

Grant Number 1000

Project Title Improving Accuracy Of Measurement In Ballistics and Entomology

Please select the **MAIN** curriculum area your grant addresses. ScienceDoes your grant have a technology component? (Will you have technology equipment, software, etc. in your budget?)  
 No  
 Yes

### Primary Contact Information

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Last Name Hayes

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Campus Allen High School

Main Subject Science - Secondary

Grade(s) 12

I have co-applicants. 

### Social Media

Please provide your work-related social media contact information.

Facebook Darren Hayes

Twitter @AHSCSI

Other (please specify) None

### Additional Grant Applicants

	First Name	Last Name	Campus	Grade
Tara		Allgood	Allen High School	12

Grant Number 1000

### Campus/Student Information

Your campus: Allen High School

Will other campus' be involved/impacted by this grant?  
 No  
 Yes

Your grade(s): 12

Will other grades be  
involved/impacted?  No  
 Yes

Please select all grades that will be  
involved/impacted by the grant.

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### 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.)

At Allen high school the forensics students must make several measurements that are near microscopic scale or measure items that may irregular in shape. This is an extremely difficult task for Allen forensic students when using standard rulers for measurements. When it comes to measuring and reporting there are two major factors to discuss which are precision and accuracy. Accuracy is how close to a true value your measurement is, while precision is the ability to get the same value multiple times. The more "precise" the measuring tool used increases accuracy and the ability to get the same value several times. This is very important when documenting evidence from a crime scene to reporting the evidence in court. Due to student perception, estimation and placement of the item to be measured on a standard ruler, loses this precision with each different student measurement. depending where the the student places the item on the ruler and how to guess the length if the item falls in between two point on the ruler. Measuring circumference such as bullets and casing is extremely difficult and nearly impossible to be accurate using a ruler. Some of the measurements the forensics students must make include: measurement of fiber weave pattern, size of Bot fly chrysalis, bullet marks, radius fracture of glass due to bullet impact and other trace evidence. To help increase in accuracy of measurement, a more precise instrument must be used. A caliper is designed to increase precision by standardizing the points where each student can place the caliper. The caliper does not "slip", holds the item in place and has closer measurements eliminating student estimation. The digital readout eliminates student guessing by providing the nearest true value.

### 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.)

Allen High School forensic students are expected to analyze evidence at a crime scene, citing characteristics of the evidence all the while using proper instruments to increase accuracy before it is used in court during trial. Some of the items to be analyzed by the Allen High Forensic students include but not limited to:

1. Students must distinguish weave patterns of cloth found at the crime scene. The cloths have different "wideness" of weave patterns but also thickness of the fibers used to create it vary as well
2. Students must measure sizes, widths, and tool markings on bullets and cases to determine type of bullet and which weapon barrel it was discharged from.
3. Students must accurately measure the concentric rings of glass fracture caused by impact, including the length of fractures, diameter of point of impact, and depth of the point of impact.

### Project Summary

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

Forensic investigation is a process of accurately analyzing and documenting trace evidence to identify possible person(s) that were present at a crime scene. Accuracy and precision of evidence analysis is extremely important as the reporting has direct impact on lives involved, thus relies heavily of the best equipment used.

### Allen ISD Goals/ TEKS

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

The following TEKs designed by the TEA will be strictly followed by the Forensic Students at Allen High School:

(3) The student uses scientific methods and equipment during laboratory and field investigations.

(H) communicate valid conclusions supported by the data through methods such as investigative reports, lab reports, labeled drawings, graphic organizers, journals, summaries, oral reports, and technology-based reports.

(7) The student recognizes the methods to process and analyze trace evidence commonly found in a crime scene. The student is expected to:

(C) determine the direction of a projectile by examining glass fractures;

(14) The student evaluates bullet and tool mark impressions in a criminal investigation. The student is expected to:

(A) explain the individual characteristics of tool marks;

### Measurement

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

Each forensic team will receive samples of evidence of from a teacher prepared crime scenes and analyze the characteristics of the evidence. The students must document the evidence characteristics and fill out proper reporting forms. Students will then use the documentation to recreate a possible scenario of what occurred. Once teams have recreated the crime scene, they will switch with another team and

### Teaching Methods

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

The students are presented with evidence and instead of seeing and testing evidence collected at a crime scene which is constructed for them, they are responsible for reconstructing the scene by properly analyzing, identifying and recording characteristics. This creates a project

based inquiry learning as well as Standard based grading which is different from the other crime scenes they will encounter during the year.

This task will require crime scene teams to work together and to cooperate with one another. All of the crime scene teams will collaborate on the final scene for reconstruction.

### Timeline

What is the project timeline and the date of implementation?

Assessment of student capability depends on delivery of calipers. If calipers arrive by April, measurements of bot-Fly Larvae and chrysalis will begin in April. If calipers have not yet arrived then the first assessments will occur in Mid-October when trace evidence analysis begins.

### Curriculum/System Support

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

Forensic Science is a new course at Allen High School, students who choose a career track which includes criminal justice and law enforcement also take Forensics. Other students will take the class as a science elective because they are interested in the field.

Many of the current students are pursuing college degrees which will use Forensic Science and the experiences they encountered in high school to build upon. The study of ballistics, trace evidence collection and fly cycle determination are unique and require specialized tools for precise measurement and accurate scene reconstruction, while building interest in the class to future students.

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

Budget Item	Item Type	Unit Cost	Quantity	Total Cost
Digital Caliper	Instructional Supplies or Resources	118.0	10	1180.0

BUDGET TOTAL 1,180

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

Principal Approval Required

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

First Name	Last Name	Email Address <small>(Completed)</small>
Darren	Hayes	jennifer.fuller@allensisd.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 Darren Hayes

Date 01/11/2019

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

approved

State Change History

- State Change darren.hayes@allensisd.org  
01/11/2019 10:40:32  
Submitted
- State Change \*\*\*\*\*  
02/01/2019 07:32:01  
Accepted

Grant Status

Grant Awarded  Yes  
 No

Award Amount 708