CANADA LEARNING CODE

micro: controller (Go Bananas!)

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Duration: 1 hour

LEVEL	SUBJECTS	PROVINCES / TERRITORIES	TOOL
Age 7+	Art & Technology	Across Canada	micro:bit

Overview

In this project, students will design their own micro:bit controller using alligator clips, a banana and an orange. As an extension activity, students can create a controller prototype or a simple controller to play a MakeCode micro.bit game.

Prep Work

- The instructor should have some knowledge of micro:bit
- micro:bit (one per student)
- Computers or a device capable of pairing to micro:bit
- Students should have had some previous experiences with coding (Scratch or Blockly)
- Materials for fruit keyboard: micro:bit, battery holder and 2 AAA batteries, Banana, Orange, headphone jack, and 4 Crocodile clips
- Materials for extension activity: creating controller (fabric, duct tape, cardboard, glitter, tinfoil, elastic bands, buttons etc.)

Key Coding Concepts

- Algorithms
- Events
- Variables

Terminology

Algorithm Thinking: a step-by-step set of operations to be performed to help solve a problem
Events: When one thing causes another thing to happen
Variable - A placeholder for a piece of information that can change

Curricular Connections

Technology Outcomes

Art: Design & Innovation

Lesson

1. Discuss different types of game controllers and display some images. What do they have in common? How are they different?

2. Watch the video by PinkyPepper: DIY Crazy Controllers (Scratch 3.0 + micro:bit) and share ideas on how these controllers may work.
http://bit.ly/diy-crazy-controllers

3. Students will design their own micro:bit controller using alligator clips, a banana and an orange (you may want to tell students that they will be creating a circuit).

This lesson is from micro:bit MakeCode
http://bit.ly/banana-keyboard
*note: the coding script can be downloaded or students can code their own music.

Here are some music tutorials from MakeCode micro.bit:
https://makecode.microbit.org/reference/music

https://makecode.microbit.org/reference/music/begin-melody

Assessment

Formatively Assess:

Is the student able to independently follow coding instructions?

Does the student have a growth mindset and is able to troubleshoot bugs that may arise?

Is the student able to take risks and create some of their own code?

References

MakeCode Reference Guide:
https://makecode.microbit.org/reference

micro:bit Educators Guide
https://www.slideshare.net/Microsofteduk/bbc-microbit-guide-from-hodder-education

The Official BBC micro:bit User Guide (2018) by Garteth Halfacree

micro:bit Tutorial Series Part 1: Getting Started
https://www.youtube.com/watch?v=ZIW_6rxYNBg

micro:bit by BBC - Creative Classroom Tips for Educators
https://www.youtube.com/watch?v=pR_AapxVudM

Video by PinkyPepper: DIY Crazy Controllers (Scratch 3.0 + micro:bit)
https://www.youtube.com/watch?v=44Xo76BbqiI

Banana Keyboard Lesson: MakeCode micro:bit
https://makecode.microbit.org/projects/banana-keyboard/make

Music Tutorials from MakeCode micro.bit:

Extensions

As an extension, students can create their own micro:bit controller. Check out MakeCode micro:bit game projects for ideas on games that your controller could control.
https://makecode.microbit.org/projects/games

As an unplugged activity and using design thinking skills, students could design a game controller prototype (may not actually work).

https://makecode.microbit.org/reference/music

https://makecode.microbit.org/reference/music/begin-melody

MakeCode for micro.bit Game Projects:
https://makecode.microbit.org/projects/games