GO BEYOND

naaee
North American Association for Environmental Education

PRATT & WHITNEY
E-STEM AWARDS

2023 Global E-STEM Excellence Prize

Request for Proposals

Overview

The North American Association for Environmental Education (NAAEE) and Pratt & Whitney believe that E-STEM is a great way for young people to build the problem-solving skills needed to address today's environmental challenges. The Pratt & Whitney Global E-STEM Excellence Prize awards up to $50,000 USD to nonprofit organizations and their partners who have demonstrated excellence in E-STEM programming.

What is E-STEM?
E-STEM engages students in meaningful, real-world environmental problem solving that integrates science, technology, engineering, and math (STEM). E-STEM is not only a philosophy of teaching that promotes interdisciplinary learning, it also inspires students to apply what they learn to help solve complex environmental issues.

Specifically, this opportunity seeks to recognize programs that have successfully engaged students aged 11–22, particularly those considered underrepresented in STEM (see box), in meaningful learning experiences that increase STEM skills (science, technology, engineering, and math) through environmental problem solving (the "E" in E-STEM). Since the overall goal of this program is to increase students' environmental literacy (see box) through STEM learning, build STEM interest and skills, and create pathways to environmental careers, applicants will be asked to describe how they plan to use the funds to either replicate or expand their successful program to reach additional students.

The Opportunity

The Pratt & Whitney Global E-STEM Excellence Prize recognizes nonprofit organizations and their partners with a financial award of up to $50,000 USD for demonstrating excellence and replicability in E-STEM programming. Preference will be given to nonprofit organizations who have engaged audiences considered underrepresented in STEM careers. Applicants will be required to define "underrepresented" based on their country and/or region's situation (in the United States, these groups include women, people with disabilities, and Black, Hispanic, and American Indian or Alaska Native people). Partnerships with schools, governmental agencies, or other groups are also encouraged if they played a key role in the program's success.

A pool of $50,000 USD will be awarded in each of the following geographic regions, and may be awarded to a single or multiple programs, depending on the caliber of applications received:

- **The Americas**
- **Europe, Middle East, and Africa**
- **Asia Pacific**

What are underrepresented audiences?

A number of audiences are underrepresented in E-STEM careers, as compared to the demographics of their country's population as a whole. These audiences may vary by region or country. For example, in the United States, underrepresented audiences in STEM include women, people with disabilities, and Black, Hispanic, and American Indian or Alaska Native people. Note that the concept of "underrepresentation" is fluid and constantly changing, and all applicants who can reasonably demonstrate why the groups they are working with are underrepresented will be given preference.

What is environmental literacy?

An environmentally literate person is someone who, both individually and together with others, makes informed decisions concerning the environment; is willing to act on these decisions to improve the well-being of other individuals, societies, and the global environment; and participates in civic life. There are four interrelated components of environmental literacy: knowledge, dispositions, competencies, and environmentally responsible behavior. Learn more about environmental literacy here.

Since environmental issues are cross-disciplinary by nature, programs considered for the Global E-STEM Excellence Prize must have engaged students in at least one of the four STEM topics (science, technology, engineering, and/or math), and have taken action (see box) on one or more of the following solutions to environmental issues:

- **Climate change solutions**—STEM learning opportunities that build student understanding of the impacts of human-caused increased levels of atmospheric carbon dioxide (CO_2). Programs may explore broad implications of sea level rise, changing weather patterns, global warming, or other climate change impacts. An example might be citizen science projects studying the impact of climate change on coral reefs or other ecosystems, and taking action to address or mitigate the impacts. Another example might involve learning about changing weather pattern impacts on local agricultural production and vulnerable communities and taking action to conserve water.
- **Sustainable energy**—STEM learning opportunities that build student understanding of non-depleting, renewable, or zero-emission energy sources, and energy conservation strategies. Clean and renewable energy sources include wind, solar, geothermal, biomass, and hydropower, among others. Energy reduction can include a variety of strategies, from transportation choices to clean manufacturing to locally-grown food to installing energy efficient light bulbs or weather stripping.
- **Sustainable transportation**—STEM learning opportunities that build student understanding of strategies to reduce the environmental impact of transportation, an extremely energy-consumptive human behavior. Potential projects might include educating students about sustainable aviation fuels (clean biofuels), electric transport and clean manufacturing. Projects might involve using a gas sensor to test the CO_2 emissions of various biofuels and then calculating how much fuel would be needed to support a region's or country's commercial flight sector. Another example project could be educating students about the importance of aircraft design in fuel efficiency, and then holding an aircraft design competition in which students use computer software and engineering concepts to design their own aircraft.

We encourage applicants to read about past awardees here for additional examples. For the Global E-STEM Excellence Prize, we seek to award projects that have demonstrated excellence in E-STEM programming that can be shared widely and used as a learning opportunity for others. While we are looking at past performance as a key metric, we are also looking for an organization's vision for what they would like to accomplish next for their program.

Taking action
Environmental education helps people gain the knowledge, skills, and dispositions to understand and tackle environmental challenges. It also helps motivate people, individually and collectively, to take action to address the issues. These actions can include everything from educating others in a community about environmental issues to taking direct conservation action, such as planting trees, cleaning up a beach, or designing a new technology for collecting plastic waste. For example, students could reduce food waste by developing a composting system for the school. Or they could monitor energy use in their school and present energy-saving ideas to the principal or superintendent. Actions include anything that can contribute to solving an environmental issue.

Eligibility

Applicant organizations must:

- Be a school, academic institution, or university, or an organization tax-exempt under section 501(c)(3) of the United States Internal Revenue Code and not classified as a private foundation, or a nonprofit or non-governmental organization with recognized legal status in their respective foreign country that is equal to section 501(c)(3) status. You will be requested to upload documentation to prove your nonprofit status in your application.
- Not be subject to U.S. or other applicable governmental sanctions and other restrictions. See a full list of U.S. sanctions here.
- Have a working bank account that can receive electronic funds in USD. The bank must not be subject to U.S. or other applicable governmental sanctions and other restrictions.
- Be able to demonstrate fiscal and administrative stability.
- Submit a program that worked with students aged 11-22.
- Be able to administer programs between November, 2023–October, 2024.
- **Submit applications online through Submittable** by 11:59 PM U.S. Eastern Time on Wednesday, June 28, 2023 (time converter).

Only submissions in English will be considered.

Timeline

- June 8, 2023 at 10 AM U.S. Eastern Time (time converter): Applicant webinar to go through application and share tips for success; webinar will be recorded and posted to the the program webpage.
- June 28, 2023: All applications due in due in **Submittable** by 11:59 PM U.S. Eastern Time.
- Late June–August 2023: Applications reviewed by E-STEM panel.
- July 2023: Selected finalists will be asked to submit a short video pitch for consideration at the final selection panel.
- August 2023: Prize Winners notified.
- September 2023: Prize Winners announced.
- November 2023: Grant projects begin.
- May 2024: Midterm reports due.
- November 2024: Final reports due.

Benefits

Prize winners will receive:

- Funding to support their E-STEM programs.
- Global recognition of their organization's work through NAAEE and Pratt & Whitney's platforms.
- Professional development and peer learning opportunities with E-STEM awardees.
- Access to the NAAEE network and Pratt & Whitney nonprofit community.

Requirements

Once awarded, Prize winners are expected to:

- Attend a virtual 1-hour awardee orientation in late 2023.
- Evaluate and report on project activities and outcomes related to STEM interest, STEM skills, environmental literacy, and any other project-specific outcomes through a midterm and final report.
- Provide periodic updates on project's progress throughout the award year.
- Participate in quarterly opportunities to share about project activities, outcomes, and lessons learned with NAAEE and Pratt & Whitney staff, fellow E-STEM Awardees, and the public (e.g. through blogs, social media, and/or other platforms).

Contact

For any questions, please email the Global E-STEM team at **estem@naaee.org.**

Application Process and Evaluation Criteria

To be considered for the Global E-STEM Excellence Prize, you must complete all five required sections of the online application. Instructions for completing each section of the application are included below and **online through Submittable**. A panel of experts in E-STEM from around the world will review your responses using the criteria listed below (out of 100 points).

1. **Project Description:** Describe your project, including objectives and key activities. Identify at least one objective for each STEM topic taught, and one objective for each environmental solution the project addressed. The proposal should clearly describe how the project helped engage students in relevant, real-world, and student-directed environmental problem solving. We also want to know how your project promoted creative solutions and teamwork, improved STEM and environmental literacy, and emphasized skills needed to pursue environmental careers. See Figure 1 in the article, "A new green learning agenda: Approaches to quality education for climate action," for examples of skills needed for pursuing environmental careers. (max 800 words)

   (Optional) Letter(s) of Support: Provide at least one letter of support from a partner, donor, or other individual or organization who can attest to your organization's past work and/or expertise related to your E-STEM Awards submission. If you will work with partners, please include a letter from each key partner (up to 3 letters total). While letters of support are not required, they are strongly recommended.

   (Optional) Supporting Materials: Please include up to three URLs to any photos, videos, or websites that support your project. Although there is no specific point value associated with these supporting materials, they will help reviewers better understand your project.

   Project Description Evaluation Criteria (30 points)
   - Proposal objectives address one or more of the following solutions to environmental issues: climate change solutions, sustainable energy, and/or sustainable transportation.
   - Proposal is interdisciplinary by including at least one objective addressing at least one STEM discipline (science, technology, engineering, and/or math).
   - Project-based learning was used to engage students in relevant, real-world, and student-directed environmental problem solving.
   - Project promoted creative solutions and teamwork, improved STEM and environmental literacy, and emphasized the skills needed to pursue environmental careers.
   - Applicant leveraged a partnership that contributed to the success of the project.
   - Applicant included letters of support from key partners (if applicable).

2. **Outcomes and Evaluation:** Describe your project's key outcomes and how you measured them (see box at right for examples). Evaluation methods could include pre/post-experience tests and quizzes, surveys, interviews, focus groups, or observations. (max 300 words)

   Outcomes and Evaluation Criteria (25 points)
   - Applicant identified at least one outcome for each objective.
   - Project outcomes align with proposed activities and the project's audience.
   - Applicant included a reasonable and well-thought-out evaluation process (i.e. a plan to measure these outcomes).

3. **Audience Reached/ Beneficiaries:** Describe who your project reached, including if the audience is considered underrepresented (defined in the context of your country or region). Please include your estimated total audience reach and age range. (max 300 words)

   Audience Evaluation Criteria (10 points)
   - Applicant defined audience (who and why).
   - Applicant explains if it reached audiences considered underrepresented in STEM learning and/or environmental careers for your country or region.
   - Project involved students ages 11–22.

4. **Use of Funds:** If you are awarded the Pratt & Whitney Global E-STEM Excellence Prize, describe how you would use the funds to advance your work. Please include descriptions of your plans to expand or replicate your project to reach additional audiences. (max 300 words)

   Use of Funds Evaluation Criteria (15 points)
   - Applicant proposes an interesting and innovative use of funds to advance its E-STEM programming.
   - The plan to expand or replicate the project to reach additional audiences is appropriate for the program's scope and context.

5. **Lessons Learned:** Describe the lessons learned from implementing your project, and how they can be shared with other organizations to enhance, replicate, and/or expand E-STEM programming. (max 200 words)

   Lessons Learned Evaluation Criteria (5 points)
   - Project highlights strategies and approaches that can be shared with others in different contexts.

STEM Learning Outcome Examples
- 85 percent (or the majority) of student participants demonstrate increased knowledge and understanding of STEM concepts from pre/post tests.
- 60 percent (or the majority) of student participants successfully applied newly acquired STEM skills to solve climate change, sustainable energy, or sustainable transportation issues in the community as reflected through their final projects.

Environmental Literacy Outcome Examples
- 80 percent (or the majority) of student participants demonstrate increased awareness and understanding of or concern about climate change, sustainable energy, or sustainable transportation as demonstrated through student interviews.
- 60 percent (or the majority) of student participants demonstrate increased knowledge of and the skills and motivation to address climate change, sustainable energy, or sustainable transportation issues in the community as identified through surveys.

6. **Organizational Capacity:** Please describe your organization's experience in managing funding up to the Global E-STEM Excellence Prize amount AND provide an overview of your organization's operating budget for the past two fiscal years (including 2023). It is fine if your organization has not yet managed funding at that scale, but please describe your organization's closest relevant experience. Operating budgets can be in a language other than English, but applicants should specify their currency either in their uploaded document or in their written response. (max 300 words)

   Organizational Capacity Evaluation Criteria (15 points)
   - Applicant demonstrates previous experience in managing grants.
   - Applicant demonstrates organization's fiscal responsibility and ability to effectively steward the Global E-STEM Excellence Prize Funds through sharing past two years of organizational operating budgets, specifying the currency if not in USD.

Apply here for the Global E-STEM Excellence Prize

Selected finalists will be asked to submit a short video pitch for consideration at the final selection panel. Selected finalists will receive additional instructions via email.