MSA CESS

Case Study: STEM Program of Distinction
Saint Teresa of Calcutta Catholic School, Pennsylvania

the program

The STEM program at Saint Teresa of Calcutta Catholic School provides students with real-world experience and collaboration, critical thinking and problem solving skills, and mentoring from people in STEM careers.

The school relies on hands-on experiences that are multi-disciplinary, meaning that STEM education is offered across subject areas and classrooms.

The STEM program is aligned with the International Technology and Engineering Educators Association (ITEEA), and built on the Common Core State Standards, in addition to Next Generation Science Standards (NGSS) and Maryland State STEM Standards of Practice.

Recognizing a growing shortage of STEM workers throughout the U.S., Saint Teresa is committed to preparing students for 21st century careers by offering them the training and education necessary to pursue higher education and careers in STEM fields, such as high-tech and engineering.

the process

The STEM program at Saint Teresa of Calcutta Catholic School is not a standalone class. Instead, STEM education is integrated into all subject areas and grade levels, from kindergarten through 8th grade.

For example, a kindergarten class might learn about metamorphosis by creating a caterpillar with paint or construction paper and labeling its different parts, later doing the same with a butterfly.

Older students might learn about ancient Egyptian pyramids and then employ math and design skills when they build a model of a pyramid. During a lesson on weather, students will use tables and graphs to track weather patterns.

One of the key ways that Saint Teresa provides students with comprehensive STEM education is by accessing external resources and programs that teach students real world application of STEM.

For example, the school has participated in the Youth Pollinator Habitat Project, which combines classroom education on the decline in pollinators, such as birds and bees, and the role they play in a healthy habitat, with hands-on activities that support pollinators in their habitats.

Through a combination of donations and the school's own investment, Saint Teresa has made science equipment and software available to students, including a lightning sensor and a rain gauge to help teach weather; Ozobots and Tynker, programs that teach coding; a 3D printer, to allow students to manufacture three-dimensional solid objects from a digital file; and Interactive Science, an inquiry-based K-8 interactive science curriculum.

During the STEM Fair and STEM Career Day, the school invites people who work in STEM fields to mentor and speak with students. Classes participate in Skype a Scientist, which allows scientists from all backgrounds to Skype into a classroom for a Q&A with students.

Finally, Saint Teresa offers a number of STEM clubs and activities available to students outside of their traditional classroom learning. This includes K'nex Design Challenge, Science Explorers, Envirothon, SWAT (Students Working to Advance Technology), Yearbook, and a STEM summer camp.

lessons learned

- Provide teachers with ample opportunity for continuing education. This can be done through workshops, by providing access to STEM lessons and resources, or facilitating meetings and interactions with STEM teachers from other schools. Offer non-STEM teachers basic training in STEM education so that they may weave lessons in STEM into all subject areas, even Language Arts or Social Studies.
- Recognize that a STEM curriculum is dynamic, much like the field it is preparing students for. In the same way that technology is continually changing or medical advances are made on a daily basis, a strong STEM curriculum must be flexible and subject to change.
- Providing students with access to cutting edge technology, to the extent possible, and offering teachers ongoing training is key to a school's success.
- Invite your community to get involved. Sometimes the best lessons come from people who are actually working in STEM fields. Getting community members engaged by asking them to speak, consult teachers, judge during STEM fairs, or mentor students makes the importance of a strong STEM education clear to students and may inspire them to pursue careers in STEM.
- STEM education should begin in kindergarten. In the same way that English runs through every subject area, STEM needs to be part of a planned curricula across all subjects and grade levels. It's never too early to start teaching STEM, but it can be too late.

program of distinction benefits

- Saint Teresa was officially established in 2017, after the consolidation of three Catholic Schools. The STEM Program of Distinction was a useful tool for building enthusiasm among parents and students who were new to Saint Teresa at the time of the merger. The Program of Distinction award continues to be a point of pride for us that we share with prospective students and parents.
- The Program of Distinction has helped to facilitate collaboration among teachers from all subject areas, including from non-STEM classrooms, as they work together to blend STEM education into lesson plans.
- There is an increased emphasis on STEM education in schools nationwide. As a result, our Program of Distinction award is helping us to attract prospective students and parents to our school.

for more information

Saint Teresa of Calcutta Catholic School
316 North Street
McSherrystown, Pa. 17344

Contact Name: Mrs. Crystal Noel, Executive Principal
Contact Phone: (717) 637-3135
Contact E-Mail:
principalmc@stck8school.org

To learn more about Middle States Programs of Distinction, visit **www.msa-cess.org**.