
Micro:bit – Treasure Hunt

Overview:

This activity allows you to communicate between micro:bits through bluetooth by sending and receiving radio signals.

For this lesson we made a treasure hunt where groups hid a treasure that their partner group had chosen and then sent them signals to find the treasure.

We used iPads for this lesson which worked fine, but you can also use PC's in the computer lab.

Learning Standards:

Applied Design, Skills and Technologies

- Use materials, tools and technologies in a safe manner and with an awareness of the safety of others, in both physical and digital environments.

Communication – Collaborate to plan, carry out and review a common goal and activities

- I can work with others to achieve a common goal; I do my share.
- I can take on roles and responsibilities in a group.

Prior Knowledge:

The class should have an understanding of:

- Block coding
- Downloading projects on PC or iPad
- Syncing micro:bit to iPad

Materials:

- Micro-bit kit
- iPads
- YouTube Video with step by step instructions (steps were modified in lesson as the "show string" was taken out as it took too long for students to read it)
 - o <https://www.youtube.com/watch?v=DTeTtLD0nqI&feature=youtu.be>
- Treasure (object to be found)

Lesson:

Partner 1:

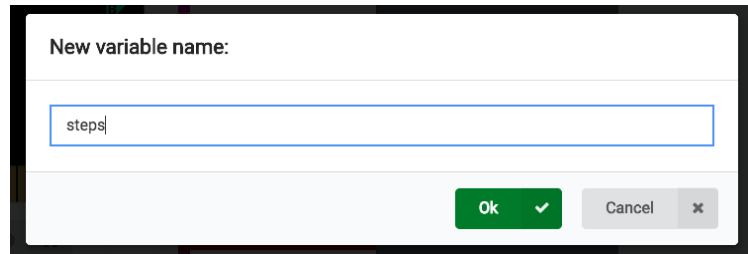
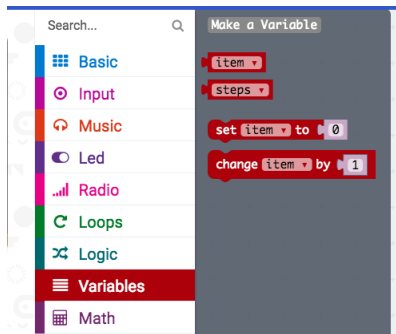
Step 1: Setting Your Channel

It's important to set the same group because this allows you to communicate with one given device.

Here we are stating that we want to communicate with the micro:bit in "group 2".

We are also going to create a "variable" and call it "steps".

- Select variables
- Select `Make a Variable`
- Type steps and select ok
- You will now see the "steps" variable in your list

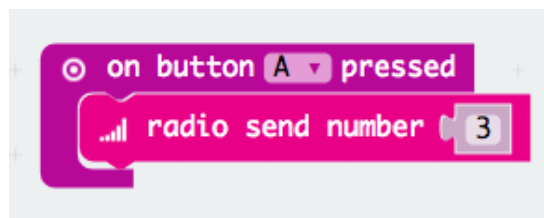


Finally, calculate the total steps we will take on our given task by setting steps to zero.



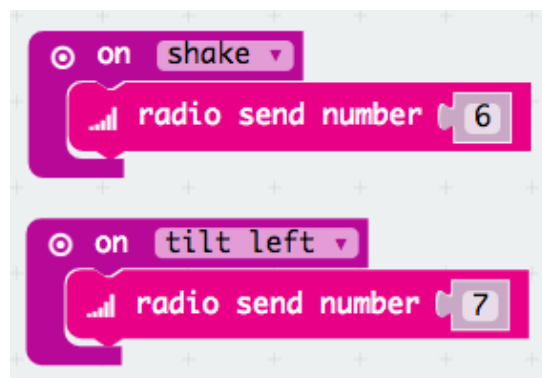
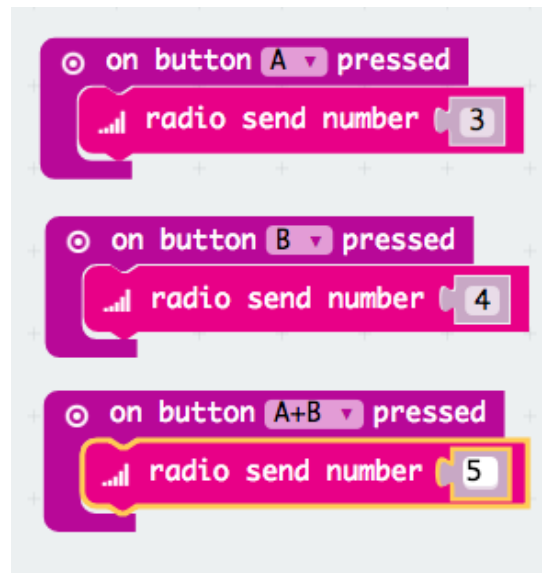
Step 2: Sending Messages

Now you will use "input" functions to and different channels to send messages to the other micro:bit. You will need to repeat this pattern or algorithm by increasing the number each time.



Step 3: Increasing Command

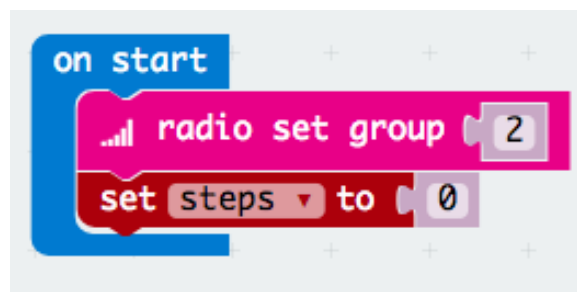
Increase each new “command” by 1.



Partner 2:

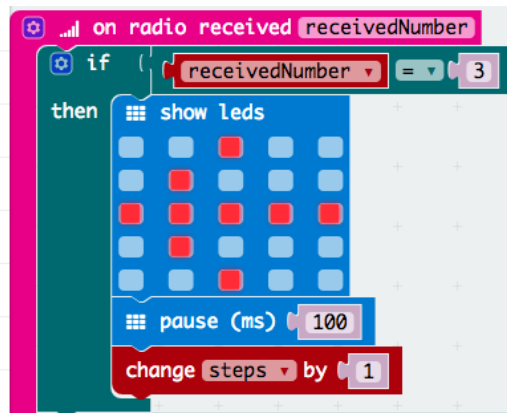
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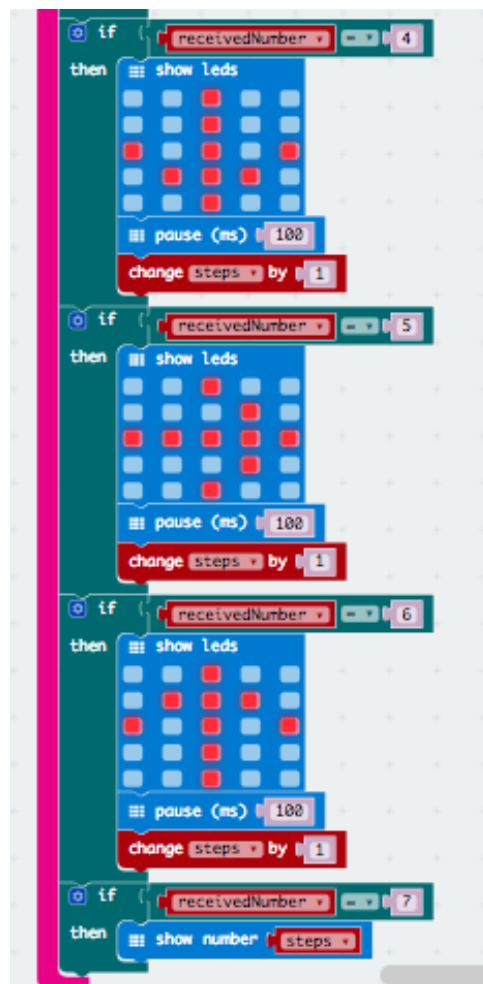


Step 2: Receiving the Radio Signal

Here we are going to receive the radio signal and ensure we can receive each message from our partner. We use a “logic” expression to determine what message we see on our micro:bit. This means that if our partner sends us message “3”, we will be instructed to go left one step. It will also increase our step count by 1 each time.



We now continue this pattern but simply change the arrow and message in the “show string” blocks.



Extended Learning:

- Use compass rose to show directions
- Use the equations tool to make simple math equations using the answer to show the number of steps to take

Assessment:

Have students write a reflection addressing the any of the following points:

- Summarize what it was like to work together with others to design a treasure map for another group to follow to find their treasure.
- What was it like to have to read the signals to find your treasure from your partner group?
- What was something that was surprising to you about the process of designing and coding the treasure map?
- Describe a difficult point in the process of designing and coding the treasure map.

For creative projects such as these, we normally don't use a qualitative rubric to grade the creativity or the match with their partner's needs. We just check to make sure that the micro:pet meets the required specifications:

- Program properly downloaded to micro:bit
- micro:bit signals easy to read and follow
- Planning and drawing of treasure map turned in
- Written reflection (prompt is above)

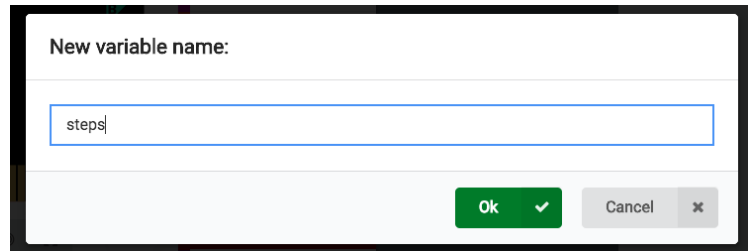
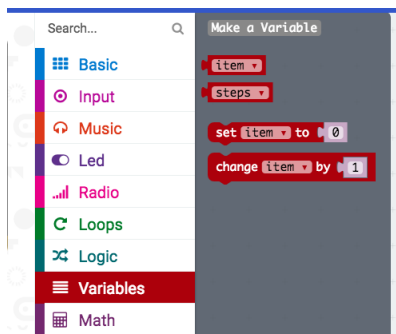
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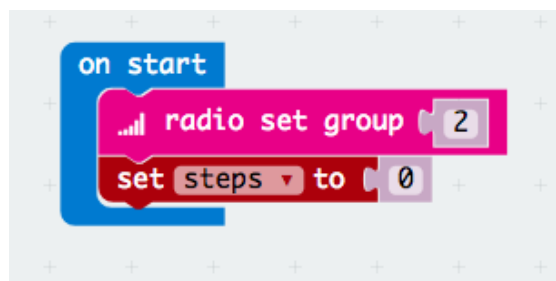
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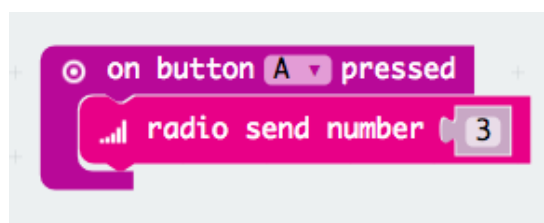


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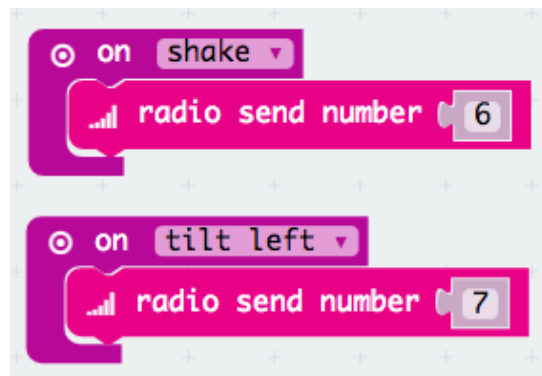
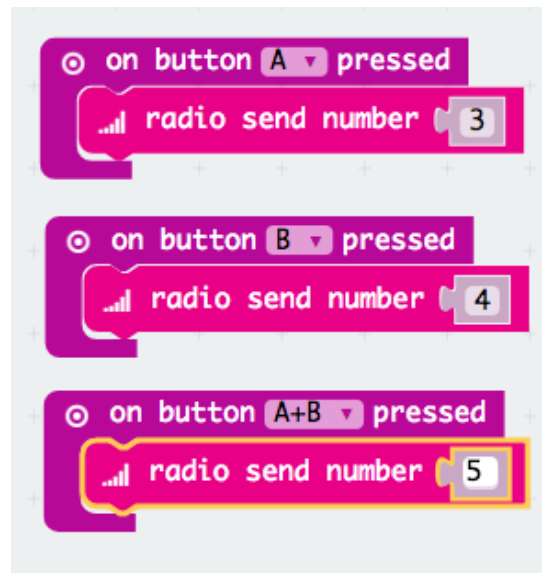
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Student Copy – Code Partner 2 (Receiving the Signal)

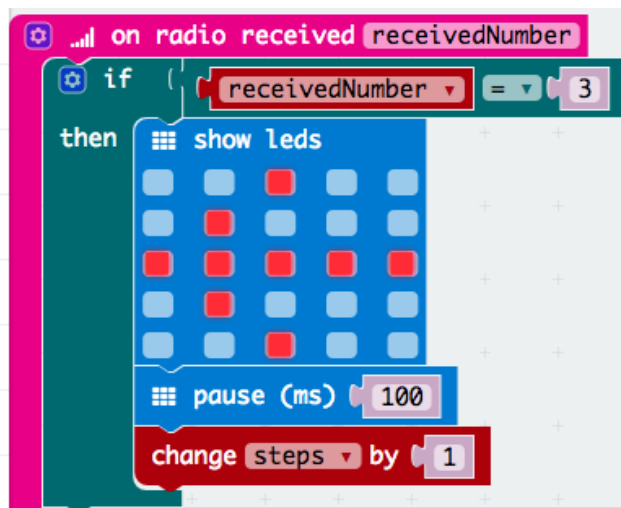
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