Smithsonian
Science Education Center

Leadership Development Fact Sheet

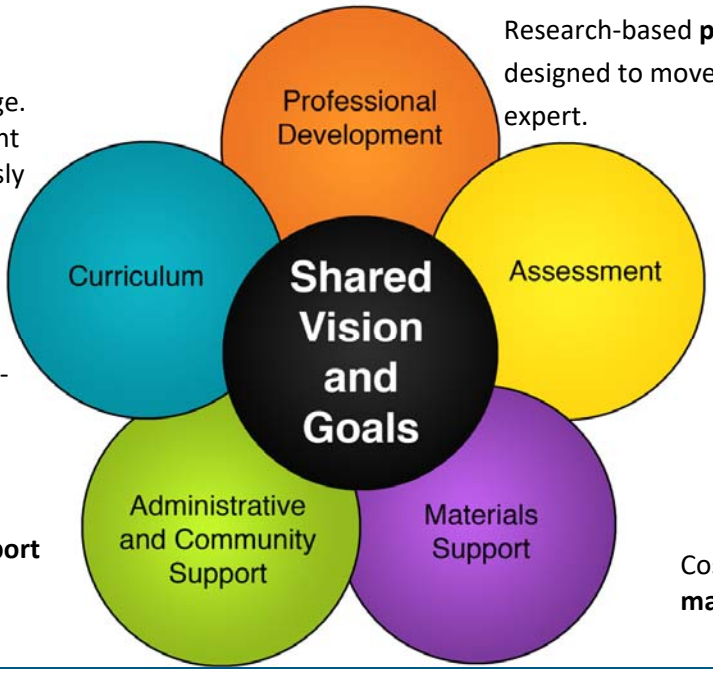
What is LASER?

In partnership with local schools, school districts, and ministries of education, the Smithsonian Science Education Center works on a long-term basis to transform science or STEM education programs through our Leadership and Assistance for Science Education Reform (LASER) model. This 5 pillar model provides the infrastructure to build local capacity, local ownership, and sustainability.

The LASER Model:
LASER describes the infrastructure necessary to effect sustainable change. All the elements are equally important and must be addressed simultaneously over a sustained period of time to ensure the institutionalization and long-term success of the program.

A **curriculum** framework and comprehensive research-based K-12 science instructional program.

Community and administrative support that will sustain an effective science program.



Research-based **professional development** designed to move teachers from novice to expert.

Student **assessments** and program evaluations aligned with cognitive research providing meaningful feedback about student learning.

Cost-effective and efficient **materials support.**

How Do We Implement It? The Institutes.

The Smithsonian Science Education Center implements a tiered series of Leadership Development programs to provide communities with a robust, ongoing experience. These initiatives bring together school district groups in partnership with community members to think strategically in order to enact change in their home regions.

Building Awareness for Science Education (BASE)

After initial conversations in a locality occur, a BASE event can take place. The format is tailored to the audience and needs of the region. BASE brings together key stakeholders, including but not limited to district and state administrators, teachers, and local community partners.

Science Education Institutes for Leadership Development and Strategic Planning (SPI)

The SPI ties all of the pieces of the LASER Model together as an opportunity for teams to create one holistic plan for science or STEM education in their community. Teams walk away with a strategic plan that will adapt to the changing needs of a school or district over time.

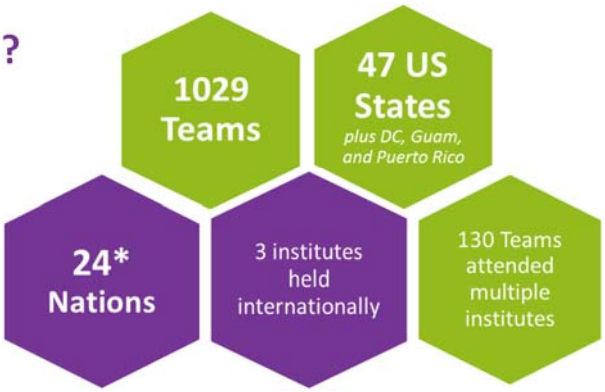
Implementation Institutes & The Next Steps Institute

These follow-ups to the SPI provide an opportunity for teams to revisit their plans and investigate challenging areas of implementation in-depth. They allow participating teams to deepen their LASER network and learn from one another.

Leadership Development By The Numbers

Who Has LASER Reached?

Since our first Strategic Planning Institute in 1989, our 95 Leadership Institutes have impacted...



*Argentina, Bolivia, Brazil, Canada, Chile, China, Colombia, Costa Rica, France, Germany, Indonesia, Mexico, Namibia, Oman, Philippines, Singapore, South Africa, South Korea, Sweden, Thailand, Trinidad and Tobago, United Kingdom, Venezuela

How Do We Know It Works? LASER i3.

From 2010-2015 the LASER i3 study, conducted with the Center for Research in Educational Policy (CREP) at the University of Memphis, analyzed the impact of the LASER Model on students and teachers in three states: New Mexico, North Carolina, and Texas. The study reached 60,000 students annually. Highlights from the study include the following outcomes based on a 9,000 student subsample with two cohorts - Elementary School and Middle School:

- Students participating in the study consistently out-performed their peers on performance-based assessments, indicating that they were able to apply what they learned in novel, hands-on situations
- Female middle school students at LASER schools out-performed their peers on performance task assessments
- The study saw largest improvements in students who are traditionally most in need, including English Language Learners, students with Individualized Education Programs, and students participating in free or reduced-price lunch programs
- Students demonstrated positive gains on standardized tests in both mathematics and reading
- Teachers who were a part of the study consistently felt more prepared to teach inquiry-based science than their peers

More information about LASER i3 can be found at: www.ssec.si.edu/our-results

Where Have Other Large-Scale LASER Implementations Succeeded?

- 69% of counties in North Carolina have attended a SPI in partnership with the NC SMT Center
- Statewide implementation in Washington State through Washington LASER
- Engaging over 40,000 teachers annually in South Carolina through SCCMS
- 5,000 teachers and 180,000 students in 180 schools in PA through ASSET
- 60% implementation across the state of Alabama through AMSTI
- Statewide implementation in Delaware
- 11 States and 300,000 students in Mexico in partnership with INNOVEC
- 188,593 students and over 8,400 teacher across Sweden through NTA
- 286 schools in 4 states across Germany
- 30,000 students reached in Chile
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