

## Case Study: STEM Program of Distinction Our Lady of Mercy Regional Catholic School, Pennsylvania

### the program

Our Lady of Mercy Regional Catholic School, located in Maple Glen, Pa., was established in 2012. Despite its youth, the school has developed a well-rounded STEM curriculum that engages all of its more than 485 students, grades kindergarten through eighth.

At Our Lady of Mercy, the STEM program is referred to as STREAM (Science, Technology, Religion/Reading, Engineering, Arts and Math) because teachers incorporate reading, religion and the arts into traditional STEM curriculum in order to enhance student literacy and critical thinking skills.

Starting in kindergarten, students are introduced to general science concepts in the realms of biology, physics and earth science. This paves the way for more complex lessons in grades three through five.

In grades six through eight, students move into the Middle School Academy where earth science, biology and physical science are required classes.

In addition to traditional classroom learning, students in grades Kindergarten through three have the opportunity to participate in the school's STREAM Academy, comprised of 10 clubs. The clubs offer students interactive, hands-on activities such as Gardening Club, Superhero Science and Holiday STREAM. Students in grades four to eight are involved in academic clubs that focus on STREAM concepts. Examples of these clubs are Engineering, Invention Convention, and Amusement Park Science. Students within all grade levels can also participate in after-school activities such as Coding Club, Robotics, and Mad Science.

A strong fundraising program made it possible for Our Lady of Mercy to create two science labs: a STEM lab for elementary-aged students and a state-of-the-art, fully equipped lab for middle school students. Starting in the third grade, students attend science class in the STEM lab. By middle school, weekly lab sessions are offered in addition to daily science lessons.

In 2017, the school launched an annual science fair for students in grades seven and eight. Examples of

student-driven engineering projects include a kayak made from recycled materials that can hold 200 pounds and a chest of drawers designed for people with disabilities that can be opened and closed remotely. Student science experiments have included determining the affect of carbon emissions on temperature, and investigating the effectiveness of products like paper towels, stain removers and outdoor paint. The science fair teaches project planning skills and empowers students to investigate an area of science that interests them.



### the process

Our Lady of Mercy has implemented Next Generation Science Standards (NGSS), which were formally adopted by the Archdiocese of Philadelphia and promote fundamentals of STEM learning and emphasize critical thinking, creativity and collaboration.

Teachers at Our Lady of Mercy follow NGSS guidelines when developing curriculum and instruction plans. These guidelines support lesson planning and provide resources teachers can use in the classroom based on best practices in the field.

In 2014, Our Lady of Mercy was chosen as a partner of the Healey Education Foundation, a non-profit group that provides resources, training and coaching to Catholic schools. Under guidance from the Healthy Education Foundation, Our Lady of Mercy established a Board of Specified Jurisdiction to provide volunteer

## Case Study: STEM Program of Distinction | Our Lady of Mercy Regional Catholic School, Pa.

leadership aimed at promoting the school's mission and supporting school leadership. The group has a governance role and assists with such projects as strategic planning, managing the school's budget and fundraising.

Our Lady of Mercy employs a dedicated STREAM instructor and a middle school science teacher, each with their own classroom.

All STREAM teachers have college or graduate degrees in STREAM-related fields and appropriate certification from the State of Pennsylvania. Ongoing training opportunities are provided to teachers through NGSS, First In Math and The Franklin Institute.

The Connelly Foundation, a Philadelphia-based family foundation, also provides teacher training through its Promoting Achievement through Classroom Technology (PACT) program, aimed at helping parish and regional schools provide cutting-edge technology training to students.

In the future, Our Lady of Mercy will establish a career development program for middle school students designed to introduce them to STREAM professionals and related careers.

the 4C's of 21st Century skills: communication, collaboration, critical thinking and creativity.

- Support and participation from administrators and all faculty members is essential to creating a strong STREAM program.
- Reach out to the community and business leaders to help enhance lessons and provide real-world examples of STREAM. STREAM is more prevalent than most people realize.



### program of distinction benefits

Our Lady of Mercy reports that equally as important as the external validation the Program of Distinction provides is the feedback received through surveys of parents, students, teachers and school administrators. Those involved in the Program of Distinction process report they learned new things about students' perceived benefits of the program, new projects teachers hope to initiate and more. Our Lady of Mercy is using the evaluation results to make decisions about how best to allocate staff time and financial resources.

### lessons learned

- The Program of Distinction application and review process helps Our Lady of Mercy make educated decisions about how best to allocate resources. Developing a STEM program around established standards, like NGSS, cuts down on the workload assigned to teachers. NGSS provides teachers with tools that range from developing the curriculum to delivering it to evaluating student outcomes.
- Provide teachers with adequate time and opportunities for collaboration across disciplines to ensure that STREAM learning is integrated across subject areas.
- Give students at all levels the opportunity to practice their newly acquired STREAM knowledge with age and developmentally appropriate co-curricular and extra-curricular activities, such as clubs, and in both formal and informal learning environments.
- Provide students with opportunities to collaborate with peers in different grade levels. This helps to build

### for more information

For more information about the STEM Program of Distinction at Our Lady of Mercy Regional Catholic School contact:

Ms. Michelle Clements, STREAM Teacher  
Ms. Sharon Gribb, Middle School Science Teacher  
(215) 646-0150  
mclements@olmrccs.com  
sgribb@olmrccs.com  
29 Conwell Drive | Maple Glen, PA 19002

To learn more about Middle States Programs of Distinction, visit [www.msa-cess.org](http://www.msa-cess.org).



Middle States Association Commissions  
on Elementary and Secondary Schools

3624 Market Street, 2 West  
Philadelphia, PA 19104-2680

267.284.5000  
610.617.1106  
info@msa-cess.org  
www.msa-cess.org

