EDUCATION PROGRAM SNAPSHOT

The S. D. Bechtel, Jr. Foundation envisions children and youth developing the knowledge, skills, and character to explore and understand the world around them, growing into caring, informed, and productive adults. This snapshot, prepared as the Foundation nears conclusion in 2020, documents essential aspects of the Education Program's science portfolio.

Science portfolio

S. D. BECHTEL, JR. FOUNDATION
STEPHEN BECHTEL FUND

Recognizing teachers as the single most important contributor to student achievement, the S. D. Bechtel, Jr. Foundation invests in high-quality models of science teaching and learning in California's K–8 classrooms through full implementation of the California Next Generation Science Standards (NGSS).

Goal

Advance high-quality science teaching and learning in California's K–8 classrooms by supporting districts that are strongly committed to NGSS implementation, and by disseminating lessons learned across the state.

Approach

- Support K–8 NGSS implementation in eight diverse districts through the NGSS Early Implementers Initiative to develop successful approaches and share promising practices statewide.
- Build the capacity of statewide networks and systems to support NGSS implementation, including the Instructional Leadership Corps and the county offices of education.
- Invest in advocacy efforts to make NGSS science a core subject in K–12 public education.
- Fund communications efforts to maintain support for NGSS implementation among teachers, students, parents, policymakers, and all other education stakeholders.

Progress

- ✓ **Eight school districts advanced standards implementation.** Through the NGSS Early Implementers Initiative, districts received in-depth, multi-year technical assistance from the K–12 Alliance.
- ✓ **Evaluation generated lessons for practitioners and policymakers.** WestEd evaluation surfaced lessons learned that were shared broadly.
- ✓ **High-need schools in California's largest district built teacher capacity.** Through the Partnership for Los Angeles Schools, 13 schools conducted science professional development focused on improved student outcomes.
- ✓ **Knowledge dissemination amplified achievements.** Initiative participants and the WestEd evaluation team shared research findings with colleagues, education advocates, and policymakers. Evaluation reports are featured in education conferences and webinars.
- ✓ **New statewide infrastructure supported all districts.** County offices of education created the California Partnership for Math and Science Education to aid districts implementing the new standards. NGSS Early Implementers and the K–12 Alliance have been instrumental in guiding this statewide work.

Lessons Learned

- **Champion science as a core subject for the district; create a plan, revisit it often.** NGSS requires massive changes at every level of a district system. Leaders must articulate why science is a priority, build a multi-year plan with progress milestones, and adapt to changes.
- **Demonstrate school leader commitment.** Teachers need to know that implementing NGSS is expected, not just allowed. Principals can ensure funding for science resources, time for professional development, and opportunities for teacher collaboration.
- **Advance content and pedagogy shifts through quality training.** Lesson studies support teacher learning, providing means for teachers to delve deeply into the new standards, learn science content, and practice the unique teaching moves required by these standards.
- **Invest in science teacher leadership.** Teachers value the knowledge held by peers; building leadership capacity within schools helps teachers accelerate and support each other's learning.
- **Integrate science with other subjects.** Science is a powerful vehicle for English Language Arts (ELA) learning. Starting with hands-on science learning and pairing it with ELA can strengthen student interest and learning in both subjects.
- **Make science accessible; students enjoy it.** The phenomena-based, hands-on nature of NGSS engages students. Real-world examples and tactile activities provide entry points for English learners, special education students, and all young people.
- **Equip teachers for the integrated middle school model.** It takes a multi-year plan to transition to this model, ensuring that all teachers are prepared and no students lose out on essential learning. Supplying high-quality instructional materials is crucial to success.
- **Encourage policies that allocate more time for science.** After years of responding to the unintended consequences of No Child Left Behind, districts need to be intentional about allocating time for science into the daily school schedule.

Opportunities

State policies and budgets increasingly emphasize improved teacher capacity.
Foundation-supported leaders and organizations are helping make it happen; their efforts can be encouraged and expanded by education policymakers, funders, and researchers.

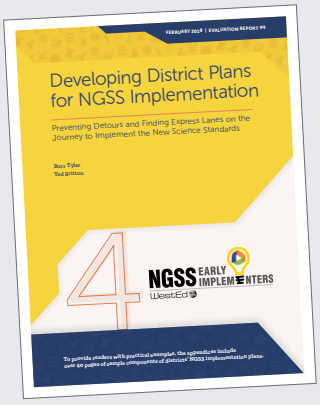
The California Partnership for Math and Science Education holds promise for capacity building and networking.
Increasing the capacity and sustainability of this field-generated partnership supporting county offices of education can boost Common Core progress.

Evaluation of the NGSS Early Implementers has generated a body of relevant, useable information.
Continued investments in disseminating knowledge can increase the effectiveness of county offices, district administrators, school boards, teachers, and administrators. New targeted research can point to improvements in instructional practice.

Science assessment data will be included in the state's accountability system via the California School Dashboard.
This dashboard data will underscore the importance of science teaching.

Resources

- WestEd evaluated the NGSS Early Implementers, exploring how districts, schools, and teachers implemented the NGSS. A total of 14 highly accessible reports document their findings.
- A separate reflection (July 2020) will capture the Foundation's perspective on the NGSS Early Implementers.
- WestEd also tracked the California Partnership for Math and Science Education, reporting on the communities of practice and on participants' collaboration with geographically proximate colleagues outside of convenings. These materials can be found under "featured resources" on the Partnership's website.



The S. D. Bechtel, Jr. Foundation invests in a productive, vibrant, and sustainable California through two program areas – Education and Environment. Learn more and access the series of program snapshots and reflections: sdbjrfoundation.org.