



**COLORADO STATE UNIVERSITY
EXTENSION**

4-H Robotics & Engineering



Are you interested in putting things together and taking them apart? Do you like games and technology? Do you think that computers are fun? Robotics is the project for you! Young people in robotics learn hands-on about engineering design, computer programming, electrical components, how robots move, and how robotic arms work and much more.

Junk Drawer Robotics

Jr./Int./Sr

Junk Drawer is for individuals who want to learn basic skills of what it takes to make a robotics kit. Instead everyday items and even “junk” is used to master robotic skills.

Unit 1: Give Robots a Hand

This unit youth will learn about robotic arms. They can complete a number of tasks that are designed to teach young people about how robotic arms function.

Unit 2: Robots on the Move

In this unit, youth will learn about robotic movement. They can complete a number of tasks that are designed to teach young people about how robots move.

Unit 3: Mechatronic

In this unit, youth will learn about mechatronics, electricity and computer programming. They can complete a number of tasks that are designed to teach young people about how mechatronics, electricity and computer programming serve an important purpose in robotics.

Platform Robotics

Jr./Int./Sr

Platform Robotics is for individuals who have any sort of robotics kit. These include, but are not limited to: Arduino Kits, EV3, Brushbot, Make, Hexy, Pushbutton Programming Robotic Kit, Sparky, Cubelets, Robotic Arm Edge, Spark Fun RedBot, WeDo, Multipl, NXT, TETRIS, CEENBot, and VEX.

Youth interested in this project will work through the beginner materials in Unit 4 and progress through intermediate Unit 5 and for the more advanced youth, Unit 6 is the best choice.

Unit 4: Robotic Platform Beginners

Unit 5: Robotic Platform Intermediates

Unit 6: Robotic Platform Advanced

Robotic Teams

Jr./Int./Sr

Unit 7 is for young people participating on a competitive robotics team. Youth who are participating in a 4-H robotics team should enroll in this unit. Youth enrolled in this unit will complete an individual e-record and display board.

Unit 7: Competitive Teams

Groups of 4-H members who want to learn how to build robots and compete.

Resources and Links

Robotic Tip Sheet

State Fair Exhibit Requirements

www.bestinc.org

Robotic e-record

www.usfirst.org

Colorado State University, U.S. Department of Agriculture and Colorado counties cooperating. Colorado State University Extension programs are available to all without discrimination. To simplify technical terminology, trade names or products and equipment occasionally will be used. No endorsement of product names is intended nor is criticism implied of products not mentioned.