

2014-2015 Educational Grant Application

Submission Date	2014-03-26 17:15:12
Name of Grant	Science Experiment Kits & Books
Primary Contact	Iris Mancilla
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Additional Teachers/Staff who are applying for or will be working with this grant:	Alicia Clark Jennifer Hill Mary Ayeni Amanda Hudson Marie Studley Ashley Trujillo
Campus	Boyd Elementary School
Curriculum Area	Science
Other Curriculum	ELA, Math
Grade Level(s)	4th
Students Impacted	130
Approver Name	Kyle Pursifull
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Project Purpose	<p>This grant will address the 4th graders' need to experience the scientific process through hands on experiments to enhance their science comprehension. The students will also be able to get daily reinforcement of science concepts through ready-to-play activities. In addition, the grant will provide opportunities for the students to explore essential science concept in more depth while having fun. The additional resources granted will offer a boost in science knowledge and increase reading comprehension skills.</p>
Project Description	<p>These activities will be implemented in class, daily, during their science period. Ready to play vocabulary cards will be used as a starter activity to reinforce previous science knowledge. Students will explore science topics like electricity, force and motion while conducting experiments. The experiments guide the students through the scientific process, enriching their investigation and reasoning skills. First, students will build simple circuits, send messages in Morse Code and make their own burglar alarms while learning about electricity. Our students will begin by investigating an electrical circuit and identifying the components of a circuit. We will create experiments to explain and distinguish between conductors and insulator. We will also explore the properties of magnets by creating electromagnetic fields with simple circuits and compasses.</p>

Next, the students get an exciting look at force and motion by racing cars down ramps, building their own roller coasters and observing the reactions of balloon-rockets. Students will create their own experiments to discover the effects of gravity, friction and magnetism. They will use the scientific process to guide them through the design of their own investigation. These kits have 8 different experiments, containing materials to complete each project, vocabulary cards to explore concepts in depth and full-color charts that make concepts easy to understand. Also a set of 5 paperback books for each unit, electricity, force and motion, will be available to help students strengthen and expand on the knowledge learned in the investigations.

Allen ISD Goals/TEKS

- Science 4.3 A: In all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student.
- Science 4.6 C: Demonstrate that electricity travels in a closed path, creating an electrical circuit, and explore an electromagnetic field.
- Science 4.6 D: Design an experiment to test the effect of force on an object such as a push or a pull, gravity, friction, or magnetism.

Measurements

Methods to implement the Electricity and the Force and Motion Unit will be “hands-on” activities. For the Electricity unit, students will conduct investigations using different objects and differentiate between “open” and “closed” circuits, demonstrate parallel circuits, and differentiate between conductors and insulators. For the Force and Motion unit, students will design an investigation to test push or pull, friction, magnetism and gravity using the Scientific Method. Books for these two units will be used for extended learning. Method used for the vocabulary cards will be reinforcement. Once a unit has been introduced, these cards will be used through-out the school-year to spiral back on those previous units.

Teaching Methods

For Electricity: (1) Explain to students on how electricity travels on a pathway. The students will design an electrical circuit using various objects. They will predict the outcome. They will open and close the circuits by disconnecting and connecting wires to demonstrate the effects. (2) Explain to students that conductors are materials that allow heat or electric energy to pass through easily, while insulators prevent the flow of energy. Students will set-up a diagram to test the conductivity of various objects. Students will conduct extended learning using the Electricity books.

For Force and Motion: Explain to students the 3 main forces, gravity, magnetism and friction. Allow students to design their own investigation to test the effects of magnetism, friction and gravity. Allow students to use a spring scale to measure the force of gravity pulling down on an object, use magnets to observe the attraction of object and use various surfaces to explore friction. Students will conduct extended learning using the Force and Motion books.

	For Vocabulary: These cards will be used in “centers” to re-teach vocabulary from previous units.
Timeline for Project	Electricity: January 12, 2015 – January 23, 2015 Force and Motion: January 26, 2015 – February 6, 2015 Vocabulary Cards: October 1, 2014 – June 5, 2015
Curriculum/System Support	<ul style="list-style-type: none"> • The science quickies will allow students to review science vocabulary in a game format. Understanding and applying science vocabulary will help students make connections in science. • The learning tubs have directions and resources for students to complete eight experiments per concept. Students will be able to have hands on experiences with these concepts. The more students are able to have hands on experiences, the more knowledge they will retain about the topic. • The libraries will provide students with reading material on different science concepts. This will deepen their understanding of the topic even further. • Overall these science materials will help students enjoy science more and therefore motivate them to learn more about science.
Additional Comments	The science resources are reusable for future years.
Instructional Supplies or Resources	<ul style="list-style-type: none"> • 3 sets of Match and Sort Science Quickies Gr. 4-5: \$29.99 each, \$89.97 total • 3 sets of Electricity Learning Science Activity Tubs Gr. 4-6: \$69.99 each, \$209.97 total • 3 sets of Force and Motion Learning Science Activity Tubs Gr. 4-6: \$69.99 each, \$209.97 total • 3 sets of Electricity Learning Science Libraries Gr. 4-6: \$39.50 each, \$118.50 total • 3 sets of Force and Motion Learning Science Libraries Gr. 4-6: \$41.50 each, \$124.50 total • 3 sets of Read and Comprehend Activity Folders Gr. 4: \$49.99 each, \$149.97 total • Total Cost of \$902.88
Supplies Budget	\$902.88
Technology	NA
Technology Budget	\$0
Staff Training / Staff Development	NA

Training Budget	\$0
Transportation/Field Trip	NA
Transportation Budget	\$0
Other	NA
Other Budget	\$0
Total Budget	\$902.88
Additional Funds	NA