

EV3 Robotics

Content Area: **Unified Arts**
Course(s): **STEM 5**
Time Period: **October**
Length: **10 Days**
Status: **Published**

Unit Summary

In this unit, students will learn how to apply knowledge about programming and engineering to design a robot and program it to complete different tasks.

Standards

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| TECH.8.1.5.A.1 | Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems. |
| TECH.8.1.5.C.CS4 | Contribute to project teams to produce original works or solve problems |
| TECH.8.1.5.D.4 | Understand digital citizenship and demonstrate an understanding of the personal consequences of inappropriate use of technology and social media. |
| TECH.8.1.5.D.CS1 | Advocate and practice safe, legal, and responsible use of information and technology. |
| TECH.8.1.5.D.CS2 | Demonstrate personal responsibility for lifelong learning |
| TECH.8.1.5.D.CS3 | Exhibit leadership for digital citizenship. |
| TECH.8.1.5.F.CS4 | Use multiple processes and diverse perspectives to explore alternative solutions |
| TECH.8.2.5.D.3 | Follow step by step directions to assemble a product or solve a problem. |
| TECH.8.2.5.E.1 | Identify how computer programming impacts our everyday lives. |
| TECH.8.2.5.E.3 | Using a simple, visual programming language, create a program using loops, events and procedures to generate specific output. |
| TECH.8.2.5.E.4 | Use appropriate terms in conversation (e.g., algorithm, program, debug, loop, events, procedures, memory, storage, processing, software, coding, procedure, and data). |
| TECH.8.2.5.E.CS1 | Computational thinking and computer programming as tools used in design and engineering. |

Student Learning Objectives

Students will learn to:

- use simple visual program language to create a program using loops, events, and procedures to generate a specific output.
- construct an EV3 Rover robot.
- use the action palette to write a program to make a robot display pictures, produce sounds, and display blinking lights.
- use the move steering block to move their robot forward, backward, speed up, slow down, and turn.
- use move steering block for # rotations, time, and degrees.

Essential Questions

1. How can programming be used to make a robot follow a set of directions?
2. How can programming robots be beneficial to people?

Enduring Understandings

Students will understand:

- the importance of trouble shooting.
- how to navigate and use the Lego Mindstorms platform.
- how to create a program, transfer it to a robot, and run the program on the robot.
- how to make adjustments to their robot and their program.

Application

Students will be able to independently use their learning to:

- create a program in Lego Mindstorms.
- connect a robot to a computer and transfer a program to it.
- program a device to carry out a task.
- trouble shoot problems.

Skills

Students will be skilled at:

- creating a working program.
- transferring programs from computer to device.
- running a program on a robot.
- creating a robot designed to complete a specific task.
- modifying programs and robots to meet specific needs.
- utilizing help areas for trouble shooting.