Scientists, science educators, and educational policymakers emphasize the importance of teaching students about scientific inquiry rather than focusing solely on scientific content. Inquiry-based science interventions aim to improve students’ science proficiency by helping them understand scientific processes. In these interventions, students conduct hands-on investigations of science concepts and everyday phenomena, construct explanations for what they observe, consider alternative explanations, and communicate and justify their proposed explanations. Because implementing inquiry-based science instruction is challenging, the Smithsonian Science Education Center (SSEC) developed Leadership and Assistance for Science Education Reform (LASER), a program designed to build capacity for effectively implementing inquiry-based science curricula in schools and districts. When participating in LASER, school or district teams attend leadership development institutes to plan the implementation of inquiry-based science curricula. These school or district teams receive support for key aspects of implementation such as professional development for teachers, access to instructional materials, and support for selecting appropriate assessments. LASER also helps schools and districts partner with scientists, science educators, and local business and community leaders who can promote and further support the implementation of inquiry-based science instruction.

What Happens When Students Participate in LASER?

<table>
<thead>
<tr>
<th>Study Findings</th>
<th>Evidence meeting WWC standards (version 4.0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>May result in little to no change in science achievement</td>
<td>Effectiveness rating</td>
</tr>
<tr>
<td>No discernible effects</td>
<td>-1</td>
</tr>
</tbody>
</table>

FINDINGS ARE BASED ON:

1 study with 6,291 students in New Mexico, North Carolina, and Texas covering grades 3-8.

STUDENT CHARACTERISTICS:

- Free & reduced-price lunch: 59%
- Gender: 50% female
- Ethnicity: 44% Hispanic

What Does LASER Cost?

Costs of leadership development institutes vary based on duration, number of attendees, and facilities available. Teacher professional development, equipment, and material costs depend on the inquiry-based curriculum the school district or school selects. The inquiry-based curriculum that the school district or school selects is implemented in students’ regular classrooms during science instruction time.

LEARN MORE

Read more about the LASER intervention and the study that is summarized in this snapshot in the Intervention Report. Contact the Smithsonian Science Education Center for additional information on implementing LASER.