



C o d e r Z™

VIRTUAL 4-H ROBOTICS CAMP 2020

Youth (ages: 11–13 or rising 6th–8th grade students)

Register By: May 15, 2020

For AZ 4-H Summit & 4-H STEM YOUiversity



THE UNIVERSITY OF ARIZONA

Cooperative Extension



EMBARK ON A JOURNEY AT 4-H STEM YOUiversity

YOUR PATH

1. Register by **May 15, 2020** (see link below)
 - a. **Upon verification of 4-H membership and good standing**, you will be notified via email by May 20, 2020 and follow additional steps
 - b. You will then be sent an **Eventbrite** link to pay a registration fee of \$50 by May 22, 2020. Your county may be able to offer some financial assistance. Please contact your county 4-H office regarding assistance
2. Attend virtual AZ 4-H Summit and 4-H STEM YOUiversity events
 - a. **June 1-3, 2020**: AZ 4-H Summit kick-off and evening events
 - b. **June 1-26, 2020 (tentatively M, W, F from 1-3 p.m.) mandatory sessions**
 - c. To learn CoderZ Cyber Robotics 101 Curriculum (curriculum to be offered in both English and Spanish)
3. See following pages for more information about CoderZ, equipment minimum requirements, and curriculum

Register at:

<https://extension.arizona.edu/az-4-h-summit>

For any inquiries, call Jerry Lopez at (520) 834-2795



What is CoderZ

CoderZ is an innovative and fun learning platform for students worldwide to engage in robotics, computer science, and STEM to foster 21st century skills. Using simulated 3D virtual cyber robots, students learn Science, Technology, Engineering and Mathematics while engaging in challenging tiered missions that develop creativity, critical thinking, collaboration and an appreciation for technology.

For additional information: https://gocoderz.com/coderz_cyber_robotics101/

CoderZ Equipment Minimum Requirements

OS

- Windows 7 and up
- OS X 10.9 Mavericks and Up
- Chrome OS (Chromebooks)
- Ubuntu 16 and up

Browser

- Latest Chrome browser 64 bit

CPU

- i5 or similar; recommended 64 Bit architecture

RAM

- 4 GB; recommended 8 GB

Screen Resolution

- 1280 width or more

Internet Connectivity

- High Speed / broadband connection (15 Mbps); wired connection is preferred

White-lists

The following two domains should be white-listed in both email servers and firewalls for optimal performance of CoderZ:

- CoderzWorld.co
- GoCoderz.com

Curriculum: Cyber Robotics 101

Description: Cyber Robotics 101 is a flexible learning program for educators to introduce students to the core concepts of code development and robotics. Students will learn mechanics, navigation, sensors and more while being introduced to programming components like commands, variables, conditional logic, loops, smart blocks (functions) and more

Skills Covered

- Session 1 - Intro to STEM and CoderZ Overview of STEM and the CoderZ learning environment.
- Session 2 - Basic Navigation I Learn about drive systems and how to navigate your robot using computer code.
- Session 3 - Basic Navigation II More advanced navigation using computer code.
- Session 4 - Object Detection I Learn how to use the Robot's touch sensor for autonomous navigation using basic coding blocks.
- Session 5 - Repeat Loops Learn how to code more efficiently with the Repeat loop.
- Session 6 - Gyro Turns Make accurate turns using data from the Gyroscopic sensor.
- Session 7 - Gyro Reset Advanced Gyroscopic sensor use and use of reset gyro.
- Session 8 - Domino Creations Use all your creativity and imagination with all you've learned and take on a fun challenge that puts your skills to the test.
- Session 9 - Challenge Missions I Apply all you've learned so far and take on an advanced challenge that puts your skills to the test.
- Session 10 - Object Detection II Learn how to avoid obstacles by sensing them from afar using the Ultrasonic sensor.
- Session 11 - Color Detection Sensor The robot can detect colors on the floor and use them to make better decisions.
- Session 12 - Challenge Missions II More advanced challenges put students' skills to the test.
- Session 13 - Object Manipulation Control the robot's arm to interact with objects in the scene and solve complex challenges.
- Session 14 - Decision Making Use the sensors so your robot can take informed decisions.
- Session 15 - The Ultimate Challenge Implement all you've learned in a series of complex challenges.