



Robot Programming



Code and Roll!

In this engaging and stimulating program, your child will acquire programming and robotics fundamentals through hands-on challenges. Fundamentals include: step-by-step movement, loops, branches, sensors, feedback mechanisms, and more! Students will utilize a visual programming tool to analyze feedback and control Sphero robots. With their robot, they will apply concepts to activities such as drawing polygons, detecting collisions, and changing colors. These activities also integrate algebra and geometry while improving programming logic, and Programming with Robots will be sure to provide a comprehensive and enjoyable learning experience.

No programming experience required. Rental costs for robots and tablets are included in the class fee.

After this program

Your child can develop programs that control the robot with loops and branches. Your child also understands real-time sensor feedback-based programming and the fundamentals of robot programming.

Syllabus (each project is one hour, except project #15)

- 1) Introduction of Sphero, Program the robot with drawing
 - 2) Control distance and direction
 - 3) Curling contest
 - 4) Go through the color Maze
 - 5) Draw a square
 - 6) Controlling the LED
 - 7) Draw a square with the sensor data
 - 8) Draw an equilateral triangle and other triangles
 - 9) Draw a rectangle, a rhombus, a parallelogram, and a trapezoid
 - 10) Draw a square with a loop control
 - 11) Combination of movements and LED random control with loop control
 - 12) Have the robot speak sentences
 - 13) Draw a circle
 - 14) Draw many types of regular polygons
 - 15) Draw regular polygons randomly with the variable (2 hours)
 - 16) Generate a sentence with variables
 - 17) Event-driven programming, On collision event
 - 18) If then branch and accelerometer data
 - 19) Toss count, If then branch and accelerometer data calculation
 - 20) Develop a virtual gage
 - 21) Have the robot speak out the yaw, pitch, and roll sensor data
 - 22) Convert position data to colors
 - 23) Gyroscope sensor
 - 24) Detect the room size and shape, On collision event
 - 25) Event-driven programming, On land event
 - 26) Event-driven programming, On Gyro Max event
 - 27) Absolute value
 - 28) Spheroraptor escape, develop logic to find the gate
 - 29) Accelerometer with a specific axis
 - 30) Find the number (single-digit)
 - 31) Find the number (two-digit)
 - 32) Solar system
 - 33) Open the volt (Sensor data, orientation)
- Additional 7 Java script projects are available.

This syllabus is subject to change.