Coding Microbits using Python — Reflections

Module 6: Radio Communications

This module covers the use of more than one micro:bit to share and combine data. Students will explore the Radio functionality of the micro:bit. Students will send and receive numbers and strings in a series of guided activities. Finally, students are asked to collaborate so that they can share their micro:bits and create a project together that uses the radios as part of their project.

Radio Communications

List all of the different kinds of communication that you can think of that use radios.

_____

_____

_____

Vocabulary

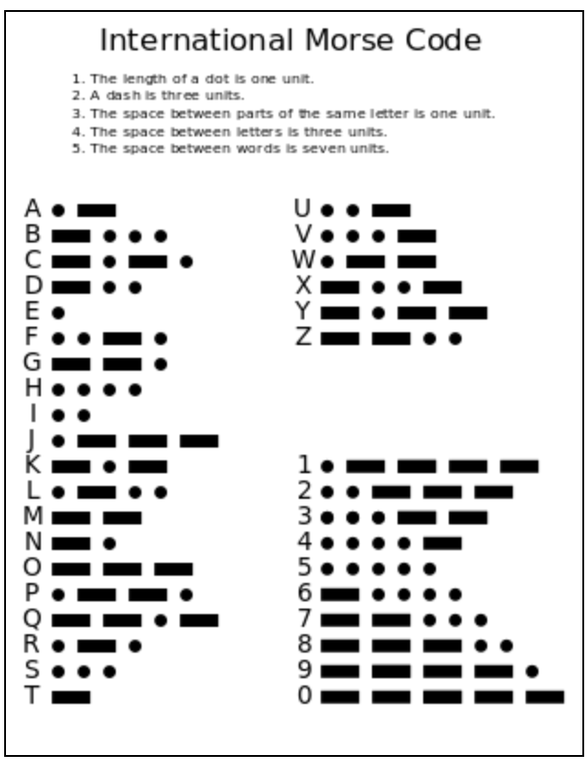
transmitter _____

receiver _____

Morse Code:

Morse code was one of the first kinds of communication that could be used over a long distance. The first commercial electrical telegraph was developed in May 1837 in London. In the USA Samuel Morse independently developed a telegraph along with the Morse code and sent the first message in January 1838.

At the end of 1894, the young Italian inventor, Guglielmo Marconi, begin working with wireless radio. In March 1897, Marconi transmitted Morse code over a distance of 6 km (3.7 miles). Morse code continued to be used for communication until the 1990s. At one time all Boy Scouts had to learn Morse Code to earn the 1st Class rank.
(Telegraphy. Wikipedia. https://en.wikipedia.org/wiki/Telegraphy)
(Morse Code. Wikipedia. https://en.wikipedia.org/wiki/Morse_code)



Write your name in Morse Code.

Write a message in Morse Code. Have your neighbor decode it.

Decode your neighbor's message.

06.2a Radio Initials Activity

Algorithm & Pseudocode:

06.2b Morse Code Activity

Algorithm & Pseudocode:

Morse Code Modifications:

06.3 Project: Radio Communications (done with a partner)
In this project you will plan, design, and create a microbit program that uses radio communications. It may have 2 separate programs: one that sends data and the other that receives data. It should also use a maker elements as part of the design and construction.

Brainstorm Ideas _____

_____

_____

_____

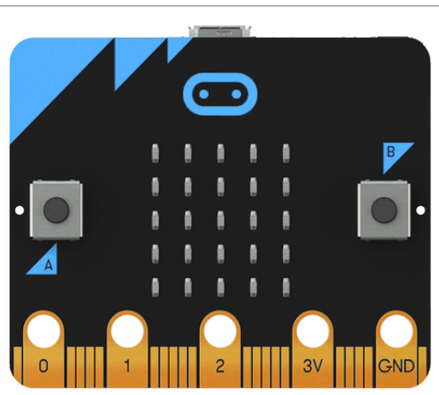
_____

Project: _____

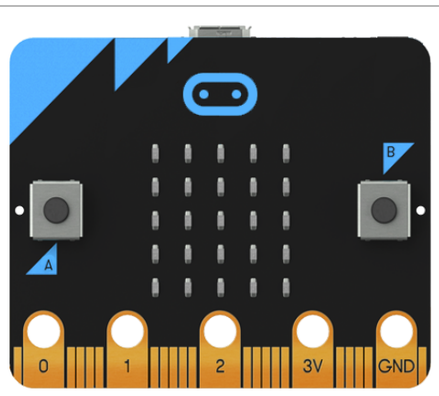
Description: _____

_____

Microbit Project Sketch 1:



Microbit Project Sketch 2:



Radio Communication Sketches

Radio Communications Algorithm & Pseudocode:

Materials Needed: _____

_____

_____

Coding Plan: _____

_____

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_____

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_____

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Photos:

Notes & Reflections

How did you decide with you decide on your radio communication project?

How did your project use radio communications?

Describe something in your project that you are proud of?

What was something that was difficult in the creation of your project?

How well did your prototype work?

What feedback did you get from your beta testers?

What did you change to improve your project?

Describe how you and your partner shared the work on the project.

Assessment Rubric

Competency scores

Competency	4	3	2	1
Radio	Effectively uses the Radio to send and receive data, with meaningful actions and responses for each.	Effectively uses the Radio to send or receive data, with meaningful actions and responses for each.	Use of Radio is incomplete or non-functional and/or tangential to operation of program.	No working and/or meaningful use of Radio.
Micro:bit Program	micro:bit program: 1) Uses Radio blocks in a way that is integral to the program 2) Compiles and runs as intended 3) Meaningful comments in code	micro:bit program lacks 1 of the required elements.	micro:bit program lacks 2 of the required elements.	micro:bit program lacks all of the required elements.
Collaboration Reflection	Reflection piece addresses all prompts.	Reflection piece lacks 1 of the required elements.	Reflection piece lacks 2 of the required elements.	Reflection piece lacks 3 of the required elements

Notes