



Building Awareness for Science Education (BASE) **Using Climate Change Education as an Example**

Building Awareness for Science Education (BASE) is the first phase of the Smithsonian Science Education Center's systemic reform model called LASER (Leadership and Assistance for Science Education Reform). It is an entry point for any community interested in building support for and improving STEM Education in a region.

Building Awareness for Science Education (BASE) events convene leaders representing school districts, school-level leadership, state and local government, and community stakeholders including parents, business and community leaders, representatives from higher education institutions in the community, and others who want to learn more about how to engage in advancing science education in the region. Attendees want to make a difference in their community by supporting the way science is taught. Garnering the support of stakeholders at BASE events is critical to both the initiation and longevity of any transformation effort. A one-day BASE event should have clear goals and should focus on one specific problem of practice (e.g., climate change education). This document outlines these BASE program goals and uses climate change education as an example problem of practice.

BASE Program Goals

- **Problem of Practice:** Introduce the attendees to the problem of practice (e.g., climate change, climate literacy, sustainability).
- **Making the Case:** Make the case that providing high quality science education around the problem of practice (e.g., climate change) directly impacts businesses, industry, and community leaders (e.g., by improving community quality of life, by supporting the early STEM workforce pipeline).
- **Shared Vision:** Develop the foundation for a shared vision of science education and an action plan for addressing the problem of practice locally to ensure concrete collective next steps once the BASE event ends.
- **Building a Community of Purpose:** Network and build a "community of purpose" with other leaders in the field who are interested in addressing the problem of practice.

These four BASE program goals can serve as the foundation for organizing an agenda for the one-day BASE event. For example:

Step One: Problem of Practice: Introduce the problem of practice (e.g., climate change is a complex socio-scientific topic, climate literacy is crucial to understanding and addressing climate change) to the local stakeholders using local examples. Clearly communicate expectations for the regional partners, educators, and program participants.

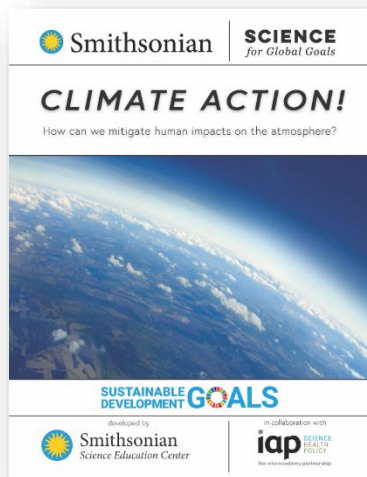
Participants receive a comprehensive overview of the problem of practice and specifics related to the problem of practice drawing on their community's local needs.

Step Two: Making the Case: Make the case for how to address the problem of practice by drawing on research and best practices in the field of science teaching and learning (e.g., what does research say about climate change education, what are the best practices for teaching sustainability, what is climate literacy and why is it important).

Before beginning any reform effort, whether a short-term project or a years-long initiative, it is important that all local community stakeholders have the opportunity to come together, share ideas, and deepen their understanding of why science education is an effective tool for addressing the problem of practice, and to discuss how science education will benefit not only students and teachers in the community, but the community writ large, both today and in the future (e.g., how might climate change education lead to local action taking, prepare students for the future workforce, ensure a climate literacy community, etc).

Research: During this step, speakers share research on the problem of practice (e.g., climate change education research shows that when students learn about climate change at school using high quality science education curriculum, adult learning of climate change improves through intergenerational conversations between parents/caregivers and students).

Hands-on Learning: It is crucial to have hands-on practical examples at the BASE event (e.g., CLEAN, ClimeTime, Smithsonian Science for Global Goals) adapted for adult learners to engage participants/stakeholders first-hand in understanding how K-12 education is addressing the problem of practice through phenomenon-based, problem-based, 3-dimensional teaching and learning pedagogies.



<https://ssec.si.edu/global-goals>

<https://cleanet.org/>



<https://www.esd112.org/stem-initiatives/climetime/>

Case Studies: After participating first-hand in scientific and engineering practices designed for the classroom to address the problem of practice, and discussing its application to local schools, attendees will hear from other leaders in the field who have been engaged in the problem of practice in the region as a model for reform.

Step Three: Shared Vision: Develop the foundation for a shared vision of science education as it relates to the problem of practice and determine collective next steps after the BASE event (e.g., use the Council of State Science Supervisors’ Climate Change position statement as the foundation for creating a “shared vision” for climate change education).

Vision statement: For a group of stakeholders to work together cohesively toward a common goal, they must first agree upon what their shared future looks like. A shared vision for science education (e.g., its impact on a community understanding the impacts of climate change) is best created when a community comes together to identify and take ownership of their collective vision. While national perspectives exist, it is crucial that event participants develop their own shared vision based on community needs.

Action Plan: The day ends with participants designing an “Action Plan” based on the LASER model’s 5 pillars of reform to improve the way science (e.g., climate science) is taught in their local classrooms, all based on a vision for instructional improvement that is shared by both the community leaders and local educators. (For example, participants will answer: “What current **curriculum materials** are used to teach climate change in our schools? What forms of **professional development** are used to support teachers’ understanding of climate science and best practices? How is the **community** engaged in climate action? What **materials and digital resources** are needed for schools to tackle climate change education? What **assessments** should we put in place aligned with state standards to teach climate change?) When executed, this action plan will serve as an entry point for schools, school districts, state education agencies, and community organizations who support schools to engage teachers and students in climate change education that is of interest to the local community.





Step Four: Building a Community of Purpose: Set the foundation for a regional community of professionals committed to improving education for all students, through a “community of purpose”.

One of the greatest advantages of gathering stakeholders together for a Building Awareness for Science Education (BASE) event is that it creates a foundation for a local network of people within the community committed to addressing the problem of practice by transforming science education.

Attendees

An ideal BASE event should support approximately 40 business, industry, education, and community leaders who are interested in bringing STEM education to local schools and who will take part in the one-day BASE event. Developing the list of attendees and thinking strategically about who should be in the room is one of the most important decisions you will make when organizing a BASE event. If you want long term change to happen, you need the right stakeholders in the room to build excitement and interest in ensuring long-term reform.

Venue and Date

Identify a local venue provided ideally at no cost to the educators who will organize and host the event (e.g., engage a local community stakeholder who has an interest in climate change and climate change education to offer their event space at no cost to the BASE event organizers; seek in-kind donations from a local community restaurant to supply food for the day and select a climate change friendly menu). Offer an early morning behind-the-scenes tour of the venue prior to the BASE event. Select a date in the summer or at the start of the school year ideally to build momentum around the problem of practice (e.g., bringing climate change education to the region and launching in-classroom/in-school events that support raising parents’ awareness of climate science).