

Elementary School Information and Resource Guide



Science education is the opportunity to spark the interest of our children and support life-long learning. The Next Generation Science Standards (NGSS), California's new science standards, nurtures young students in a deep and meaningful science experience that promotes appreciation of, and inquiry about, our natural world.

What is NGSS?

The NGSS reflects the vision for all students to learn science in a relevant and meaningful way by integrating 3-dimensions. The 3-dimensions of NGSS supports teachers in the design and utilization of curriculum that will engage students in learning by focusing on science and engineering practices, crosscutting concepts, and disciplinary core ideas of science that transforms instruction and improves science education.

Why do we need new standards?

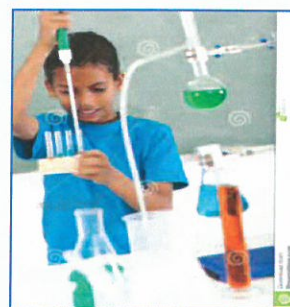
NGSS allows teachers to support the curiosity of young minds to make new discoveries, ask questions, and learn more about their surroundings. NGSS uses performance expectations to reflect the integration of the 3-dimensions in order for students to demonstrate how much they understand and can apply science and engineering. Instructional shifts by teachers will prepare students to be successful in achieving these NGSS performance expectations and will open the door for all learners.

What are the 3-dimensions of NGSS?

- **Science and Engineering Practices** for elementary school students are the application of principles, skills, and tools that scientists and engineers use in the real-world.
- **Crosscutting Concepts** are the connections between the different disciplines that communicate science and engineering.
- **Disciplinary Core Ideas** focus on developing the depth of science content knowledge in a coherent and thoughtful way using scientific and engineering practices as the vehicle for strengthening the mastery of science learning over time.

"Children are born investigators"

A Framework for K-12 Science Education



What does an elementary school NGSS classroom look like?

NGSS outlines specific performance expectations for each grade level from kindergarten to grade five. These grade-specific performance expectations were thoughtfully determined to support the coherent learning of science for elementary students. Although every classroom will look differently, what will be consistent is students engaging in inquiry, developing models, creating solutions to problems, and collecting primary data. For example, elementary students might collect leaves from several plants at their school and record the similarities and differences among the various types of leaves and plants in their science notebook. In the classroom, table groups of students may share their findings with their classmates and identify the crosscutting concept of patterns in their findings. Using a magnifying glass, students can explore the texture of the leaves and draw their observations. As an engineering challenge, students might be asked to design the best shape of a leaf that will absorb the most sunlight but under windy conditions. Students may construct a leaf using paper and scissors and test it in front of a small fan. After testing their model, students may have the opportunity to re-design the leaf. The teacher may ask students to explain and defend their leaf model in both an oral presentation and written format.



When will NGSS be fully implemented and assessed?

The California State Board of Education adopted NGSS in September 2013 and they are now the new science standards for the state. There is a 3-phase rollout planned to implement the NGSS. Schools will begin with the "Awareness Phase" of implementation to develop teachers' understanding of the instructional shifts and changes in standards. In the "Transition Phase" of NGSS implementation, schools and districts will determine which additional resources and professional learning opportunities are needed to support movement into the "Implementation Phase." In this final phase, teachers will strategically integrate the 3-dimensions and fully align their curriculum, instruction, and assessments as a result of continuous support and on-going professional learning. In the future, schools and districts will administer new science assessments that reflect the performance expectations of NGSS.

NGSS fosters curiosity and creativity, which develops problem-solving skills.



Implementation Plan Guidelines

Awareness Phase	Transition Phase	Implementation Phase
<ul style="list-style-type: none">• Introduction of NGSS• Initial planning of systems implementation• Establishment of collaboration	<ul style="list-style-type: none">• Building foundational resources• Implementing needs assessments• Establishing new professional learning opportunities• Expanding collaboration between all stakeholders	<ul style="list-style-type: none">• Expanding new professional learning support• Fully aligning curriculum, instruction, and assessments• Effectively integrating all elements across the field

How can I support student success and facilitate NGSS implementation?

- Participate in meetings that seek input to prioritize the district and school's Local Control and Accountability Plan (LCAP). LCAP is the document that will support the successful implementation of NGSS at the local level.
- Be an advocate for NGSS by attending school and community science, technology, engineering, and mathematics (STEM) events.
- Form a strong partnership with districts, schools, and teachers by volunteering to be a speaker and provide resources for implementing the scientific and engineering practices.
- Share NGSS information and resources with stakeholders to increase awareness by attending public and community meetings.

Web Resources

- California Department of Education Professional Learning Resources: <http://www.cde.ca.gov/>
- Next Generation Science Standards: For States, By States: <http://www.nextgenscience.org/>
- California Science Teachers Association Resources: <http://www.cascience.org/>
- National Science Teachers Association Resources: <http://www.nsta.org/>
- Achieve: <http://www.achieve.org/>