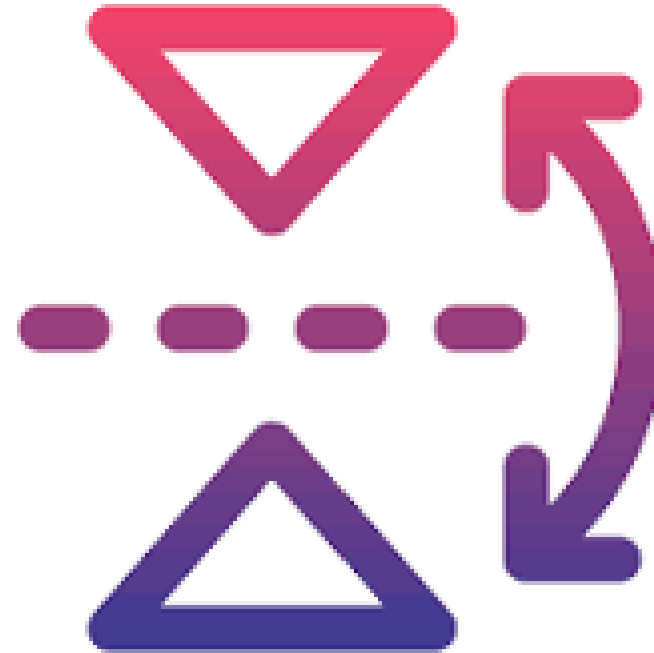




First lessons with MakeCode
and the micro:bit

Lesson 5

Bit Flips



Open a new MakeCode project.
<https://makecode.microbit.org/>

Microsoft | micro:bit

Introduction to the BBC
micro:bit

Show Instructions

My Projects [View All](#) [Import](#)

New Project

Click here.
Name your new project Bit Flips.

Tutorials

New? Start Here

Flashing Heart

Name Tag

Smiley Buttons

Dice

Love Meter

Micro Chat

Remove the 'forever' block.

The screenshot displays the Microsoft MakeCode micro:bit editor interface. At the top, the Microsoft logo and 'micro:bit' branding are visible on the left, and navigation icons (home, share, help, settings) and a 'Sign In' button are on the right. Below the top bar, there are tabs for 'Blocks' and 'JavaScript'. On the left side, there is a visual representation of the micro:bit hardware with pins labeled 0, 1, 2, 3V, and GND. Below the hardware image are icons for erasing, undo, redo, and deleting. A central sidebar contains a search bar and a list of categories: Basic, Input, Music, Led, Radio, Loops, Logic, Variables, Math, Extensions, and Advanced. The main workspace is a grid where two blue blocks are placed: 'on start' and 'forever'. The 'forever' block is highlighted with a red border, indicating it is the target for removal. At the bottom, there is a 'Download' button and a title 'Bit Flips' with a lock icon and a refresh icon.

Click on the Input blocks menu.
Drag out the 'on shake' block.

The screenshot shows the Microsoft MakeCode editor for a micro:bit. The interface includes a top navigation bar with the Microsoft logo, 'micro:bit' branding, and tabs for 'Blocks' and 'JavaScript'. On the left, there is a visual representation of the micro:bit hardware. The central workspace is divided into a block palette and a workspace area. The 'Input' category is selected in the palette, and the 'on shake' block is being dragged from the palette into the workspace. A text box on the right side of the workspace contains the following text:

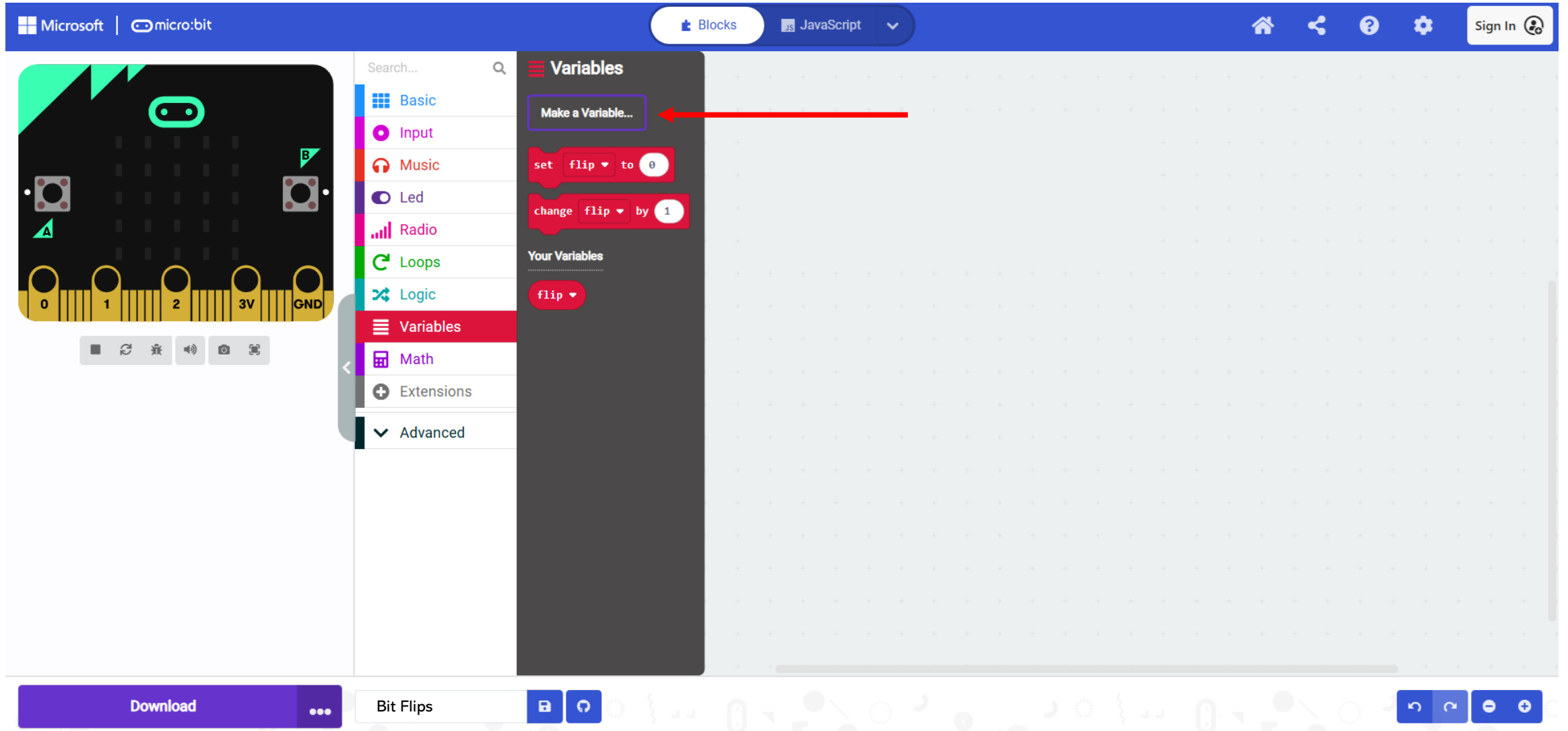
The 'on shake' block makes use of a sensor that is built-in to the micro:bit called an accelerometer.

At the bottom of the editor, there is a 'Download' button and a 'Bit Flips' extension button.

Change the 'on shake' block to "logo up".

The screenshot shows the Microsoft MakeCode micro:bit editor interface. The top navigation bar includes the Microsoft logo, the micro:bit logo, and tabs for 'Blocks' and 'JavaScript'. On the left, there is a visual representation of the micro:bit board with pins labeled 0, 1, 2, 3V, and GND, and buttons labeled A and B. Below the board are icons for various functions like play, stop, and volume. The central-left pane is a block palette with a search bar and categories: Basic, Input, Music, Led, Radio, Loops, Logic, Variables, Math, Extensions, and Advanced. The 'Input' category is selected, showing blocks like 'on button A pressed', 'on shake', 'on pin P0 pressed', 'button A is pressed', 'acceleration (mg)', 'pin P0 is pressed', 'light level', 'compass heading (°)', 'temperature (°C)', and 'is shake gesture'. The 'on shake' block is selected, and a dropdown menu is open, displaying options: 'shake', 'logo up', 'logo down', 'screen up', 'screen down', 'tilt left', 'tilt right', 'free fall', '3g', '6g', and '8g'. The 'logo up' option is highlighted. The main workspace on the right shows a grid with a blue 'on shake' block and a dropdown menu.

Click “Make a Variable”.
Create a variable called flip.



Create these two code sequences.

Microsoft | micro:bit

Blocks JavaScript

Search...

- Basic
- Input
- Music
- Led
- Radio
- Loops
- Logic
- Variables
- Math
- Extensions
- Advanced

on start

set flip to 0

on logo up

change flip by 1

show number flip

Click here.

Download your code.

Download

Bit Flips

Test Your Code

Hold the micro:bit device in your hand with the logo facing down.

Change the position of the micro:bit by flipping it up so that the front of the bit is facing toward you and the logo is up.

Look at the micro:bit device. Did it count?

Flip the micro:bit back down and repeat the flip up action.

Repeat the flip down, flip up action six more times.

Each time you flip the micro:bit so that the logo is up it should count.

Add a code sequence that uses the 'on shake' block to reset the flip count to zero.

Microsoft | micro:bit

Blocks JavaScript

Search...

Basic

Input

more

Music

Led

Radio

Loops

Logic

Variables

Math

Extensions

Advanced

Input

on button A pressed

on shake

on pin P0 pressed

button A is pressed

acceleration (mg) x

pin P0 is pressed

light level

compass heading (°)

temperature (°C)

is shake gesture

micro:bit (V2)

Click here.

Download your code.

Download

Bit Flips

Test your code again.

Repeat the flip down, flip up action as you did before.

Reset the count by shaking the micro:bit.



Show Mr. Desmond how your micro:bit device works.