

# 2021 Technology Innovation Challenge Grants

Application Package

**Applications Due:**  
Monday April 5, 2021



Greater Chambersburg Chamber Foundation  
100 LWE Suite A  
Chambersburg, PA 17201

## Introduction

The Technology Innovation Challenge Grant program is made possible by the Educational Improvement Tax Credit (EITC) program through the Pennsylvania Department of Community and Economic Development (DCED). As an approved Educational Improvement Organization (EIO), the Greater Chambersburg Chamber Foundation partners with area businesses to provide grant dollars to public school teachers in Franklin County. Major contributions made by **BB&T (Truist)**, **Orrstown Bank** and **Waste Management** to the Chamber Foundation have made an estimated **\$9,200** available to Franklin County public educators for the current 2021 funding cycle.

## Funding Priorities & Criteria

The Technology Innovation Challenge Grants provide **\$500 - \$5,000** of funding to integrate innovative technology into the classroom. These grants are a stimulus for creative applications of technology in support of creating effective learning environments and high standards for all students. Proposals will be reviewed based on three criteria:

1. **Innovative.** Evaluated as: highly innovative, advanced, standard, or slightly behind the times or dated.
2. **Value added to the curriculum.** We evaluate the K-12 programs on how they are *linked to core curriculum* areas such as Math, English, Science, History, Art, Music, etc. We do not approve programs that solely focus on life skills, study habits, SAT or PSSA prep, drug & alcohol counseling, motivational courses, etc.
3. **Advanced academic in nature.** The program must be advanced academic for the subject area that it adds value to. The most common mistake in describing a program or project is to leave out the necessary information to show advanced academics. To meet the advanced academics criteria, the program or project cannot be general or remedial. Proposals often emphasize the innovation of a program or project, with the intent to prove advanced innovation; there is a difference. Also, keep in mind that this does not limit programs to gifted/college prep/honors students. Just because students with advanced academic capabilities are involved in the program, it does not make it advanced academic.

Do not break the program descriptions into sections based on the criteria described. These characteristics will be able to be determined with a well-written narrative. Just keep in mind that those are the criteria that will be considered when evaluating each proposal.

When writing your narrative, keep in mind that the review committee has no idea what the program is about. In one to two paragraphs, tell us. Also, remember that we are evaluating the proposals based on the three criteria above. If you need a starting point, use "who, what, where, when, how." Who participates in the program? What is the program about? What do the students do? What do the students learn? Where does the program take place? When does it take place? How does the program advance the academic experience that they get in the classroom? How is it tied back into the classroom? How do you get the teachers involved?

It is also important not to oversimplify the program description or focus primarily on how the program benefits students, their self-esteem, program recognitions and awards, etc. Every program is valuable, although not every program will fit under EITC guidelines.

Please keep in mind that technology is not a program, nor does it make a program advanced academic, though it does add to the innovation. If a program is approved, technological purchases directly tied to the program are eligible expenditures.

## Selection Criteria

The selection committee will take into consideration the following criteria:

- Complete, easy-to-read, and organized applications submitted by **Monday April 5, 2021.**
- Clear explanation for need demonstrated, use of innovation technology described and potential impact quantified.
- Existing capacity (technology infrastructure, staff, resources, etc.) in place to support proposed project and/or clear explanation of how the proposed project will enhance existing capacity to ensure successful implementation.
- Meets Funding Priorities & Criteria outlined above.

## Reporting Requirements

The Chamber Foundation will require that all grantees submit back-up receipts with a final report to be reimbursed for expenses associated with the project. All reimbursement requests must be routed through your respective technology department by November 30, 2021. DCED requires that grants be paid out by December 31, 2021.

## Planned Grant Review & Award Timeline\*

- Application deadline: **Monday April 5, 2021.**
- Selection committee meets April 2021.
- Review by Department of Community and Economic Development: May-July 2021
- Grantees notified as soon as approval made by DCED.

*\*Timeline may vary based on the response time of DCED. In all cases the funds must be distributed by December 31, 2021.*

## Application Guidance

K-12 educators in any of the six public school districts in Franklin County are eligible to apply. If you have any questions, please contact Ginny Harriger (contact below). If you would like to see what projects have been funded in the past, please see examples below.

Ginny Harriger, Executive Director  
Greater Chambersburg Chamber Foundation  
100 Lincoln Way East, Ste. A, Chambersburg, PA 17201  
Phone: 717-264-7101, ext. 205  
[gharriger@chambersburg.org](mailto:gharriger@chambersburg.org)



## 2021 Technology Innovation Challenge Grant - Application

**DEADLINE: Monday April 5, 2021**

_____ APPLICANT(S)	_____ DATE
_____ SCHOOL/DISTRICT	_____ PROJECT TITLE
_____ GRADE LEVEL/DEPT.	\$ _____ BUDGET REQUEST
_____ DAYTIME TELEPHONE NUMBER	_____ EVENING TELEPHONE NUMBER*
_____ EMAIL	_____ SUMMER EMAIL

**\*PLEASE PROVIDE NUMBER THAT YOU CAN BE CONTACTED AT DURING THE SUMMER**

\_\_\_\_\_  
Applicant's Signature

\_\_\_\_\_  
Dept. Head or K-12 Supervisor (Secondary)

\_\_\_\_\_  
Head Teacher (Elementary)

\_\_\_\_\_  
Building Principal

\_\_\_\_\_  
Director of Technology (Required for all Technology requests)

**Please email or mail applications to:**  
Greater Chambersburg Chamber Foundation  
Attn: Technology Innovation Challenge Grant  
100 Lincoln Way East, Ste. A, Chambersburg, PA 17201  
[gharriger@chambersburg.org](mailto:gharriger@chambersburg.org)



## 2021 Technology Innovation Challenge Grant - Application

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Please complete the following information. You may attach pages to this application.

1. Write a one-paragraph summary (**200 words or less**) of the project you would like to try at your school.
2. What challenge(s) face you which this grant will address? Tell why you think there is a special need for this project.
3. Describe your project with specific detail. Discuss methods, needed materials, resource personnel, a tentative schedule, and your completion date.
4. Describe how your project addresses the funding priorities and criteria:
  - Innovation
  - Value added to curriculum.
  - Advanced academic in nature
5. Approximately how many people will be affected by this project? Explain how you arrived at this number.
6. EVALUATION – How will you determine whether your objectives have been achieved? You will be required to write a one-page evaluation at the conclusion of your project (also include a final budget report).
7. Detail your budget request. Include specific information such as kinds of materials and equipment needed, supply sources, etc. Be sure to include all costs.

**Example:**

<u>ITEM</u>	<u>SUPPLIER</u>	<u>COST</u>
6 "Learning to Read" books	ABC Book Company	\$33.00
8. Are you applying for any other grants or receiving any other funds for this proposal?

# Examples

## **Discovery – Biology Planet**

Biology students will work cooperatively to produce a video that will study and analyze an animal of their choice, while describing at least 5 of the biological principals discussed during the semester and how they relate to their animal. Students will be challenged to communicate their findings in a medium that goes above and beyond the traditional forms of essay, PowerPoint, and speech. Students will utilize technology, such as iPad, video cameras, iPad projectors and movie editing software, to bring their findings to life while learning how to use equipment that is fast becoming a skill set required of today's workforce. Video content will include the animals' internal anatomy, habitat, interactions with other organisms, eating habits, etc. This project allows students to witness, interpret and share scientific concepts and biological processes in a meaningful way using modern technology and will incorporate a plethora of core standards including Unifying Themes, Inquiry and Design, Biological Concepts, Physical Science and Chemistry, Technology Education, Technological Devices and Science, Technology and Human Endeavors.

## **Product Engineering and Development in the Classroom**

Chemistry and Physics students will collaboratively design a robotic device, which moves to a location to make measurements such as pH, voltage, or temperature, test the system and uplink the data through wireless technology. Using data acquisition technology in conjunction with robotics, students will be engaged in active problem solving and product engineering. This hands-on project will allow students to experience all the phases of product development, from concept to design to analysis and process improvement. Utilizing real time data analysis software, students will analyze and report their findings to the teacher in digital, graphical, and written formats. Presentations will be made to peers, the science department and at the STEM fair hosted by the Lincoln Intermediate Unit in the spring.

## **Robotics Today- Providing Essential Skills for Tomorrow!**

High School students will work in groups to design, build, and program robots providing an experiential learning opportunity that integrates all STEM (science, technology, engineering, and math) curriculum. Various types of robots will be designed to complete various tasks starting out with simple design and progressing to more complex. After the design phase, students will use physics to determine the speed and structural strength, mathematical calculations to determine if the design is possible, and then they will build and test the robot. Students will be able to test their robots by competing with other schools. At the end of the project, students will use CAD (computer aided design) to make detailed drawings of the constructed robots and programming its functions. This project will enable students to think strategically, critically, creatively and to develop valuable team building and leadership skills – all essential skills for the 21<sup>st</sup> century workforce.

## **Under Construction**

Elementary students K-5 will observe, record, and learn from a unique teachable moment this year as their school undergoes a renovation. Every student in the school will be introduced to the foundations of building design, from simple geometric shapes to earth-friendly materials. Students will examine blueprints and will follow progress of the construction through interviews and reports that are written, produced, edited, and shared through various media, including video. Every grade will complete a final project that includes original architectural design. Streetscape, home design, and the layout of cities of tomorrow will be explored. A K-5 curriculum, "Architecture: It's Elementary!" will be utilized school-wide by classroom teachers which introduces students to the study of architecture and the built environment, encompassing art, social studies, language arts, history, science, and math.

## Examples

### **Automated Industrial Skills for An Advancing Local Workforce**

Students enrolled in automation/robotics and welding/metals programs will explore robotics in the workplace utilizing STEM (Science Technology Engineering and Math) –based curriculum that is used by colleges and universities. This program addresses technological awareness, automation, the function and capabilities of local employers, their staffing needs and employee expectations. Students will utilize equipment such as an industrial work cell robotic/welder that will provide an experiential opportunity to apply these concepts and learn work-ready skills on advanced equipment that is being used today by manufactures in the region. Students will have an opportunity to earn operations and maintenance of robotic equipment and robotic welding certifications.

### **Elementary Weather Watchers**

Fifth grade students will become Weather Watchers daily, tracking, recording, and analyzing data from real world weather events forecasted by actual meteorologists while simultaneously developing their own predictions. Students will compare all forecasts to the actual event as they track storm data in real time. Students will witness, study, and analyze differences between predicted tracks and the actual track and develop possible explanations as to any discrepancies. Forecasts and explanations will be based on the students' application of concepts and skills acquired during their study of weather and weather systems. Students will communicate their findings to classmates using various technology including iPads, weather related apps, video and digital cameras, digital mirroring software and video footage as found using online media resources.

### **Automated Process Control for Electrical Occupations**

Electrical Occupations students will design small-scale systems typical of what can be found in the electrical maintenance/manufacturing industry, a high-priority occupation in Franklin County. By using bottling process system equipment, students will have a hands-on opportunity to learn programmable logistic controls, automation, process control, maintenance of equipment and troubleshooting. Students will learn how electrical currents work in concert with air pressure, motion, and programming to move a bottle into position, place a cap on a bottle, and move it to another location. These skills achieved by students will also translate into other areas of automation and manufacturing. This program will allow students to have a real-world experience with cutting-edge technology and goes above and beyond the PA Department of Education Program of Study for Electrical Occupations and is endorsed by Franklin County manufacturers.

### **Alternative Energies**

Students will study and work with various types of energy-generating devices to observe firsthand the intricate correlation of not only the production of energy, but the various sources of energy. There are several projects that will involve the students. First they will do a complete energy audit of their home and an analysis of what can be done to reduce energy usage. Additionally, each student will bring in soil and it will be analyzed. From this data they will produce corn on the soil and will do the calculations from the planting, harvesting, and conversion to alcohol, creating a profit loss statement. They will learn about fractional distillation and how important this method is for the separation of petroleum-based products as well as alcohol. Students will work on projects to increase the mileage in automobiles by the hydrolysis of water into pure hydrogen and oxygen and combining the two gases with gasoline. Students will study the production of electricity from wind power and the production of hydroelectricity. Students will work with solar energy to learn how that free energy can be converted to usable energy in the average American home.

## Examples

### **Microcontroller Programming - How Everyday Electronic Devices Get Smart**

Electronics Technology Students will learn how everyday devices, such as cell phones, microwave ovens and toasters, get smart through a newly designed program that uses industry-standard language and processes. Utilizing a project-and-problem based approach, students will use industry standard Microchip PIC controllers and software to learn about microcontrollers and microcontroller programming. Students will research, learn on their own and collaborate with others to solve a problem which will give them workforce development skills that will last a lifetime and make them career ready. Students will apply their knowledge right away in challenging real-world projects. Microcontroller programming skills are being integrated into this project due to industry advocacy and recommendations; they are not currently required by PA Program of Study.

### **Plugged-In Poets**

Special needs elementary students will create and share poetry in a unique and powerful way –through the poetry café. By utilizing tablet computers and specialized apps to meet their needs, students will generate their own acrostics and other types of poetry and will perform it in a culminating activity, by performing in a poetry reading event in the classroom and using text-to-speech applications will read their work to their peers and families. This new program will allow students to who have complex special needs and developmental delays to utilize technology to advance their learning and communications skills. There is evidence that the engaging, intuitive, and colorful nature of the devices used in this program attracts an immediate interest from most special needs students, especially when compared with the traditional simple tools on which they rely to communicate. This project will be piloted in the special needs class but is planned to be implemented school wide.