

Project Name: Seeds to STEM	
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Website: https://ansp.org/education/programs/seeds-to-stem/ https://growinggreat.org/programs/seeds-to-stem/	If SEPA project, URL for project on https://nihsepa.org/ https://nihsepa.org/project/9147/

Brief Program Description: Seeds to STEM is an innovative, research-based, bilingual program in both Philadelphia and Los Angeles that works with educators or providers, families and children ages 3–5 to promote early science, technology, engineering and math (STEM) skills, literacy and nutrition to help prepare children for kindergarten. Over the five years of the SEPA-funded Seeds to STEM grant, the Academy, in partnership with Drexel University and Los Angeles nonprofit GrowingGreat, will deliver the following:

1. An inquiry-based curriculum about early childhood nutrition and kindergarten readiness that integrates STEM, literacy and numeracy learning through experimental activities growing food inside classrooms, urban gardens and family homes.
2. PD and in-class coaching for accredited and under-accredited pre-K educators, including home-based care providers.
3. Programs that empower families to learn together, understand kindergarten readiness and become more connected to health and nutrition resources in their communities.

Program and Participant Characteristics	Program Activities
<p>Program type (Please check all that apply): <input checked="" type="checkbox"/> Curriculum <input checked="" type="checkbox"/> Teacher PD</p> <p>Setting(s): <input checked="" type="checkbox"/> Formal <input type="checkbox"/> Informal</p> <p>Types of participants <input checked="" type="checkbox"/> Students <input checked="" type="checkbox"/> Teachers <input type="checkbox"/> Scientists <input checked="" type="checkbox"/> Families <input type="checkbox"/> Public</p> <p>Grade level(s) of participants <input checked="" type="checkbox"/> PreK <input type="checkbox"/> Elementary (K-5) <input type="checkbox"/> Middle (6-8) <input type="checkbox"/> High (9-12) <input type="checkbox"/> Adult</p> <p>Characteristics of the populations you serve relative to DEIA: Low income; Black and Latinx Families and Early Childhood Educators</p>	<p>Please see</p> <p>https://ansp.org/education/programs/seeds-to-stem/ for Seeds to STEM Activities pages</p>



Evaluation	Key Accomplishments and/or Findings
<p>Constructs measured</p> <p><input checked="" type="checkbox"/> Content knowledge <input checked="" type="checkbox"/> Skills <input checked="" type="checkbox"/> Attitudes (e.g., interest, identity, belonging) <input checked="" type="checkbox"/> Other (describe): STEM Teaching efficacy</p>	<p>PreK Educator Findings: S2S PreK teachers completed multiple surveys and focus group interviews. Survey findings indicated S2S teachers had significant positive growth in their use of best instructional practices across math, science, nutrition, and literacy (p<.001).</p>
<p>Methods</p> <p><input checked="" type="checkbox"/> Tests/surveys <input checked="" type="checkbox"/> Interviews/focus groups</p> <p><input checked="" type="checkbox"/> Observations <input type="checkbox"/> Artifacts (e.g., student work)</p>	<p>Further, 86% of teachers reported using more best practices in at least two content areas. PreK teachers' perceptions of their teaching efficacy and student outcome expectancy significantly increased from before S2S to after in all four content areas with 55% of teachers reporting greater perceptions in at least one content area (p<.001).</p>
<p>Design characteristics</p> <p><input checked="" type="checkbox"/> Comparison or control group</p> <p><input checked="" type="checkbox"/> Pre/post surveys or assessments</p>	<p>Focus group findings provided additional insights into S2S effectiveness. All focus group teachers noted three ways S2S supported their teaching growth: 1) increased resources, 2) modeled content integration, and 3) positive teacher outcomes (confidence, STEM knowledge, new instructional practices).</p>
<p style="text-align: center;">Project Lessons Learned</p>	
<p>Please follow link for Teacher and Student Evaluation Findings Brief:</p> <p>https://ansp.org/education/programs/seeds-to-stem/</p> <p>Quotes from Seeds to STEM Participants:</p> <ul style="list-style-type: none"> • “Because of the Seeds program there’s been a push for science in our school. And I’m grateful to have our school participate in it.” • “Now I feel more confident teaching science because now I see the kids are really interested, they really want to learn. They really want to touch and to feel.” • “Every time there’s new things...it covers math, science, literacy, it covers every area. And the kids are—without knowing it—they’re learning.” • “The program makes everybody comfortable. It makes all of the providers comfortable. And then, if we’re comfortable, our students are comfortable.” • “I appreciate this program so much. I love it so much. I love sharing it with our parents and let them know that we have people come in and involve the children in things they probably would never do.” 	<p>Focus group teachers also reported three ways S2S supported their students' learning by increasing: 1) exposure to healthy nutrition, 2) hands-on learning, and 3) student interest.</p> <p>PreK Student Observation Findings: PreK teachers in Cohort 1 (S2S Intervention) and Cohort 2 (Comparison) were asked to complete an Observation Checklist for each 4-year-old in their classroom at the beginning of the academic year (Fall) and end (Spring) to evaluate growth in Kindergarten Readiness Skills across four content areas: Literacy, Math, Science, and Nutrition.</p> <p>Students in both groups significantly increased in their Kindergarten Readiness Skills from Fall to Spring (p<.001). On average, students were rated between “Beginning” and “Approaching Proficiency” in Fall and increased to a level between “Approaching Proficiency” and “Proficiency” by Spring. There were, however, no differences in students' Kindergarten Readiness Skills growth over time between groups.</p>

Questions, Advice Wanted, or Topics of Discussion for the SciEd Community
<p>Family Survey Outcomes: Collecting surveys from families is proving to be challenging. Best practices from other projects are welcomed.</p>