

# Robotics Program

Lake Ridge Academy's K-12 robotics program gives interested students an opportunity to apply their STEAM knowledge of math, engineering, art/design, and technology/coding through the exciting and fun world of robotics! This newer program has quickly expanded to meet the growing interest level of our students. Following the FIRST Lego program, our students use Lego-branded kits or metal kits to design, test, and potentially compete with their robots. The program also develops emerging skills in teamwork, critical and innovative thinking, communication, and resiliency. All of these programs are optional for students to join.

**FIRST Lego League Jr. (FLLJr.):** FLLJr. is a non-competitive Lower School program utilizing the LEGO We-Do robotic kits to accomplish goals and complete missions. Offered as a course in the Center for Creative Thinkers after-school program, student teams will gather to prepare their presentation, build their robot, and program simple functions. There is also an opportunity to participate in a non-competitive exposition in the fall. This program is offered in two age group levels: Grades K-2 and Grades 3-5.

**FIRST Lego League (FLL):** FLL is the Middle School program where teams build and program robots to accomplish missions laid out on a game mat. Point values are earned for successfully completing each mission. There are two ways for students to get involved. The FLL Club gives members the chance to compete regionally and potentially advance up to national competition level. There are three club teams, one for each grade (6th, 7th and 8th). Participants must also complete presentation materials and solve a project related to a theme in order to compete. Students who do not wish to participate in the FLL Club still have the opportunity to build and program a robot of their own during school and compete internally using the same missions as the FLL Club. FLL Club members will meet during and after school.

**FIRST Tech Challenge (FTC):** FTC is the Upper School robotics program. Up to 15 students are part of one team that will compete against outside teams with the goal of advancing to state or national level competitions. FTC teams receive communication kits, modules, and metal part kits in order to construct full metal robots and programming them with a coding language such as Java. Competitions are direct, head-to-head challenges with an alliance format, where points are earned by completing missions and combating the opposing team. The program also extends beyond the game, including fundraising, brand development, logo design, marketing, and community outreach aspects for which awards are given. Participants will be able to utilize the Navratil Engineering Workshop equipment to produce their robots.

FIRST Lego participants can also apply to earn one of over 200 college scholarships available for colleges and universities.

