Virginia Association of Counties

ACHIEVEMENT AWARDS

APPLICATION FORM

All applications must include the following information. Separate applications must be submitted for each eligible program. **Deadline: June 3, 2019.** Please include this application form with electronic entry. If you do not receive an email confirming receipt of your entry within 3 days of submission, please contact Gage Harter.

PROGRAM INFORMATION

County: County of Henrico

Program Title: Helping First Responders and Visitors Find Their Way

Program Category: Criminal Justice and Public Safety

CONTACT INFORMATION

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SIGNATURE OF COUNTY ADMINISTRATOR OR DEPUTY/ASSISTANT COUNTY ADMINISTRATOR

Name: Anthony McDowell

Title: Deputy County Manager for Public Safety

Signature: Anthony E. McDowell

Program Overview

The Technology Education Pumas club at Short Pump Middle School in Henrico County, Virginia collaborated to make the school safer and easier to navigate. Students in the Henrico County Public Schools middle school worked with administrators to carry out the project in the school's Systems Manufacturing class. This class is available at Short Pump and other middle schools as well, through technology education classes. When a first responder enters a building, it's critical that he or she is able to find any particular location in the building as quickly as possible. In a school setting, this is equally important for ensuring the safety and security of students and staff members. A need for more easily identified classrooms to assist first responders and visitors became an educational manufacturing project for students.

Through the guidance of their teacher, student design teams collaborated to create signage to be used throughout the school. Students used additive (3-D printing), subtractive (cylindrical machine-cutting), and assembly line techniques to design, fabricate and install new door signs for every room at Short Pump Middle School. The signs will be available for use by public safety personnel and visitors alike, to help provide easier and effective navigation to locate various places in the school.

Problem/Challenge/Situation Faced by Locality

Through routine discussions about improving the safety at the school, administrators and staff determined there needed to be more visible and effective signage to help visitors and safety personnel quickly locate various locations in the building.

While there hasn't been an incident where personnel couldn't locate places in the building, the safety committee, in making its reviews during the 2017-18 school year, found that signage was

flush on the wall, and not easily visible when looking down a hallway. The schools needed signs that projected from the wall, and could be visible at a greater distance, to aide in locating rooms more efficiently.

How Program Fulfilled Awards Criteria

This was an innovative way to improve the safety of a facility in an economical way and give students hands-on experience. It's critical in education to be able to provide activities in which students are able to see and do what they are taught in the classroom. Through this manufacturing project, the students were able to become competent in required class skills, and apply them in a way that is memorable. This kind of project promotes lifelong learning. School administrators, safety committee members, and the fire marshal have commented positively on them and believe they will be effective in a future emergency situation.

How Program Was Carried Out

The project involved the teacher working with members of the school's administration. During a safety audit in 2017-18, it was determined that the school needed a better solution for marking the locations of rooms throughout the school. The comments and feedback from the audit was useful in designing the product to be mass-produced by the students.

The teacher was approached at the beginning of the 2018-19 school year about whether or not he had the tools and equipment to help the school with this need. In considering the opportunity, the teacher determined this was something that could be incorporated into a manufacturing project for his students. The teacher challenged the class to come up with a solution to help make the school more safe. The teacher also engaged the students in discussions about possible design solutions. As part of their course, students learned about various manufacturing methods.

Students were taught about additive and subtractive techniques, and how these techniques, through the use of a 3-D printer and a rotating cylindrical cutting machine, could be used to mass-produce the signs. The students also learned about assembly lines, and how they could be applied in a practical way to assemble the different components of each sign.

As the different components started to be produced, team leaders were tasked to perform quality assurance, and ensure that signs not up to agreed-upon standards would be remade. Over several weeks, the class was able to finish production, and later coordinate with the school's custodial and maintenance team to install the signs throughout the school in January 2019. The signs project from the wall, and can be seen at a greater distance.

Financing and Staffing

Costs of the materials to make the signs was covered through the school as part of necessary school safety. The teacher was able to not only purchase new material, but also make use of scrap materials to build the signs. Each custom sign cost approximately $2. With 90 signs, the total cost was around $180, a tremendous savings over other options.

Henrico Schools always looks for economical ways to address problems. When the school division is able to incorporate opportunities for students to learn in the process it's a win-win situation. By allowing students to create the needed signs, the school was able to use the money saved to meet other needs of the school.

Program Results

The school's custodial and maintenance team installed these signs around the school building. Since the signs have been used, they haven't been needed for an actual emergency. However,

school administrators, safety committee members, and the fire marshal have commented positively on them and believe they will be effective in a future emergency situation.

The signs also aid ordinary visitors. Parents and community members have not only entered into a safer environment, but also have been able to easily navigate the school without walking down hallways trying to find classrooms.

Often students see signs but do not understand their purpose. This project gave students the chance to learn how first responders rely on the signs as a means of communication. The project itself was a learning opportunity. Students also had to learn to design the signs to effectively minimize the materials used, thus minimizing the costs of the project.

The savings also made the program successful.

Having the opportunity to contribute to the overall building safety provided students with a sense of pride in their school as well as the signs they were creating. Students have made many comments to other classroom teachers and administrators bragging about the great work they have done to produce these signs. In addition, parents and guardians have made multiple comments to the principal and even the sponsoring teacher about this project. It has also served as a recruitment tool to showcase the great work that goes on in this technology education program. This pride carries over into other aspects of the school and ultimately helps with the success of each student.

Brief Summary

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