

General Information

Grant Number	921
Project Title	High resolution WiFi cameras to view, capture, and edit microscopic images.
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	Benjamin
Email	benjamin.wilkinson@allenisd.org
Last Name	Wilkinson
Phone Number	214-493-0006
Campus	Allen High School
Main Subject	Science - Secondary
Grade(s)	<input type="text" value="12"/>
I have co-applicants.	<input type="checkbox"/>
Social Media	
Please provide your work-related social media contact information.	
Facebook	
Twitter	@MrBenAHS
Other (please specify)	

Describe details of the project

Grant Number	921
Campus/Student Information	
Your campus:	Allen High School
Will other campus' be involved/impacted by this grant?	<input checked="" type="radio"/> No <input type="radio"/> Yes
Your grade(s):	12
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.	<input type="text" value="11"/>
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.)	

Being able to correctly identify tissues and microbes/microorganisms is vital to the medical field. It is also an integral part of the anatomy and pathophysiology and pathophysiology curricula. The best way to identify and understand the microscopic differences between the tissues is to capture a digital image of the tissue under the microscope. This is very tough for students to do with just their cell phones. The cameras that we are asking for in this grant attach to the microscopes and allow the students to view, capture, and edit images using the from your microscope with a free MotiConnect app. This will allow all students to be involved in the finding aspect of these labs in real time. Multiple students can visualize the tissues and microbes under the microscope and together discuss the uniqueness and differences they see. Because all will have access to the app and

images/videos it displays, gone are the days in which a few students stand around while one student looks in the microscope and completes the lab. This will allow teachers to give more immediate feedback as images can be captured on mobile devices using the app and brought to the teacher. This would also allow the teachers to create videos to pre-teach correct microscope techniques prior to labs, from the aspect of actually looking in the microscope.

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.)

The project will be implemented in the anatomy & physiology and pathophysiology class. This affects approximately 252 - 315 anatomy and physiology per year and approximately 48 - 90 pathophysiology students per year. This will be used to observe normal tissues in anatomy and pathologic or cancerous tissues in pathophysiology. They will also be used to observe microorganisms that cause diseases throughout the year in pathophysiology. Anatomy & Physiology has a major lab and tissue practicum in the fall in which students are expected to correctly identify 20 normal tissue samples. As the students learn about the structures and functions of each human body system, these tissue samples are revisited. Therefore these microscope cameras will be used throughout the entire school year. Pathophysiology students also study the different body systems, however their focus is to explore the various diseases and conditions that can potentially occur. In this learning students investigate the pathogenic and cancerous tissue under the microscope and compare them to normal tissue. These types of investigations occur throughout the year, therefore the cameras will also be used throughout the school year.

Project Summary

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

Anatomy & Physiology and Pathophysiology students will use these high resolution streaming WiFi cameras to view, capture, and edit microscopic images. By creating its own WiFi signal, the camera can connect with the students' Android or iOS device with the free MotiConnect app.

Allen ISD Goals/ TEKS

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

Anatomy & Physiology 2F collect and organize qualitative and quantitative data and make measurements with accuracy and precision using tools such as calculators, spreadsheet software, data-collecting probes, computers, standard laboratory glassware, microscopes, various prepared slides, stereoscopes, metric rulers, electronic balances, gel electrophoresis apparatuses, micropipettors, hand lenses, Celsius thermometers, hot plates, lab notebooks or journals, timing devices, Petri dishes, lab incubators, dissection equipment, meter sticks, and models, diagrams, or samples of biological specimens or structures;

Anatomy & Physiology 11A analyze the relationships between the anatomical structures and physiological functions of systems, including the integumentary, nervous, skeletal, muscular, cardiovascular, respiratory, digestive, urinary, immune, endocrine, and reproductive systems;

Anatomy & Physiology 11B evaluate the cause and effect of disease, trauma, and congenital defects on the structure and function of cells, tissues, organs, and systems;

Patho.3F collect and organize qualitative and quantitative data and make measurements with accuracy and precision using tools such as calculators, spreadsheet software, data-collecting probes, computers, standard laboratory glassware, microscopes, various prepared slides, stereoscopes, metric rulers, electronic balances, gel electrophoresis apparatuses, micropipettors, hand lenses, Celsius thermometers, hot plates, lab notebooks or journals, timing devices, Petri dishes, lab incubators, dissection equipment, meter sticks, and models, diagrams, or samples of biological specimens or structures;

Patho.5A identify biological and chemical processes at the cellular level

Patho.6A identify pathogenic organisms using microbiological techniques;

Measurement

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

The effectiveness of this grant will be measured by improvement of students' understanding of the different tissue samples and reduction of time spent capturing digital images. In Anatomy & Physiology, students take two assessments to determine their ability to identify the different tissue samples. With the introduction of these cameras, the images students use to study for these assessments will be improved, therefore their achievement on these assessments will likely improve. In addition, with the introduction of these cameras, the time students take to capture the images should decrease, allowing more time for students to analyze these images to understand how each differs. Currently it takes students about 3 days to view and capture images to prepare for the tissue practicum. Hopefully, with this grant the students will only need 2 days to view and capture images. The same can be said for pathophysiology where the students will have to be able to differentiate normal and abnormal tissues. They will also need to identify microorganisms that cause disease. These cameras will speed those processes up and allow the students more time to work on and cover additional information in each unit.

Teaching Methods

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

Anatomy & Physiology and Pathophysiology use an asynchronous mastery learning strategy in which students are expected to demonstrate learning before moving on to the next learning objective. Histology (study of tissues) tends to be a challenging unit for students, however the learning in this unit is the foundation for all subsequent units. In this learning environment, students are introduced to the different types of tissues and micros in a flipped lecture video. Then, in-class, student explore these differences by examine them under the microscope. The student must then demonstrate their understanding of the differences of the tissue by passing a formative assessment which we call a mastery check. Students are not allowed to proceed on to the summative assessment, the tissue practicum, until they prove to themselves and the teacher they are able to be successful on the mastery check. This results in an asynchronous classroom in which students are learning at their own pace, however students avoid development of learning gaps because they are not allowed to move on until the prove mastery.

Timeline

What is the project timeline and the date of implementation?

Implementation would begin immediately in pathophysiology to begin working on microorganisms that cause disease. Anatomy will begin the following school year with the tissue lab in unit. This school year videos will be made by teacher using the cameras to do prelab instructions for next school years labs.

Curriculum/System Support

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

These cameras will support the district curriculum goals to incorporate the process standards throughout the school year in anatomy and physiology and pathophysiology. This will also allow the students to have a more varied lab experience while maintaining at least 40% of instruction time as laboratory investigations in class. We are asking for 14 cameras to be shared between two teachers. This amount of cameras will support lab groups of four students. Keeping groups to this size will allow for more student engagement and better learning.

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
National Optical Moticam X WiFi-Enabled Microscope Camera	Technology	336.62	14	4712.68
BUDGET TOTAL		4,712.68		

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)
Richard	Jordan	richard.jordan@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 Benjamin B. Wilkinson

Date 02/04/2018

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

This grant will help anatomy students to communicate microscopic findings without having to draw what is seen under the eyepiece assisting with accuracy for students that might not have the best illustration skills.

History and final disposition of application

State Change History

State Change *****
02/04/2018 21:01:55
Submitted

State Change *****
02/05/2018 07:50:00
Accepted

Grant Status

Grant Awarded Yes
 No

Award Amount