ParishSTEM

DARE TO DESIGN. BUILD TO MAKE A DIFFERENCE.

Robotics Pre-k–12

Parish's award winning robotics program seeks to inspire student's interest in science, technology, engineering and mathematics through challenging and fun classes and competitions

Upper School 9–12

Parish's Bring Your Own Device (BYOD) approach to instructional technology

4 year partner with the Perot Museum as host of FIRST® LEGO® League qualifier competition

Project-based Environmental Science course

Robotics team participates in the following regional events:
- BEST®
- FIRST® Tech Challenge (FTC)
- FIRST® Robotics Challenge (FRC)

Introduction to Engineering

Advanced Engineering

Robotics & Automation

Director of STEM Education to support teachers and design curriculum

D² provides 4000 sq. ft. of maker space to facilitate design-based projects

Engineering Design and Problem Solving (NASA's Great Moonbuggy Race)

Director of Instructional Technology supports professional growth of teachers and the responsible incorporation of technology into classrooms

Middle School 5–8

Middle school students apply learning through hands-on real world STEM projects in math, science and technology

Parish's Bring Your Own Device (BYOD) approach to instructional technology

5th grade Technology Boot Camp class

Trimester robotics courses available to all middle school students. Students collaborate with their peers to design, build and program a unique robot for competition in a FIRST® LEGO® League regional qualifier.

5th grade PLTW Design & Modeling

6th grade Parish Inc. entrepreneurship class

6th grade engineering class

D² provides 4000 sq. ft. of maker space to facilitate design-based projects

7th & 8th grade National Rube Goldberg Competition

Director of STEM Education to support teachers and design curriculum

Director of Instructional Technology supports professional growth of teachers and the responsible incorporation of technology into classrooms

Lower School Pre-k–4

The Beasley STEM Center on the Hillcrest campus allows all Pre-K -2nd grade students to nurture their engineering and innovation skills via hands-on labs and teaching kitchen, and projects designed by a STEM-trained instructor

iPads, iTouches and classroom computers allow for individualized student learning. Students also use technology to demonstrate their learning by creating videos, photos and/or podcasts. Technology allows students to embark on virtual field trips, from the far reaches of the solar system to the deepest depths of the oceans

3rd & 4th grade daily STEM classes foster interdisciplinary learning as teachers collaborate across units and projects encouraging students to connect their knowledge amongst the STEM disciplines

D² provides 4000 sq. ft. of maker space to facilitate design-based projects

ParishEXTEND courses in robotics:
- PreK – 2 LEGOS® Duplo
- PreK – 2 LEGO® We Do
- 3rd/4th Introduction to LEGO® NXT 1
- 3rd/4th Introduction to LEGO® NXT 2
- 4th FIRST® LEGO® League robotics – competitive team

Weekly technology classes teach responsible use of technology, digital organization skills and digital citizenship, in addition to a wide array of software and cloud platforms.

Director of STEM Education to support teachers and design curriculum

Director of Instructional Technology supports professional growth of teachers and the responsible incorporation of technology into classrooms

ParishSTEM is the purposeful integration of Science, Technology, Engineering and Mathematics. As a school, Parish is known for its entrepreneurial and innovative programs. In this tradition, along with our effort to redefine a high-quality independent school education, we have adopted the STEM approach as part of our "Remarkable Realities Strategic Vision." This provides more opportunities for relevant hands-on applications, ensuring that Parish graduates will be the innovative doctors, scientists, engineers and entrepreneurs of the 21st century.

Design Den | D²: The 4000 sq. ft. Design Den or D² and its two smaller satellite design labs (Little Den 1 & 2) are dedicated maker spaces where all teachers and students 3rd – 12th can come to work on design-based projects. D² welcomes visitors from all disciplines - theatre to literature - and is the permanent home to the Stewart Family Robotics Lab and Middle and Upper School engineering classes. After basic training on tool safety and Den clean up procedures, a full wood shop, metals shop, plethora of hand tools and mini computer lab with 3D printer are available for teachers to check out using the online calendar for a single class period or series of class periods. Additionally, Upper School students can work on personal projects during flex time. The project possibilities are endless!

Beasley STEM Center on Hillcrest campus complements classroom math and science instruction. This dedicated facility, managed by a STEM-trained instructor, houses five open spaces: IQ Lab (Inquiry and Questioning), Exploratorium, Digital Den (Technology), Learning Lounge and Innovation Station. The STEM center features state-of-the-art technology and manipulatives including Smart-Boards, iPads, Sifteo Cubes, a green screen, digital microscopes, LEGO® robotics, building materials, math activities and critical thinking games – all designed for the budding engineer, scientist, architect and inventor.

***FIRST*® LEGO® League Robotics** is a trimester elective available to all Middle School students. Students learn to collaborate with a small group of their peers to design, build and program an autonomous LEGO® MINDSTORMS® NXT robot to complete a series of missions.

5th grade PLTW Design & Modeling (required for students who do not take Robotics) introduces students to the design process in order to solve problems and understand the influence that creative and innovative design has on our lives. Students use industry standard 3D modeling software Autodesk Inventor to create virtual images as well as a 3D printer to create models of their designs. Project Lead the Way (PLTW) is the leading provider of vigorous and innovative STEM education curricular programs. Course material is designed by teachers, university educators, engineering and biomedical professionals and school administrators to promote critical thinking, creativity, innovation and real-world problem solving skills in students.

Parish Inc. is a trimester course for all 6th graders. Student teams develop their entrepreneurial skills by creating a company that produces an innovative product. Student teams must craft a mission statement and create a logo, marketing campaign, company website and prototype of their design. This course culminates with a team presentation to would-be investors.

6th grade engineering students investigate aerospace engineering through the Fly to Learn program that incorporates XPlane 9 computer software. Students fly and design their own airplanes.

7th & 8th grade Rube Goldberg Machine Competition allows students to collaborate, design and build a machine for entry in the national online middle school Rube Goldberg competition.

Engineering Design & Problem Solving is a project oriented course that is intended to stimulate student's ingenuity, intellectual talents, and practical skills in devising solutions to unique real problems. Students in this class design and fabricate a two person collapsible "moonbuggy" for entrance in the 21st annual NASA Great Moonbuggy Race hosted in April by the Marshall Space Flight Center at the U.S. Space & Rocket Center in Huntsville, AL. The design constraints are based on the actual parameters given to Boeing engineers who designed, built and tested the lunar rover used in the last three Apollo moon missions.

Upper School Engineering explores the branches of engineering and the different types of work that engineers do. Students choose a project that incorporates the engineering design process through goal setting, documentation, research, designing, building, testing and rebuilding of prototypes.

Upper School Environmental Sciences are project-based courses which provide students with the scientific principles and methodologies required to understand the interrelationships of the natural world, to identify and analyze environmental problems both natural and human made, to evaluate the relative risks associated with these problems, and to examine and propose alternative solutions to prevent and/or eradicate them. Principles of sustainability are learned through maintaining and designing living laboratories such as the greenhouse, aquaponics systems, traditional gardens and compost.

ParishEXTEND brings innovative after-school enrichment, challenge-based programs and academic support services to students and adults in a wide range of dynamic subject areas. ParishEXTEND includes a Fine Arts Academy, STEM projects, language classes, sports skills clinics, adult and family fitness, and so much more.

ESTABLISHED 2009

Parish Robotics was envisioned by a core group of innovative and entrepreneurial students from the class of 2012 during their freshman year. These student pioneers sought out a faculty mentor/coach, convinced the Head of School to help them secure funds for a laptop dedicated specifically to their endeavors, and entered Dallas BEST® Robotics competition, all in the span of about two months. The passion of these students so inspired their parents and other generous donors that in April of 2010, the students, parents and faculty completed an extreme makeover, robotics style, renovating a 1300 sq. ft. storage space into a dedicated lab space. That same spring, a bold 3rd grader convinced school leadership of the merits of expanding the robotics program to Lower and Middle School students via the *FIRST* LEGO League robotics program. By the spring of 2011, the Parish Robotics program had expanded again, allowing our youngest learners on the Hillcrest campus to participate in robotics through ParishEXTEND after school programming.

In two short years, Parish established a pre-k – 12th grade robotics program which has become the flagship program of ParishSTEM. Middle and Upper school teams have been repeatedly recognized for excellence at Dallas BEST, FIRST® Tech Challenge (FTC) and *FIRST* LEGO League (FLL) competitions. The Middle School program has grown 272% in three years. Both Middle and Upper School students have the opportunity to make robotics part of their school day via robotics electives, evidence that the program continues to evolve to meet the needs and passions of our students and proving again that, at Parish, anything is possible.