Knowledge and talents stream at school expo

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Kindergartners Camilla (left) and Sophia stand next to a mural that depicts a healthy ocean transgressing to a polluted one. The students in Pre-K to 2nd grade made paper aquatic life for the healthy ocean section and selected trash for the polluted part.

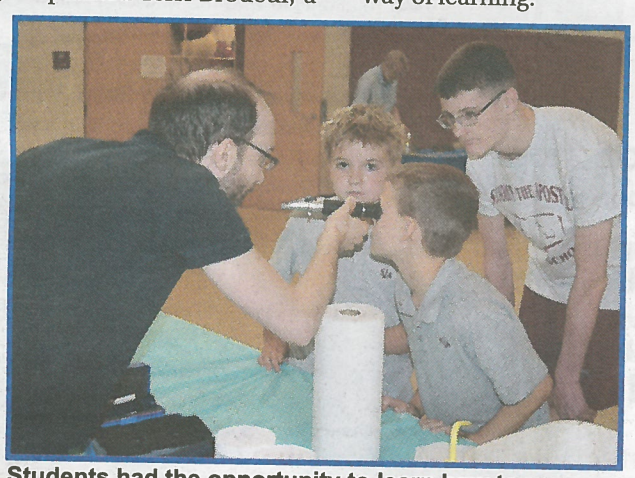
Students at St. John the Apostle School in Virginia Beach were bubbling with excitement and pride at a May 18 school expo where they shared their poetry, books, board games and other projects they created during a year-long STREAM initiative on oceanography.

STREAM integrates science, technology, religion, engineering, art and math. While St. John the Apostle teachers have incorporated STREAM in lessons in the past, this was the first year all grade levels studied the same topic using the multi-faceted approach.

"STREAM is all about hands-on problem-based learning," explained Carey Averill, a middle-school math teacher and a STREAM coordinator. "STREAM helps students make connections between subjects in order to have a deeper understanding of the material."

She explained that studying oceanography schoolwide taught students of all ages to learn how an issue "in our own backyard is also a real-world problem." The year was packed with problem-solving assignments, hands-on activities, guest speakers, field trips and "in-school field trips" such as when the Virginia Aquarium and Marine Science Center and Back Bay Wildlife Refuge came to the school.

STREAM projects demonstrated that each individual can be a steward who cares for the "beautiful earth that God gave us," explained Terri Brodeur, a STREAM coordinator and middle school math and social studies teacher. For example, students from kindergarten through fourth grade decorated reusable shopping bags with oceanic scenes, and first-graders made an eco-friendly weed killer. Also, students in third through eighth grade picked up litter on the shores of Virginia Beach as part of a city-wide beach cleanup while the younger students collected trash on the school grounds.



Students had the opportunity to learn how to use a refractometer which meaures salinity of water. Pictured here are Sam with the refractometer while Matthew (left) and Austin look on.

"It (STREAM) made them aware they are responsible for their future and that they are powerful enough to initiate change even though they are children. I think that's exciting for the future of our community," Mrs. Brodeur said, adding that the students are so excited about their newfound knowledge that they are encouraging their families to take care of the ocean environment.

Students learned about oceanography in the class setting, in groups and on their own. Mrs. Averill said that early on, students in grades three through eight chose an issue, and after learning how to do research, the students studied their topics more deeply and worked either individually or in small groups to present their research in a way that utilized their own talents.

"Critical thinking was enveloped as students conducted research, experiments, collected data, and worked towards a deeper understanding and potential solution to the problem," Mrs. Brodeur said.

Teachers said that by allowing students to select their own topic to study, they moved from teacher-led learning to a "more engaging" and "more authentic" way of learning.

The culmination of their studies was the STREAM Expo showcasing student projects and providing hands-on learning activities that both St. John the Apostle School and Old Dominion University in Norfolk devised. Some of the stations were robotics, a touch tank with small aquatic life and a computer model for Chesapeake Bay flooding simulations.

The expo began with third-graders parading through the school while chanting "Pollution, Pollution, go away!" They each wore a costume depicting an oceanography vocabulary word. Among the exhibits was a floor-to-ceiling hallway mural created by children from pre-K to second grade. Using trash and student-made paper marine life, the mural showed how an ocean environment can transgress from a healthy one to a polluted one. Some of the older students' creations were jello-crafted ocean environments, PowerPoint presentations and websites. In addition, seventh-grade students held a mock city council meeting in which some students portrayed people advocating for better ecologic efforts. The expo ended with a presentation by Eileen Hofmann of ODU highlighting her oceanic research in Antarctica.

Seventh-grader Jacob described the year's STREAM curriculum as "awesome." Third-grader Kiley said "it was so much fun" because the students "got to do so much cool stuff" including making water filters, building a shark tank model and using a bucket of cooking oil and other ingredients to determine a way to clean up an oil spill in the ocean. And kindergartener Kaylin said she liked learning that the snail from the touch tank stuck to her hand.

Eager students use a watershed table-top exhibit that Old Dominion University brought to the expo.