



THE NEW JERSEY STEM PATHWAYS NETWORK: COMMUNITY STEM ECOSYSTEM DEVELOPMENT INITIATIVE REQUEST FOR QUALIFICATIONS

Introduction

The New Jersey STEM Pathways Network (NJ SPN), initiated by the New Jersey Office of the Secretary of Higher Education in 2014, invites proposals from cities, communities, and regions across New Jersey to create integrated, inclusive, partnership-driven STEM Learning Ecosystems within their communities that will strengthen New Jersey's STEM climate statewide.

The NJ SPN seeks to support up to four local ecosystems in the form of comprehensive technical assistance, valued at \$60,000. Competitive applicants will demonstrate the resources and design to engage with local and regional partners in education, business and industry, and STEM professions to create viable and sustainable STEM opportunities across the state of New Jersey. It is the intent of this program that the four ecosystems selected will be integrated into the statewide NJ SPN, which will in turn participate in a nationwide STEM ecosystem Community of Practice headed by the STEM Funders Network. Through this local, state, and nationwide network of ecosystems, the NJ SPN will promote inclusion and cohesion between STEM initiatives across New Jersey.

Technical assistance for selected communities will be provided by The Teaching Institute for Excellence in STEM (TIES) and is valued at \$60,000. Driven by the engineering design process, TIES's technical assistance helps community leaders design and implement their STEM ecosystem with provision for long-term sustainability. As the technical assistance lead for the STEM Funders Network Learning Ecosystems Initiative, TIES provides this guidance to 37 STEM ecosystems across the country.

The selected communities will receive the following services:

- Asset mapping: TIES will distribute a survey to a range of stakeholders aimed at determining the STEM landscape, tailored to and informed by each community's specific needs.
- Stakeholder dialogues: TIES will host focus groups with stakeholders to further determine each community's STEM climate and various stakeholders' level of investment in the ecosystem project.
- Three design studios: All communities will participate in Innovation by Design and Collaborative Investment by Design, as well as a third design studio chosen based on the community's individual needs.
- Design Blueprint: Each community will receive an implementation-ready Design Blueprint informed by the work up to that point. The Design Blueprint defines a path for each ecosystem to join the NJ SPN and contribute their STEM resources on a statewide level.

It is the intent of this program that the selected ecosystems will grow to serve as models for additional New Jersey communities to follow in the future.

About the New Jersey STEM Pathways Network

The NJ STEM Pathways Network (NJ SPN) was initiated by the New Jersey Office of the Secretary of Higher Education in 2014 as a public-private strategic alliance established to inform the alignment of STEM resources, support an education-to-workforce STEM pipeline, identify exemplary formal and informal learning opportunities, and promote STEM career pathway awareness. The NJ SPN has been recognized by New Jersey governance as a key initiative in fostering integration between the state's 200+ STEM initiatives and is enthusiastically supported by Lt. Governor Kim Guadagno. The NJ SPN is chaired by Laura Overdeck, Founder and President of Bedtime Math and Chair of the Overdeck Family Foundation. This technical assistance opportunity valued at \$60,000 per community, provided by the Overdeck Family Foundation, will be a means to create such integration between existing STEM resources in New Jersey and to foster a unified vision to cultivate a STEM-driven workforce for the next generation.

The STEM Funders Network Learning Ecosystems Initiative

This funding opportunity is modeled after the *The STEM Funders Network STEM Learning Ecosystems Initiative*, which is designed to promote the cultivation of STEM Learning Ecosystems in communities throughout the country. Its purpose is

to bring together STEM Learning Ecosystems across the nation to contribute to the larger STEM education and learning landscape. In its first round of funding in 2015, the STEM Learning Ecosystems Initiative selected 27 local, regional and state STEM Learning Ecosystems from a nationwide pool of applicants to create an initial Community of Practice. In the second year of funding in 2016, 10 additional sites were added, bringing the total to 37 ecosystems with the goal of reaching 100 in the next five years. Each of the 37 ecosystems participates in a Community of Practice, a national and regional peer-to-peer professional learning network for communities to share information and expertise. Agenda for the Community of Practice is determined by ecosystem sites, and focus points range from connections to the Common Core State Standards and Next Generation Science Standards, to assessing and evaluating STEM Learning Ecosystems, to developing and honing strategic approaches and foundational principles of an ecosystem cultivation approach. More information about the STEM Funders Network and its 37 ecosystems can be found at www.stemecosystems.org.

The STEM Learning Ecosystem Model

Each STEM Learning Ecosystem is unique in design, theory and practice. The goal of ecosystem cultivation is not to design the same STEM experience for all young people, but to maximize, grow and connect STEM learning opportunities so all young people have access to robust and connected learning experiences along pathways that are individualized according to their own interests. Cultivating ecosystems requires dynamic leadership and diverse partners who share respect for each other's roles across sectors.

Communities that cultivate a STEM Learning Ecosystem develop a shared vision and assess the strengths and gaps of their efforts to reach that vision. Educators, whether K-12 teachers, after-school staff, or experts in informal STEM institutions, work across settings to increase their individual efficacy, while at the same time deepening understanding and respect of the role of educators in other settings. Effective practices are shared across settings, while innovative program models are flexibly adapted to solve entrenched STEM learning challenges. Cross-sector professional development opportunities and communities of practice improve pedagogy and build knowledge among educators across settings. In a STEM Learning Ecosystem, young people's experiences could connect horizontally across formal and informal settings at each age, and scaffold vertically as they

build on each other to become deeper and more complex over time. To learn more about Ecosystem design principles, visit www.stemecosystems.org.

Applicant Criteria and Expectations

Expectations of Selected Sites

STEM Learning Ecosystem applicants in New Jersey must demonstrate active involvement by a diverse set of partners, both to encompass the rich variety of STEM learning opportunities in each community and to expand understanding across the field of STEM education that the ecosystem approach is critical to achieving transformational success in STEM learning outcomes for young people. Applicants should consider the unique “story” of their community, emphasizing the partnerships and resources at hand, opportunities for sustainability, and most importantly, a drive to see New Jersey become more STEM-integrated.

With technical assistance from the Teaching Institute for Excellence in STEM (TIES), the selected STEM Learning Ecosystems are expected to design, cultivate, expand and sustain cross-sector partnerships by engaging in a range of activities. Applications should speak to an ecosystem’s potential, upon receiving technical assistance, to perform activities such as the following:

- Cross-sector collaboration among leadership and practitioners to understand their community’s STEM learning challenges, identify gaps, and define collective goals;
- Providing high-quality professional learning, development, and support among partners;
- Providing multiple pathways to STEM mastery and careers for all students and assuring equity in all opportunities, with particular attention paid to young people of color, linguistic minorities, economically disadvantaged young people, girls, and young people with disabilities;
- Developing and implementing cross-platform hands-on, project-based experiential programming such as maker activities, science fairs, fab labs, and similar activities;
- Launching, expanding, and connecting initiatives;
- Advocating for support of education-related public policy, particularly ESSA;
- Contributing to evaluation framework through shared measurements; and
- Developing collective strategies to assess impact.

Applicants must demonstrate the present involvement of, at a minimum:

- Formal PreK-12 Learning: schools and school systems;
- Out-of-School Learning: out-of-school time and/or summer learning provided by schools or community-based organizations where available, out-of-school focused intermediary organizations;
- STEM-partnered Arts organizations
- Computer science organizations;
- STEM-Expert Organizations: such as science centers, museums, corporations, non-profit organizations, or professional associations;
- Business and industry;
- Post-secondary STEM and higher education and professional training institutions;
- Local or regional public or private funders; and
- Parent organizations or strategies to include families.

Applicant Criteria

The NJ STEM Pathways Network invites all New Jersey communities to apply for this opportunity to join the NJ SPN as local ecosystems. All communities, regardless of the stage of their ecosystem development, are required to fully complete the application process to participate in this initiative. To be eligible for consideration, the applicant must meet the following criteria:

Type of Organization: Applications will be accepted from the following types of organizations: (Please note: Lead applicant should be determined by community-based ecosystem and there shall be only one application per community.)

- Non-profit organization, with a significant focus on and interest in STEM education, that is exempt (with Section 501(c)(3) designation) or public organization, or
- Local educational agency (LEAs)

Location: Applicants are expected to represent a wide community base, such as a city or region, within the state of New Jersey. An applicant such as a school within a larger school district, where the ecosystem initiative is limited to that school site only, for example, would not qualify.

- The intent is for ecosystems to represent communities with a diverse composition of community stakeholders and reach.

Selection: Up to four ecosystems will be chosen and provided with technical assistance. Every effort will be made to ensure ecosystems represent

communities across North, Central and South Jersey and include communities representing urban, suburban, and rural communities.

Cross-Sector Partnerships: Applicants are expected to demonstrate buy-in from a range of collaborative relationships with cross-sector counterparts and provide clear evidence of how their connections support the development of their STEM Learning Ecosystem as well as the NJ SPN. Communities must demonstrate established or emerging relationships with multiple partners, including: preK-16 schools; community settings such as after-school and summer programs; institutions of higher education; STEM-expert organizations such as science centers, museums, corporations, intermediary and non-profit organizations or professional associations; businesses; funders; and informal experiences at home and in a variety of environments.

Application Instructions

This section describes the required components for your application. Please see the appendices for the information that you will need to complete the application prior to your online submission. The application is available at <https://www.surveymonkey.com/r/HPGSLBQ>. All application questions are also provided below for your convenience. We recommend that you work through the questions in an external document and then cut and paste answers into the online application. The survey will automatically save your progress if you exit the page, but to recover your answers you must re-open the survey in the same browser and on the same computer.

We encourage communities in all stages of ecosystem development to apply. Therefore, we understand and expect diverse experiences and capabilities.

Online Application Instructions

All applications must be submitted through the following SurveyMonkey hyperlink: <https://www.surveymonkey.com/r/HPGSLBQ>. The application is comprised of the following sections:

- Applicant Summary
- Background and Narrative
- Self-Assessment
- Key Leadership/Partner Form
- Letters of Support
- Sustainability
- Grant Budget

Each section must be completed before you can complete and submit your application.

Applicant Summary

Please provide the following information:

- Proposed or existing STEM Learning Ecosystem Name
- Brief description (200 word maximum)
- Name of the city, county, region or state as defined in the application
- Lead applicant agency/organization name, street address (and/or mailing address, if different); phone, website.

- Lead contact person name, title, phone number, and e-mail address
 - Tax ID or unique identification number of applicant
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Please provide an overview of your emerging or established STEM Learning Ecosystem. Include quantitative and/or qualitative data, citing the specific source.

Include the following elements:

1. **Describe your community.** (750 word maximum)
 - a. Youth (0-24) population size and demographics, including but not limited to: race, ethnicity, socio-economic status, education indicators, etc.
 2. **Describe your STEM Learning Ecosystem.** (750 word maximum)
 - a. Describe key components, including but not limited to diverse stakeholders representing a variety of settings; current collaborative programs; shared vision and/or goals; design principles.
 - b. Identify key leaders, including but not limited to their individual and organizational capacity to design and cultivate STEM Learning Ecosystems.
 - c. Identify content experts, including but not limited to STEM content expertise for professional learning and development and partners with cross-sector collaboration expertise.
 3. **Assess your Strengths and Opportunities for Growth.** (750 word maximum)
 - a. Describe three strengths of your STEM Learning Ecosystem.
 - b. Define your Ecosystem's capability for sustainability.
 - c. Describe three areas of growth needed in your STEM Learning Ecosystem. Please include those attributes you rate as needing improvement for your ecosystem.
 - d. Discuss challenges you currently face or anticipate having to address in the design and cultivation of your STEM Learning Ecosystem.
 - e. Clearly define your goals and outcomes for local as well as statewide participation.
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Self-Assessment

Please complete the self-assessment questions included in the application using a different SurveyMonkey hyperlink:

<https://www.surveymonkey.com/r/6Z5RCGR>. For each question, choose the answer that most accurately represents your STEM Ecosystem and give an explanation of your reasoning in the space provided. The self-assessment is intended to be completed by various members of your community/ecosystem. At least four community members must complete the self-assessment in order to fulfill this portion of the application.

Partners

Collaboration across sectors and among different groups within your communities will be a key component of this project. Complete the Key Leadership/Partner Form including name, title, organization, and email plus their contribution to your STEM Learning Ecosystem for at least four of the following:

- Formal PreK-12 Learning: schools and school systems;
- Out-of-School Learning: out-of-school time and/or summer learning provided by schools or community-based organizations where available, out-of-school focused intermediary organizations;
- STEM-partnered Arts organizations;
- Computer science organizations;
- STEM-expert organizations: such as science centers, museums, corporations, non-profit organizations or professional associations;
- Business and industry;
- Post-secondary STEM and higher education and professional training institutions;
- Local or regional public or private funders; or
- Parent organizations or organizations serving families.

Letters of Support

Upload **at least three** letters of support from these partners through the online application. Letters of support should:

- Confirm the length and nature of your relationship with the organization, etc.;
- Provide context for the relationship; and
- Describe why your organization is positioned to lead this work.

Submissions that demonstrate support from different sectors and stakeholders within your STEM Learning Ecosystem will be viewed favorably.

Sustainability

Sustainability and planning will be critical to the cultivation of your STEM Learning Ecosystem. Describe your plan to sustain your STEM Learning Ecosystem beyond the technical assistance period. How will your Ecosystem maintain a relationship with New Jersey's statewide STEM effort? How might your indicated partner organizations contribute to your Ecosystem's sustainability? Do you see partnership potential with other organizations across the state beyond your immediate Ecosystem? (500 word maximum)

Submission Process

Webinar for applicants will be held on August 1, 9-10:30am ET. Register here by July 29, 2016 -

<https://attendee.gotowebinar.com/register/6352603627922935553>.

Applications (<https://www.surveymonkey.com/r/HPGSLBQ>) must be submitted online by 5:00 pm ET on Friday September 9, 2016. Faxed or courier deliveries will not be accepted. Incomplete applications will also not be accepted.

Self-Assessment Questions

Understanding your STEM Learning Ecosystem's Approach

The following questions ask you to assess your STEM Learning Ecosystem's approach to cross-sector partnerships, professional learning, STEM-rich learning environments, and career pathways.

1. STEM Learning Ecosystems rely on the design, cultivation, expansion and sustainability of cross-sector partnerships. How would you describe your STEM Learning Ecosystem's current practice in cross-sector partnerships using the descriptions provided: *Emerging Practice*, *Collaborative Practice*, or *Effective Practice*? (please select one)
 - Emerging Practice
 - Collaborative Practice
 - Effective Practice

Explain your reasoning:

2. STEM Learning Ecosystems create and connect STEM-rich learning environments in diverse settings. How would you describe your STEM Learning Ecosystem's current practice in developing STEM-rich learning environments using the descriptions provided: *Emerging Practice*, *Collaborative Practice*, or *Effective Practice*? (please select one)
 - Emerging Practice
 - Collaborative Practice
 - Effective Practice

Explain your reasoning:

3. Equipping educators to lead active learning in diverse settings has been identified as a key strategy for STEM Learning Ecosystems. How would you describe your STEM Learning Ecosystem's current practice in professional learning and development using the descriptions provided: *Emerging Practice*, *Collaborative Practice*, or *Effective Practice*? (please select one)
 - Emerging Practice
 - Collaborative Practice
 - Effective Practice

Explain your reasoning:

4. STEM Learning Ecosystems can play an important role in supporting youth to access pathways to further learning and careers. How would you describe your STEM Learning Ecosystem's current practice of making connections or pathways for youth: *Emerging Practice, Collaborative Practice, or Effective Practice?* (please select one)
- Emerging Practice
 - Collaborative Practice
 - Effective Practice

Explain your reasoning:

5. How would you describe your STEM Learning Ecosystem's overall current practice: *Emerging Practice, Collaborative Practice, or Effective Practice?* (please select one)
- Emerging Practice
 - Collaborative Practice
 - Effective Practice

Explain your reasoning:

Understanding Your STEM Learning Ecosystem's Attributes

Please read each statement and indicate your level of agreement.

6. My STEM Learning Ecosystem encompasses a PreK-12 school or school system with leadership who appreciates the value of collaborating with other learning environments. (please select one)
- Strongly Disagree Disagree Neither Disagree or Agree Agree Strongly Agree Don't Know

Explain your reasoning:

7. My STEM Learning Ecosystem includes a robust after-school program, network or intermediary that has the capacity and credibility to work with other formal or informal learning environments. (please select one)

Strongly Disagree Disagree Neither Disagree or Agree Agree Strongly Agree Don't Know

Explain your reasoning:

8. My STEM Learning Ecosystem has a strong STEM-expert institution, such as a science/tech center, museum, corporation, professional association, non-profit organization, or university that can provide essential resources like professional development for in- and out-of-school educators and hands-on STEM experiences for students and families. (please select one)

Strongly Disagree Disagree Neither Disagree or Agree Agree Strongly Agree Don't Know

Explain your reasoning:

9. My STEM Learning Ecosystem has commitment from at least one local, regional or state funder to support our STEM Learning Ecosystem efforts. (please select one)

Strongly Disagree Disagree Neither Disagree or Agree Agree Strongly Agree Don't Know

Explain your reasoning:

10. My STEM Learning Ecosystem includes at least one parent organizations or an organization serving families. (please select one)

Strongly Disagree Disagree Neither Disagree or Agree Agree Strongly Agree Don't Know

Explain your reasoning:

11. My STEM Learning Ecosystem has commitment from a variety of business and/or professional organizations that will advise the ecosystem's design and focus, provide hands-on STEM opportunities for participants, and ensure sustainability.

- Strongly Disagree Disagree Neither Disagree or Agree Agree Strongly Agree Don't Know

Explain your reasoning:

12. My STEM Learning Ecosystem has members that are attentive to the enlightened self-interest of all partners. (please select one)

- Strongly Disagree Disagree Neither Disagree or Agree Agree Strongly Agree Don't Know

Explain your reasoning:

13. My STEM Learning Ecosystem is opportunistic and nimble. (please select one)

- Strongly Disagree Disagree Neither Disagree or Agree Agree Strongly Agree Don't Know

Explain your reasoning: