NORTH AMERICAN ASSOCIATION FOR ENVIRONMENTAL EDUCATION
& UNDERWRITERS LABORATORIES

naaee
North American Association for Environmental Education

E→STEM : LINKING ENVIRONMENTAL EDUCATION WITH SCIENCE, TECHNOLOGY, ENGINEERING AND MATH

Harnessing the power of the environment for a new generation of professionals empowered to solve real world problems

History

In 2013, NAAEE was awarded a research grant by Underwriters Laboratories (UL) to explore integrating environmental education into STEM learning for young people, focused on what we call "E-STEM" (Environment, Science, Technology, Engineering, and Math). In addition to UL support, California Water Service Company supports this effort in California.

As a result of this planning grant, in collaboration with our research partner, New Knowledge, we will summarize research about what is "known" to engage young people in STEM, using the environment as an integrating concept. We will also investigate a suite of activities that inspire young people to learn, experience, explore, and help solve local community challenges through a combination of environmental education, citizen science activities, and project-based learning.

The final outcome will be a strategic document for UL called the **Blueprint for E-STEM Success**, including (1) a synthesis of the research survey results and (2) ideas for how UL can support efforts in both schools and communities to enhance E-STEM, with a special emphasis on science, technology, and the environment.

Long-Term Goal

Our goal is to increase the quantity and quality of tomorrow's STEM workers. Our partnership aims to foster a passion for STEM topics in today's youth, enrich their interest in STEM educational topics and nurture a passion for STEM-related career opportunities. Through a research grant from UL, NAAEE will:

1. Aim to prove – through quantitative and qualitative research – that environmental education is the ideal entry point for STEM (coined as E→STEM).
2. Develop a Blueprint for E→STEM Success incorporating research findings with proposals for how UL can effectively support STEM learning and social consciousness in schools and communities.

Background

E→STEM aligns with 4 key educational best practices that deeply engage students:

1. Hands On: Project-based environmental learning is almost exclusively hands-on.
2. Tangible Themes: The environment is a tangible theme (and "passion area") that incorporates broader learning topics in science, technology, engineering, and mathematics.
3. Aligns With Interests: The environment is consistently rated one of children's top interest areas
4. Fosters Achievement/Empowerment: Projects result in a visible impact made by students which fuels inspiration and a sense of achievement.

E-Stem Research Methodology

NAAEE – through a series of surveys, interviews and development of an E→STEM Blueprint – will (1) identify Bright Spots of Creativity and Programming Gaps in current environmental STEM programs in middle and high schools and communities; (2) overlay Cultural Context to these insights through feedback from educators; and (3) identify potential Partnership & Collaboration Opportunities for UL to develop a high-impact E→STEM program.

E→STEM Blueprint Overview

The **E→STEM Blueprint** will include proposals for strategic programmatic opportunities that can:

- Enhance E→STEM in middle school and high school
- Explore how formal programming can link to community-based organizations to create more comprehensive and interdisciplinary learning opportunities
- Discover how programming can have local and national-scale impact
- Incorporate the most effective strategies for enhancing efforts around diversity and inclusion, given changing demographics and our new global economy
- Boost innovation, creativity, and problem solving

About NAAEE

For more than four decades, NAAEE has been a leader in promoting excellence in environmental education (EE) throughout North America. It is the only national membership organization dedicated to strengthening the field of EE and increasing the visibility and effectiveness of the profession. NAAEE's influence stretches across North America and around the world, with members in more than 30 countries. NAAEE and its 53 state, provincial, and regional Affiliate organizations in the United States, Canada, and Mexico have more than 16,000 members. These members are professionals with EE responsibilities and interests across business, government, higher education, formal (K–12) education, nonformal education, early childhood education, science education and STEM, and other sectors of society.

About UL Environment

UL Environment works to advance global sustainability, environmental health, and safety by supporting the growth and development of environmentally-preferable products, services, and organizations. Built on UL's century-long legacy of trust, UL Environment empowers both manufacturers and purchasers to transform their environmental stewardship into true market leadership. We enable manufacturers to create better products in a more environmentally responsible way, and enable customers to make smarter, more environmentally-preferable purchasing decisions.

Supporting Partners

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