

MICRO:BIT

An Introduction to Hardware & Software

SAFETY FIRST



★ Discharge!

★ Only handle by the edges
○ Avoid touching components

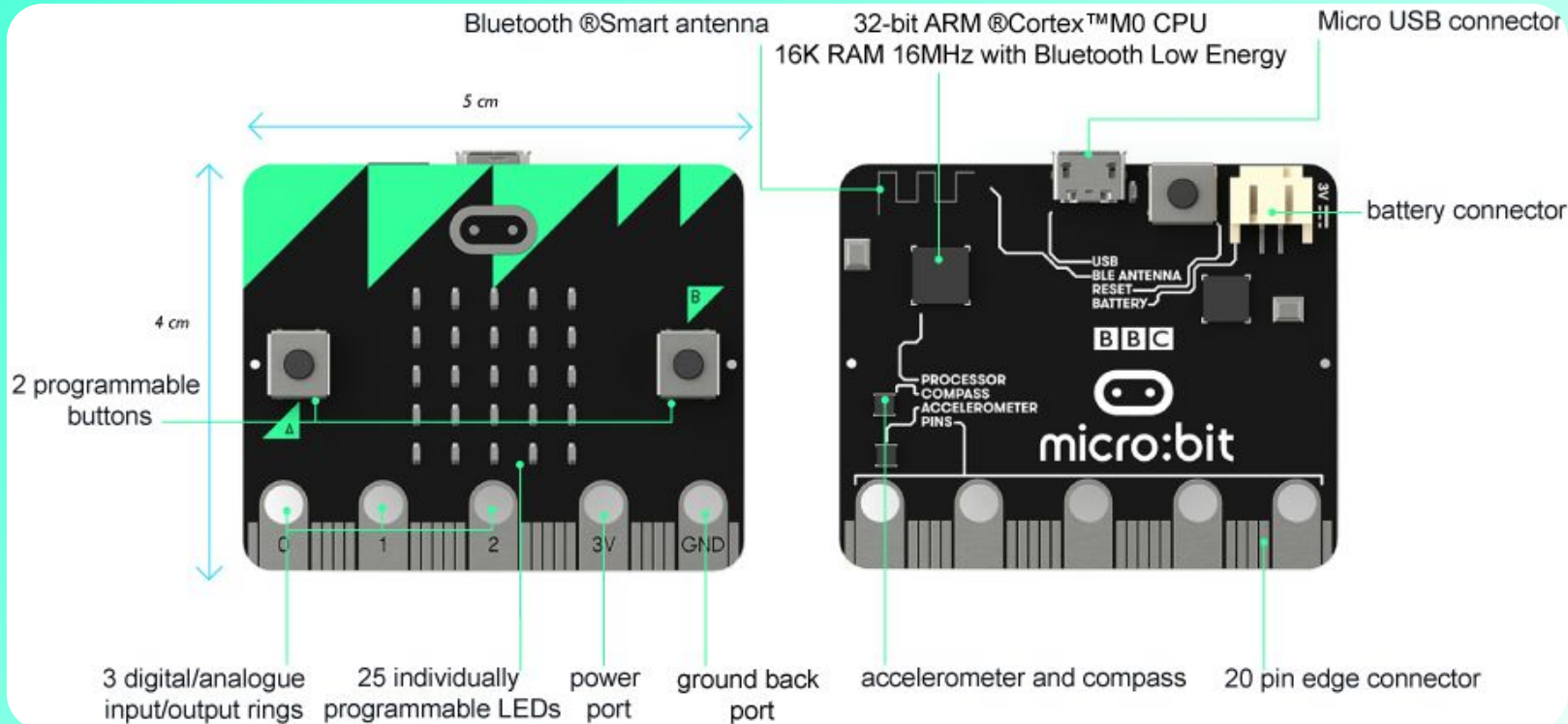
★ Always unplug battery pack
○ Pinch by connector, don't pull the wires

★ Don't place any metal across circuits

THE FUN STUFF

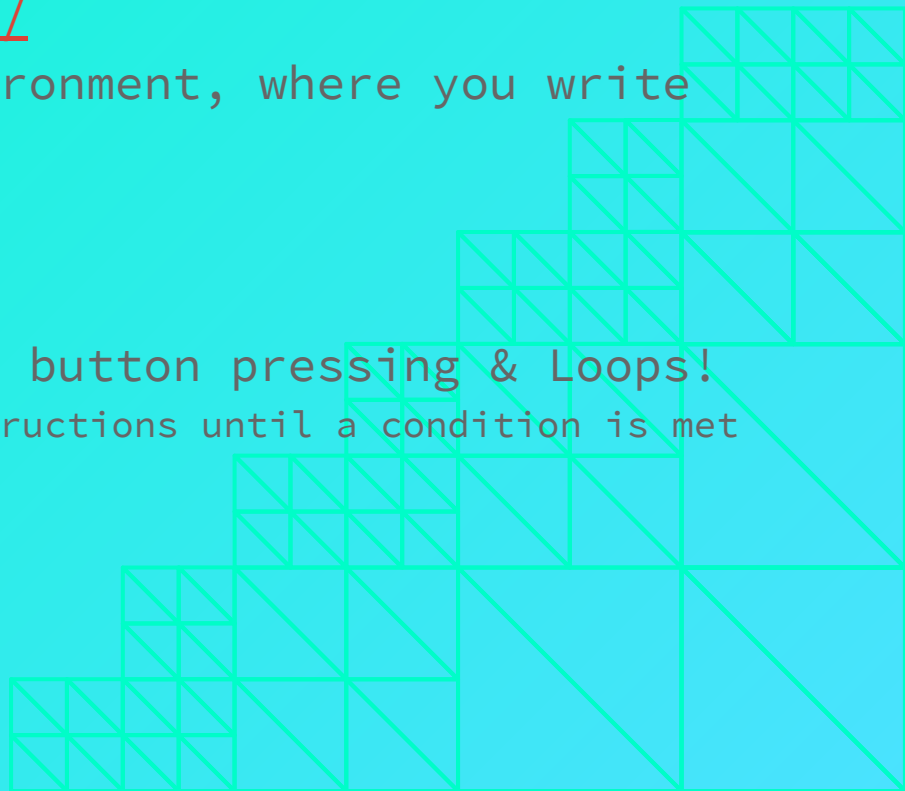
- ★ Plug up the battery pack!
- ★ Play with the buttons!
- ★ Fun Features:
 - Individually programmable LEDs
 - Bluetooth (connect with a phone!)
 - Accelerometer (shake it!)
 - Compass
 - Digital / Analogue input / output rings
 - Power and Ground ports
 - 20 pin edge connector

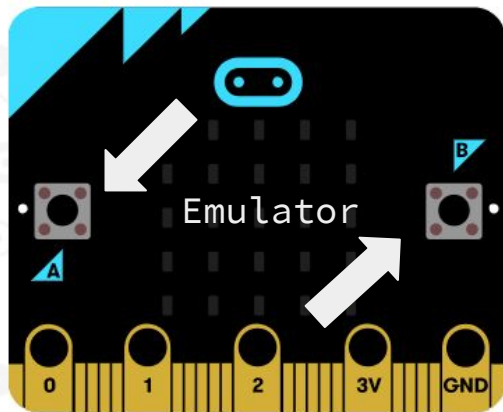




LET'S BUILD SOMETHING!

- ★ <https://makecode.microbit.org/>
- ★ This is your development environment, where you write code and build projects
- ★ What we'll learn: reacting to button pressing & Loops!
 - A *loop* repeats a sequence of instructions until a condition is met
 - Or forever...





Transfer to your device!

Download

Search...



Basic

Input

Music

Led

Radio

Loops

Logic

Variables

Math

Advanced



Code comes from here

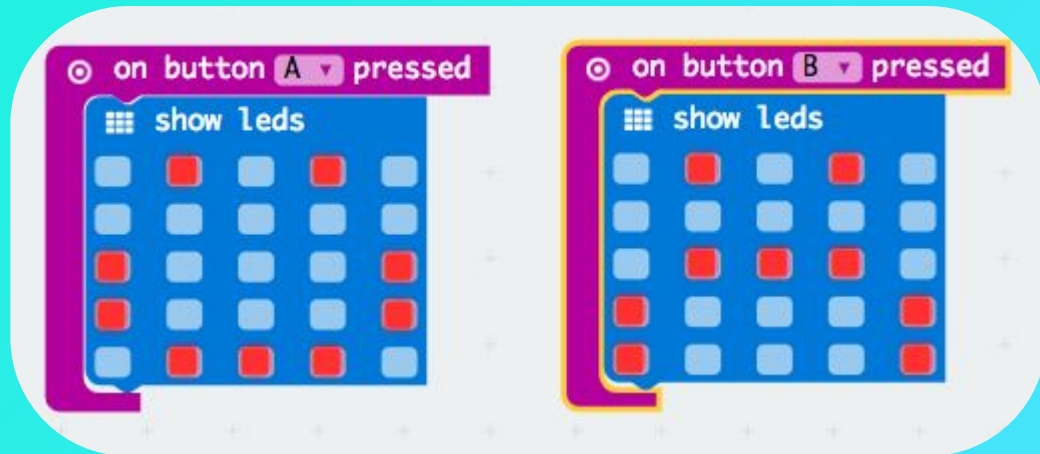
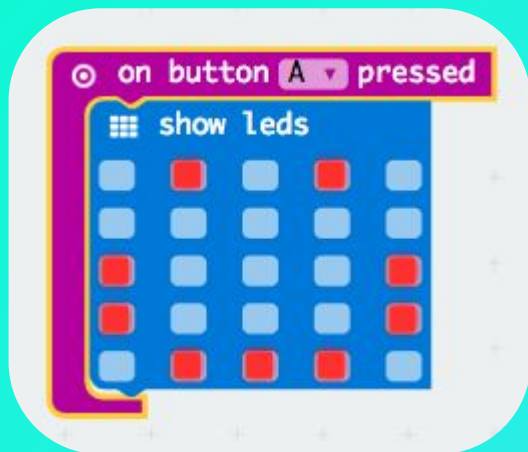
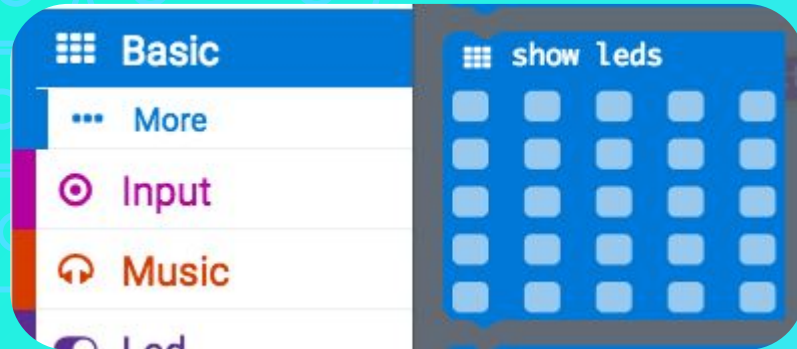
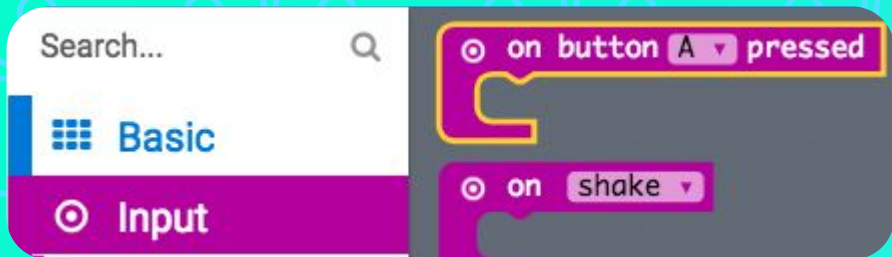
Code goes here!

Getting Started

getting started



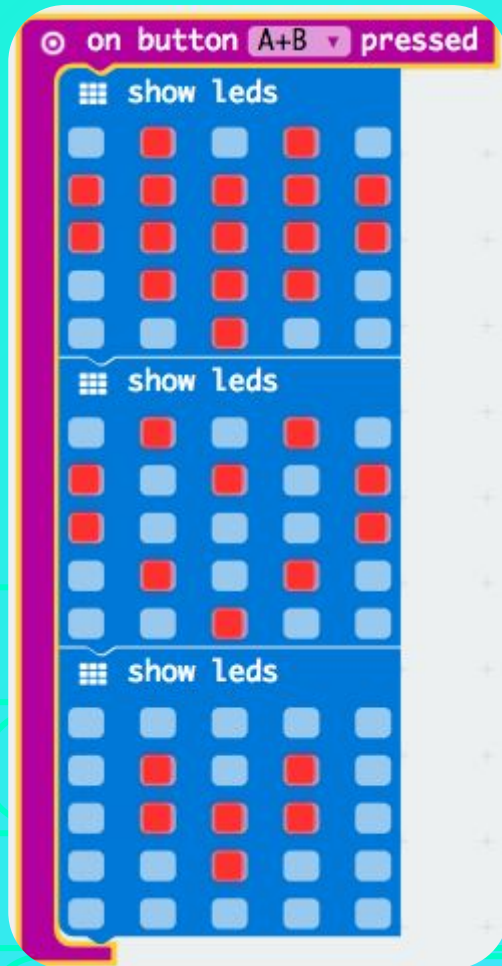
SMILEY BUTTONS HEART



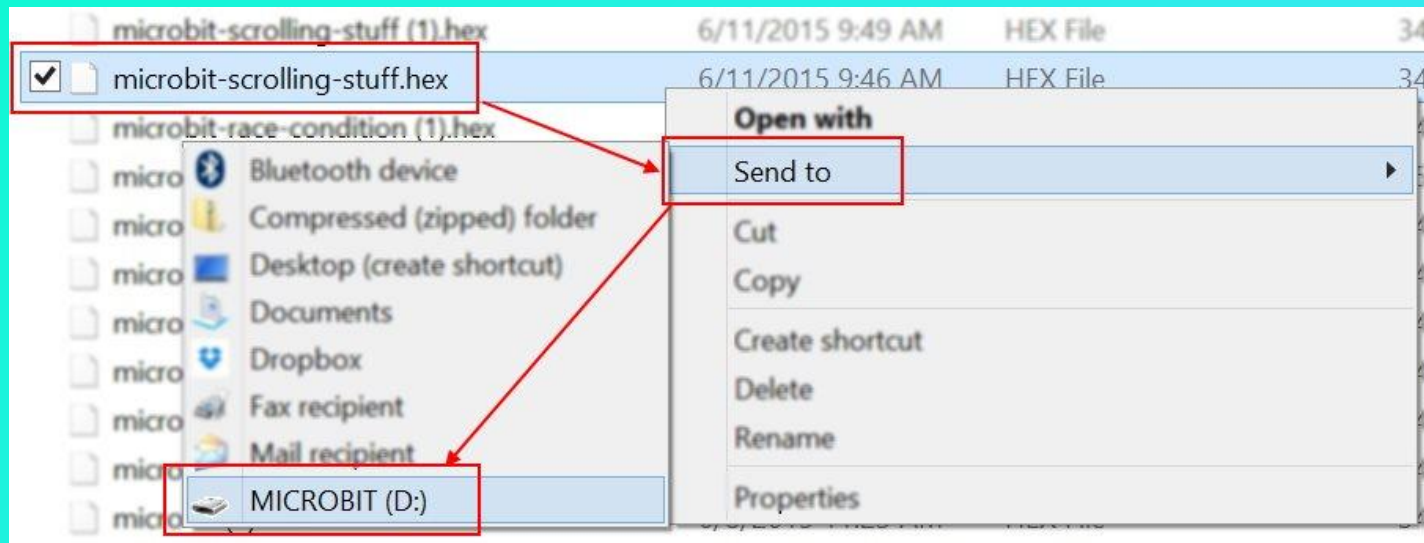
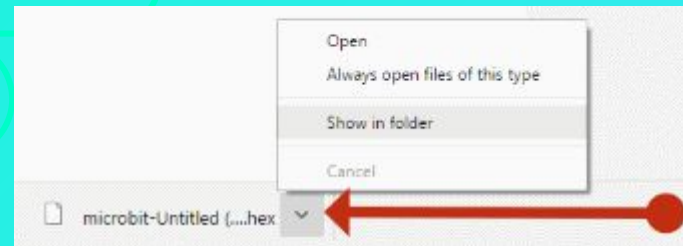
SMILEY HEART BUTTONS

★ Hello World!

```
1 input.onButtonPressed(Button.A, () => {  
2   basic.showLeds(`  
3     . # . # .  
4     . . . . .  
5     # . . . #  
6     # . . . #  
7     . # # # .  
8     `)  
9 })
```

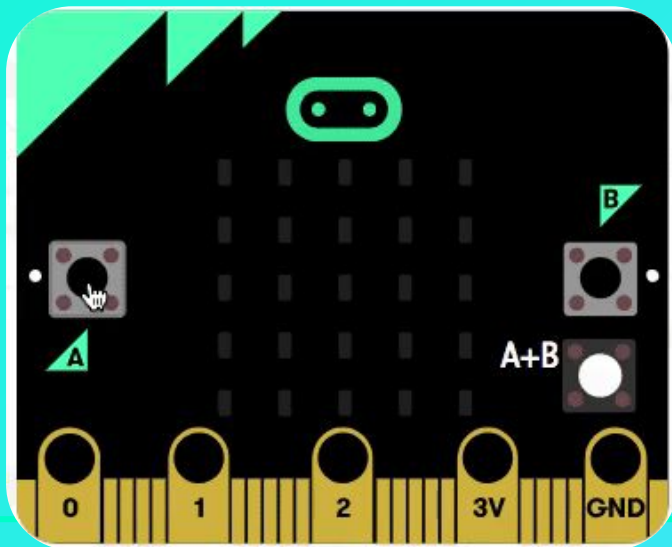


- ★ Download project
- ★ Transfer .hex file to micro:bit
- ★ Congrats! You just made your first micro:bit project!



YOUR TURN!

- ★ Play around with making different shapes in the LEDs!
- ★ Get creative with animations in the loop!
- ★ Explore the IDE playground!

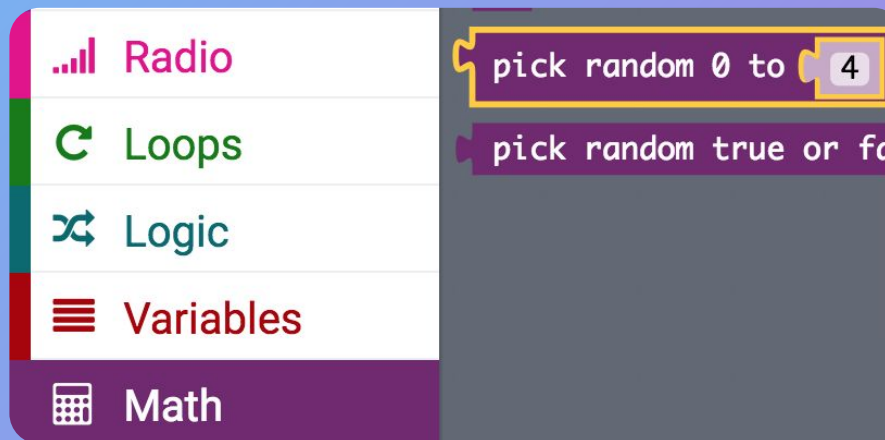
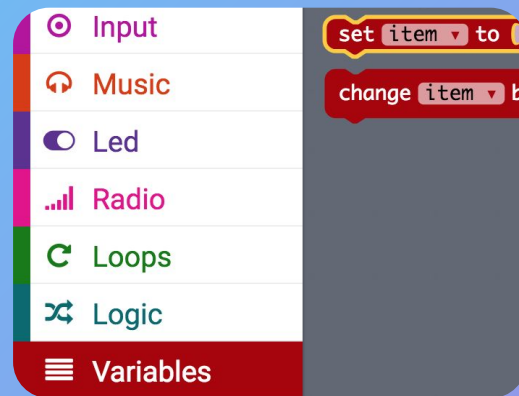
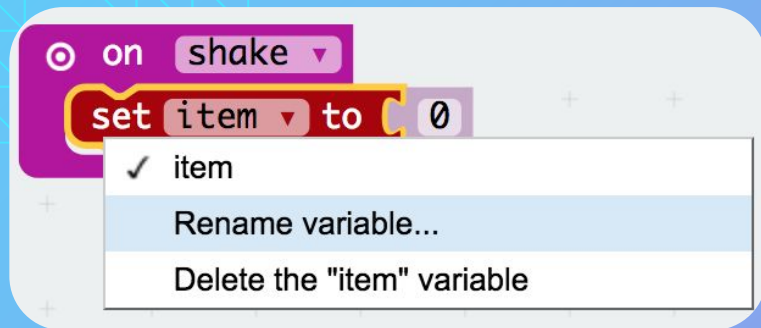


ROCK, PAPER, SCISSORS

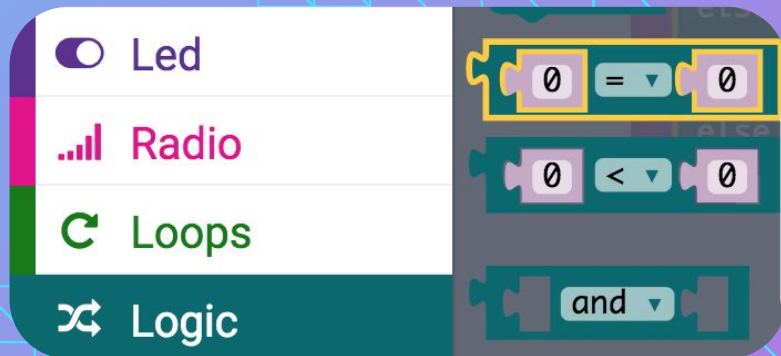
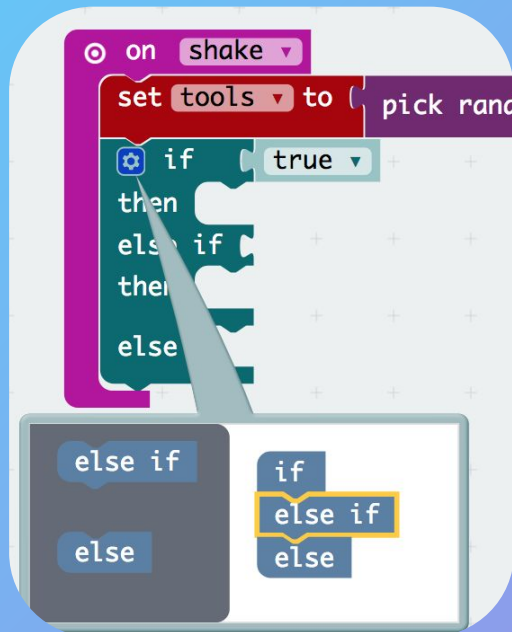
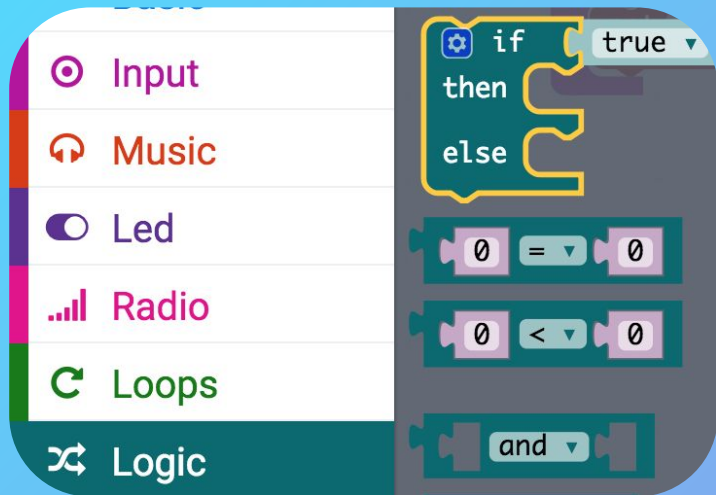
- ★ Variables: store information of various data types
- ★ Conditionals: a set of actions performed if a certain condition is met



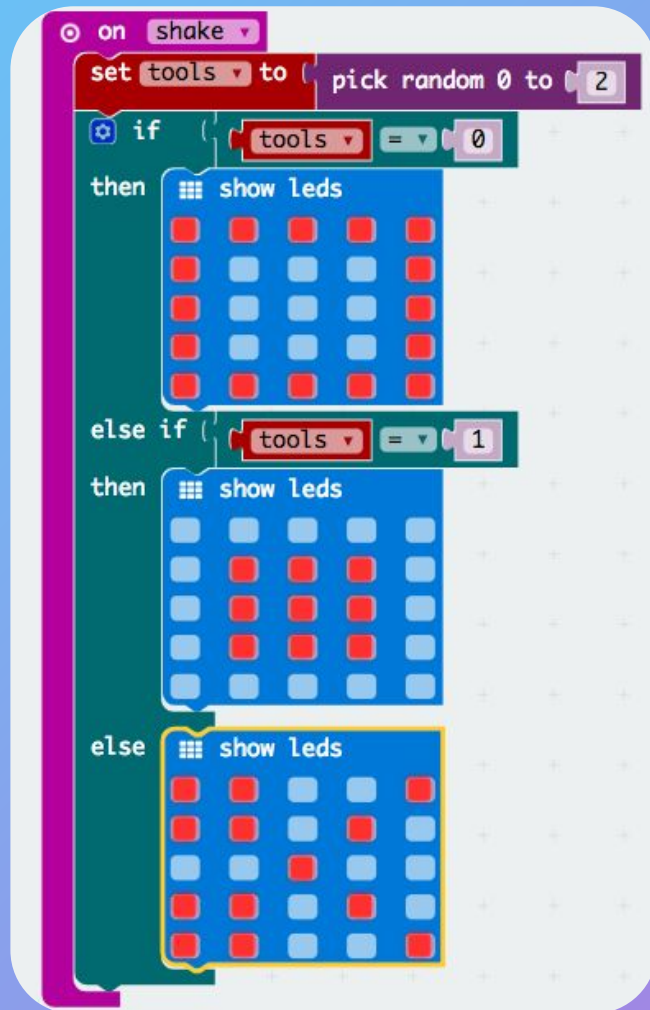
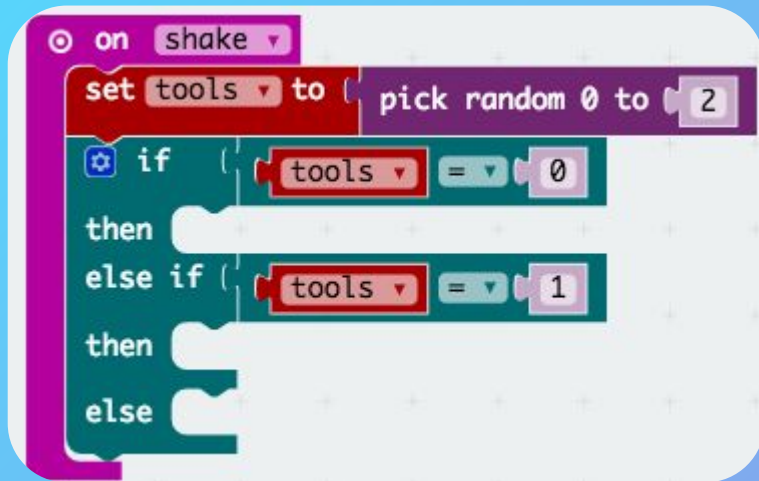
ROCK, PAPER, SCISSORS



ROCK, PAPER, SCISSORS

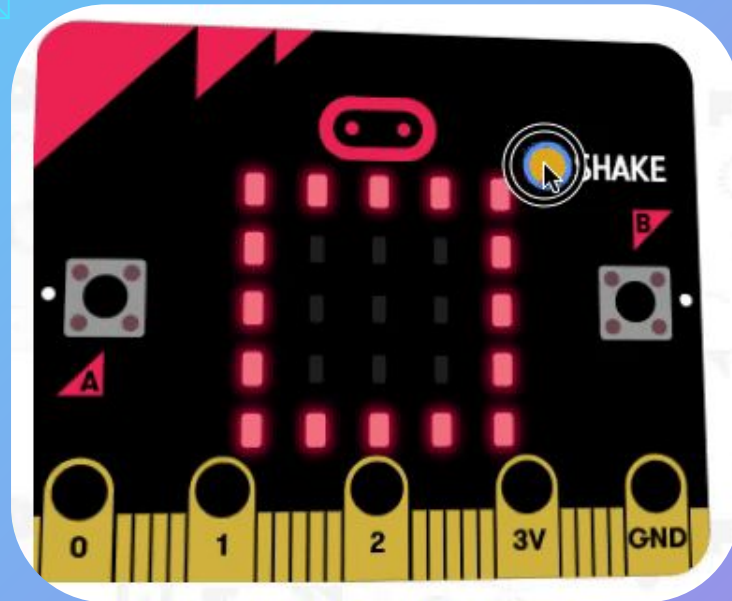


ROCK, PAPER, SCISSORS



ROCK, PAPER, SCISSORS

- ★ Download, transfer .hex file to micro:bit
- ★ Play Rock, Paper, Scissors against your friends!

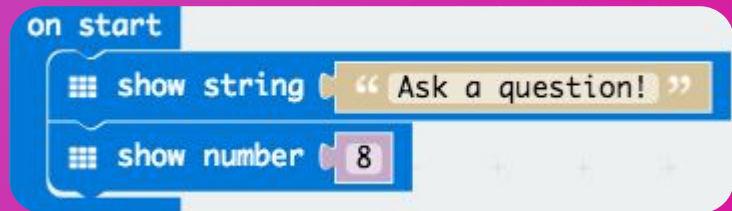
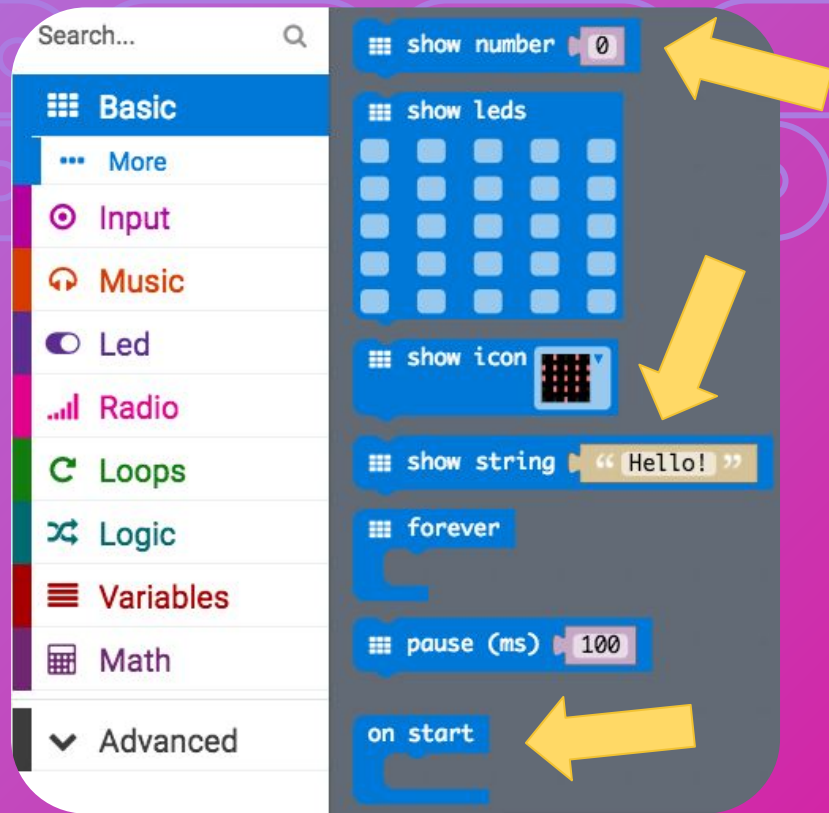


MAGIC EIGHT BALL

- ★ More Loops, More Variables, More Conditionals, More FUN!
- ★ String: a data type used to represent text



MAGIC EIGHT BALL



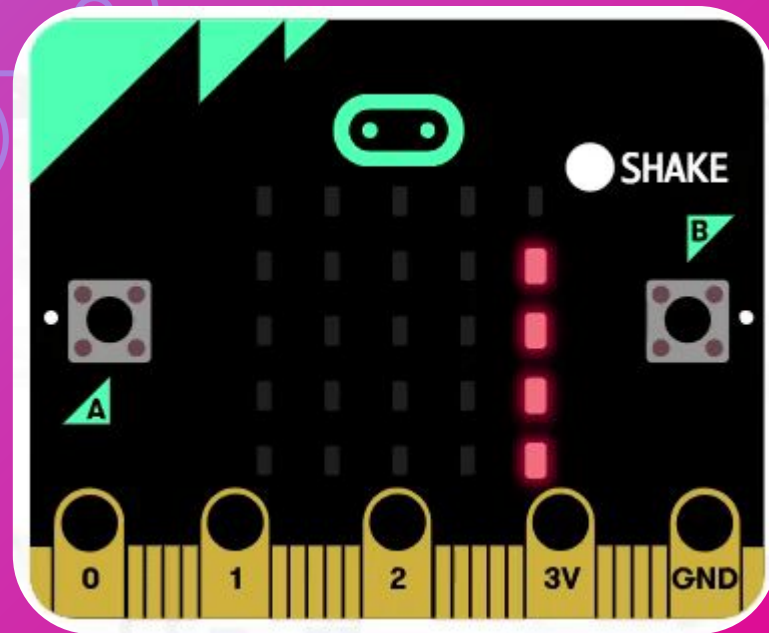
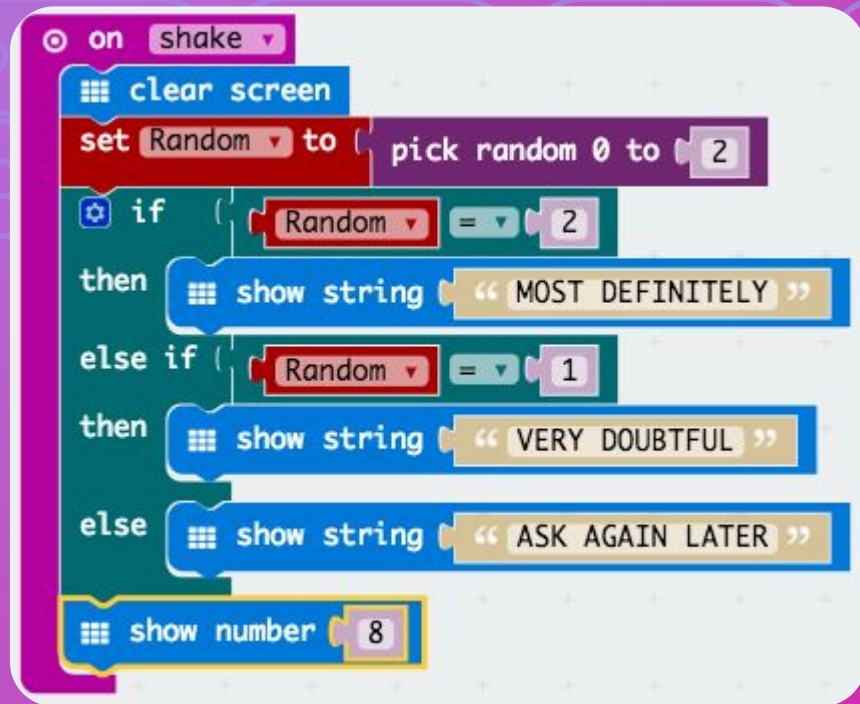
MAGIC EIGHT BALL

★ Combining elements we've used before

- Shake input
- Rename and set variable to random number
- Conditional block



MAGIC EIGHT BALL



ADVENTURE IS OUT THERE

- ★ Explore the hardware!
- ★ Connect your phone!
- ★ Try new things and make mistakes!

