FULL STEAM AHEAD

S Science | T Technology | E Engineering | A Art | M Math

Students Discover Science, Technology, Engineering and More Through **Holy Trinity's Hands-On Approach**

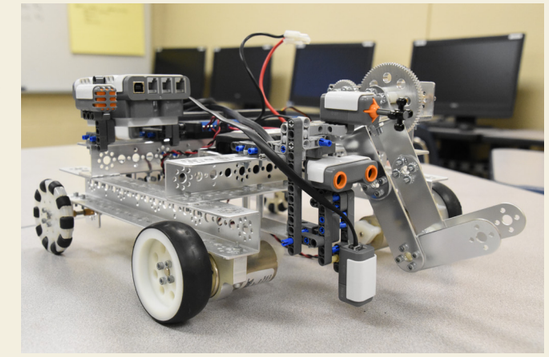
APPRECIATING NATURE'S CLASSROOM

At Holy Trinity Episcopal Academy, nature is the ultimate classroom, as the campus sits on 55 acres, more than half undeveloped. Ecological features include a 2.5-acre manmade lake, two major wetlands, upland forest, and mixed scrubland. Customary high school science courses including Chemistry and Physical Science are complemented by specialized classes including Field Ecology/Biology; Earth and Space Science; Science Research; and Science, Sustainability & Civilization. Ten years ago, instructor Wes Lovelace, a certified Florida Master Naturalist, piloted a program with his students to capture and study Cuban tree frogs, a species invasive to Florida, using GPS locators to map more than 100 traps throughout the campus.

Approximately a quarter of Lovelace's Field Ecology class time is spent outdoors. "Holy Trinity's location provides our students with hands-on experience in delving into a real research project that can carry into later studies," said Lovelace. "What we do in class ties into what a real scientist does – tracking, locating, collecting data, and interpreting it."

High school students also have the opportunity to travel each year on field studies to the Galapagos Islands or Costa Rica, thanks to a partnership with Florida Institute of Technology.

BUILDING CAREER PATHWAYS



According to Physics teacher, Trevor Herntier, technology in and outside the classroom can help students experience scientific principles in new ways. Using DJI Phantom 4 drones, provided by a grant from Harris, he's teaching his students about Newton's Laws of Motion, Bernoulli's Principle, energy transfer, statics, and more – in real time.

STEAM-based electives continue to grow at Holy Trinity with the introduction of new engineering courses. Engineering Design for 9th and 10th graders features a project-based curriculum centering on 3-D computer modeling. After completing the course, students can test for Autodesk Inventor® certification, a valuable job skill.

Principles of Engineering for 11th and 12th graders covers physics, simple and compound machines, robotics, structural analysis, electricity, and circuits. Introduction to Engineering provides junior high students an overview of topics including robotics, 3-D printing, coding, rocketry, and more.

Student Aislin Scully chose to take Introduction to Engineering as part of her long-term plan to pursue a career in a scientific field. "My Life Science class focuses more on life and cells, but this class is more about building and creating," she explained. "I'm learning how to build and program a robot."

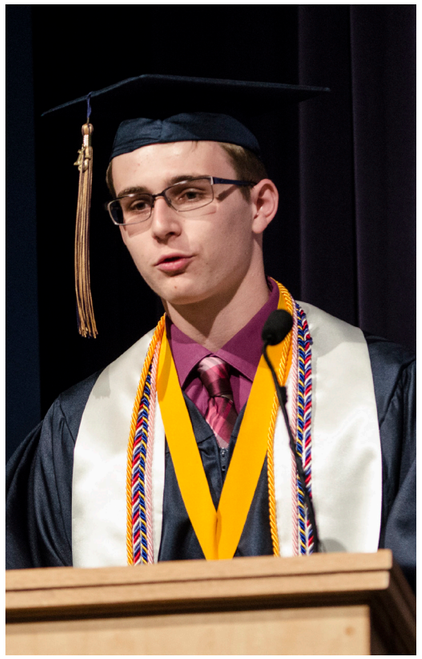
Students also can choose from tech electives including Computer Programming I and II, Advanced Placement® (AP) Computer Science Principles, and AP Computer Science.

Advanced math courses and free academic tutoring meet the needs of especially motivated students. Eligible sixth graders can take Algebra I, while high school math culminates with AP Calculus AB/BC. Fine and performing arts round out the STEAM experience at Holy Trinity's Upper School, with a host of college-prep, honors, and AP offerings including Ceramics & Pottery, Photography, Computer Graphics, Acting, Orchestra, Band, Chorus, and more. Afterschool programs such as the FIRST Robotics Competition (FRC) Bionic Tigers and FIRST Tech Challenge (FTC) Techno Tigers, as well as pre-med and environmental clubs, provide additional STEAM enrichment opportunities.

CHARTING THE COURSE FOR COLLEGE

As students enter their junior year, they can choose to pursue specialized diplomas, including STEAM, Global Citizenship, and AP Capstone, with each diploma program featuring a research, internship, or travel component, as well as additional related coursework.

Nicholas Belsten, who graduated from Holy Trinity in 2015, found his STEAM diploma to be invaluable at Vanderbilt University, where he's studying electrical engineering and physics. "The classes I took for the STEAM diploma helped me prepare for a technical college education and gave me the requisite skills for internship and job applications. The STEAM diploma helped convince my top pick universities that I have the dedication to and passion for STEAM necessary to succeed in a fast-paced college environment."



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– Nicholas Belsten, Class of 2015