

# Robotics 3 - Unit 1

Content Area: **21st Century Life & Careers**  
Course(s): **Engineering Robotics 3**  
Time Period: **Semester 1**  
Length: **2 weeks**  
Status: **Published**

## Unit Introduction

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This unit will give students a review of previously learned skills using tools, machines, and software. Students will perform a re-design of previously built robots to further their understanding of wiring, assembly, and design. We will utilize engineering drawing and measurement skills previously learned to design storage containers and protective casings for the Arduino Uno computer board.

## Standards

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9.3.12.AC-CST.5	Apply practices and procedures required to maintain jobsite safety.
TECH.8.1.12.A.CS2	Select and use applications effectively and productively.
TECH.8.2.12.C.4	Explain and identify interdependent systems and their functions.
TECH.8.2.12.C.5	Create scaled engineering drawings of products both manually and digitally with materials and measurements labeled.
TECH.8.2.12.D.3	Determine and use the appropriate resources (e.g., CNC (Computer Numerical Control) equipment, 3D printers, CAD software) in the design, development and creation of a technological product or system.
TECH.8.2.12.D.5	Explain how material processing impacts the quality of engineered and fabricated products.
TECH.8.2.12.D.CS2	Use and maintain technological products and systems.
TECH.8.2.12.D.CS3	Assess the impact of products and systems.
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).

## Essential Questions

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What does a safe environment look like?

What is the correct order of operation to create a 3D design?

How to properly translate data between real world and virtual?

How is the Engineering Design Process utilized when re-designing?

What specific functions does each machine provide?

Which tools does each machine replace?

What to do in case of an emergency?

How/why does Java/C differ from Labview?

## **Content / Skills**

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3D Engineering Designs

Coding

Wiring

Machine/Tool Safety

Measuring

Assembly