Wildcat Code

ACTIVITY PICKER - BLOCKS

LEARNING TOPICS:

Randomization

Variables

If Then Else Statements

MATERIALS:

Micro:bit

Computer

Internet Access

INTRODUCTION:

Today, students will learn how to address problems by programming a solution. Students will be programming their Micro:bits into an activity picker that will decide for them. Moreover, students will have the opportunity to modify the program to decide on other options.

Before starting with the activity, have students answer the introduction questions below:

- Have you been in a situation where it is hard to decide or agree on?
- How do you normally decide on a list of options?

VOCAB:

Next, let's discuss some Micro:bit and computer science terminology:

If, then, else Statements – Compares two or more sets of data and test them for a result. If results are true, then do (what you make the program do if results are true), else do (what you make the program do if results are false).

Variable – A value that can be changed and stores information that can be accessed.

Bug – Part of a program that does not work correctly.

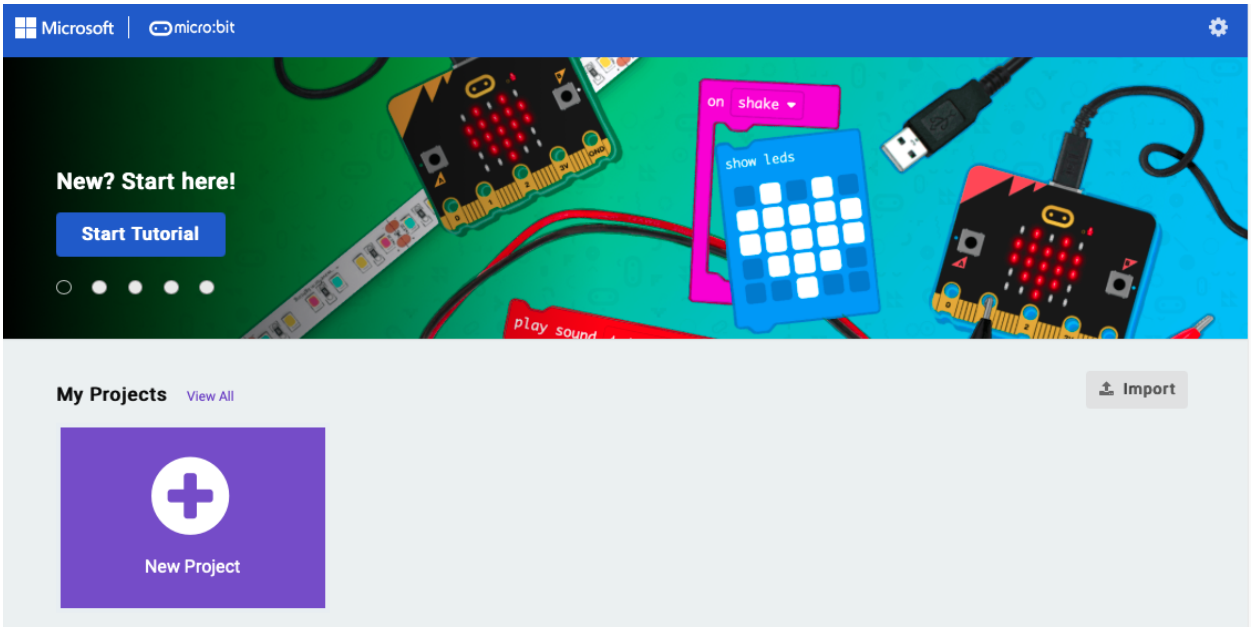
Debugging – Finding and fixing errors in a program.

Sequencing – The order in which a computer executes commands.

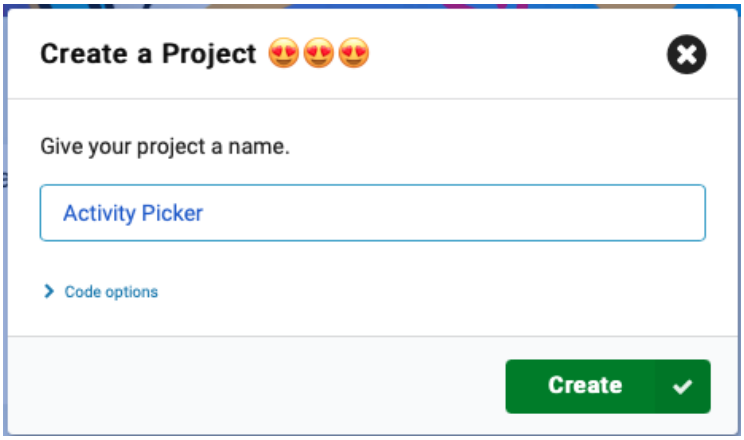
INSTRUCTIONAL CONTENT:

Let's get started! First, click or type the following link "https://makecode.microbit.org/" which will take you to today's activity on the Micro:bit website.

Review both the Micro:bits and the MakeCode tool with students if needed.



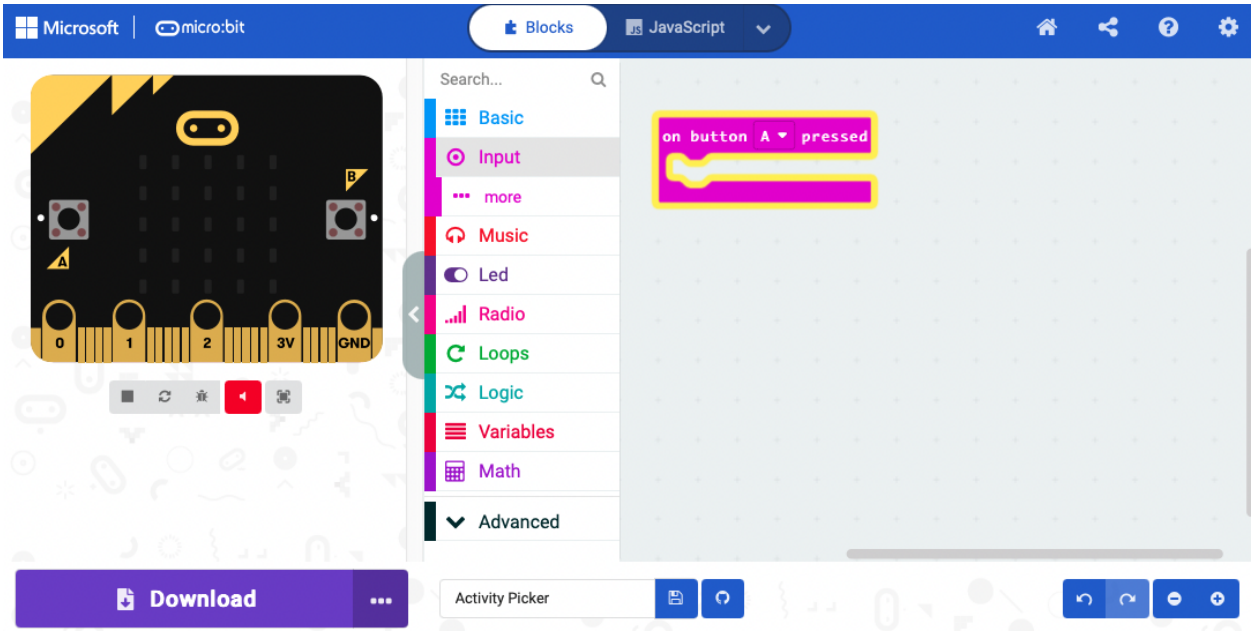
Once students have their MakeCode program loaded, have students click on "**New Project**". Name the project "Activity Picker".



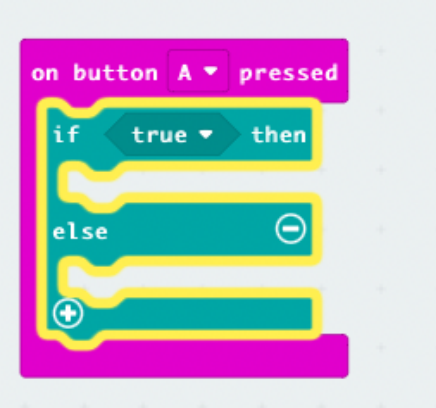
For today's lesson, give students the scenario in which they have to decide on what to do from a list of things with their friends, siblings, or by themselves.

To solve this issue, students will be creating a program in which they will list the options they intend doing, then randomly select one of those activities.

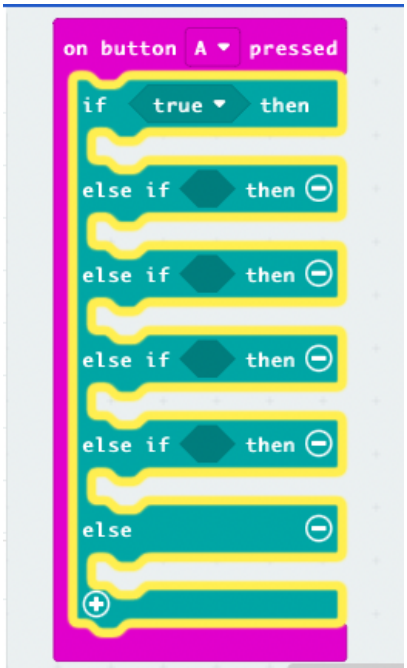
Once students have ceated their new project on the MakeCode editor, have them start with the *On Button A Block*. We intend to use this button to select a random activity for us.



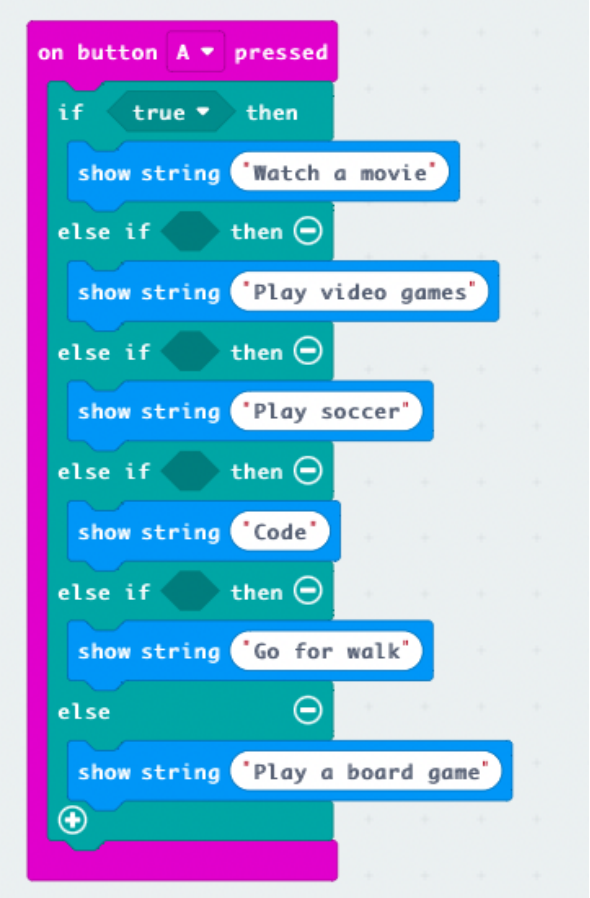
Next, add an *If Then Else block* inside the *Button A block*.



Next click on the plus sign 4 times to add more fields. This will allow to list 6 activities; students can add more if needed.

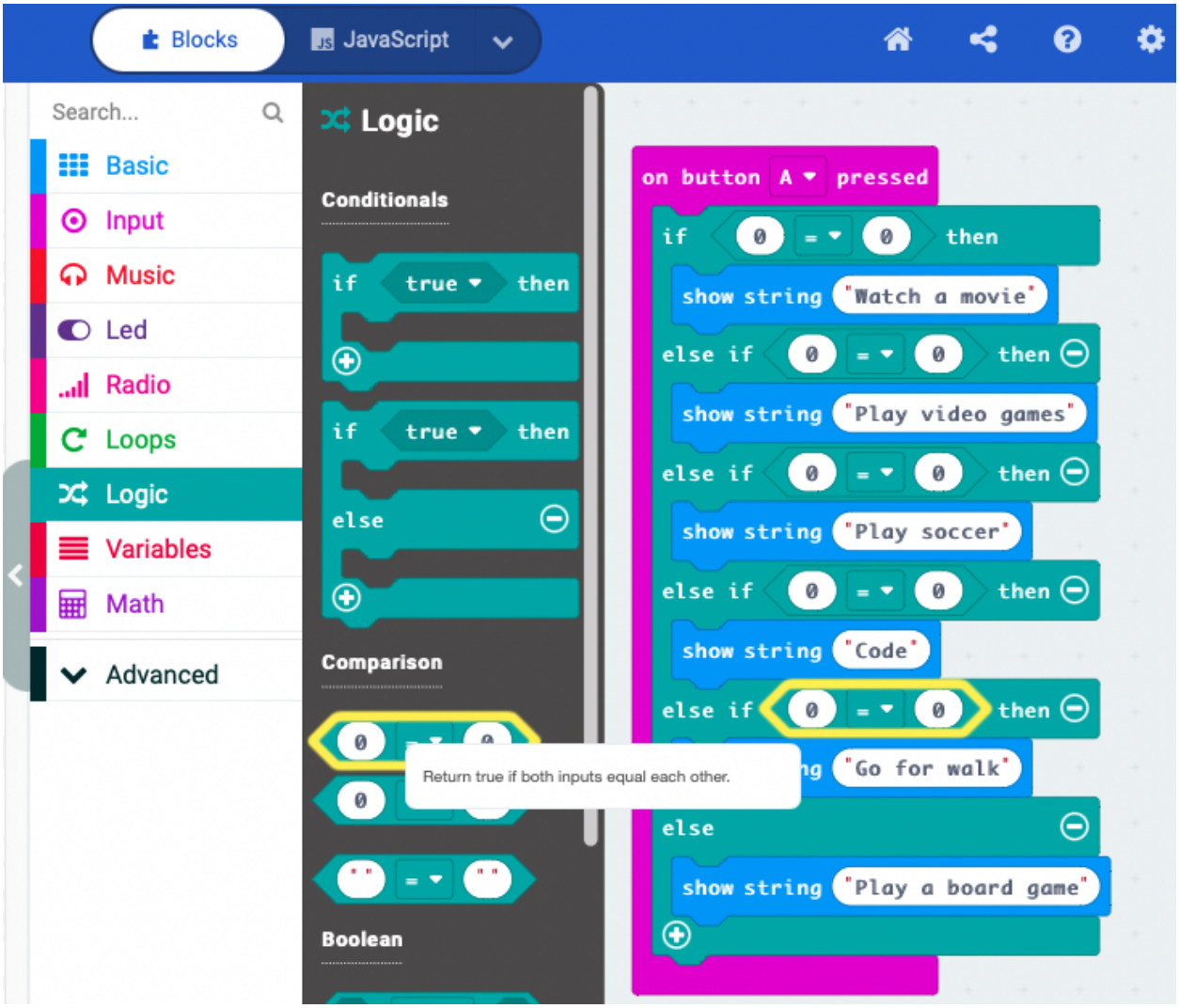


Drag a show string block inside each section and type in an activity. See below for example:

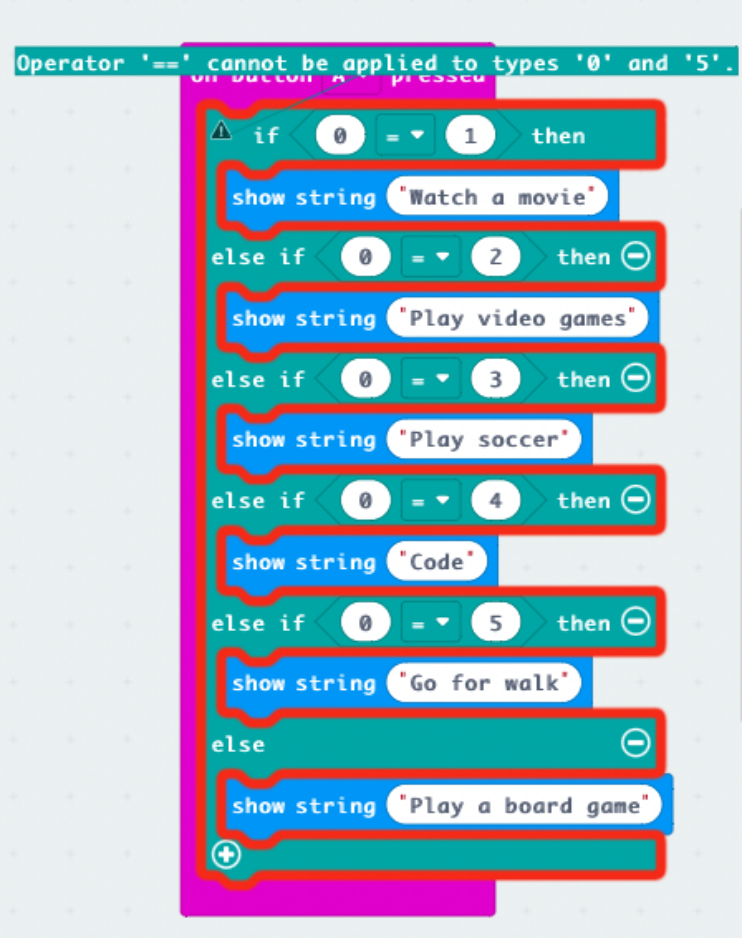


Now that we have listed several activities to choose from, we will need assign each activity with a unique identifier. In this case we will use numbers.

Drag a *comparison block* from the *logic group* to set the conditions.

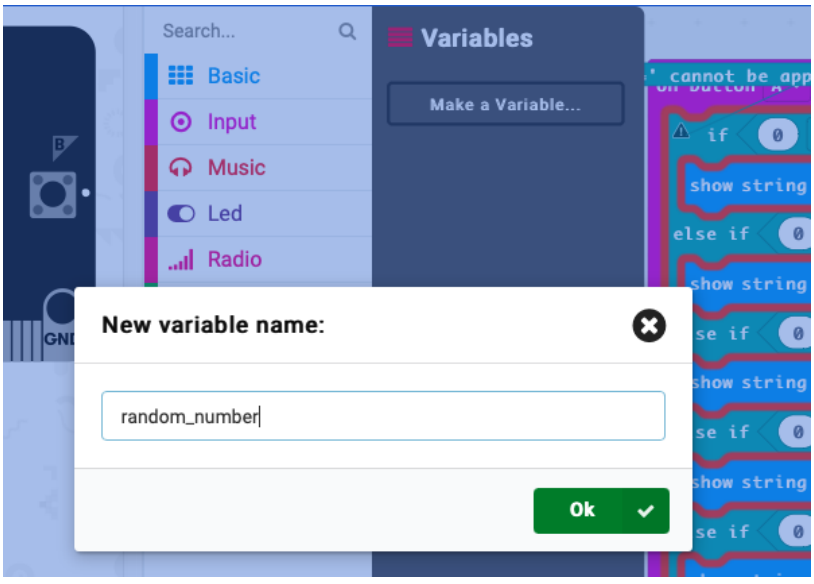


Next, set the far-right condition to numbers 1-5 as seen below.

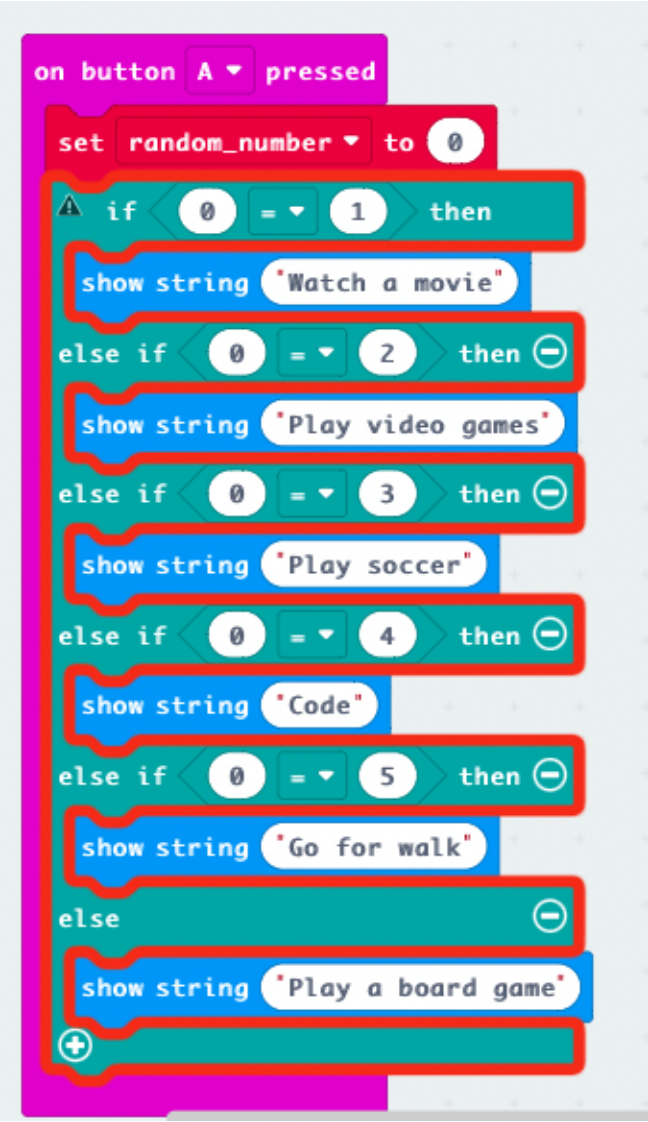


Note that an error appears informing us that our operator '==' do not make sense.

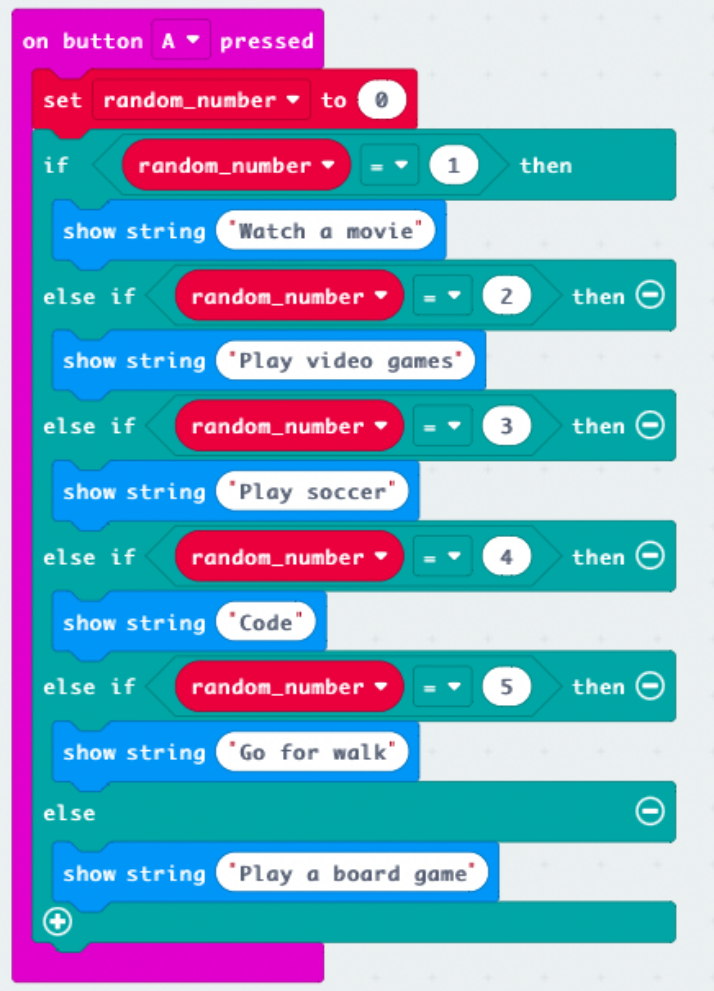
To fix this we will create a variable called **random_number** that will store a random number every time we press button A.



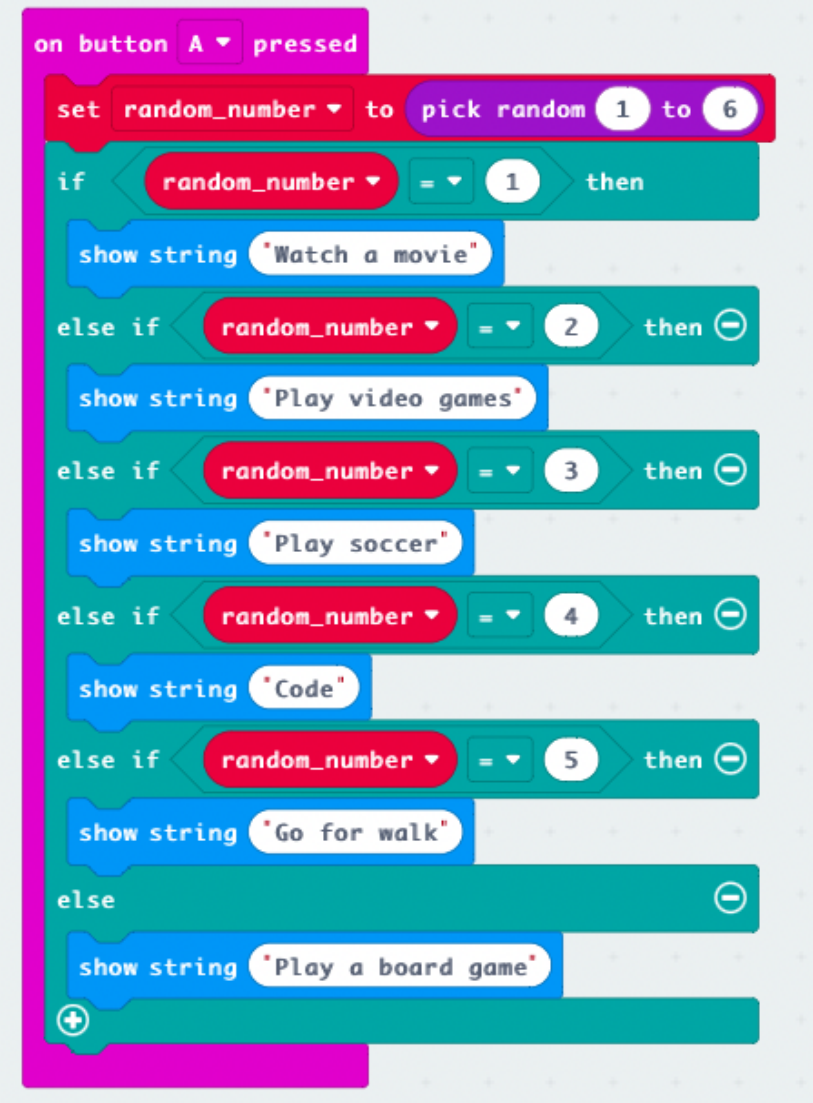
Next, drag the *set random_number to block* inside the *on button A block*.



Next, add the new variable on the left hand of the operator. See below for example:



Note that the error has disappeared. Lastly, we need to a random block inside the set variable block to select a random number between 1-6 every time we press button A.



Our activity picker is complete! Every time button A is pressed, a random number between 1-6 is selected. Then the conditions are checked to see when the variable and condition are true.

Example: if number 3 is selected, then the random activity selected is to play soccer.

Note: If students add more than 6 activities, ensure their pick random block matches the number of options they have listed.

Have students test their program before loading it into their Micro:bits. Once done, have students modify and improve the program.

Ex: A movie picker, restaurant picker, music picker, etc.

LEARNING OUTCOMES:

By completing this activity, you will learn:

- Solve problems with programming
- If then else statements
- Randomization

CLOSURE:

Reflect with students on the following questions:

- Will this program help you make decisions?
- What changes did you make?

REFERENCES:

Activity Picker. (n.d.). Retrieved September 18, 2021, from https://microbit.org/projects/make-it-code-it/activity-picker/