

BaySci

Partnership for Elementary Science Teaching and Learning

Collaborative Members

Palo Alto Unified
School District

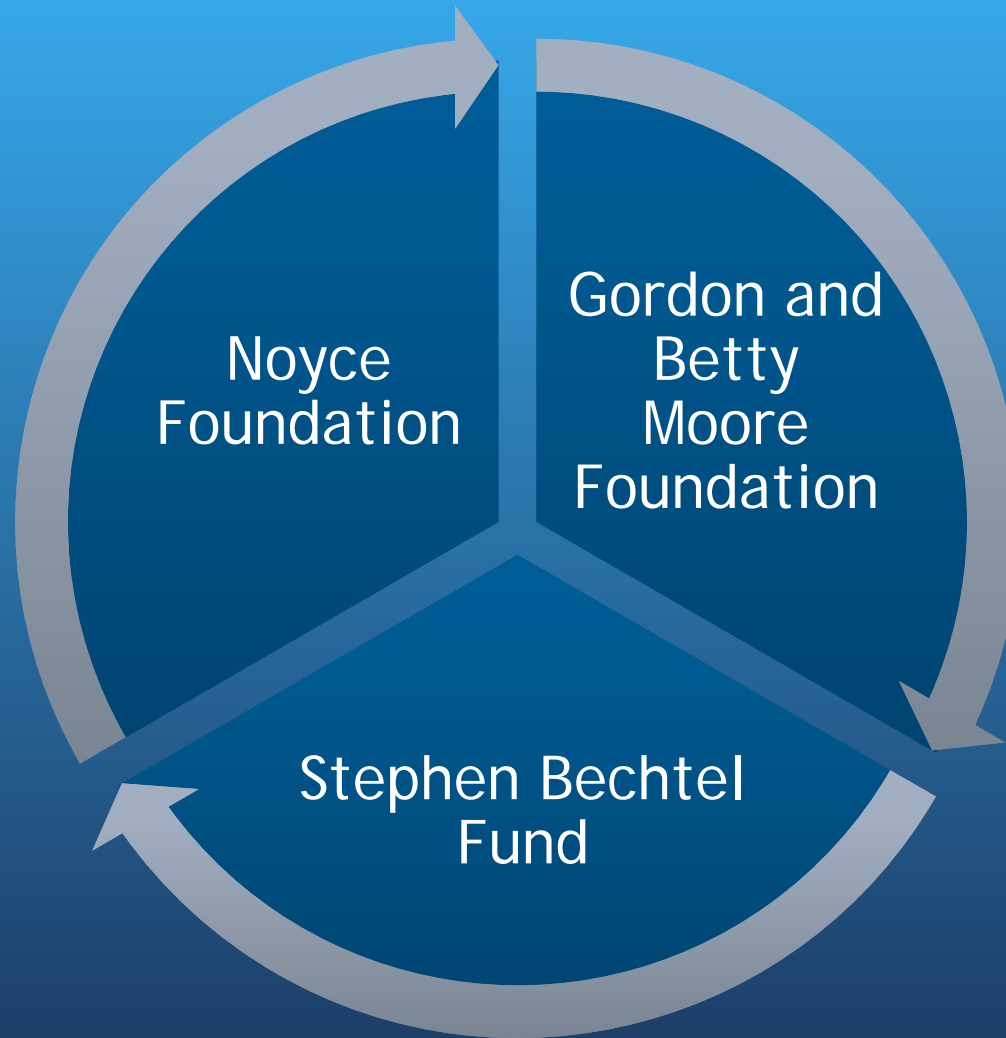
Novato Unified
School District

Exploratorium
Lawrence Hall of Science

Petaluma City
Schools

Newark Unified
School District

Project Funders



Learning Opportunities

Leadership Team

Literacy and Science

Inquiry in the Classroom



BaySci Learning Opportunities for Elementary Science

- Stipend or substitute provided for attending the workshops
- \$100 for classroom materials

Leading the Way - PAUSD Science Leadership Team

Help shape the direction of science in PAUSD. District level decisions are always better when they include the perspectives of classroom teachers and site principals. Your ideas can shape professional development and improve our science program.

Saturday, February 27 (8:30 – 3:30 PM) @ Lawrence Hall of Science
Dinner Session Wednesday, April 28 (4:30 – 7:30 PM) @ Exploratorium
Study Group Follow Up Sessions - 2:30 – 4:00 PM on the following Wednesdays:
2/24, 3/17, 4/21, 5/19

Literacy and Science

Learn strategies for teaching science and literacy in a way that enhances learning and instruction in both.

Thursday, March 11 (8:30 – 3:30 PM) @ Lawrence Hall of Science
Saturday, May 15 (8:30 – 3:30 PM) @ Lawrence Hall of Science
Study Group Follow Up Sessions - 2:30 – 4:00 PM on the following Wednesdays:
2/24, 3/17, 4/21, 5/19

Inquiry in the Classroom

Focus on practical strategies for making science lessons more inquiry focused. Help students develop their process skills in all content areas.

Saturday, March 20 (8:30 – 3:30 PM) @ Exploratorium
Saturday, May 15 (8:30 – 3:30 PM) @ Lawrence Hall of Science
Study Group Follow Up Sessions - 2:30 – 4:00 PM on the following Wednesdays:
2/24, 3/17, 4/21, 5/19

Data Sources

- BaySci Participant Survey, May 2009
 - 65% teacher response rate; 54% administrator response rate
 - purpose: to learn about the quality, value and contributions of the BaySci offerings and supports, and gain a better understanding of school and district contexts

- Observations of Science Lessons, Spring 2009
 - 8-12 teachers were selected, not a random sample
 - purpose: to learn about the current status of elementary science teaching, not to evaluate teachers or measure improvements over a one-year period

Factors that most teachers see as barriers, but that administrators are more inclined to see as supports

Barriers

Supports

	% Teachers	% Administrators	% Teachers	% Administrators
state or district testing policies and practices	63 %	20 %	5 %	50 %
other district priorities	63 %	9 %	10 %	55 %
time available to plan and prepare FOSS lessons	58 %	17 %	23 %	42 %

Classroom Observation Protocol Capsule Rating Descriptions

Level 1: Ineffective Instruction

There is little or no evidence of student thinking or engagement with important ideas of science. Characterized by passive learning or activity for activity's sake.

Level 2: Elements of Effective Instruction

Characterized by some elements of effective instruction, but with serious problems in the design, implementation, content, and/or appropriateness for many students in the class. Overall, the lesson is *very limited* in its likelihood to enhance students' understanding of the discipline or to develop their capacity to successfully "do" science.

Level 3: Beginning Stages of Effective Instruction

Instruction is purposeful and characterized by quite a few elements of effective practice. Students are, at times, engaged in meaningful work, but there are weaknesses. The lesson is somewhat limited in its likelihood to enhance students' understanding of the discipline or to develop their capacity to successfully "do" science.

Classroom Observation Protocol Capsule Rating Descriptions

Level 4: Accomplished, Effective Instruction

Instruction is purposeful and engaging for most students. Students actively participate in meaningful work. The lesson is well designed and the teacher implements it well, but adaptation of content or pedagogy in response to student needs and interests is limited.

Level 5: Exemplary Instruction

Instruction is purposeful and all students are highly engaged most or all of the time in meaningful work. The lesson is well-designed and artfully implemented, with flexibility and responsiveness to students' needs and interests. Instruction is highly likely to enhance most students' understanding of the discipline and to develop their capacity to successfully “do” science.

Characteristics of High-quality Lessons

- appropriate lesson pace
- substantive content
- enough time for students to engage in the activities and phenomena
- questioning that elicits student thinking and learning
- meaning-making during and at end of lesson
- use of FOSS

Characteristics of Lower Quality Lessons

most common issue:

- not enough time to teach the lesson as designed
 - lesson adaptation that weakened quality and effectiveness
 - short circuit learning process
 - little or no time for meaning making at the end of the lesson

other issues:

- too much time spent on lesson logistics
- low-level questioning
- difficulty with class discussions
- weak science content knowledge

The Relationship between Lesson Quality and District Capacity

- a clear, coherent vision for elementary science teaching and learning consistent with national standards and research
- a direct and explicit message from top district administrators about the nature and direction of elementary science
- the implementation of high-quality, research-based instructional materials
- professional development for classroom teachers and on-going classroom support around science content, pedagogy, and the specific instructional materials
- ongoing professional development and support for teacher leaders and the elementary science coordinator
- alignment of district policies and practices, instructional materials, assessment, and professional development
- distributive leadership knowledgeable about and supportive of science improvement efforts

Key Barriers

- time
 - time in school day to teach science
 - time for teachers to participate in needed on-going professional development
- attitudes about the value of and the need for science

Seattle Public Schools - Raising Students' Science Achievement

Long Term Solutions

- build leadership capacity
- continually build partnerships
- integrate science and expository writing

Seattle Public Schools - Raising Students' Science Achievement

Next Steps

- develop teacher and principal capacity
- classroom protocols for observation
- integration of science, reading, writing and ELD

August 2010

- 3 Day Institute for K-5 teachers
 - math
 - science/literacy/ELD integration