

A Note to Teachers

Coding expectations are part of the Ontario Math and Science Curriculums. This resource includes Ontario aligned, optional coding lessons as suggestions to enhance your STEMterprise project.

Coding skills and access to resources differ across schools. To address this, Micro:bits were selected as the primary coding platform for STEMterprise. Their versatility allows for both block and text-based coding, accommodating a range of student abilities from easy to challenging activities. As a free platform with readily available teacher supports, Micro:bits are highly accessible. While not strictly necessary for coding on the platform, physical Micro:bits enhance the learning experience by making it more tangible and real-world for students. To broaden the coding exposure, a lesson from Science North incorporating Ozobots, a widely available and user-friendly coding tool, is also included.



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2. Use Ozobots for students to create the [circulatory system](#) or the [digestive system](#).
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4. Code Conditionals with a [Sunlight Sensor](#)
5. Learn more about ag tech the UN SDGs and try more complex coding with the [Auto Farmer](#) activity
6. Have a Micro:Bit Climate Action Kit? Hot honey is amazing on pizza and this coding lesson is about [bees](#).

Expectation

C. Algebra [C3. Coding skills](#)

C3.1 solve problems and create computational representations of mathematical situations by writing and executing code, including code that involves conditional statements and other control structures

C3.2 read and alter existing code, including code that involves conditional statements and other control structures, and describe how changes to the code affect the outcomes

A. STEM Skills and Connections [A2. Coding and Emerging Technologies](#)

A2.1 write and execute code in investigations and when modelling concepts, with a focus on using different methods to store and process data for a variety of purposes

A2.2 identify and describe impacts of coding and of emerging technologies on everyday life, including skilled trades





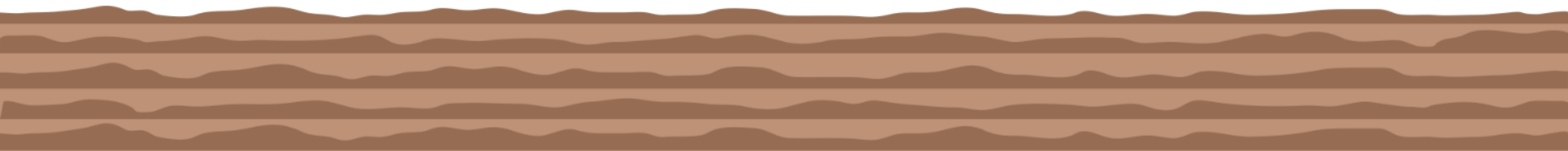
Coding Connections



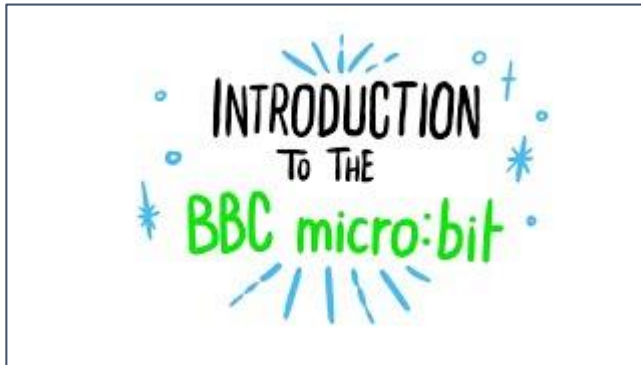
Learning Goals



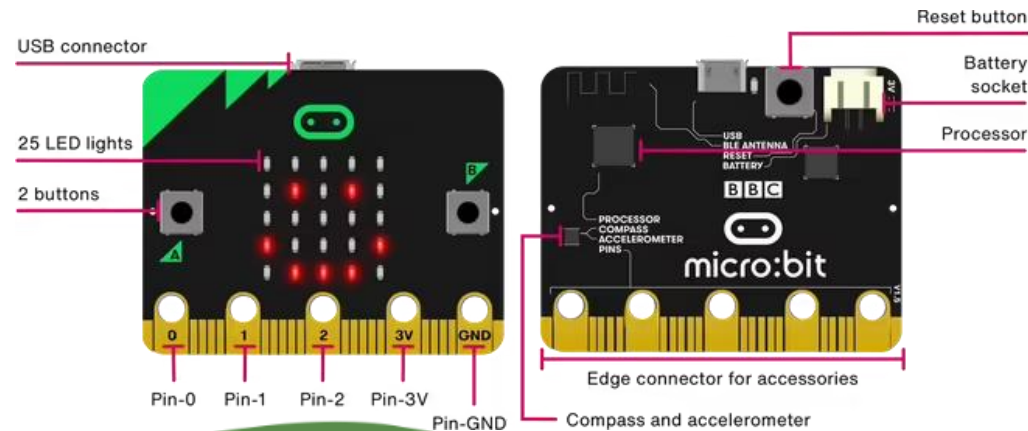
- I can use coding technology to create, solve problems and make connections to soil, light, farming, and energy
- I can use a coding platform to read and alter existing code that involves conditional statements
- I can problem solve and debug when my code is not working as expected



Minds ON! What is a Micro:bit?



Let's start by writing the name of your business on the Micro:bit using a forever block and a string.



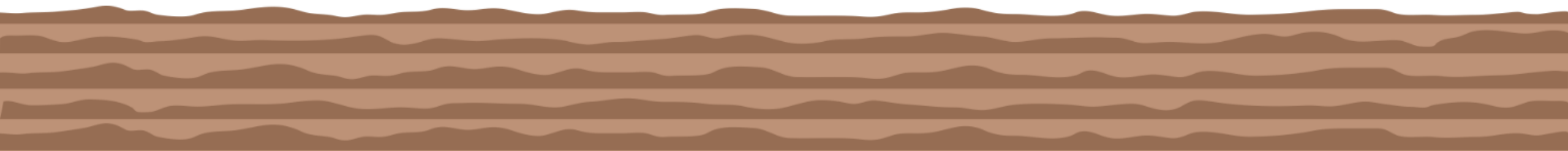
The Circulatory System



Let's use Ozobots



Your Task: Create a model of the circulatory system with paths for your Ozobot to follow.



The Digestive System with Ozobot



Materials

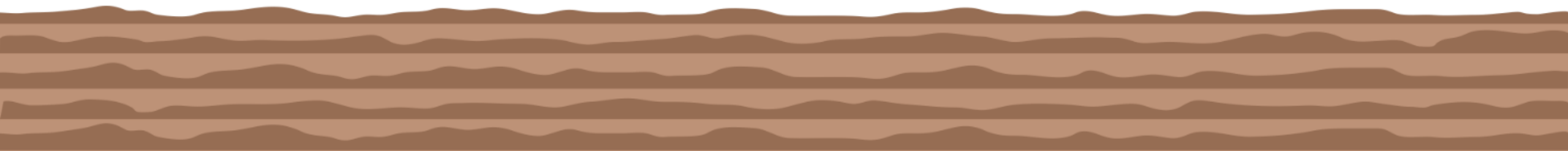
- Ozobot(s)
- Markers (Black, Green, Red, and Blue)
- White paper (or GOOS paper)



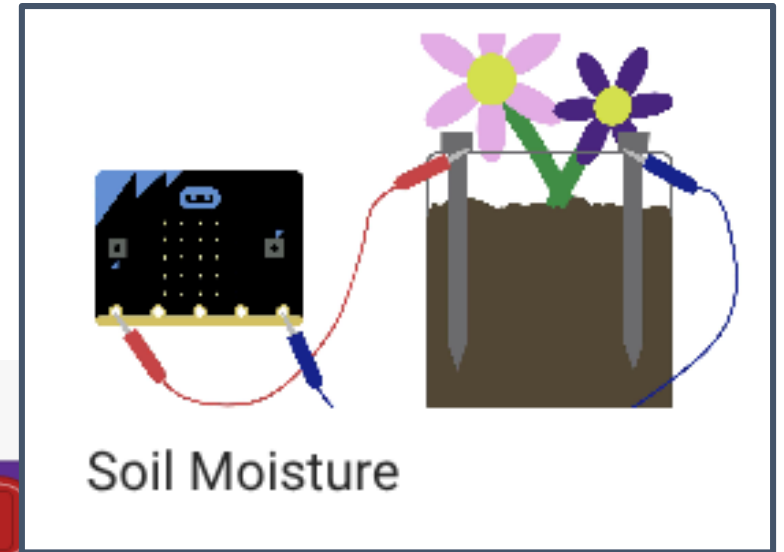
Your Task: Create a model of the digestive system with paths for your Ozobot to follow.

The Ozobot must travel from the **mouth** to the **rectum** and go through the **esophagus**, **stomach**, **large intestine**, and **small intestine** on its way out of the body.

BONUS: add salivary glands, liver, gallbladder and a pancreas to your model.



Soil Moisture

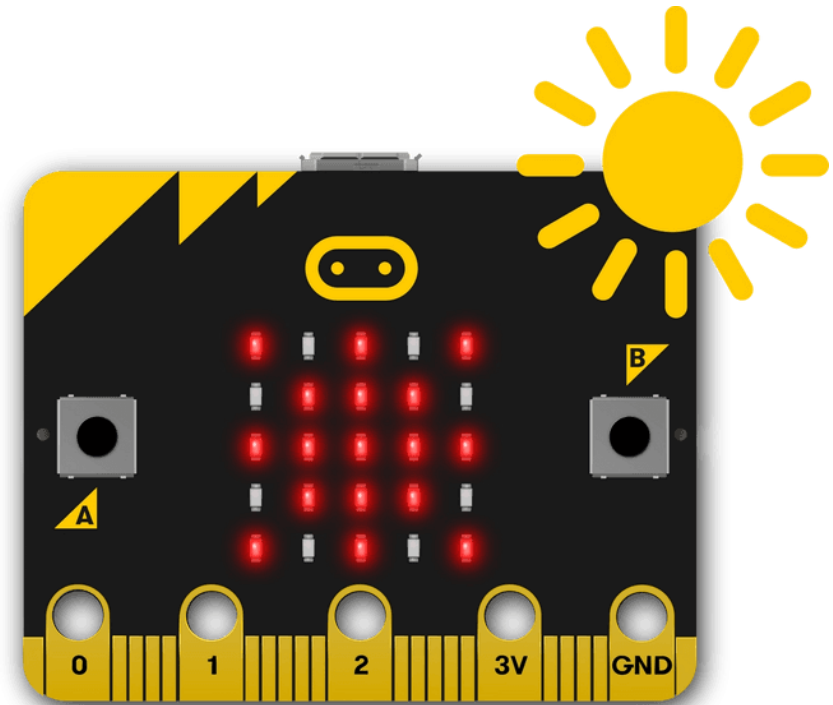


Sunlight Sensor

Why is sunlight important for plants and crops?

You will create a conditional/“if... else” statement to show the sun image only if the light level is greater than (>) a certain level.

1. Go to MakeCode at makecode.microbit.org
2. Press the blue button to create a New Project
3. Follow the steps to code light levels
4. modify your code



Auto Farmer



Energy - honey!



Hot honey is a popular pizza topping and we need bees to make it.

