

Carpenter Community Charter Model Programs and Practices

School Information

CDS (County District School) Code: 19647336016356

County: Los Angeles

District (Local Educational Agency): Los Angeles Unified

School: Carpenter Community Charter

Demographics

Enrollment: 1,014 students

Location Description: Urban

Title I Funded: No

School Calendar: Traditional

Charter: Yes

Overview

Carpenter Community Charter's teaching methodologies are framed around differentiated and experiential, or inquiry-based, instruction through thematic units in a cooperative group setting. Supporting these methodologies, Carpenter teachers utilize departmentalized instruction to provide professional development by grade-level experts and instructional leads. All our methodologies are supported by authentic assessments utilizing district, teacher-created, performance, and publisher assessments.

Carpenter's curriculum is geared toward the Common Core State Standards. The curriculum meets all CCSS and LAUSD standards. We believe that powerful learning and addressing the needs of our school population are best accomplished through a balanced program, which combines curriculum-centered and student-centered instruction. Systematic direct instruction, guided practice, and the application of skills through an expansive reading selection ensure that all students are exposed to the standards. Subsequently, addressing multiple intelligences through the use of experiential and open-ended inquiry-based learning produces self-motivated and well-

balanced learners. Integrating these modalities has proven to help our students to become analytical as well as creative thinkers.

Carpenter teachers and the leadership team use current research and student data to drive best teaching methodologies while utilizing rigorous conceptual learning at each grade level. Standard methodologies include:

1. Academic Rigor - Students actively explore, research, and solve complex problems to develop a deep understanding of core academic concepts.
2. Clear Expectations - Teachers clearly define and articulate grade-level and state standards in “student-friendly” language.
3. Collaborative Groupings - Teachers create small groups in order for students to interact with their peers. Students share their thinking processes to maximize learning. Criteria Charts/Rubrics - These tools help focus students to effectively meet and exceed teacher expectations and objectives for each assignment.
4. Direct Instruction - Teachers use carefully planned direct instruction to teach standards-based lessons.
5. Small Group Instruction - Teachers create small groups to target students who need extra instructional time as well as preview and review, and to accommodate accelerated learners.
6. Differentiated Instruction - Teachers provide lessons and assignments within the core curriculum that allow students to perform at their appropriate academic levels while maintaining or exceeding standards.
7. Higher-Level Thinking- Teachers design lessons that develop critical thinking skills, which help students solve complex problems with depth and complexity. Students are encouraged to utilize the highest stages of Bloom’s Taxonomy.

Adhering to the proposed instructional framework and teaching methodologies ensures Carpenter’s instructors can successfully meet the needs of all students.

Model Program and Practices

Name of Model Program/Practice: Innovative STEM Program

Length of Model Program/Practice: 8+ years

Target Area(s): Science, Technology, Engineering, and Mathematics, Use of Technology

Target Population(s): American Indian, Asian, Black or African American, Filipino, Hispanic, Pacific Islander, White, Two or More Races,

Socioeconomically Disadvantaged, English Learners, Students with Disabilities

Strategies Used: School Climate, Parent Engagement, Data-Driven Decision Making, Social/Emotional/Behavioral Support, Professional Development, Implementation of Academic Standards Basics (Teachers, Instructional Materials, Facilities)

Description

Carpenter's core curriculum is enhanced by the school's adoption of innovative programs in the areas of problem-based learning, STEM, and mathematics. The school's leadership feels strongly that a strong foundation in these areas is essential to preparing our students to be globally competitive in an increasing complex world .

Much of STEM education has traditionally begun in middle school, but research has shown that young children who experience hands-on STEM learning are better equipped and more likely to pursue and be prepared for STEM fields in high school, college, and careers. Carpenter has consistently had strong science and math programs. The hands-on science laboratory, uses FOSS kits, and has increased student interest in science. The school's Science test scores have increased by 28% over the past ten years. Carpenter's innovative Singapore Math program has also boosted Carpenter's math proficiency scores. For the past two years, Carpenter has incorporated more math and science problem-solving into the curriculum to ensure our students' success in an exceedingly technological world.

Children love to build things, take them apart and build them again in a different way. In other words, children are natural-born engineers. Engineering requires children to apply what they know about science and math to solve real world problems. This helps children see how math and science are related and useful in their everyday world, making math and science relevant. As such, Carpenter adopted the Engineering is Elementary Program in 2016 to introduce real-life engineering curriculum to our students. Engineering is Elementary (EiE) is a project born of the National Center for Technological Literacy at the Museum of Science, Boston. Each year, Carpenter teachers receive training by the school's lead Science teacher in EiE's award-winning, cross-disciplinary curriculum which integrates engineering with science, math, and reading.

In 2017, Carpenter adopted a Lego Robotics program to supplement the Science curriculum. The LEGO Education WeDo 2.0 curriculum is built on the Next Generation Science Standards and delivers key science content to all students in grades 2–5. The curriculum facilitates and supports a clear, easy-to-follow journey through subjects, including: life-, physical-, earth-, space sciences, and engineering.

Our Media Lab is a 21st Century resource utilized by all grade levels, TK–5. The lab is not only funded by our parent body, but is also supported by CBS Studios, a community partner. Whole class access to computers enables our teachers to effectively integrate

technology used by students to better understand concepts being taught. Carpenter has an established technology curriculum for all grade levels. The school builds on the current technology curriculum by implementing a third grade "keyboarding Boot Camp" at the beginning of each school year and by introducing simple coding using the CODE.org curriculum.

Implementation and Monitoring

Carpenter's innovative STEM education begins in TK. Each grade has a weekly NGSS focused, hands-on science or engineering activity. By the time students are in fifth grade, they spend over an hour every week conducting science experiments, which are answering questions posed by the students themselves. Carpenter's dedicated science instructor, along with the classroom teachers, implement the NGSS and conduct unit assessments to track student understanding.

Each science unit includes an in-depth EiE project that engages students in solving an engineering problem. It is the culminating activity of each science unit and allows students to integrate and illustrate mastery of the science standards along with a written assessment.

The WeDo Lego Robotics program is incorporated into the science and technology curriculum. Specific grade levels connect their robotics unit with Code.org demonstrating to students how coding can be used in real life. Other grade levels connect robotics to their science lessons. Successful completion of the building and coding tasks illustrates mastery.

Both the engineering and robotics programs focus on teamwork, cooperation and problem solving – all skills that are critical for 21st Century learners.

TK students begin in Carpenter's Media Lab learning the basics of technology. As students progress, they begin using the Internet as a resource and learn keyboarding skills in Keyboarding "Boot Camp." By the end of fifth grade, students develop an understanding of all MacOS applications and operations, learn GarageBand, create their own music, learn Photoshop skills, and use creative applications to make rich multimedia presentations.

All teachers use Singapore Math strategies in conjunction with the district adopted math textbook, to teach the CCSS. While using strategies like model drawing, students understand and apply logical reasoning, and persevere through solving multi-step problems. Our Singapore Math program is continuously monitored through authentic assessments utilizing district, teacher-created, performance, and publisher assessments.

Professional Development focused on Carpenter's innovative programs is on going. Our Curriculum Committee, consisting of parents, teachers, and administrators, researches related professional development programs. Carpenter invests in conferences focusing on the latest research-based teaching methods. As well as on-site training, most

teachers have also participated in the National Singapore Math conference. Because of the commitment to professional development in evidence-based programs, both quantitative and qualitative assessments indicate that students are improving their knowledge in science and math.

Carpenter students are continuously developing an understanding of how content connects across science and math disciplines. They are developing an understanding of how technology can improve people's lives and how engineers can help solve simple and complex problems.

Results and Outcomes

A multitude of assessments are used to monitor and assess Carpenter's students and the effectiveness of Carpenter's STEM program. Routine daily assessment includes anecdotal notes, lab experiments, journal entries, and Thinking Maps. Teachers use this data to assess best practices, adjust instructional practices and encourage students to amend goals. Our range of data collection allows teachers to create a baseline of student understanding, create flexible groups, and plan learning events appropriate for students.

For primary students, qualitative data is obtained via informal assessments - teacher observation, projects, oral reports, portfolios, and debriefings at the end of lessons to assess if students understand concepts taught and can independently use language of the discipline.

Upper grade teachers differentiate using depth and complexity icons to make meaning from text. Teachers use project-based learning to serve as an assessment tool to judge learning outcomes. Interim Assessments are used to monitor learning and prepare for state testing.

The first phase of our STEM program's implementation began with the opening of Carpenter's science lab and hiring of a full time science teacher in the 2007–2008 school year. In the 2006–2007 school year, before the first phase of Carpenter's STEM program, 76% of Carpenter's 5th grade students scored proficient or advanced in science on the CSTs. In the 2007–2008 school year, the first year of implementation, 80% of Carpenter's 5th grade students scored proficient or advanced in science on the CSTs. The last science CST was administered in the 2015–2016 school year. By the 2015–2016 school year Carpenter's STEM program was fully implemented and 91% of the 5th grade students scored proficient or advanced on the science CST.

Carpenter began implementing Singapore math strategies in 2011. In the 2009–2010 school year 83% of students who took the CSTs (2nd–5th grades) scored proficient or advanced in math. In the 2010–2011 school year, the first year of Singapore math implementation, 87% of students who took the CSTs (2nd–5th grades) scored proficient or advanced in math. In the 2012–2013 school year, the last year the CSTs were administered, 89% of students who took the CSTs (2nd–5th grades) scored proficient or advanced in math. In the 2014–2015 school year the Smarter Balanced Assessment

(SBAC) replaced the CST. That year, 68% of students who took the SBAC (3rd–5th grades) scored proficient or advanced in math. This drop prompted us to adjust how we implement the Singapore math strategies and more closely align the strategies to meet the CCSS. In the 2016–2017 school year 73% of students who took the SBAC (3rd–5th grades) scored proficient or advanced in math reinstating Carpenter’s upward trend.

Overall, the implementation of Carpenter’s model STEM program continues to demonstrate positive student outcome as seen through the quantitative and qualitative data.