

# Robotics 3 - Unit 3

Content Area: **21st Century Life & Careers**  
Course(s): **Engineering Robotics 3**  
Time Period: **Semester 1**  
Length: **3 weeks**  
Status: **Published**

## Unit Introduction

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This introductory unit will give students a review of utilizing the Arduino Uno microcontroller and Programming in Java/C. Students will learn the basics of wiring up simple circuits and other projects utilizing the onboard circuitry of the Arduino. They will then write the necessary code to actuate specific processes. Students will then learn how to integrate the Arduino with the existing FRC RoboRio in order to carry out specific actions in tandem with a Labview Code.

## Standards

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TECH.8.1.12.B.2	Apply previous content knowledge by creating and piloting a digital learning game or tutorial.
TECH.8.1.12.D.2	Evaluate consequences of unauthorized electronic access (e.g., hacking) and disclosure, and on dissemination of personal information.
TECH.8.2.12.C.1	Explain how open source technologies follow the design process.
TECH.8.2.12.C.4	Explain and identify interdependent systems and their functions.
TECH.8.2.12.E.1	Demonstrate an understanding of the problem-solving capacity of computers in our world.
TECH.8.2.12.E.2	Analyze the relationships between internal and external computer components.
TECH.8.2.12.E.3	Use a programming language to solve problems or accomplish a task (e.g., robotic functions, website designs, applications, and games).
TECH.8.2.12.E.4	Use appropriate terms in conversation (e.g., troubleshooting, peripherals, diagnostic software, GUI, abstraction, variables, data types and conditional statements).

## Essential Questions

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What is a microcontroller?

How does a script code differ from a visual code?

What are the benefits of using Java/C over Labview?

How do computers communicate with each other?

How to use a Multimeter to properly test a micro circuit?

How to properly compile and transfer a code/data package?

## **Content / Skills**

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Wiring

Soldering

Circuits

Coding

Electrical Testing

Compiling/Analyzing Data

Connecting Components