may be accidentally read as implying that ‘linguistically and culturally diverse English learners’ have mathematical deficits in need of “additional guiding questions, judicious coaching, and corrective feedback”? Please consider accidental racial bias. | Writers’ Discretion |
| 715 | Allen | 55 | 1445-1449 Well stated. | Non-Actionable |
| 716 | Allen | 57 | 1528-1531 Powerful | Non-Actionable |
| 717 | Allen | 58 | 1535-1539 This is a clear example of why numeracy in middle school is important | Non-Actionable |
| 718 | Allen | 60 | 1603-1608 It is good to point out that the active reasoning should continue rather than reliance on memorized procedural skills. Great that you cite research! | Non-Actionable |
| 719 | Allen | 60 | 1614-1618 Clear and concise connections to the CC3 and the SMP7 | Non-Actionable |
| 720 | Allen | 60 | 1619-1620 It doesn’t mean “move the decimal” Knowing how place value has progressed would be a powerful example here. Many 8th grade teachers are unaware that the place moves not the decimal point. An example might clarify. | Writers’ Discretion |
| 721 | Allen | 62 | 1683 Suggest use: multidimensional (both accessible and rigorous) tasks… To avoid implying levels or deficit thinking but rather diverse and rich | Not Recommended |
| 722 | Allen | 63 | 1688-1697Fantastic! Yes, Number sense extends into HS. | Non-Actionable |
| 723 | Allen | 63 | 1697 This is a social justice opportunity | Non-Actionable |
| 724 | Cruz-Ardoin | NA | One of the most important topics. Must be emphasized in all grades. | Non-Actionable |
| 725 | Herrera | NA | Chapter 3 is a wealth of information that discusses so many teaching strategies including Number Talks, Counting Collections, Choral Counting, and Games. For those of us who have used these strategies among criticism from peers and administrators it reaffirms our choices. Still many teachers have seen these strategies as time consuming or yet another teacher duty. It would be helpful to link videos for these various strategies in the classroom. At professional development opportunities, teachers always seem to appreciate video and can refer back to that for guidance. | Non-Actionable |
| 726 | Wu | NA | This section fails to acknowledge that standard algorithms are also critical to provide a foundation for skills that are essential for the future.While not overly unreasonable, it is overused and should be balanced by algorithms as well. THIS in fact, is true flexibility. | Non-Actionable |
| 727 | Malione | NA | These methods stress flexibility above all else, replacing the traditional touchstone for mathematical progress, the standard paper-and-pencil algorithms, with extensive exercise involving drawing pictures, counting using manipulatives, and repetitively explaining their thought processes in those terms. This robs them of the opportunity to build comfort and processing power in a consistent way, and it leaves them confused. Despite the authors’ assurances that top-level facility with the content will arise from their approach, it's quite telling that the framework calls for a redefinition of terminology appearing in the Common Core standards, such as the word "fluency," to divorce the meaning from any performance-based considerations of response time or accuracy. | Non-Actionable |
| 728 | Bohanan | NA | Many of our students have no experience with numbers other than what they get in school. Is there a way to provide a framework for parents? I like the expectations of the Standards for Mathematical Practices (SMPs) because math talks, number talks/strings, and fluency is important in learning a foundational understanding of math. I only wish there was more time. | Non-Actionable |
| 729 | Vierra | 21-23 | - Table of grade level Big Ideas helpful for teachers & parents - Happy to see that there is an alignment between Foundation Standards and Kindergarten standards. Preschool & TK teachers have been asking for guidance - Useful to have detailed examples of Number Talks (Lines 560-613), but a link to the video would allow teachers to see students communicating their reasoning. Some of this is easily lost in all the written dialogue. Teachers want to see what it looks like. | Non-Actionable |
| 730 | Vierra | 31 | - ?typo line 801 remove "and" otherwise it is not a sentence. | Writers’ Discretion |
| 731 | Vierra | 27 | - line 706 it would be more useful to have a direct link to "Identifying Multiples" activity, rather than a general IM link | Not Recommended |
| 732 | Vierra | 59 | - typo line 1589 should be rare, rather than r\_are | Writers’ Discretion |
| 733 | Vierra | NA | - The Tondevold video "Number Sense" - helpful to have the direct links to the visual strategies | Non-Actionable |
| 734 | Vierra | 14 | - Typo line 378 "imperative" doesn't quite seem to be the right word; possibly "proven"? | Writers’ Discretion |
| 735 | Thomas | NA | There are useful resources - can use them right away! Please provide a list of all the resources grouped by category. | Non-Actionable |
| 736 | Aoki | NA | It is FANTASTIC to see number sense addressed directly past elementary school. This has been a huge need and I am so glad to see it finally included. | Non-Actionable |
| 737 | Lay | NA | The vignettes are very wordy and lengthy. Might not encourage teachers to try out the strategy. | Non-Actionable |
| 738 | Perez | 68 | I like the balance between the introduction that gave an overall view of the progression between grades and the grade band-specific sections. I appreciated the inclusion of the parallels between numbers and functions and felt the parallels drawn were natural and appropriate. I don't think this is the appropriate place for financial literacy standards (Beginning line 1843). I agree that they are necessary and should be taught to all students. However, incorporating small chunks of financial applications in math courses is not enough. A personal finance class for all students should be required for graduation! Knowing how many adults are in credit card debt, have no emergency savings and/or get their homes foreclosed upon, this is more important than almost everything we currently teach. If we were truly committed to equity, we would provide all students the financial knowledge to provide for their families and save for retirement. | Non-Actionable |
| 739 | Bates | 5 | Line 123- yes! So important, but how to teachers get training/time to do this? Suggestions for districts here could be helpful Line 1231- love the number line task! | Not Recommended |
| 740 | Bates | 47 | Line 1258- Another great example! How do we get teachers to this point? Secondary teachers have so much math knowledge, but it’s in often in procedures, not in how to draw out student understanding. The vignettes are very helpful, even more or maybe links to video clips would be great! | Non-Actionable |
| 741 | Bates | 63 | Line 1709- sentence is not very clear | Writers’ Discretion |
| 742 | Bates | 64 | 1726- in the title, I think the course should be Math 2/Alg 1 (not Math 1) | Writers’ Discretion |
| 743 | Bates | 69 | Line 1854- talks about the importance of financial literacy, but then it isn't really brought up again. How/when do teachers fit this in? In another chapter there is mention of financial alg as a replacement for math 3, is that the best opportunity for students? | Writers’ Discretion |
| 744 | Morris | 6 | The Table (around line 157) is very clear and informative. The very careful building of Number Sense ideas through all grade levels is very compelling and important for teachers and administrators at every grade level to understand in order to understand the interconnected ness of grade levels and grade bands. This outline supports teachers to understand the inherent depth and coherence and hopefully can help teachers make an argument for moving away from racing to Algebra in middle school and racing to calc in high school. | Non-Actionable |
| 745 | Gupta | NA | This redefinition does not say that students need to be able to apply the strategies accurately. The above reads “if they know 2 x 6 = 12,” but nowhere does it state that they are required to know these number facts. The definition goes on to specifically divorce any norms regarding speed or response time from this new definition of fluency. This redefinition does not serve any students - no matter their background. Math is one of the more black-and-white subjects and to say that it’s okay to not compute the actual answer so you know if you’re right or not is like forever not keeping score at a baseball game. At some point, you have to keep score, just like at some point, you have to actually do the math! | Non-Actionable |

## Table 6: Chapter 4: Exploring, Discovering, and Reasoning With and About Mathematics

| # | Source | Page | Line Number and Comment on Chapter 4 | Recommended Action |
| --- | --- | --- | --- | --- |
| 746 | Horwitz | NA | I am thrilled by these recommendations! As a school math lead and partner in a collaborative with Mills College over the past 7 years, I have seen the importance and power of students developing agency and reasoning through the act of investigating. For too long American mathematics students have suffered low performance AND low morale due to the dis-associated and disempowering nature of mathematics instruction. These recommendations are so important and powerful! | Non-Actionable |
| 747 | Brousseau | NA | Keep this because this is what real math is in life. Students should be learning and using math the way they will be using it in life. | Non-Actionable |
| 748 | Becker | NA | The beginning of this chapter seems redundant as most of it was said in chapter 1. I am not sure why this merits a separate chapter. All of the MPS should be developed progressively throughout the grade spans. Why are these three pulled out for their own chapter? Unfortunately I think what it connotes to the reader is that the others are not important, somewhat like secondary standards were in the old framework. | Not Recommended |
| 749 | Becker | 5 | Line 110: questions, and omit comma | Recommended |
| 750 | Commons | 1-4 | Pages 1-4, appreciate all the references to the other chapters, where I can learn more. | Non-Actionable |
| 751 | Commons | 5 | 97-100 KEEP: Thank you for the example of changing a problem to provide more reasoning opportunities. | Non-Actionable |
| 752 | Commons | 7-8 | 155-181 KEEP: Thank you for this list to focus on as well as the statement 187-189 on learning procedures conceptually | Non-Actionable |
| 753 | Commons | 8 | 194 QUESTION: When it says “in high school [SMP 3.1] below” Where is below? I can only find a vague (line 211) description ‘regarding proof’. Where would I find the complete wording? | Non-Actionable |
| 754 | Commons | 9 | 228-229 GRAMMAR: “all require a high degree of language proficiency to content knowledge and reasoning.” Do you mean ‘require a high degree of language proficiency to connect knowledge and reasoning’? OR ‘require a high degree of language proficiency to develop? To build? Communicate?’ | Writers’ Discretion |
| 755 | Commons | 9 | 233 ADD: a link to A Pathway…Strides | No Motion Recommended |
| 756 | Commons | 13 | 345 Typing error: “abstra ct” change to abstract | Non-Actionable |
| 757 | Commons | 15 | 400-401 KEEP: Thank you for the statement that representational and visual thinking remains important through high school | Non-Actionable |
| 758 | Commons | 16 | 428-29. ADD a question and explanation: Why divide $96 by 3? 96 is 3/4 of the total so to find the total I need to figure out the other 1/4, so 96 is 3 of 4 equal parts. And Why add that quotient to 96? | Writers’ Discretion |
| 759 | Commons | 17 | 441 This is a very important point, making connections between solution paths. INCLUDE a vignette of comparing bar diagram and this explanation? | Not Recommended |
| 760 | Commons | 24 | 579 PRECISE language: x4 is not “always the same as doubling twice”, they are not the same action, would not be represented the same way, change the language to “multiplying with the number 4 results in the same product as doubling twice” | Writers’ Discretion |
| 761 | Commons | 38 | 929-943 KEEP Thank you for this statement for college preparation, this will inform administrators, teachers, and parents about what is important. | Non-Actionable |
| 762 | Commons | 40-41 | 979 KEEP: Thank you for the multiple solution possibilities with such clear visuals | Non-Actionable |
| 763 | Commons | 50 | 1136-1141 KEEP: Thank you for the connection to science | Non-Actionable |
| 764 | Ward | 3 | Page 3, lines 42-51: Very true, very necessary. Would be nice if the standards were more clear, less convoluted, and not so numerous. Seems this framework only adds to them, however. | Non-Actionable |
| 765 | Ward | 46 | Page 4, lines 69-71: That seems so unrealistic; applying a false perspective of life on students. They aren’t going to be driven to investigate. They want to talk with friends, watch TikTok, and play video games. Even the false “authentic” situations created are not applicable to student’s lives. | Non-Actionable |
| 766 | Ward | 6 | Page 6, lines 146-154: I find this very interesting. As a high school math teacher, working with freshmen, I would love it if students had a strong understanding of the fundamental mathematical concepts and skills. But, instead, they were just passed along through social promotion all through elementary school and middle school. This year I had exactly *one* student who was able to pass a Math 1 Readiness test (“pass” being considered scoring 70% or better in terms of having knowledge of content ready for the course). Most recently I have spent the past seven weeks trying to have students all get to an eighth grade level understanding of equations and there are students who still struggle with the sixth grade level of equations. If that means I expect advanced concepts of great importance, that’s news to me (and my department, which shares similar struggles). We are facing an impossible task of having students master grade level content when they are nowhere near ready for the material. | No Motion Recommended |
| 767 | Ward | 7 | Page 7, the sidebar: **Thank you** for this information. Very interesting. Very enlightening! It will be shared with my district and colleagues. | Non-Actionable |
| 768 | Ward | 8 | Page 8, 182-184: Superficial grasp of procedures, little conceptual framework: well if this doesn’t describe the whole issue with a mile-wide standards that teachers can only go an inch deep with, hearing about how we have to *expose* students to the grade level standards or they have no hope of success… I don’t know what would. | Non-Actionable |
| 769 | Ward | 12 | Page 12, lines 305-315: Interesting class math norms. This is something else I think I need to share with my colleagues. I’m pleased to see that even if I have disagreements with other aspects of the math framework, I stand in complete agreement with these math class norms. | Non-Actionable |
| 770 | Ward | 17 | Page 17, 458-468: Why are there so many different lists? It’s overwhelming. | Non-Actionable |
| 771 | Ward | 35 | Page 35 (Grades 9-12 Progression: High School) seems strange to start on an example, and not get to an actual introduction until page 38. Then dive into another example. Feeling hopeless at these expectations of what students can do, and knowing how far behind the students I have are; and their lack of curiosity or willingness to speak in class (which could be due to being at home, isolated for the past year, but it seems that there’s time for slacking on the standards!) | Non-Actionable |
| 772 | Kempster | 3 | 48-51: + Appreciate that SMPs are described as “collaborative.” | Non-Actionable |
| 773 | Kempster | 3 | 52: + Love the connection between Habits of Mind and Habits of Interaction. | Non-Actionable |
| 774 | Kempster | 3 | 60 + Δ Agree that “Habits of interaction are linguistic processes.” Need to include listening: “...include such things as explaining one’s thinking, justifying a solution, listening to and making sense of the thinking of others.” | Recommended |
| 775 | Kempster | 4 | 67 Δ “ central to the SMPs highlighted in this chapter: exploration, discovery, description, explanation, generalization, and justification (including proof, examples, and non-examples) .” | Writers’ Discretion |
| 776 | Kempster | 6, 8 | 139-181  185-193  Δ This list of topics does not match what we would consider to be rigorous grade-level mathematics in grades 6–12 as defined by the CCSS-M content standards. ACT 2007 and 2013 data is not current enough – it does not reflect the mathematical preparation that students have gotten under Common Core. Lines 185–193 make a strong case for centering the SMPs and for connecting concepts and procedures, but the previous section does not support the CCSS-M content standards. We think this section needs to be reframed and the list of topics given by college professors taken out. | Writers’ Discretion |
| 777 | Kempster | 9, 11, 21 | We are wondering about SMP3, “Construct viable arguments and critique the reasoning of others.” We know it is not within the scope of this Framework to revise the standards, but SMP3 seems steeped in white dominant culture. It uplifts the practices of debate, arguing, and critique.  224-225 Δ “ In designated ELD time, the language of critiquing, reasoning, generalizing, and arguing is a space to help prepare English l earners for engagement in the SMPs and the mathematical content.” What language functions from a broader range of cultural practices are also valuable in mathematics? Restating another's ideas? Building on the ideas of others? Noticing and wondering?  288-289 Δ “ It is important to point out that neither “argument” nor “critique” has negative connotations in this context.” This paragraph doesn’t go far enough. Before they can critique, students must understand each others’ reasoning. This is missing from the standard. It is also NOT always necessary to critique when considering the ideas of others.  489 + We love this reframing of the standard as “make sense of the reasoning of others.” | Writers’ Discretion |
| 778 | Kempster | 10 | 237 Δ Take out “alternative.” Small groups do not have to be the alternative delivery mode; they can be a primary delivery mode. | Recommended |
| 779 | Kempster | 12, 13 | Δ We attend to and make sense of the thinking of others not just because it is “nice;” students need to be convinced that everyone l earns more when they attend to the thinking of others. Recommended changes:  315 We learn more when we attend to and make sense of the thinking of others.  323-324 Classroom norms must set the expectation that students respectfully attend to and make sense of the thinking of others so that they can learn from their classmates’ broad perspectives and deepen their own thinking. | Writers’ Discretion |
| 780 | Kempster | 14 | 371-374 Δ Language proficiency is not the only attribute that affects status hierarchy. “Assignments for student interactions that lack Intention could hinder or prevent high-quality math discourse that includes all students.” | Non-Actionable |
| 781 | Kempster | 15 | 384-386 Δ “ Intentional patterns of grouping” in reference to language proficiency: Teachers sometimes take “intentional patterns of grouping” too far by making sure there is a “high” student and a “low” student in each group, unintentionally communicating beliefs about who is capable and leading to a predictable tutor/tutee dynamic. When teachers do this kind of intention where they have labeled a student, that deficit thinking will do more subtle lasting harm over time. From Complex Instruction, given language development considerations and any safety concerns, randomizing group assignments can convey to each student that everyone has something to offer to the groups’ learning. Please consider revising this whole paragraph. | Writers’ Discretion |
| 782 | Kempster | 15 | 388-395 + Excellent summary of the developmental interaction between real-world contexts and abstractions. | Non-Actionable |
| 783 | Kempster | 15-16 | 407-410 + Δ This is really important for teachers to understand. Can you add an example? For example, drilling a second grader with the algorithm for adding two-digit numbers with regrouping before they have some flexible strategies for adding two-digit numbers that involve place value and decomposing/recomposing, and probably some visuals such as base-ten blocks or number line diagrams. | Writers’ Discretion |
| 784 | Kempster | 16, 25, 31, 32 | Δ There are several places in this chapter where mathematical examples given seem to be out of place grade-level wise.  419-420 Isn’t percentage introduced in grade 6 (not grade 5)?  428-430 Aren’t 2-step percentage problems introduced in grade 7 (not grade 6)?  599 Isn’t connecting algebraic expressions to a geometric representation a grade 6 standard? It’s in the elementary section.  743-755 Conjecturing a rule for the sum of interior angles in any polygon is above standard for Grade 8.  780-2 “Students might conjecture that the diagonals of a parallelogram bisect each other, after having experimented with a representative selection of possible parallelograms.” Above standard for Grade 8.  When illustrating SMPs, we think it is important that content be on grade-level, because SMPs shouldn’t be taught separately from content standards but rather intertwined with them. | Non-Actionable |
| 785 | Kempster | 16-17 | 435-442 + Thank you for naming this important misinterpretation of the 5 practices. | Non-Actionable |
| 786 | Kempster | 18 | 462-469 + Great summary of mathematical teaching practices. | Non-Actionable |
| 787 | Kempster | 23 | 530-536 + Δ Love this description of the value of a number talk. Recommend adding something along the lines of, This 10 minute activity exploring one addition problem deeply will develop students’ sense-making and strategies for addition more than will spending 10 minutes doing a worksheet of 10 addition problems. | Writers’ Discretion |
| 788 | Kempster | 24-53 | 575-1238 Δ This section reads as a list of examples. Can it be shortened, and some of the examples be moved to an appendix? | Writers’ Discretion |
| 789 | Kempster | 27-30 | 651-736 Δ We are surprised that the teacher chose these questions for a number talk requiring mental math strategies. We would want to allow students to write down or draw their initial thinking. Hard to keep all this in their head. And we can’t imagine this discussion taking only 10–15 minutes. Does the context of this example have to be a number string? | Non-Actionable |
| 790 | Kempster | NA | Δ This chapter is too long. Is there a better way to organize? | Non-Actionable |
| 791 | Kempster | NA | This wording from an early draft (2010?) of the SMPs is beautiful, and worth consideration in this chapter:  “Proficient students expect mathematics to make sense. They take an active stance in solving mathematical problems. When faced with a non-routine problem, they have the courage to plunge in and try something, and they have the procedural and conceptual tools to carry through. They are experimenters and inventors, and can adapt known strategies to new problems. They think strategically.” (Referenced here in the Design Challenges section: https://www.educationaldesigner.org/ed/volume2/issue7/article24/) | Writers’ Discretion |
| 792 | Williams | NA | We support   * 69-71 learning math in the context of investigations (connection to Ch1) * p. 6 learning about the discrepancy between what high school math teachers and college math teachers view as important topics in high school. * p.12 appreciate the classroom norms * 263, 360-363 important statements re: SMP 3, 7, and 8 * 448 interconnected representations connect to multi-dimensional math Ch 1 * pp.18-21 appreciate the connections between the Teaching Practices and Math Practices * Appreciate the classroom examples and tasks | Non-Actionable |
| 793 | Williams | 8 | We wonder  187-189 Could you provide an example or illustration of this? | Writers’ Discretion |
| 794 | Williams | 9 | 208-216 Please elaborate on the justification for focusing only on 3, 7, 8. MP 2, 4 and 6 also do not develop without careful attention...and also require a high language proficiency. | Writers’ Discretion |
| 795 | Williams | 9-10 | [This comment includes an embedded hyperlink. See the Box link above for the original comment with hyperlinks.]  221-225 and 234-238 seems repetitive. Include a link to Stride 4 to highlight it as a resources | No Motion Recommended |
| 796 | Williams | 12 | p.12 Classroom norms-It is important that students co-create norms. Could you include an example of doing this? | Not Recommended |
| 797 | Williams | 21-26 | pp.21-26 Can you provide more grade level examples to illustrate the progression of the SMPs? | Not Recommended |
| 798 | Williams | NA | Will we be provided with big groups of connected topics that we can focus on, rather than our typical list of discrete skills? (include Boaler/Williams big ideas via “slimmed down” standards) | Writers’ Discretion |
| 799 | Lavadenz | NA | **In our review of chapter 4**, we found multiple references to activities such as Number Talks and Number Strings, which center around vocabulary and the use of language within specific mathematical concepts. We believe these are critical points to clearly specify connections **to the ELD standards** and **English Learner centered strategies and scaffolds**. | Writers’ Discretion |
| 800 | Alba | NA | Lines 146-180 I appreciate the callout of how the perspectives of HS Math Teachers differ from their postsecondary counterparts. Line 194 and 1127... I need clarification around SMP3.1. Are we looking at SMP 3 adding language to specify HS interpretation of the general SMP 3? Throughout the chapter, ELs are called out in needing additional support in Designated ELD. This is repeated over and over again without real examples to work off of. I recommend removing either Lines 223-225 or 236-238. Since we call designated ELD specifically out, we need to emphasize Integrated ELD and provide specific example rather than general statements as to how the ELD standards are intentionally targeted in core instruction. For example, lines 229-236 provide a general statement and recommend a PEMI - Stride 4 as a resource. What would be helpful is a link to the ELD standards themselves. 7https://www.cde.ca.gov/sp/el/er/documents/eldstndspublication14.pdf | Writers’ Discretion |
| 801 | Herrera | 12, 18, 19 | Chapter 4 is a goldmine for coaches who have been proponents of deep, conceptual learning for the past several years. My only suggestion would be to make lists or tables linked to a printable PDF.(For example those found on line 305, line 461 and the table on page 19). Teachers like to print off a reference sheet to keep with them or post on a wall. If we do not provide such options in our state framework, teachers will turn to resources from Teachers Pay Teachers or Pinterest. | Not Recommended |
| 802 | Regus | 9 | Line 233 - Can you link to the "Pathway to Equitable Math Instruction" document here or give a citation in the references. | No Motion Recommended |
| 803 | Regus | 17 | Line 444-447 - When discussing connecting visual and abstract ideas through representations can we specifically mention Routine for Reasoning - Connecting Representations as a resources. | Writers’ Discretion |
| 804 | Regus | 18 | Line 480 - The table that follows line 480 that includes the SMPs and the MTPs seems to imply a one to one relationship. Can we represent it more accurately showing how each SMP applies to more than one MTP? | Writers’ Discretion |
| 805 | Wu | NA | The additional overlay of Drivers of Investigation does not take a mathematical approach, and is more aligned with US political action than with the subject of math. This is not going to bode well when our students, in the future, are partnered with global countries. Again, I think we agree that math should be a neutral and not politicized. | Non-Actionable |
| 806 | Malione | NA | The SMPs attempt to make math more inclusive by changing the learning requirements to include some more general “habits of mind” that are designed to loosely mirror the working habits of professional mathematicians. The idea is that students will learn by modeling the practices of working professionals does not do justice to the differences between novices and experts. Rather than building a foundation of expertise, it tries to engage students in a game of play-acting, so that they might be evaluated based on how well they perform in the role that is expected of them, rather than on actual mathematical procedures. This approach does little to make the details of the content more approachable or accessible, and so they are more likely to be downgraded and overlooked, to the detriment of all. The Drivers of Investigation and Content Connections further detract from subject content and procedural mastery. Drivers of Investigation are not relevant, and Content Connections too vague. | Non-Actionable |
| 807 | Bohanan | NA | While exploring, discovering, and reasoning with and about mathematics is important, I will focus my math investigative lessons on providing evidence with facts. I agree with the instruction of lessons that help develop a student's ability to communicate mathematical thinking is important across all grade levels and even more so for ELs. | Non-Actionable |
| 808 | Aoki | NA | At this point, it feels like I have read some of the same information 3-4 times by reading each chapter. Perhaps the repetition is to ensure that those who jump chapters don't miss the big idea, but it sure would be nice if there were a way to make is so that someone who wants to read the whole framework doesn't have to read the same thing over and over and over. For example, could this be more like an interactive PDF or website where it starts with big ideas and does so in a way that is more visually appealing and recognizable (for example - make a coordinated icon to call out where that theme/big idea comes back), then have the sub topics as links so people can just keep digging deeper into something instead of this back and forth with repeating stuff interspersed with new information? Again, the content is great. The organization/formatting is just really unfriendly for getting anyone who isn't paid to specifically read it to actually take the time to look at it at all. | Non-Actionable |
| 809 | Lay | NA | This chapter is a lot about the “why” and “how” with the progressions. I’m afraid that we are losing the “what” that was very prominent in the 2013 framework. It will be very daunting for people to come up with authentic math contexts that cover lots of standards on their own Provide directions on how to fight families and systems that all believe in tracking students, when the science tells us that this is a BAD PRACTICE. | Not Recommended |
| 810 | Perez | NA | I appreciated the high school vignettes and the reference to high school instruction still being a mile wide and an inch deep. I eagerly await guidance on how to prioritize high school standards and align them with big ideas so that high school teachers have guidance on where to place emphasis and how to strategically allocate their instructional time. Teaching all standards as if they have equal importance is not conducive to teaching with the depth required for developing mathematical habits of mind and maintaining retention of important math concepts. | Non-Actionable |
| 811 | Bates | NA | Appreciated the highlighting of the disconnect between HS and college teachers, starting in line 143. | Non-Actionable |
| 812 | Bates | 8 | Line 187-189- can you give an example of this? | Writers’ Discretion |
| 813 | Bates | 8 | Line 194- the mention of SMP 3.1 is not actually included immediately below in Line 199 (not actually listed until line 284) | Non-Actionable |
| 814 | Bates | 9 | Line 232- where do we find this ELD resource? could a link be added? | No Motion Recommended |
| 815 | Bates | 16 | Line 416-418- the sentence is confusing | Writers’ Discretion |
| 816 | Bates | 18 | Line 474- wondering if the question types here could/should be linked to DOK levels as well? | Writers’ Discretion |
| 817 | Bates | 27 | Line 652- "prior to this lesson"- could we see this too? and maybe also what comes next? It could be very beneficial to see a sequence of tasks/lessons to help grasp the big picture | Not Recommended |
| 818 | Bates | 30 | Line 733- who is "student 1"? there has been no one labeled this | Writers’ Discretion |
| 819 | Bates | 32 | Line 771- could the task be linked here? | Non-Actionable |
| 820 | Bates | 32 | Line 780- the diagonals of a parallelogram bisect is not anywhere is the 6-8 standards, perhaps there could be a different example here? | Non-Actionable |
| 821 | Bates | 49 | 1120- could there be more examples/resources for how to create classrooms like this? | Not Recommended |
| 822 | Morris | NA | I appreciated the comments (287) to help teachers and student s understand that argumentation and critique are not negative, but rather specific aspects of mathematical logic. While emphasizing the work of developing class norms to support respectful and productive work in that area (305). The chapter gives teachers tools to combat misapprehensions e.g. numbers and formulas are the best representations, rather than models and drawings. Likewise providing questioning strategies to promote depth of understanding. the vignettes in the chapter are powerful. Especially the work illustrating students roles as skeptics in supporting the development of well reasoned arguments. ((805+).. I appreciated the examples that illustrated ways in which students’ need to understand and justify was connect to authenticity in the work (e.g., 1220). | Non-Actionable |
| 823 | Gupta | NA | Specifics about their integrity to the math aside, the entire focus here is on training students who will use math in the course of STEM-adjacent activities. The role of math in science, technology, and engineering is much more central and involved. The math cannot be hidden away as well for students who will need to engage with it more intimately in these fields, and while a few such investigations may help to illustrate the road ahead, too many of them will hold them back from learning the math they need to move forward in that direction. Isn’t that what we want for our future workforce? To be encouraged to enter STEM fields. By not preparing them earlier on for the rigor needed in these fields is going to hold an entire CA generation back to be competitive in this global job market. | Non-Actionable |

## Table 7: Chapter 5: Data Science

| # | Source | Page | Line Number and Comment on Chapter 5 | Recommended Action |
| --- | --- | --- | --- | --- |
| 824 | LaMar | NA | I am so pleased to see the inclusion of Data Science into the 2021 Framework. It is about time we moved K-12 mathematics education into the 21st century. Students need to learn these skills in order to face the data-filled world they will face upon high school graduation. | Non-Actionable |
| 825 | Nagatani | NA | I am thrilled to see the inclusion of other courses in our high school pathways. I can only imagine the possibilities for students who are given this opportunity. | Non-Actionable |
| 826 | Brousseau | NA | This is important because data is every where and students need to use critical thinking to understand what the data is really showing because many times in life, data is misinterpreted. Data science really will increase the students' critical thinking abilities and empower them to ask questions and solve problems in the real world. The hope is to give them the background to solve societies problems. | Non-Actionable |
| 827 | Daro | NA | More explicit discussion of the shift in emphasis from solving equations toward modeling with functions. | Non-Actionable |
| 828 | Daro | NA | More emphasis on equivalence of expressions and equations to “solve equations” . The = sign does not mean “solve” it means “is” , that left refers to the same number as the right. same. | Non-Actionable |
| 829 | Commons | NA | Title: Why is this titled TK – Grade 5 when it includes information all the way to high school? | Writers’ Discretion |
| 830 | Commons | 4 | 67-69. appreciate the definition of data literacy. | Non-Actionable |
| 831 | Commons | 5 | 113 define ‘Multivariate’ possibly in a footnote | Writers’ Discretion |
| 832 | Commons | 5 | 114 define “probabilistic” possibly in a footnote | Writers’ Discretion |
| 833 | Commons | 6 | 128-129, 145 What is the ‘statistical problem solving process’? | Writers’ Discretion |
| 834 | Commons | 6 | 131 I don’t understand the sentence: “The statistical problem-solving process is used within the process.” What process? | Writers’ Discretion |
| 835 | Commons | 8 | 186-187 ADD an example of multivariable data and multivariate thinking. | Recommended |
| 836 | Commons | 9 | 202-204 thank you for this extra information about singular and plural | Non-Actionable |
| 837 | Commons | 10 | 227-228 ADD a link to NGSS and EP&C | Recommended |
| 838 | Commons | 10 | 230: Grammar: Defining data: What is data? How and where is data collected? | Recommended |
| 839 | Commons | 10, 39, 45 | 230, 864, 1005-6 Not clear: “Sampling….How many?” Is it useful to ask ‘how many’ or is it a relative amount such as %, or a ratio. 3 of every 4 questioned replied…. Or How many should be in a random sample out of total population? Not defined yet. | Not Recommended |
| 840 | Commons | 12 | 270 CHANGE the word “allow” to investigations that cause students, OR investigations that provide opportunities to…. | Recommended |
| 841 | Commons | 12, 13 | 276, 289 QUESTION: As with science, often the investigation begins with observing and wondering (it looks like this type plant that gets more sun grows faster/bigger; it seems kids at our school throw away more food on Tuesday than other days….) then developing a researchable question, then gathering data….. | Non-Actionable |
| 842 | Commons | 16 | 354-362 CAUTION: privacy issues have been a challenge when collecting data about families, living conditions, etc. Please all a link to a source that describes appropriate topics and those protected by privacy laws. | Recommended |
| 843 | Commons | 19, 20 | 433. 436, 439 ADD possessive. Abdu’s question, Nikita’s description, Nathan’s description | Recommended |
| 844 | Commons | 24 | 476-7 QUESTION: percent is not a grade level standard until grade 6. Why does this specify grade 5? | Writers’ Discretion |
| 845 | Commons | 25 | 485-8 GRAMMAR: “This image establishes a context for a talk around how income shifts based on age and education. The data is from the years 1966 to 2016.” | Recommended |
| 846 | Commons | 38 | 838-TERM: I thought ‘edge’ referred to three-dimensional shapes, side is used in two-dimensional shapes | Not Recommended |
| 847 | Commons | 43 | 964 QUESTION: How will students consider slope if the data is not linear? Slope is an 8th grade standard, 7th grade learns constant of proportionality (unit rate). | Not Recommended |
| 848 | Commons | 47 | 1070 QUESTION: How Many? Is still not addressed, only “chose not to tell them how many times to sample…”. How many is a large enough sample to be confident? | Not Recommended |
| 849 | Commons | 51 | 1189 GRAMMAR: “tapping into student interest TO ensure…” | Recommended |
| 850 | Becker | NA | I again wonder why this merits a separate chapter. I think all of this material can easily be integrated into other chapters in the document while making the same key points. Or a shorter version can be integrated into chapter 1 where the plea is made for more options in content. | Not Recommended |
| 851 | Becker | NA | The material starting on pg 59 is redundant and I am not sure why this all needs to be included here. Do you see this chapter as standing alone? | Non-Actionable |
| 852 | Ward | 1 | Page 1, lines 6-7: Why does this say *Transitional Kindergarten through Grade Five* when there’s junior high and high school (9-12) covered, in addition to the advanced high school data science course in this chapter as well? | Writers’ Discretion |
| 853 | Ward | 4 | Page 4, lines 66-75: I think this is very wise and important. Data is so vital to business and their marketing; it’s good for students to have data literacy. | Non-Actionable |
| 854 | Ward | 4 | Page 4, lines 77-83: Good explanation and description. | Non-Actionable |
| 855 | Ward | 7 | Page 7, lines 174-177: These are such good questions to be mindful of and to consider. | Non-Actionable |
| 856 | Ward | 10 | Page 10, lines 229-230: I appreciate the clear overview of the statistics/data science that kids are expected to be exposed to during their educational experience. | Non-Actionable |
| 857 | Ward | 10 | Page 10, line 232: That is a terrible, ridiculous statement. *Motivating students to care about mathematics* is not something an external force can (easily, of reasonable feasibility) do. Especially not when there aren’t big enough carrots to incentivize “motivation” in students, nor are there sticks that can be used to scare them into compliance either. | Non-Actionable |
| 858 | Ward | 11 | Page 11; 239, 258: More jargon to try and make sense of, keep track of, and not be baffled--or baffle others-by. | Non-Actionable |
| 859 | Ward | 12, 13 | Page 12, 13; 277 & 288: I appreciate the visual figures 5.1 and 5.2. Less wordy, good for show.  Dear Data - very confusing to me. I keep reviewing it, but then I feel like creative liberties were taken and it doesn’t compute with my brain in what it’s trying to show. I’m wondering if the data science class is going to be like this, and if so, does that mean kids will get perfect scores for producing any sort of content? Will there be a recommended grading breakdown of categories for that? (Sorry, off topic a bit.) | Non-Actionable |
| 860 | Ward | 22 | Page 22, 448: Data Talks - intriguing. I’ve been much better at consistently incorporating number talks into class this year and I am absolutely interested in making use of data talks. | Non-Actionable |
| 861 | Ward | 52 | Page 52, 1215-1216: I appreciate the explanation of how the high school section is organized; for in general and then for the data science course. That’s logical and I like that it is laid out clearly. | Non-Actionable |
| 862 | Ward | 67 | Page 67, Design Principles: It is nice that it starts off by stating what students will do. They do need to be an active participant in their learning and education. | Non-Actionable |
| 863 | Ward | 79-80 | Page 79-80, 1985-1998: This seems to be a good six key points that a data science course can present as the end goal for students completing the course. | Non-Actionable |
| 864 | Ward | 81 | Page 81, 2029-2034: Is that really the case? Or is it that this is the new shiny object that people will obsess over before a new thing shows up in a few years and this gets discarded as people’s attention shifts to the next latest and greatest thing that will claim to cure all ills? | Non-Actionable |
| 865 | Sampson | NA | Strengths:  The author’s make a strong case for the importance of Data Science throughout TK-12 Mathematics. | Non-Actionable |
| 866 | Sampson | NA | Including references and content related to NGSS. | Non-Actionable |
| 867 | Sampson | NA | There are a lot of great resources provided for teachers to get started. | Non-Actionable |
| 868 | Sampson | NA | A clear breakdown of big ideas for data science in each grade span. | Non-Actionable |
| 869 | Sampson | NA | Considerations for refinement:  Need more of a “how to” embedded in the grade level span. | Not Recommended |
| 870 | Sampson | NA | Bank of resources to use by grade level for teachers | Not Recommended |
| 871 | Sampson | NA | Could feel like we are adding something else to Math curriculum versus reimagining how we can teach the current data and measurement standards around big ideas. | Non-Actionable |
| 872 | Sampson | NA | High School vignettes needed to demonstrate how data science can be integrated. | Writers’ Discretion |
| 873 | Sampson | NA | Teachers may not be as comfortable with this topic as compared to the others and may need additional content specific ideas and explanations - similar to the content progression documents out of Arizona.  http://ime.math.arizona.edu/progressions/ | Not Recommended |
| 874 | Rodgers | NA | Noteworthy features:  Loved the correlation to science and using the phrase “Processes” of engineering and science - not singular and not linear. | Non-Actionable |
| 875 | Rodgers | NA | Emphasis on students looking at data from a point of view relevant to them. | Non-Actionable |
| 876 | Rodgers | NA | “Any question whose investigation requires repeated counting, measuring, or categorizing is one that data helps to answer.” | Non-Actionable |
| 877 | Rodgers | 22 | Line 448 - Data talks great as EL support or for less included populations. Love the links. | Non-Actionable |
| 878 | Rodgers | NA | Appreciate the concern that Data Science and new teachers will need extra examples. | Non-Actionable |
| 879 | Rodgers | NA | Data Science gives some students an entry point to math. | Non-Actionable |
| 880 | Rodgers | 9 | Line 203 - Big Ideas table | Non-Actionable |
| 881 | Rodgers | 13 | Lines 292-294 Examples of investigative questions. | Non-Actionable |
| 882 | Rodgers | NA | Good graphics - made content user friendly. | Non-Actionable |
| 883 | Rodgers | NA | Chapter provided scaffolding, activated prior knowledge for teachers. | Non-Actionable |
| 884 | Rodgers | NA | Liked “Students will”, “Teacher will”. | Non-Actionable |
| 885 | Rodgers | NA | Good vignettes here. | Non-Actionable |
| 886 | Rodgers | 4 | Line 77 “Data science is the process of discovering the stories hidden within the data. | Non-Actionable |
| 887 | Rodgers | NA | Reliance on technology especially MS and up. | Non-Actionable |
| 888 | Rodgers | NA | A great tie to other curricular areas. Reading and interpreting data is part of every subject and also part of ELPAC proficiency | Non-Actionable |
| 889 | Rodgers | NA | With the number of resources linked, it feels more friendly to utilize compared to prior frameworks. | Non-Actionable |
| 890 | Rodgers | NA | Data talks are an excellent pedagogy strategy. | Non-Actionable |
| 891 | Rodgers | NA | Data science is so real world and is a great addition to the Framework. It has been a missing and necessary chunk. | Non-Actionable |
| 892 | Rodgers | NA | This is a great topic to get students to buy in. | Non-Actionable |
| 893 | Rodgers | NA | Data Talks correlated nicely with Math Talks and discourse. | Non-Actionable |
| 894 | Rodgers | NA | Vignettes and examples are really helpful. | Non-Actionable |
| 895 | Rodgers | NA | Visualizations will be helpful to students and a great entry point. | Non-Actionable |
| 896 | Rodgers | NA | Nice connections to NGSS and the EP&Cs. | Non-Actionable |
| 897 | Rodgers | NA | This will help give students the basics they need in elementary so they will be more prepared when they get to probability and statistics when they get to middle and high school. | Non-Actionable |
| 898 | Rodgers | NA | Big Ideas table is useful. | Non-Actionable |
| 899 | Rodgers | NA | Needs clarity or improvement:  Many new acronyms, supply link for definitions. | Not Recommended |
| 900 | Rodgers | NA | A lot of new learning for teachers, provide link to examples. | Not Recommended |
| 901 | Rodgers | NA | Wondering what the curriculum will look like. Feels like this should be really current, but not sure there is anything out there that will be current enough….will get outdated quickly. Will need to have good digital tools to help. Maybe links to websites that continually get updated with current data. | Non-Actionable |
| 902 | Rodgers | NA | A lot of information on high school pathways at the end…. Could this be part of an appendix? | Not Recommended |
| 903 | Rodgers | NA | Tips for curriculum were nice, but does it belong here or an appendix OR should it also be in other sections? | Not Recommended |
| 904 | Rodgers | NA | Questions about how to pace. Will there be a day to gather data or will I have to use pre-gathered data? | Non-Actionable |
| 905 | Rodgers | NA | Felt like it was a little unorganized or less developed in some places…. Is it because it is newer? | Non-Actionable |
| 906 | Rodgers | NA | Title says “Transitional Kindergarten to Grade 5”, but the content went beyond into High School | Writers’ Discretion |
| 907 | Rodgers | NA | Front load purpose early on in the chapter, especially elementary | Not Recommended |
| 908 | Rodgers | NA | Will people skip chapters because grade band content are not grouped together? This chapter is especially broadly lumped together. | Non-Actionable |
| 909 | Rodgers | NA | The way the material is broken up is random and not easy to read. | Non-Actionable |
| 910 | Rodgers | NA | Matrix summary layout would be helpful - ways to encourage more people to read. | Not Recommended |
| 911 | Rodgers | NA | “Cliff Notes” for grade spans would be helpful | Not Recommended |
| 912 | Rodgers | NA | Make sure that current teachers are able to spend time to understand the content through trainings, debriefings, etc. Many teach multiple subjects and some are afraid of changes in math. | Non-Actionable |
| 913 | Rodgers | NA | Were there different authors for various chapters? Continuity in style needs to be analyzed. | Not Recommended |
| 914 | Rodgers | NA | A little too wordy, maybe repetitive that can be narrowed - getting to a clear idea of what data science is. | Non-Actionable |
| 915 | Rodgers | NA | Felt overwhelmed reading this and how to begin. (hard for us to finish) | Non-Actionable |
| 916 | Rodgers | NA | As educators we have not had as much in school or in our practice | Non-Actionable |
| 917 | Rodgers | NA | More graphics to show how this looks in K-1 on up in the grades as a clear progression. Currently the transition form Elem to Upper grades felt really heavy in upper grades | Not Recommended |
| 918 | Rodgers | 67, 68 | 1646 , 1659 some T/S “do” statements but really would like to see what that looks like too with a clear example. For example “meaningful opportunities” could be linked to one solid reference from anywhere in the text, or Design Principles video examples of how this looks. | Not Recommended |
| 919 | Rodgers | 69 | 1703 “provide low stakes opportunities” (like a choice board) may be well enough known to not need to add in this very full chapter. | Not Recommended |
| 920 | Rodgers | NA | Discussed that the focus seems very broad - teachers will need lots of clarity. | Non-Actionable |
| 921 | Rodgers | NA | Can TK-5 be broken down more to help with the foundation of this progression. | Not Recommended |
| 922 | Williams | NA | We support   * 77 definition of data science (not just statistics) * 147 important statement to support why data science (“contemporary lens”) * 168-177 data in context, local data * 180-191 four principles of data science, esp. focus on collaboration and communication * 207 sources of data sets * 230 TK-12 progression of data science big ideas provided then expanded on throughout the chapter * 239+ building coherence with driver’s of investigation * 458-460 integrate writing with data science; * 543-548, 552-554 begin with notice and wonder; weekly notice and wonder with data sets * 509, 860,focus on open-ended questions and student inquiry; More investigational types of thinking * 255-257-having the same 3 drives in all grades is good for coherence, meaning in math * 415 Dear Data activity--fun, creative * the goal of the chapter: everyone needs experience and exposure to data literacy. * Examples of integration of content (ELA, NGSS, HSS, computer science, health) * Data Science Pathway-provides the connection between math and the real world, esp. encouraging all students to take 4 years of math. | Non-Actionable |
| 923 | Williams | 11 | We wonder  236 why limited to high school CA CCSSM? | Writers’ Discretion |
| 924 | Williams | NA | MD and SP content has often been minimized or eliminated due to lack of instructional time. Can you provide guidance to publishers on how to integrate data science with other disciplines? | Writers’ Discretion |
| 925 | Williams | NA | We will need a lot of professional learning around data science and its tech resources. Can you provide guidance on the best way to go about this? | Not Recommended |
| 926 | Williams | NA | How can we get parents and district leadership to “buy into” data science and alternative pathways and give them the info they need to choose wisely? | Non-Actionable |
| 927 | Williams | NA | Will there be a focus on qualitative data? The research world sees the value of qualitative data. | Writers’ Discretion |
| 928 | Williams | NA | Local data was referenced many times. Where can teachers get local data? | Writers’ Discretion |
| 929 | Michelena | NA | Data Science is definitely an important topic and it is good to see that addressed (so is financial literacy!) | Non-Actionable |
| 930 | Cruz-Ardoin | NA | This is the best chapter of the whole framework. This is going to create access for so many traditionally underserved mathematics students. Data science is not only vital to all of this world's population but the most common use of mathematics in all our daily lives. As a woman of color, it was assumed algorithms and rules were lost on me and therefore STEM seemed more daunting than for my white male counterparts. Data science levels the playing field for those who suffer from that bias. I cannot express enough how much the content in this chapter should not only remain but be expanded upon with video examples of lessons and best teaching practices around this subject. | Non-Actionable |
| 931 | Herrera | NA | Many of us educators are not used to teaching data science. I think this very important chapter might get overlooked. Perhaps we could start with some data pertinent to California to grab the attention of the reader? Then we could go on to explain data science and principles of learning data science. | Writers’ Discretion |
| 932 | Walker | NA | Data science needs to play a prominent role in math education! | Non-Actionable |
| 933 | Wu | NA | Same issue as noted in chapter 4. | Non-Actionable |
| 934 | Malione | NA | The chapter is incorrectly titled: “Data Science, Transitional Kindergarten through Grade Five” The authors claim in Chapter 1 that this Data Science pathway that "can serve as a replacement for algebra 2, has the potential to open STEAM pathways to diverse groups of students, both through its engaging content and its openness to all students" This chapter makes no mention of any potential for the data science pathway to open STEAM pathways as indicated in Chapter 1. Since the teaching of data science is being motivated using the Drivers of Investigation there may be too much class time spent on the collection and processing the data in superficial or reductive ways, leading to obvious or misleading conclusions, with more interest in the analysis outcome than in the methods involved. There needs to be better focus on the underlying math, for those higher-achieving students who will require it in order to achieve STEM-readiness. | Writers’ Discretion  (in Chapter 1 reference Chapters 5 and 8 regarding a Data Science Pathway; title will be corrected) |
| 935 | Bohanan | NA | I believe data is extremely important for our students to experience and learn how to collect, analyze, formulate questions, and communicate. | Non-Actionable |
| 936 | Kanji | NA | We are affirming student voice and choice Statistical and Data Science process and Math modeling process p.12-13 Data visualization p.22 Data Talks p. 22 and Data Exploration p.42 Four Data Science Principles (data within the context of everyday life or situations) our Introduction to Data Science course (http://www.introdatascience.org) Line 213 Alignment with math practices Remote learning examples (jamboard, student samples) or students posing their own questions and graphs (students representing data in a way that makes sense to them) Equity (provide student access, sharing of student stories, student voice) Connections to NGSS Questions We Have How can we help schools weave data science into daily lessons? (within existing math courses) How will data science be addressed/emphasized given that data science is identified as “additional” content? How do we clearly teach data science in middle school? How do we support TK-12 coherence within data science at the district level? | Not Recommended |
| 937 | Aoki | NA | With data being ignored or poorly covered in most curriculums (especially in elementary school) it is great to have a chapter that calls out what developmentally appropriate data investigations focus on and look like. I agree with the authors that data science is a HUGE area for career opportunity, and we are doing a disservice to students by not teaching it well currently. This is a necessary shift. | Non-Actionable |
| 938 | Ortega | NA | I am so excited for the addition of this chapter! This really helps reinforce the belief that preparing students for 21st century college and career does not mean only preparing students for AP Calculus. This chapter will help my district create a data science pathway for our high school students that is equally rigorous as a calculus pathway. I appreciate the way data science can be introduced as early as elementary school, and a high school data science course a wonderful way for students to put together all of their math practices that we work so hard to build over their K-12 years. | Non-Actionable |
| 939 | Hoffman | NA | Including a link to the A-G approved data science courses in high school would be helpful to use as a template for schools looking to add this offering. | Not Recommended |
| 940 | Sher | NA | Very Positive 81 Think critically about the qualitative features of a data set 76-121 Qualitative aspects of data, GAISE II and SET! 124-137 Where data comes from, methodology- In-the world - important for citizenship, social justice, political, social, and scientific issues. 162-6 develop data literacy in parallel with number sense. Show examples for K-5 229 Big Ideas Chart | Not Recommended |
| 941 | Sher | 4, 6 | Suggestions 81, 124-137 Provide examples of where data comes from including source(s), motivations behind collections, and methodology and bias. | Not Recommended |
| 942 | Sher | 17 | 380-1 is an important point for entry into statistical discussions; move to 280, the chart which it refers to Reify the qualitative aspects found in methodology and presentation of data. Provide examples of context in vignettes. There are many compelling examples in the realm of public health and the environment. | Not Recommended |
| 943 | Sher | 8-9 | 196-206 Definition of Data – Perhaps, move to line 76, include an example that allows for bias in the methodology, which could provide examples of context | Writers’ Discretion |
| 944 | Perez | NA | More vignettes in the high school section would be helpful for teachers who would benefit from specific examples of model instruction. More examples of tasks that meet the advanced statistics standards would be helpful for math teachers who gained their credentials while majoring in math but were never required to take a statistics class. The in-depth description of the proposed data science course would be more appropriate as an appendix or link. More information about how to teach the standards would be appropriate here. Examples of model instruction are far more impactful for teachers than disconnected checklists of teaching best practices. | Not Recommended |
| 945 | Bates | 4 | line 73-75- it's nice that data science is being talked about in conjunction with stats, but often when teachers are crunched for time, it's the stats that is skipped. Any particular suggestions to mitigate this? line 77- love this def of data science | Writers’ Discretion |
| 946 | Bates | 16 | line 366- can you say more here about what it means to "clean" the data sets? just refine or sort through what data is/isn't reelvant? | Writers’ Discretion |
| 947 | Morris | NA | This is perhaps (along with chapter 1) the most important chapter in terms of improving on what we have been doing for the past decade. It clarifies the role of data science and stat in K-8 in important ways, pointing to the very different understanding of what is important in the GAISE framework. The table at lines 230 is fantastic. The examples throughout the chapter provide insight into how profound data ideas can be meaningfully layered concurrently with CCSM standards in Number, Fractions, Ratios, etc (e.g., 640+). Students considering data ethics and representation is an important addition. The explicit explanation of how students need to have experiences with data and data tools before there is an expectation of mastery to meet a grade level standard (line 730) coupled with the example of a need in 8th grade to be continuing work on a concept/skill that isn’t present in the grade level standards (1050) is subtle and an important aspect for teachers to strive to understand. | Non-Actionable |

## Table 8: Chapter 6: Mathematics: Investigating and Connection, Transitional Kindergarten Through Grade 5

| # | Source | Page | Line Number and Comment on Chapter 6 | Recommended Action |
| --- | --- | --- | --- | --- |
| 948 | Murray | NA | Number talks | Non-Actionable |
| 949 | Holmstrom | NA | I have already heard / seen conversation about whether or not these three chapters (6, 7, 8) mean that there "are no longer standards" or if CCSS is narrowed in some way. I love these big buckets and I see the links to Achieve the Core work on priority areas / standards; however, I would not want to lose sight of the K8 progressions nor the K12 progression overall - embedded within CCSS. | Non-Actionable |
| 950 | Brousseau | NA | This is important because of the real world applications of investigations using math. One of the biggest problems in math education ahs been the lack of how mathematics is all connected. The more connections students see and are aware of the more powerful problems solvers they become. | Non-Actionable |
| 951 | Daro | NA | K-5 algebraic thinking is a bit of a meander. for better implementation effects, include the tables on page 88 and 89 of Common Core standards so teachers realize the algebraic structure of real world number problems can be assembled from a small number of conceptual legos. we want teachers to teach that 30 divided by 6 = [\_] is equivalent to 6 x [\_] = 30. I didn’t see that in the Framework. More attention to number equations k-5. especially composing and decomposing mental adding and subtracting recorded as number equations. The framework in the part of chapter 3 on the early grades only describes subtraction as taking away neglecting difference and comparison. The page 88 and 89 tables capture all this systematically (thank you CGI) | Writers’ Discretion |
| 952 | Rubalcava | NA | **Global Feedback Chapters 6-8**  Create a consistent structure for all three grade span chapters where possible. | Writers’ Discretion |
| 953 | Rubalcava | NA | Resources such as the Five Practices for Orchestrating Mathematical Discussion, Universal Design for Learning, and Mathematics Language Routines appear with a great amount of frequency and should be explicitly and consistently named as guiding resources for the practical application of the research and theory embedded in the framework. I suggest leading the grade span chapters with a section that names these resources as such and include some helpful visuals (such as a one page overview of the five practices) that will make this grade span chapters more user-friendly. | Writers’ Discretion |
| 954 | Rubalcava | NA | These chapters are text heavy and could benefit from visuals and tables that better illustrate the concepts being shared throughout the chapters. See specific feedback below. | Non-Actionable |
| 955 | Rubalcava | NA | The end of the Chapter 6 includes each grades level’s Critical Areas for Instruction. These should be embedded throughout the chapter and should also be included in the grades 6-8 and 9-12 chapters. Putting this content at the end of the chapter makes the content feel like an afterthought. | Writers’ Discretion |
| 956 | Rubalcava | NA | **Items/Areas of Strength in Chapter 6 Include:**  Pages 106-119 Inclusion of the critical areas for each grade level.  Line 81 Emphasis on heterogeneous grouping, rather than tracking.  Line 105-107 and Lines 991-992 Naming the designated ELD connection.  Line 217 Highlighting the use of sentence starters.  Lines 247-252 Providing questions to guide small group EL support.  Lines 268-270 Sentence frames included.  Lines 278-288 Highlighting the importance of teachers anticipating questions to support student learning.  Lines 296-297 Elevating all student voices with rehearsal opportunities.  Lines 310-328 Use of exit ticket with details about instructional focus/decisions.  Page 18-19 “Big ideas” concept is reinforced from the introduction in chapters 1-2.  Page 28 Inclusion of fluency levels from the Progressions  Lines 1056-1061 Explicitly naming the balance of content standards and SMPs. | Non-Actionable |
| 957 | Rubalcava | 7 | **In order to support teachers in using this document include visuals, tables, and/or resources to call out specific strategies for implementing this guidance. See specific line items below:**  Line 186 Add a visual or link to 3 reads routine. | Recommended |
| 958 | Rubalcava | 20-21 | Lines 564-572 Organize these standards in a table that highlights the progression across the grade span rather than a list. Do this for every Content Connection in both the TK-2 and 3-5 grade span. | Writers’ Discretion |
| 959 | Rubalcava | 26 | Page 26 Add visuals to represent students’ mathematical strategies. | Writers’ Discretion |
| 960 | Rubalcava | 27 | Lines 737-743 Add a visual (e.g. a teacher’s recording of the student’s strategy). | Non-Actionable |
| 961 | Rubalcava | 28 | Page 28 Add images (like in the Progressions) or give examples of each of these Methods Used for Solving Problems. Include specific connections to these Methods in both the Content Connections Sections 2 and 3. | Writers’ Discretion |
| 962 | Rubalcava | 30 | Lines 824-839 Add visuals and/or resources for the Pocket Game. | Writers’ Discretion |
| 963 | Rubalcava | 30-31 | Lines 840-846 Add visuals and/or resources for the game Race to a Flat. | Writers’ Discretion |
| 964 | Rubalcava | 31-32 | Page 31-32 Add a visual progression from a number path to number line. | Recommended |
| 965 | Rubalcava | 35-37 | Pages 35-37 Add images of the rekenreks as described in the vignettes. | Writers’ Discretion |
| 966 | Rubalcava | 53 | Lines 1461-1467 Add a visual or table to support the progression of standards. | Non-Actionable |
| 967 | Rubalcava | 54 | Page 54 Includes problem types table found in the Progressions. Also include this in the TK-2 section. Make the table fit on one page. | Writers’ Discretion |
| 968 | Rubalcava | 56-57 | Lines 1515-1524 Add a visual or table to support the progression of standards. | Writers’ Discretion |
| 969 | Rubalcava | 57 | Lines 1525-1538 Add a visual of the progression from additive to multiplicative reasoning. | Non-Actionable |
| 970 | Rubalcava | 59-61 | Pages 59-61 Include an image for both partitive and quotative division in both discrete and measurement scenarios. | Non-Actionable |
| 971 | Rubalcava | 60-61 | Lines 1624-1633 Add a visual or table to support the progression of standards. | Writers’ Discretion |
| 972 | Rubalcava | 61-62 | Lines 1644-1661 Create a progression table and name the SMPs that are described below the content standards. | Non-Actionable |
| 973 | Rubalcava | 63 | Lines 1691-1698 Add a visual of S B’s thinking. | Non-Actionable |
| 974 | Rubalcava | 64-65 | Pages 64-65 Put images beside text for easier connection between text and image. | Non-Actionable |
| 975 | Rubalcava | 72 | Page 72 - Table: Add visuals such as area models to strengthen the reasoning used by each student. | Non-Actionable |
| 976 | Rubalcava | 73-74 | Lines 1874-1894 - Add visuals of the computation used to highlight the mathematical properties. (e.g. number bond, area model) | Non-Actionable |
| 977 | Rubalcava | 74 | Lines 1901-1921 - Add a visual or table to support the progression of standards. | Non-Actionable |
| 978 | Rubalcava | 75 | Lines 1930-1936 - Add a visual or table to support the progression of standards. | Writers’ Discretion |
| 979 | Rubalcava | 77 | Lines 1984-1993 - Add images of the various math manipulatives on the list. | Non-Actionable |
| 980 | Rubalcava | 91 | Lines 2327-2338 - Add visuals of each of the problems. | Non-Actionable |
| 981 | Rubalcava | 92 | Lines 2357-2365 - Add a visual or table to support the progression of standards. | Non-Actionable |
| 982 | Rubalcava | 97 | Lines 2520-2530 - Add a visual or table to support the progression of standards. | Writers’ Discretion |
| 983 | Rubalcava | 5 | **In order to more strongly develop the support for Students with Disabilities (SWD) and English Language Learners ELs), make the following changes:**  Line 105-107 Add the ELD standard. | Recommended |
| 984 | Rubalcava | 4-13 | Pages 4-13 (vignette) needs to include more explicit detail on SWD support.   * Add a video of this vignette to allow teachers to see these practices in action. | Non-Actionable |
| 985 | Rubalcava | 8 | Line 217 Include a list or image of the sentence starters the students used in this lesson. | Recommended |
| 986 | Rubalcava | 66 | Lines 1733-1735 Make the connections between the different student strategies clear by including a vingette of a teacher facilitating a conversation about the connections with her students, being certain to explicitly call out how the teacher is supporting the inclusion of their ELs and SWD. | Not Recommended |
| 987 | Rubalcava | 90-91 | Lines 2307-2347 - Include a vignette, provide supporting details about planning for SWD and EL’s. | Non-Actionable |
| 988 | Rubalcava | 9 | **In order to strengthen the practical use of this chapter for classroom teachers, include and clearly explain the use of the following instructional routines, including the Math Language Routines (MLR):**  Line 236 Call out explicitly the use of a 2nd read in the 3 reads protocol. | Recommended |
| 989 | Rubalcava | 16 | Page 16 Add the following MLRs and explicitly make the connection to SMP 3:   * Compare and Connect * Critique, Correct, and Clarify | Recommended |
| 990 | Lieberman | 43 | Page 43, lines 1185-1186  Text as Currently Written  … Lesson design should be built to elicit that wondering.  Rationale  To have conformity of definitions among various chapters  Request  Add the following sentence after existing text:  For example, environmental observations and issues on campus and in their local community provide rich contexts for student investigations and mathematical analysis as they concurrently help students develop their understanding of California’s Environmental Principles and Concepts. | Recommended |
| 991 | Rodgers | 108 | Noteworthy features:  Pg. 108 Grade level overview was helpful at the end of the chapter and summary. A consideration is to move that to the front of the chapter to set purposes for reading. | Writers’ Discretion |
| 992 | Rodgers | NA | Vignettes give an idea of what it’s like in a classroom. | Non-Actionable |
| 993 | Rodgers | NA | It’s nice to see the grade level progressions/bands. | Non-Actionable |
| 994 | Rodgers | NA | TK is included, this is very appreciated. | Non-Actionable |
| 995 | Rodgers | NA | When links are included they are helpful. | Non-Actionable |
| 996 | Rodgers | NA | Good Graphics. | Non-Actionable |
| 997 | Rodgers | NA | Links to activities and resources are also appreciated. | Non-Actionable |
| 998 | Rodgers | 42 | Line 1151- Defining the “Big Ideas” of mathematics is a plus. | Non-Actionable |
| 999 | Rodgers | 38 | Line 1029-” To understand mathematics, students must be the doers of mathematics”, like this emphasis, | Non-Actionable |
| 1000 | Rodgers | 45, 51 | Appreciate the examples of integration into other content areas-Line 1245, 1393 | Non-Actionable |
| 1001 | Rodgers | NA | Drivers of Investigation-Continued clarification of these drivers- “why”. | Non-Actionable |
| 1002 | Rodgers | NA | Emphasis on presenting math from familiar contexts is appreciated. | Non-Actionable |
| 1003 | Rodgers | NA | Needs clarity or improvement:  Text Heavy- Color code sections | Not Recommended |
| 1004 | Rodgers | 12-13 | Lines 329-344 are duplicated in lines 345-360 | Recommended |
| 1005 | Rodgers | 69, 70 | 1767 & 1786 Formatting checking on Fluency Section | Writers’ Discretion |
| 1006 | Rodgers | NA | Separation of Content- Need to know and supplemental examples, vignettes, etc. | Non-Actionable |
| 1007 | Rodgers | NA | Links to vignettes in greater depth | Non-Actionable |
| 1008 | Rodgers | 106 | Possibly bring Lines 2780- end with Grade level Overview to the forefront -include links to vignettes and examples | Writers’ Discretion |
| 1009 | Rodgers | 80, 82 | Needs clarification on the precise use of language -Line 2079 “three out of four” undermines understanding of fractions and then in line 2130 gives an example of 3 out of 4. | Recommended |
| 1010 | Rodgers | 66-67 | Clarity on introduction of Standard Algorithms at specific grade levels-page 66-67 | Writers’ Discretion |
| 1011 | Rodgers | NA | Include justification of appropriate time to introduce algorithms | Writers’ Discretion |
| 1012 | Rodgers | 2 | To call out non-binary on line 39 made it distracting. The language was easy to read.(Maybe just say it at the beginning of the framework vs. beginning of each chapter). | Not Recommended |
| 1013 | Rodgers | NA | It’s an issue to only have the framework available as a word version | Non-Actionable |
| 1014 | Rodgers | NA | When it opens in Google Docs (Chromebooks) it doesn’t have line numbers | Non-Actionable |
| 1015 | Rodgers | NA | More learning theory in it’s presentation needs to be incorporated. Need more examples and concrete representation in the framework. It needs to model the content better. Leaving out some how tos. More options for learning and digesting the content over reading or make the reading more succinct. Links to Professional Learning courses or links to videos of lessons in actual classrooms. | Not Recommended |
| 1016 | Rodgers | NA | To the publishers we want examples  Choice boards  Good learning/teaching strategies  Easy to implement  Developmentally appropriate | Non-Actionable |
| 1017 | Rodgers | NA | The framework should be a reflection and of caliber to convey information like we expect publishers to provide from reading this document. | Non-Actionable |
| 1018 | Rodgers | NA | Hard to find your spot to focus. | Non-Actionable |
| 1019 | Rodgers | NA | A strength is to split | Non-Actionable |
| 1020 | Rodgers | NA | The grade level chapter was too much to digest. Is there a way to incorporate links to sections within the section? | Not Recommended |
| 1021 | Rodgers | 12, 13 | Line 329-344, 345-360 “In the context of CA schools…” It repeats itself. | Recommended |
| 1022 | Rodgers | NA | First vignette was so verbose, and it was repetitive | Writers’ Discretion |
| 1023 | Rodgers | NA | Needs more consistent author’s voice | Writers’ Discretion |
| 1024 | Rodgers | NA | Tell us what we should be looking for in the vignette, state a purpose. | Writers’ Discretion |
| 1025 | Rodgers | NA | Suggest vignettes for the grade level specifically. There are other places in the framework | Writer’s Discretion |
| 1026 | Rodgers | NA | Or, provide a couple different grade level vignettes. | Not Recommended |
| 1027 | Rodgers | NA | Notice that in some of the vignettes standard pronouns vs. non binary pronouns are used. Consistency throughout the document would be important. | Writers’ Discretion |
| 1028 | Akins | NA | The overall big picture is good but we would like to see some specific strategies from the 2013 framework to help teachers better understand how to implement these ideas. | Writers’ Discretion |
| 1029 | Akins | NA | The intent of this revision is good. The ideals presented are good. The research to support the ideals is good. A framework should bridge the research with the practical application of the theory. This chapter is missing the praxis and there are several inconsistencies and questions. These concerns may be real or may appear to exist due to vagueness and incompleteness throughout the document. | Not Recommended |
| 1030 | Akins | NA | The clarity and development of fluency was nice to see in the document. | Non-Actionable |
| 1031 | Akins | NA | There is a concern regarding whether this revision is a new framework or supplement to the 2013. This revision does not build on and fill in the gaps that existed within the standards in the 2013 framework. It doesn't improve the understanding of the SMP nor does it preserve the dual intensity of the practice and content standards. | Non-Actionable |
| 1032 | Akins | NA | This framework does not help the reader understand how the drivers and content connections support the practice and content standards in ways that preserve the cognitive development of mathematics. Ignoring the way that math develops in a cognitive personal way for students excludes them from the beginning, impacting the student’s identity. | Non-Actionable |
| 1033 | Akins | NA | Right now, so many teachers rely on Achieve the Core's priority standards. There is a missed opportunity here to make the critical areas or big ideas clearer to all stakeholders. | Non-Actionable |
| 1034 | Akins | NA | add the standards name to the standards listed at the end of the document. such as CC.1. | Recommended |
| 1035 | Akins | 20 | [The comments below were organized into a table. See the Box link above for the original table structure.]  564-572  807-  The Standard Notation is the generic national version of the CCSSM.  it looks like it may have the national standards vs CCSSM  The standard notations should conform to the CA version of the CCSSM | Recommended |
| 1036 | Akins | 19-20 | SMPs are only mentioned under CC’s and DI  more development examples in the vignette with the SMP’s | Not Recommended |
| 1037 | Akins | 12 | line 329  This paragraph on linguistically and culturally diverse students is repeated twice.  delete one of the paragraphs. | Recommended |
| 1038 | Akins | 18 | Line 502ish  These two paragraphs discuss providing students support for unfinished learning, but also indicates doing so without requiring interventions.  more of an explanation of the differences for support and/or intervention. What is the meaning of intervention and/or support | Writers’ Discretion |
| 1039 | Akins | 41 | Line 1127ish  These two paragraphs discuss providing students support for unfinished learning, but also indicates doing so without requiring interventions.  more of an explanation of the differences for support and/or intervention.What is the meaning of intervention and/or support | Writers’ Discretion |
| 1040 | Akins | 41 | 1142ish  examples given to support student engagement one thing is talking about highlighting contributions of diverse cultural groups.  no elaborations of what this looks like in the vignette or following pages even when mentioned again. | Writers’ Discretion |
| 1041 | Akins | 5 | line 122  collaboratively  collaborate. | Recommended |
| 1042 | Akins | NA | following the conclusion the overviews of grade level content  use the standards numbers next to the standard names such as K.CC.1-3 - know number names and the count sequence.  do this for all of the grade levels. | Recommended |
| 1043 | Williams | NA | We support   * 47-60 importance of and clarification of mathematical discourse * 1022-1026 New challenges in mathematics are exciting and meaningful for students when they are able to connect previous learning to make sense of current grade level concepts. * 1034 teachers are also the doers of mathematics * 1115 definition of standard algorithms * 1127-1132 unfinished learning is normal; don’t label students * 1140 problems that invite all learners * 1749 table showing development of standard algorithm * integrating content so entire topics are not skipped; it was helpful to see the standards listed under each CC * vignettes illustrating integration of multi-disciplinary content * emphasizing student centered approach where students are DOING the math resulting in more student engagement | Non-Actionable |
| 1044 | Williams | 12, 13 | We wonder  329-344 and 345-360 are identical | Recommended |
| 1045 | Williams | 16 | 440,450 Math Language Routine examples provided. Could you provide a table that summarizes the MLRS--what they are and their purpose so they are easily referenced and less likely to be overlooked in a paragraph. | Writers’ Discretion |
| 1046 | Williams | 51 | 1406-1407 awkward transition between these two paragraphs. Is something missing? | Writers’ Discretion |
| 1047 | Williams | 67-68 | 1749 table showing development of standard algorithm is located in the 3-5 section. Can it be referenced in the 2nd grade section so they don’t teach the algorithm. | Writers’ Discretion |
| 1048 | Williams | NA | What information might be helpful for the parents who might be frustrated with students not “being given algorithms”? | Writers’ Discretion |
| 1049 | Williams | NA | How do we ensure that those who study the framework read the equity chapter as well as all the relevant chapters and not just the grade span they teach? Can you build in references to the non-grade span chapters throughout the grade span chapters to prompt readers to go to these chapters? | Writers’ Discretion |
| 1050 | Williams | 38 | 1034 How can we make sure the framework emphasizes the need to create opportunities for teachers and paraprofessional aides to do the mathematics before they teach it to their students? | Writers’ Discretion |
| 1051 | Williams | NA | What mechanisms will you push for that will provide funding and opportunity for teachers to engage in reading/discussing the framework. Only 1 time in the past (SB 472?) has there been a required professional development and it’s the only time many teachers read the framework and understood the full bigger picture. This framework is full of very important ideas that can revolutionize math for our students for a long time to come. | Non-Actionable |
| 1052 | Williams | NA | What will the curriculum adoption process look like? The NGSS folks have a thorough method of looking at potential curriculums through different lenses. (The TIME process) They use rubrics to make objective decisions about the quality and whether it meets the needs of the students. Can you provide a comparable tool for evaluating curriculum because otherwise we get stuck with another textbook that doesn’t allow flexibility to use the teaching methods recommended in the framework. | Non-Actionable |
| 1053 | Arrillaga | NA | The chapter references relevant and multi-modality lessons and tasks where there is an opportunity for working with partners, small groups, and the whole class. The references and examples to ELD standards and supports for English learners are also a positive. The main improvements that can be made center around improving the examples of language access. | Non-Actionable |
| 1054 | Arrillaga | NA | Include more specific strategies for teachers to think about the language demands of content. This could include a reference to the specific language of the discipline of math (both specific vocabulary and the language structures) that must be used and understood to comprehend and communicate mathematical ideas. In particular, teachers of English Learners should be thinking about the language demands of the content to be able to prepare English Learners adequately. The preparation should include providing opportunities for oral practice of the pertinent language structures as well. | Writers’ Discretion |
| 1055 | Arrillaga | NA | Explicitly list the supports and scaffolds that support ELs. Though the chapter has supports and scaffolds for ELs embedded within the text, it can get lost in all the text. It would be helpful to list these supports and scaffolds more explicitly. | Writers’ Discretion |
| 1056 | Arrillaga | NA | Reference strategies to engage families in their students’ education. This is a component that was not noticed and explicitly mentioned in the chapter. | Writers’ Discretion |
| 1057 | Arrillaga | 3 | 57-60  Add teaching the academic language of mathematics, and the complex sentence structures in order for students, especially English learners to communicate their ideas Teachers need to teach and model the language of mathematics as well as giving students opportunities to practice that language. | Writers’ Discretion |
| 1058 | Arrillaga | 5 | 106  “practice the discourse of ‘compare and contrast’ *in a mathematical context*. The language of compare and contrast is different in math: more than, less than, equal to, greater than, how many more, how many times more. | Writers’ Discretion |
| 1059 | Arrillaga | 8 | 200  Add that Mrs. Verner adds these words to the math cognate chart that she has in her classroom to both elevate the value of home language and to make those cross language connections that accelerate English Language Proficiency. Supporting students to access their home language as a resource to develop English proficiency is particularly salient in math and science, as there is high correlation in cognates across Latin-based languages. | Recommended |
| 1060 | Arrillaga | 8 | 217  Use (if needed) that sentence starters and models a couple of possibilities from the frames listed on her math wall. This would support modeling language for ELs. | Writers’ Discretion |
| 1061 | Arrillaga | 9 | 238  In providing translations in students' home language, clarify that an assumption cannot be made that students can read in their primary language. | Recommended |
| 1062 | Arrillaga | 13 | 345  Entire section repeated from above | Recommended |
| 1063 | Arrillaga | 16 | 440  Add, “while these support all students, they are especially important for English Learners”. | Recommended |
| 1064 | Arrillaga | 29 | 803  Great resource that highlights how language affects students’ understanding of the mathematical task/operation. However, there seems to be a missing connection to providing this resource without raising the need to consider language. | Writers’ Discretion |
| 1065 | Arrillaga | 44 | Page 44 graphic  Add “teach language of the discipline/math” to this chart. For all students, the language of math- not just the specific vocabulary but the way we structure mathematical questions can be confusing and even more for ELs. | Writers’ Discretion |
| 1066 | Arrillaga | 49 | 1341  The rest of standard C.12 is left out | Recommended |
| 1067 | Arrillaga | 52 | 1428  Links to Illustrative Mathematics do not link to the actual lessons but to a website where to sign up for services or link to another service where you might find free lessons. As a teacher, this is not helpful for me if I am looking for this lesson example. | Recommended |
| 1068 | Arrillaga | 53 | 1471  Call out language here since it can play a key role in this example. Suggest something like “As you read through the problem types, think about how this language might be confusing for English Learners.” This math language is hard for all students, without specific breakdown and thought to how the language is used- we are missing the needs of Els | Writers’ Discretion |
| 1069 | Arrillaga | 79 | 2036  Could add that many English Learners are more comfortable sharing their thinking in a small group setting. | Writers’ Discretion |
| 1070 | Arrillaga | 80 | 2077-82  Add: “ELs especially need this explicit teaching.” The use of precise mathematical terms is essential in order to support all students’ understanding. ELs will be confused more if casual language is used and the correct terms are not used consistently. | Recommended |
| 1071 | Arrillaga | 83 | 2148  Could add: It is important that ELs learn the precise language for reading decimals. Imprecise reading of decimals will undermine understanding and meaning making. | Writers’ Discretion |
| 1072 | Arrillaga | 84 | 2158-64  In Mathematics the language function of Compare and contrast is essential for students to express understanding. The structures to use compare and contrast language must be taught explicitly. This will benefit all students, especially ELS. We cannot assume that students don’t understand the concepts if the response is weak. They just may not have the language to express the understanding of the relationship between decimals and fractions. | Writers’ Discretion |
| 1073 | Arrillaga | 88 | 2264  After situations add: “and can support Language Learners with a visual of an abstract concept”. | Recommended |
| 1074 | Arrillaga | 103 | 2700  It would be great if the teacher presented some writing support for English Learners here. Sharing their response with a partner, reviewing sentence frames to describe and explain, and reading their writing to a partner when they were finished. | Writers’ Discretion |
| 1075 | Arrillaga | 106 | 2774  Add: “However, it is important to point out that English Learners need additional support to develop the language to both comprehend the content and express their ideas.” | Recommended |
| 1076 | Roberts | NA | [The comments from this submitter came in the form of a table. See the Box link above for the full comment in context.]  What resonates with you from this chapter?   * Transitions piece moving to 6-8 * Drivers of Investigating and connecting – 3 graphic pg. 17 (aligned to the science framework) - look at math differently * Critical areas of instruction by grade level p. 95 * Emphasis on the SMPs * Interactive; games * “Unfinished learning” * Listened to mathematicians * Big ideas as drivers of instruction * Looking ahead instead of looking back * Investigations; SMPs * Grade spans help us see connections * Academic discourse modeled for teachers | Non-Actionable |
| 1077 | Roberts | NA | What ideas do you want to affirm?   * Problem based/ inquiry * Loved the cautioning against tracking, as an equity issue * Real classroom examples right within the text--nice and short. * Lots of connections and hyperlinks to good resources and to research. Nice variety. | Non-Actionable |
| 1078 | Roberts | NA | What questions do you have?  Curious if there will be guidance on how to communicate with publishers or recommended open resources. Will they be housed on the CDE website? | Non-Actionable |
| 1079 | Roberts | NA | Guidance for teachers on how to navigate the document | Non-Actionable |
| 1080 | Roberts | NA | Where will teachers go if they do not understand or need help with the expectation of the content standards? | Non-Actionable |
| 1081 | Roberts | NA | Will the old frameworks be removed or archived? | Non-Actionable |
| 1082 | Roberts | NA | Will they elaborate more on standards for new teachers? | Non-Actionable |
| 1083 | Roberts | NA | Will the “big ideas” model be enough for teachers to understand grade-level standards? | Non-Actionable |
| 1084 | Roberts | NA | What suggestions do you have?  Look at the old framework for guidance there are some good resources. | Non-Actionable |
| 1085 | Roberts | NA | Grade level pieces are missing, the one-stop-shop with the standards and domains for new teachers in particular. | Non-Actionable |
| 1086 | Roberts | NA | Perhaps a new term for critical areas – focus areas | Not Recommended |
| 1087 | Roberts | NA | Vinegetts:   * Make the purpose clear. (i.e. Why is this vignette here at this point of the framework?) * Hyperlink instead of printing the engthy segment | Writers’ Discretion |
| 1088 | Roberts | NA | Better structure or organization so it’s easier to find information. | Writers’ Discretion |
| 1089 | Roberts | NA | Spend more time on essential learnings for each grade level. | Non-Actionable |
| 1090 | Roberts | NA | Flesh out the connections to higher grade levels. | Writers’ Discretion |
| 1091 | Roberts | NA | Make an index of the standards so teachers can easily find connections to what they’re teaching. | Writers’ Discretion |
| 1092 | Herrera | NA | Thank you for clearly describing math discourse as "communicating about mathematics with words, gestures, drawings, manipulatives, representations, symbols, and other tools that make sense to and are helpful for learning." On the section entitled What is a Model? will there be illustrations included? Line 437 references sentence frames. Could we include a link to a printable PDF of possible sentence frames for teachers to reference with ease? Lines 446-449 list questions teachers can ask. Again could we make that list a printable link so teachers don't need to pull up the framework or copy the questions by hand? I really appreciate the section devoted to Fluency beginning on Line 1767. Sometimes administrators require timed tests for their entire school as a solution to fluency with math facts. We can supply articles and books but now research will be clearly stated in our state guidance. | Not Recommended |
| 1093 | Sedig | NA | Focus on math facts | Non-Actionable |
| 1094 | Woods-Palumbo | 41 | Line 1127-1132 needs to be included in every grade span. | Writers’ Discretion |
| 1095 | Tietjen | 67-68 | I love the fluency and development of standard algorithm table on pages 67-68. | Non-Actionable |
| 1096 | Davalos | 4, 5 | I really appreciated the vignette on page 4. It really demonstrates a dream math lesson where we integrate ELD, ELA, HIstory and Math. A lesson where we are providing the proper supports for our EL's and Resource students and where we are using instructional strategies that allow for the use of our mathematical practices. I believe there is a typo of page 5 line line 122, I think the word to should be deleted. | Recommended |
| 1097 | D B | NA | The level of K-3 math education in public schools is too low. Normal children know place value and arithmetic before K, either learning it at preschool/daycare or at home with their parents. Most 1st graders are capable of doing and understanding simple multiplication and division. Children who enter the school system not able to count and add are the exception, yet K classrooms have children bored out of their minds doing worksheets coloring "x" number of flowers blue and "y" number of flowers red as if they were 3 year olds just learning their numbers. Common Core standards drag out the learning of foundational concepts for four years when they can be done in two. Compressing the early grades math into fewer years would allow students to reach calculus by 11th grade (or earlier depending on natural aptitude.) | Non-Actionable |
| 1098 | Wu | NA | Insisting on total removal of all tracking and forced delay for those that are developmentally ready for it, is in itself, fails a group of students. Essentially, you are robbing Peter to pay Paul. I am not sure why this is an acceptable result. Please explain. | Non-Actionable |
| 1099 | Malione | NA | The investigations and connections are too superficial to provide enough content practice and early intellectual development to be in keeping with the demands of STEM pre-career pathways. Nowhere in the framework is this specific deficiency ever addressed or indicated. | Non-Actionable |
| 1100 | Bohanan | NA | I agree that heterogeneous groups are beneficial for students to engage in rich mathematical lessons. However, I also see the benefits of ability grouping for small periods of time for focus groups and to help students who are all at the same level of frustration. | Not Recommended |
| 1101 | Vierra | 5 | - Typo line 122 "collaboratively" should be collaborate | Recommended |
| 1102 | Vierra | 6 | - Typo line 153 "f" should be for | Recommended |
| 1103 | Vierra | NA | - 4th grade detailed lesson plan on place value with embedded language development and practices for orchestrating discussions very useful | Non-Actionable |
| 1104 | Vierra | 13 | - typo lines 345-360 look like a repeat of lines 329-344 | Recommended |
| 1105 | Vierra | 33 | - typo line 891 "of" should be on - typo line "line of..." should be line on | Recommended |
| 1106 | Vierra | NA | - Helpful to use the same Critical Areas of Instruction from 2013, along with previous cluster headings K-5 | Non-Actionable |
| 1107 | Aoki | NA | This chapter really needs to be chunked to be more digestible. The grade level "Critical Areas for Instruction" at the end is nice. If there were a way to start with this and then have color coding or icons or something to show how each of the critical areas in the grade level are part of the Content Connections, and even link to that section of the content connections, that would help orient people. It kind of just feels like a huge list of stuff and the connections get lost because it just goes on without organizational reorienting. | Writers’ Discretion |
| 1108 | Smith C | NA | Good Graphics Links to activities and resources Line 1151- Defining the “Big Ideas” of mathematics Line 1029-” To understand mathematics, students must be the doers of mathematics” Appreciate the examples of integration into other content areas-Line 1245, 1393 Drivers of Investigation-Continued clarification of these drivers- “why” Emphasis on presenting math from familiar contexts Text Heavy- Color code sections | Non-Actionable |
| 1109 | Smith C | 13 | Lines 329-344 are duplicated in lines 345-360 | Recommended |
| 1110 | Smith C | 69, 70 | 1767 & 1786 Formatting checking on Fluency Section Separation of Content- Need to know and supplemental examples, vignettes, etc. Links to vignettes in greater depth | Writers’ Discretion |
| 1111 | Smith C | 106 | Possibly bring Lines 2780- end with Grade level Overview to the forefront | Writers’ Discretion |
| 1112 | Smith C | NA | -include links to vignettes and examples Needs clarification on precise use of language | Non-Actionable |
| 1113 | Smith C | 80, 82 | -L.2079 “three out of four” undermines understanding of fractions and then in line 2130 gives an example of 3 out of 4. | Recommended |
| 1114 | Smith C | 66-67 | Clarity on introduction of Standard Algorithms at specific grade levels-page 66-67 | Recommended |
| 1115 | Musale | NA | Lines: multiple across all the docs In various classroom scenarios/examples listed in the docs, various names are used for the teacher, student characters (Clara, Maple, Jill, Malik, Wong, Gina, Miriam, Sam, Ernesto, etc.). I did not find any Hindu names being used. Ask: make use of some Hindu names also (e.g. Ram, Ravi, Keshav, Jyoti, Arati, Shweta) so that Hindu readers will feel included as well. | Writers’ Discretion |
| 1116 | Bates | 16 | 433-435- love the push for ALL students to ask questions 503-506 references supporting students with unfinished learning, could be helpful to have more specific examples of how teachers address this (I know it is covered some in Ch.2, but wondering if the strategies there could be more explicitly connected to how that supports students with unfinished learning?) | Writers’ Discretion |
| 1117 | Morris | 16 | The examples (e.g line 456-) provide clear illustrations of the important work for TK-5 math that have nothing to do with speedy accurate computation or memorization and everything to do with students becoming successful math learners in ways that will support them to continue through high school and beyond. The vignettes in this chapter are powerful. Though, they are very long. Perhaps they might be broken up into parts with more compensatory and interpretation along the way. | Non-Actionable |
| 1118 | Morris | 18 | Line 502 - emphasizing that unfinished learning ay not be a lack of understanding or a problem, but rather learning at a different rate is an important idea. I wish it were unpacked and explained more deeply. This is a change from what many teachers have felt was emphasized over the past 20 years in CA. Especially during the NCLB era, but even today. I would love to see more explicit explanation here. | Writers’ Discretion |
| 1119 | Morris | 21 | The example beginning around 590 is robust. Though again, perhaps a bit more commentary. | Not Recommended |
| 1120 | Gupta | NA | The biggest issues come from the insistence on a total removal of all tracking and a forced delay in the provision of essential math content to students who are developmentally ready for it, intended to benefit the students who are not ready for it. Why don’t we care about whole classes of students being bored and more difficult to manage because of their boredom? | Non-Actionable |

## Table 9: Chapter 7: Mathematics: Investigating and Connection, Grades 6 Through Grade 8

| # | Source | Page | Line Number and Comment on Chapter 7 | Recommended Action |
| --- | --- | --- | --- | --- |
| 1121 | Brousseau | NA | This is important because of the real world applications of investigations using math. One of the biggest problems in math education ahs been the lack of how mathematics is all connected. The more connections students see and are aware of the more powerful problems solvers they become. | Non-Actionable |
| 1122 | Miller | NA | I am concerned about the detracking and how this will be accomplished (and if districts really will). There is a compelling argument but I am not convinced that it will overpower the will of parents and educators who believe that high-achieving students will be lost in the process. There would need to be significant professional development and I am at a loss to see what that would look like in this time/era. Jo Boaler has talked about focusing on specific standards but we do not see that here. When will that be available? In addition, I am concerned because new teachers and teachers changing grade levels have been encouraged to learn about the standards from the framework and now that is no longer a part of what is to be adopted. That seems to be a missing piece. | Non-Actionable |
| 1123 | Commons | NA | Overall Questions:  How will schools/districts provide time for teachers to learn what is described in this chapter, and collaboratively work on authentic problems, and collaboratively plan instruction?  Will publishers create/find authentic problems and promote student curiosity?  Which set of ‘big ideas’ will publishers use as they plan materials? (NCTM Essential Understandings? Van de Walle? Randall Charles?) | Non-Actionable |
| 1124 | Commons | 3 | 39. Please explain more about “self-efficacy”. | Writers’ Discretion |
| 1125 | Commons | 3 | 46-52 Keep this explanation of ‘authentic’ math task. | Non-Actionable |
| 1126 | Commons | 3 | 63-64 Will you provide somewhere in this chapter a vignette that shows an example of inspiring authentic questions from students? One example we had involves 7.NS.2d converting a rational number to a decimal. We started exploring unit fractions (1/2, 1/3, ¼) and the students began to wonder if they could predict a terminating decimal, or repeating decimal. Then as they investigated, they began to wonder if they could predict the length of the repeating portion which became a very interesting practice on long division, meaning of remainders, etc. | Writers’ Discretion |
| 1127 | Commons | 4 | 74 Keep the reference to chapter 2, it is not enough to only read the grade level chapters. | Non-Actionable |
| 1128 | Commons | 5 | 109-10 Keep “provide with adequate release time to collaborate…around big ideas” this is vital to well-prepared teachers. | Non-Actionable |
| 1129 | Commons | 5 | 115 Keep the link to the EL Success Forum, very helpful | Non-Actionable |
| 1130 | Commons | 7-8 | 169-194 Keep, very helpful | Non-Actionable |
| 1131 | Commons | 9 | 240-251 Keep, very helpful for teachers who only have grade 6-8 experience. | Non-Actionable |
| 1132 | Commons | 10 | 266-67 ADD: should you restate the concept of fluency here? Flexibility in thinking? Rather than memorized facts or algorithms? | Writers’ Discretion |
| 1133 | Commons | 13-14 | 330-334 ADD a link to the definitions or explanations of the SMPs, many teachers still do not understand structure or repeated reasoning. | Recommended |
| 1134 | Commons | 14 | 338 another reason to advocate for time for collaborative planning, time to work the authentic problems and anticipate students’ responses to prepare for effective learning | Non-Actionable |
| 1135 | Commons | 14-15 | 364-5 KEEP: the different vision of depth, coherence, and mastery | Non-Actionable |
| 1136 | Commons | 17 | 441-452 KEEP: this description of the increased content of grade 8 standards, informative for teachers who need to prepare for this increase level of learning | Non-Actionable |
| 1137 | Commons | 19 | 499 Keep the link to UDL, very helpful for teachers | Non-Actionable |
| 1138 | Commons | 19 | 511 Will you provide an example for integrating other disciplines, such as grade level science concepts? | Writers’ Discretion |
| 1139 | Commons | 27 | 704-721 KEEP: this sidebar on Modeling. There has been a lot of confusion over the past 7 years on what the difference is between modeling and use of tools. Thank you for the link to Progressions. | Non-Actionable |
| 1140 | Commons | 39 | 1014 CHANGE: “transition from fractions to ratios”, What we refer to as fractions in grades 3-6 are a ratio, a ratio of part to whole. In 5.NF.3 fraction notation is used to represent division of whole to whole ( 3 brownies equally divided between 4 kids, 3 brownies/ 4 kids = 3/4 of a brownie for each kid. Or 3/4 / 1) In 6th grade, students are introduced to other ratios (part:part; whole: whole; whole: part) that can be represented with a colon or in fraction notation.  CHANGE the language to “transition from part: whole ratios (fractions) to other ratios which can be written in fraction form” | Writers’ Discretion |
| 1141 | Commons | 39 | 1014-1015 AND CHANGE “The understanding of fractions…” to “The understanding of part: whole fractions….” | Recommended |
| 1142 | Commons | 39 | 1015-16 CHANGE “explore ratios…” to “explore other ratios…” | Recommended |
| 1143 | Commons | 41 | 1066 Question: What do you mean by ‘non integers’? | Writers’ Discretion |
| 1144 | Commons | 42 | 1110 CHANGE: this again confuses fractions as not being a ratio, change to “avoid confusing part:part ratios with part:whole ratios (fractions).” | Not Recommended |
| 1145 | Commons | 43 | 1133 Keep the reference to grade 6 vignette in Ch. 3, get the middle school teachers out of just their grade span. | Non-Actionable |
| 1146 | Commons | 47 | 1213 Keep the link to UDL, good to have easy access | Non-Actionable |
| 1147 | Commons | 49 | 1271 KEEP this description of a strategic grouping of students | Non-Actionable |
| 1148 | Commons | 50 | 1305-1309 KEEP this example of language confusion, with students working to refine their academic vocabulary | Non-Actionable |
| 1149 | Commons | 51 | 1312-1314 KEEP: good example of inviting a student, not just ‘cold-calling’ and providing an EL student the opportunity to practice before speaking before the whole group | Non-Actionable |
| 1150 | Commons | 59 | 1556 ADD: NGSS, MS-LS-1-5…how environmental …factors influence the growth of organisms | Recommended |
| 1151 | Becker | NA | Why is there so much redundancy? Again? Authentic activities and problems are addressed in depth in Ch. 1. | Non-Actionable |
| 1152 | Becker | 3 | Line 53 + : I think this overview of content in grades 6-8 needs to stress proportional reasoning across content areas. It is mentioned later, (lines 256 +) but needs to appear early on in the chapter and get more emphasis. This big idea is critical in these grades and can form the foundation for many other topics, including linear functions and dilations in geometry. | Writers’ Discretion |
| 1153 | Becker | NA | I am not sure why the section of language proficiency is here as opposed to Chapter 2. Maybe I missed it in Ch 2 but it seems more relevant there and if it appears there, this is redundant. | Writers’ Discretion |
| 1154 | Becker | NA | The guide to intervention is very useful. This is a place that perhaps optional additional reading would be useful, e.g., to explicate how to diagnose learning gaps and fill them in. | Not Recommended |
| 1155 | Becker | NA | See comments about the CCs and Dis and the figure from Ch 1. It seems this is all said in that chapter. | Not Recommended |
| 1156 | Becker | 44 | The headers are a bit confusing as they don’t seem to vary in size. Thus in line 1154 the Border Problem is only minimally larger than the header for approaches to the paint problem (13 vs 14) and almost seems like it is a continuation of the previous material, not a new topic. I think more judicious use of headers and sub-headers would help the reader. | Not Recommended |
| 1157 | Becker | NA | I really like the discussion of proportional reasoning and the important research cited. The four approaches to the paint problem are very helpful. | Non-Actionable |
| 1158 | Becker | NA | The whole vignette from Mr. Garcia’s class could be an optional link for more depth. It is too long to include as is. | Not Recommended |
| 1159 | Becker | 41 | Line 1067: non-integers | Recommended |
| 1160 | Nowak | NA | We support and appreciate the explanation of the problems with and alternatives to acceleration. Thank you for including it, and our compliments on a really well-constructed argument.  The example problems sound great, and also locally driven for context. While we’re fans of this approach in theory, it's asking all schools and districts to create chunks of curriculum and that's not something that teachers are usually well-trained or appropriately compensated for. This is particularly true when looking at the research (cited earlier) on equity for 'home grown' vs adoption of complete curriculums. | Non-Actionable |
| 1161 | Rubalcava | 5 | Naming of the Standards for Mathematical Practice as SMPs vs MPs (ex. Line 122) | Recommended |
| 1162 | Rubalcava | 34-36 | All tasks should include, preferably at the beginning, the DI, CC, Mathematical Standards, and the Standards for Mathematical Practice (ex. Lines 915-947) | Recommended |
| 1163 | Rubalcava | NA | Solid black bar is used to separate different things and should remain the same in formatting, it is unclear on whether this is meant to call out a sidebar, task, snapshot, etc. Make it represent one thing and stick with the formatting for easier use of the reader. | No Motion Recommended |
| 1164 | Rubalcava | 11 | Line 285 Table 7X brings to the attention of teachers and administration the importance of giving grade level access to all students. | Non-Actionable |
| 1165 | Rubalcava | 14 | Line 349 Tracking and Acceleration is a strong well-written section to bring to administration and teachers. | Non-Actionable |
| 1166 | Rubalcava | 34-36 | Line 915 - 947 The call out of the DI, CC, Mathematical Standards, and Mathematical Practice is a great support for teachers when working with tasks. | Non-Actionable |
| 1167 | Rubalcava | 20-23 | Line 531-588 Vignette : Followed by a Whale is not grade level appropriate. Include a vignette that is from grades 6-8 with grade level appropriate material. | Not Recommended |
| 1168 | Lieberman | 3 | Page 3, line 48  Text as Currently Written  Lesson design should be built to elicit that wondering.  Rationale  To have conformity of definitions among various chapters  Request  Add the following sentence after existing text:  Lesson design should be built to elicit that wondering. For example, environmental observations and issues on campus and in their local community provide rich contexts for student investigations and mathematical analysis as they concurrently help students develop their understanding of California’s Environmental Principles and Concepts. | Recommended |
| 1169 | Lieberman | 20 | Page 20, line 534  Text as Currently Written  … Scientists are not sure why whales breach,  Request  Correct word  … Scientists are not sure why whales beach, | Recommended |
| 1170 | Lieberman | 26 | Page 26, after line 692  Text as Currently Written  solutions to other students, the school administration, and the facilities staff.  Request  Add the following paragraph  This sample activity demonstrates a lesson design that gives students opportunities to generate questions and elicits their wonderings. It also shows how an authentic activity can tie together the Drivers of Investigation and allow students to communicate stories with data in a way that helps them make sense of the world, predict what could happen, and impact the future. | Recommended |
| 1171 | Rodgers | NA | Noteworthy features:  Side bar: Definitions | Non-Actionable |
| 1172 | Rodgers | 7 | Line 169: list of strategies (information gap cards?) | Non-Actionable |
| 1173 | Rodgers | NA | Table 7X (Intervention chart) | Non-Actionable |
| 1174 | Rodgers | NA | Integration vs Tracking (Learn critical thinking skills necessary to solve problems) | Non-Actionable |
| 1175 | Rodgers | NA | Tools for supporting learners | Non-Actionable |
| 1176 | Rodgers | NA | Offering time to teachers to develop problems | Non-Actionable |
| 1177 | Rodgers | NA | Data Science part is great! | Non-Actionable |
| 1178 | Rodgers | NA | Sidebars - gave more clarity or definitions | Non-Actionable |
| 1179 | Rodgers | 11 | Table on line 285 is AMAZING | Non-Actionable |
| 1180 | Rodgers | NA | Giving them tools - calculator and online tools to function at the current level and content | Non-Actionable |
| 1181 | Rodgers | NA | Clear picture of Big Ideas - was nice to see this play out in the examples given, even though it was scary | Non-Actionable |
| 1182 | Rodgers | 13 | Chart on line 320 helps us remember that we need to focus on DIs, CCs, SMPs, as well as content standards | Non-Actionable |
| 1183 | Rodgers | NA | Great links to resources | Non-Actionable |
| 1184 | Rodgers | NA | Needs clarity or improvement:  All tables and figures are all labeled 7X | No Motion Recommended |
| 1185 | Rodgers | NA | Vignettes are overwhelming. Can we realistically expect teachers to create units/lessons on their own? | Non-Actionable |
| 1186 | Rodgers | NA | Guiding questions on What’s a Fair Living Wage? Were not neutral, maybe more on both sides. As teachers we need to be unbiased and this feels biased. | Writers’ Discretion |
| 1187 | Rodgers | NA | Lots of PiPs, STiPs, Interns with no math background or no education background – this framework will be overwhelming | Non-Actionable |
| 1188 | Rodgers | NA | Curriculum needs to be based on the framework and not rushed | Non-Actionable |
| 1189 | Rodgers | NA | Lots of acronyms to remember | Non-Actionable |
| 1190 | Rodgers | NA | Is there already a place, a District, a County Office, somewhere with connections to lessons or activities that are already aligned to Content Standards ~ Statewide Professional Learning curriculum | Non-Actionable |
| 1191 | Rodgers | 66 | Line 1736 - use of the word “provocative” to describe problems that develop curiosity was a weird word choice | Writers’ Discretion |
| 1192 | Rodgers | NA | Conclusion would benefit from chart on line 320 being explained with details | Not Recommended |
| 1193 | Rodgers | 5 | Line 99 typo (that,that) | Recommended |
| 1194 | Rodgers | NA | More information than a “how to chapter” (examples, what does it look like, examples per standard, seems like there was more in the old framework) | Not Recommended |
| 1195 | Rodgers | NA | Role of the Teacher and how can teachers engage with the document (after school teachers are tired, can already see cliff note versions | Not Recommended |
| 1196 | Rodgers | NA | More of a balance of resources/CPM problems (paint/frames)/Other resources? Voice seems heavy from a few source (youcubed) | Not Recommended |
| 1197 | Rodgers | 23 | Line 593 does line CC1 a CPM term/Content Connections/ | Not Recommended |
| 1198 | Rodgers | 27 | Line 720 Resource is a chapter book, need more examples and less reading, possible charts/matrix | Not Recommended |
| 1199 | Rodgers | 30 | Line 801: Resource Not a direct source (main sales page type of link) | Writers’ Discretion |
| 1200 | Rodgers | 39 | 1009: A little info about what they should know and where they are going(Old framework had more) | Not Recommended |
| 1201 | Rodgers | NA | Helpful for creating curriculum but not for teacher implementation | Non-Actionable |
| 1202 | Rodgers | NA | Separate out information from examples/vignettes | Not Recommended |
| 1203 | Rodgers | NA | More focus needs to be placed on giving teachers ideas, examples, (too much info to sift through to find the specific info.) | Not Recommended |
| 1204 | Rodgers | NA | Changes won’t happen if information is difficult for teachers to access | Non-Actionable |
| 1205 | Rodgers | NA | Communicating changes to parents about growth mindset | Non-Actionable |
| 1206 | Rodgers | NA | If standards are staying the same, State test stays the same, what does all of this good information change? | Non-Actionable |
| 1207 | Rodgers | NA | 6-8 vignettes used a 5th grade classroom and then the 8th grade was from a high school source. Need Middle School examples! | Not Recommended |
| 1208 | Kempster | 2 | 34-35 Δ ” Studies of students in grades 6–8 have found children to perceive mathematics as less valuable,” Less valuable than what? | Writers’ Discretion |
| 1209 | Kempster | 3 | 56-65 + Powerful and clear description of how important curiosity, joy, and identity are to learning mathematics. Lines 66-75: Inspiring vision of a mathematically powerful classroom. | Non-Actionable |
| 1210 | Kempster | 5 | 128 Δ “ Mathematics is considered by many to be a universal language:” How does this interact with the problematic idea of mathematics as “culturally neutral”? | Non-Actionable |
| 1211 | Kempster | 6, 16 | + Δ This chapter goes back and forth between framing English Learners as in need of support and as enriching the mathematical community. How can we lean on this second, asset-based framing?  131-135 <bs>“~~Support for~~<es> Students who are linguistically and culturally diverse enrich the classroom for all, <bs>~~learners of English, implemented through~~<es> and targeted instructional strategies aligned with the California English Language Development Standards (CA ELD Standards), when integrated with mathematics instruction, also supports mathematical development for all.”  409-413 The first sentence positions English Learners as assets, but the second sentence positions them as having deficits. Suggest: “In the teaching environments this framework seeks to create and support, **the varied strengths brought by a diverse student body are seen as advantages**. Engaging in rich mathematical conversations in a diverse classroom can enrich the understanding of all students, while at the same time supporting students who are in the process of acquiring English by providing important opportunities to learn the language of mathematics and English. “ | Recommended |
| 1212 | Kempster | 6 | 141-144 + Δ This is a powerful framing of using language to support reasoning. Consider referencing this idea when listing or mentioning strategies that include using sentence frames. | Writers’ Discretion |
| 1213 | Kempster | 6 | 131-141  157-158  + Love the UDL framing here. Support for English Learners makes the math classroom a better place to learn for all. | Non-Actionable |
| 1214 | Kempster | 8 | 208-210 Δ We think this sentence is asking schools to consider placing Newcomer students in sheltered English classrooms as appropriate. However, taken out of context, it could be read as support of tracking. Consider referencing again the research supporting detracking and calling this out as a temporary exception. | Writers’ Discretion |
| 1215 | Kempster | 9 | 230-239 Δ Again, proponents of tracking may see this as support for tracking. Explicitly call out how long-term ELs’ needs can be met in a heterogeneous, untracked classroom. Framing question: How can we attend to the needs of Newcomer and Long-term Els within the heterogeneous classroom, designing supports that also help the whole class (UDL)? | Writers’ Discretion |
| 1216 | Kempster | 9, 60 | 253-254  1590-1593  Δ We have never understood why division of fractions is such an emphasis. It is conceptually interesting but difficult, with multiple methods for representing, understanding, and explaining; but it takes a lot of time to deeply understand and is not particularly applicable to students’ everyday lives. Why the emphasis? Also, it is only an emphasis in Grade 6, not in the rest of the grade band. | Not Recommended |
| 1217 | Kempster | 10 | 266-268  278-280  + This is an important framing for supporting students with access to grade-level mathematics. Thank you for including it. | Non-Actionable |
| 1218 | Kempster | 10 | 275-276 Δ “ These tools do not replace the fact that reinforcement or continued development of earlier grade-level understanding should not be included”: This sentence is quite confusing. | Writers’ Discretion |
| 1219 | Kempster | 10 | 281-283 Δ How can we move away from deficit-based language here? Suggest “When students show that they have <bs>~~gaps in their understanding or~~<es> unfinished learning from previous grades”  + We agree with the concept of teachers making decisions for intervention based on “premature determinations” especially intervention that amounts to tracking within a class (“placed in a group learning different grade-level standards”) | Recommended |
| 1220 | Kempster | 11 | 286 Δ Table 7X, “Provide a new experience for students to re-engage, where appropriate”: Teachers may need a reference here to understand how re-engagement differs from re-teaching. For example: https://www.sfusdmath.org/reengagement.html | Writers’ Discretion |
| 1221 | Kempster | 14 | 338-339 Δ Take out “misconceptions” in order to be more humanizing. Suggested: “As students discuss mathematical ideas, students’ current understandings may provide opportunities for rich discussion. | Recommended |
| 1222 | Kempster | 15 | 369-360 Δ “ Acceleration for all, e.g., California’s eighth-grade algebra for all mandate beginning in 2008, with its overall negative impact on student achievement”: This is the only line item that gets an evaluation. Does this imply that the other line items did not have a negative impact? Recommend taking out “with its overall negative impact on student achievement”, and referencing the research from Chapter 1 that addresses all the forms of tracking or ability grouping. | Not Recommended |
| 1223 | Kempster | 14-15 | 363-367 + Clear and persuasive statement against acceleration. Thank you. | Non-Actionable |
| 1224 | Kempster | 15 | 385-391 To avoid language that “levels” students: The schools achieved success with heterogeneous grouping by using <bs>~~low floor high ceiling tasks that all students could access~~<es> tasks that provided multiple l earning opportunities and access points and that students could take to very high levels (see Chapter 2) and by having high expectations for all students. This success held across different countries, cultures and schools (Boaler, 2011, 2015, 2016; Boaler & Staples, 2008). Professional development designed to help teachers understand the value of <bs>~~low-floor/high-ceiling~~<es> multidimensional tasks and ways to teach with such tasks could embolden approaches to support students <bs>~~at different achievement levels~~<es> with diverse understandings. | Not recommended |
| 1225 | Kempster | 15-16 | 395-397 + YES. Clear explanation of how “math worth doing” is better in a classroom with diverse students. | Non-Actionable |
| 1226 | Kempster | 16 | 420-421 Δ Can you elaborate on what the learning experience was in the “advanced” classes? Was it that they went at a faster pace, or that the content was above grade level, or were students doing the same math but asked to think more deeply? | Writers’ Discretion |
| 1227 | Kempster | 17 | 432 Δ “ The de-tracking particularly helped high-achieving students.” In what way? | Writers’ Discretion |
| 1228 | Kempster | 17 | 442-443 Δ “ In grade eight, the CA CCSSM are significantly more rigorous than those from previous grade-eight content standards.” It was our understanding that pre-Common Core, the only math standards defined for Grade 8 were the Algebra 1 standards. Are those the standards this refers to? In what ways are the CCSS-M Grade 8 standards more rigorous than the previous Algebra 1 standards? | Writers’ Discretion |
| 1229 | Kempster | 19 | 496-503 Δ Intervention is well-addressed and better-integrated in a previous section (lines 265-292). Recommend taking out this paragraph or integrating it after line 292. | Not Recommended |
| 1230 | Kempster | NA | Δ Generally, the vignettes/snapshots/sample tasks are long. How can we summarize/take out parts? Maybe summarize the key points of each vignette, and then put the full description in an Appendix? | Not Recommended |
| 1231 | Kempster | 20-23 | 532-595 Δ Vignette, Followed by a Whale: We don’t find this vignette compelling for a few reasons.  1) The teaching style is very performative. Motivation should come from authenticity, agency, and authority, not from the teacher dressing up and putting on an act.  See Lines 561-562, 586-7.  2) Although lines 592-3 make the case that “The approach of investigating mathematical ideas to make sense of the world, to predict and to impact the future should be the goal for mathematics lessons,” We don’t see how this story of the long-distance swimmer and the baby whale is authentic to students’ lives or a real example of applying math to affect the future. The swimmer can’t do all those math explorations while she’s floating in the water.  3) It’s a fifth-grade classroom. While the math could very well fit in grades 6–8, the majority of grades 6-8 teachers don’t teach in a self-contained classroom that makes this type of immersive exploration easier. | Not Recommended |
| 1232 | Kempster | 23-26 | 608-695 + Δ This snapshot is more compelling as an authentic context. However, we recommend focusing on the math teacher’s contributions and summarize/shorten explanations of the other teachers’ contributions.  ● Lines 627-644: The next three paragraphs are too detailed. We cannot lift up examples of teachers going to extraordinary lengths without supporting them with time, curriculum, PD, and collaboration.  ● Lines 644–675: Excellent example of authentic, student-centered investigation. Focus on the math teacher’s role.  ● Lines 677-695: Summarize these 3 paragraphs. Also name that this teacher was supported by Project Based Learning professional development and collaboration. If we are using examples of exemplary teaching, we should name the instructional design that helped to make it possible (in this case PBL; in previous chapters Complex Instruction was named). | Not Recommended |
| 1233 | Kempster | 28 | 739-741 Δ We are not sure why personal data i s called out here as something students should learn from mathematical inquiry. It seems out of place or too detailed. | Not Recommended |
| 1234 | Kempster | 29 | 777-778 + Love this asset-based definition of cultural competence, as it applies to students from all backgrounds. | Non-Actionable |
| 1235 | Kempster | 29 | 781 Δ It’s not immediately obvious to me how the teacher survey about culturally responsive teaching is connected to the rest of the section on data talks. Connection can be more explicit. | Writers’ Discretion |
| 1236 | Kempster | 29-36 | 788-950 + Hours at Minimum Wage Needed to Afford Rent task: Great context and social-justice orientation.  ● Δ Line 788: Name the book referenced here, and acknowledge that although the book is written for high school, there are many applications to middle grades math.  ● Δ Line 804: This link doesn’t work.  ● Δ Like the other tasks, suggest providing a summary in the chapter and moving the complete task to an appendix. | Not Recommended |
| 1237 | Kempster | 39 | 1013-1031 + Excellent summary of progressions and big ideas in grades 6–8. | Non-Actionable |
| 1238 | Kempster | 40 | 1037-1038 Δ What is COI? Should it be CC2? Say more about quantities vs. numbers. | Writers’ Discretion |
| 1239 | Kempster | 46-56 | 1193-1476 + Vignette: Equivalent Expressions: This is my favorite vignette in the chapter because the teacher has such a strengths-based view of his students, and works so thoughtfully to include all voices in discussions. It shows the teacher carefully attending to what students understand, centering the mathematical ideas of his students, and bringing his EL students to the center of the conversation.  ● + Lines 1208-1220: This is well-written. A focus on finding the strengths of students, understanding that diversity enriches all, and understanding that focusing on supporting ELs can support all students.  ● + 1272-1274: Love this strengths-based approach to creating groups.  ● Δ 1454: Consider linking to resource about re-engagement such as  https://www.sfusdmath.org/reengagement.html  ● Δ 1 456: “Math Talks” is the broader term that is sometimes used for what others call “Number Talks;” other teachers use “math talks” to mean any kind of structured math discourse. Consider using the term “number talks” instead. | Non-Actionable (first four comments)  Recommended (last comment) |
| 1240 | Kempster | 57-61 | 1502-1608 Δ CC3, Taking wholes apart, putting parts together: After reading this section, we still don’t feel like we understand well how this CC applies to grades 6–8. The examples feel like a stretch. | Not Recommended |
| 1241 | Kempster | 58 | 1522-1526 + It is important for teachers to hear what they are giving up when they break down tasks for students. | Non-Actionable |
| 1242 | Kempster | 59-61 | 1550-1608 Δ Building Apartments Snapshot: we don’t see how the context of this problem is compelling for students. It doesn’t help us understand the idea of unitizing.  ● Δ Line 1555-7, “She sees an opportunity to connect an understanding of ornithology with an understanding of the relevant mathematics for that week”: Do students usually come in with an understanding of ornithology as prior knowledge? Or is it part of the 6th grade science standards? Not sure why ornithology is relevant. | Not Recommended |
| 1243 | Kempster | 60 | 1599 Δ Is 6.RP out of place here? Does it belong up higher with the other 6th grade clusters? | Recommended |
| 1244 | Kempster | 60 | 1604 Δ Can you provide an explanation of why “know that there are numbers that are not rational, and approximate them by rational numbers” is an emphasized cluster? How does it especially support 8th graders with future mathematics, with their everyday lives, or with their careers? | Not Recommended |
| 1245 | Kempster | 61 | 1615-1618 + Important valuing of visual and geometric reasoning as legitimate and inclusive. | Non-Actionable |
| 1246 | Kempster | 62-65 | 1655-1735 Δ Sponge Art vignette: While this seems like an interesting mathematical investigation for students, we have two concerns.  1. The core math seems to be on a 7th grade standard (in a 6th grade class).  2. It is unrealistic to think that most middle school teachers have access to clay and cutting tools for their classes. California classrooms are already underfunded. | Not Recommended |
| 1247 | Akins | NA | There is a concern regarding whether this revision is a new framework or supplement to the 2013. This revision does not build on and fill in the gaps that existed within standards in the 2013 framework. It doesn't improve the understanding of the SMP nor does it preserve the dual intensity of the practice and content standards.  This framework does not help the reader understand how the drivers and content connections support the practice and content standards in ways that preserve the cognitive development of mathematics. Ignoring the way that math develops in a cognitive personal way for students excludes them from the beginning, impacting the student’s identity. | Non-Actionable |
| 1248 | Akins | NA | The intent of this revision is good. The ideals presented are good. The research to support the ideals is good. A framework should bridge the research with the practical application of the theory. This chapter is missing the praxis and there are several inconsistencies and questions. These concerns may be real or may appear to exist due to vagueness and incompleteness throughout the document. | Not Recommended |
| 1249 | Akins | NA | The opening sections of the chapter have woven in how to address the needs of language learners in a thoughtful and comprehensive way. This is an excellent start to this chapter. The messaging about how to facilitate student curiosity and positive disposition throughout the beginning of the chapter does an excellent job of helping the reader see what math education in middle grades should focus on. Specifically the messaging from lines 65-75 could be in a call out box to make it more impactful. | Recommended |
| 1250 | Akins | NA | [The comment below included a hyperlink. See the Box link above for the original comment with hyperlinks.]  The discussion of the SMPs and how they relate to the DIs and CCs is clear in this chapter. We do worry that the creation of the Dis and CCs will distract teachers from the importance of the SMPs. There are many teachers, schools, and districts that still do not have a strong grasp or any grasp on the SMPs. They focus too much on the content standards. We would like to have an even greater discussion of the importance of the SMPs. perhaps you could include as often as possible a reference to the UC, CSU, and Community College joint statement on the importance of the SMPs for college level mathematics (linked here). | Writers’ Discretion |
| 1251 | Akins | NA | [The comment below included a hyperlink. See the Box link above for the original comment with hyperlinks.]  The section on Tracking and Acceleration is well thought out, supported by solid evidence, and takes a clear stance on what is best for students and the educational system. This is a bold stance that the framework is taking and we applaud it. Consider including references to the positive work that has been done in SFUSD. This link is to a press release from SFUSD in 2019 showing the benefits of detracking middle school mathematics. There may be other more current data but this can serve as an example of what could be included. | Not Recommended |
| 1252 | Akins | 6 | [The comments below were organized into a table. See the Box link above for the original table structure.]  156 Can links for these sources be provided in the text  These are great ideas being able to click directly on the resources by Zwiers would be easier for users than going to the references at the end | Not Recommended |
| 1253 | Akins | 11 | 285 Put a header on Table 7X  A header titled Helpful Guide for Intervention which is in the preceding paragraph would be great to catch the eye of the reader. This is a continuous topic and this table can be crucial in helping to shift intervention practices. | Recommended |
| 1254 | Akins | 13 | 322-335 Suggest bulleting the DIs, CCs, and SMPs here to make the more user friendly and readable to the user.  The bulleted list will draw the attention of the user more easily and bring these ideas to the forefront of their thinking. | Recommended |
| 1255 | Akins | 19 | 495-502 Consider including a reference to the TRU Framework along with the reference to UDL  The TRU framework emphasizes the need for robust math learning environments that create space to build student agency and identity in mathematics. This is a very helpful tool for teachers to better understand. | Not Recommended |
| 1256 | Akins | 20 | 532 Please consider including the 5th grade standards, SMPs, and ELD standards addressed in a bulleted format at the beginning of the vignette.  This will allow users to see how these investigations clearly address multiple standards, focus on the SMPs, and provide opportunities for the infusion of the ELD standards. This will help teachers to see the benefit of these types of investigations. | Writers’ Discretion |
| 1257 | Akins | 22 | 575 The framework references 2 SMPs at this point - Persevering (SMP1) and Constructing viable arguments (SMP3). Please reference this SMPs parenthetically.  This will emphasis the importance of the SMPs for the users of this document. The SMPs are still not widely focused on. Please consider this in other parts of the framework as well. | Recommended |
| 1258 | Williams | NA | We support   * p.7 listing MLRs and referencing ELD standards * 265-267, 280-283, 287-291 how to provide access and address unfinished learning * 349 appreciate including this entire section in 6-8 and the research evidence to support detracking (we can use with parents and administrators) * 763-777 meaning of relevance and culturally relevant pedagogy * Multiple references to the non-grade-level chapters, esp. 1, 2, and 3 to encourage teachers to read those chapters as well. * 1190 vignette integrating math and ELD--well done illustrating effective teacher moves * 1445-1456 description of re-engagement lesson strategies | Non-Actionable |
| 1259 | Williams | 3 | We wonder  In the first section, Integrated Math Practices and Content Connections, consider including the section on mathematical discourse from Ch 6 47-60. This is an important message for all grade levels. | Recommended |
| 1260 | Williams | 5 | 113 consider adding a section heading such as Developing Language Proficient in Mathematics | Recommended |
| 1261 | Williams | 14 | 338-340 “If teachers work through investigations...” Can the importance of this idea be emphasized as in Chapter 6 1035-1037 “teachers as doers of math” too. Too often the textbook and answer key are the focus which provide limited approaches. | Recommended |
| 1262 | Williams | 20 | 537 the statement describes a 5th grade class working on 6th-7th grade content; not a good example of focusing on grade level work. Could the statement about 5th grade be eliminated or a different task shared? | Writers’ Discretion |
| 1263 | Williams | 23 | 605 Snapshot references content standards for math and science, but only science practices. Can you add the math practices? | Writers’ Discretion |
| 1264 | Williams | 29, 32, 33 | 784, 831, 863 sample task is for high school. Can you clarify how this task might differ in 8th grade vs high school? | Not Recommended |
| 1265 | Williams | 38 | 985 standard deviation is a high school standard. Can you refer to measures of spread 6-8 students would study? | Writers’ Discretion |
| 1266 | Williams | 58 | 1534-1535 “One important point-of-view…” The sentence is confusing. Please revise. | Writers’ Discretion |
| 1267 | Williams | 64 | 1703-1709 6th grade teacher teaching 8th grade standards. Could this portion be eliminated to give a consistent message of focusing on grade level content? | Writers’ Discretion |
| 1268 | Arrillaga | 47 | The chapter includes good recommendations for teaching academic concepts through the various sections. We also appreciate the vignette on page 47 that is clearly an example of planning and teaching with EL considerations and the other considerations for ELs throughout the chapter. However, there needs to be more places where language development and EL centered strategies and scaffolds are identified in conjunction with the mathematics instruction recommendations. For example, an introduction or end phrase could be included within examples to signal the specific considerations needed for discussions and interacting with the language and concepts of the lesson for ELs. The connection to Chapter 2 can also be more explicit when it is referenced by including specific page numbers. | Writers’ Discretion |
| 1269 | Arrillaga | 3 | 50-54  Recommend including a description of who are the underrepresented students in STEAM fields. | Recommended |
| 1270 | Arrillaga | 3 | 56-57  Recommend Including: “And also connect to meaningful and relevant experiences.” | Recommended |
| 1271 | Arrillaga | 4 | 68-70  Recommend making a connection to the importance for teachers to acknowledge and leverage diverse identities and linguistically diverse students in their classrooms. | Writers’ Discretion |
| 1272 | Arrillaga | 4 | 81-84  This paragraph presents an “ideal” of what the classroom environment should be. Chapter 2 is mentioned, but recommend that asset base, culturally responsive, and linguistically responsive environments are explicitly mentioned. | Writers’ Discretion |
| 1273 | Arrillaga | 4 | 87-89  Important to make a note about the need for teacher’s need to recognize and make space for linguistically diverse students and for the use of asset base culturally responsive pedagogy in order to see and hear how students are expressing their mathematical ideas and thinking. Also describe what are “useful indicators” of deeper understanding for ELs and diverse students. Would be important to connect to other chapters in the framework where this methodology and strategies are explicitly highlighted. | Writers’ Discretion |
| 1274 | Arrillaga | 5 | 104-108  It is good to mention Ch. 2. However, explicit mention of language development strategies while learning the language of the discipline should be included. | Not Recommended |
| 1275 | Arrillaga | 6 | 144-147  Recommend to also include the use of their first language as a support | Recommended |
| 1276 | Arrillaga | 6-7 | 159-161  While providing appropriate EL supports and scaffolds for language development and communication of their deeper thinking. | Writers’ Discretion |
| 1277 | Arrillaga | 10 | 278-280  Suggest adding that EL centered strategies and scaffolds should be part of the planning and instruction, to allow students to have greater access. | Writers’ Discretion |
| 1278 | Arrillaga | 11-12 | 289-292  This is an excellent point. Recommend including that teachers should be able to recognize that what seems to be gaps could also be a result of second language learning and not of being low achievers, and that appropriate EL centered scaffolds and supports must be provided. | Writers’ Discretion |
| 1279 | Arrillaga | 12 | 297-299  What educators perceive as an apparent lack of understanding may be a language development related issue. **Interventions should include EL strategies and scaffolds.** | Writers’ Discretion |
| 1280 | Arrillaga | 14 | 337-340  Suggest including a reminder that discussions with a lens for appropriate scaffolds, strategies and supports for linguistically and culturally diverse students is key for ELs to engage and have access to **come to concepts and connections of the big ideas.** | Not Recommended |
| 1281 | Arrillaga | 14 | 345  Lesson design must include language development and supports. | Not Recommended |
| 1282 | Arrillaga | 15 | 384-387  Great connection to professional development. Recommend making a connection specifically to section in the framework where equity is addressed in chapter 2 and chapter 9. Suggest that asset-based pedagogy be referenced here as well. | Not Recommended |
| 1283 | Arrillaga | 16 | 398-401  Suggest citing the TODOS article that addresses tracking and anti-racist mathematics. And include a link: https://www.todos-math.org/assets/The%20Movement%20to%20Prioritize%20Antiracist%20Mathematics%20Ed%20by%20TODOS%20June%202020.edited.pdf  This is a larger document that addresses other equity issues as well: https://www.todos-math.org/assets/images/The%20Movement%20to%20Prioritize%20Antiracist%20Mathematics%20final%203.0\_February2021v5.pdf | No Motion Recommended |
| 1284 | Arrillaga | 16 | 402-404  It is helpful to make a connection to Chapter 2- Recommend including a link that takes the reader to that specific section of chapter 2 and/or providing specific page numbers to locate that idea/concept. | Not Recommended |
| 1285 | Arrillaga | 19 | 504-508  Great description of how the Drivers for investigation lead instructional planning. Recommend signaling the importance of including planning for language development and EL centered scaffolds and supports, | Writers’ Discretion |
| 1286 | Arrillaga | 23 | 600-602  The introduction to this snapshot mentions ELD, but ELD is not clearly highlighted in the snapshot. It is a great snapshot of interdisciplinary thinking and great planning form the teacher. However, recommend that the ELD strategies that were used are highlighted and labeled | Writers’ Discretion |
| 1287 | Arrillaga | 26 | 678-680  Recommend that there is an intro or a comment after the snapshot, delineating the specific considerations that the teacher should keep in mind for planning and during the lesson to ensure that ELs have access to the content and are able to engage in observations, conversations and analyzing the data collected. | Not Recommended |
| 1288 | Arrillaga | 28 | 734-736  Suggest revising this sentence | Writers’ Discretion |
| 1289 | Arrillaga | 28 | 751-753  Recommend adding the bolded content: “any necessary **language** supports, scaffolds, and time to process it, and discuss what they notice. **This will help students engage in conversations and in describing their observations and insights.**” | Recommended |
| 1290 | Arrillaga | 29 | 779-782  This is a great lesson with a lot of potential and wonderful resources. Recommend that connections are made to culturally responsive pedagogy. The topic affects students from disadvantaged communities or cultural backgrounds. It is crucial to acknowledge how this topic might directly affect students from lower income families. | Not Recommended |
| 1291 | Arrillaga | 31 | 813-814  The social-justice element at the end of the lesson feels a little removed from many students lived personal and family experiences. Recommend that it is explicitly encouraged to make culturally appropriate connections. | Not Recommended |
| 1292 | Arrillaga | 35 | Page 35  Great to include the TAKING ACTION suggestion. Recommend, that especially for the 4th suggestions, EL centered scaffolds, supports, resources, etc. be linked to, and highlighted as a crucial part of creating an environment of discussion, conversation, and argumentation where ELs can engage and participate in. | Not Recommended |
| 1293 | Arrillaga | 32-33 | 852-855  Great connection to sports. However, it is crucial to remind teachers to acknowledge not just cultural differences, but gender, and class that give students access to sports and kinds of sports. | Not Recommended |
| 1294 | Arrillaga | 40 | 1057-1059  Recommend reminding teachers of the need to be aware of language needs of students especially EL’s and the vocabulary development that might be needed to engage with words and concepts such as “steepness”. | Writers’ Discretion |
| 1295 | Arrillaga | 40-41 | 1061-1065  Recommend including a reminder to teachers of the need to be aware of language needs of students especially EL’s and the vocabulary development that might be needed to engage in a deeper understanding of the concepts. | Not Recommended |
| 1296 | Arrillaga | 58 | 1516-1518  Recommend including a connection to chapter 2 and 9 regarding students’ lives, identity, culture, and how these impacts their understanding and interpretation of this area of mathematics. Especially in relationship to vocabulary. | Not Recommended |
| 1297 | Arrillaga | 58 | 1534-1538  Recommend including a connection to chapter 2 and 9 regarding students’ lives, identity, culture, and how these impacts their understanding and interpretation of this area of mathematics. Especially in relationship to vocabulary. | Not Recommended |
| 1298 | Arrillaga | 58 | 1538  Recommend to intro or end this vignette with a reminder for EL considerations. | Not Recommended |
| 1299 | Arrillaga | 59 | 1551-1552  Recommend Signaling for EL supports for discussions, especially scaffolds to include geometry vocabulary such as “face” | Writers’ Discretion |
| 1300 | Michelena | NA | It seems that the Big Ideas could have been explained in a way that would have given more clarity to the standards (or clusters) which contribute to the Content Connections and the related Drivers of Investigation. | Writers’ Discretion |
| 1301 | Roberts | NA | [The comments from this submitter came in the form of a table. See the Box link above for the full comment in context.]  What resonates with you from this chapter?   * Wonder, curiosity * Definition of authentic * Content, numeracy * Critical areas of instruction * Deepening understanding of fractions * Use of tools to access the mathematics * Tasks: low floor high ceiling, authentic, access to the task/mathematics * P. 11 recommendation: pacing guides move to standards-based, meet students where they are (sometimes need to slow down, sometimes skip ahead once the central concept is studied. * Curiosity (Elicit wonder and give students reasons for learning.) * Tasks- Context for Learning * “Detracking”- consider how to stop tracking students. * Student-centered decision making (Line 285) and recommendations for how to approach this. * Support for Language Development and access for all as math being a universal language and emphasis on mathematical practices. * Using relevant and engaging data to foster questioning and own learning. (Data Science) | Non-Actionable |
| 1302 | Roberts | NA | What ideas do you want to affirm?   * Teachers collaborate on creating appropriate tasks, need the space and time, * P. 9, time to discuss appropriate tasks, fits them culturally, what they bring to the classroom * Definition of Authentic * Validation of data and story, connect to students, * Diagram: page 13 * Language routines are woven in between every chapter * Not tracking students, * Asset-based, cultural diversity, long-term EL * P.12-13 drivers of investigation * Use of intentional and meaningful “rich” tasks to engage learning. (Context for Learning) * Pushing for Big Ideas and Connections (Using a problem instead of being “stuck on pacing”) * Similar to NGSS * Line 264 (Using Tools to support access “for learning differences”) * Line 285 Table to support Interventions ie. “just in time support instead of remediation”. * Affirming that ALL students can learn (differentiation isn’t needed) with low floor high ceiling tasks. * Importance of the middle grades opening the door to opportunities in higher grades, and changing teacher perceptions (Conclusion/Line 473) * Student Discourse/Collaboration | Non-Actionable |
| 1303 | Roberts | NA | What questions do you have?  How to communicate when and how to jump curriculum, important learning? | Not Recommended |
| 1304 | Roberts | NA | Re-engagement lesson: when, how, provide examples | Not Recommended |
| 1305 | Roberts | NA | Exploring changing quantities? Why is the word variable not in there? Taking wholes, putting parts together? Explore quantities? Variation? Statistics? | Not Recommended |
| 1306 | Roberts | 5-8 | P5-8 concept of language learners, way we describe students? | Non-Actionable |
| 1307 | Roberts | NA | What is the role of classroom teachers in relation to this framework? How can teachers engage with this document (including using it to affirm good things teachers are doing and want to do)? What kinds of PD would support this? | Not Recommended |
| 1308 | Roberts | NA | “Reflective”- What do I need to do to implement the framework to make this work for the students? | Non-Actionable |
| 1309 | Roberts | NA | How do we support teachers in implementing (tools, resources, etc.)? | Non-Actionable |
| 1310 | Roberts | NA | How can we support understanding of the framework and teachers (especially beginning/less experienced) being comfortable with the paradigm shift | Non-Actionable |
| 1311 | Roberts | NA | How can we talk to teachers about this shift when they may be very traditional in their thinking about how to teach math? | Non-Actionable |
| 1312 | Roberts | NA | What suggestions do you have?  Clarification of statistics, how to teach it at these grade levels? | Not Recommended |
| 1313 | Roberts | NA | Would like to see some examples of what a grade span contains, and the connection back to progressions. | Not Recommended |
| 1314 | Roberts | 7, 45 | Support for English Learners? #8 page 7 link, p. 45 discussion (see chapter 9) | Non-Actionable |
| 1315 | Roberts | NA | How is modeling explained for middle school? | Non-Actionable |
| 1316 | Roberts | NA | Organize it in a way that is friendly for teachers to read | Non-Actionable |
| 1317 | Roberts | NA | Provide guidance on pathways and how to avoid/support “detracking” and provide equitable options for all students. | Non-Actionable |
| 1318 | Roberts | NA | Trainings/videos, samples of ways to use standards to teach? | Non-Actionable |
| 1319 | Roberts | NA | Chapter for parents to communicate the changes and reasons why. | Not Recommended |
| 1320 | Chhabra | NA | I am concerned about removing "Acceleration", which currently provides an avenue for some high achieving students to be better engaged and develop a life long interest in Math. It may not work for everyone, but eliminating this avenue is not correct. The decision to accelerate or not should be left to the teachers, parents, and students. "Low bar, high ceiling" implies teachers give a wide range(level) of instruction thus reducing the "effective time spent per student" (on top of a high student teacher ratio currently present). Research show that more instruction time helps with student achievement (ref: google search), but this recommendation seems to effectively go in the other direction. In summary, every student is different and having choice for advanced instruction is better than not having choice. I strongly disagree with this recommendation. | Non-Actionable |
| 1321 | Sedig | NA | Focus on good math skills, writing math correctly, using correct notation, etc | Non-Actionable |
| 1322 | Heasley | 29-34 | The sample task from line 784-888 are very biased. It is only look at the point of view of what a family needs to earn to live. I would feel much more comfortable with the activity included what value a worker brings to the employer. There should be a cost, expense and profit analysis from an employers view. I see this activity as very dangerous as it is presented. I see a bent towards socialism or communism.. | Not Recommended |
| 1323 | Lomas | 16 | Line 405 ... "students are actively engaged". How do you expect students that thoroughly understand and apply the mathematics in Math 6, 7 and 8 to remain "actively engaged". Repeatedly instructing students on mastered material promotes boredom, increases "acting out" and stifles student growth. Stating that "all students" are better off without advancement is no better than saying all students must take algebra in 8th grade. | Non-Actionable |
| 1324 | Fu-Tomlinson | NA | Eliminating various pathways and fast tracks puts unrealistic in-class differentiating burden on teachers who are already overworked and this would ultimately lead to students’ loss of math education choices. If our public school education quality suffers, the suffering would ultimately be borne disproportionately by working class and social economically disadvantaged families. That is not an acceptable result. | Non-Actionable |
| 1325 | a a | NA | If there are flaws with tracking, the solution is not to elimimate tracking altogether. I propose imcreasing the number of tracks and allowing freer movement between them. Instead of a two-track regularl/honors system, make it four with remedial/average/honors/mathematically gifted. There are a lot of students tracked into the regular stream when they need a much slower pace. And there are highly gifted students tracked into honors when they are already doing algebra in elementary and calculus in 9th grade and are ready for math major university courses by 12th. Let students accelerate or decelerate as needed. Make prereqs less rigid. I'm deeply skeptical that eliminating tracking and calling everything an honors course will really result in honors level mathematical achievement. More likely classes will regress to the mean and any students that deviate from average -- above or below-- will be short changed. | Not Recommended |
| 1326 | Wu | NA | This chapter appears to be one-sided. A more honest analysis is to look at the make-up of the students who continued into the next advanced math class, both in terms of performance attained and in terms of self-image and satisfaction. | Non-Actionable |
| 1327 | Vierra | 7-8, 66 | - I spent 11 years teaching 7th & 8th grade so I found the links to resources very helpful. - The explicit strategies for language support in mathematics (lines 166-198) the SCALE link give teachers direct support for language development. - So great to have a video demonstrating Integrated ELD in Gr. 8 classroom. Teachers want to see what it looks like. - I'm glad the cautions not to accelerate in middle grades are even stronger than in the 2013 Framework - Helpful to provide IM-Kendall Hunt proportional reasoning videos - I strongly support the call for "provocative problems" (line 1736). | Non-Actionable |
| 1328 | Vierra | 8 | - Typo Line 220 "thought" should be through | Recommended |
| 1329 | Vierra | 20 | - Typos (line 528) "breaching" should be beaching; (line 534) "breach" should be beach | Recommended |
| 1330 | Vierra | 28 | - Grammar (line 737) possibly delete "are" or "surrender" and change to surrendering | Writers’ Discretion |
| 1331 | Vierra | 47 | - Lines 1213-1214 when discussing UDL guidelines in general, add the San Francisco USD math specific examples | Recommended |
| 1332 | Pesquie | NA | "The lack of tracking or acceleration will allow all students to regard mathematics as a subject they can study and in which they belong. This vision for middle years mathematics is organized around Drivers of Investigation, so that all work provides a purpose to understand and explain, predict what could happen, or impact the future."Not one curriculum at one pace fits all students. See other countries (Russia, China, Korea) where students explore advance concepts in middle schools. | Not Recommended |
| 1333 | Chang | NA | The compacted math pathway in middle school, while not ideal, is just one way to ensure adequate preparation for advanced math in high school. It is necessary because of the de-tracking of math throughout elementary school. Removing this option will negatively impact the students who need advance levels of math in middle school. Our children are already disengaging in math instruction in K-5 grades - we don't need to continue mediocre teaching through middle school. Do NOT remove compacted advanced math in middle school. | Non-Actionable |
| 1334 | Malione | NA | The removal of ability level tracking is likely to have negative outcomes in terms of the STEM-readiness of students rising through this framework. As a change that could potentially lead to large-scale reductions in the number of STEM-prepared candidates, and given the importance of these jobs and roles to our life-sustaining infrastructure, the omission of any such considerations is foolhardy. | Non-Actionable |
| 1335 | Bohanan | NA | I understand the reasoning behind heterogeneous groups and it can work well. I had the opportunity to work with a co-teacher a couple of years ago. We paired our SEL or lower-performing (LP) students with the higher-performing (HP) students for math. The pairs were flexible and we switched them periodically throughout the year. It was great for number talks and communicating thinking. The struggle, I felt, was that the foundation for what my fifth graders needed to know to master our grade-level standards wasn't always there for many of our students. In many schools, students get very little help at home and after years of having no practice at home or experience with the basic multiplication and division facts hinders my students' learning when they come to fifth grade. With the exception of a small few, many students' learning gaps in fifth grade continue into middle school. I would be open to having heterogeneous classes next year, that is, if we are allowed to work in groups | Non-Actionable |
| 1336 | Sheffield | NA | The section on Tracking and Acceleration should add information about the need to serve high-performing students in other ways. Middle grades mathematics teachers often see as many as 150 students per day and are not equipped to handle the needs of students who are performing 1 - 2 or more standard deviations about the mean on a given mathematics assessment. Rich discussions and low floor/high ceiling tasks are important for all students, but often are not enough to provide the challenge opportunities for productive struggle these students need. These students need special services in the same way that students performing 1 - 2 standard deviations below the norm do. The current NCTM position statement notes "Students with exceptional mathematical promise must be engaged in enriching learning opportunities during and outside the school day to allow them to pursue their interests, develop their talent, and maintain their passion for mathematics." | Writers’ Discretion |
| 1337 | Kanji | 11-12 | What Resonated Importance of middle years in impacting attitudes and self efficacy 21st century skills - problem solving, Shifts - problem based, data science approach Math is for all students Importance of math practices We would like to Affirm Different definition of what makes something a big idea - 12 TAble 7x - intervention page 11 - what does it look like, mindset is key to this. Teach the grade level standards Our Questions TAble 7x - intervention page 11 - what does it look like, mindset is key to this. Acceleration is not the only way to differentiate for high achieving students | Non-Actionable |
| 1338 | Thomas | NA | All tables and figures were labeled 7X. We also liked how the framework states that we should give students tools such as a calculator to function at the current grade level to access content. | Non-Actionable |
| 1339 | Thomas | 66 | Line 1736, the use of the word “provocative” to describe problems that develop curiosity had a negative connotation | Writers’ Discretion |
| 1340 | Ortega | NA | Thank you for including a section that addresses acceleration in middle school. This will help my district create more equitable opportunities for all students to have access to rigorous mathematics and receive high quality math instruction. | Non-Actionable |
| 1341 | Weiler | NA | I hold a PhD in Cognition and Instruction and am the parent of a gifted learner. I have some concerns about this chapter. While it seems to be making the case for Vygotsky's Zone of Proximal Development, it relies on research that one could argue is somewhat dated. Also, it focuses on attempting to address inequity in access to accelerated math courses or different tracks but it does not address the issue of complacency among gifted learners. Many advanced learners need to be continually challenged. I understand the concern about the access gap and fixed mindset vs growth mindset but the answer is not to take away the ability of advanced learners to access accelerated math classes. Learners who are not challenged or stimulated will become complacent. I do believe every child has the potential to be great at math but I believe closing the access gap is more about nurturing their skills to achieve this potential rather than taking away the different tracks and access to accelerated math. | Non-Actionable |
| 1342 | Tomlinson | NA | This document intends to have teachers differentiate the students in the same classroom in replacement of the current structure of different classrooms for different levels of students. This is unrealistic when presently the teachers are overworked with too many students in the classroom. Teachers would naturally tailor the lessons to the majority in the class which means the talented math students will be ignored or be made to slow down their progress. Ultimately, these students would become disengaged because the lessons are too boring for them. Moreover, the talented students will be turned into tutors (by the teacher) to help the slower students. Tutoring should not become the responsibility of advanced students at the expense of the additional learning of such advanced students. We have seen this in classroom tutoring with our children and slow classes that are boring. We haven’t seen successful in-class teaching differentiation. | Non-Actionable |
| 1343 | Bates | 6 | line 142- talks about NOT using sentence starters, which are a common strategy... could you say more about this or give an example of something to do instead? | Not Recommended |
| 1344 | Bates | 11 | 287-289- Can you provide an example of this so that teachers might more readily identify this in their own practice? | Not Recommended |
| 1345 | Bates | 12 | 291- could "new ways" be expanded on? or I believe it's referenced later through re-engagement, but maybe it could be sited here too? | Writers’ Discretion |
| 1346 | Bates | 15 | Love the explanations and rationale regarding tracking- especially lines 391-394 | Non-Actionable |
| 1347 | Bates | 24 | Line 613- Middle school teachers are sometimes multiple subject, but usually only math… they won’t make all these connections automatically to other content areas and is there a link to the lesson plan/task/tools etc for teachers to see an example of this type of lesson. There is also often a lack of time to collaborate with other subject teachers | Non-Actionable |
| 1348 | Bates | NA | In general- could we see a sequence of tasks or a unit? Is there a different way to organize tasks as teachers are planning? | Not Recommended |
| 1349 | Albert | 15, 18 | The section on Tracking and Acceleration is both hostile to advanced math learners and draws conclusions that will be damaging to them. Condemning all students to a "one size fits all" approach will hurt everyone but the most average. Lines 376-390 seriously misrepresent the circumstances and the conclusions of the referenced studies and therefore falsely boost the argument against tracking. There are significant differences between the courses of action in the studied schools and what is being proposed in this document. In the studies, students participated in \*advanced\* courses of study, which specifically is not what this document is proposing, despite the reference to changes in 8th grade math. That calculus is an important goal in high school (lines 484-485) is not a "mistaken belief." It may not be appropriate or desired for everyone, but no patronizing tone toward parents (as exhibited here) will change college requirements or standards. | Non-Actionable |

## Table 10: Chapter 8: Mathematics: Investigating and Connection, Grades 9 Through Grade 12

| # | Source | Page | Line Number and Comment on Chapter 8 | Recommended Action |
| --- | --- | --- | --- | --- |
| 1350 | Brousseau | NA | This is important because of the real world applications of investigations using math. One of the biggest problems in math education ahs been the lack of how mathematics is all connected. The more connections students see and are aware of the more powerful problems solvers they become. | Non-Actionable |
| 1351 | Daro | N/A | great work on High School. consider including San Diego's new graphic of course options. Alexandra Martinez or Patrick Callahan can share the latest and the thinking. I cc’d them above. | Non-Actionable |
| 1352 | Statham | NA | I need clarity around the "MIC" pathway being introduced. Is this a rebranding of integrated math that is truly integrated as opposed to a rearrangement of topics which many integrated courses seem to be? Instead of introducing MIC as a new pathway, could it be a course design framework for the current traditional and integrated pathways? Figure 8.1 attempts to align the SMPs, DIs, & CCs... graphics should provide clarity, but this graphic doesn't do that, it creates a sense that MORE is being piled onto math teachers. Is there a better way to show the alignment of how the SMPs support the DIs and CCs? Many teachers are not proficient in teaching through SMPs; I think this important shift to investigating with mathematics will be lost. The figure 8.X under Pathways in grade 9-12 should include additional A-G approved courses, such as MRWC and other alternative 3rd & 4th year courses, otherwise it feels as if only certain courses are being recommended based on the writers' preferences. | Writers’ Discretion |
| 1353 | Grip | 17 | Integrated texts are not really integrated. (430) <br>The majority of self-proclaimed integrated texts seem to represent a re-chunking or re-slicing of traditional Algebra-Geometry-Algebra 2 content. I am pleased that this Framework calls out this lack of integration and proposes a truly integrated approach. True integration that addresses important standards is possible. The National Science Foundation funded five curriculum projects in the 90’s with a focus on integration of mathematics. Incorporation of more real-world modeling contexts provides excellent opportunities for integration.<er> | Non-Actionable |
| 1354 | Grip | 18, 21 | Less procedure and more about investigating and meaning. (449, 539, 549) <br>There is a role for procedures. I don’t think anyone is advocating procedures be eliminated but they should be lessened and replaced by investigations with meaning.<er> | Non-Actionable |
| 1355 | Grip | 7, 8, 32 | Calculus is not the goal of high school. Somewhere this reflects the troubling realities of college admissions. (122, 132, 147) Pre-calculus does not increase success in calculus. (843) <br>The “race to Calculus” and the role of HS Calculus on decisions for college admissions leads to inequities and the mile-wide, inch-deep math learning experience for students. Teachers sacrifice depth of understanding for “coverage” of skills and procedures relevant to a small percentage of students. The essential concepts of calculus can be taught as extensions of algebra (slope, rate of change) and geometry (area and volume) concepts as limits. Maximizing, minimizing and instantaneous rate of change can be approached informally through every course. Much of school/classroom calculus is messy algebra and setting up forms, formulas and special cases to solve contrived textbook problems or anticipated A.P. questions. Let’s make Calculus an option and not the sole endgame of the high school math curriculum.<er> | Non-Actionable |
| 1356 | Grip | 41 | Mathematical modeling provides more equitably engaging mathematics for students. (1091) <br>Especially when contexts are relevant to students or to their understanding of the world. In my conversations with colleagues, I noticed those who preferred a traditional approach often did not understand the power of concrete, real-world contexts to develop mathematical understanding.<er> | Non-Actionable |
| 1357 | Grip | 41 | Mathematical modeling incorporates processes absent from textbook problems. (1094) <br>Posing of questions (notice and wonder), building of models and checking the reasonableness/viability of solutions are rarely present in textbook problems.<er> | Non-Actionable |
| 1358 | Grip | 20-65 | Explore first. Move from informal to formal. (513, 608, 1257, 1269, 1706) <br>So often we move too quickly to abstraction and formalization and bypass understanding by emphasizing and practicing procedures (often applied to problems that don’t exist in the real world or questions no one cares about) rather than situate the mathematics in meaningful contexts and tasks. Informal investigations and introductions can happen one or more grade levels before the idea is formalized.<er> | Non-Actionable |
| 1359 | Grip | 17 | Integrated tasks invite connected math. (420)  <br>One of the reasons I support the MIC integrated pathway.<er> | Non-Actionable |
| 1360 | Grip | 11 | Equitable teaching should utilize research-informed strategies. (254) <br>Agree and because people learn/process in different ways encourage use of a variety of research-informed strategies and not just one or two.<er> | Non-Actionable |
| 1361 | Grip | 13 | Counter the myth that some people are “math people.” (301). Every brain can grow. (306) <br>We need to honor the different ways students process and make sense of ideas. Provide tasks so all students have access. Validate each student’s perspective in a supportive environment where learning from others is also valued.<er> | Non-Actionable |
| 1362 | Grip | 24 | Big ideas are central to the learning of mathematics. (596) <br>Consider this an important way to address the often-heard complaints there are too many standards and not enough time. (Could also delete some standards.) <er> | Not Recommended |
| 1363 | Grip | 21 | Goal of math should be deeper understanding and not quicker answer-getting. (526) | Non-Actionable |
| 1364 | Grip | 19 | Procedural approaches disadvantage students of color (466). Combat with inclusive teaching practices allowing access to authentic mathematics. (471) <br>Variety of research-informed strategies should be implemented. Does not mean eliminating procedures but situates them as generalization emerging from understanding along with the journey from concrete to abstraction.<er> | Non-Actionable |
| 1365 | Grip | 18 | Explore local issues related to environmental and social justice. (443) <br>I have always been excited about meaning-based mathematics applied to relevant issues for students; now I also support culturally-relevant tasks.<er> | Non-Actionable |
| 1366 | Grip | 63, 65 | Concrete materials are not just for elementary students. (1721) Maintaining connection to concrete situations and authentic questions is crucial. (1654) <br>Works for adults, too. For many people, concrete builds the foundation for abstraction.<er> | Non-Actionable |
| 1367 | Grip | 72 | Proving things that students consider obvious is not motivating…design activities in which students experience questions as authentic; that is something they actually wonder about. (1870) <br>What if “construct viable arguments and critique the reasoning of others” led to discussion about proof, certainty, causation and correlation? How do statistics play a role in courtroom trial arguments and proof? What are the similarities between a mathematical proof and scientific justification?<er> | Writers’ Discretion |
| 1368 | Grip | 31 | “Situate mathematics learning in investigations of authentic <br>[suggest adding “real-world and mathematical” here]<er> contexts and problems.” (822) <br>Because the word “authentic” includes investigations of mathematical relationships, staying in a purely mathematical context seems to be a more comfortable place for teachers and textbook writers than investigating real-world, messy authentic problems. The result is teachers are less likely to provide and promote real-world investigations over mathematical investigations. Ask writers and teachers to do both and imply this by using the word “and.”<er> | Recommended |
| 1369 | Grip | 29 | Background reading on Climate Change (745) has an incredibly long introduction. <br>How about starting with a graph or data talk or a notice and wonder? There are already graphs included so why not start with the graphs?<er> | Writers’ Discretion |
| 1370 | Grip | 49 | …tables without an accompanying context should frequently include prompts to invent a context for the function. (1284). <er>I like this suggestion as it inserts meaning into a mathematical investigation. In this example you do not begin with real-world meaningful pursuit but rather seek to make that connection after the investigation. Clarify that this is different from mathematical modeling.<er> | Writers’ Discretion |
| 1371 | Grip | 41 | Suggest making a stronger distinction between mathematical modeling and modeling mathematics. (1084)  <br> (1) **model mathematics,**  Possible example: Use algebra tiles or the area model to illustrate the product of two binomials. Construct a graph to find the solution to a system of equations.  (2) **model with mathematics,**  Possible example: Write the equation of a best-fit line to model a data set.  (3) **mathematical modeling.** Possible example: What is the best plan for distributing a vaccine? Can I make a living operating a food truck? How do we best prepare for a disaster event?  Teachers seem more likely to do (1) and (2) in the classroom. There is little or no insistence on doing (3) mathematical modeling. I would like to see students have more opportunities to do authentic mathematical modeling.<er> | Writers’ Discretion |
| 1372 | Grip | 57-58 | Metabolism of a drug is modeled for one dose (1499-1517). <br>This is a very real and potentially relevant topic for students to study while investigating growth and decay and exponential functions. Regarding this example, it seems more common to have a regimen of multiple doses taken over a time period (such as every six hours for two weeks). Suggest the modeling of one dose should be presented as a simplification of a multiple dosage regimen designed to provide relief without harm over an extended period of time. Also, who decides what questions to ask and answer? (1532) Would be nice to consider what questions a student might wonder about. Perhaps what insulin level is too high or too low? At what point in time, after taking the first dose, do you reach this level (rather than zero)? What frequency or dosage is needed to maintain a safe level? What is the overall effect of different dosages? What happens when you skip a dose or delay for hours? <er> | Writers’ Discretion |
| 1373 | Grip | 33 | Perhaps include a context more relevant for CA students than the Whale Hunting vignette (871). <br>Community garden, vaccine distribution, best available mode of transportation, voter suppression, operating a food truck, minimum wage, earthquake prediction and preparation, forest fire management, or racial or ethnic profiling.<er> | Non-Actionable |
| 1374 | Grip | 36 | What is gained by writing an equation? (934) <br>Perhaps support the reasoning for including an equation such as how it might help with understanding and what might be lacking.<er> | Writers’ Discretion |
| 1375 | Grip | 65, 71 | Why are we trying to find the volume of a lemon? (1708, 1836) <br>Nice investigation. What if we prefaced with questions about sorting lemons for packaging or distribution or ask students in what situation might we care about the volume of a lemon? What are different ways to find the volume and which is most efficient? Situate the investigation within a meaningful context whenever possible. What are other situations where we care about the volume of a non-rectangular object? Then the lemon volume investigation would be a simplified simulation where the learning could be applied to a more complicated situation.<er> | Writers’ Discretion |
| 1376 | Grip | NA | It would be helpful to add more detail for the integrated pathway, Mathematics, Investigations and Connections (MIC). | Writers’ Discretion |
| 1377 | Grip | 21 | Exploring misconceptions makes thinking visible (520). <br>I like the description elsewhere of “other conceptions.” We need to make sure that if we are anticipating potential misconceptions that we are also trying to understand what students are thinking, what are their conceptions.<er> | Writers’ Discretion |
| 1378 | Grip | 7 | What is a “strong” mathematics student? (119) <br>Does the way we determine “strong” disadvantage many students? How are the ways we determine potential and achievement disadvantaging some students? Is there bias in the way we assess potential, achievement, growth, competency and mastery? Students learn in different ways; could there be many ways to be competent? How do you define success? By what measure? We miss the “smart” in every student when we focus on limited ways to be smart and demonstrate smart.<er> | Non-Actionable |
| 1379 | Grip | 13 | HS mathematics taught in narrow procedural ways is strongly liked and strongly disliked (317). How do we address both extremes? <br>We need to investigate why some students strongly like procedural and traditional direct instruction methods. Is that something we created or a natural preference that we fostered in these students? To what extent do procedures and direct instruction still play an important role for some students and for all students?<er> | Non-Actionable |
| 1380 | Grip | 14 | Put into action methods and approaches that disrupt cultural patterns. (331) <br>Agree. Where do we specifically address this need?<er> | Non-Actionable |
| 1381 | Grip | 28 | Who created the questions? (717-721). <br>These questions don’t seem like authentic student-generated questions. Not that asking these questions is bad; we need to either find out what students are curious about or we need to think more like a student instead of always thinking like a math teacher with a narrow content focus. (1) Why do temperatures seem to be increasing? What are possible causes? (2) What problems do we anticipate if temperatures continue to rise? (similar to question 3, line 720) (3) If this is a problem, then what are potential solutions? How does math help reveal and solve a problem? <er> | Writers’ Discretion |
| 1382 | Becker | NA | I like that this chapter clarifies the fact that calculus should not be the ultimate course expected in high school and provides other options. It would be helpful to stress that any college bound student should take four years of math regardless of expected major. | Writers’ Discretion |
| 1383 | Becker | NA | Again the vignettes would do well as links for further reading, with perhaps a short description of each task in the full text. They break up the flow of the text too much and make the chapter too long. 110 pages! | Not Recommended |
| 1384 | Becker | NA | I like the tables with examples for each SMP but is there a reason the tables are different colors for the Algebra 1-Geometry-Algebra 2 sequence? | Non-Actionable |
| 1385 | Ward | 3 | Page 3: Doesn’t this lack of meaningful change mean that jumping to Common Core, pushing out new standards; all of this is meaningless? There will be students who succeed and many who believe the lie they can’t or won’t so they don’t? Why don’t we do some seismic changes in how education is handled in this country? Is there true desire for change or do we just fiddle around the edges and throw out flashy new names for old concepts to attempt again? | Not Recommended |
| 1386 | Ward | 6 | Page 6, line 89: From what I’ve heard is that the last update pulled standards up so the lower grades had less to cover, and some things were pulled down from high school, to help with more of an integrated attempt. But, because high school can opt between traditional and integrated, the impact of standards reshuffling was most felt in eighth grade because that grade ended with ***more*** work to get through than before the standards. If there isn’t a solid foundation, because there’s too much to get through, why is there an expectation for success in ninth grade? | Non-Actionable |
| 1387 | Ward | 9 | Page 9, 175: Impossible, unless I want 99.5% of my students to fail. *One* freshman was ready for the grade level content. The class has been so dumbed down and limited in what we are attempting to get through this year, and there’s still so many failures. I don’t see how anybody who will seriously look at the current status of education can, with a straight face, make such a claim. Or, if that *is* the case, I don’t see why teachers should be considered the issue. My content is way beyond the scope of student’s abilities and comprehension because they haven’t understood key content from three to six years ago. | Non-Actionable |
| 1388 | Ward | 9 | Page 9, 182: What should be said about/to districts that are pushing out pacing guides? And teachers being scolded for not abiding by the district provided pacing guide? | Non-Actionable |
| 1389 | Ward | 9 | Page 9, 186: This is so very important. I don’t feel like that’s what schools are supposed to or expected to do anymore, though. It feels like we’re here to babysit and pass students through. Any content or learning that occurs is just a happy, surprising, shocking accident. | Non-Actionable |
| 1390 | Ward | 9 | Page 9, 197: Gaps that span multiple years, with many layers that the student has missed… What to do about that? Students can’t handle reading a situation to create an equation that represents it and come to a conclusion to respond to the situation. Why not? Because they haven’t learned how to read for information. They don’t recognize any way of translating between words and math. There is no recognition about different terms on one side of the equal sign. | Non-Actionable |
| 1391 | Ward | 10 | Page 10, 207-212: That would be nice; to have the additional support for students. If only districts would be willing to spend money for that. While I totally agree with this concept, I do have a question, because it seems like this would be frowned upon as tracking. How is it that this is acceptable and suggested as an option? That would “track” students by putting them into two periods of math instead of one; also, that deprives them of a different elective option, so it’s also not fair. (Again, this isn’t me saying that, but issues I’ve heard.) | Non-Actionable |
| 1392 | Ward | 10 | Page 10, line 213: I think that’s interesting. At least as long as I’ve been teaching, all I know is the frantic attempt to cover the essential power key standards! There isn’t time to devote to other concepts when there’s such a massive lack of foundational skills that need to be worked on so students have a chance at the essential standards. | Non-Actionable |
| 1393 | Ward | 11 | Page 11, 252-254: *Tracking students into pathways for which they are unable… to even succeed in… is a practice which must stop*. **SO TRUE!** I don’t know if that’s what is meant, but what I gather is that we shouldn’t be pushing students to places we know they are unable to ever reach success. So what does my mind go to? We need to force a total rejection of social promotion. Students can’t continue to be passed along K-8 and then be expected to have the ninth grade teacher work one-on-one with the student to have them get caught up and succeed. That’s *impossible*, when there are 99.5% of students who are at varying levels of not being ready for the course content. | Non-Actionable |
| 1394 | Ward | 12 | Page 12, 266-275: So we’re just having a capitalized word because… we want to make it feel comparable to STEM? That’s just going to be read as shouting when people read it. That, and/or wondering what in the world t’s supposed to mean. All capitals do NOT indicate equivalent rigor to STEM pathways. That’s just trying to push nonsense. BAD. | Non-Actionable |
| 1395 | Ward | 12 | Page 12, 280: I’ve yet to encounter any Hispanic, Latina, or Latino who actually subscribes to the concept or use of Latinx. All I’ve ever experienced is hearing about how stupid it is, how insensitive it is to the Hispanic culture, and how it’s just those white elites in academia pushing out their notions and trying to force the colored communities to adhere to their white people whims. It is **cultural imperialism** that, those who have heard of it, do not take kindly. Intentionally having non-binary singular pronouns to not be offensive, but then to be completely degrating to a culture; that’s absurd. DO NOT RECOMMEND. (It’s not shouting, it’s just showing that it’s on the same level as the previous note, that it’s a bad idea to have this content taking up space in a math framework that should be… better.) | Not Recommended |
| 1396 | Ward | 14 | Page 14, 323-325: How do educators have any say? There’s the admin, the district office, the board, state tests, politicians all above us in the hierarchy. I don’t see how there’s any potential for making good decisions and enacting change. | Non-Actionable |
| 1397 | Ward | 14 | Page 14, 335: Why is it called Figure 8.X? That makes it seem like a placeholder. | Non-Actionable |
| 1398 | Ward | 14 | [This comment has been excerpted for length. See the Box link above for the full comment.]  Page 14, 339: The graphic is appreciated. Would like to see what this presentation means for the three different math credential levels. Does it mean introductory math should only teach the year one content? Does foundational-level math get to the Years 3/4 content *except* the top right side-- Calculus + Trig and Pre-Calculus? So then full mathematics is everything? What does the *MIC* part stand for with Modeling with Functions and Data Science on the left side of the 3/4 cloud of course options?  I’d recommend grabbing a snip of the image again, this time without having the Math: Investigating & Connecting 1 text box selected. Also if the text boxes across the rows could be aligned top/bottom so that they aren’t so mixed up, that would be really appreciated. *Want to go for the extra credit?* Would you mind having consistent spacing between the three different columns of options for the Year 1 / Year 2 courses? (The Integrated and traditional are closer than the first two columns. Specifically, Math 2 and Geometry are closer than Math 1 and Algebra 1… it’s visually troublesome.)  Also, in an official document, could we write out the terms, not leaving them abbreviated, say, *Calculus + Trigonometry* instead? Thank you!  One last thing: standardize the font sizes, please. | Not Recommended (first part)  Writers’ Discretion (write out terms, no leaving abbreviations) |
| 1399 | Ward | 19 | Page 19: Oh, we finally get a description of MIC of Mathematics: Investigating and Connecting. Would’ve been nice to know that five pages ago. Same with the description of the MIC year one and two being a revision of integrated. | Not Recommended |
| 1400 | Ward | 25-32 | Page 25-... 32???? There’s a vignette. Why? And then I don’t even know when it ends… I just kept scrolling and eventually hit page 33 with a new bold text. Vignettes, especially non-ending ones, are just a waste of space. That’s like examples in the textbook. I’m not going to spend time highlighting anything there, instead, it’s optional. I’m doing more than my peers by even *doing* the reading in the first place. | Non-Actionable |
| 1401 | Ward | 33 | Page 33: AGH! *Another vignette*. | Non-Actionable |
| 1402 | Ward | 35 | Page 35, 912: [Source: pending.] … The source is changing? Processing? For what? | Non-Actionable |
| 1403 | Ward | NA | By now, I’m so done with this chapter. When I see that there’s 110 pages in total. I’m just scrolling through vignette and other stuff. I don’t really care. I want the important parts and let the artificial stories be for… I don’t know, really, who/when that would be applicable or appropriate. | Non-Actionable |
| 1404 | Ward | 88 | Page 88, 2221: Why is it *of course* that they begin on page 59? That’s being uppity. | Non-Actionable |
| 1405 | Rubalcava | NA | The chapter contains some very important research and some wonderful guidance for math leaders to create equitable and engaging  mathematics experiences for students. Unfortunately, some of the important components are lost in the structure of the document. We suggest a reorganization of the chapter to start with more global/general guidance and then to narrow focus to specific pathway and course level guidance. <bh>*A suggested revised outline for Chapter 8 can be found below the line specific feedback.<eh>* | Writers’ Discretion |
| 1406 | Rubalcava | NA | [The comment from this submitter came in the form of a PDF with embedded tables that could not be reproduced in this format. See the Box link above for the full text of the comment.]  Our suggestions for reorganization seek to address the following feedback from our team and local district/school administrators, math coaches, and teachers:  The chapter did not have a clear and consistent “story” and lacks usability for coaches/teachers. | Writers’ Discretion |
| 1407 | Rubalcava | NA | Starting with the section “A Need for Change in High School” and related data sets a deficit-based tone that turned some of our teachers off. | Writers’ Discretion |
| 1408 | Rubalcava | NA | The chapter felt disconnected from the message of the Framework as a whole. The messages of Equity and Engagement need to be stronger and clearer. | Writers’ Discretion |
| 1409 | Rubalcava | NA | Copying language verbatim from the 2013 Framework for the Integrated and Traditional Pathways makes it seem as if they don’t require any instructional shifts. This distracts from the work that went into the development of the integrated approach in the MIC pathway. | Writers’ Discretion |
| 1410 | Rubalcava | NA | It is unclear if there are 3 pathways: MIC, Integrated, and A-G-A or if MIC is intended to be a reimagining of the Integrated Pathway. | No Motion Recommended |
| 1411 | Rubalcava | NA | We suggest starting with more general research/theory and moving toward more specific guidance with the structure below. When possible, language from the current chapter will be labeled with page/line numbers. Any language/visuals that we recommend adding will be labeled as <bh>NEW.<eh> The main sections will be identified on the left, with specific content or sub-headings outlined on the right. | Writers’ Discretion |
| 1412 | Rubalcava | NA | Introduction  <bh>NEW<eh> Begin the chapter by revisiting the ideas introduced in Chapter 1: “Mathematics as Gatekeeper or a Launchpad? (beginning in Ch.1, Line 51)” and “Rejecting Fixed Ideas About Students (beginning in Ch.1, Line 227)”. This would help to build coherence throughout the Framework and would provide an asset-based lens rather than the potential to view the data in the chapter with a deficit mindset. | Writers’ Discretion |
| 1413 | Rubalcava | 12-14 | Include the section “Exclusionary Math” (Lines 285-332). This will center the themes of equity & engagement before moving into more specific content focus. | Writers’ Discretion |
| 1414 | Rubalcava | 3-4 | A Need for Change in High School  Include the language in the previous “A Need for Change in High School” section (Lines 37-69). | Writers’ Discretion |
| 1415 | Rubalcava | 5-7 | Include the section “Transition from Eighth Grade to High School” (Lines 70-112). | Writers’ Discretion |
| 1416 | Rubalcava | 7 | Change the title of the section “Issues with Acceleration in Middle Grades (Line 113)” to <bh> **“Issues with Tracking and Acceleration in Middle Grades”**.<eh>   * Include language from Lines 114-162. * <bh>NEW<eh> Add language from Chapter 7 Lines 349-502 to address the issues with tracking and strengthen this section. | Recommended |
| 1417 | Rubalcava | 8-10 | Include the section “Differences in Background” (Lines 163-212).   * <bh>NEW<eh> Include language from Chapter 7 (Line 274-291) after point number 5 (after Line 202). | Writers’ Discretion |
| 1418 | Rubalcava | NA | [This comment has been excerpted for length; see the Box link above for the full text of the comment.]  <bh>NEW:<eh>  Designing Equitable & Engaging High School Mathematics  <bh>NEW<eh> Add language to revisit the 5 components of Equitable and Engaging Teaching from Chapter 2 and to refer teachers to read Chapter 2 for more specific strategies and examples. The following quotes from Chapter 2 that may be useful to shape this section:   * Component 1: Plan Teaching Around Big Ideas - “Curriculum standards tend to divide the subject into smaller topics, but it is important for teachers and students to think about the big ideas that characterize mathematics at their grade level and the connections between them.” (Chapter 2, Line 132) * Component 2: Use Open, Engaging Tasks - “When questions are narrow and focused, only some students are cognitively challenged at an appropriate level, and the questions are often not very interesting. When tasks are open, they allow all students to work at levels that are appropriately challenging for them, within the content in their grade.” (Chapter 2, Line 241) * Component 3: Teach Toward Social Justice - “Teachers can take a justice-oriented perspective at any grade level, K-12, helping students feel belonging, and empowering them with tools to address important issues in their lives and communities.” (Chapter 2, Line 681) | Writers’ Discretion |
| 1419 | Rubalcava | NA | <bh>NEW<eh> Add language to revisit UDL guidelines laid out in Chapter 2. A short high school example of planning instruction using the UDL guidelines would support teachers to put theory into action. | Writers’ Discretion |
| 1420 | Rubalcava | 21-30 | [This comment included a graphic; see the Box link above for the full comment including the graphic.]  Include the section “Driving Investigation and Making Connections” (Lines 536-788) with the following revisions:   * <bh>NEW<eh> Frame the Content Connections and Drivers of Investigation as important components of ANY mathematics course, the current placement seems to imply that the Content Connections and Drivers of Investigations apply only to the MIC pathway. (See Lines 537-543) * <bh>NEW<eh> Revise the visual model of the SMPs/CCs/DIs as it is not very clear to the reader. A sample model is shown below:   Example to frame teacher’s thinking: A student might Look for and Make Use of Structure while Exploring Changing Quantities in a visual pattern in order to Predict What Might Happen on Day 100 of an experiment. | Writers’ Discretion |
| 1421 | Rubalcava | 33, 37-40 | [This comment included a graphic; see the Box link above for the full comment including the graphic.]  The Content Connections  Include the language framing Content Connection 1: Communicating Stories with Data (Lines 856-869)   * <bh>NEW<eh> Summarize the language from Lines 969-1050 into a table that shows how the key ideas progress from MIC 1 - MIC 2 - MIC 3 Data or MIC 3 Functions. This table might be similar to the progressions tables found in Chapters 3, 4, and 5 (see sample below from Chapter 5 Data Science Line 230): | Writers’ Discretion |
| 1422 | Rubalcava | 40-74 | <bh>NEW<eh> Follow this same structure for the remaining Content Connections with the framing from the current chapter, followed by a visual/table to summarize the progression of the Content Connection through the courses. Refer to the following line numbers:   * CC2: Framing (Lines 1051-1124) and Progression (Lines 1249-1394) * CC3: Framing (Lines 1395-1434) and Progression (Lines 1549-1650) * CC4: Framing (Lines 1651-1701) and Progression (Lines 1844-1941) | Writers’ Discretion |
| 1423 | Rubalcava | NA | [Note: We recommend saving the specific domains/clusters in this section as well as the vignettes until laying out the MIC 1, 2, 3 courses later in the chapter. This section could trace the Content Connections with tables for both the MIC and A-G-A pathways as a compare/contrast, or the A-G-A version could be included later in the chapter.] | Writers’ Discretion |
| 1424 | Rubalcava | NA | Focus on Essential Concepts  <bh>Question to Consider: How are the “Big Ideas” for High School Mathematics aligned to the Essential Concepts from NCTM’s Catalyzing Change in High School Mathematics: Initiating Critical Conversations?<eh> | Writers’ Discretion |
| 1425 | Rubalcava | 10-11 | Include language from Lines 213-220. Next, list the 4 key recommendations as bullet points using the following lines:   * The first key recommendation is missing a bullet point but can be found on Lines 221-223. * Second recommendation (Lines 241-243) * Third recommendation (Lines 244-245) * Fourth recommendation (Lines 246-249) | Writers’ Discretion |
| 1426 | Rubalcava | 11 | Include language from Lines 250-255. | Writers’ Discretion |
| 1427 | Rubalcava | 10-11 | [This comment contained multiple hyperlinks to Google docs. Please see the Box link above for the full comment with links.]  <bh>NEW<eh> Include language framing the Essential concepts and include focus areas found on Lines 224-240.   * Consider a visual similar to the following document that details the 41 concepts: * See also this sample alignment of the 41 Essential Concepts to the content standards: | Writers’ Discretion |
| 1428 | Rubalcava | 11-12 | Include the language from Lines 256-284 to lead into the next section on pathways. | Writers’ Discretion |
| 1429 | Rubalcava | 14-17 | [This comment included a graphic and hyperlink. Please see the Box link above for the full comment with graphics and links.]  Pathways in Grades 9-12  Include the language from Lines 333-416   * <bh>NEW<eh> Revise the figure on Lines 339-340 to show how students might move between courses. The sample figure from *Branching Out: Designing High School Math Pathways for Equity* has some good examples like the diagrams below: | Writers’ Discretion |
| 1430 | Rubalcava | 17-18 | Mathematics: Investigating and Connecting Pathway  <bh>Consideration: The language in Lines 429-437 seems to imply that the MIC pathway is an updated version of the Integrated Pathway. With this in mind, we make the following recommendations:<eh> | Writers’ Discretion |
| 1431 | Rubalcava | 17-21 | Include language from Lines 417-535.   * <bh>NEW<eh> After Line 437 use the language from Lines 1943-1949, ending after the link to the standards. | Writers’ Discretion |
| 1432 | Rubalcava | 43-54 | <bh>NEW<eh> For each course in the MIC pathway, include the following:   * Big Ideas:   + Clusters of emphasis within the Content Connections.   + The 41 Essential Concepts or the work around distance learning by Dr. Jo Boaler and Cathy Williams would be helpful resources. * Vignettes:   + MIC 1: Include “Blood Insulin Levels” Vignette (Lines 1435-1548)   + MIC 2: Include “Finding the Volume of a Complex Shape” Vignette (Lines 1702-1843)   + MIC 3 Modeling with Functions: Include “Drone Light Show” Vignette (Lines 1125-1248) * Samples of approaches to teaching specific concepts | Not Recommended |
| 1433 | Rubalcava | NA | NOTE: We recommend that the chapter does NOT include a description of the 2013 Integrated Pathway unless MIC is considered a 3rd pathway option rather than an update. | No Motion Recommended |
| 1434 | Rubalcava | NA | <bh>NEW:<eh> The Traditional (Algebra-Geometry) Pathway  <bh>NEW<eh> For each course in the A-G-A pathway, include the following:   * If the progression of the Content Connections was not shown for the A-G-A previously in the chapter, begin with a visual that shows these progressions. * Big Ideas:   + Clusters of emphasis within the Content Connections.   + The 41 Essential Concepts or the work around distance learning by Dr. Jo Boaler and Cathy Williams would be helpful resources. * Vignettes:   + Add when possible, or refer teachers to the vignettes from the MIC section when appropriate * Samples of approaches to teaching specific concepts | Writers’ Discretion |
| 1435 | Rubalcava | NA | The MIC pathway needs to be clearly defined. If the MIC Pathway is a reimagining of the Integrated Pathway, make it clear in the chapter. Language such as “For other sample integrated approaches, see the 2013 Framework” or referring to the CA CCSSM would support this clarity. | Writers’ Discretion |
| 1436 | Rubalcava | NA | Consider changing the name of the MIC 3 - Modeling with Functions course. Students should be modeling with functions in every course, they just engage with different types of functions. | Writers’ Discretion |
| 1437 | Rubalcava | NA | The concept of “Big Ideas” still feels ambiguous. The phrase is used several different ways throughout the Framework. We suggest a clear definition of the phrase and the use of other terms when not referring specifically to that definition.   * Note: There is a textbook called “Big Ideas” that might also confuse readers. Consider revising the language to “Essential Understandings” or something similar. * How do the “Big Ideas” align to the targets for the CAASPP? Since this is a statewide document, showing alignment would support our districts in making informed instructional decisions. | Writers’ Discretion |
| 1438 | Rubalcava | NA | Having the “Big Ideas” for each course with clusters of emphasis for each Content Connection would support teachers with instructional planning. This would also support designers of instructional materials to design in a way that is more integrated than our current curriculum offerings. | Writers’ Discretion |
| 1439 | Rubalcava | NA | Having the Standards for Mathematical Practice repeated in 2 pathways seems like a waste of space. We recommend that the SMPs be included in a more general section that refers to all high school mathematics and not listed in the specific pathways. | Writers’ Discretion |
| 1440 | Rubalcava | NA | This chapter needs to revisit the 5 Components of Equitable and Engaging Teaching from Chapter 2 with some concrete examples for how to implement this guidance at the high school level. | Writers’ Discretion |
| 1441 | Rubalcava | NA | The vignettes are relevant, but mathematics serves another discipline in all the vignettes, we don’t see mathematics for the joy, beauty and flourishing of its own sake. | Non-Actionable |
| 1442 | Rubalcava | 14 | 339-340: The image shows 3 pathways. If MIC is an update of the Integrated Pathway, change the visual to reflect that there are still two pathways. | No Motion Recommended |
| 1443 | Rubalcava | 14 | [This comment included graphics and a hyperlink. Please see the Box link above for the full comment with graphics and links.]  339-340: The image doesn’t clearly show how students might move between courses. Revise the figure to show the flexibility being called for. These sample figures from *Branching Out: Designing High School Math Pathways for Equity* is an example of how this might look: | Not Recommended |
| 1444 | Rubalcava | 10 | 221-223: These lines should be the first of 4 bullets that continue in lines 241-249 | Writers’ Discretion |
| 1445 | Rubalcava | 10 | [This comment contained multiple hyperlinks. Please see the Box link above for the full comments with links.]  224-240: The 41 Essential Concepts from NCTM’s *Catalyzing Change in High School Mathematics: Initiating Critical Conversations* are mentioned without a reference or link to the list of concepts. Consider a visual similar to the following document that details the 41 concepts:  See also this sample alignment of the 41 Essential Concepts aligned to the content standards: | Writers’ Discretion |
| 1446 | Rubalcava | 23 | [This comment included a graphic; see the Box link above for the full comment including the graphic.]  580: Figure 8.1: Content Connections, Mathematical Practices and Drivers of Investigation is very hard to understand. We suggest the following alternative: | Writers’ Discretion |
| 1447 | Rubalcava | 32 | 825-839: In this section, please include a clear statement that Financial Algebra has rigor comparable to a Math 3/Algebra 2 course and is not the same as “Consumer Math” or “Accounting and Finance” courses that some schools offer. These latter courses are not currently A-G approved for “C” status. | Recommended |
| 1448 | Lieberman | 24 | Page 24, line 600  Text as Currently Written  Lesson design should be built to elicit that wondering.  Rationale  To have conformity of definitions among various chapters  Request  Add the following sentence after existing text:  For example, environmental observations and issues on campus and in their local community provide rich contexts for student investigations and mathematical analysis as they concurrently help students develop their understanding of California’s Environmental Principles and Concepts. | Writers’ Discretion |
| 1449 | Barger | NA | Create a better visual to represent the pathway options for students in high school. The visual needs to make it clear that students can move between pathways. | Writers’ Discretion |
| 1450 | Barger | 10 | Add the table from Chapter 7 (page 11, Line 285) to Chapter 8 (page 10, after L202). | Recommended |
| 1451 | Barger | NA | Include more detail about the dangers of acceleration (use the language from Ch. 7 “Tracking and Acceleration” section to strengthen this portion of the chapter). While tracking and acceleration often occurs prior to high school, it can often be as a response to decisions made at the 9-12 level. | Writers’ Discretion |
| 1452 | Uy | NA | It is nice to see how the Standards for Mathematical Practice were explicitly connected to rich task examples. Also, the recognition of the tension of offering differential pathways without unintentionally tracking and the focus on success in Math 1 and Math 2 for everyone are good. Pacing, delivery, and other external factors highly impact a student’s ability to learn mathematics. | Non-Actionable |
| 1453 | Uy | NA | Permitting early branching particularly for the STEM pipeline in this new Framework may increase inequity in mathematics education. Students (and in many cases, their parents) in the first or second year of high school do not have a full grasp of their interests and abilities. Nor do they understand the consequences of how selection of pathways may limit their career options. | Non-Actionable |
| 1454 | Uy | NA | As an entity, the new Framework is supported, principally in de-emphasizing acceleration to calculus in high school. Students who have shown proficiency in a particular topic/concept should be provided opportunities to investigate that topic/concept not only in greater depth but also in a greater range of mathematical contexts with the goal of developing greater fluency and flexibility in that topic/concept. Extra support is given to the new Framework in its focus on the importance of fluency and flexibility. However, post Algebra 2/Integrated Mathematics 3/Mathematics: Investigating and Connecting 3 courses play an important role in developing this fluency and flexibility. This is particularly true for students who will go on to take calculus either in high school or at the college level. Additionally, students from Algebra 2/Integrated Mathematics 3/Mathematics: Investigating and Connecting 3 will not be ready for calculus (STEM or non-STEM) without additional coursework where they can develop the necessary procedural fluency and flexibility. Hence, this chapter should include a specific requirement calling for a 4th year mathematics/Quantitative Reasoning course. | Not Recommended |
| 1455 | Uy | NA | Does data science seem to have too big of a presence/status? i.e., is this the “new calculus” with higher status compared to other 3rd and 4th year options? | Non-Actionable |
| 1456 | Uy | NA | What is the purpose of this document, and the audience for it? Who is being persuaded? | Non-Actionable |
| 1457 | Uy | NA | With regard to MIC courses - do these already exist? Are there course materials? | Non-Actionable |
| 1458 | Uy | NA | How will the framework provide support for vignette-type tasks for situations with ELL, learning loss due to COVID, accelerated courses, etc. and as the same time address challenges and assumptions of foundations prior to implementation. How is the “coverage issue” addressed in the framework? Are teachers adequately prepared for such a large set of content standards? | Non-Actionable |
| 1459 | Uy | NA | How will the framework explicitly address the learning cycle/feedback loop if an assessment surfaces and shows students aren’t really getting a particular set of content standards? Does the framework explicitly address this? | Non-Actionable |
| 1460 | Uy | NA | As an equity issue, are there enough qualified mathematics teachers at a given school to have reasonable class sizes and still offer double periods and a variety of third- and fourth-year courses? | Non-Actionable |
| 1461 | Uy | NA | What can be adopted or revised from within the existing integrated or traditional pathways context? | Non-Actionable |
| 1462 | Uy | NA | Are there in the framework key changes, which are recommended as places to start? | Non-Actionable |
| 1463 | Uy | 7 | 121-122: From the perspective of university admissions and academic scholarships, it can be important. Academic scholarships often consider GPA, courses taken, etc. The section goes on to clarify that calculus may still be taken in 12th grade without skipping the 8th Grade CCSSM course, but this does not support the claim that calculus in high school isn’t an important goal for many students. | Non-Actionable |
| 1464 | Uy | 7 | 130-140: College admissions and scholarship criterion should then be adjusted to not unintentionally penalize students who chose to take a non-accelerated pathway. | Non-Actionable |
| 1465 | Uy | 9-10 | 175-202: It is good to see the value of sticking to grade level content and not pushing to accelerate, as it will also result in necessary change at the college and university level to match. Teacher evaluation and promotion criteria should reflect these priorities. | Non-Actionable |
| 1466 | Uy | 10 | 203-212: Is it feasible to offer a double period course like this? How can it be done in smaller districts and without a big grant as seen at SFUSD? | Non-Actionable |
| 1467 | Uy | 10-11 | 224-238: These are good essential concepts, with the exception of Statistics & Probability Focus 1: Quantitative Literacy. It isn’t well defined here as quantitative literacy isn’t a specific content topic, in the same context as transformations in geometry or functions in algebra. Quantitative Literacy cuts across essential concepts. | Writers’ Discretion |
| 1468 | Uy | 12 | 266-268: What practical distinctions are there between multiple pathways and tracks? A student is supposed to be able to “jump” pathways more easily than tracks, but is this true in practice? | Non-Actionable |
| 1469 | Uy | 13 | 299-310: Describe meaningful ways to implement a growth mindset curriculum so that students do not see it as separate from their other mathematical coursework. | Writers’ Discretion |
| 1470 | Uy | 14 | 339: In Figure 8.X, how are the “investigating and connecting” pathways different from integrated pathways? Who will adopt this approach to replace integrated pathways? With offering different courses, not necessarily in sequence, universities will need guidance on how to adapt multiple measures placement that utilize courses taken as a criterion. | Non-Actionable |
| 1471 | Uy | 16-17 | 398-409: This is important to include in the framework (4th year transition course and CSU efforts) | Non-Actionable |
| 1472 | Uy | 32 | 843-847: The 2014 study was conducted in a college calculus course; and, although the study did find that students who take college pre-calculus do not earn higher calculus grades, the study indicates that the students already took pre-calculus in high school. So, it would seem that this study is not saying that students don’t need pre-calculus but rather there is redundancy in placement of students.  Correlation vs. causation: There is no definitive causation of the results in the 2014 study. The quoted research indicates a correlation between (re)taking a precalculus class and no increased success in calculus. This does not imply a causation as there may be other factors contributing to the correlation such as sub-optimal teaching or incorrect placement tools. It does not address the value of a precalculus class as preparation for calculus.  In fact, the 2018 study by the same authors (also referenced in the draft Framework), states: “This study found that both calculus in high school and a solid mastery of prerequisite mathematics predict later success in introductory college calculus. Either approach helps those planning to take calculus in college.” | Writers’ Discretion |
| 1473 | Uy | NA | Mejia, Rodriguez, & Johnson (2016) - There is not a strong argument in this report that students moving from Algebra 2 to supported calculus classes will be successful and more successful than students who go through prerequisite coursework. The main study discussed in the report examined the impact of developmental mathematics curriculum redesign as related to pre-statistics accelerated pathways. The results suggested that mathematics acceleration had a strong and positive association with completion of the transfer-level gatekeeper course, not completion of a calculus course. | Writers’ Discretion |
| 1474 | Uy | 32 | 847-849: An MIC course such as data science seems unlikely to develop sufficient algebraic procedural fluency that is required for any calculus class, both STEM and non-STEM calculus. Additionally, this type of course would preclude students from a STEM track because of a lack of trigonometric procedural fluency. Finally, there is a great concern about what is perceived as a minimal emphasis on geometric thinking throughout the framework, particularly in the MIC pathway. | Non-Actionable |
| 1475 | Uy | 65-71 | 1702 – 1843: Finding the volume of a complex shape. How is student work for tasks like this one evaluated? How are connections made between rich group tasks like this one and more procedural skills, such as deriving and using equations for volumes of less complex shapes? This is an expensive task, both in terms of items needed and instructor time. It takes significant instructor time to set up and obtain materials. In large classes, the instructor will have less time with each group. How realistic is it to expect that all instructors, especially those from less wealthy schools, can facilitate a task like this one on a regular basis? | Non-Actionable |
| 1476 | Uy | 86, 99 | 2425-2429 and 2203-2209: This framing is appreciated, it is important to keep this. | Non-Actionable |
| 1477 | Uy | 85 | 2188-2192: Positioning students as the agent of decisions (student-driven) is very important; reflects practical skills as adults and connects more authentically to career tasks. This piece often gets neglected in favor of specific content. | Non-Actionable |
| 1478 | Rodgers | 9 | Noteworthy features:  175 to 191 Love because the focus is on depth | Non-Actionable |
| 1479 | Rodgers | NA | Stick to grade level content | Non-Actionable |
| 1480 | Rodgers | NA | Prioritize content | Non-Actionable |
| 1481 | Rodgers | NA | Ensuring inclusion for all learners | Non-Actionable |
| 1482 | Rodgers | 9 | Loved line 199 productive struggle | Non-Actionable |
| 1483 | Rodgers | 10 | Line 207 additional time important for support | Non-Actionable |
| 1484 | Rodgers | 10 | Line 210 double-period options are NOT lower level | Non-Actionable |
| 1485 | Rodgers | NA | Like that Calculus is not the focus path to get to in HS | Non-Actionable |
| 1486 | Rodgers | NA | Like the focus on Data Science | Non-Actionable |
| 1487 | Rodgers | NA | Really like the inclusion and focus on mindset | Non-Actionable |
| 1488 | Rodgers | 17 | Loved the new definition of Integration line 419 - 425 | Non-Actionable |
| 1489 | Rodgers | NA | Love the Drivers of Investigation - focusing on real world applications - Dan Meyer TED Talk | Non-Actionable |
| 1490 | Rodgers | 29 | Line 738 - Team Research MUST use valid resources | Non-Actionable |
| 1491 | Rodgers | 10 | Needs clarity or improvement:  Line 226 need to add Algebra Literacy (Algebra is to large of an umbrella) | Writers’ Discretion |
| 1492 | Rodgers | 11 | Line 256 start or lead with the last sentence If schools intent to accelerate students, the decision should occur only after ninth grade. | Writers’ Discretion |
| 1493 | Rodgers | 20 | Line 491 use a graph that does not have a direct relationship to it. Use a different example. | Writers’ Discretion |
| 1494 | Akins | NA | [This comment has been excerpted for length. See the Box link above for the full comment.]  There is an initial question regarding whether the purpose of this framework is a revision of the 2013 framework or a companion to the 2013 framework or neither? In the 2013 framework, high school topics such as transformational geometry and functions that where underdeveloped and needed ”revision,” more specifically they needed to be developed. This chapter does not address any of the topics that needed development. However, there are many powerful statements that speak to the urgency in changing what mathematics is taught and how it should be taught and experienced, which leaves the reader wondering, “what is the purpose of this framework?” This ambiguity is compounded by other ambiguities.  This framework does not help the reader understand how the drivers and content connections support the practice and content standards in ways that preserve the cognitive development of mathematics. It ignores the way that math develops in a cognitive and personal way for students. When this occurs students are excluded impacting the student’s identity. | Non-Actionable |
| 1495 | Akins | NA | [This comment has been excerpted for length. See the Box link above for the full comment.]  The introduction of the MIC courses creates several confusions. Again the ideas presented as the overarching goals of this pathway are modern and excellent. It is clear that the Drivers of Investigation will be used, the Content Connections (CCs) will be used, the Domains of the California state standards for math will be used, and Big Ideas will be used. Two things are not clear 1) How are the SMP included, specifically the dual intensity of the 2 sets of math standards? 2) What CA math standards will comprise the big ideas of the CCs?  There is brevity when the SMP are mentioned. The sections of the Integrated and Traditional pathways include concrete examples of how the SMP exist in these two pathways. Perhaps a similar table should be created in the MIC 1, 2, 3 and 4 course/pathway descriptions in order to uncover the role of SMP in this pathway, which feels hidden and lost. | Writers’ Discretion |
| 1496 | Akins | NA | Geometry is a concern. The authors recognize the importance of geometry. There is one important statement made “geometry is just as valid as algebra”. However, the intent may be there, but the geometry perspective is not integrated within the CCs. It is isolated in CC4 and mentioned in CC3. It is important to dismantle the dominant culture perspective that prioritizes Algebra as the ultimate and correct way of thinking mathematically by providing more vignettes that position geometry as the leading man, more statements that communicate that very algebraic idea can be accompanied by a geometric perspective. This is particularly important for language development. HEre is a way the more geometry can be embedded in CC3 when discussing Right triangle Trigonometry. Right angle trigonometry is a corollary of similar triangles and trigonometry on the unit circle should be presented as an extension of that using the symmetries of the circle. Many of the properties of the trigonometric lines can be proved geometrically, using transformation of the unit circle. Recommend that writers reach out to mathematicians that specialize in geometry, would recommend Dr. Greisy Winiki-Landman from Cal Poly Pomona. | Writers’ Discretion |
| 1497 | Akins | NA | The framework should refer to the standards as the CA Math standards and not the CCSSM. Several years ago we were directed and instructed to use the term CA state math standards. | Not Recommended |
| 1498 | Akins | NA | Wonder if this chapter is user-friendly and accessible to parents and students? | Non-Actionable |
| 1499 | Akins | NA | There are many holes in understanding how DI, CC, Big Ideas, Practice and Content standards work together. We cannot implement what we cannot envision. | Writers’ Discretion |
| 1500 | Akins | 44 | The vignette on page 44 has identified course, CC, DI, Domain of Emphasis and SMP. This should be provided for all the vignettes. Also provided should be the domain of emphasis that will comprise the big ideas of the CC. | Writers’ Discretion |
| 1501 | Akins | NA | Vignettes privilege Algebra over Geometry | Non-Actionable |
| 1502 | Akins | 8 | [The comments below were organized into a table. See the Box link above for the original table structure.]  141-188 Excellent section on issues with acceleration in MS | Non-Actionable |
| 1503 | Akins | 9 | 189-247 excellent section on focusing on essential concepts | Non-Actionable |
| 1504 | Akins | 12 | 248-293 good section on exclusionary math | Non-Actionable |
| 1505 | Akins | 14 | 301 Identify what MIC 1 and 2 are This is the first appearance of MIC, and it is unclear what it is. | Writers’ Discretion |
| 1506 | Akins | 15 | 320 Does MIC - Modeling not satisfy a-g Only MIC -Data Science is mentioned as satisfying the a-g criteria. | Writers’ Discretion |
| 1507 | Akins | 17 | 385 identify the framework that offers an approach that is conceptually integrated/  It is unclear what framework is being referenced | Non-Actionable |
| 1508 | Akins | 17 | 388 identify the broad ideas  It is unclear what the board ideas are | Non-Actionable |
| 1509 | Akins | 19 | 430-431 change statement to read “ bridge the gap between the CA State Math Practice and Content critical goals  This statement omits the two sets of math standards adopted by CA | Not Recommended |
| 1510 | Akins | 20 | 464-465 change by adding “Practice” ...teaching methods that increase connections between SMP and course content...  This statement omits the two sets of math standards adopted by CA | Not Recommended |
| 1511 | Akins | 20 | 469-494 ARE the DI only for MIC and not for integrated and traditional pathways? | Non-Actionable |
| 1512 | Akins | 20 | 502-505 oncover notion of big ideas and how smps are included in the statement Data Stories inorder to predict what could happen  unclear how SMP are included, un clear what are big ideas | Non-Actionable |
| 1513 | Akins | 21 | 509 provide more explanation of Cross cuting themes  HS math teachers may not be familiar nor understand the details of cross-cutting themes in NGSS. | Not Recommended |
| 1514 | Akins | 21 | 511 explain what figure 1 is trying to communicate  This figure is ambiguous with regard to how SMP are related | Writers’ Discretion |
| 1515 | Akins | 22 | 514 identify what the big ideas are | Not Recommended |
| 1516 | Akins | 22 | 520 identity what “This framing” is referring to | Recommended  (L601) |
| 1517 | Akins | 23 | 524 identify what is meant by category | Not Recommended |
| 1518 | Akins | 23 | 524-530 paragraph needs work  paragraph is unclear | Not Recommended |
| 1519 | Akins | 24 | 554 identify where is “here” | Not Recommended |
| 1520 | Akins | 30 | 694-699 be specific,  is framework endorsing a particular textbook that already exists? There are so many missing details that create ambiguity. We cannot implement what we cannot envision | Not Recommended |
| 1521 | Akins | 37 | 903-950 include geometry  Geometry not included. how is this an integrated course/pathway? Algebra privileged over geometry | Not Recommended |
| 1522 | Akins | 51 | 1232-1290  include geometry  Geometry not included, how is this an integrated course/pathway? Algebra privileged over geometry | Not Recommended |
| 1523 | Akins | 75 | 1821-1839  Does the MIC Not use the conceptual categories? Is the MIC attempting to use other standards? | Not Recommended |
| 1524 | Akins | 76 | [Line] 2010 What is meant by “formal construction?”  The term formal construction implies that there is an informal construction; what is an informal construction? Ambiguity causes inferences that may or may not in correct. Is the reader to infer that compass constructions are formal and dynamic software or patty paper constructions (CA State standards call for the construction through the use of patty paper) are not formal? Which many mathematicians would question.  Is the term “formal construction” attempting to make the point that a geometric construction is to be clearly distinguished from a drawing, or an informal sketch?  Not sure | Writers’ Discretion |
| 1525 | Arrillaga | NA | The chapter offers good strategies for ELs and other students, along with connections to ELD standards. The strategies for addressing placement, differentiated instruction, and tracking are equity focused. Moreover, the language on using authentic contexts that are relevant to the lives of students elevates cultural relevance. The recommendations provided are meant to strengthen the cultural relevance and connection to students’ lives. For example, “culturally-relevant” can be added wherever “relevant” is mentioned or described throughout the document. | Writers’ Discretion |
| 1526 | Arrillaga | 28 | 717-721  Suggest adding student-centered questions that are more relevant to the lives of students. Other possible questions include:  - Who is most affected if we do not try to fix problems related to climate change?  - Who is most affected if we do?  - How does our understanding of climate change affect the solutions we choose?  - Should we be concerned about climate change? What are the reasons for concern? | Writers’ Discretion |
| 1527 | Arrillaga | 31 | 817  The Whale Hunting in Alaska vignette could be replaced with a scenario that is relevant to students in California or at least a region in California (Earthquake preparedness, power supply interruptions, drought, shark attacks, availability of clean water, and forest management are examples of such environmental issues.) | Not Recommended |
| 1528 | Arrillaga | 7 | 119  The language on “strong” might merit another look to define what a strong math student is. Students have strengths that often go unrecognized because we have such a narrow definition of what it means to be “smart” in math. | Writers’ Discretion |
| 1529 | Michelena | NA | Much of the research studies referenced are prior to 2015 or from out of state. Are there more recent studies and those from CA? | Not Recommended |
| 1530 | Roberts | NA | [The comments from this submitter came in the form of a table. See the Box link above for the full comment in context.]  What resonates with you from this chapter?   * Content Connections and Drivers of Investigation * Looking at the integrated pathways in a new light (what it means to be integrated --showing how connected math is) * P.14-15 Line 340 rethinking pathways--having a common pathway for 9th/10th grade then opening up options for Ss * Importance focused on 9th gr curriculum and not advancing until after 10th gr * Not all kids need calc, all need statistics – is this embedded throughout? * Mentioning new requirement of UC ad CSU courses approved lines: 379-409 * Pathways with the “bubble” after 10th grade - is not tracking students (line 339) * Line 104 - noting the research around core companions academic support classes * Lines 208-210 – also second period of instruction for current work and not lower-level support classes. * The shift to students posing the questions and not only the teachers. | Non-Actionable |
| 1531 | Roberts | NA | What ideas do you want to affirm?   * Data science is a new area of focus. * P.9 Five bullet points—Acknowledges the wide range of experiences students have but recommends sticking to grade-level content (not remediation) * Line 500-527 focus on problem-solving and addressing misconceptions (esp. in calculus)--nice to see the research; calls out that Calculus is not the goal of HS * The vignettes will help teachers see the integration of SMPs, ELD, etc in a math lesson. * P.33 line 869 Data Cycle and P.41 Line 1088 Modeling Cycle—both are ways of working with the real world * The multiple examples of relevant math that connects to students’ interests and situations arising in the real world. | Non-Actionable |
| 1532 | Roberts | 16 | What questions do you have?  P.16 What guidance will be provided regarding the new third-year courses --what are the courses and what are their purposes (course descriptions)? | Non-Actionable |
| 1533 | Roberts | NA | If there is an acceleration point, where would it be? | Non-Actionable |
| 1534 | Roberts | NA | How might enrollment in DS in 11th grade affect SBAC performance? | Writers’ Discretion |
| 1535 | Roberts | NA | There is more stats/data science from Math 3 moved into MIC 1 & 2, so what is coming out of Math 1 & 2 to accommodate that? | Writers’ Discretion |
| 1536 | Roberts | NA | Will this framework outline essential content by courses? There are still too many standards to teach. | Non-Actionable |
| 1537 | Roberts | NA | How can this framework use the idea of investigating and connecting in the AGA pathway? | Writers’ Discretion |
| 1538 | Roberts | NA | Do data science classes need a certain credential? (Foundational math - would this work? CSET 1, 2,3?) | Non-Actionable |
| 1539 | Roberts | NA | In the pathways - what is “other”? (consumer math and financial literacy have been previous courses) | Writers’ Discretion |
| 1540 | Roberts | NA | Is calculus split AB and BC still or is this combining these? | Non-Actionable |
| 1541 | Roberts | NA | Have the big ideas document been completed (bubbles and how they are connected)? | Non-Actionable |
| 1542 | Roberts | NA | Is the framework overly promoting Youcubed and illustrative math? - these are examples and there is a line that talks about how you can be authentic, and those resources are and will remain free and accessible to everyone | Non-Actionable |
| 1543 | Roberts | NA | What suggestions do you have?  Provide a model for accelerated pathway options (see 2013 framework) | Writers’ Discretion |
| 1544 | Roberts | NA | Integrate the 2013 framework or at least keep it accessible | No Motion Recommended |
| 1545 | Roberts | NA | Connecting this framework to the 2013 framework and how it extends and deepens content connections | No Motion Recommended |
| 1546 | Roberts | 10 | P10 Lines 213 Can the framework provide more guidance to teachers on how to focus on Essential Concepts by course? (see NCTM’s Catalyzing Change) | Writers’ Discretion |
| 1547 | Sedig | NA | I love how acceleration is NOT pushed. Students, parents, and admin want to accelerate, however, it is detrimental to most students in terms of understanding. Calculus is not the goal. The goal is 1. Graduate high school, 2. Be successful after high school, 3. have the foundational skills to succeed in higher math classes at the college level. If students came into algebra 2 classes with strong algebra 1 skills and good math facts, we can bump the rigor of algebra 2 with investigations that dive in deep connecting the new functions introduced. | Non-Actionable |
| 1548 | Tietjen | NA | The vignette, Blood Insulin Levels, uses "Ms. Alife" and "Ms. Alfie" interchangeably throughout the vignette. | Recommended |
| 1549 | Wu | NA | I worry at times, that the authors cite a conclusion based on opinion, without understanding the drivers and data. What is the data to prove the hypothesis that learning deficiencies were introduced at earlier levels? Also what is the basis for the conclusion that eliminating tracking will solve the issue ? | Non-Actionable |
| 1550 | Pesquie | NA | "Second, the push to calculus in grade twelve is itself misguided. " => Calculus should be offered to students who mastered the foundation of Algebra. Some students will thrive exploring calculus in 11 or 12 th grades, some won't. See the example in other countries. | Non-Actionable |
| 1551 | Malione | NA | The framework misrepresents how well the foundational requirements are being met by the Common Core Standards. The argument insists that a slower pathway through the material will prepare students for better successes in their college-level STEM education pathways, but there is no evidence presented or included to support this. | Not Recommended |
| 1552 | Dergun | NA | The goal of K-12 curriculum is NOT to establish a foundation. Foundation should be established in elementary school. | Non-Actionable |
| 1553 | Sheffield | 15 | The current law in CA (lines 348 - 352) does not require nearly enough mathematics of HS students. Only two HS mathematics courses with one of those at the level of Algebra 1 or higher is far less than the majority of states. Kentucky, for example, has required students to take math every year of HS for several years. This is not the same as taking 4 years of HS math. KY HS math classes must include the equivalent of Algebra I, Algebra II and geometry or a strong 3-year integrated math program. Some students might take 4 years to do this. Others might complete some of this in middle school and then take additional mathematics classes in high school each year until graduation. No students can go through a year of more of HS without taking a math class. This allows for a much richer career- and college-ready preparation with the opportunity for the rich classes described in this section. | Non-Actionable |
| 1554 | Kanji | 3-14 | Resonates Math pathway: 3 basic math pathways (line 340) The data (line 41) - there was a dip in data in 2015 In high school focus on essential concepts (line 214) Pathways to lead to higher level mathematics (line 121) Disconnect between pathways Fig 8.x and what we are experiencing at our schools (line 334): focus on depth, not pacing We would like to affirm Making sure we are focusing on the standards, big ideas (Line 175-200) Focus on depth not pacing San Francisco study: move away from the middle school acceleration and high school tracking (line 203) | Non-Actionable |
| 1555 | Kanji | 13 | Suggestion to substitute the word film with video (line 309 and possibly other places in the chapter) | Writers’ Discretion |
| 1556 | Tomlinson | NA | This document intends to have teachers differentiate the students in the same classroom in replacement of the current structure of different classrooms for different levels of students. This is unrealistic when presently the teachers are overworked with too many students in the classroom. Teachers would naturally tailor the lessons to the majority in the class which means the talented math students will be ignored or be made to slow down their progress. Ultimately, these students would become disengaged because the lessons are too boring for them. Moreover, the talented students will be turned into tutors (by the teacher) to help the slower students. Tutoring should not become the responsibility of advanced students at the expense of the additional learning of such advanced students. We have seen this in classroom tutoring with our children and slow classes that are boring. We haven’t seen successful in-class teaching differentiation. | Non-Actionable |
| 1557 | Perez | NA | While I am excited about the idea of offering common classes for all freshmen and sophomores with options branching after that year, the space allotted to discussing course sequences steals from the space that could have been allotted to improving teaching practice. The K-5 chapter is full of information and vignettes that will improve classroom instruction, the 6 - 8 contains mostly such information but the high school chapter contains almost no guidance that will improve instruction. In a grade band that is already anemic in this regard due to teachers specializing in content as opposed to instruction, this lack of instructional guidance compounds the issues created by the lack of coherence and focus in the hs standards. Perhaps an appendix detailing the course sequence recommendations like the current framework is more appropriate than commandeering most of the grade band instructional guidance chapter. | Writers’ Discretion |
| 1558 | Bates | NA | Love all the de-tracking and research, as well as encouraging the same (grade-level) courses through 10th grade | Non-Actionable |
| 1559 | Bates | 9 | Line 197- a little more clarity here about the "misuse of standardized tests"... like teachers are using them to label students? | Writers’ Discretion |
| 1560 | Bates | 18 | line 434- is there already curriculum that is truly integrated? if so where can we find it? thinking about how tricky it is for teachers to compile tasks for the whole year and make sure they're rigorous enough and meeting standards | Non-Actionable |
| 1561 | Bates | 18 | 438-441- love this description... wondering how to help students (and teachers) transition to this from what they've always done | Non-Actionable |
| 1562 | Bates | 21 | line 523- this is true! and might help to specifically state that this is a shift in where you spend your time, to focus on planning the task/lesson | Non-Actionable |
| 1563 | Bates | 24 | 596- big ideas for HS somewhere? | Writers’ Discretion |
| 1564 | Bates | 27 | 692-It’s nice to see one or two examples over mult. subjects, but could we please see examples of integrated math topics too? | Not Recommended |
| 1565 | Bates | 36 | line 941- how to learn WA? | Non-Actionable |
| 1566 | Albert | 12 | Lines 264-265 state a conclusion ("If schools intent (sic) to accelerate students, the decision should occur only after ninth grade") that appears to be incompatible with the paragraphs that both precede and follow it. This is symptomatic of the document as a whole, which appears to promote doing away with any flexibility students might have in finding their own appropriate math levels, and to twist this conclusion out of any reference, whether it actually supports that conclusion or not. | Non-Actionable  (correct typo: should be “intend”) |

## Table 11: Chapter 9: Supporting Equitable and Engaging Mathematics Instruction

| # | Source | Page | Line Number and Comment on Chapter 9 | Recommended Action |
| --- | --- | --- | --- | --- |
| 1567 | Holmstrom | NA | I cannot stress enough how IMPORTANT this Chapter! It is so exciting to see State level emphasis on such essential work. I appreciate the connections to UDL and other resources and research that we know works for teaching & learning. | Non-Actionable |
| 1568 | Katz | NA | See Ch2 above. | Non-Actionable |
| 1569 | Brousseau | NA | This is important because all students are to be participating. None should feel or be marginalized. All students are to feel and know that they have something to continuer. | Non-Actionable |
| 1570 | Hsieh | NA | I have been teaching math for 10+ years, I am not sure what Chapter 9 has anything to do with math. Math is a subject that is fact based and without bias. Please do not pollute math with all that social justice and multiculturalism nonsense. Top math K-12 education countries do not teach these craps. | Non-Actionable |
| 1571 | Ellis, Attachment 2 | Page 8, line 191 | Susie Min  Comment: Who will be tasked with designing these professional learning experiences? Should they be at the district, site, or department level, or happening at all levels?. | Writers’ Discretion |
| 1572 | Ellis, Attachment 2 | Page 8, line 192 | Nicholas Navarro  Comment: This seems like a nice way of state harmful practices in Mathematics education. It would be useful to elaborate on the what legacy practices are? | Writers’ Discretion |
| 1573 | Ellis, Attachment 2 | Page 8, lines 195-196 | Lacy Knight  Comment: Thinking funds of knowledge, cultural backgrounds, experiences, etc | Writers’ Discretion |
| 1574 | Ellis, Attachment 2 | Page 8, line 197 | Susie Min  Comment: I hear a lot of student stories with traumatic experiences in their math classes starting with the elementary levels and continuing through the high school years. | Non-Actionable |
| 1575 | Ellis, Attachment 2 | Page 8, line 200 | Jessica Alvarado  Comment: Powerful few words, but how do you get everyone to see this? | Non-Actionable |
| 1576 | Ellis, Attachment 2 | Page 8, lines 208-210 | Ryan Kile  Comment: students need to see themselves as capable to succeed. | Non-Actionable |
| 1577 | Ellis, Attachment 2 | Page 9, line 213 | Susie Min  Comment: This seems like a good resource! | Non-Actionable |
| 1578 | Ellis, Attachment 2 | Page 9, lines 218-219 | Susie Min  Comment: I like starting with reflecting on ones own biases as a way to generate the need for change and growth when dismantling racism in mathematics instruction. | Non-Actionable |
| 1579 | Ellis, Attachment 2 | Page 9, line 225 | Lacy Knight  Comment: Critical topic - definitely a group that often struggles if a teacher is not trained in ways to support efficiently | Non-Actionable |
| 1580 | Ellis, Attachment 2 | Page 9, line 231 | Susie Min  Comment: Good point! Take small but consistent steps moving forward. | Non-Actionable |
| 1581 | Ellis, Attachment 2 | Page 9, line 234 | Anonymous  Comment: This has not been brought up before, so it's good to see it here. Mathematics should be tied into civic life. | Non-Actionable |
| 1582 | Ellis, Attachment 2 | Page 9, line 237 | Nicholas Navarro  Comment: Does this include navigating financial literacy and responsibility? | Not Recommended |
| 1583 | Ellis, Attachment 2 | Page 10, line 247 | Lacy Knight  Comment: Can this be done at an individual level or does this need to be a full district/state/nationwide adoption. Many teachers feel pressured based on guidelines from their district | Not Recommended |
| 1584 | Ellis, Attachment 2 | Page 10, line 249 | Susie Min  Comment: Important point. I see a lot of teachers going really slowly and students not being able to engage because they are always repeating the same things. Even if the student is lacking some prior knowledge or skills, it is till possible to expose them to the grade level content and move them forward by providing tools needed | Non-Actionable |
| 1585 | Ellis, Attachment 2 | Page 10, line 251 | Scott Johnson  Comment: Social Justice Issues provide a perfect context for this | Non-Actionable |
| 1586 | Ellis, Attachment 2 | Page 10, line 265 | Angela Reed, NBCT  Comment: student-centered | Recommended |
| 1587 | Ellis, Attachment 2 | Page 10, line 265 | Jessica Alvarado  Comment: PBL | Not Recommended |
| 1588 | Ellis, Attachment 2 | Page 11, line 274 | Annie Chen  Comment: Change to families? | Recommended |
| 1589 | Ellis, Attachment 2 | Page 11, line 275 | Scott Johnson  Comment: Looking at equitable grading practices | Not Recommended |
| 1590 | Ellis, Attachment 2 | Page 11, line 285 | Anonymous  Comment: Include community awareness which can lead to global awareness. | Recommended |
| 1591 | Ellis, Attachment 2 | Page 12, line 296 | Marvin Soto  Comment: Depth of Knowledge and Cognitive Demand | Not Recommended |
| 1592 | Ellis, Attachment 2 | Page 12, line 314 | Jessica Alvarado  Comment: This will be useful. I see PLC for managing the resources and sharing implementation. | Non-Actionable |
| 1593 | Ellis, Attachment 2 | Page 13, lines 337-338 | Lacy Knight  Comment: I think this is very important to keep because students have to believe in themselves and believe they can learn before we can erase the stigma that may have been following them | Non-Actionable |
| 1594 | Ellis, Attachment 2 | Page 14, lines 350-352 | Ryan Kile  Comment: Implementing PL opportunities that cause change in teacher practice is vital to improve student outcomes. | Writers’ Discretion |
| 1595 | Ellis, Attachment 2 | Page 15, table row 1, column 2 | Ryan Kile  Comment: PL opportunities are typically saved for quarterly breakout sessions, or short segments within a department. A shift towards daily PL could change the rate of impact. | Not Recommended |
| 1596 | Ellis, Attachment 2 | Page 15, table row 2, column 2 | Lacy Knight  Comment: Creating strong PLC's and actually training on what a PLC is | Not Recommended |
| 1597 | Ellis, Attachment 2 | Page 15, table row 3, column 2 | Michelle Doherty  Comment: I like the idea of sustaining PL. It will take a mindset shift to thinking of PL days as important ways to improve teaching versus time away from students. | Non-Actionable |
| 1598 | Ellis, Attachment 2 | Page 39, lines 927-929 | Lacy Knight  Comment: Relates to our work with changing school culture | Non-Actionable |
| 1599 | Ellis, Attachment 2 | Page 39, table row 1, column 2 | Michelle Doherty  Comment: I think this is important. We are ever changing and we need to change or improve with the times. (ex: district grading policies) | Non-Actionable |
| 1600 | Ellis, Attachment 2 | Page 40, table row 3, column 2 | Amtul Sabooh Chaundry  Comment: Collaboration helps the team to grow professionally. | Non-Actionable |
| 1601 | Ellis, Attachment 2 | Page 40, line 955 | Angela Reed, NBCT  Comment: Helping teachers rethink assessment strategies that meet student needs and how their instruction impacts learning | Non-Actionable |
| 1602 | Simeon | NA | [For the full text of this comment, see the Box link above.]  To achieve the changes we recommend in the Math Framework, we strongly urge the IQC to:   * Rewrite the “Role of Parents, Guardians, and Families” in Chapter 9 to broaden the vision and include family-school partnerships as a key concept; * Provide specific guidance throughout the chapters on how teachers can work with parents, and include examples on assignments or activities to help families assume their role as co-creators, supporters and valued partners in their children’s education; and * Consult with organizations working with families in math or science programs to re-write the sections mentioned above. | Writers’ Discretion |
| 1603 | Becker | NA | Again there seems a lot of repetition with Chapter 2. Perhaps this chapter should concentrate on the teaching profession, preparation and professional development which is what most of the chapter is about. | Not Recommended |
| 1604 | Ward | NA | This chapter is feeling wholly unnecessary as it keeps referencing elsewhere. In other words, this is a chapter composed of nothing new; nothing more than what’s already been said and references to elsewhere. Is the entire 58 pages a waste of space just to pad the length of the burden of this framework?  What is the real point of this chapter? If it could be the summary/conclusion, that would be one thing. But it isn’t the end. This framework keeps going. | Non-Actionable |
| 1605 | Ward | 17 | Page 17, 418: Induction for New Teachers is just a burden in the current iteration of it. Perhaps it was meant to be supportive and helpful, but I would say it’s an exercise in wasting time and being wordy. | Non-Actionable |
| 1606 | Ward | 21 | Page 21, 533: Providing coaching and expert support should be directed at the district and/or administration. But I want to point out that having any ol’ teacher on special assignment and slapping “Coach” to whatever title they get does not a helpful coach make. Might we expand and elaborate to help make that more clear; so you don’t take, say, a second grade teacher and put them at the high school level and claim they’re a well-rounded instructional coach/whatever other kind of coach is needed? Sorry--they don’t have experience or knowledge in the high school realm. At all. But oh! The district got a coach for the high school staff! … Are people really that dense? | Non-Actionable |
| 1607 | Ward | 25 | Page 25, lines 637-638: Universal Design for Learning. That’s one of the top terms I’ve heard thrown around while in education. And that is the extent of it. Is that like a mystery bag where you pull whatever you want out of wherever and it, then, too becomes UDL? I wouldn’t know. But *ooh! UDL!* And… then we move on to another topic. | Non-Actionable |
| 1608 | Ward | 28 | Page 28, line 700: A vignette, in a repetitive chapter that I don’t find to be of any worth. Why? Is this just a copy/pasted vignette to fit with everything else in this chapter? *You’ve read it before, so read it again!* | Non-Actionable |
| 1609 | Ward | 38 | Page 38, 908: Good to see, in bold no less, that you’ve got more artificial situations--oh, I mean another vignette--under development. Crafting fake scenarios to work at emphasizing some regurgitated point mentioned previously in this monster of a never-ending novel of a framework. | Non-Actionable |
| 1610 | Ward | 41 | Page 41, 977: YES! *Administrative leadership for professional learning: Administrators play a key role in…* is something of importance and shouldn’t be buried 70% of the way through the document. Make sure people in roles besides teachers are accountable for doing their jobs to support the teachers in their attempts to educate and help the students! | Non-Actionable |
| 1611 | Ward | 47 | Page 47, 1157: **Role of Parents, Guardians, and Families** should be, oh, about FIRST in this document to show that education isn’t solely the responsibility or ability of a classroom teacher. ***PARENTS HAVE TO BE INVOLVED!*** They gave birth to the child, they need to be engaged and involved in their child’s upbringing and education and the attempt at making their children be function, participatory future adults. **Add more about how it is impossible to, for one teacher, successfully overhaul years worth of poor parenting and so parents better do more**. Be involved. Check in with what the child is doing at school. ***Use the 24/7 technology system to see student grades in their classes***. Be responsive to teachers when there are communication attempts beyond entering grades into the gradebook (which should be classified as communication, for otherwise, why should we not go to years of past when teachers kept paper gradebooks and students only learned of grades at progress checks or quarter ends?). | Not Recommended |
| 1612 | Lieberman | 3 | Page 3, line 50  Text as Currently Written  Lesson design should be built to elicit that wondering.  Rationale  To have conformity of definitions among various chapters  Request  Add the following sentence after existing text:  For example, environmental observations and issues on campus and in their local community provide rich contexts for student investigations and mathematical analysis as they concurrently help students develop their understanding of California’s Environmental Principles and Concepts. | Recommended |
| 1613 | Barger | NA | Leadership’s role in focus, coherence, and rigor: There is nothing in Chapter 9 to help leadership rethink what focus, coherence, and rigor look like at the district program level, whole school level, and PLC level. All focus in Chapter 9 is on professional learning of the individual to teach their grade level or course. Address how leadership beliefs and directives like “fidelity to the curriculum” can undermine focus and coherence. Provide direct guidance to the importance of developing clarity about focus and coherence throughout the district’s mathematics program. “Teaching at students’ instructional levels” reinforces outmoded beliefs about rigor. Addressing policies and practices around course offerings, placement, and de-tracking is essential for equitable access to rigor. | Writers’ Discretion |
| 1614 | Barger | NA | Chapter 9: This chapter is about support for systems, yet only addresses teacher knowledge and skill. There are lists about the characteristics of professional learning for teachers, but little about the structures and systems to help dismantle hierarchy and exclusion. | Writers’ Discretion |
| 1615 | Barger | NA | Address the Mathematics Placement Act and how to critically analyze issues of tracking, placement, pathways, and other systemic structures that are often out of teachers’ control in their individual classrooms but are in the control of site and district administrators. | Writers’ Discretion |
| 1616 | Barger | NA | Stress the importance of administrators looking critically at program data to determine how systems are supporting or inhibiting access to equitable mathematics. Suggest transcript analysis and course-taking patterns correlated with metrics of achievement. | Writers’ Discretion |
| 1617 | Barger | NA | Address course teaching assignments, exclusion of special educators in mathematics Professional Learning Community, counseling practices, and other messages of hierarchy and exclusion that undermine equity. | Not recommended  Writers Discretion to include comment about including special ed in math PD |
| 1618 | Barger | NA | Provide support for talking about change and equity beyond the classroom and make it clear that teachers are not solely responsible for building an equitable mathematics program TK-12. | Writers’ Discretion |
| 1619 | Uy | NA | The new Framework raises several points regarding teacher prep and content knowledge. There is general consensus among mathematics educators working with TK-12 teachers that at least some of the problems that the Framework is attempting to address are linked to inadequate teacher content knowledge. With the suggested diversification of the pathways, this inadequate teacher content knowledge is likely to be exacerbated. This will necessitate significant increase in the funding and time allocated to adequate teacher preparation and professional learning. | Non-Actionable |
| 1620 | Lavadenz | NA | **Chapter 9’s latest revision** has incorporated a deeper and more coherent description of **professional learning** providing guidance for key elements to consider for pre-service and in-service educators. | Non-Actionable |
| 1621 | Lavadenz | NA | We offer the following recommendations to ensure that professional development for teachers of mathematics supports and empowers educators to work with diverse populations.  It will be important to provide educators with explicit connections, references and links to descriptions and supports for the implementation **of English Learner centered strategies** such *as sentence frames, leveled prompts, vocabulary banks, cognate study, intentional groupings, and the use of primary language as support,* among others. These will provide purposeful experiences for ELs to engage with language and mathematical concept development, as they deepen their knowledge of the Standards for Mathematical Practices. | Writers’ Discretion |
| 1622 | Lavadenz | NA | Teachers need to be familiarized with EL **typology** and **specific language needs and strategies** to provide pathways for ELs to access class discussions and be able to share their own reasoning. Thus, specialized professional development opportunities centered on English Learners and Multilingual learners including **Asset-Based Approach** and **Culturally Responsive Instruction**, will help teachers leverage on language experiences that ELs may bring into the classroom. | Not Recommended |
| 1623 | Lavadenz | NA | Some considerations for Professional **Development** that give teachers explicit connections to classroom structures to support English learners as they participate in collaborative activities and engage in mathematical discourse, should include explicit examples, snapshots, vignettes, videos and other resources. | Writers’ Discretion |
| 1624 | Lavadenz | NA | In the transition to increased hybrid and in person learning, accommodations and connections to EL standards and online resources need to be explicitly addressed, applied and incorporated into in person, virtual asynchronous and synchronous lessons, as well as making explicit connections to the continued use of online multilingual resources and the use of on-line platforms and communication of expectations for both students and parents. | Writers’ Discretion |
| 1625 | Lavadenz | NA | ELs need specific and strategic language supports to use the language of mathematics to demonstrate their thinking as they construct viable arguments and critique the reasoning of others. As the introduction to chapter 4 states, “**California schools must prepare students to be powerful users of mathematics to understand and affect their worlds, in whatever life path they embark upon.”** | Non-Actionable |
| 1626 | Arrillaga | NA | The chapter focused on teacher development and learning opportunities specifically in how to engage and support students with culturally or linguistically diverse backgrounds. It refers to the importance of reaching out to a broad system of support to enable all students to succeed in their mathematics learning and that this approach consists of many interconnected parts. Moreover, the chapter does a good job of dispelling the myths about some students having an aptitude for math. The references to research, resources, and examples make it clear that math is for every student.  However, there is a missed opportunity in the chapter as it does not refer to partnership with parents, families, or caregivers until the end. The chapter also does not offer suggestions for administrators to include parents as a way for building learning opportunities for teachers. There is also no mention of integrated or designated ELD in this chapter and a discussion of collaborating with ELD teachers in secondary would be helpful to assist in previewing the discourse of mathematical concepts. | Writers’ Discretion |
| 1627 | Arrillaga | 5 | 119-121  Providing an example or two to elaborate on the point. | Writers’ Discretion |
| 1628 | Arrillaga | 17 | 431-432  It might be helpful to provide examples of “math specific-support” or to point readers to page 19, lines 462-492. | Writers’ Discretion |
| 1629 | Arrillaga | 16 | 403-405  Suggest adding the following language in bold: “Language needed for disciplinary thinking and concepts should not be taught in isolation, but in the context of what students **relate to** and need to know to access and communicate mathematical thinking.” | Recommended |
| 1630 | Arrillaga | 18 | 441-443  Suggest adding the following language in bold: “Ensure that beginning teachers understand who their students **and families** are, in particular their emerging multicultural learners, their interests, aspirations, and **cultural and environmental** backgrounds and how to use those as resources for learning. | Recommended |
| 1631 | Arrillaga | 22 | 562-566  Recommend that a shared vision includes collaborating with families and that it be specified in the chapter. Teachers may gain a better understanding by learning about their student’s holistically. | Writers’ Discretion |
| 1632 | Arrillaga | 29 | 747-748  Suggest adding the following language in bold: “The mathematics and equity commentators shared their observations of the lesson and provided suggestions for next steps. **Other observers also made comments about the lesson**.” This should cause trainers to rethink about how they approach the instructional materials training with the narrow focus on the treatment of standards. | Recommended |
| 1633 | Arrillaga | 32 | 815-818  Explicitly state that the comments of parents were taken into consideration, as it is often overlooked. “Other observers” [including parents]…” | Recommended |
| 1634 | Arrillaga | 38 | 899-903  Although referencing ELSF and a few guidelines is good, it requires more language to draw a connection to the substance of the guidelines and also some discussion why this is important for ELs | Non-Actionable |
| 1635 | Arrillaga | 41 | 970-974  It would be helpful to provide examples of coaching used as a tool to support the collective learning of teachers and examples of effective coaching cycles. It is not a good idea to ignore the value that effective individual coaching can add to a teacher’s practice. Harvard MQI Framework is a good example of an effective coaching cycle model. | Writers’ Discretion |
| 1636 | Arrillaga | 42 | 1009-1014  If teachers are sharing and learning from each other, it could be helpful for administrators to create a learning opportunity with families especially those who are culturally and linguistically diverse. Teachers would gain a better understanding by working with and partnering with families which would provide teacher with knowledge and insight to support teacher leadership. | Writers’ Discretion |
| 1637 | Arrillaga | 45 | 1099  Reference families as a resource for teachers and schools. Families may be able to offer insight as to how mathematics was presented or not present in their country/home/culture. | Writers’ Discretion |
| 1638 | Arrillaga | 47 | 1157  While allocating specific section to parents, guardians and families in the chapter is commendable, the importance of such partnerships should also be intertwined within the whole chapter. Teachers with learned experience or who come from culturally diverse backgrounds may be able to add crucial insight and support those teachers who may not. | Writers’ Discretion |
| 1639 | Arrillaga | 47 | 1162-1164  Add the following language in bold: “**Partnering with** parents, guardians, and families in understanding and supporting authentic mathematics education and active learning pedagogy is key.” | Recommended |
| 1640 | Arrillaga | 50 | 1233-1237  Rewrite PIQE description to: “The Parent Institute for Quality Education (PIQE) (https://www.piqe.org/) is a national organization <bs>~~which originated in~~<es> **founded in** San Diego, <bs>~~and is working mostly in~~<es> **serving families throughout** California, <bs>~~with~~<es> **offering** evidence-based programs that engage, empower and transform parents to actively <bs>~~engage~~<es> **participate** in their children’s education and strengthen parent-school collaboration.” | Recommended |
| 1641 | Herrera | 18, 45 | I really appreciated the "elements of effective professional development" beginning on line 452 and how administrators can support those efforts beginning on Line 1084. | Non-Actionable |
| 1642 | Reed | NA | I love the statement: "Equity cannot be an afterthought." It is so powerful in just a few words. Students need to see themselves as capable of success. I think focusing on big ideas rather than individual standards, will help us change this mindset and increase civics/SJ engagement lessons that help to humanize mathematics for students who are often marginalized. The "Pathway to Equitable Math Instruction" seems like a valuable resource. I have been fortunate to work with a group of math educators around equity. Each of the strides are areas that we have worked to make progress in, including evaluating our biases, fostering deeper understanding, and supporting Emergent Bilinguals. I have had the opportunity to work with other teachers in our district and see that we have a great deal of progress to be make to effectively implement the changes this framework brings, but I believe in its mission. These are major steps in the right direction. | Non-Actionable |
| 1643 | Beth | NA | Please implement A Culturally Responsive Equity-Based Bill of Rights for Gifted Students of Color: www.giftedchildrenla.org/uploads/2/2/8/4/22845926/ford\_english.pdf https://www.nagc.org/blog/culturally-responsive-equity-based-bill-rights-gifted-students-color | Writers’ Discretion |
| 1644 | Vierra | 7-37 | -The beginning of Chapter 9 does a succinct job of integrating the principles from Chapter 2 - Important to emphasize the essential nature of building an "environment of collaboration and trust" (line 157). - Useful link to Equity Toolkit (line 214) and Stride 1 "Characteristics of Antiracist Math Educators (lines 292-300) - As a math educator in a credential program, I appreciated the recommendations for preservice (line 373). - Crucial for professional developers (line 496) that teachers engage in the same style opportunities they are expected to design for their students. - Very pleased to see California-based math organizations called out by name, e.g., California Mathematics Council, CA Math Project, Youcubed, Silicon Valley Math Initiative and the Central Valley NIC. - One of the most important acknowledgements: (line 886) "... the change in their teaching started with a change in their relationship with mathematics. | Non-Actionable |
| 1645 | Pesquie | NA | Equitable means offering and providing access to a higher education to every students, some under and over achieving. "Second, the push to calculus in grade twelve is itself misguided. " => Calculus is taught in the equivalent of 12th grade in all European countries. How do you expect American students to have access to STEM pathways without an access to at least calculus during high school? | Non-Actionable |
| 1646 | Walton | NA | This chapter is long awaited and deserves high praise. It would be significantly bolstered by a section about HOW Districts could go about this work, transparency about the obstacles they will likely face, and some problem solving protocols for organizational change. | Non-Actionable |
| 1647 | Gelb S | NA | How about some math foundations and support after school. | Not Recommended |
| 1648 | Bohanan | NA | The systemic issue I see is that families do not understand their role in their child's education. can we get a framework that addresses the parents and their role as their child's first teacher? I am always teaching my students to have a growth mindset and that they can do anything, no matter their skin color or background. Can we just leave racism out of it? Racism is a Fixed-Mindset. | No Motion Recommended |
| 1649 | Sheffield | 10, 11 | Line 263 on meeting the needs of advanced learners is critical and often neglected. More needs to be said about this. Similarly, line 283 on creativity and innovation is often forgotten with respect to mathematics and should be emphasized. | Not Recommended |
| 1650 | Aoki | NA | Who is the audience for this? While there is some good information, it feels like it is just a compilation of a ton of different things that wouldn't all relate to the same people. The people who make decisions (and SHOULD read this type of information) don't have time to make it through all of this. It would be nice if there were a more streamlined set of common key factors that are part of good training, then sections that give more information digging into those areas. It seems like a lot of similar information is restated multiple times making this chapter long and disjointed-feeling. | Non-Actionable |
| 1651 | Chavez | NA | Supporting Equitable and Engaging Mathematics Instruction focuses on teacher development and learning opportunities specifically in how to engage and support students with culturally or linguistically diverse backgrounds. However, it does not refer to the partnership with parents, families or caregivers until the end of the chapter. It misses the opportunity to intertwine the importance of this partnership in other aspects of the chapters. It also highlights various methods by which teachers can learn from each other but it never mentions teachers with learned experience or whose cultural background and experience may support the learning community. The chapter also does not offer suggestions for administrators to include parents as a way for building learning opportunities for teachers (such as a roundtable discussion with parents, etc). | Writers’ Discretion |
| 1652 | Zaks | 3, 8 | In line 63, you state that a goal of these revisions is to "teach toward justice." Teaching toward justice has never been and should never be a goal of mathematical learning. Learning math is about finding the most effective way to show your work and arrive at a correct answer—and contrary to your report, there is nothing about mathematics, a universal language, that is in any way discriminatory. In line 69, you mention that a goal is to "recognize multilingualism as a power," yet language and its importance is a topic best covered not in a math classroom but a language classroom. What relevance does any of this have to language? You claim in line 189 that "Mathematics education has a long history of inequitable access to rich learning," yet you don't explain what is inequitable about Mathematics education. Are you suggesting that certain groups cannot perform in mathematics as other groups, in your own way perpetuating a racial stereotype that is detrimental to students' leaning? | Non-Actionable |

## Table 12: Chapter 10: Technology and Distance Learning in the Teaching of Mathematics

| # | Source | Page | Line Number and Comment on Chapter 10 | Recommended Action |
| --- | --- | --- | --- | --- |
| 1653 | Murphy-Shaw | NA | Clearly describes benefits of technology only occur when the skills and content learning objectives and purpose are put first: Lines 50-52, 97-109, 156-161, 248-252, 550 Refers to how teachers WITH robust content knowledge can success - but what about those WITHOUT, especially in small or remote schools with less budget for competitive salaries? Lines 73-84, or without Formative Assessment experience, Lines 350-351 Research on DL of value for this need too 684-685 Mentions that this support is needed Lines 274-278 but should also mention parent education about the ideas in this chapter on line 283. Vignettes felt very helpful in supporting teachers - I would use any of them in work coaching teachers. 188... 353..., great idea to have Whiteboard here, 390 638... Point taken that tech cannot replace math learning, but what about the need to actually teach the tech using low-cognitive activities or SEL and community building, etc. - when it is going to be in future service of the | Writers’ Discretion |
| 1654 | Brousseau | NA | Good job! | Non-Actionable |
| 1655 | Ward | NA | Could this chapter not be summarized as saying, “*Use technology, when and where appropriate, to further the mathematics instruction of students. Do not use technology just to use it, especially at the expense of furthering the mathematics content knowledge.*”? Are 41 pages of words needed to explain the general gist of that? | Not Recommended |
| 1656 | Ward | 5 | Page 5, 92: Principle 1: Strategic Use of Technology in a Learning Environment Can Facilitate Powerful Learning of Mathematics - Good principle. It’s my summary above. | Non-Actionable |
| 1657 | Ward | 12 | Page 12, 272: Principle 2: Support for Teachers of Mathematics Accompanies Use of Learning Technologies - This should be a given. Don’t just expect people to have mastery of technology *including the so-called digital natives.* They know how to navigate smartphones and and how to consume content, but that’s pretty much it. | Non-Actionable |
| 1658 | Ward | 13 | Page 13, 319: Principle 3: Learning Technologies Are Accessible for All Students - Yet, shall we hinder all students and limit them to just the lowest common denominator? I agree with accessible for all, but we shouldn’t cut our nose off to spite our face, if you know what I mean. | Non-Actionable |
| 1659 | Ward | 14 | Page 14, 353: Vignette of fourth grade. Unnecessary. | Non-Actionable |
| 1660 | Ward | 20 | Page 20, 527: Distance Learning - without more accountability and responsibility on the student’s part to *actually* engage and be forced to show any sign of life, this should be banished to the nine circles of hell and left to rot as the challenges and other struggles we have experienced with the pandemic will be attributed to online learning. That is misplaced blame, but nevertheless, the demands about grade and lack of accountability and the rotten state of affairs has damaged it greatly for at least the time before society is distracted with something new to focus on. | Non-Actionable |
| 1661 | Ward | 26 | Page 26, 683: Research-Based Distance Learning Principles is a complete waste of time, apologies, but it is the honest truth. Why? Because students log in and walk away or fall asleep. There’s no point in spending time when the student isn’t there. It doesn’t matter what research you use. It’s not helpful to try and teach the absence of a human. | Non-Actionable |
| 1662 | Herrera | NA | This chapter is full of useful information that would have been great to have when we began distance learning a year ago. | Non-Actionable |
| 1663 | Vierra | 3, 12-13 | -I value the approach of lines 43-44 that technology's primary purpose is to enhance the learning of content and the SMPs. - Helpful suggestions that PD with technology should be differentiated (lines 300-301) and "focus on one tool at a time." (lines 309-310) | Non-Actionable |
| 1664 | Gelb S | NA | There is no place for distance learning in any teaching for young kids. That's part of the problem...get off screens. | Non-Actionable |
| 1665 | Bohanan | NA | This will be interesting since some students will be learning virtually at all times. :/ More training for teachers with the use of technology and providing them with a variety of engaging digital lessons is essential. Preferably lessons that aren't focused on the narrative of social injustices. | Not Recommended |
| 1666 | Wright | NA | Distance or hybrid learning as effective or more effective than in person learning?! Skyrocketing suicide rates among children, absenteeism and learning loss (averaging 4 months in math) suggest otherwise. | Non-Actionable |
| 1667 | Albert | 26 | Lines 685-686 state a conclusion ("well-designed online or blended instruction can be as or more effective than in-classroom learning alone") that ignores any evidence from our recent statewide mass distance-learning experiment. Relying solely on pre-2019 research to come to this conclusion is premature -- there is so much evidence to be gathered from our recent circumstances, and even more from a more realistic examination of the specifics of distance learning, which in many cases might compare unfavorably to the glowing description that follows. | Writers’ Discretion |

## Table 13: Chapter 11: Assessment in the 21st Century

| # | Source | Page | Line Number and Comment on Chapter 11 | Recommended Action |
| --- | --- | --- | --- | --- |
| 1668 | Holmstrom | NA | WOO HOO! Can I just say that?! How important to name that we are in assessment cycles OF and FOR learning, and that assessment is not "the test on the calendar." | Non-Actionable |
| 1669 | Katz | NA | See Ch2 above. | Non-Actionable |
| 1670 | Foster | 21 | Our second correction is found in Chapter 11 page 21 lines 358 through 362. Although the citation identifies tasks and rubrics authored by the Shell Centre, the vast amount of the content referenced is, in fact, authored by the Silicon Valley Mathematics Initiative when funded by the Noyce Foundation and that content appears in SVMI’s *Tools for Teacher* reports. Note that all the student work analysis pages are copyrighted by the Noyce Foundation. Therefore we request that the text of the paragraph should be revised as follows: <br>The Silicon Valley Mathematics Initiative creates reports, called *Tools for Teachers*, specifically written for teachers, that contain a task, rubric and a comprehensive analysis of student performance on the task. The tasks for Third Grade through High School were developed by the Mathematics Assessment Resource Service (MARS) of the Shell Centre for Mathematical Education, University of Nottingham, England. The tasks for second grade were developed by the Silicon Valley Mathematics Initiative’s Mathematics Assessment Collaborative (MAC). <er> | Recommended |
| 1671 | Foster | NA | [This comment has been excerpted for length; see the Box link above for the full text of the comment.]  We, at SVMI, have concerns with Chapter 11: *Mathematics Assessment in the 21st Century*. We believe the section should focus more on formative assessment strategies and techniques for instruction. The current version of the draft framework provides minimal answers to addressing classroom instruction where learning is unfinished. There is significant attention paid to measurement tools (item types, rubrics, etc.), and reporting documents (standard-based report cards, etc.), but absent is any deep discussion of what instruction looks like when measurement tools indicate students are not meeting standard. When measurement tools indicate unfinished learning, are teachers supposed to merely re-teach a lesson or unit a second time? Should teachers provide intervention for those with lower metrics while continuing to introduce new topics or alternative material to those with higher metrics? Should teachers just continue to move on to next big idea presented in the course? We believe none of these choices have shown any promise or success, and some actually promote inequity and shallow learning. Yet, this issue is not adequately addressed in this draft framework and frankly has rarely been researched. | Writers’ Discretion |
| 1672 | Foster | NA | [This comment has been excerpted for length; see the Box link above for the full text of the comment.]  We propose that this chapter focuses more deeply on formative assessment practices and specifically on the power and learning gains from designing and teaching Re-engagement lessons. The Silicon Valley Mathematics Initiative has been promoting and fostering this formative assessment practice for nearly 20 years and has documented student outcomes based upon this powerful practice. In fact, in Chapter 1 of the new Framework, you cite and reference outcomes from MAC (Chapter 1 page#38). Key to the student learning success was the formative assessment practice of Re-engagement lessons. Teachers periodically use performance tasks to elicit student feedback to focus on student learning. By analyzing student work, teachers design re-engagement lessons based on student thinking and levels of understanding. Based upon their analysis, teachers focus on specific learning goals to meet their students where they are, by using the students’ own work and reasoning to design prompts for students to critique each other mathematical thinking, promote cognitive dilemmas, and address misconceptions or errors. This re-engagement lesson is taught to the entire class to deepen mathematical conception, promote emerging understandings and address unfinished learning in heterogenous settings. | Writers’ Discretion |
| 1673 | Foster, Foster Attachment | NA | [This comment has been excerpted for length; see the Box link above for the full text of the comment, along with an attachment that includes a proposed new section.]  When we reviewed Chapter 11, we found it lacking in real and pragmatic strategies for implementing formative assessment strategies in classrooms and were left dis-satisfied with the extent that the chapter focused on merely measurement tools like rubrics. We have nothing against rubrics and use them regularly. But creating rubrics and using to judge student thinking, is just the start of an important process. Yet, in practice the process usually stops at the point of using a rubric, when the teacher gives the students a mark or grades. As research indicates, that limited process does not improve student learning. We believe much more needs to be said about continuing the process of using the students’ actual thinking to generate learning experiences that meet the students where they are and provide feedback and generate student ownership and reasoning to move learning forward.  So, we wrote about an opportunity to address this ongoing challenge teachers face around unfinished learning, surface level understanding, and meeting the needs of all students often missed or left for inequitable intervention instruction. We suggested an innovative formative assessment strategy that we call Re-Engagement, that SVMI has been supporting for over 15 years with proven success. | Writers’ Discretion |
| 1674 | Becker | NA | I do not see the use of the long lists of standards for various grade levels from various schools or districts. These unfortunately seem to fit right into the context of a checklist of skills and procedures; these seem contradictory to what the text has stressed earlier in the chapter about assessment. | Not Recommended |
| 1675 | Ward | 2 | Page 2, 35-39: Why is there the evolution of assessment? Shouldn’t we continue to retain assessment of the basics *and just include* more multidimensional measures of problem-solving and reasoning? | Non-Actionable |
| 1676 | Ward | 3 | Page 3, 56-68: I understand what is being said here, but I also think that there needs to be some form of a check. Students are socially promoted K-8, so whether or not they gain *any* academic knowledge is irrelevant. Not until high school does an F mean anything and then there is pressure about passing kids on *even when they are not showing competency with the course content* because the school needs to look good on the dashboard. How is that okay? It shouldn’t be okay. | Non-Actionable |
| 1677 | Ward | 5 | Page 5, 100: Particularly damaging assessment practice to avoid is the use of timed tests… is a waste of time. If there is seriously this amount of anxiety then our society is a lost cause. I have anxiety but I push through it to complete the task. I still am alive. I can function. When students can’t handle simple tasks and there is screeching about putting on limits, that’s ridiculous and bothersome. It tells me they don’t really know the content. It shouldn’t take hours to handle a few problems. Just face reality that they **don’t know the content** in that case.  What is the point of this chapter? To talk about test types? And how they can be graded? Is this really so new that we need to waste 67 pages about what teachers should have already covered in their credential program? I know what a rubric is. I use it. I don’t need it to be explained to me like it’s some new discovery. | Non-Actionable |
| 1678 | Ward | 48-49 | Pages 48-49, 893: I do appreciate seeing a conversion between mastery grading and letter grades. That is informative in showing some people’s approach to converting between the two. However, I am familiar with a scale of 1-4, so when that’s the scale, it looks like the worst students could get is a D because they would get 1s across the board for showing any sign of life, but zero comprehension of the material. Why does that warrant a “Below Average” grade that technically means they’re still performing better than random chance? | Non-Actionable |
| 1679 | Ward | 55 | Page 55, 1042: Who grants you full authority to dictate how students perceive the whole retake situation? I’ve had students tell me*, to my face*, that they are taking a zero on the test (writing their name and turning it in) because they don’t care about it and don’t want to do it; that if they decide it hurts their grade enough they will come in after school and get one-on-one time with me when I will teach the content and then they will do the retake and ace it. | Non-Actionable |
| 1680 | Ward | 60 | Page 60, 1113: CAASPP testing should be better. Actually have the performance task be about that grade level’s standards. Take, for instance, eighth grade, where the performance task seems to eternally be based on seventh grade content. | Non-Actionable |
| 1681 | Ward | 64 | Page 64, 1165: Conclusion - this chapter is a waste of time, as predicted. There is zero new content here to enlighten the reader. Just a hog of space and words that somebody wrote to feel important. | Non-Actionable |
| 1682 | Akins | NA | Overall Tone of Chapter, Usability and Content: The writers are to be commended on their call for a more relevant and purposeful form of assessment that reflects modern world skills such as adaptability, critical and analytical thinking. They build a strong argument towards a shift in assessment towards more equitable and productive practices and provide concrete examples. These shifts include less frequent summative tests, particularly those which are timed, and an increase in the scope and use of formative assessment. Because this is a document intended for use by many stakeholders including parents, publishers and educators with varied experience, care should be taken that it is accessible to all these groups, particularly to those not typically versed in technical forms of writing such as that found in research.  There is a concern regarding whether this revision is a new framework or supplement to the 2013. This revision does not build on and fill in the gaps that existed in the Assessment Chapter in the 2013 framework. It doesn't improve the understanding of the SMP nor does it preserve the dual intensity of the practice and content standards. | Non-Actionable |
| 1683 | Akins | NA | The intent of this revision is good. The ideals presented are good. The research to support the ideals is good. A framework should bridge the research with the practical application of the theory. This chapter is missing the praxis and there are several inconsistencies and questions. These concerns may be real or may appear to exist due to vagueness and incompleteness throughout the document. | Non-Actionable |
| 1684 | Akins | NA | This framework does not explain how the drivers and content connections support the practice and content standards in ways that recognize and guide the interplay of cognitive development and mathematics in the individual. When we ignore the way that math develops in a cognitively, personal way for students then students are excluded from the beginning, impacting their identity as doers of mathematics. Formative Assessment in particular, intersects cognitive development in the choice of expression of the learner’s experience, of their way of making sense, and where they fall on the trajectory of learning. The discussion of assessment in this chapter can be enhanced through the lens of cognitive development. | Non-Actionable |
| 1685 | Akins | 3 | [The comments below were organized into a table. See the Box link above for the original table structure.]  Line 47 CAASPP and other specific examples in this section could be saved for later rather than in the introduction. Throughout the intro there is a choppiness, toggling back and forth from general point made, to specific examples with citation, which can be distracting and detract from the important ideas being set forth.  For the ease of reading for all stakeholders, could general ideas be grouped in narrative style paragraphs followed by paragraphs which take a more fine grained look and which include examples and citations? for persons not accustomed to technical writing such as literature review and research articles the writing may seem choppy, cumbersome and the important points may be lost. | Not Recommended |
| 1686 | Akins | NA | throughout chapter  In a place where productive conversations are taking place you use robust definitions of assessment and include many ways to assess students which ultimately gives agency to teachers and students.  Continue to link the types of assessments with the purpose of assessment and reiterate the benefits and connection to student agency and identity resulting from the proper | Non-Actionable |
| 1687 | Akins | 16 | Line 276 and throughout doc.  CAASPP & Smarter-balanced references need to be more transparent.  Add commentary or provide links to provide more transparency. | Non-Actionable |
| 1688 | Akins | NA | Throughout the doc  Missing a serious, in-depth discussion of grading practices connected to formative assessment avoiding harmful techniques, i.e. Rubric grading vs 100 scale.  Include more justification for “actionable feedback” vs. the undermining which occurs when the practices of letter grades, points, percents are attached to formative assessment. | Not Recommended |
| 1689 | Akins | 17, 18 | Beginning line 290 and line 322  Actionable feedback shows effectiveness.  Clarify the intent of this section: Is the intention to push back on the notion that formative assessment takes more time to “grade” because of actionable feedback type comments/rubrics vs. multi choice, fill in answers etc.? The comparison of effect size in this section could lead to misguided conclusions. Another bold statement could clear things up. “Giving a grade negates the effect size of using actionable feedback.” | Not Recommended |
| 1690 | Akins | 20 | Section beginning Line 335  “If students are not a part of the formative assessment cycle, it is not formative assessment.”  Continue and increase use of direct, bold statements to define formative assessment. | Not Recommended |
| 1691 | Akins | 3-25 | Line 57  Line 79  Line 127  Line 432  throughout  girls in mathematics  racial inequities  UDL  “Effective Strategies for English Learners”  Commendations for tending to all learners throughout this chapter. Connections between UDL and Assessment are appreciated. Be mindful that all stakeholders also need access to this document. Wonder if this chapter is user-friendly and accessible to parents and students? Please support and welcome them by being clear, direct and providing specific examples. The charts and diagrams included are appreciated to this end. | Not Recommended |
| 1692 | Akins | 6, 7 | Line 148, 179 and throughout  Figure 10.1  Tables and references to the 2013 framework bring clarity and condense information making it much more usable. Thank you! | Non-Actionable |
| 1693 | Akins | 20 | Line 344 Continue to include explicit examples of assessment and feedback - what they do and do not look like, and continue to draw from many sources.  Internal links can provide additional examples of big ideas, content connections, etc. and is an easy way to include more varied content and grade level examples. | Not Recommended |
| 1694 | Akins | NA | Throughout  Many links to sources and examples are included and readers would benefit from more. Specifically, We are missing examples of what assessment of big ideas and content connections looks like. Samples please.  Use more internal and external links to provide additional examples of big ideas, content connections, and research | Writers’ Discretion |
| 1695 | Akins | 23 | Line 373 “Note a self assessment example that focuses on mathematical practices”  More examples of SMP as a target of assessment needs to be included. Thank you for this, but more please, particularly in the ways that the content and math practices coexist and support each other in good teaching and assessment. | Writers’ Discretion |
| 1696 | Akins | 28 | Line 507 “Even when assignments and tests are used frequently, they can still provide a valuable learning experience for students when they are not seen as the end to a  learning cycle.”  This is a truly important section towards dismantling antiquated and inequitable notions of learning and learners. You may consider moving it earlier or giving it more prominence in some fashion. | Not Recommended |
| 1697 | Lavadenz | NA | **Given chapter 11** presents an opportunity to delineate an assessment framework that recognizes and supports the achievement of culturally and linguistically diverse students to elevate their potential to develop 21st Century skills and demonstrate mastery of mathematical practices. **We recommend the following to achieve this goal:**  1 -**State a commitment to assessment design** elements inclusive of considerations for ELs and all students in Multilingual Programs. | Recommended |
| 1698 | Lavadenz | NA | 2 **- Include relevant research that applies to diverse student and EL** groups with particular attention to a comprehensive assessment system as displayed in Figure 10.1. An extension to this figure’s description could include considerations for EL proficiency levels, the complexity of language in the mathematics classroom, and elevating the focus on mathematical discourse practices. | Not Recommended |
| 1699 | Lavadenz | NA | 3 **- Regarding formative assessment, we recommend including considerations for teachers of ELs** when developing snapshots, vignettes and examples of formative assessment strategies, and analyses leading to informed instructional decisions with attention to student proficiency levels, ELD standards, and English AND primary language development. | Not Recommended |
| 1700 | Herrera | NA | Thank you for establishing the purpose of assessment as "collecting evidence to enhance student learning, supporting students’ development of positive mathematics identities." At times we rely too heavily on summative assessment to make important decisions and this chapter does a great job of describing a variety of assessment options. | Non-Actionable |
| 1701 | Vierra | 2 | -Appreciate Lines 36-37: shifting rote test of skills to multi-dimensional measures of problem solving capacity & evidence based reasoning. - Useful to include rubrics for Math practices, but I suggest putting them in a table for easier reading | Writers’ Discretion |
| 1702 | Vierra | 27 | - Typo line 485: "in-equality" should be inequality | Not Recommended |
| 1703 | Vierra | 31 | - Typo line 566: "show" should be shows - Important to emphasize the "...grades do not give feedback to students about ways to improve." | Not Recommended |
| 1704 | Vierra | NA | - Useful to include research about feedback and lines 758-881 examples of standards-based mastery learning and learning targets | Not Recommended |
| 1705 | Roe | NA | I wish there was more about how this new framework may or may not influence changes to the CAASPP test. | Non-Actionable |
| 1706 | Dergun | NA | When I read chapter 11, it makes me feel like the writers of this proposal are racist. They are implying that historically underrepresented groups are incapable of learning "real" math and therefore we should stop teaching it. You can only get so far with big ideas. Math requires a lot of nitty-gritty and a lot of practice. Bridges and cars will not be built without these. | Non-Actionable |
| 1707 | Walton | NA | We have been waiting for this chapter for a VERY long time. The many and varied examples of how to engage in the evaluation of learning and outcomes are welcomed. However, the fact that the chapter makes no effort to address the elephant in the room of Traditional Grading practices (including the problematic facts about grading for participation, homework, and the giving of Zeroes), weakens the power of this chapter significantly. Providing rubrics are good exemplars of reframing the conversation, but does not address the quantification of the culmination of student compliance with teaching objectives. What is also missing is the elevation of qualitative learning samples equalling, if not surpassing, the value of quantitative accumulation of points. If the Framework intends to remediate and make restitution for the white supremacy of the mathematics education of the past, it must elevate all practices seeking to dismantle meritocracy and reject point accumulation as authentic. | Writers’ Discretion |
| 1708 | Bohanan | NA | I understand the anxiety with timed tests, as I was one of those students. However, I also have known several students who LOVE the idea of timed tests and always beg for them! I don't see why we can't offer both. | Not Recommended |
| 1709 | Sheffield | NA | The section on formative assessment should mention the importance of showing which students have mastered the content before it is taught to alert teachers that these students may need additional opportunities for productive struggle and deeper, more innovative problem solving. | Writers’ Discretion |
| 1710 | C J | NA | Assessments should be offerered in a students native language if they really struggle with English. This would show that Hispanic immigrant children are not as dumb as teachers commonly believe them to be and that they are not in fact worse than black children, as some schools' SARCs seem to indicate. | Not Recommended |
| 1711 | Aoki | NA | We REALLY need to update what counts as "Assessment" and this chapter is calling out the required shift. The MOST important assessments are the ones that give teachers information to make instructional decisions in the moment, which means discussions, observations, warm ups, student work/explanations, exit tickets and other immediate and fast methods should be the priority. State tests are not the priority when you don't have results for another 8 months. Doing the in-the-moment stuff helps you know whether you're on track for the summative/state test. | Non-Actionable |
| 1712 | anonymous | NA | I agree with many ideas in this section. | Non-Actionable |
| 1713 | Tietjen | NA | I appreciate and value the cited research in this chapter. The heavy emphasis on formative assessments as well as the use of rubrics is what we need more of. Please keep these components intact. | Non-Actionable |
| 1714 | Sher | NA | Extremely positive Assessment and instruction covered together The shift from procedural and factual knowledge 67-8 big ideas and mastery learning Defining and how to explicitly utilize formative and summative assess. Emphasis on how formative assess. is used to benefit BOTH students and teachers Allowing students to practice what we expect them to learn- an opportunity to engage in the type of work on the summative assess. because this summative assessment should align with curriculum. Formative assess. using rubrics 126-128, variety of rubrics presented. Rubric is evidence based 592 Teacher diagnostic comments 594-600, Self and Peer Assessments, UDL To facilitate teacher use: More explicit examples of how to use formative assessments, including in vignettes. Rubrics that cover big ideas, noting grade level or class standards and progression Needs More organization and explicit labeling, specific headings 455 SMP cards level 3 is the standard- not explanatory or demonstrative | Not Recommended |

## Table 14: Chapter 12: Instructional Materials to Support the California Common Core State Standards for Mathematics

| # | Source | Page | Line Number and Comment on Chapter 12 | Recommended Action |
| --- | --- | --- | --- | --- |
| 1715 | Holmstrom | NA | I am diving into the other Chapters as we speak, but I was so excited to see such important work from California... and I felt like I needed to respond | Non-Actionable |
| 1716 | Becker | 4 | Line 79-81: I would suggest that discrete content standard mastery does not necessarily lead to conceptual understanding. That is more specific than a coherent big-picture view of mathematics and one often hears that students learn concepts by practicing procedures. A clear statement here would be beneficial. | Writers’ Discretion |
| 1717 | Becker | 5 | Line 109: …instructional materials are **in …** | Recommended (delete “are”) |
| 1718 | Becker | 6 | Line 127: not sure what “with content standards and SMPs practice development… means | Non-Actionable |
| 1719 | Becker | 18 | 484 what is Student Achievement Partners in the context of content standards? | Non-Actionable |
| 1720 | Ward | 2 | Page 2, 32-41: Appreciated. This can also help teachers in understanding what textbook publishers are going to be targeting. | Non-Actionable |
| 1721 | Ward | 14 | Page 14, 374-386: Wow… Such a fancy process laid out to explain how adoptions *should* occur. I’ll keep this in mind for our next adoption after the past one was more of “Surprise: here’s what you’re going to do now!” | Non-Actionable |
| 1722 | Ward | 16 | Page 16, 423-456: Axe that, and replace it with: *For this framework, we talk to hear ourselves Instead of two separate chapters in the old framework, we’ve stretched it to 13 chapters. Aren’t we so high and mighty? Love us for we can drone on and on saying nothing at all!* | Not Recommended |
| 1723 | Ward | 17 | Page 17, 457-532: If you don’t cut this, then at least include a note stating: *And now, to support you in our droning on, here are more terms to jargon up your life. Let us mystify you with more terminology so we can sneak lies past you, or to totally say nothing at all, and have you believe us for we can go on and on. Aren’t we so sly, so smart, so wonderful.* | Not Recommended |
| 1724 | Ward | 20 | Page 20, 533-569: These are words to be words for the sake of words. | Non-Actionable |
| 1725 | Ward | 21 | [The comment below has been excerpted for length. See the Box link above for the full text of the comment.]  Page 21, 580-585: I feel like this is finally where they should be explaining the key points to hit in high school curricula. Um, that’s so vague and general it’s the summary of a preface of the back of a book. That’s all you have to say for textbook publishers? No wonder the content is so terrible. That must be why people mask and cover and just say that teachers need to “Design” and “differentiate” for the individual… because… the textbook publishers have nothing to go on and that’s why they just cut and paste some Geometry to Algebra 1 and vice versa and then people complain. Welp, there’s the issue at being so wordy that you never actually got to giving any he pful advice for publishers.  INSTEAD it should be something along the lines of: Have scaffolding built into the textbook. Include lots of practice because students are going to come to the course SERIOUSLY underleveled/unprepared. Spanish translations would be very helpful. Include the number talks to do, where they would be best appropriate. Be clear in the connection between the content and what standards are being covered AND WHY students should care. | Not Recommended |
| 1726 | Nowak | 10 | p10 “The grade-level standards, big ideas, and the SMPs shall be explicitly stated in the student editions demonstrating alignment with student lessons.” This recommendation seems like it’s somewhat at odds with the grade-band chapters, which advocate for “active learning environments filled with wonder.” Just pointing out that educators might be puzzled over how to reconcile these things: materials that include the text of content standards and make standards for mathematical practice explicit might not seem like a natural fit. | Non-Actionable |
| 1727 | Gonzales | NA | Question: Chapter 12 Instructional Materials to Support the California Common Core State Standards for Mathematics  ● Q: With respect to content and practice standards, it is our understanding that they must appear on the student edition pages. Does this also apply to ELD standards? | Non-Actionable |
| 1728 | Arrillaga | NA | [The comment below is excerpted for length and contains embedded hyperlinks. See the Box link above for the full comment with links.]  This chapter is of critical importance to ensure that LEAs, schools, and teachers have the resources that they need to meet the needs of the specific needs of their students. Here are our general recommendations for chapter 12, followed by additional line specific comments.  Incorporate the math instructional materials guidelines developed by the English Learner Success Forum throughout. The 15 Guidelines for math instructional materials provide pathways for simultaneous development of disciplinary knowledge, language, literacy and math for ELs, and guide content developers and educators in developing content materials that are inclusive of ELs through meaningful integration of their backgrounds, explicit attention to language needs, and carefully designed language supports. The guidelines are mapped to each of the five categories for math instructional materials in Chapter 12 below: | Writers’ Discretion |
| 1729 | Arrillaga | NA | Require that Math instructional materials meet standards for equity and meeting the diverse needs of students, including ELs. Given the significant number of English Learners in California, instructional materials should be required to align with their needs. | Non-Actionable |
| 1730 | Arrillaga | NA | Include a section with guidance on what quality is in instructional materials for districts in their selection process. This is important, given the autonomy in selecting materials provided by local control and how important the framework is to their adoption decisions. | Not Recommended |
| 1731 | Arrillaga | NA | Provide guidance for the online synchronous and asynchronous requirements for instructional materials. This is important given the expansion of virtual and hybrid learner, and would help districts be more prepared during future emergencies. | Not Recommended |
| 1732 | Arrillaga | 3, 4 | 67  Add “sense-making” 81-83  Add the following language in bold” This framework’s answers to the challenge posed by the principle of coherence are to focus on: (a) big ideas; (b) progressions of learning across grades; (c) relevance to students’ lives; and (d) high-quality first instruction **and communicating mathematically about big ideas**.” | Not Recommended |
| 1733 | Arrillaga | 9 | 215-216  Suggest changing language to: “fully integrate content into strategically designed opportunities for students to use the mathematical practices” | Recommended |
| 1734 | Arrillaga | 9 | 223  Add another bullet point stating that instructional materials should make clear how to teach effectively through investigations (such as task clarity and set up, guiding questions when needed, need to wrap up and make sure the essential mathematical connections are made explicit for all students. | Not Recommended |
| 1735 | Arrillaga | 9 | 227-228  Suggest changing language to: “Intervention components, if included, are designed to help teachers and students flexibly and meaningfully respond to students’ progress in mathematics.” | Recommended |
| 1736 | Arrillaga | 9 | 239  Replace “to extend ideas” with “**develop prevision in mathematical language**” | Not Recommended |
| 1737 | Arrillaga | 10 | 260  Change from “mathematical practices” to “**including the language needed to participate in the mathematical practices**” | Recommended (L269) |
| 1738 | Arrillaga | 11 | 292  Change from” Student materials are appropriate for use with all students.” to “**Teacher materials must provide explicit attention to the development of mathematical discourse and formative assessment of mathematical language**.” | Not Recommended |
| 1739 | Arrillaga | 13 | 333  Add “and make clear how to connect concrete representations to abstract or numerical representations.” | Not Recommended |
| 1740 | Arrillaga | 13 | 347  Replace “language objectives” with “**specific strategies to support students in developing the language needed to meet those mathematical language objectives**.” Add detail | Writers’ Discretion |
| 1741 | Arrillaga | 15 | 391  Add the following language in bold: “**learning of concepts, mathematical practices, and language needed to express them**.”  Add detail (bolded section). | Recommended |
| 1742 | Arrillaga | 16 | 437  Add “sense making” | Not Recommended |
| 1743 | Arrillaga | 16 | 446  Add “comparing” | Not Recommended |
| 1744 | Arrillaga | 18 | 492-494  Add the following resources to provide more depth and focus to reviewing curricular materials for specific purposes.   * “For more information on supporting students with unfinished mathematics learning, please visit https://achievethecore.org/aligned/designing-shifts-aligned-interventions-in-the-math-classroom/ “ * “For more information on supporting English Learners, please visit https://www.elsuccessforum.org/math-guidelines“ | Recommended |
| 1745 | Arrillaga | 19 | 527  Replace “Moreover, all students, regardless of background, should be engaged in reasoning and sense-making [RS1] on a daily basis, and schools should support teachers in achieving this goal.” with “**In order for students to engage in reasoning and sense-making about mathematics, explicit attention to the language needed to do so must be built into the teacher and student materials (see Judit Moschkovich, 2012)**.” | Recommended |
| 1746 | Arrillaga | 8-9 | Pages 8-9  There is an opportunity under “Program Organization” to call out supports for specific student populations that would benefit from supports: English Learner supports, Culturally responsive materials, scaffolds for students who need support from bridging learning two or more grade levels below, etc. | Writers’ Discretion |
| 1747 | Arrillaga | 10-11 | Pages 10-11  There is an opportunity under “Assessments” to set an expectation for usability of curriculum embedded assessments to scaffold learning. | Writers’ Discretion |
| 1748 | Arrillaga | 11-12 | Pages 11-12  There is an opportunity under “Access and Equity” to specify what specific supports should look like for student groups in both teacher and student materials (English learners, students with disabilities, etc.). | Writers’ Discretion |
| 1749 | Arrillaga | 12-13 | Pages 12-13  There is an opportunity under “Instructional Planning and Support” to describe expectations for equitable instruction. | Writers’ Discretion |
| 1750 | Vierra | 4 | - Besides providing guidance for publishers, this chapter also alerts teachers to the important components of desirable, effective programs. - The emphasis on the Standards of Mathematical Practice in this next adoption round will hopefully be more effective than the 2013 adoption. - Crucial is lines 75-77 "Make standards achievable: 1) focus on big ideas, 2) tasks worthy of student engagement, 3) embed exercises in context of investigations. - The implementation of this Framework will hinge on the availability and adoption of curriculum that embeds the vision of equity and engagement through Math Practices, Content Connections, and Drivers of Investigation. Teachers cannot be expected to design their own curriculum. They will need rich materials and strong support through professional learning opportunities. | Non-Actionable |
| 1751 | Bohanan | NA | Homework Activities! That's great for the families that support education and can provide support for their children. I strongly encourage guidance to be provided for parents so they understand their role in their child's education and how they can best support their child's learning. | Not Recommended |

## Table 15: Chapter 13: Glossary

| # | Source | Page | Line Number and Comment on Chapter 13 | Recommended Action |
| --- | --- | --- | --- | --- |
| 1752 | Brousseau | NA | Good job! | Non-Actionable |
| 1753 | Lieberman | 3 | Page 3, line 50  Text as Currently Written  Lesson design should be built to elicit that wondering.  Rationale  To have conformity of definitions among various chapters  Request  Add the following sentence after existing text:  For example, environmental observations and issues on campus and in their local community provide rich contexts for student investigations and mathematical analysis as they concurrently help students develop their understanding of California’s Environmental Principles and Concepts. | Recommended |
| 1754 | Vierra | NA | Extremely helpful to define math content terms, pedagogical terms and frequently used educational acronyms. | Non-Actionable |
| 1755 | Malione | NA | Many terms that are used with assessment-driving meanings in the Common Core Standards are altered to mean something different in this framework. Changes such as these are unconscionable. Words like focus, coherence, rigor, and fluency have been redefined to take focus further away from procedural skills with the content. Equity is defined to require, among other things "Participation in quality mathematics classes and success in them;" This definition puts the responsibility for success entirely in hands of the curriculum, without adequate regard for efforts or capabilities on the part of the student. Defining equity as including a guarantee of success is a stretch at best. | Non-Actionable |

## Table 16: Additional Comments

| # | Source | Page | Line Number and Comment | Recommended Action |
| --- | --- | --- | --- | --- |
| 1756 | Hill | NA | Too extreme! | Non-Actionable |
| 1757 | Nagatani | NA | This framework is going to change the view of mathematics in the eyes of our students and that change will bring pure joy! | Non-Actionable |
| 1758 | James | NA | The proposed changes to the current math frameworks will continue the path of doing great disservice to California's students. | Non-Actionable |
| 1759 | Tegen | NA | It appears this document is so busy being sensitive to ALL groups that it has overlooked the importance to the TEACHER's Ability to understand mathematics especially in grades TK-5. If an educator is not a confident "math head" they will struggle to imbed the confidence and necessary mathematical knowledge in their students regardless of the students' identity (cultural, gender, race). We saw this with the Mathland adoption of the late 1990's and we continue to see this as we continue to push down the mathematics concepts to younger and younger age groups disregarding the developmental stages of the brain. | Non-Actionable |
| 1760 | Medeiros | NA | This framework is excellent and provides the necessary changes for ALL students to be successful in mathematics. It is a great guide for teaching students to think. The idea of teaching to the big ideas is beneficial. We will see progress in math with this new framework with the asset based approach and developing positive mathematical mindsets. | Non-Actionable |
| 1761 | Nussbaum | NA | https://www.doe.virginia.gov/instruction/mathematics/vmpi/index.shtml Virginia is working on a similar project. Would be interested to see where there could be potential collaboration on these projects. | Non-Actionable |
| 1762 | Hseih | NA | Common Core has already ruined math education in the U.S., we don't need another one. | Non-Actionable |
| 1763 | Wang | NA | This is a racist manifesto that will destroy us. Math is intrinsically blind to color, ethnicity, etc. You claim that math was designed with a narrow purpose: to benefit white men. This is such an outrageous statement. It doesn't even fit into normal parameters of discussion. | No Motion Recommended |
| 1764 | Daro | NA | Here is a wonderful resource for the Framework.  Attached are short briefs on the core ideas of k-5 number written for reflection for middle school students and elementary teachers. They are sweet. They are about the mathematics, not about teaching. They are thoughtful and designed to stimulate thought in the reader. They are very focused on only what is most important to understand about number, so they are valuable for reflection and putting it all together. each is only a few pages.   They were written by Roger Howe, a mathematician from Yale who has been working with elementary teachers. Roger received feedback and guidance from Miguel Cordero of New York City Public Schools, an expert in EL and mathematics, Jack Dieckman in Jo Boaler’s group at Stanford who also has expertise in language and mathematics and me, Phil Daro an author of the Common Core and long time mathematics educator in California.   If you want to include these briefs as a resource associated with the Framework, I am sure Roger and Miguel’s permission would be forthcoming. I can assist with that. | The attachments associated with this comment have been provided as 2-25-21 Daro Attachments 1-16  Not Recommended |
| 1765 | Gilberte | NA | Good afternoon and Thank you for providing the workshops and slides for the mathematics framework.  I attended the February 23rd, 2021 virtual meeting and got a pretty good overview of the framework. My understanding is that we are still full on with the CCCSS and the eight practice standards. So, with the vignettes, are you planning the teachers to use those as connecting to lesson(s)? It seems to me like one of the most effective way to use them would be prior to lessons, introduce the concept, let the students explore, then pin the findings to connect to the lesson. I am suggesting that you write clearly how and where you intend the teachers to use these.  In a 54 minute class with the possibility of 30+ students, teachers need clear guidance on where to carry on the activity. In my classroom, I would do these vignette activities to connect to the concept prior to the lessons. Thanks again for doing this | Writers’ Discretion |
| 1766 | Ruelas | NA | [This comment has been excerpted for length; see the Box link above for the full text of the comment.]  Hello,  My name is Heather Ruelas and I teach 8th grade math although in the past I have also taught 6th and 7th grade math. There are some really good ideas in the frameworks. For example, I like the chart on line 285 comparing non effective practices with alternative methods of teaching math. I especially like the ideas about focusing on clusters from previous grade levels with how it relates to upcoming content.  I do, however have many concerns that I believe must be addressed. I think that there is a lot of negativity around procedural practice. I believe, and research has shown, that learning math has to have conceptual and procedural go hand in hand. "Students need both – procedural fluency and conceptual understanding," (Willingham, 2019). I think that the frameworks has a focus on conceptual and not enough describing about the importance of practice and building muscle memory. It leaves readers into believing that we should throw all procedural practice out the door. | Writers’ Discretion |
| 1767 | Foster | NA | [This comment has been excerpted for length; see the Box link above for the full text of the comment.]  SVMI supports the themes in this initial draft of the California Mathematics Framework. In particular, the focus on equitable and engaging instruction is essential. We applaud the framework for addressing exclusionary mathematical practices. Mathematics education has been in search of equitable solutions for all students for decades, yet minimal progress has been made. Over the past year, social justice issues have been catapulted into America’s conscience. Now is a perfect time to act and the leadership espoused in this document is paramount. In a related topic, SVMI applauds the framework’s bold action to democratize mathematical pathways and open the discussion while calling for de-tracking of math pathways in middle school and through the first two years of high school. Recommending a range of options for course taking in the 11th and 12th grade years is important. We promote eliminating the status of STEM pathways and support options in data analysis, discrete mathematics, quantitative reasoning and computer science. | Non-Actionable |
| 1768 | Raigoza | NA | I really love the updates to our math framework. | Non-Actionable |
| 1769 | Evans | NA | During a discussion today, it came up around how is it we assess when teaching big ideas, and then I got to thinking about math as a field of science and then started to think about looking to assess math in much the same way that we access Science by continuing to find ways to assess the critical thinking skills necessary to understand the applications of math. Many students get lost in the details but have an excellent grasp of the big idea and vice versa. How, as teachers, can we assess math in the big picture and skill mastery. Thank you for continuing to grapple with these hard things :) | Non-Actionable |
| 1770 | Honig | NA | GOOD THINGS   1. Alternative pathways in high-school. This is probably the most important addition to the previous framework and will be of great benefit to those students not pursuing a scientific or mathematical career through Alg 2 and Calculus. 2. Emphasis on solving real and student identified problems and investigations. (Although this may be overemphasized since many of the framework’s links and our best teachers also give students teacher and curricular designed tasks aimed at furthering deeper learning. (Interestingly, the draft framework favorably provides examples of non authentic tasks—see Chap 2 line 510) 3. Extensive attention to the Math Practice Standards. 4. Emphasis on data science | Non-Actionable |
| 1771 | Honig | NA | While it is important to assure that students can deal with novel situations, students also need to be able to efficiently deal with normal and non-novel problems which they will encounter in the widespread day to day use of math. | Writers’ Discretion |
| 1772 | Honig | NA | [This comment has been excerpted for length; see the Box link above for the full text of the comment.]  There is a haphazard treatment of the conceptual underpinnings of traditional algorithms and how to proceed from concept to a variety of methods to solve and eventually to an efficient algorithm. The framework states that developing the concepts underlying algorithms is important (Chapter 2, 185-187) but then doesn’t systematically connect concepts to algorithm for the major math topics (it does for multiplication, not for division, fractions, integers, percentage, etc.) The framework rightly warns of too quick use of algorithms undercuts conceptual understanding but neglects the processes of becoming automatic in algorithms to free working memory for the next math material. While the framework broadens the concept of fluency, part of fluency is automaticity. Eventually students need to know their math facts (addition/subtraction and multiplication/division automatically) if they are to do mental math or estimation or tackle more advanced material. It is very difficult to add a column of figures if the student has to stop to reason out several adds. Or initially, knowing 7x6 can be solved by adding 3x7 twice is a useful waystep but doing this while figuring out mentally 75x62 makes the task extremely difficult. | Writers’ Discretion |
| 1773 | Honig | NA | The ability to estimate and use magnitude to check the validity of a result needs attention. Also, how to check to see if the procedure was correct (in a subtraction operation adding the answer and subtrahend to see if it produces the minuend or in addition just adding a column again to see if the result is the same). | Writers’ Discretion |
| 1774 | Honig | NA | Whatever happened to short division (which can be done mentally in many cases) | Writers’ Discretion |
| 1775 | Honig | NA | For all these examples, estimation is crucial to see if the answer makes sense which is referred to sometimes in the vignettes but should be stressed more. | Writers’ Discretion |
| 1776 | Honig | NA | Decimals. Confusing for students. Where is the decimal in 43? When reading 43.1 the 4 is tens, the three is ones but the first place after the decimal are tenths. More explication on lining up place values for adding and subtraction. Why you count off decimal places to the right of the decimals in both terms in a multiplication problem and the connection to multiplication of tenths. For division, if there are no decimal places (tenths and beyond) in the divisor, then lining up place value between quotient and amount being divided will yield the right value. If there is a decimal in the divisor then it needs to be cleared by multiplying both terms by 10 or 100 etc which will keep the quotient the same. Students need to know that a division problem is comparable to a fraction and you can keep the same ratio (or quotient) by multiplying both terms by the same amount. Also reinforces multiplying by 10 moves the decimal one place to the right thus increasing the value of each numeral by ten (the basic idea behind our place value system) and dividing by 10 which moves the decimal one place to left and thus reduces each numeral by ten.) | Writers’ Discretion |
| 1777 | Honig | NA | [This comment has been excerpted for length; see the Box link above for the full text of the comment.]  Integers. Almost no discussion of concepts or operations of integers yet the framework quotes findings from college profs that facility with signed numbers is crucial. See list on Chapter 2 154. (The abilities cited are for success in college math. Other lists are available that show which math abilities are crucial for daily life and work such as percentage.) A brief mention of debt but not other ways of explain negative numbers and no systematic explanation of negative numbers and a variety of examples of what adding, subtracting, multiplying and dividing means. The previous framework had multiple examples for each operation and how and why the common algorithmic rules work using the number line and other common strategies. Adding is pretty straight forward with common strategies such as the number line, chips, elevators, etc. Subtraction is much more confusing but can be demonstrated on a number line by comparison to (counting from the subtrahend (the amount being subtracted) to the minuend (counting up will give a positive result and down a negative.) | Writers’ Discretion |
| 1778 | Honig | NA | [This comment has been excerpted for length; see the Box link above for the full text of the comment.]  Percentage. There is a good example of a discount problem with a hidden percentage but for students to learn to use percentage effectively (probably the mathematical procedure most used in adult life) there needs to be a much more comprehensive approach such as was done in the previous framework. In percentage, of a number or more than a number starting with benchmarking such as 50% is a half, 25% a quarter, and especially knowing that 10% is a tenth and how to move the decimal one place. Being able to estimate the magnitude of the answer. Knowing when to multiply by the percentage as if it were a decimal and when to treat the problem as multiplying by a fraction such as 25% means divide by 4. Materials such as Illustrative Mathematics especially use the double number line with one line representing a 0-100 or even 200 measuring line compared to the target number and anchored at 0 and 100%. For determining what percentage a fraction expresses such as 4 out of 5 on a test equate it to the ratio of the numerator to the denominator by dividing the dem. Into the num and converting the decimal to a percentage. | Writers’ Discretion |
| 1779 | Honig | NA | The importance of specific understanding of the language being used is especially important for ELA/ELD students. So structural language development should be emphasized in greater detail. | Writers’ Discretion |
| 1780 | Honig | NA | Algebra. Stronger emphasis on the necessary deeper understanding of the equals sign not meaning “solve for” but signifying “both sides are in balance”, and what is done to one side must be done to the other to keep the equation in balance, and opposite operations can be used to eliminate terms or portions of terms. Why the rules of exponents work. | Writers’ Discretion |
| 1781 | Fuson | NA | [This comment has been excerpted for length; see the Box link above for the full text of the comment.]  **Characteristic 2:** The treatment of standard algorithms in the CMF is misleading and needs to be modified. It does not reflect what the CA CCSSM or the CCSSM progressions actually say, and it will interfere with equity by requiring the teaching of more difficult ways of writing a method that can lead students to make mistakes. Correcting this view will support sense making and the use of more accessible methods by students.  Since the National Research Council Report Adding It Up (2001), all research-based consensus reports have clarified that **there is no such thing as the standard algorithm for any operation if “the standard algorithm” is taken to mean a particular way of writing all of the steps in the algorithm**. There are methods that come to be taken as such in particular times and places, but many of these including the versions called the standard algorithm in the CMF have difficult and misleading elements that make them more difficult to learn and carry out accurately. | Writers’ Discretion |
| 1782 | Parker | NA | [This comment was submitted in response to the comment above and has been excerpted. See the Box link above for the full comment in context.]  This idea that the standard algorithms are less difficult ways of writing a method that lead to fewer mistakes disturbs me. I have found the opposite to be true; paper and pencil algorithms are very prone to mistakes. We have decades of research to confirm this. Clinging to paper and pencil algorithms has long disabused many students from mathematics. And this strikes me as 20th Century thinking. More on the ease of recording alternative strategies and algorithms later. | Non-Actionable |
| 1783 | Fuson | NA | [This comment has been excerpted for length; see the Box link above for the full text of the comment.]  **Characteristic 3:** The treatment of Number Talks and the emphasis on open tasks needs to be modified to support instead of interfere with equity. The CMF uses in many places examples of Number Talks (also called Math Talks and Dot Talks). These talks are a pedagogical practice in which students solve problems mentally, share their methods, and the teacher writes down the student method for discussion. These talks have a good goal: to enable students to use different methods and to discuss their methods. But they are remediating bad teaching students have had rather than providing good initial grade-level teaching. And they are repetitive: “Whatever the grade level, we always begin Number Talks with whole numbers, one operation at a time. We don’t even consider moving to fractions or decimals within an operation until students can work strategically and confidently with whole numbers.” (Parker and Humphreys, 2018). And Dot Talks are supposed to precede Number Talks, adding even more time to this sequence. | Writers’ Discretion |
| 1784 | Parker | NA | [This comment was submitted in response to the comment above and has been excerpted. See the Box link above for the full comment in context.]  Number Talks are a model of good teaching, but they were never intended to replace good instruction that provides the initial conceptual development of the operations. They are designed to help students learn to use those operations flexibly and fluidly. They help students learn to have mathematical ideas and make sense of computational relationships at all levels. | Non-Actionable |
| 1785 | Fuson | NA | [This comment has been excerpted for length; see the Box link above for the full text of the comment.]  **Characteristic 4:** The CMF treatment of the number line in TK, K, and Grade 1 is misleading and needs to be modified for equity and mathematical purposes. National Research Council reports beginning with Adding It Up (2001) have all recommended introducing the number line at Grade 2 where length measurement is introduced. This is reflected in the CA CCSSM standards. A book published by the National Council of Teachers of Mathematics indicates the reasoning behind delaying number lines until grade 2.  **“Number lines are not appropriate for children before grade 2**  A great deal of confusion arises about what the term number line means. Two NRC reports (Kilpatrick, Swafford, and Findell 2001; Cross, Woods, and Schweingruber 2009) recommend that number lines not be used until grade 2 because they are conceptually too difficult for younger children. In early childhood materials including kindergarten, the term *number line* or *mental number line* often really means a *number path*, such as in the common early childhood games where numbers are put on squares and children move along such a numbered path. | Writers’ Discretion |
| 1786 | Buck | NA | I'm writing to give feedback about the Mathematics Framework up for review.  While I agree with the thinking behind not allowing students to move beyond Algebra/Math I in 8th grade, I do think there should be exceptions made for students of exceptional intelligence.  I do not think content should be skipped and these students will need to demonstrate proficiency of grade levels to move more quickly, but I do think there should be some caveat for those few and far between students.  I believe if the state recommends a pathway in specific grade levels, that the state could also suggest (or set) criteria for students who qualify for this.  In addition, there should be a caveat for students who are significantly below grade level going into high school in taking something more remedial than Math I in 9th grade.  If we keep passing students along and they end up needing to take remediation courses in college, why shouldn't they provide these to students earlier in their educational careers?  Perhaps there also needs to be a point in elementary school where students are recommended for remediation.  I don't want to lose local control but the state can certainly make suggestions and recommendations. | Not Recommended |
| 1787 | Buck | NA | The second thing I'd like to comment on is the pathways. I believe that the CDE should have one pathway for all public schools and that this should be the Integrated Pathway. Of course, there can be a phase out / phase in for districts using the traditional pathway. However, if we propose the integrated pathway because we believe integration makes learning more deep and meaningful, then we cannot allow districts to follow something different and provide a subpar education for students. | Not Recommended |
| 1788 | Beckmann | NA | [This comment has been excerpted for length; see the Box link above for the full text of the comment. The commenter also provided an attachment, which is available at the Box link.]  I am writing to urge you to listen closely to Professor Karen Fuson’s concerns about the proposed California Math Framework (CMF) and to make the changes she recommends.  Fuson has done extensive research over multiple decades with children from disadvantaged backgrounds and developed and refined teaching-learning paths through which children can achieve proficiency with numbers and operations in base ten. One key finding is that *right from the beginning*, children can use place-value ideas with concrete models, drawings, or other visuals *meaningfully*, to develop and use efficient, accurate, and generalizable written methods. In agreement with the NBT Progressions and discussion on Bill McCallum’s website, Fuson and I have discussed how some of these written methods—which initially include or are related to drawings—can be considered implementations of the standard algorithms (see Fuson, K. C. & Beckmann, S. (Fall/Winter, 2012-2013).  Standard algorithms in the Common Core State Standards*.  National Council of Supervisors of Mathematics Journal of Mathematics Education Leadership, 14 (2)*, 14-30; attached to this email). | Writers’ Discretion |
| 1789 | Statham | NA | The focus on equity and big ideas is important and needs to stay in the framework. I like the drivers of investigation to bridge activities and ways of thinking with other subject areas (such as science). I like reading, but this is sooooo loooong. Is there a way to UDL the framework for users? Perhaps create a website that can be explored instead of just downloading a document to read? A CA dept of Ed website would be a better place to house all the links to references in the document and additional websites & resources could be included as well. | Not Recommended |
| 1790 | Habecker | NA | The attention to equity throughout this framework is BRILLIANT! I support it entirely. | Non-Actionable |
| 1791 | Miller | NA | The framework has morphed into a very lengthy document that does not include standards. I miss the standards discussions from the old framework. While the points included are good, I believe that the length makes it overwhelming and the lack of standards takes away one of the main reasons many utilized the old framework. | Non-Actionable |
| 1792 | Jason M | NA | [This comment has been excerpted for length; see the Box link above for the full text of the comment.]  I am writing to share my concerns with the math framework revisions.  These revisions place the focus in the wrong areas for students under achieving in math, and robs gifted students from achieving excellence.  In essence this is a 'dumbing down' process where children are taught at the lowest level so as to make anybody feel ashamed that they are not as smart or advanced as other kids.  This is counterproductive as math is a subject that does not allow for creative differences.  IE, two plus two equals four.  We should not deviate from such basic principles.  Our goal should be to develop and expand on a math curriculum that allows gifted students of any color or ethnic background to excel.  As we know, kids have a wide range of gifts that may fall into math, writing, sports, arts, sciences, etc.  This is how we were created and it should be celebrated, not hindered.  As a student that struggled in math, my teachers and schools did what they could to keep me from falling behind, but ultimately, the responsibility of my success lied with me and the support of my family.  In other words, it began at home. This practice should be encouraged. | Non-Actionable |
| 1793 | Newell, Chiles | NA | The lack of advanced curriculum and talent development services in mathematics will further exacerbate the excellence gap in California and fails our advanced learners, with the greatest consequences for our students in urban, rural, and Title I schools and for our American Indian, Alaskan Native, Black, Latinx, Native Hawaiian, and Pacific Islander students (Gentry, Gray, Whiting, et al., 2019; Wright, Ford, Young, 2017).  By offering advanced mathematics, reinforced by gifted and talented services, California ensures that its next generation of diverse, innovative producers are equipped with the conceptual foundation, critical thinking, and real-world problem-solving to effectively contribute as dynamic members of the workforce and as individuals who can address problems critical to the future of science, engineering, technology, and mathematics. | Non-Actionable |
| 1794 | Saul | NA | [This comment has been excerpted for length; see the Box link above for the full text of the comment.]  I write from a background of 35 years in the classroom with numerous ways to demonstrate success, including teaching awards. I have worked with Jo Boaler and respect her achievements.  But I take great exception to her attacks on gifted education. In this Framework, and other places, she creates straw men, then burns them, producing heat but no light. Her descriptions of gifted education are inaccurate and based on 'worst practices'. Public policies should be based on best practices.  I don't have room for direct quotes here, but the Frameworks suggest that notions of 'giftedness' necessarily imply an attribute which is fixed and preordained, so that the gifted student is chosen or anointed. This is a primitive viw of the notion. In my practice I have seen kids acquire and lose a gift. I have seen a gift die from lack of nurturing, and lay dormant from not being awakened.  Most often, I have seen kids (and I'm talking about 10% of those in my classes) who are bored in class, have already mastered the work, and are not learning anything. (And another 10% who are learning by rote, despite the teacher's best efforts). So how do we address the needs of those learners? | Non-Actionable |
| 1795 | Solberg | NA | The problem with the way math is taught, in our experience, is that in elementary school there is no advancement. Every student goes at the same pace. For those who grasp the concepts and are ready to move on, they must sit quietly and wait for the others to understand the concepts. It would be nice if differentiated instruction were provided but it's not. The teachers are overwhelmed with providing differentiated instruction to special ed students and english language learners and it is easier to give the students who grasp the concepts more busy work.  Then in middle school, in our district, they take the kids that score highest in math and teach them 3 years of math in one year so that they can move on to algebra in 7th grade.  By 6th grade, they are often bored with school and they have learned that they can take a lazy approach to it because they haven't been challenged. They have developed bad habits and in some cases, bad behaviors. Suddenly they are thrown into the fast lane. Some kids adapt. Some kids have parents who have resources to provide them with the support they need to adapt. But some kids fall behind and lose their confidence in their skills -- especially math. This is a tragedy because in reality, it was one of their strengths. | Non-Actionable |
| 1796 | Becker | NA | My two main points are about length of the document and redundancy. The document is much too long to be reasonable for any classroom teacher to read. Even if they pick the chapters that pertain most to the grades they teach, there is too much content that is not optional. And there is so much redundancy found from one chapter to the next. A careful editing should weed out places where the same thing is said in different chapters. This will help some with the length but also will be less frustrating to the reader. And much of the vignettes etc. can be put in optional reading using active links. This would streamline the document while making the reading for more in-depth exploration easily accessible.  An alternative would be to suggest which chapters are critical reading for which grade span teachers. In that way one could suggest everyone read Ch 1 and then one would not need to repeat, e.g., all the information about CCs and Dis and the figure again as done in Ch. 7. | Not Recommended |
| 1797 | Fisher | NA | I am thrilled that my children have the opportunity to attend a local public school where they are academically challenged and offered the sense of community public school provides.  I have read the proposed revision to math frameworks. While we all want equity in education, this is the wrong way to go about it. We should redouble our efforts to reach advanced learners in all corners, not eliminate the limited programs we have now. Removing opportunities for math advancement will actively harm a segment of our student population, including and perhaps especially, those in underserved communities.  If advancement opportunities in math were removed, I would regretfully, but absolutely, move my children to private schools. For my family, this would be a financial stretch, but possible and we would make it work. I expect most families who could afford to do so, whose children are benefiting from the opportunity to take advanced math classes that challenge them, would move their children to private schools. Removing the ability for schools to meet children where they are at, which is different for every child, will result in mediocrity in our public schools and gross inequities for our underserved communities.  I implore you to reconsider and to allow children to continue to advance in mathematics at the pace each child needs. | Non-Actionable |
| 1798 | Muller | NA | [The CDE received multiple copies of the comment below. The comment has been excerpted for length; see the Box link above for the full text of the comment.]  I am an educator who is deeply concerned that the California Mathematics Framework includes "A Pathway to Equitable Math Instruction" as a resource.  "A Pathway to Equitable Math Instruction" is framed in the controversial and divisive critical race theory ideology, repeatedly blaming poor pedagogy on "white supremacy culture."  When California schools consistently perform below average in math on both the CAASP assessment and on our Nation's Report Card, it's especially important that the State Board of Education provide resources that contain research-based best practices for improving outcomes, and reject resources that castigate teachers and single out one race for blame.  Focusing on one race for disparagement is discrimination. It is the California State Board of Education’s obligation to not adopt instructional materials "that contain any matter reflecting adversely upon persons on the basis of race.” (CA Education Code Section 51501).  I ask that you reject critical race theory, and replace "A Pathway to Equitable Math Instruction" with a resource that inspires California teachers, rather than demeaning and dividing them. | No Motion Recommended |
| 1799 | Vine | NA | [This comment has been excerpted for length; see the Box link above for the full text of the comment.]  Thank you for allowing public comments on proposed revision to the math frameworks. I am a CA credentialed teacher working in a private school. As a private school, we are not much affected by these changes, but we do keep tabs on what/how public schools are teaching as well as the SARCs of local public schools and charters.  After reading much of the document I have to say the proposed revisions are not grounded in reality. The reality being that public schools and public school teachers' unions have lost the public's trust and goodwill due to school closures. I don't know how much of the document was drafted pre-Covid, but post-Covid the last thing you should be doing is further alienating parents with proposals to make math "woke" and more focused on social justice than actual math.  With public school students suffering the greatest pandemic learning losses among all California students, the last thing they need is a pivot to politicized math that de-emphasizes rigor and fundamentals in favor of meta-discussions of math. These poor children are going to fall even further behind their private school, charter school, learning pod, and homeschool peers. | Non-Actionable |
| 1800 | Malione | NA | [This comment has been excerpted for length and contains hyperlinks; see the Box link above for the full text of the comment and the links.]  My biggest issue with the new framework is that, in its determination to bestow social justice and equity, it denounces existing exclusionary practices as “arbitrary or irrelevant,” without ever honestly examining their necessity in the context of educating a workforce that will be tasked with the technological realities of the mid-21st Century. The framework makes a bold push for an equity-informed reimagining of our entire K-12 math education pathway, while redefining many important terms in ways that dissemble a fundamental disdain for STEM (Science, Technology, Engineering, and Mathematics) career preparation as an educational goal.  Perhaps the authors perceive that these STEM careers have been too inequitable for too long, based on their ongoing demographic numbers, or that they have been the drivers of too many systemic issues, now under much public antipathy, which the authors feel compelled to remove with haste. I make no argument with these concerns, but I do question how effectively the recommendations put forth in the draft framework will serve to remedy them. | Non-Actionable |
| 1801 | Malione | NA | [This comment has been excerpted for length and contains hyperlinks; see the Box link above for the full text of the comment and the links.]  The framework authors seem to believe that a procedurally heavy and logically sophisticated approach to math, of the kind that is absolutely necessary for any level of STEM pre-career eligibility, can simply be provided later, when the students are attending college. There is much long-standing research indicating exactly the opposite, that students need to be exposed to these mathematical challenges early and often, if they are ever going to reach the very top levels.  I fear the issue would go even further than that. The framework tries to make math more accessible by diminishing the importance of subject content, loading the classroom with more exploratory activities centered on practicing visual and representational connections between "big ideas," rather than fleshing out the mathematical details pertinent to each sub-topic. When math is taught well and in a timely sequence, the “big ideas” emerge as a reasonable, straightforward, and nearly self-apparent framework, perceptible through common meanings and pattern forms that span across many distinct content topics. | No Motion Recommended |
| 1802 | Malione | NA | [This comment has been excerpted for length and contains hyperlinks; see the Box link above for the full text of the comment and the links.]  The framework authors also make many gross overgeneralizations about groups of students, using blunt comparisons of mean values across groups to reduce a wide range of individual experiences down to a bolder but oversimplified problem statement. Nuances that would speak to other differences among and within these groups are blended away, even to the point of mischaracterization.  Gifted and talented students, those traditionally established as being in the top 2% or 3% of scorers on aptitude tests, are quite severely misrepresented in this way. Concern is expressed for the self-identity that emerges as a result of student labeling, positive or negative, and the pattern is blamed on a “fixed mindset,” which the authors claim is the driving worldview behind any and all programs of early remediation, similar ability grouping, pathways offered in middle and high school to separate students by math aptitude and goals, and even the very concept of “giftedness” itself. | No Motion Recommended |
| 1803 | Gerien | NA | [This comment has been excerpted for length; see the Box link above for the full text of the comment.]  As a parent of an advanced-in- mathematics high school student, I am very concerned about the current draft of the Math Framework for California.  Since our entrance into the public school system at kindergarten, I have observed a failure of the system to encourage students' advancement in mathematics, despite being labeled as "gifted". In our case, our child quickly grasped mathematical concepts being taught at each level but despite substantial parental intervention was continually told that in order to move forward she would need to find outside sources for instruction. While she had a parent who was able to advocate on her behalf, there were still too many obstacles to overcome to allow her to move forward at a pace that would have been more engaging and enjoyable. For advanced learners who do not have an adult to advocate on their behalf, they are forced to languish in classes that stifle their engagement and interest in the subject. In either case, students that could achieve more are left alone to do "extra" assignments that don't lead to a deeper understanding of the material and, in our daughter's case lead to boredom and a dislike of math. | No Motion Recommended |
| 1804 | Walters M | NA | [This comment has been excerpted for length and contained hyperlinks; see the Box link above for the full text of the comment and the links.]  I wanted to reach out as I do <bh>NOT <eh> support the new Math Educational Framework.  The new frame work continues to undermine the fact that children need differentiated learning programs that allow for kids who have difficulty learning a subject have ample support while those who excel can continually be challenged.  This program to flatten the curve only increases the divide between those kids who go to private school and get a better education and those who are stuck in public school being taught to the lowest common denominator.  This program seems to believe that a procedurally heavy and logically sophisticated approach to math, of the kind that is absolutely necessary for any level of STEM pre-career eligibility, can simply be provided later, when the students are attending college.  This is completely false.  Math teachers in college lecture, they do not handhold the student and any student who does not have the appropriate foundation typically changes majors or drops out of college entirely.  Directing attention to the big ideas without first having honed better perception in detailed, well-practiced, symbolic terms provides little more than a blurred shadow of the subject. | No Motion Recommended |
| 1805 | Walters C | NA | [This comment has been excerpted for length and contained hyperlinks; see the Box link above for the full text of the comment and the links.]  We are opposed to the new math teaching concept.  California continues to slide in basic math skills and it is because of Common Core and this new proposed program that there will be no improvement.  When we first came to California in 1972, California was was in the top 10% of schools across the Nation for math, science, and reading.  It has substantially slipped to the point that is embarrassing and a detriment to the kids who need a solid STEM foundation for engineering, math, science.  California and the Nation need high school graduates who are prepared for college so that the colleges can produce well qualified engineers, scientists, mathematicians, and math/science teachers.  The proposed new frame work continues to undermine the fact that children need differentiated learning programs that allow for kids who have difficulty learning a subject have ample support while those who excel can continually be challenged.  This program to flatten the curve only increases the divide between those kids who go to private school and get a better education and those who are stuck in public school being taught to the lowest common denominator. | No Motion Recommended |
| 1806 | Stern | NA | [This comment has been excerpted for length; see the Box link above for the full text of the comment.]  Hello, I am the parent of 3 children, all of whom have disabilities of various sorts (one has ADHD, one has chronic health impairmentsl, and one has dyslexia). All of them attended public school in Piedmont which allowed various math pathways which they all enjoyed. These math options began in Middle School. None of my children excelled in English - but that was OK because they could take the regular English classes while their friends took the Honors and AP English Classes. Meanwhile, they could take more rigorous math options.  I implore you to keep a program of differentiated learning in math, the more options the better. All of my children have done well at math. My oldest completed AB calculus in high school and continued to major in Economics and Mathematics at UC Santa Cruz. My middle son took pre-calculus at community college over the summer in high school so that he could take both AB Calculus and BC Calculus in high school before going to UCSB to major in Computer Engineering. His high school calculus allowed him to complete some Physics extra credit challenges that he truly enjoyed and which helped him to settle on a STEM future. | No Motion Recommended |
| 1807 | Muthig | NA | [This comment has been excerpted for length; see the Box link above for the full text of the comment.]  I am all for equitable access to learning and providing equitable opportunities for every student to flourish in math and all disciplines. I think it is important to change mental attitudes that negatively impact women and people of color from math and finding ways to change the culture around math being exclusive. I am concerned that the proposed changes will water down an already watered down system.  Likely negative outcomes from this proposal look to be:   1. An over-reliance on engaging math investigations may actually conflict with the later development of top-level math skills. 2. Weakened and irrelevant assessments mean that educators cannot troubleshoot the curriculum’s shortcomings. 3. Students who would have otherwise excelled in math will be bored by the approach and plateau. 4. A brain drain and funding drain from public schools, as higher-performing students flee to private schools. 5. Equity setbacks rather than improvements, due to increasing STEM career exclusion for students who come through this framework. | No Motion Recommended |
| 1808 | Rubalcava | NA | The document as a whole has incredible research and theory, but does not provide specific guidance on moving from theory to practice. The framework in its current iteration does not have great usability for classroom teachers and would require tremendous synthesis and professional development. | Non-Actionable |
| 1809 | Rubalcava | NA | For all chapters, use visuals to highlight specific teacher actions that might be used to implement the guidance and when possible, include specific strategies within the document rather than requiring teachers to go outside of the framework. *See specific examples included below.* | Non-Actionable |
| 1810 | Rubalcava | NA | If you call out a specific strategy as being particularly effective for students with disabilities and multilingual learners, include a concrete example of the strategy in action. For example, include an example of a sentence frame that might be used. | Writers’ Discretion |
| 1811 | Rubalcava | NA | For all vignettes throughout the framework, please have consistent structure and include: grade level, content connection, driver of investigation, clusters/standards, ELD standards, UDL guidelines, etc. as appropriate. | Writers’ Discretion |
| 1812 | Rubalcava | NA | The phrase “Big Ideas” is used in several ways throughout the document in ways that do not match the definition given in Chapter 1. It would support teachers to have more clarity about what the big ideas are at each grade level. This could be done by including the web visuals and tables included in the work of Dr. Jo Boaler and Cathy Williams with the Distance Learning guidance. | Writers’ Discretion |
| 1813 | Struble | NA | [This comment has been excerpted for length and contains hyperlinks; see the Box link above for the full text of the comment and the links.]  Despite its claims of improving equity, the overall direction of the revision is actually misguided and will cause significant, irreparable harm to disadvantaged students and the just cause of equity.  I'm reminded of the recent experiment by the National Equity Lab that enrolled 300 11th and 12th graders from high poverty schools in a Harvard course The students were given the opportunity to participate in this intense, 'tracked' course -- and they excelled.  There is no surprise in this. We need to create more opportunities for disadvantaged students to have differentiated learning experiences, especially in mathematics where years of research supports this requirement. A more proper remedial focus to help disadvantaged students is to ensure they have the scaffolding and support they need along with opportunity. Erasing the opportunity for differentiated learning experiences will erase opportunity for everyone. There is no equity or justice in that, and it is unacceptable. | No Motion Recommended |
| 1814 | Marks | NA | The most positive, critical aspects of this Framework are:   * focus on depth and breadth of learning, and away from acceleration, especially in middle school * focus on students' active learning and construction of knowledge, and away from simple transmission * focus on equity, and discouragement of tracking | Non-Actionable |
| 1815 | Marks | NA | My biggest concern about this draft of the Framework is that it is huge, dense, and often redundant. With this in mind, who is going to read it? The list of potential audiences for CMF (1.574-605) is appropriate. But the full framework is probably most useful for a subset of these: curriculum and assessment designers, pre- and in-service educators and coaches, local administrators, and materials adoption committees. Abbreviated summaries will be much more practical for parents, teachers of other disciplines, higher ed people, and public audiences. As for elementary, math, and other STEAM teachers, most of them will also probably not slog through this massive volume. So please consider how to make the Framework and its offshoots useful for everyone you hope will use it. One particular action you could take is to reduce the redundancy throughout; many points are made numerous times and may discourage further reading. | Not Recommended |
| 1816 | Marks | NA | As a final comment, I was shocked to see poor editing and outright errors (e.g., pictures that don't match the accompanying discussion) throughout this first draft. I urge you to encourage the Framework's writers to tighten this up before the next draft goes out for review. | Non-Actionable |
| 1817 | Rodriguez | NA | I haven't taken the time to finish reading the whole document. I am hoping that 3 Acts Tasks are included in the Framework as a way to engage students in thinking. | Writers’ Discretion |
| 1818 | Barger | NA | [This comment has been excerpted for length. See the Box link above for the full comment.]  1. **Equity: Creating Opportunities that Foster Mathematical Agency and Identity for ALL Students**  The CISC Math subcommittee is in agreement with the framework’s position on equity for ALL students. The framework offers a new lens and approach to mathematics, which promotes student identity, agency, and opportunity. Devoting a chapter to Teaching for Equity and Engagement, including the many research-based resources and references, and focusing on equity and social justice throughout the framework emphasizes the importance of rehumanizing mathematics. Acknowledging the need for culturally and linguistically responsive mathematics teaching and learning is a step towards combating the inequitable practices that exist within the system. Specifically, the inclusion of integrated English Language Development (ELD) vignettes and examples of support for English Learners throughout the framework illustrates the significance of language in mathematics classrooms and ways to provide access for our diverse students. | Non-Actionable |
| 1819 | Barger | NA | In past frameworks, the chapter on “equity” was relegated to the end of the framework. This framework sets equity at the forefront to signal and frame the structural, instructional, and cultural aspects of equity for the readers. The overarching principles that guide work towards equity in mathematics attest to the fundamental aim of the framework of responding and interrupting issues of inequity in the system. Such a vision of equity may require, however, more specificity to actualize the principles. | Non-Actionable |
| 1820 | Barger | NA | Regarding student identities, we propose expanding this construct and providing recommendations to advance educators’ understanding of diverse identities. This will help center educators’ knowledge of who their students are in order to develop culturally responsive and asset-based instructional approaches. A more richly-developed introductory section can be referenced in other chapters to provide a consistent and coherent message. | Writers’ Discretion |
| 1821 | Barger | NA | Provide specificity to strengthen the list of overarching principles to promote equity. The phrase “ALL students” can be defined to highlight and encompass ALL students, inclusive of race, gender, language, class, ableness, and neurodiversity to address the inequities that have resulted from exclusionary policies and practices. | Writers’ Discretion |
| 1822 | Barger | NA | Do not overly simplify students with disabilities as a singular group that needs the same set of strategies. Rather, recognize, acknowledge, and provide support for the range of disabilities, as well as the assets that students with disabilities bring to a mathematics community through different ways of knowing, seeing, and doing mathematics (See Tan, Padilla, Mason and Sheldon (2019), *Humanizing Disability in Mathematics Education*. NCTM.) | Writers’ Discretion |
| 1823 | Barger | NA | Balance examples, supports, and considerations for students with disabilities with the number of examples and references to supporting English Learners and Multilingual students. | Writers’ Discretion |
| 1824 | Barger | NA | Specifically connect equity and Universal Design for Learning (UDL) by redefining access. Access is not simply opening the door to what is already there, but redesigning what is already there. Reference Rachel Lambert’s work around UDL and mathematics. | Writers’ Discretion |
| 1825 | Barger | NA | Consider using “*If the World Were a Village*” task (from nrich.org) based on the book by David Smith as a sample snapshot to reference a lesson that can affirm and validate the diversity of our community in conjunction with learning various cultures and backgrounds. This task can either be in the Number Sense or Data Science chapter. | No Motion Recommended |
| 1826 | Barger | NA | **2. Reimagining Focus, Coherence, and Rigor**  The CISC Math Subcommittee is in strong support of the revised approach to focus, coherence, and rigor as students progress through TK-12 mathematics. | Non-Actionable |
| 1827 | Barger | NA | Strengths of the framework related to reimagining focus, coherence and rigor:  The new framework addresses the coverage-vs-depth challenge posed by the principle of focus by asking teachers and math leaders to design instruction around big ideas rather than using the standards as a design for instruction and assessment. | Non-Actionable |
| 1828 | Barger | NA | The shift from a narrow focus on a small number of standards to a focus on the essential understandings and connections between ideas will support students to see mathematics as a coherent and useful endeavor. | Non-Actionable |
| 1829 | Barger | NA | The authors have also nicely articulated the importance of implementing high quality tasks that promote reasoning and problem solving. | Non-Actionable |
| 1830 | Barger | NA | By leveraging the same Drivers of Investigation and Content Connections to make the mathematics relevant to students’ lives throughout the TK-12 progression, the framework will support district and site teams as they plan around both coherence and vertical articulation. | Non-Actionable |
| 1831 | Barger | NA | Finally, we appreciate the new definition of rigor in mathematics. By changing from procedural fluency to strategies for problem solving and computation, and moving from the idea that they should be taught with equal intensity to the idea of teaching them so that each supports the other will require a much deeper understanding of the mathematics. | Non-Actionable |
| 1832 | Barger | NA | Considerations for refinement related to reimagining focus, coherence and rigor:  Be more explicit about the relationship among Drivers of Investigation, Content Connections, and Standards for Mathematical Practice. The visual prompted more than a few people to ask if there are 96 total combinations that are expected to be taught now. Some believed this a structure for lesson design or a way of fitting in previously taught lessons. Consider a new diagram to describe how the SMPs, Content Connections, and Drivers of Investigations work together. | Writers’ Discretion |
| 1833 | Barger | NA | Focus and Coherence: Include the Big Ideas work included in the Distance Learning Guidance by Boaler and Williams to support both focus and coherence of content connections, big ideas and the content standards in grade band chapters. | Writers’ Discretion |
| 1834 | Barger | NA | Focus and Coherence: The references to the progressions documents, written by the CCSS authors are noticeably absent from the framework. We cannot assume that teachers new to the profession have seen them. Reference mathematics progression documents in both the progression and grade level chapters. http://ime.math.arizona.edu/progressions/ These also give meaning to the Big Ideas and provide greater granularity in how mathematics ideas develop across grade spans. | Writers’ Discretion |
| 1835 | Barger | NA | Rigor: Be more explicit about the interplay of the rigor components. See https://davidwees.com/content/conceptual-understanding-procedural-fluency-and-application/ as opposed to a Venn diagram where the circles are the same size, all the time, for each day of instruction. | Writers’ discretion |
| 1836 | Barger | NA | **3. The Framework as a Support for Instructional Planning**  The CISC Math Subcommittee recognizes that instructional planning happens at the lesson, unit, course/grade and system level. We appreciate the layered and embedded support for instruction, knowing that mathematics instruction is not isolated from complex teaching and learning that happens throughout a student’s day, year or school career. We have identified multiple strengths of the framework in this area. | Non-Actionable |
| 1837 | Barger | NA | Strengths of the framework related to support for instructional planning:  We support planning around big ideas as a contrast to planning to teach isolated standards. This is an improvement from the 2013 framework. | Non-Actionable |
| 1838 | Barger | NA | The focus on open tasks and student discourse throughout the framework complements the concept of planning around big ideas. | Non-Actionable |
| 1839 | Barger | NA | We appreciate that progressions are represented in all grade spans TK-12 and that they are embedded in every chapter. | Non-Actionable |
| 1840 | Barger | NA | Resources for additional tasks, vignettes and snapshots are helpful to see the guidance in action. The elevation of the mathematical practices as being equal to content is essential when planning for instruction. | Non-Actionable |
| 1841 | Barger | NA | We find the inclusion of ELD, environmental principles, and computer science standards being embedded in the vignettes and examples within the framework liberating and inspiring. We also appreciate the emphasis on the importance of number sense and data science for all grades TK-12. | Non-Actionable |
| 1842 | Barger | NA | Referencing NCTM Principles to Action content validates the important professional development work essential to elevating the math practices through the research-based math teaching practices. | Non-Actionable |
| 1843 | Barger | NA | Considerations for refinement related to support for instructional planning:  Need a clear and consistent definition of “Big Ideas.” The phrase is used in multiple ways throughout the document. Please include examples and non-examples that match the definition and use a different phrase when not referring to this specific concept. | Writers’ Discretion |
| 1844 | Barger | NA | Include the web and tables from the distance learning work of Jo Boaler and Cathy Williams to support the implementation of planning around big ideas in the grade level chapters. | Writers’ Discretion |
| 1845 | Barger | NA | Emphasize Rachel Lambert’s work around leveraging the assets of neurodiverse students to a greater extent throughout the framework. UDL is a design mindset and approach to planning that can build upon the assets of all learners. We recommend supporting teachers to embed UDL practices by providing math-specific examples of instructional design. Please Include examples of the four components of UDL (reflection & goal setting, mini lesson, self-differentiated learning, and self-differentiated assessment) in Chapter 2 and UDL vignette in each of the grade band chapters. | Writers’ Discretion |
| 1846 | Barger | NA | When referencing tasks in vignettes, consider linking to the task or lesson plan with the task so teachers have a more detailed understanding if needed. This also helps model both the approach to the mathematics and the layering of additional instructional considerations. | Writers’ Discretion |
| 1847 | Barger | NA | Progressions of standards need to be shared often and not just in paragraph format. Consider using an example like San Francisco’s visual model progressions. This will support instructional planning at the course and LEA level https://www.sfusdmath.org/visual-modelprogressions.html | Writers’ Discretion |
| 1848 | Barger | NA | Chapters 6, 7, 8: The grade band chapters seem to depart from the messaging of the rest of the document. All grade band chapters should revisit the themes of equity and engagement to better align with the messaging of the Framework as a whole. This should be done in the introduction, prior to specific guidance on instructional planning. | Writers’ Discretion |
| 1849 | Barger | NA | There are instructional examples that do not match the grade level which they are intending to illustrate. All examples and vignettes should include mathematics content standards aligned to the grade level (or span) they are intending to illustrate. For example, the Chapter 7 vignette “Followed by a Whale” follows a 5th grade class. While the content can be extended to include mathematics from grades 6-8, many teachers were distracted by the 5th grade work at the beginning of the example. When this occurs, the point being illustrated is lost as the reader focuses instead on the apparent misalignment of standards/ | Writers’ Discretion |
| 1850 | Barger | NA | [This comment has been excerpted for length. See the Box link above for the full comment.]  4. Dismantling the Fundamental Hierarchy in Mathematics Education: Ending Exclusionary Practices  Our CISC Mathematics Subcommittee strongly supports the position of this framework that mathematics education in California should serve as a launchpad rather than a gatekeeper. Furthermore, we agree with the document’s assertion that ALL students are capable of making important contributions to their communities and to civic discourse through the lens of mathematics and can achieve the skills to do so at the highest levels. In Chapter 1, the framework states: “To develop learning that can lead to mathematical power for all California students, the framework has much to correct; the subject and community of mathematics has a history of exclusion and filtering, rather than inclusion and welcoming.” | Non-Actionable |
| 1851 | Barger | NA | Strengths of the framework related to dismantling hierarchy and ending exclusionary practices:  Emphasis on mindset, accessibility, sense of belonging, and mathematical identity. | Non-Actionable |
| 1852 | Barger | NA | Equity and social justice in mathematics are emphasized throughout the framework. | Non-Actionable |
| 1853 | Barger | NA | Bold messaging about the dangers of acceleration and potential harm it could have on a student’s long-term relationship with mathematics and the use of NCTM’s *Catalyzing Change in High School Mathematics* as a reference for the sections on tracking and acceleration, and to highlight the damaging effects of exclusionary mathematics practices. | Non-Actionable |
| 1854 | Barger | NA | Highlights the importance of high school pathways with a common year 1 and year 2 course with student choice in year 3 and year 4. | Non-Actionable |
| 1855 | Barger | NA | Focus on open tasks and student discourse throughout the framework. | Non-Actionable |
| 1856 | Barger | NA | Chapters 6, 7, and 8: Revisit the ideas from Chapter 1: “Mathematics as Gatekeeper or Launchpad?” (Ch.1, Line 51) and “Rejecting Fixed Ideas About Students” (Ch. 1, Line 227). These ideas would fit best in the introduction of each grade span chapter to provide a lens through which to view the content. | Writers’ Discretion |
| 1857 | Cole | NA | I have reviewed your plans for revising the math curriculum for my kids and their fellow students and I find it completely unacceptable. I am a teacher and know that my students learn in different ways and in differing time frames. To insist that all students must be shoved through the same educational regiment without making any consideration for their actual learning needs is the height of arrogance and cruelty. I am shocked at your complete lack of compassion for our children. How about increasing the opportunities to learn by investing in resources for the classrooms, supporting teachers and reducing the class size so students can get the help they need? Students are individuals. They are not widgets. | No Motion Recommended |
| 1858 | Foster E | NA | [This comment has been excerpted for length. See the Box link above for the full comment.]  I unequivocally support equity and full inclusion for our student communities. However, despite its claims of improving equity, the overall direction of the revision is actually misguided and will cause significant, irreparable harm to disadvantaged students and the just cause of equity.  I'm reminded of the recent experiment by the National Equity Lab that enrolled 300 11th and 12th graders from high poverty schools in a Harvard course The students were given the opportunity to participate in this intense, 'tracked' course -- and they excelled.  There is no surprise in this. We need to create more opportunities for disadvantaged students to have differentiated learning experiences, especially in mathematics where years of research supports this requirement. A more proper remedial focus to help disadvantaged students is to ensure they have the scaffolding and support they need along with opportunity. Erasing the opportunity for differentiated learning experiences will erase opportunity for everyone. There is no equity or justice in that, and it is unacceptable. | No Motion Recommended |
| 1859 | Caskey | NA | I am a parent of 4 CA public school students and I am writing to to object to the proposed changes you are making to CA's math framework. I have read the California Association of the Gifted commentary and heartily agree. I am a longtime public interest lawyer and have served as an advocate for children in the foster care and juvenile justice system. Equity is not served by not allowing access to content for those who need it. Equity is served by really increasing educational opportunities for all. This is NOT what the proposed framework will do.  The proposed framework is based on educational philosophy, ideas about pedagogy. It is not based evidence-based. Our children are not served by limiting academic options. They are served by increasing access to content when they are ready for it.  Please reconsider these changes to the math framework in CA schools. | No Motion Recommended |
| 1860 | Fraser | NA | I had the pleasure of working on the 1992 framework and see many of the conceptual ideas represented in this one.  However, this document is way too long, needs serious editing, and still tracks students. The robust 8th grade course should be required of every student instead of pushing middle school students into high school courses.  I would have thought that almost 30 years later that we would be further along with eliminating building tracking into the system. This 2021 framework has all the right words but does nothing to eliminate tracking. It describes a robust 8th grade course but when you look at textbook adoption it is back to the 8th grade textbook or Math 1 or Algebra 1. Then for high school there are another two remedial courses for kids who supposedly aren’t ready for Math1 or Algebra 1 in 9th grade.  At this rate we will never get rid of tracking. We were closer 30 years ago than we are now.  I look forward to the next revision. | No Motion Recommended |
| 1861 | Lavadenz | NA | The comment below has been excerpted for length. See the Box link above for the full comment.]  Our written and oral comments have signaled the need to include specific practices and content to ensure that culturally sustaining, asset-based best practices are embedded in professional learning and advance language development strategies and scaffolds that support English Learners and ensure access to the mathematical content and practices. We provide an accompanying document with specific recommendations for chapters 3, 4, 6, and 11, and continue to offer our support and respectfully reaffirm our comments and suggestions focused on the following key recommendations: | Non-Actionable |
| 1862 | Lavadenz | NA | **Centering equity in every chapter:**   * Naming equity specifically in the introduction as well as **exemplifying equitable practices** in each chapter. * Referring to and **incorporating ELD standards** for intentional integrated and designated ELD. * Referring to and making connections to the English Learner Roadmap principles. | Not Recommended |
| 1863 | Lavadenz | NA | **Ideologic orientation:**   * Clearly identifying an **anti-bias** lens to reverse **Eurocentrism** in curriculum and instruction.   Making **specific connections** within and between chapters in the framework where these topics are addressed. | Not Recommended |
| 1864 | Lavadenz | NA | **Culturally and linguistically sustaining practices:**   * Identifying and highlighting **asset-based perspectives and practices**. * Identifying and recommending **specialized professional development** opportunities centered on culturally diverse and multilingual learners. * Offering explicit connections to **culturally sustaining classroom structures** to support collaborative activities and mathematical discourse.   Including **explicit examples, snapshots, vignettes**, videos, games, and other resources. | Non-Actionable |
| 1865 | Lavadenz | NA | **Professional Learning:**   * Including descriptions and supports for the implementation **of English Learner centered strategies.** * Identifying and recommending specialized professional development opportunities centered on English Learners and Multilingual learners:   + **Asset-Based** approaches**, culturally s**ustaining **Instruction**,   + EL **typology** and **specific language needs and strategies**   Making specific connections to **classroom structures that support culturally and linguistically diverse learners** including explicit examples, snapshots, vignettes, videos, games, and other resources. | Non-Actionable |
| 1866 | Lavadenz | NA | **Virtual learning context**   * Providing specific **accommodations and connections to EL standards** and online resources. * Specifically incorporating recommendations for culturally sustaining adaptations and supports to consider for **asynchronous** and **synchronous** lessons.   Making explicit connections to online **multilingual resources** and the use of on-line platforms and communication of expectations for both students and parents. | Non-Actionable |
| 1867 | Huang | NA | [This comment below included multiple attachments. See the Box link above for the attachments.]  My name is Ling Huang. I earned an economics Ph.D from UC Berkeley and had taught at Peking University for years before moving to California.  The draft CMF is a reform math's manifesto. It is extremely misleading and harmful, threatening America's future and victimzing disadvantaged kids.  Jo Boaler should resign from her the CMF project.  Someday, America will come to realize that reform math/fuzzy math is one of the biggest frauds in human history.  I am still working on my opinion document, which I will submit ASAP.  The attached are for your reference. Klein and Rosen's critiques on the 1992 CMF remains valid and perinent on this draft 2021 CMF.  My two pieces, Jo Boaler's Reform Fallacy and Why Has PAUSD Failed in Closing the Achievement Gap or Reducing Stress, provide relevant viewpoints and facts, too. | No Motion Recommended |
| 1868 | Meyers | NA | [The comment below has been excerpted for length. See the Box link above for the full comment.]  As educators, we support school curricula that confront racism, develop civic responsibility, and help students build the 21st century skills that they need to succeed in school, work, and life. We rely on the State Board of Education (SBE) to provide frameworks, standards, and resource materials that help us to achieve these goals.  To that end, we are deeply concerned about the draft 2021 CA Mathematics Framework, which contains discriminatory and divisive content that will impede us from accomplishing these important goals in math instruction.  The ideology behind this discriminatory and divisive content is critical race theory. According to Brittanica, critical race theory is the theory that race “is a socially constructed concept that is used by white people to further their economic and political interests at the expense of people of colour [and that] racial inequality emerges from the social, economic, and legal differences that white people create between ‘races’ to maintain elite white interests...giving rise to poverty and criminality in many minority communities.” | No Motion Recommended |
| 1869 | Meyers | NA | [The comment below has been excerpted for length. See the Box link above for the full comment.]  Equitablemath.org website and its accompanying guide, “A Pathway to Equitable Math Instruction” are included key resources for teaching math. This resource and guide are recommended three times within the draft CA Mathematics Framework. They include numerous discriminatory, political, and inflammatory content, including:   * “A Pathway to Equitable Math Instruction” labels numerous commonly-used math teaching methods as “white supremacy culture.” This includes labeling as “white supremacy culture” common pedagogy such as “addressing mistakes,” “(when) I do, we do, you do is the format of the class,” and “(when) state standards drive learning in the classroom.”   While the resource includes better, alternative teaching methods, this divisive terminology results in alienating educators and tarnishing these improved methods by association with racism. The benefits of adopting better math pedagogy do not require other methods to be characterized as “white supremacy.” In addition, it is best practice in education to encourage a growth mindset. | No Motion Recommended  (This document is currently under review; no recommendation at this time) |
| 1870 | Meyers | NA | [The comment below has been excerpted for length. See the Box link above for the full comment.]  The Mathematics Framework cites “Access to mathematics: ‘A possessive investment in whiteness” (Battey, D. 2013). This paper is cited in Chapter 2. It includes numerous discriminatory and pejorative statements about white people, including:   * “Whiteness creates an ideal race, with which to devalue and subsequently oppress other racial groups. Understood in this way, whiteness has a dual nature: privileging Whites and oppressing those under the boundary of White.” * “Moreover, whiteness oppresses blackness through deficit ideas, poor treatment, and lower quality of instruction.” * “...an identity of whiteness serves to constrain a teacher educator in discussing equity with future teachers.”   These discriminatory and pejorative statements do not serve to inspire all educators or to improve math pedagogy. Rather, they are used to connote that all racism and discrimination is perpetrated by white people. | No Motion Recommended |
| 1871 | Meyers | NA | [The comment below has been excerpted for length and contains an embedded hyperlink. See the Box link above for the full comment and the link.]  The Mathematics Framework Includes the false statement: “Mathematics education in the United States was initially structured for a narrow purpose: to prepare privileged, young, white men for entrance into elite colleges.”  This statement is attributed to a source (Furr 1996) that does not include this information. This incorrect statement falsely implies that classism and racism were responsible for limited math education in the United States.  The full source states (emphasis added): “The rise of universal, free, compulsory education together with new college entrance requirements and the continuing need for basic commercial computational skills meant a *significant increase in the number of students who were being taught arithmetic and a similar increase in the few privileged boys learning algebra and geometry*.”  This mischaracterization of the primary source is both inflammatory and divisive. | No Motion Recommended |
| 1872 | Meyers | NA | The Mathematics Framework states misleading statistics, including that, “In California in the years 2004–2014, 32 percent of Asian American students were in gifted programs compared with 8 percent of White students, 4 percent of Black students, and 3 percent of Latinx students  (https://nces.ed.gov/programs/digest/d17/tables/dt17\_204.80.asp).”  However, in the specific source cited, 40 percent of Latino students, 32 percent of White students, 20 percent of Asian American students, and 6 percent of Black students were enrolled in gifted and talented programs. Gender representation was approximately equal.  This mischaracterization of the statistics promotes critical race theory’s accusation that racism is permanent, and implies that all opportunity gaps in math education are race-based, and ignores the important progress made by various ethnic groups over time. | No Motion Recommended |
| 1873 | Michelena | NA | This framework has some big shifts that will require some very heavy lifting. Some of these resources feel very theoretical in nature and less practical to teachers | Non-Actionable |
| 1874 | Michelena | NA | It will be interesting to see what publishers will do to adjust curriculum to match these shifts. | Non-Actionable |
| 1875 | Moschkovich | NA | [The comment below has been excerpted for length. See the Box link above for the full comment and supporting citations.]  I first want to acknowledge and appreciate the sections in the framework that address equity issues head on (i.e. mathematics as a gatekeeper, access, deficit models, etc.). I will limit my observations and recommendations to address one issue with important implications for equity in instruction, teacher education, assessment, and materials development.  The main two issues I want to address are:   * What kind of communication is important for equity in mathematics classrooms? * Why are multiple representations and modes crucial for equity in mathematics classrooms?   Communication is important because it supports conceptual understanding. The more opportunities a learner has to make connections among multiple representations, the more opportunities that learner has to develop conceptual understanding. But not all kinds of communication will support conceptual understanding in mathematics. Communication needs to be focused on important mathematical ideas. | Not Recommended |
| 1876 | Welch J | NA | My family and I are vehemently opposed to the proposed math changes. Acceleration has saved math for my son. He was extraordinarily bored before 6th grade acceleration reengage him. All children deserve to be engaged in their learning.  Taking away choice is better for nobody. It will create a bigger divide between the have-mores and have-lesses, as people with means will pay for enrichment or private school, whereas those who cannot afford it will simply not receive it. What is proposed will not create more opportunity, it will destroy opportunity.  Please, please, please, no. | No Motion Recommended |
| 1877 | Welch A | NA | [The comment below has been excerpted for length. See the Box link above for the full comment.]  Some of the goals of these changes proposed by this math framework are admirable. I believe that we should give more students confidence in math. I believe we should give those struggling with math whatever support they need.  I strongly disagree with removing accelerated programs for those that choose them. Other states and countries will have them. Wealthier families, the fewer that might stay in public schools after a change like this, will augment with additional costly programs.  The students who lose with this framework are math-inclined students without means. These are the students that, one could argue, could benefit the most from well-paying STEM careers that this framework will make more difficult to achieve.  On a personal note, my 7th grade son is thriving in compression math after being very bored and disengaged in elementary math that struggled to provide differentiation for him. I intend my 4th grade daughter to take compression as well in middle school. | No Motion Recommended |
| 1878 | Lovett | NA | [The comment below has been excerpted for length. See the Box link above for the full comment.]  The introduction to the framework provides a whole host of negative outcomes as a result of using the gifted label. The youcube website is cited several times as evidence to support not needing the gifted label, but that perseverance is most important. The website has stories of individuals discussing their math experiences. There is a Black young man who describes his view of math and his abilities over time. He shares that his family lacked resources so he was unable to access extra help, but through his hard work and perseverance he achieved success. It is problematic when it is emphasized that Black and Brown students just need to be more gritty in order to achieve. These students shouldn't have to work extra hard and practice resilience...the focus is on the student and their family and not how talent development options should have been provided by the school. The framework states, "California in the years 2004–2014, 32 percent of Asian American students were in gifted programs compared with 8 percent of White students, 4 percent of Black students, and 3 percent of Latinx students.” | Non-Actionable |
| 1879 | Arnold | NA | As a parent of multiple students in our state and as a physician who sees math as a way to take care of patients and save lives, these changes do not do service to our students. While I see inclusion and diversity of opinion and problem-solving as important concepts, in the end, students ultimately need to be able to solve problems correctly and in a time-sensitive way. I am not certain that changing the definition of fluency and stressing discussion of various methods of inquiry gets to that goal. In the end, kids need to be able to understand and concepts but they also need to get to the correct answer. I am worried that this new framework de-emphasizes the fact that there are right and wrong answers in math and science. I am quite certain we want our future physicians to be able to figure out the correct dosing and understand certain aspects of physics which require math. I am saddened by this direction and what this means for our children’s ability to succeed in the workplace | Not Recommended |
| 1880 | Lofing | NA | Gifted/Talented/Advanced learners are actively discriminated against in this framework. Students who are at the bottom of the excellence gap are specifically targeted by the removal of these opportunities. It can be guaranteed that students' whose parents have access and financial opportunity will find ways to ensure that their children still benefit from advanced and accelerated math courses. Thereby relegating students who lack those resources to non-competitive, non-accelerative classes that do not meet their academic needs. Rather than codifying a document that eliminates access to opportunity, California should lead the nation in developing a document that seeks to codify GREATER opportunity and access to advanced math coursework -- ensuring that we invest in California's brain trust, and the development of creative producers. Helping children learn within their strengths and challenge themselves in their areas of interest is not the same as having a fixed mindset. | No Motion Recommended |
| 1881 | Alba | NA | To be fair, I have yet to read the draft in its entirety. I can say that what I have read thus far is wonderful and refreshing. However, while I recognize the effort to ensure the document is coherent in of itself, the fact is that many educators are not going to read the framework cover to cover. How can we make the resource a useful tool to educators who may jump into the documents and "pull" a chapter as needed, without having read the initial chapters? Also, in my attempt to read the draft chapter by chapter, I find it very text heavy. It needs to be formatted with UDL in mind. For example, how can we take some of the examples by grade level band with similar CC to be displayed in a table? How can we highlight vignettes and snapshots in a manner that separates itself as a narrative? Would the use of footers help rather than the references described within the text. What visuals or graphic organizers can be used to supplement the work? | Non-Actionable |
| 1882 | Herrera | NA | One thing that I referenced frequently in the 2013 Math Framework was common student misconceptions for certain math domains. I did not see that in these current drafts. Will there be a section that clearly states essential math vocabulary or will teachers be asked to reference math progression documents? Currently this framework is a lot of reading and teachers may be put off by that. Many teachers are used to referencing a framework for a specific chapter/section that applies just to their grade level. | Writers’ Discretion |
| 1883 | Sedig | NA | Get off of common core.......... | Non-Actionable |
| 1884 | Walters | NA | The common core math framework and this iteration does nothing to support differentiated math for our accelerated and gifted learners. It hold them back and discourages a love for mathematics by battling repeated boredom in the classroom. This segment of society then transitions to private school if at all within the financial grasps of the family and the equity equation becomes even more unbalanced. Encourage choice, exploration and freedom of intellectual pursuits for all, not just the privileged few. —Harvard and Stanford educated physician and scientist, mother 4 kids in public education who daughter higher level math free through the community college district | No Motion Recommended |
| 1885 | Hull | NA | As the other frameworks do, I would ask that you mention advanced learners and their academic needs. Please do not ignore this group of students who benefit from specialized instruction and pacing to meet their academic needs. | Writers’ Discetion |
| 1886 | Heasley | NA | It is very lengthy and often hard to read. Many things are repeated over and over in every chapter. | Non-Actionable |
| 1887 | Bussey S | NA | I am very concerned about the comments regarding gifted students in this document. The needs of all learners should be addressed in the CA Framework!!!!!! | Non-Actionable |
| 1888 | Bussey R | NA | ALL students means ALL students! Chapter 1 says that students who are gifted in mathematics should not have their needs met. Students who can and what to excel, should be given the opportunity. Parents who can afford, it will go to private schools with their able children. | No Motion Recommended |
| 1889 | Lomas | NA | One size fits all isn't equity ... | Non-Actionable |
| 1890 | Reyes | NA | In chapters 1 and 7, the examples referenced in those chapters do not represent what we see here in our school district. Jo Boaler speaks of the changes made in one district to eliminate all acceleration and how the failure rate in Algebra when from 40% to 8%. At our middle schools, the failure rate is under 2% for algebra and geometry. Students deserve choices based on their levels. Make those choices accessible to all, rather than pushing everyone down. In our school district in CA, advanced math is the ONLY middle school course where students can accelerate. No honors English, History or Science ... so when we "remove" this in the name of "equity", NO student will have had any "honors" experience before high school. How do you think those students that have never been pushed are going to do in AP courses? | No Motion Recommended |
| 1891 | Di Paola | NA | Do not make choices that directly lead to inequity (like eliminating accelerated classes in middle school). Leave those decisions in the hands of the districts which know their own student populations. Every county and district is different and so making changes that only make sense for a few districts is not the answer to creating equity. | No Motion Recommended |
| 1892 | Chiles | NA | It is critical to acknowledge that gifted and talented students need accelerated, advanced math curriculum. | No Motion Recommended |
| 1893 | Helfrich | NA | The introduction of this framework when my gifted youngest daughter was in middle school urged us to transition to a private school for High School. The structure of the course work would not allow her to reach her fullest potential. Our older gifted daughter thrived in her math coursework, finishing AP Calculus BC in her senior year, because she DID NOT have this framework. | No Motion Recommended |
| 1894 | Hadley | NA | Serving the needs of ALL kids includes serving the needs of ADVANCED LEARNERS. I am not sure this framework meets that need for math. My experience has been that access to advanced math and gifted support services in public education is accessible based on either personal resource or the socio-economics of where one lives. Please take the needs of into account GIFTED STUDENTS as you are creating the statewide math framework. It's time to infuse equity into policy. | No Motion Recommended |
| 1895 | Regus | NA | I am concerned that this doc gives great direction on where math education needs to be but without sufficient rollout planning and funding it will be difficult for most teachers to implement. What training will come along with the document? County offices can help provide it but it needs to be a state wide focus for several years in order for our system to begin to see the change we need. | Non-Actionable |
| 1896 | Andrews | NA | My concern is that this idea of math hurts gifted and talented students. It is not their job to "pull up those who are not performing at a higher level." It is not right or fair to put a student who cannot do basic math in a higher math course like algebra 1 or 2! Also, students in GATE should represent those who qualify, or are high achievers, period! Race should not even be a consideration! Since when is the square root of 16 any different for a Black child than it is for a White child? Instruction should be color-blind, and there should be remedial classes for those who need it, as well as advanced classes for those who are high achievers. Common Core has hindered that process in California, and we should join Texas and many other states that rejected it outright. You do know that the Stanford math professor- the only math expert on the Common Core committee- refused to sign off on it because CC was so inferior to the California math standards already in place. | No Motion Recommended |
| 1897 | Hammervold | NA | My only concern is a part in this framework that limits the courses in the middle schools to only Math 6,7,8. The middle schools in our district offer accelerated courses to the middle school students that allow them to challenge themselves and move forward. It seems as though this framework would remove those accelerated courses in the name of equity (mistaking equality with equity) leading to an inequity between the students whose families can afford tutors/tutoring programs and the students of families who cannot. Additionally we already have an issue with students trying to take summer courses to get ahead to take calculus their senior year - those programs don't cover all that we teach in a year leading to students having gaps in their education and by forcing students to only take math 6,7,8 will exacerbate this issue. Implementing official prerequisites for courses may help remedy the issue of students enrolling in courses for clout who later switch classes to the lower course. | No Motion Recommended |
| 1898 | Flitcroft | NA | California is neglecting the needs of gifted, or highly capable learners. The suggestions put forth by this Framework will exacerbate this by further denying students talented in mathematics from coursework that is best for them. Because so little assessments are done, I think the state lacks the information it needs to address the issue of how to improve mathematics instruction. My own experience as a parent has been very frustrating in trying to make sure my child's instructional needs are met. When bright kids are not given the opportunity to be sufficiently challenged in school, it can lead to many problems both academically and emotionally. Without a chance to be grouped with intellectual peers, these kids can be bullied and become depressed or even suicidal. They can act out in class and be labeled as having behavioral problems. They deserve instruction tailored to them just as much as special ed students or English Learners do. | No Motion Recommended |
| 1899 | Veit | NA | Please do not take away or limit advanced mathematics for our students. | No Motion Recommended |
| 1900 | Paisley | NA | the removal of gifted language entirely is a bit broad of a stroke | No Motion Recommended |
| 1901 | Beth | NA | Please implement a statewide culturally responsive, equity based program for our high-ability learners of all incomes and backgrounds. www.giftedchildrenla.org/uploads/2/2/8/4/22845926/ford\_english.pdf We need flexible pathways. Students need the ability to advance at their own pace. Read: A Nation Deceived: How Schools Hold Back America's Brightest Students https://files.eric.ed.gov/fulltext/ED535138.pdf http://www.accelerationinstitute.org/Nation\_Deceived/ Also: Losing Our Minds: Gifted Children Left Behind by Deborah Ruf. Articles: https://www.gifteddevelopment.org/musings/increasedinequality https://fordhaminstitute.org/national/commentary/gifted-education-done-right-benefits-black-and-hispanic-children-its-not https://www.wsj.com/articles/gifted-programs-in-high-poverty-districts-aim-to-create-pipeline-to-opportunity-11549717200 https://www.jkcf.org/research/equal-talents-unequal-opportunities-a-report-card-on-state-support-for-academically-talented-low-income-students/ | No Motion Recommended |
| 1902 | Evans L | NA | Thank you for sharing guidance for teaching meaningful and engaging mathematics to all students. Mathematicians and math teachers love mathematics for the wonder and satisfaction it provides. Previous frameworks did not address the misconceptions that math students need to be fast, right, & have a good memory. Finally we have a framework that allows us to teach the rigor and joy that inspires us to think mathematically. | Non-Actionable |
| 1903 | Hull N | NA | The math framework needs to explicitly acknowledge that students who are gifted and talented have specialized needs that require specialized instruction in all subject areas. | Writers’ Discretion |
| 1904 | MacArthur | NA | Our curriculum should continue to match current research on the teaching and learning of mathematics. We need to continue to pursue rich practices and expectations that bring math to students in ways that go beyond simple algorithms. | Non-Actionable |
| 1905 | Villarin | NA | Thank you. I appreciate this framework as it takes into account the effects that distance learning has had on student's learning of math, addresses misconceptions as a way to help students learn, and organizes the common core standards in a way that makes sense. | Non-Actionable |
| 1906 | Chavkin | NA | Let gifted kids learn math. Identify more kids early on for gifted education in math. | No Motion Recommended |
| 1907 | Silverman | NA | Gifted students suffer when they are made to sit through material that is too easy. As a parent of a gifted child, I can attest that those children become bored and disengaged. When they are not given an opportunity to move ahead through material already mastered, gifted students have a negative experience in school, affecting all of their subjects. California should be encouraging all students to work at the highest level at which they are capable. While it's nice to think that instruction can be sufficiently differentiated within a single classroom, it is a rare teacher who really has the skill to effectively engage all kids at all levels at the same time. The focus often ends up being on the lower achievers, who undoubtedly need the attention, while the more advanced students are left to work on their own without being engaged by the teacher or are asked to teach other students rather than expanding their own knowledge and skills. | No Motion Recommended |
| 1908 | Washington | NA | The overall tone of the frameworks draft is "here's what were going to do and here's why it will work based on a handful of very very cherry picked unscientific studies that confirm our preconceived notions." What is your back up plan when it fails? The dirty secret is that mathematical aptitude is mostly influenced by genetics and home environment. Teachers and schools have a moderate amount of influence and cannot perform miracles on students who have low IQ parents and a home culture that does not value academic achievement. Instead of pouring all your resources into lost causes, spare some resources to enhance and enrich math education for students and certain demographics that have more mathematical aptitude and a more supportive home culture. Otherwise, these smart kids will leave the public school system and flock to private schools where they are appreciated and supported. | No Motion Recommended |
| 1909 | a a | NA | I am a homeschool parent on the fence about returning my children to public school. This revised frame work doesn't give me hope that California public education is committed to improving its bad reputation. If my children consistently work 1 or 2 grade levels above their age, what could they possibly gain academically from enrolling in public school? | No Motion Recommended |
| 1910 | Wu | NA | This framework will almost guarantee that Californians will remain ranked at the bottom for public school education. This framework has the potential for making America completely uncompetitive against China and Europe. We need to address the underlying cause - that to promote equity we must ensure that all communities have equal access to resources. Only then will inequities be resolved. "Dumbing" down the entire public school population will not promote equity ; in fact, the rich/ middle-class parents will now just choose to send their children to private school - which will further inequities in the future. | No Motion Recommended |
| 1911 | Gelb D | NA | This draft framework would be a disaster for our students and for California. | No Motion Recommended |
| 1912 | Roe | NA | Overall, I am extremely aligned with the frameworks recommendations and foundational beliefs about education. I have spent the last couple of weeks reading through Chapters 1 - 7 and find the vignettes and recommendations very powerful. However, the document is massive, with a lot of repetition, and it is very difficult to follow in a coherent way. In a lot of places it is difficult to know why one paragraph flows from the next and what the purpose of given sections are. I plan to do some distilling of the framework down to some essentials for teachers and leaders that I support, and I'm sure many others will as well. And, that makes me wonder if there is a digest version of the framework planned that is more actionable for teachers. | Non-Actionable |
| 1913 | Malione | NA | I have emailed a more detailed writeup of my concerns. The framework is unacceptable in the ways it delays learning and diffuses the focus of too many critical basic mathematical skills. The framework calls for a fundamental alteration of the focus and presentation of mathematics, based on research that most often measures results against stated course rubrics or curricular outcomes, not the professional requirements of the industries to which the buildup of skills is ultimately aimed. Even when engagement is improved, the altered focus only superficially touches on the math that is likely to be needed for success in key career areas. The adequacy of its recommended reliance on such methods remains unestablished. The framework also neglects to convey the importance of many STEM fields, for which its pedagogy is more clearly inadequate. The stricter mathematical requirements for STEM readiness are never mentioned, and the societal importance of these fields is downplayed. | Not Recommended |
| 1914 | Smith A | NA | This framework disregards an entire population of students in our public schools, those who are gifted and talented in the area of mathematics. As a parent of children who needed academic acceleration in mathematics, it was an ongoing struggle to receive adequate accommodations to keep appropriately engaged in this area of advancement, which resulted in homeschooling then private schools which were more flexible in acceleration to appropriately meet their needs (4-12 grade). We have a moral duty to serve these children, and parents should not have to find appropriate services for these types of appropriate accommodations only in the private school sector. My story is a success story as she will be graduating college with a degree in mathematics, but our struggle should not have happened. I am a strong advocate for these children in my community. My goal is to ensure equitable access to gifted and talented services and advanced mathematics continues in California public schools. | No Motion Recommended |
| 1915 | Dergun | NA | This framework dumbs our kids down. Instead of increasing opportunities for learning for everyone. It attempts to take them away from everybody. | No Motion Recommended |
| 1916 | Walton | NA | Overall - this document is moving our community in a positive and necessary direction. I'm not clear if the Framework will continue to provide the scaffolding of the CCSS from previous frameworks (which it should.) I also believe that while a change in overall practices will serve students who are identified with different learning abilities, I am fearful that the exclusion of scholarship on the topic (see Dr. Cathery Yeh) will set students up in classrooms with little to no support from their institutions of learning. | Non-Actionable |
| 1917 | Bohanan | NA | I wish it wouldn't support the racial narrative being pushed by some people in society. I liked it before, without the race or gender contexts. | Non-Actionable |
| 1918 | Velasquez | NA | Me gustaria mas apoyo para los niños q son superdotados en matematicas y en general en las escuelas.  [Translation: I would like more support for children gifted in mathematics and in general in schools.] | No Motion Recommended |
| 1919 | Daniels R | NA | Those drafting the new Framework should reflect on the words attributed to Oliver Cromwell: "I beseech you to consider that you may be wrong." | Non-Actionable |
| 1920 | Gold | NA | Any math curriculum which does not stress the necessity of performing calculations which will lead to the "right" (correct) answer is, by definition, a failure. | Non-Actionable |
| 1921 | Hanson-Smith B and 3 others | NA | The sections referring to Gifted Learners must be amended to include accurate research from the field of Gifted Education including the work funded by federal Javits Grants at any of the National REsearch Centers for Gifted and Talented Education. The current language is inflammatory, inaccurate, and only furthers harmful myths about California's diverse gifted learners and their needs. | No Motion Recommended |
| 1922 | Wright | NA | Adoption of this framework will substantially increase the achievement gap, as those with means will either flee the public education system in droves or supplement with additional tutoring (private or extracurricular schooling through Kumon, RSm, Singapore math, etc.). There is too much propaganda and too theory that dramatically overestimates students’ enthusiasm for math and over-relies on group work at the expense of rigorous, teacher-led instruction based on tried and true practices. | Non-Actionable |
| 1923 | C J | NA | CDE taking its cues from SF and LA public schools is like the tail wagging the dog. The only exceptional thing LA public schools ever did was force parents to teach their children to read because the schools couldnt do it, even with more than $20k per pupil at their disposal. And the only thing that put SF public schools in the news was driving out all the white parents. Now you want to finish the job and drive out all the Asians too? | No Motion Recommended |
| 1924 | Kulawik | NA | Chapter 1 needs to be tied to peer reviewed journal articles to assess the impact of recommendations on high performing students before this framework recommendations should be considered by the state of California. | Writers’ Discretion |
| 1925 | Kanji | NA | Some parts are very academic and may not be easy to consume by teachers. Some sections are very long (chapter 5) and readers may get lost. We wonder about teacher input in writing chapter 5. A lot of citations from youcubed. Wondering whether student work (line 331 and 345) came from a classroom or a teacher PD? Cite the sources. In regards to common core standards - it would be good to have the chapters on each course/grade level as an appendix to this framework so that we don't have to go back and forth between the old and new to get the content standards. in Chap 5 line 213 - The Introduction to Data Science Curriculum (http://www.introdatascience.org) is cited, however no mention is made of Los Angeles Unified School District (LAUSD) where this course was developed with UCLA. LAUSD should be credited in this document. | Writers Discretion |
| 1926 | Oliver M | NA | Like many parents in California, we withdrew our kids and spent the last year homeschooling them, all because education majors who dont know anything about science or math kept the schools closed for a whole year. Now you propose replacing math instruction with social justice indoctrination and expect any of us to re-enroll? Sounds like a great way to train future Sacramento politicians. My kids would rather be scientists so I think we'll enroll them in Catholic school when the pandemic dies down. Thanks for the memories I guess. | No Motion Recommended |
| 1927 | Taniguchi | NA | IQC should disclose what percent of members have school aged children. And of those children what percent attend a regular public school vs. privates or charters. It should also disclose what percent of those children have diagnosed learning differences, INCLUDING giftedness as diagnosed by a licensed psychologist or exam such as the CogAT. I have a hard time believing that anyone with a highly intelligent child enrolled in a public school would endorse a proposal to dumb down the math curriculum even more. | No Motion Recommended |
| 1928 | Thomas | NA | Educators may teach many different subjects and not everyone has the time to master each subject. Professional development opportunities with training on the updated framework are necessary. Teachers need support from administrators and not all administrators will be on board. | Non-Actionble |
| 1929 | Aoki | NA | The content and message of this framework is fantastic. With this framework, California would finally be implementing math education practices that have already been proven to be effective through years of research. The problem will be getting teachers and administrators first, to be aware of the changes, and then to actually make them. As things stand with the current organization of this document, it is completely overwhelming and impractical for use by teachers or administrators or anyone else who actually needs to KNOW what it says to make changes happen on the ground. Either there needs to be supporting materials (like what TEDD or Achieve the Core has started to create to help chunk information and offer training resources), or there needs to be much better chunking of the information so it is digestible. | Non-Actionable |
| 1930 | Yamachika | NA | Training must be had for all teachers k-12 with specific protocols. HS teachers may need it as much as anyone even though they likely all have math degrees. Here's a couple of personal examples. My kids went to one of the higher rated public high school's in California. My daughter was an average math student. She had tons of homework which she couldn't do one problem let alone 10 or 15 problems. Teacher would not have discussions or activities that would help flush out the concepts, nor did they go over the problems they gave out. My daughter had no way to access the math. My son, is an advanced math student. In his calculus class his junior year, the teacher had homework nightly but said that she would randomly choose one per week to collect and look at. Lot of fancy banners on school walls though. HS teachers need TRAINING too!!! Big Idea, less problems, more discussion and student collaboration in all classes. Then we'll know if data suggested is accurate with advanced students. | Non-Actionable |
| 1931 | Pede | NA | Thank you for a framework that grounds mathematics in joy, reasoning, and sense-making. So many students are excluded from pursuing mathematics due to the pressure to get right answers quickly and memorize rather than deeply understand. I am very appreciative of the emphasis on connections between mathematical ideas, rather than treating topics as discrete. | Non-Actionable |
| 1932 | Posamentier | NA | This framework will irreparably harm the students who excel in math and need a more rigorous curriculum and will not prepare our public school students for 21st century STEM jobs. While I want every learner to be able to be able to succeed in math, why on earth are you doing away with accelerated math programming for those who are capable and eager to learn at a faster pace? While supposedly pushing for equity, this change will only make the inequities between those with means to take outside accelerated programs or attend private schools clearer. It also will not allow ALL students to be prepared for STEM readiness and will adversely affect our students who are currently excelling in advance math programs. | No Motion Recommended |
| 1933 | Anonymous | NA | The timing of this is bad. You know how much pushback we get from parents whenever we fix something that many perceive to not be broken. (And I would agree, it really isn't broken.) But parents now are less hesitant to pull their kids out of public school. My district, like most, has seen enrollment drop and more mid year withdrawals than ever. Think twice about giving them yet another reason to break up with public school. We need to win them back! | No Motion Recommended |
| 1934 | Ortega | NA | Thank you to all who worked on this! It will be so helpful to have our state framework back up all of the work we are doing in our district! | Non-Actionable |
| 1935 | Hoffman | NA | This illustrates a really clear, exciting, and ambitious vision - but in reading through the sections I did, the actual pathway to arrive there is still a bit unclear to me. How will the state help schools and districts do make this big shift? | Non-Actionable |
| 1936 | Lay | NA | Not sure what lens to use to read the framework. Seems unwieldy for classroom teachers. Parent groups would also find this difficult to navigate. | Non-Actionable |
| 1937 | Perez | NA | Include other frameworks that help develop culturally responsive math teaching and promote math learning such as CRMT (Aguirre & Zavala, 2013), D-S-F Summary and Activity Rubric (Cheng, n.d.), Mathematical Teaching Practices (NCTM), Engineering Design Process to elaborate on Math Practice 4, etc. | Writers’ Discretion |
| 1938 | Weiler | NA | I understand there is a need to close the achievement gap and access to advanced math classes for all students. However, there should be a reconsideration of how the proposed revisions will impact advanced learners. We want to encourage more interest and success in math, not complacency and loss of interest. If my child is not challenged, she becomes complacent and loses interest, disengages from the material and, forgets to submit work. Also, the studies referenced do not indicate if they were qualitative or quantitative. We do not know WHY students left advanced math tracks in college. Perhaps they were not necessary for their field of study. Perhaps they were not readily available for registration. As a personal anecdote, I did not continue with advanced math in college because it was not necessary for my degree/field of study. I was required to take statistics and logic as math requirements and because I was trying to graduate early, I chose to only take these courses. | No Motion Recommended |
| 1939 | Sher | NA | The pedagogy and considerations for all students provides for a vast improvement in instruction. It is the right next step in the evolution of learning and teaching, based on research and effective classroom use. The last framework was explicit in identifying the trees in the forest. While it provided the nuts and bolts of a relational understanding of mathematics teachers were overwhelmed by the individual standards and did their best to teach them, but without regard for their purpose and possible use outside the classroom, even in elementary school. Now, introducing the CCs and DIs in conjunction with Big Ideas provides a good way to understand and present mathematics. Teachers will still need to refer to the 2013 Framework and be able to see those standards in examples and the curriculum. Much of the explanation and some examples are present, but more work needs to be done in the organization and presentation, particularly useable grade-level examples of what is described. | Non-Actionable |
| 1940 | Perez | NA | The way the current framework presents the standards coupled with instructional guidance is much better than the format of the draft grade band chapters (especially the hs chapter.) If the "big ideas" concept was further developed into actionable guidance around how to group and prioritize standards and coupled with vignettes illustrating how this balance might look, I believe it would have more impact. | Non-Actionable |
| 1941 | Bates | NA | I appreciate all the work everyone has put in, especially with the focus on equity, de-tracking and good instructional routines. I worry some about the HOW... how teachers will learn (have time and/or opportunities) about these shifts that have taken me awhile to learn about. I know the Framework doesn't mandate anything, but I think the more examples, not just of the tasks, but how the teacher plans and then implements... perhaps video clips as well? Also, things like sample schedules for collaboration and sample units of study could be helpful. | Non-Actionable |
| 1942 | Morris | NA | I am incredibly impressed by the new framework. It is bold and visionary. There are difficult changes for CA teachers to make, but the changes are warranted in significant data findings across many years and multiple sources. (E.g. that de-tracking middle school and removing algebra from 8th grade leads to greater success for all, that an inch deep/mile wide curriculum is ultimately unsuccessful, that open tasks promote deeper and more equitable learning, that students benefit from not racing to calculus, that students who do take calc in high school typically do not learn it in a way that is valuable in college, that data sciences are essential for 21st century students...). Making these shifts will be difficult because it means unlearning for so many professionals. But these shifts are essential. I HOPE THAT CDE AND SBE WILL RECOGNIZE THE NEED FOR SIGNIFICANT, HIGH QUALITY, AND CONSISTENT PROFESSIONAL LEARNING OPPORTUNITIES FOR ALL K-12 EDUCATORS REGARDLESS OF DISTRICT! | Non-Actionable |
| 1943 | Gupta | NA | ALL students must include gifted learners as well so that their needs are being pushed down unnecessarily. Many of these gifted learners are students of color and for us to not provide the best possible education at a time when kids need it the most is almost anti-equitable and actually feels discriminatory. | No Motion Recommended |
| 1944 | Albert | NA | The document appears to promote a "one size fits all" approach to math instruction, which it claims is supported by a desire for equity. For true equity, we should meet students where they are and provide them with the resources each needs to succeed. Eliminating choice for students who seek either more advanced or more appropriate instruction will cause great damage to students as well as to society, which needs our schools to produce future leaders. An enthusiasm for math as a discipline in its own right is admirable, but does not change the degree to which institutions beyond the scope of this document rely on specific math knowledge and achievement to determine a student's readiness for a large number of career and study paths. Enforced "heterogenous" math classes may make for better math class experiences, but they will shortchange students, and create greater inequities. | No Motion Recommended |

## Table 17: Recommendations from CDE Staff

| # | Chapter | Page | Line Number and Comment | Recommended Action |
| --- | --- | --- | --- | --- |
| 1945 | General | NA | Throughout the framework, instead of “linguistically and culturally diverse English learners,” use the term “linguistically and culturally diverse learner” as a broader term, independent of English Language Development status, that highlights the fact that many students possess linguistic and cultural assets the teacher should seek to take advantage of in the benefit of richer and more meaningful math instruction.  Use the term “English learner” or “English learner student” to indicate students who are still in the process of acquiring English language proficiency. | Writers’ Discretion |
| 1946 | General | NA | Use the term “students of color” when referring to African-American and Latinx students, and/or other students of color collectively. | Recommended |
| 1947 | General | NA | Ensure guidance on providing students adequately-challenging instructional opportunities and differentiation of instruction considers Vygotsky’s Zone of Proximal Development, providing   * examples of differentiated strategies in mathematics classrooms with students that display a wide range of talents, skills, needs and abilities; * guidance on how to support students with gaps in their mathematical knowledge. | Writers’ Discretion |
| 1948 | General | NA | Add an appendix that includes learning progressions charts and visuals for the Content Connections   * support a progression of learning from transitional kindergarten through grade twelve that ensures all students can achieve college and career readiness; * learning progressions for each of the major domains of mathematics, describing the progression of a topic across a number of grade levels, informed both by research on children's cognitive development and by the logical structure of mathematics. | Writers’ Discretion |
| 1949 | 1 | 4 | Lines 91-92: Include a citation to support this claim. | Writers’ Discretion |
| 1950 | 1 | 5 | Lines 125-128: Include a citation to support this claim. | Writers’ Discretion |
| 1951 | 1 | 12 | Lines 314-316: Support this claim with research. | Writers’ Discretion |
| 1952 | 1 | 12 | Lines 334-336: Include a citation to support this claim. | Writers’ Discretion |
| 1953 | 1 | 13 | Lines 356-366:  Change to read:  Students with Disabilities  The evidence that all students have the potential to reach high levels is particularly important for students with disabilities, many of whom are set on low-level pathways, even as research is showing the capacity of all brains to rewire and change (Boaler & LaMar, 2019). Across the United States, approximately 8.4 percent of students are identified as eligible for special education. The vast majority of those—72 percent—are identified with mild to moderate learning disabilities, including dyslexia, dyscalculia, and auditory processing disorder. Inequities persist in special education just as they do in most other aspects of schooling. For example, males and students of color are more frequently classified as special education students than females and white mainstream students. Nearly twice as many males as females are classified as students with learning disabilities. | Recommended |
| 1954 | 1 | 13-14 | Lines 366-374:  Change to read:  The group most likely to be classified with an intellectual disability or learning disability are boys of color. Black students with learning disabilities are four times more likely than their white counterparts to be educated in correctional facilities. While the field of special education has traditionally used terms such as “learning disabled,” documenting various student “disabilities” that require attention, it is important to emphasize that with effective instruction and support that is aligned with research, these students academic achievement can match that of their peers who are not identified for special education. Additionally, going forward, we will use the term “learning differences” when referring to students who struggle with some aspect of learning, including, but not limited to students in special education. This gives an asset, rather than deficit, framing, acknowledging that students may have a need for learning support but this does not mean they should be viewed as limited or “disabled.” | Recommended |
| 1955 | 1 | 14 | Lines 375-376:  Change to read:  Further, new and promising research is showing that students can develop the brain pathways they need. | Recommended |
| 1956 | 1 | 15 | Lines 398-400  Change to read:  Both of these studies show that with effective, research-aligned teaching, brains can be changed and rewired. | Recommended |
| 1957 | 1 | 20 | Lines 554-557:  Change to read:   1. The work of students as mathematicians requires them to engage with content and the Standards for Mathematical Practice (SMPs) through both oral and written language; 2. Teachers need to attend to students’ development of mathematical content, SMPs, and language; | Recommended |
| 1958 | 2 | 4 | Line 70:  Change to read:  Research conducted in preceding decades has produced a wealth of information… | Recommended |
| 1959 | 2 | 5 | Lines 107-109: Revise to include recommendations. | Writers’ Discretion |
| 1960 | 2 | 48 | Line 1111, first column: Change "goals go" to "goals to.” | Recommended |
| 1961 | 3 | 18 | Delete lines 477–478 | Recommended |
| 1962 | 6 | 4 | Line 100: Guidance from the Multilingual Support Division at the California Department of Education calls for the disuse of “ELs,” with the recommended use of “EL” as an adjective followed by the word “learner” or “student.”  Also, the initialism “EL” is not used in the rest of the chapter. Change “English Learners (ELs)” in line 100 to “English learners.” | Writers’ Discretion |
| 1963 | 7 | 8 | Lines 203-204: Rephrase statement to avoid the claim “We know that the term ‘English learners’ masks a great deal of variability of experiences.” Instead, cite research that suggests this view. | Writers’ Discretion |
| 1964 | 8 | 9 | Line 163–202  Revise or replace the guidance in the Differences in Backgrounds section that instructs teachers to “stick to grade-level content and instructional content and rigor” so that the framework’s guidance provides for   * examples of differentiated strategies in mathematics classrooms with students that display a wide range of talents, skills, needs and abilities; * guidance on how to support students with gaps in their mathematical knowledge.   See The Iceberg Problem study, <https://wvw.newclassrooms.org/iceberg-problem-full-report>, pp. 36–40 of this paper showing that students who are taught only grade level content make much smaller gains than those who are taught content at their level of readiness within their zone of proximal development. This study also shows how to use a combination of on-grade level work and work focused on students’ skill needs to accelerate learning. | Writers’ Discretion |
| 1965 | 8 | 9 | Lines 192-196:  Change to read:  This necessitates implementation of the principles of Universal Design for Learning (CAST, 2018), which recognizes that students differ in the ways they are motivated to learn (multiple means of engagement), the ways they access content (multiple means of representation), and the ways they express what they know and are able to do (multiple means of action/expression). | Recommended |
| 1966 | 8 | 28 | Lines 711-14:  Change to read:  As this is an extended text, the ELA teacher offers guidance on how to access this document using a screenreader. This support aligns with the UDL principle- Provide multiple means of representation. The ELA teacher also provides an interactive note-taking guide for students to use. Students highlight parts that are not clear, they note important claims made by the authors, and formulate their own questions to share in groups. | Recommended |
| 1967 | 8 | 28 | Line 708: Change “Each teacher noticed that their English learners…” to “Each teacher noticed that some English learners….” | Recommended |
| 1968 | 8 | 44 | Lines 1157-59:  Change to read:  This kind of a problem can be approached in a variety of ways, and that the challenge of the openness of the problem is thrilling! This flexibility aligns with the UDL principle- Provide multiple means of engagement by optimizing individual choice and autonomy. | Recommended |
| 1969 | 8 | 48 | Lines 1243-44:  Change to read:  In groups, students make use of the full array of mathematical resources to construct their models, utilizing prior mathematics learning. | Recommended |
| 1970 | 8 | 65 | Lines 1722-23:  Change to read:  Mathematicians use models, illustrations, and visual representations to explore ideas, strategies that are highlighted in the guidelines of Universal Design for Learning (UDL). | Recommended |
| 1971 | 10 | 16 | Lines 408-409:  Change “…provide her seven English learners who are at the Bridging stage and her four English learners who are at the Expanding level …” to “…provide the seven English learners who are at the Bridging stage and the four English learners who are at the Expanding level...” | Recommended |
| 1972 | 10 | 27 | Lines 726-7:  Change to read:  Allow students to upload their work onto the classroom learning platform to share with peers. (For more information on Universal Design for Learning see Chapter 2) | Recommended |
| 1973 | 10 | 39 | Row “Data Analysis,” first bullet:  Change to read:   * Review data on a regular basis with the Every Ed Team (comprised of representative staff to support general education including students with disabilities and English learners) | Recommended |
| 1974 | 11 | 5 | Line 122, Specify Smarter Balanced assessment in mathematics. | Writers’ Discretion |
| 1975 | 11 | 13 | Line 214, Table in column #2 (Methods) -CELDT should be replaced with ELPAC. | Recommended |
| 1976 | 11 | 15 | Line 242, Actions table, column #2 (What are students doing), bullet #3, Please clarify what students are responding to (i.e. questions, suggestions?) | Writers’ Discretion |
| 1977 | 11 | 16-17 | Lines 284-86:  Change to read:  Vince is an experienced high school teacher who has been teaching for over 20 years in diverse classrooms, including linguistically and culturally diverse English learners and students with disabilities. | Recommended |
| 1978 | 11 | 20 | Line 336:  Change to read, “ultimately serve as success criteria”. | Recommended |
| 1979 | 11 | 20 | Line 341-43:  Change to read:  Use of a rubric enables students to assess their own learning as well as their peers; it also allows the teacher to provide comments to guide students to making important connections to other areas of their mathematical knowledge. | Recommended |
| 1980 | 11 | 31 | Lines 569-572:  Spell out SEP, DCI, LS, and CCC on first use in the chapter. Add footnote explanations of these terms, as necessary. | Writers’ Discretion |
| 1981 | 11 | 34 | Line 597-600: At the beginning of the section, provide an explicit definition of "diagnostic feedback." Answer the question, "Why is the word diagnostic used and how is it different than just general feedback?" | Writers’ Discretion |
| 1982 | 11 | 39 | Line 700, Add: “For lesson plans that embed formative assessment strategies like "Two Stars and a Wish", go to smartertoolsforteachers.org. Tools for Teachers has more than 40 formative assessment strategies as resources for teachers.” | Recommended |
| 1983 | 11 | 40 | Line 714-17:  Change to read:  This approach is sometimes referred to as “standards-based grading.” Although it refers to “standards,” it does not have to focus on specific standards. It could, instead, use cluster headings, which are more akin to the big ideas approach of this framework. | Recommended |
| 1984 | 11 | 51 | Line 963, replace “ramp-up” with either “planning” or “preparation.” | Writers’ Discretion |
| 1985 | 11 | 60 | Line 1113:  Title section “Smarter Balanced Assessment System and CAASPP”. | Recommended |
| 1986 | 11 | 60 | Lines 1114-1116:  Change to read:  California’s statewide assessment program, known as the California Assessment of Student Performance and Progress (CAASPP), is comprised of various assessments including the Smarter Balanced system of assessments for mathematics and English language arts/literacy. The summative assessment for mathematics is designed to measure students’ and schools’ progress toward meeting the goals of the California Common Core State Standards for Mathematics (CA CCSSM) for grades three through eight and in grade eleven. Information on the CAASPP is available at http://www.cde.ca.gov/ta/tg/ca/. | Recommended |
| 1987 | 11 | 61 | Lines 1120-1121  Change to read:  The Smarter Balanced assessments require students to think critically, solve problems, and show a greater depth of knowledge. | Recommended |
| 1988 | 11 | 61 | Lines 1121-1123:  Change to read:  The Smarter Balanced assessment provides a full range of assessment resources for all students, including those who are English learners and students with disabilities. These resources ensure that the assessment meets the needs of all students. The Smarter Balanced summative assessment in mathematics is available in Spanish using a Language Toggle tool that allows students to toggle the preferred language of the testing interface between English and Spanish. | Recommended |
| 1989 | 11 | 61 | Line 1127:  Change to, “…tool for teachers that explains the content of the CA CCSSM is provided at…” | Recommended |
| 1990 | 11 | 61 | Line 1129-1130:  Change to, “…there are three key aspects of the CAASPP: computer-based, computer-adaptive and varied item types.” | Recommended |
| 1991 | 11 | 61 | Lines 1131-1132:  Change to, “All schools with eligible students in grades 3-8 and 11 are required to administer electronically.” | Recommended |
| 1992 | 11 | 61 | Lines 1140-1141:  Change to, “*Varied item Types.* The Smarter Balanced tests allow for a variety of types of items that are each intended to measure different learning outcomes.” | Recommended |
| 1993 | 11 | 62 | Lines 1144-1169:  Change to read:  Constructed-response questions are featured, as well as performance tasks (which include extended-response questions) that measure students’ abilities to solve problems and use mathematics in context, thereby measuring students’ progress toward employing the mathematical practice standards and demonstrating their knowledge of mathematics content. | Recommended |
| 1994 | 11 | 61-62 | Lines 1150-1152  Change to read:  Finally, the assessments feature technology-enhanced items that aim to provide evidence of mathematical practices. These items utilize the technology of the online test format to provide an item type not possible in paper pencil assessment. They are aligned with the following four claims: | Recommended |
| 1995 | 11 | 63 | Lines 1154-1164  Augment the section’s guidance so that it is inclusive of a variety of forms of interim assessment: Smarter Balanced interim assessments as well as others. | Writers’ Discretion |
| 1996 | 11 | 64 | Line 1158-1163, Consider structuring as a bulleted list of 3 assessments. | Writers’ Discretion |
| 1997 | 11 | 64 | Line 1163:  Insert the following:  The Smarter Balanced Interim Assessments can be used by teachers at any time before, during, and after instruction in a standardized administration or a non-standardized manner. Examples of interim assessment flexibility:  1.) Teachers can administer the interim assessments as an end-of-unit summative "traditional" assessment of learning.  2.) Teachers can display and discuss interim assessment items with students as a formative assessment during instruction to clarify learning.  3.) Teachers can analyze individual and group responses in the reporting system and plan instructional next steps accordingly. | Recommended |
| 1998 | 12 | 15 | Line 410:  Change to read: “Clearinghouse for Specialized Media and Technology (CSMT)” | Recommended |

California Department of Education, May 2021