

ROBOT BASICS

Mondays, February 1-April 26 (no class Feb 15, Mar 15, Apr 5; 10 weeks)

3:00-4:30pm

Ages 6-11

This semester we investigate robots from their basic circuitry to their mechanisms and their programming. Each week we cover a different introductory topic leading to our programming of our Root iRobots at the end of the semester

Instructor: Candra Umunna, BSc

Location: Science Center (suite 5)

Course fee: \$225 OR \$25/lab

10% sibling discount

LAB SCHEDULE:

Simple Circuits - Monday, February 1

Students are introduced to electricity and how it flows from batteries to power a motor or a light as they are challenged with snap circuits and light an LED with a paper circuit.

Complex Circuits - Monday, February 8

We work with tools today to take apart old electronics to investigate the function of each component, and learn how complex circuits work in appliances and robots.

Mechanical Hand - Monday, February 22

Many robots have moving, mechanical parts designed by engineers. Today, we design and build our own working mechanical hand out of paper to see how they work.

Toy Motors - Monday, March 1

We create a simple circuit that powers a toy motor as we design and build scribbling robots, then make changes to improve our robot prototype.

Vibrating Motors - Monday, March 8

This week, we use vibrating motors to make mini-robots move through a maze we design and build.

Robot Sensors - Monday, March 22

Students learn how some robots use sensors to detect and respond to color by learning how to program our Ozobot robots.

Offline Programming - Monday, March 29

Kids are introduced to basic programming concepts through offline challenges to learn how a computer processes information.

Online Programming - Monday, April 12

This week, we practice online coding to learn how commands are used to make a computer or robot do what we ask it to do. Kids can bring their own device or share one of ours.

iRobot Introduction - Monday, April 19

Students are introduced to our Root iRobots, and learn how they move and how to program them to do what we ask.

iRobot Programming - Monday, April 26

This week, kids are challenged to program the Root iRobots to complete simple and hard tasks.