

General Information

Grant Number	889
Project Title	Hands On and FULL SPEED AHEAD!
Please select the MAIN curriculum area your grant addresses.	Science
Does your grant have a technology component? (Will you have technology equipment, software, etc. in your budget?)	<input type="radio"/> No <input checked="" type="radio"/> Yes
Primary Contact Information	
First Name	Mary
Email	mary.interrante@allenisd.org
Last Name	Interrante
Phone Number	214-495-6765
Campus	Kerr Elementary
Main Subject	Science - Elementary
Grade(s)	6
I have co-applicants.	<input type="checkbox"/>
Social Media	
Please provide your work-related social media contact information.	
Facebook	
Twitter	
Other (please specify)	

Describe details of the project

Grant Number	889
Campus/Student Information	
Your campus:	Kerr Elementary
Will other campus' be involved/impacted by this grant?	<input checked="" type="radio"/> No <input type="radio"/> Yes
Your grade(s):	6
Will other grades be involved/impacted?	<input type="radio"/> No <input checked="" type="radio"/> Yes
Please select all grades that will be involved/impacted by the grant.	K
Project Purpose	
What is the problem, need or opportunity that this grant will address? Describe the impact of this project on your students. (500 words or less.)	
<p>To provide a dynamic hands-on experience for 6th graders that they can, in turn, share with their kinder buddies through vertical teaming, that will ignite and expand their understanding of the Force and Motion Unit. Most specifically, it will help 6th graders explore and discover what speed is all about through the building and modification of model cars, technology enhanced ramps, collection of speed data, speed calculations, and graphing. In the end, the belief is that formal and informal assessment will prove that the content material has been mastered at a higher level. Materials for this project will be re-used in subsequent years by approximately 200 sixth graders and kindergarten students with minimal replacement, repairs, and consumables.</p>	
Project Description	

How will the project or program be implemented? Describe activities and tasks.
Who is the target population and in what ways will they benefit? (500 words or less.)

Force and Motion, most especially SPEED concepts, are some of the most difficult to grasp 6th grade TEKS without more hands-on experiences for EVERY student. (Not just one per group with limited experiences available.) It isn't enough to build a car and test it a few times the same way. Memorized speed formulas and step-by-step speed calculations and graphs hold little meaning until they are ignited with something more. Why not STEM it up a bit? With microcontrollers, IR sensors to more accurately measure time/speed, ramps with different surface textures, a modification tool kit to provide supplies to test weight, friction, drag, and more, an all-encompassing enthusiasm will evolve as scientific trial and error take the driver's seat!

Project Summary

Provide a brief summary for use on the Foundation's website and social media. (2-3 brief sentences)

Hands on and FULL SPEED AHEAD! Build a model car, add ramps, program microcontrollers, attach IR sensors, change variables, modify cars and ramps to learn all about speed, motion, graphing, and more in 6th grade science at Kerr Elementary. Hop in the driver's seat and let's STEM it up!

Allen ISD Goals/ TEKS

Which Allen ISD goals/TEKS does this project support? Provide only two or three examples.

TEK 6.8C Calculate average speed using distance and time measurements.
TEK 6.8D Measure and graph changes in motion .
TEK 6.1 Creativity and innovation.

Measurement

What specific measurements will be used to evaluate the effectiveness of the project? (500 words or less)

Formal and informal assessment of students, including but not limited to drive-bys, unit tests, exit tickets, and warm-ups. Exit student written evaluation and kindergarten and 6th grade teacher written evaluation, as well.

Teaching Methods

What teaching methods will be used to implement this project? (500 words or less.)

Inquiry-based hands-on learning, Student-directed learning, direct teach.

Timeline

What is the project timeline and the date of implementation?

September 2018 purchase supplies, September 2018 begin microprocessor and IR sensor work with 6th grade Science Club meeting once weekly after school. Science Club will also explore and plan with teacher what they would like to learn and know later in the classroom with their 6th grade peers. Ramps with technology and hands-on lab experiences ready to go for the beginning of Unit 6 Force and Motion Unit on the Pacing Calendar. (This has been the end of October and through most of November in the past years.) It would culminate with sharing the ramps and release of cars with each 6th grader bringing their kinder buddy to the speed lab to join the hands on experience.

Curriculum/System Support

Explain how this idea or project enhances/supports Allen ISD curriculum or existing systems.

At the present, in the Force and Motion Unit as an "additional resource" there are "balloon racers". With students who have extracurricular activities that easily rival the simplistic racers, with the technology element to program and measure speed, and with STEM enhanced discovery, the expectation is that student interest will accelerate and assessment data will reflect the benefit of hands-on experiences that look more like speed and motion and less like just building a juvenile, consumable car. This project supports the TEKS and District Clarification in the Allen ISD 6th Grade Science Curriculum document in many regards including TEK 6.1. In this TEK, the student uses creative thinking and innovative processes to construct knowledge and develop digital products. 6.1B requires the creation of original works as a means of personal or group expression, and 6.1D states that analyzing trends, forecasting possibilities, evaluating data, making changes, and predicting outcomes through digital creation be applied. Further, TEK 6.6 states that the student will demonstrate understanding through technology concepts, systems, and operations. Kindergarten Science Curriculum documents in Allen ISD will also be supported by this project. Having an older student offer a hands-on experience will further support the kindergarten Force and Motion unit through K.6C to observe and

describe the location of an object in relation to another such as above, below, behind, in front of, and beside. In TEK K.6D, observe and describe the ways that objects can move such as in a straight line, zigzag, up and down, back and forth, round and round, and fast and slow. Additionally, TEK K 1-4 require scientific investigation and reasoning.

Budget details

Budget Details ** All awarded funds will be available by September of the next school year.

Budget Item	Item Type	Unit Cost	Quantity	Total Cost
Unfinished wooden cars (1 dozen)	Instructional Supplies or Resources	13.99	10	139.9
PVC pipe (3/4 in x 10 ft)	Instructional Supplies or Resources	2.71	14	37.94
Pine Plywood(3/8 in x 8 ft x 4 ft, \$15.33 each x 1), Commercial Carpet Squares (1ft x 1ft, \$1.85 each x 12), Sandpaper (Coarse 80 grit, \$4.98 x 4)	Instructional Supplies or Resources	57.45	1	57.45
Screws (1 in long)	Instructional Supplies or Resources	5.78	6	34.68
Arduino Cookbook (Microcontroller Programming Reference)	Instructional Supplies or Resources	37.95	1	37.95
Arduino IDE Software (Free, opensource, regularly maintained)	Technology	0.0	1	0.0
Arduino Microcontroller (Sparkfun Redboard)	Technology	19.95	16	319.2
Battery Holder (and 9V Battery)	Technology	4.9	8	39.2
Modification Kit: rubber bands, washers (varied sizes, small plastic cylinders, sand (weight for cylinders) blue painter's masking tape 1/2" wide, velcro hook and loop	Instructional Supplies or Resources	200.0	1	200.0
Battery Holder (2xAAA)	Technology	1.5	120	180.0
Battery (2xAAA per holder, sold in singles)	Technology	0.5	240	120.0
IR Detector Diode	Technology	2.95	48	141.6
IR Detector Resistor (10k ohm, 20 pack)	Technology	0.95	3	2.85
IR Detector LED (Green Start LED)	Technology	0.35	24	8.4
IR Detector LED (Red Finish LED)	Technology	0.35	24	8.4
IR Detector LED Resistor (330 ohm, 20 pack)	Technology	0.95	3	2.85
IR LED (940 - 950nm)	Technology	0.95	120	114.0
IR LED Resistor (150 ohm, 20 pack)	Technology	0.95	18	17.1
16x2 Character LCD (white text, on black background)	Technology	15.95	8	127.6
Jumper Wires (12 in wires, 100 pack)	Technology	34.95	3	104.85

BUDGET TOTAL 1,693.97

Are there any additional funds available for this grant? Campus or District Funds? PTA funds? Let us know if you have or will be seeking funds from other sources to help with this project.

Additional funds? No
 Yes

Signature page and principal contact

Principal Approval Required

Please provide the Name and Email of your PRINCIPAL. (Not your name)

First Name

Last Name

Email Address(Completed)

Ardath

Streitmatter

ardath.streitmatter@allenisd.org

Applicant Signature

By entering my name below I signify that I understand that if I move within the District and have written the grant myself, I may take the grant with me to my school (as long as it is appropriate for my classes). If I have written the grant as part of a team, I will leave the grant behind with the team. If I leave AISD, I will leave the grant with the school for which I wrote the grant. As a condition of this grant, I will complete an evaluation form provided by the Foundation.

Signature Mary K Interrante

Date 02/02/2018

Principal's approval form

I certify that this would be a good use of funds for our school and this grant supports the district goals and/or our campus improvement plans. **Do NOT include any identifiers, such as: campus name, your name, teachers name or mascot **

No actions possible.

Comments

Funding this grant will provide amazing experiences on a "hard to teach - hard to learn" concept year after year.

History and final disposition of application

State Change History

State Change *****
02/02/2018 18:49:56
Submitted

State Change *****
02/02/2018 18:54:03
Accepted

Grant Status

Grant Awarded Yes
 No

Award Amount