California Department of Education

Executive Office

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# MEMORANDUM

**DATE:** August 6, 2018

**TO:** MEMBERS, State Board of Education

**FROM:** TOM TORLAKSON, State Superintendent of Public Instruction

**SUBJECT:** Update on the 2018−19 Administration of the California Science Test and the California Alternate Assessment for Science

## Summary of Key Issues

This Memorandum provides 2018−19 updates on the main development activities related to the first operational administration of the California Science Test (CAST) and the activities in preparation for field testing of the California Alternate Assessment (CAA) for Science.

### **California Science Test—First Operational Development Activities**

In March 2016, the State Board of Education (SBE) approved the high-level test design (HLTD) for the CAST to measure the full range of the California Next Generation Science Standards (CA NGSS). The CAST aligns with the CA NGSS, and all students in grades five and eight and once in high school (i.e., grade ten, eleven, or twelve) must participate in the assessment. The assessment includes three segments: Segment A, Segment B, and Segment C. Table 1, on the following page, displays the structure of the segments.

The California Department of Education (CDE) has continued collaborating with its partners, California Assessment of Student Performance and Progress (CAASPP) System testing contractor Educational Testing Services (ETS), national NGSS experts, and stakeholders. As previously stated to the SBE, the data collected from the field test and first operational administrations will be used to make informed decisions about the HLTD, which includes a multistage test (MST) structure and the use of a screener as students transition from Segment A to Segment B.

**Table 1. CAST Design Summary**

| Characteristics | Segment A | Segment B | Segment C |
| --- | --- | --- | --- |
| Reporting Level | Contributes to student and group scores | Contributes to student and group scores | Contributes to group scores |
| Scope and Depth of Measurement | Wide breadth—measures a broad sample of performance expectations (PEs) | Deep measurement of targeted sample of a few PEs provided in item sets | Broad and deep—full range of measurement of PEs for each grade span |
| Number and Type of Items | 32–34 discrete (stand-alone) items that include selected-response, technology enhanced, machine-scorable items | Two performance tasks (PTs) (with 4–6 item sets) | Six or seven discrete items that includes selected-response, technology enhanced items (like Segment A) OR one PT (like Segment B, with 4–7 item sets) |
| PEs Measured by Grade Span | Grades 3–5 PEs\*  Grades 6–8 PEs  Grades 9–12 PEs | Grades 3–5 PEs\*  Grades 6–8 PEs  Grades 9–12 PEs | Grades 3–5 PEs\*  Grades 6–8 PEs  Grades 9–12 PEs |

\*Also includes the foundational concepts introduced in kindergarten through grade two.

An MST is a compromise between a traditional fixed-form test and a computer adaptive test (CAT). Rather than administering a single fixed-form test or adapting the test to individual students item by item, as in a CAT, an MST adapts to students in stages. Before transitioning to an MST design in the second operational year, the CAASPP contractor will investigate and report on the utility of using a multistage design over a fixed form. This research study will result in a final report and provide recommendations on the effectiveness of the MST to the CDE after the first operational administration.

The screener is used as the student transitions from Segment A to Segment B. The student’s performance during Segment A may determine the science domains (i.e., Physical Sciences, Life Sciences, and Earth and Space Sciences) the student will be presented in Segment B. For example, if a student performs significantly lower in a particular science domain, the screener would eliminate that related science domain PT when the student transitions to Segment B. When a student performs relatively equally in all three science domains in Segment A, the assignment of the two PTs presented in Segment B will be random. Before the second operational administration, the CAASPP contractor will investigate and report on the utility of using a screener. This research study will result in a final report that will provide recommendations to the CDE about the effectiveness of the screener; tentatively in September 2019, these recommendations will be presented to the SBE.

#### **2018–19 CAST Administration Format**

For the first operational year of the CAST, in Segment A, students will be randomly assigned a fixed form. In Segment B,students will be randomly assigned two PTs. Each PT will be primarily focused on one of three science domains—Life Science, Physical Science, and Earth and Space Science. A student will be administered two PTs in two different domains. Segment C will be randomly assigned to students. For example, a student may receive a block of discrete items or a PT that the student did not receive in Segment B. This random assignment allows for the assessment of a broader range of PEs that will be used for group reporting.

Because of the adaptive nature of the MST, more items of various levels of difficulty must be developed and calibrated (i.e., field-tested) before they can be placed on the operational form as scorable items. The CDE and the CAASPP contractor need more time to review the data from the first operational administration to conduct a thoughtful review of the data and build the MST algorithm, which is used to route the students to the second stage of Segment A. In addition, the CDE and the CAASPP contractor will need the data from the first operational test to develop the screener in order to transition students from Segment A to Segment B. After the operational administration in   
2018–19, the CDE and the CAASPP contractor will analyze the data and provide an update to the SBE about the efficacy of the MST and screener.

### **California Alternate Assessment for Science—Preparation for Field Testing**

The CAA for Science is administered one on one to students who have the most significant cognitive disabilities and whose individualized education program indicates the use of an alternate assessment. The CAA for Science is administered to all eligible students in grades five and eight and once in high school (i.e., grade ten, eleven, or twelve). The CAA for Science is aligned with the Core Content Connectors, which are derived from the CA NGSS.

The CDE, in collaboration with the CAASPP testing contractor, has been deliberate in the development of the CAA for Science. It began with two years of pilot testing and will culminate with an online field test in 2018–19 and an operational test in 2019–20. The first-year pilot test was intended to try out the PT format and to allow educators and students to become familiar with the embedded PTs. In addition, the CDE and ETS will continue to work in collaboration with California educators, national science experts, and other stakeholders as the development of the CAA for Science moves into its operational phase. The CDE and the CAASPP contractor will use the information collected from the field test (e.g., item and test statistics and test examiner feedback) to guide future development of the CAA for Science embedded PTs.

## Attachment(s)

None.