# UniSA STEM Showdown

Presented by UniSA Education Futures

## Technology Decides Who's Cleaning Up?

## Name:_____

*The STEM Showdown is a series of STEM challenges to solve by the end of the season. You can complete the tasks individually or in small groups (up to 3 people). Make sure you write all the names of the people in your group above. The student with the most tasks completed over the season will be crowned the UniSA STEM Showdown Champion. Good Luck.*

**The classroom is a mess and you need to work out who has to clean it up. Create a game to work out who will be the fastest to clean up the room. You will need to make a reation timer speed game and a random number generator.**
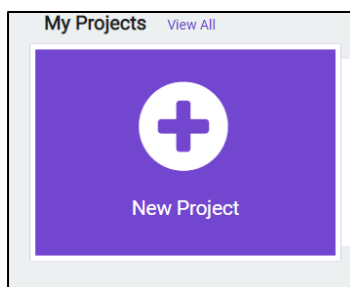
Task

In a group of three, follow the instructions to code two micro:bits. One with the speed game and one with the random number generator. Do one micro:bit at a time.
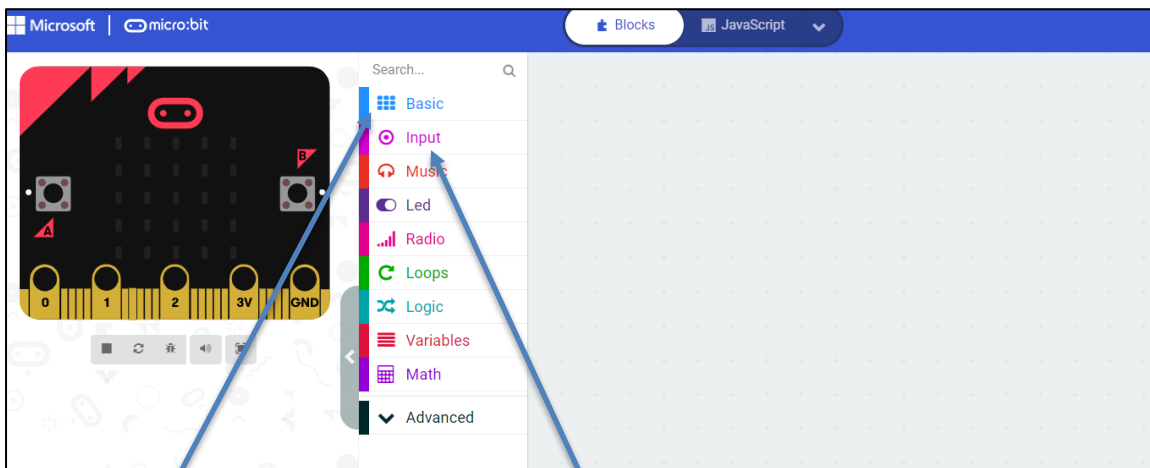
In Google search for *MakeCode for micro:bit*.



Select *Create New Project*

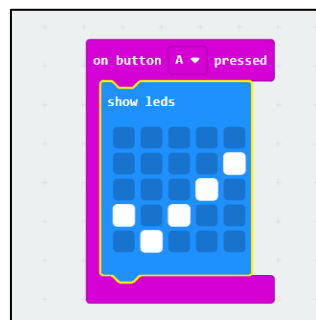You should now have a screen that looks like this on your computer



To make the **speed game** choose from input on button A pressed.
From basic choose *show leds*.
Highlight the LEDs to create a picture to will link to player one. It could look like the picture below.

EXAMPLE: this creates a tick



Repeat these steps to make a different shape on button B pressed and also code it to "clear screen" when you shake the micro:bit. It should now look something like this.
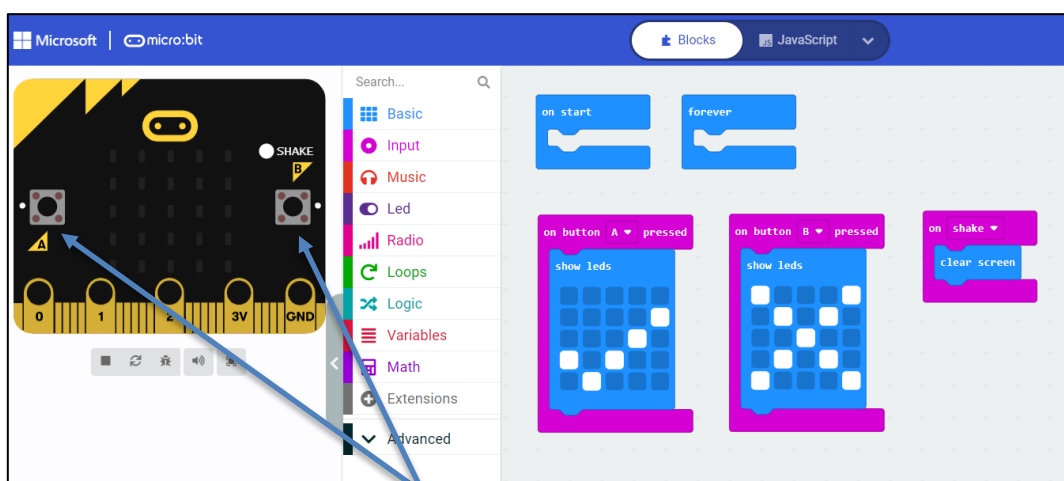


**Test the code works, by pressing the buttons on the screen to see that the picture appears for each player. Pres the shake button to test that the picture disappears.**

**If you have the hardware, attach your micro:bit, via USB**
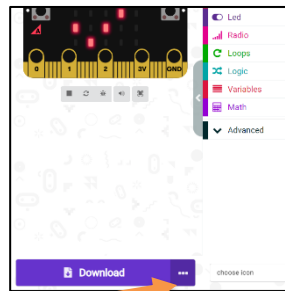


Click on the dots and select *Connect Device* then download your code to one of the micro:bits

**The second microbit will have code to create a random number between 1 and 3**
Remove all other code from screen
From input choose on button A
From Basic choose show number
From Math choose pick random and connect to show number, *change the number range to 1 and 3*

**Test your code** by pressing button A on screen as you did before.
You should get number 1, 2 or 3
**If you have the hardware connect the second micro:bit and download your code**.

**Are you ready to play?**
Decide who is going to control the number generator micro:bit, this person stays with this task, and is the judge.

The other two players play the speed game. One player is button A. One player is button B.

1. The judge presses A on the number generator micro:bit
2. If the number one or three is seen the players do nothing
3. If the number two appears, the two speed players press their button
4. The picture that is displayed will show which button was pressed fastest
5. Colour a square in everytime you win the round in your correct grid.
6. First player to fill in the grid wins

**Player A (tick shape)**

| | | | |
|---|---|---|---|
| | | | |

**Player B (cross shape)**

| | | | |
|---|---|---|---|
| | | | |

**The first person to 4 points is the winner, write their name here? _____**

| STEM Showdown Umpire Comments | Completed (STEM Showdown Umpire to sign) |
|---|---|
| | |
| | |
| | |

| Extension Task | STEM Showdown Umpire Comments | Completed (STEM Showdown Umpire to sign) |
|---|---|---|
| Make a picture of a smiley face | | |
| Code it to play a tune | | |
| Make a micro:bit into a dice | | |
| Create the first letter of your name on the LEDs, and make it display using a new input (look in input to find something other than the button A or B option) | | |
| Choose your own creative design and load it to the micro:bit | | |

**Make sure you hand up your signed sheet to the umpire at the end of the session to have your points allocated to the leaderboard**