



OUR LADY OF GRACE SCHOOL

Reprinted with permission of The Country Chronicle

April 2011

Science is Full STEM Ahead At Our Lady of Grace School

by Nancy Jones

What do a local farmer, state-of-the-art computer generated science labs and walks on the NCR Trail have in common? They are all part of Our Lady of Grace School's science program for middle school students.

And starting next school year, the focus on science will become even more pronounced at the private school in Parkton. That's because the Archdiocese of Baltimore recently designated seven of its schools, including Our Lady of Grace, as STEM (Science, Technology, Engineering and Math) schools.

School systems across the country are increasing STEM opportunities for students as part of a push by the Obama administration. The STEM designation is for the entire Our Lady of Grace School, which has classes from pre-school through eighth grade.

"STEM education enhances students' academic achievement, creates critical thinkers and prepares them for the challenges of advanced education and the future work force," said Addison Beck, middle school science teacher for Our Lady of Grace.

A big piece of the philosophy of a STEM school is to create partnerships with businesses and institutions of higher education, exposing students to hands-on learning which enhances the educational experience.

"It's lessons in action. We apply the concepts we learn in the classroom," said Beck, adding that this type of learning teaches the students to be problem solvers.

Practical application

Side by Side Farm in Freeland is one community partner exposing students to real world applications of science -- in this case, locally grown food, the history of farming and sustainable farming techniques.

Devin Barto, who operates the farm, has visited the classroom to talk about gardening techniques, food options and the history of farming. He's even brought in food products such as unrefined sugar and flour to show the students.

Next visit, he promises to talk about pollinators.

"It's been really fun to bring things in, touch them, talk about them, ask questions about them," said Barto.

It's also exciting, he said, to see how school subjects relate to the practical application. Seeing the science, the theory and vocabulary words in action instead of just on a text book's printed page "takes the abstraction away and makes it concrete and tangible" for the students, he added.

Adopt a trail

Loyola University professor Robert Simmons brings virtual science labs to the classroom through the Mind Project. This lets students experience such things as being a researcher exploring the mysteries of Parkinson's disease or a brain surgeon implanting electrodes in a human patient.

At Gunpowder Falls State Park, students regularly visit to learn about native plants and animals, as well as trail maintenance and the environment. The school's students also have adopted a three-mile-long stretch along the trail in Parkton that they visit monthly with their families to help maintain and clean.

"They're sharp kids and they're very creative. It's fun to hike with them and hear what they have to say about

what they've seen," said Christina McCullough, a park ranger at Gunpowder Falls State Park. "They'll write us letters telling us what they learned and that they want to work for the park one day."

'Making a difference'

The students say they really enjoy the hands-on science opportunities.

Eighth grader Catie Denz said she likes the virtual labs the best.

"It's like thinking outside the box. It's like you have your own science lab in your computer," she said.

Cassie Bienert, also an eighth grader, said she likes learning about the farm and the trail experience.

"With Devin, we learn a lot about being healthy and he brings samples of food for us to try," said Bienert.

"With the trail, I'm more visual so I get to see it and it's more hands-on. They also showed us animals and I love animals."

Colleen Campbell, a seventh grader, said the trail is her favorite.

"I really enjoy helping the environment. We know we're making a difference," she said. "We can see there's hardly any trash now."

Eventual careers

The STEM instructional model started in 2007 and is used to describe schools' increased emphasis on science, technology, engineering and math in classrooms to better prepare students for eventual careers in one of the four disciplines.

"This enhances their learning and it covers all the different learning styles to explore the lessons being taught in the classroom," said Beck.

Beck teaches the STEM curriculum to middle school students along with team teacher Marlene Burr, who teaches advanced math.

Future projects for the entire school include an environmental work station festival on May 2 at the Monkton station on the NCR Trail, coordinated by fifth grade teacher Karla Goodling and Towson University. And there will be a field trip to Side by Side Farm and students also will work on building a robot.

Established in 2000, Our Lady of Grace is a co-education school offering instruction for pre-school through eighth grade with an enrollment of 197.

BREAKERS

"They're sharp kids and they're very creative." -- Christina McCullough

"We know we're making a difference. We can see there's hardly any trash now." -- Colleen Campbell