

Session 1 Lesson Plan

The World of Robotics

Core Objectives:

1. Understand how to use the official Makecode website, including the interface, how to connect the micro:bit and how to download code.
2. Form a basic understanding of movement, pausing, and displaying LEDs.

[Session Slides \(Canva\)](#)

Session Flow:

- This first session is key for establishing habits, standards, and expectations for the next few lessons.
- Warmup:
 - This warmup is recommended if you decide that students will have difficulty assembling the robots on their own or prefer to preassemble it for them. To speed things up, make sure the students themselves are sitting in groups or create predefined groups for the activity!
 - If you decide to ask them to assemble the robots themselves, you can skip this warmup unless you have longer sessions (~60 minutes).
 - Once the warmup is done, they will see the “skill map” for the first time. We recommend explaining the map briefly for this lesson; it helps them get to know their robots and can be used as a transition to the content of the main lesson.
- Main Lesson:
 - The slides do not include how to connect to the micro:bit and install the extension. In our experience, it's best to demonstrate these actions/steps physically or via screen share right before any of the actual lesson material. The students should follow

along on their own robots. If you need help, check

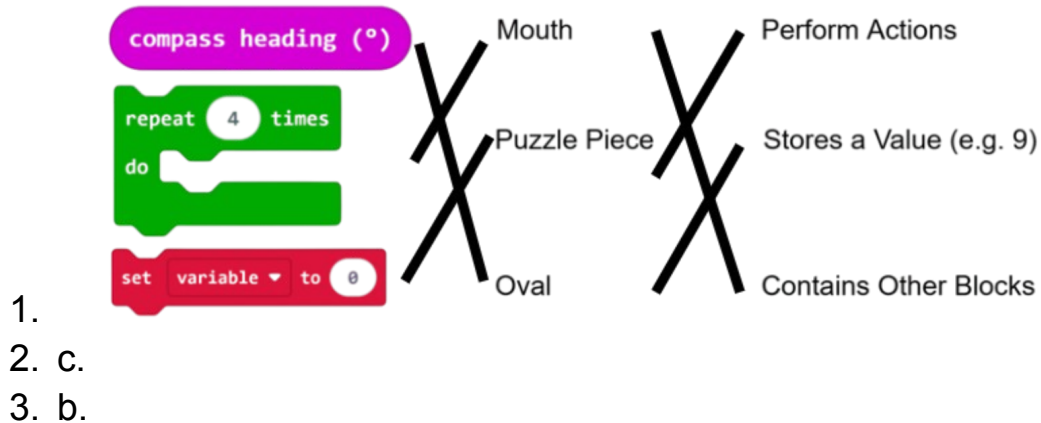
 [Additional Resources](#) .

- The lesson starts by introducing “shapes” used within the Maqueen environment, which could help students infer where future blocks might belong. (except the diamond shape, which is covered in session 3)
- Students then learn how to download code, as well as simple code blocks that control the LED grid on the micro:bit.
- Students are also introduced to movement, including turning.
- The students also learn about the pause block. Since it is rather unintuitive, we elect to develop this concept over the next couple of lessons.
- Encourage your students to ask questions! This fosters a sense of curiosity and confidence in speaking up over the course.
- Activity:
 - The purpose of this activity is for students to practice testing simple programs. Additionally, it introduces a small challenge of discovering the purpose of the “pause” block, which is vital for controlling movement.
 - Relative to other activities, this activity has more direct instructions. In future lessons, instructions will become less explicit as students build the ability to translate these goals into code.
 - If students get stuck, try not to give answers directly!
- Reflection:
 - Q1 Sample Answers: The pause block gives time for the robot to move. Without it, the robot instantly stops before it even has a chance to move!
 - Q2 Sample Answers: Robots are commonly used in healthcare, cleaning, exploring new areas for humans, and more! (note that the second question on how robots can improve their lives is open-ended).
 - Ask your students to clean up by removing the batteries and micro:bit from their Maqueen and storing them in designated

places. We recommend encouraging this habit throughout the course.

[Sample Activity Code \(Makecode\)](#)

Exercise Answers:



CSTA Standards:

- 1B-CS-01: Describe how internal and external parts of computing devices function to form a system.
- 1B-AP-10: Create programs that include sequences, events, loops, and conditionals.
- 1B-AP-15: Test and debug (identify and fix errors) a program or algorithm to ensure it runs as intended.
- 1B-IC-18: Discuss computing technologies that have changed the world, and express how those technologies influence daily life.