

# Innovative Teacher Mini-Grant Application



## Contact Information

	Name	Email Address
Lead Teacher	Susan Wildes	
Teacher	All K-5 teachers	
Teacher	Jackie Metzler	
Principal	Susan Wildes	<a href="mailto:swildes@rbusd.org">swildes@rbusd.org</a>
School	Alta Vista Elementary	

## Grant Overview

Grant Title	Creation of a STEM Lab
One sentence that clearly describes your project	The awarding of this grant will allow for the purchasing of science materials and equipment to adequately outfit a science lab on campus that will support Hands On Science and classroom science lessons for students in grades PreK through 5th grade.

## Requested Funding

- \$1,000 – Individual teacher (elementary or secondary)  
 \$3,000 – Collaborative team (up to three teachers or a grade level, elementary)  
 \$5,000 – Secondary department (middle or high school)

## Agreement and Signatures

I (We) understand our complete and signed application must be submitted by email to [danielle@rbef.org](mailto:danielle@rbef.org) no later than 5:00 p.m. on November 2, 2012. I (We) agree to fulfill the requirement to submit paid receipts for expenditures, to inventory all purchased equipment and materials with the Redondo Beach Unified School District (RBUSD) and to send in a one-page impact report by the designated date. I (We) understand that all major equipment and/or instructional materials purchased with this grant are the property of and must remain in the RBUSD.

	Signature	Date
Lead Teacher		11.2.12
Supervisor/Principal		

## Office Use Only

Date Received	
Grant Number	

# Innovative Teacher Mini-Grant Application



The grant selection process will be anonymous. Your application will be identified by a grant number only. Please do not include your name(s) or the name of your school in the body of your application.

## Grant Overview

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## Student Population

Number of students involved	686 students
Student grade level(s)	PreK-5th (620 K-5th and 66 Pre-K)
Briefly describe the student population including any special needs or interests this project will address.	<p>This project will impact the Alta Vista Community that currently serves 686 students in grades PreK-5<sup>th</sup>. The Pre-K serves 66 students with special needs. In grades K-5, 87 students have special needs that are served through an IEP, with an additional 19 students served through 504 plans. 54 students are English/Language Learners. 13% of Alta Vista's population receives free and reduced lunch.</p>

## Project Description

<p><b>Objective</b> What is the objective of your project and what problem or need does it address?</p>	<p>The purpose of this grant is to create and equip a campus science lab in which teachers, students and Hands on Science docents/volunteers can utilize on a regular basis to enhance their current STEM (science, technology, engineering and math) classroom instruction. The lab will increase the use of hands-on science instruction by giving teachers the resources they have not had access to in the regular classroom. Currently, all science instruction is limited to individual classrooms with experimentation infrequent due to space and equipment</p>
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The Redondo Beach Educational Foundation is a private, nonprofit organization with IRS 501(c)(3) designation and Tax Id # 33-0470935.

**Grant Number:**

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	<p>constraints. Teachers report that they are in need of science equipment and materials in order to conduct hands-on investigations in order to further their students' understandings of the concepts.</p>
<p><b>Process</b> Describe the nature of the project and what will be done (include instructional methods, procedures, or activities).</p>	<p>This project centers on the creation of a STEM lab. With the input from all grade level teachers, our new Hands-on science coordinator, and the district science teachers for grades 4 &amp; 5, we will consolidate, organize and log all current resources and materials on campus that target STEM instruction. Materials and resources will be purchased to support STEM standards that are lacking resources, including AIMS resource books. Once the lab is complete, a staff training will be conducted by the district science teacher as well as the site principal on the use of the resources and how to promote exploration, technology and scientific thinking. The Hands-on science coordinator will use the lab to train classroom docents as well. The lab will be available for the district science teacher's use with grades 4 and 5 for weekly lessons, individual classroom sign-ups as needed and Hands-on science lessons for grades PreK through 3rd grade. Grade level teachers will collaborate in order to plan learning experiences that meet the needs of the students utilizing the new equipment and space.</p>
<p><b>Logistics</b> Who will be involved and where and when will the project take place?</p>	<p>The project will be located in classroom 19, a classroom currently vacant, with the exception of 6 tall science tables and stools. The site principal and Hands-on Science coordinator will oversee the consolidation of all site resources and ordering of new materials. Classroom teachers, including the district science teacher, will collaborate with the principal and HOS coordinator to identify areas of need, procedures and processes for use of the materials and lab. The consolidation and identification will occur in the first 6 weeks of awarding of the grant. The purchasing of materials will take place by February 1, 2013 with the lab ready for full use by May 1, 2013 for end of the year training of HOS docents for the 2013-2014. All classrooms will conduct a minimum of one experiment in the lab by the end of the school year in order to evaluate the usefulness of the room so that adjustments may be made during the summer for full implementation in August.</p>
<p><b>Standards</b> What standards (CA content and/or common core) will this project address, support, or extend?</p>	<p>This grant allows for the implementation of all Grades K-5 science and math standards, but in particular, targets the standards relating to Investigation and Experimentation throughout all levels by providing hands on experiences with science, technology, math and engineering that make the content and processes meaningful to students. It provides a solid foundation of understanding for students in order to build upon more difficult concepts in the future.</p>

### **Grade K: Investigation and Experimentation**

4. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:
- a. Observe common objects by using the five senses.
  - b. Describe the properties of common objects. c. Describe the relative position of objects by using one reference (e.g., above or below).
  - d. Compare and sort common objects by one physical attribute (e.g., color, shape, texture, size, weight).
  - e. Communicate observations orally and through drawings.

### **Grade 1: Investigation and Experimentation**

4. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:
- a. Draw pictures that portray some features of the thing being described.
  - b. Record observations and data with pictures, numbers, or written statements.
  - c. Record observations on a bar graph. d. Describe the relative position of objects by using two references (e.g., above and next to, below and left of).
  - e. Make new observations when discrepancies exist between two descriptions of the same object or phenomenon.

### **Grade 2: Investigation and Experimentation**

4. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:
- a. Make predictions based on observed patterns and not random guessing.
  - b. Measure length, weight, temperature, and liquid volume with appropriate tools and express those measurements in standard metric system units.
- 6 California Department of Education Reposted June 11, 2009 **GRADE TWO**
- c. Compare and sort common objects according to two or more physical attributes (e.g., color, shape, texture, size, weight).
  - d. Write or draw descriptions of a sequence of steps, events, and observations.
  - e. Construct bar graphs to record data, using appropriately labeled axes.
  - f. Use magnifiers or microscopes to observe and draw descriptions of small objects or small features of objects.
  - g. Follow oral instructions for a scientific investigation.

### **Grade 3: Investigation and Experimentation** □

5. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:
- a. Repeat observations to improve accuracy and know that the results of similar scientific investigations seldom turn out exactly the same because of differences in the things being investigated, methods being used, or uncertainty in the observation.

- b. Differentiate evidence from opinion and know that scientists do not rely on claims or conclusions unless they are backed by observations that can be confirmed.
- c. Use numerical data in describing and comparing objects, events, and measurements.
- d. Predict the outcome of a simple investigation and compare the result with the prediction.
- e. Collect data in an investigation and analyze those data to develop a logical conclusion.

**Grade 4: Investigation and Experimentation** □

6. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:
- a. Differentiate observation from inference (interpretation) and know scientists' explanations come partly from what they observe and partly from how they interpret their observations.
  - b. Measure and estimate the weight, length, or volume of objects.
  - c. Formulate and justify predictions based on cause-and-effect relationships.
  - d. Conduct multiple trials to test a prediction and draw conclusions about the relationships between predictions and results.
  - e. Construct and interpret graphs from measurements.
  - f. Follow a set of written instructions for a scientific investigation.

**Grade 5: Investigation and Experimentation**

6. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:
- a. Classify objects (e.g., rocks, plants, leaves) in accordance with appropriate criteria.
  - b. Develop a testable question.
  - c. Plan and conduct a simple investigation based on a student-developed question and write instructions others can follow to carry out the procedure.
  - d. Identify the dependent and controlled variables in an investigation.
  - e. Identify a single independent variable in a scientific investigation and explain how this variable can be used to collect information to answer a question about the results of the experiment.
  - f. Select appropriate tools (e.g., thermometers, meter sticks, balances, and graduated cylinders) and make quantitative observations.
  - g. Record data by using appropriate graphic representations (including charts, graphs, and labeled diagrams) and make inferences based on those data.
  - h. Draw conclusions from scientific evidence and indicate whether further information is needed to support a specific conclusion.
  - i. Write a report of an investigation that includes conducting tests, collecting data or examining evidence, and drawing conclusions.

**Project Innovation**

Explain why you believe your project is innovative. Include your rationale for selecting/designing the new or creative approach or program you plan to implement.

By 2018, over 1,100,000 STEM related jobs will need to be filled in the state of California alone. According to the NAEP, California's Eighth graders score below national averages in both math and science. In order to better prepare our students to meet the demands placed on them in math and science when they enter middle school, high school and college, it is imperative that we create a learning center within our school and helps to drive our STEM instruction and serves as a resource to help our teachers collaborate and deliver quality science, math, technology and engineering instruction to our students.

### Alignment with College Readiness Focus

Describe how your project supports the RBUSD Kinder to College initiative. Specifically, how will your project promote a college-going culture and/or build your students' interest, knowledge, skills and readiness for college.

By spotlighting a greater focus on STEM instruction in all grades, not just upper elementary, students will be better prepared to meet the academic demands in these areas when they enter middle school, high school and college. It is our hope that through the construction of a STEM lab, we will increase our students' interest in and enthusiasm for the sciences, helping to develop passions and interests that will carry them through their schooling and on into college. It is important for our students to understand the demand of STEM jobs and what the requirements are for them to achieve those positions, including, at a minimum, a Bachelor's degree and possibly an advanced degree. We want them to set goals for those positions early in elementary school and cultivate them through their years of schooling.

### Plan for Evaluating and Documenting Impact

<p><b>Evaluation</b> What student outcomes do you expect and how will you measure success?</p>	<p><b>We will measure success in the following ways;</b></p> <ul style="list-style-type: none"> <li>• <b>Evaluation fifth grade student's scores on the science sub-test of the CST.</b></li> <li>• <b>End of year report card scores in the areas of math and science</b></li> <li>• <b>Increased number of students who participate in the Spring Science Expo</b></li> <li>• <b>Number of weekly science lessons taught by classroom teachers in the lab</b></li> <li>• <b>Number of monthly Hands-On Science lessons taught to classrooms</b></li> <li>• <b>Survey of teacher on the impact of the STEM lab on their teaching practices.</b></li> </ul>
<p><b>Documentation</b> What evidence (photos, work samples, assessments, etc.) will you gather during the project to document the grant's impact?</p>	<p><b>We will provide the following documentation:</b></p> <ul style="list-style-type: none"> <li>• Photos of the lab</li> <li>• Tours of the lab to parents at science night</li> <li>• CST scores</li> <li>• Sample Science Expo projects</li> <li>• Work Samples from Hands-on Science and weekly classroom lessons</li> <li>• End of unit classroom assessments</li> </ul>

### Budget Detail

Item Description	Amount
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**Grant Number:**

FOSS Kit for grades Pre-K & K	\$799
Frey Scientific Compact Cordless LED Microscope	\$207.89
Diversitfied Woodcrafts Economy Mobile Science Lab Table	\$1445.95
Classroom Mineral Collection Rocks	\$75.27
Super Science Magnet Kit	\$20.95
Tornado Tube Classroom Science Kit	\$79.99
Shipping and Handling	371.05
TOTAL	<b>\$3000.00</b>