



# Lesson 1

micro:bit basic lesson 1 "Heart beat"





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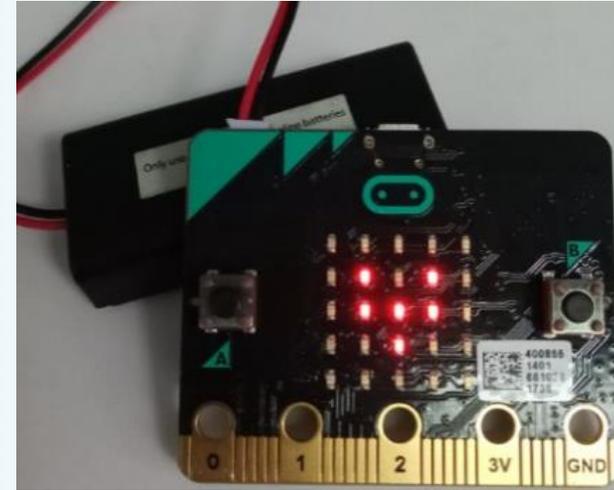
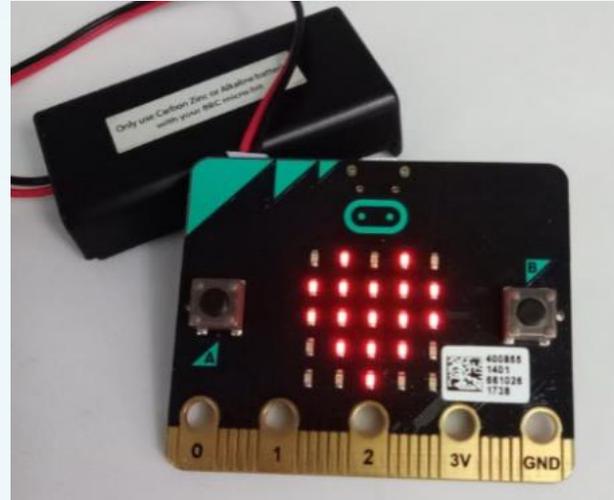
Part 5

[Have a try](#)



## Part 1

### Learning goals



Showing a big heart sharp on LED matrix firstly, and showing small heart later, this cycle looks like heart beat.

## Part 2

## Preparation

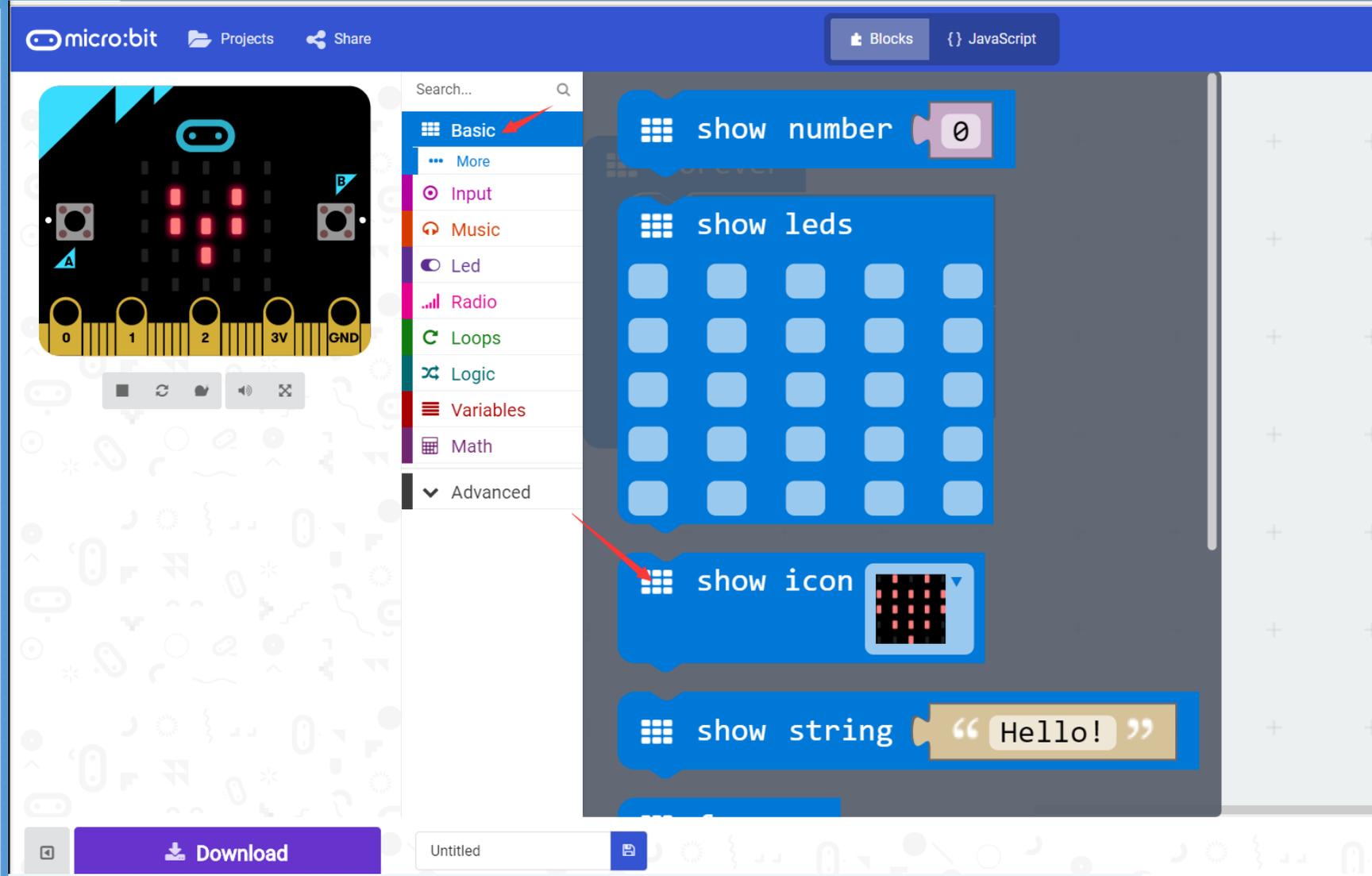
Hardware:

- 1 X Micro: bit Board
- 1 X Micro USB Cable
- 2 X AAA batteries

Then the micro:bit is connected to the computer through USB, and the computer will pop up a U disk and click the URL in the U disk to enter the programming interface.

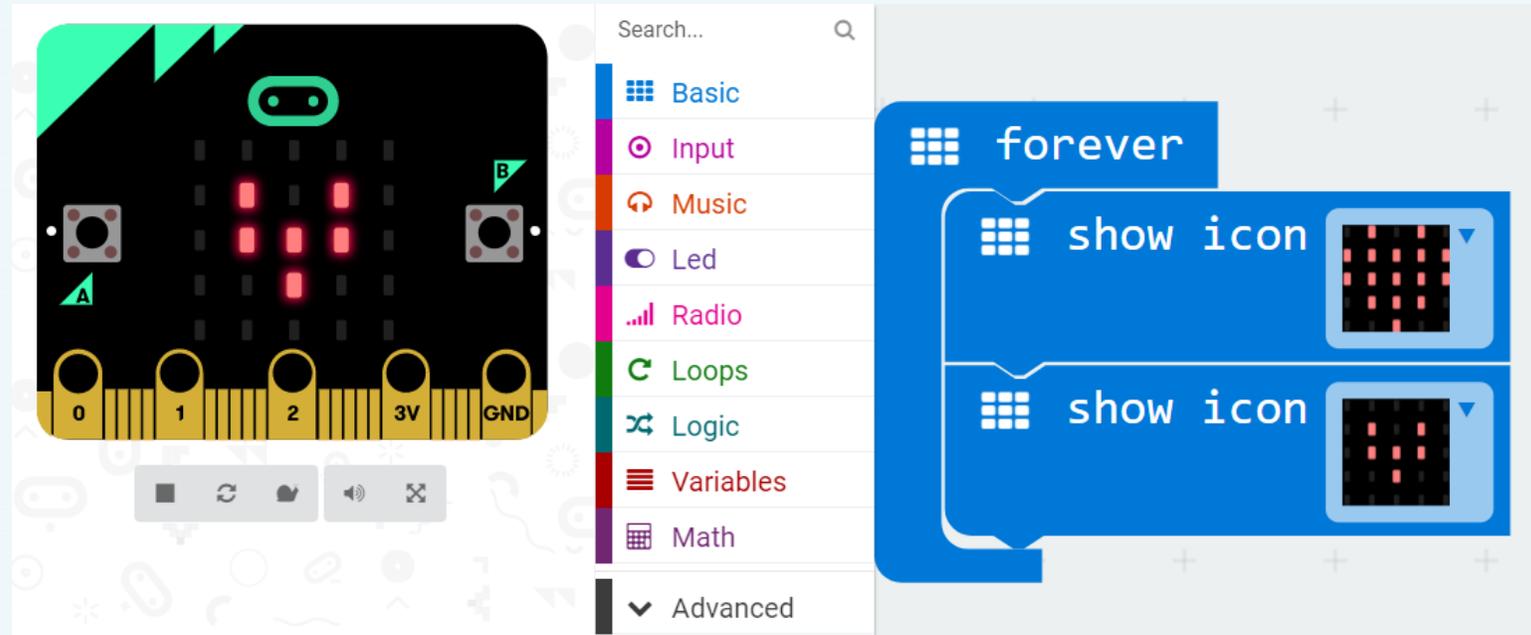
## Part 3

Search for blocks



## Part 4

Combine  
blocks



## Part 5

### Have a try

Do you learn the course today?  
If you learn to do it, give yourself a top quack.  
Now give you a homework assignment.



**On the micro:bit LED lattice that we just finished the heart beat, we light a circle, a triangle, a rectangle.**

Start your little brain. Try it.





## Lesson 2

micro:bit basic lesson 2 “See who is pressing fast”





## Content



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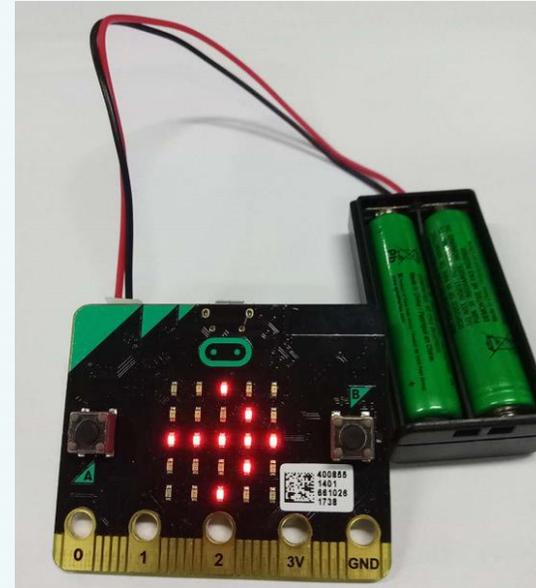
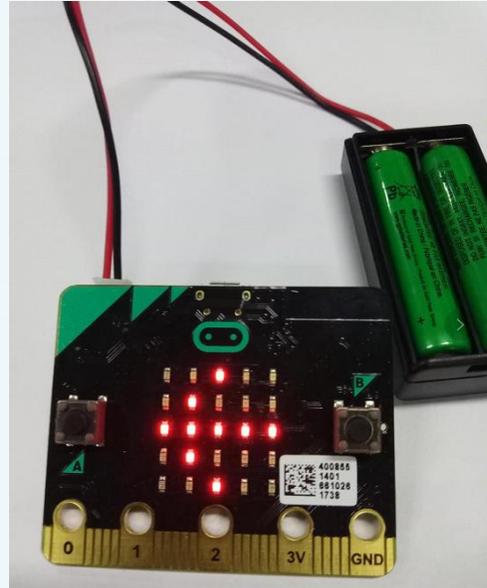
Part 5

[Have a try](#)



## Part 1

### Learning goals



When you download a good program, call your little partner to play. One is standing on the A key, and the other is standing on the B button. And then you count down 3,2,1 and press the button together. If the A button is pressed first, there will be an arrow pointing to the A button on the dot matrix. If the B button is pressed first, there will be an arrow pointing to the B button on the dot matrix. If it is pressed at the same time, it will show a love on the dot matrix.

## Part 2

## Preparation

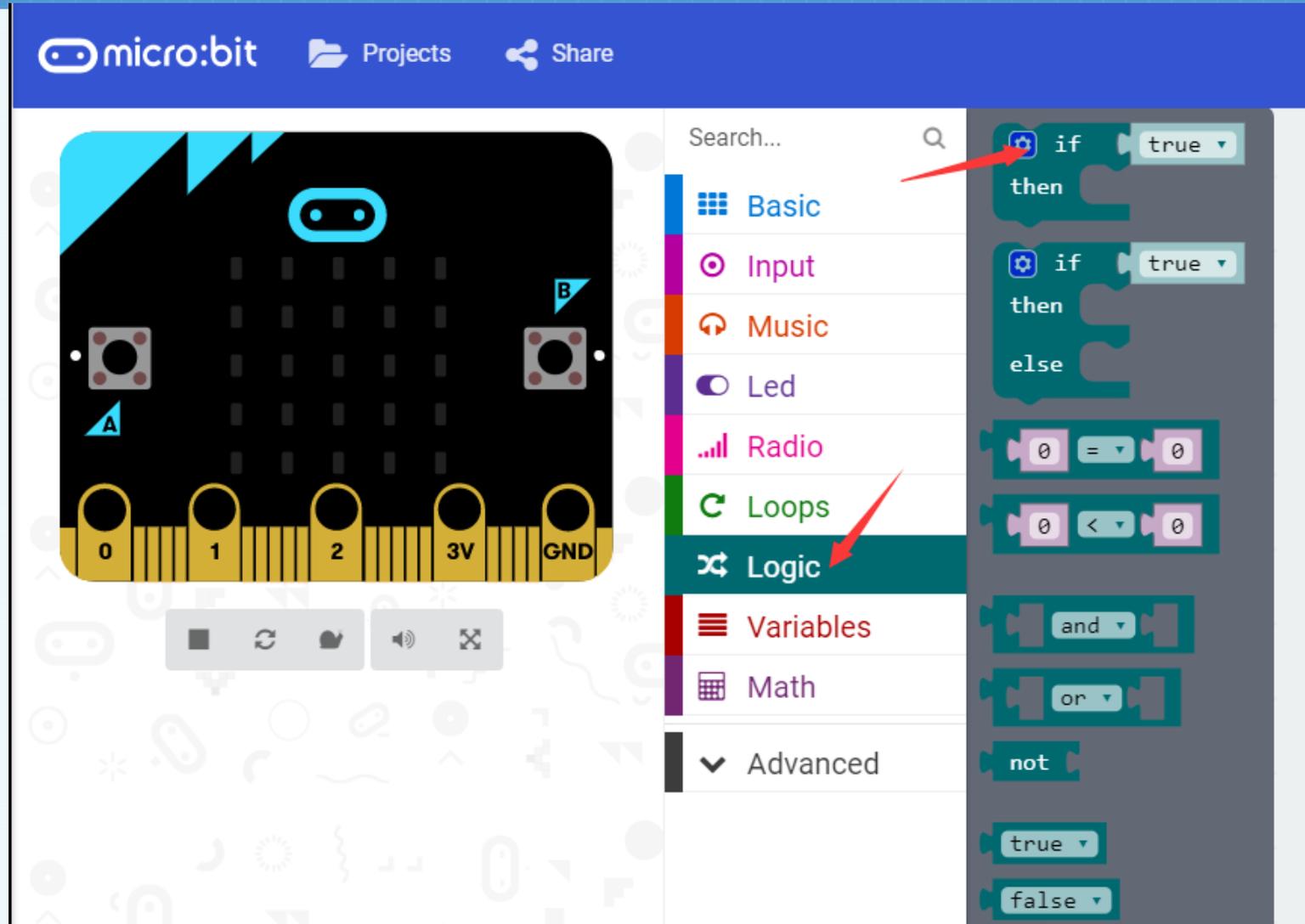
Hardware:

- 1 X Micro: bit Board
- 1 X Micro USB Cable
- 2 X AAA batteries

Then the micro:bit is connected to the computer through USB, and the computer will pop up a U disk and click the URL in the U disk to enter the programming interface.

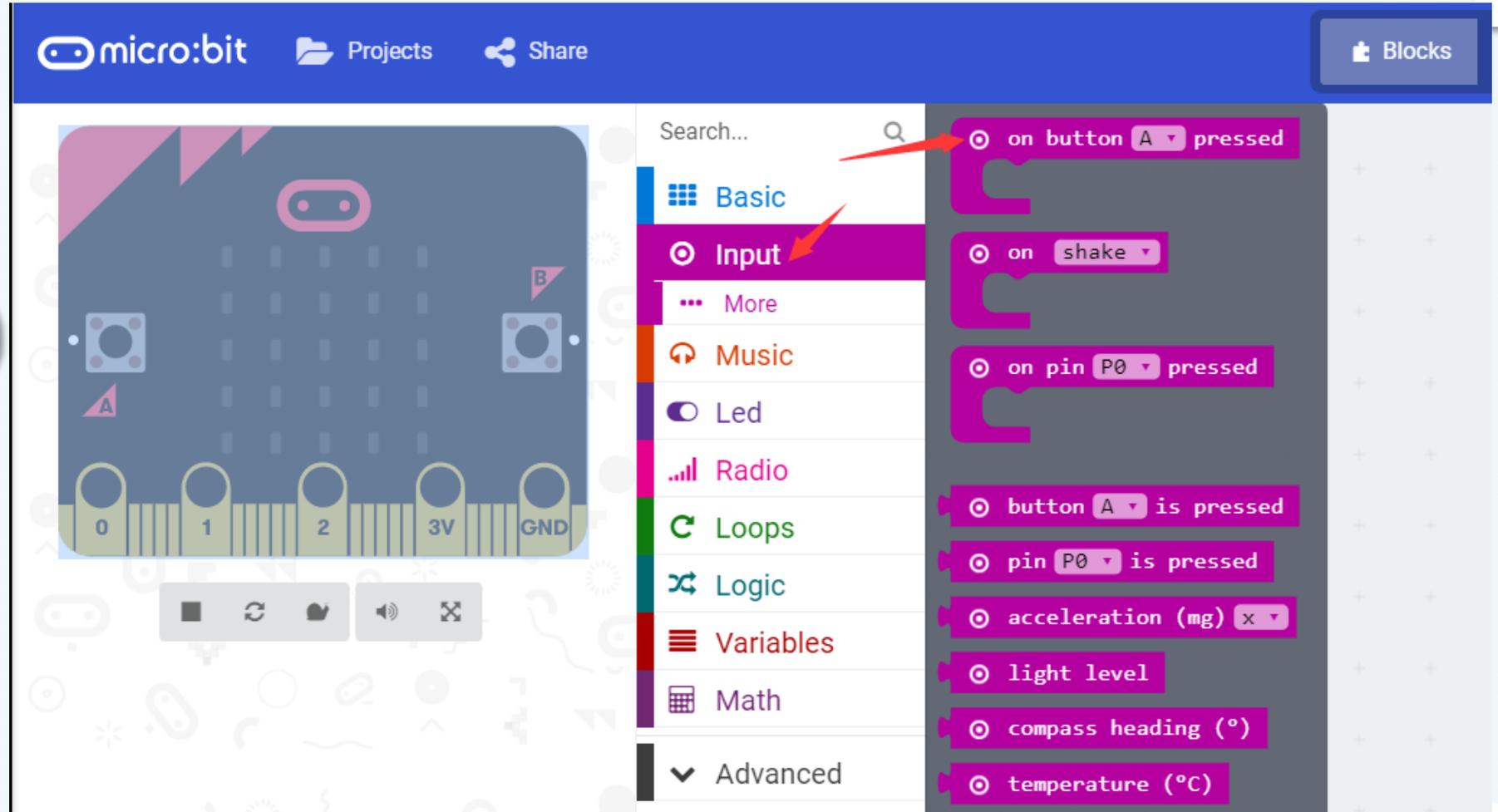
## Part 3

Search for blocks



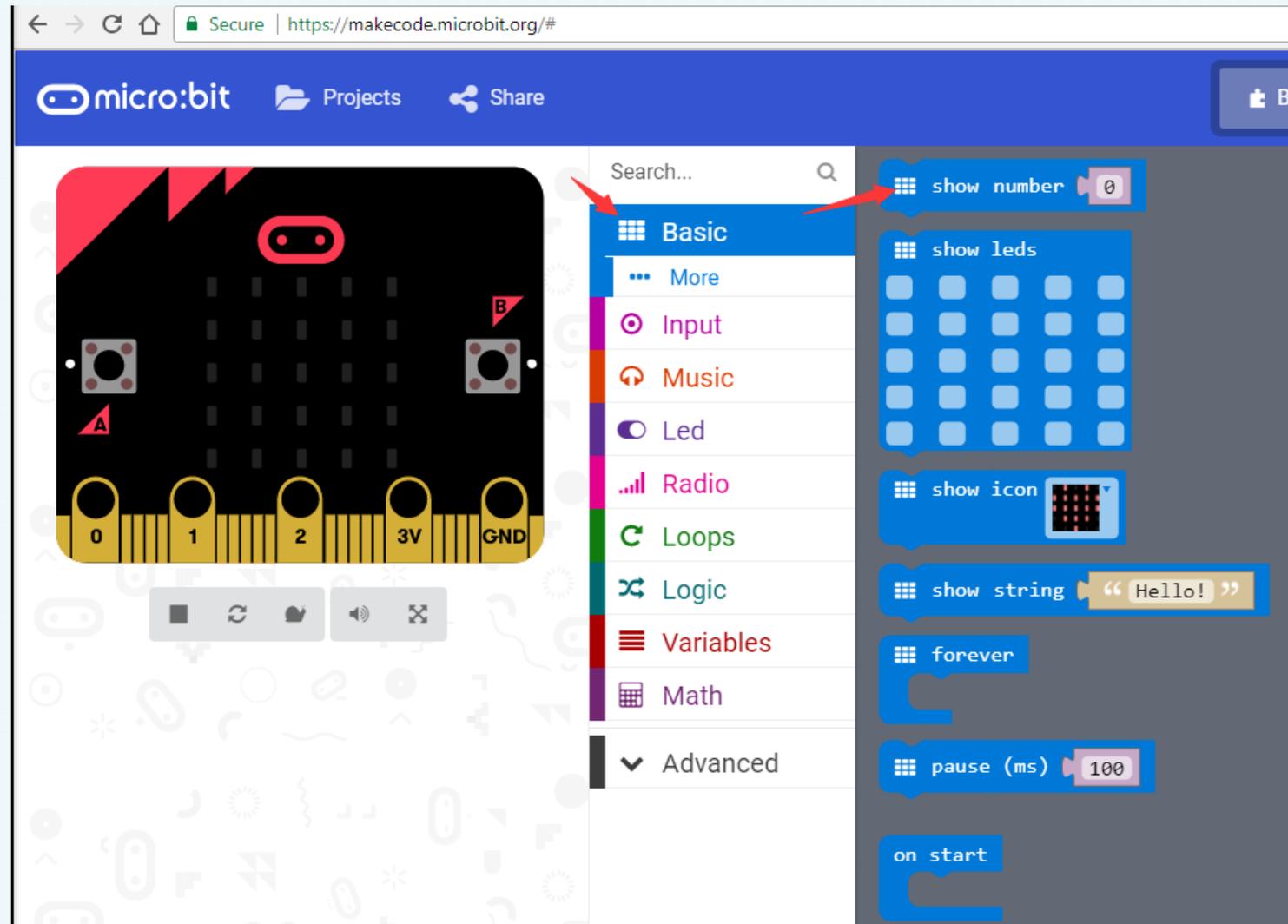
## Part 3

Search for  
blocks



## Part 3

Search for blocks



## Part 4

Combine  
blocks

```
forever loop
  if button A is pressed
  then
    show leds
  if button B is pressed
  then
    show leds
  if button A+B is pressed
  then
    show icon
```

## Part 5

### Have a try

Do you learn the course today?  
If you learn to do it, give yourself a top quack.   
Now give you a homework assignment.

On the micro:bit dot matrix, press the A button, the heart starts to beat, press the B button, and the heart stops beating. You can relate the content of this lesson to the first lesson.

Start your little brain. Try it. 



## Lesson 3

micro:bit basic lesson 3 “Flowing sand”





## Content



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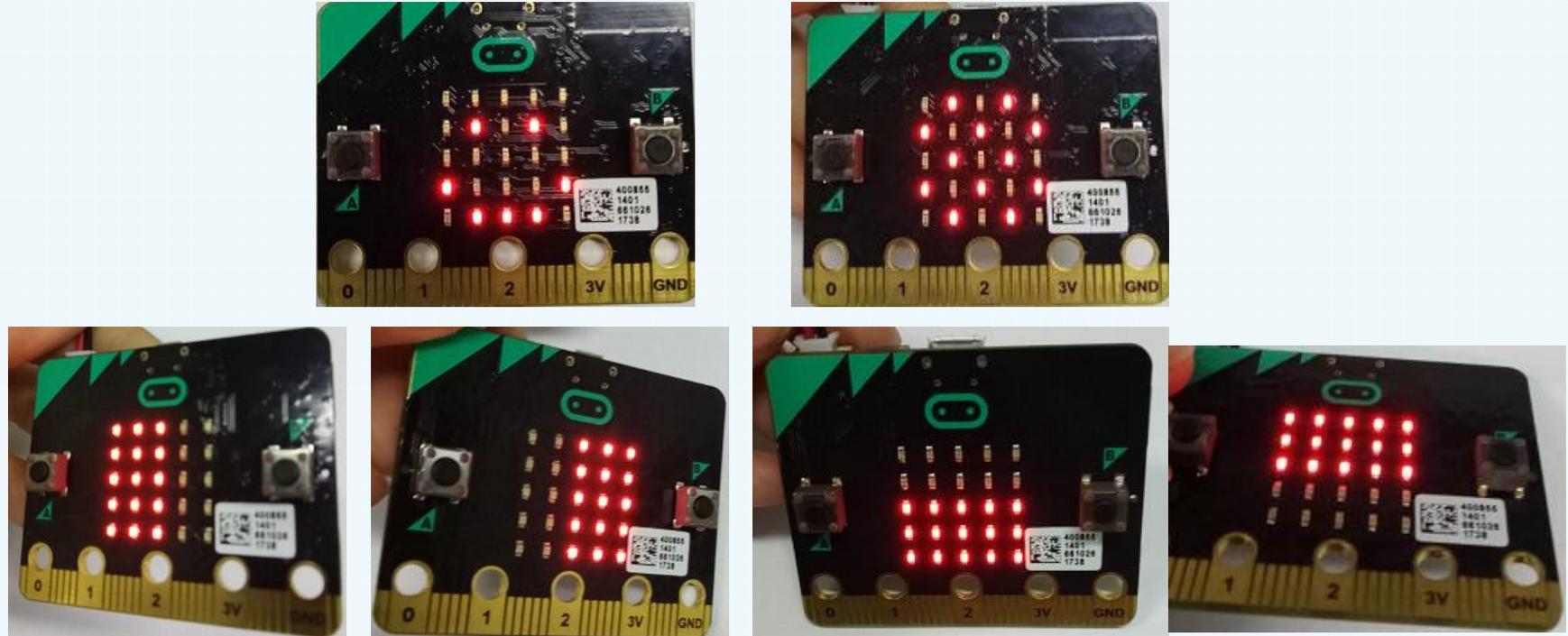
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## Part 1

### Learning goals



When you download the program, the micro:bit board will show a smile first when it is put up (the dot matrix is facing up). Shake can show a plate of sand. Tilt to the left and the sand sink to the left, tilt right and to right, tilt down and to the bottom, tilt to up and to above. Look at it, it's not like a flow of sand?

## Part 2

## Preparation

Hardware:

- 1 X Micro: bit Board
- 1 X Micro USB Cable
- 2 X AAA batteries

Then the micro:bit is connected to the computer through USB, and the computer will pop up a U disk and click the URL in the U disk to enter the programming interface.

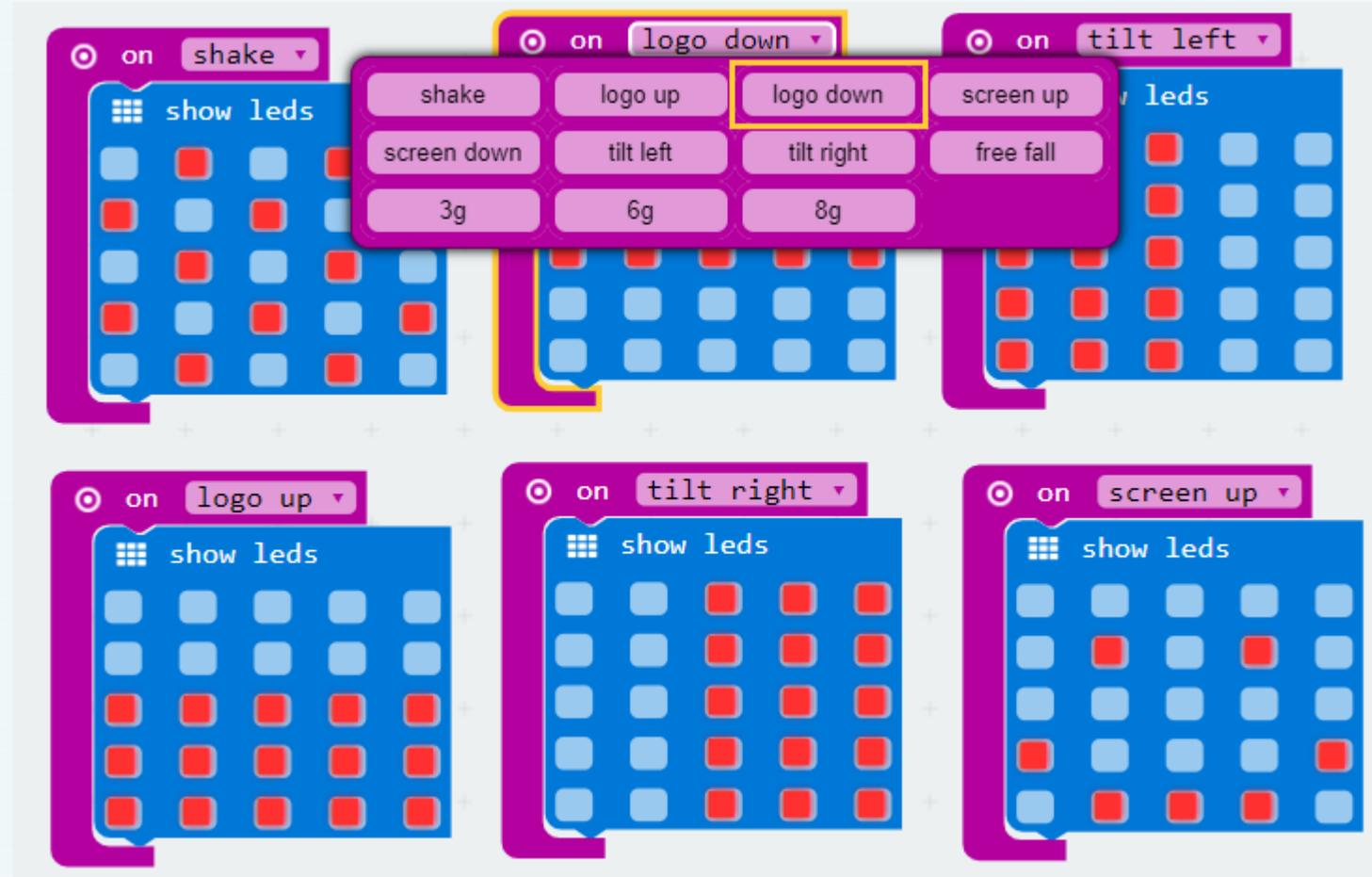
## Part 3

Search for blocks

The image shows two side-by-side screenshots of the micro:bit Scratch-like programming environment. The left screenshot shows the 'Input' category selected in the left-hand menu, with a search bar at the top. The right screenshot shows the search results for 'Input', with the 'on shake' block highlighted by a red arrow. The right-hand pane shows a script area with several blocks: 'show number' (0), 'show leds' (a 5x5 grid), 'show icon' (a micro:bit icon), 'show string' ('Hello!'), a 'forever' loop, and 'pause (ms)' (100).

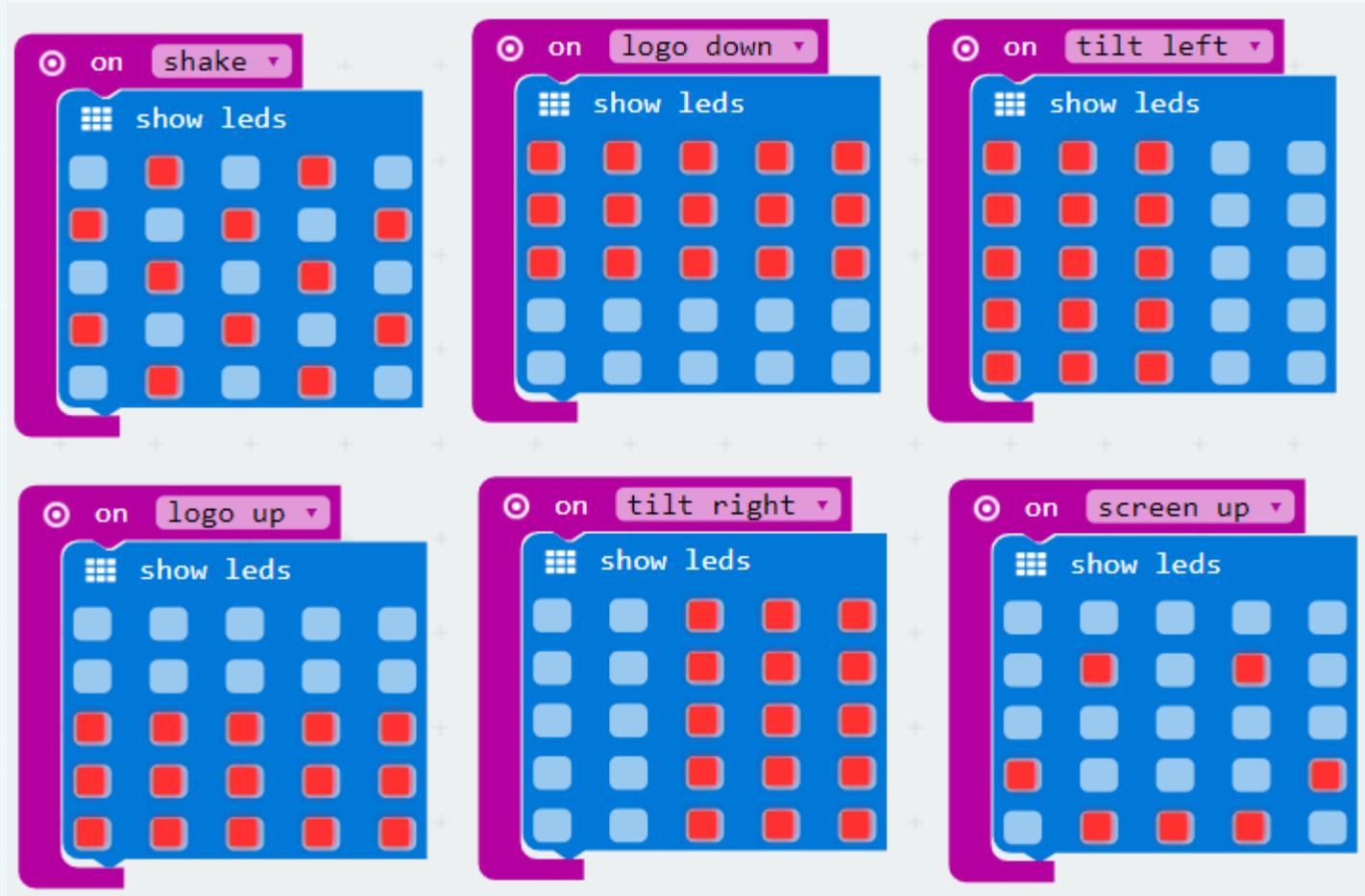
## Part 3

Search for blocks



## Part 4

Combine  
blocks



## Part 5

### Tips

Do you learn the course today?

If you learn to do it, give yourself a top quack.



Now you have learned how to use the accelerometer in micro:bit.

Do you know how the content of this lesson is actually achieved?

Accelerometer is used to measure the deflection of physical quantities, such as tilt inversion and other azimuth deflection. It can accurately determine the actual actions of users, and send some instructions to micro:bit through these actions he collected. There are many places involved in accelerometer. For example, we can make some small games with accelerometer. For example, dice game, snake game is achieved through micro:bit accelerometer.



## Lesson 4

micro:bit basic lesson 4 “DIY thermometer”





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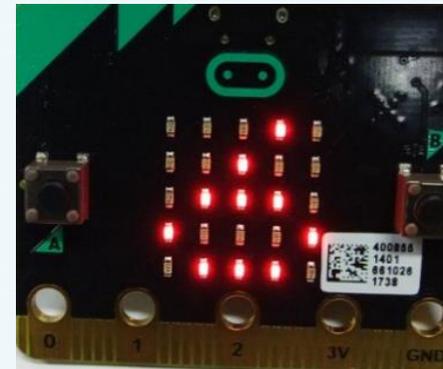
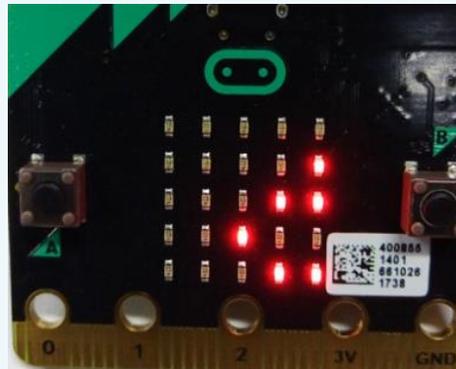
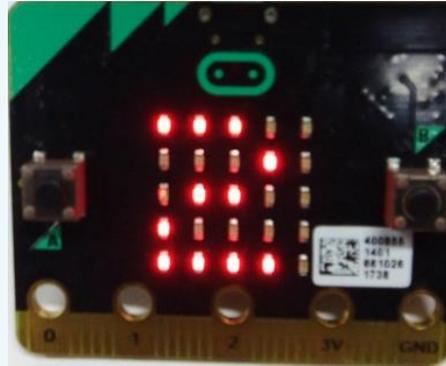
[Combine blocks](#)

Part 5

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## Part 1

### Learning goals



After you have downloaded the program, you can see the value of the temperature on the micro:bit's dot matrix to the left. At present, the teacher has measured the temperature of 26 degrees Celsius. The students can try to see how much the temperature is around you.

## Part 2

## Preparation

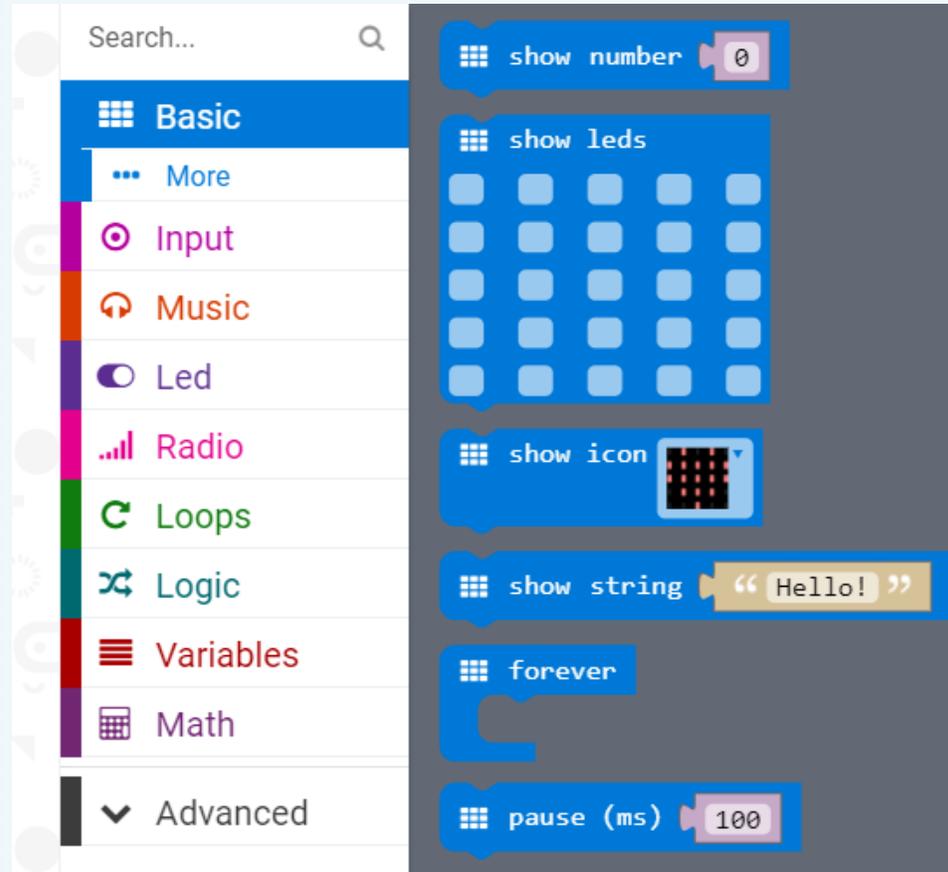
Hardware:

- 1 X Micro: bit Board
- 1 X Micro USB Cable
- 2 X AAA batteries

Then the micro:bit is connected to the computer through USB, and the computer will pop up a U disk and click the URL in the U disk to enter the programming interface.

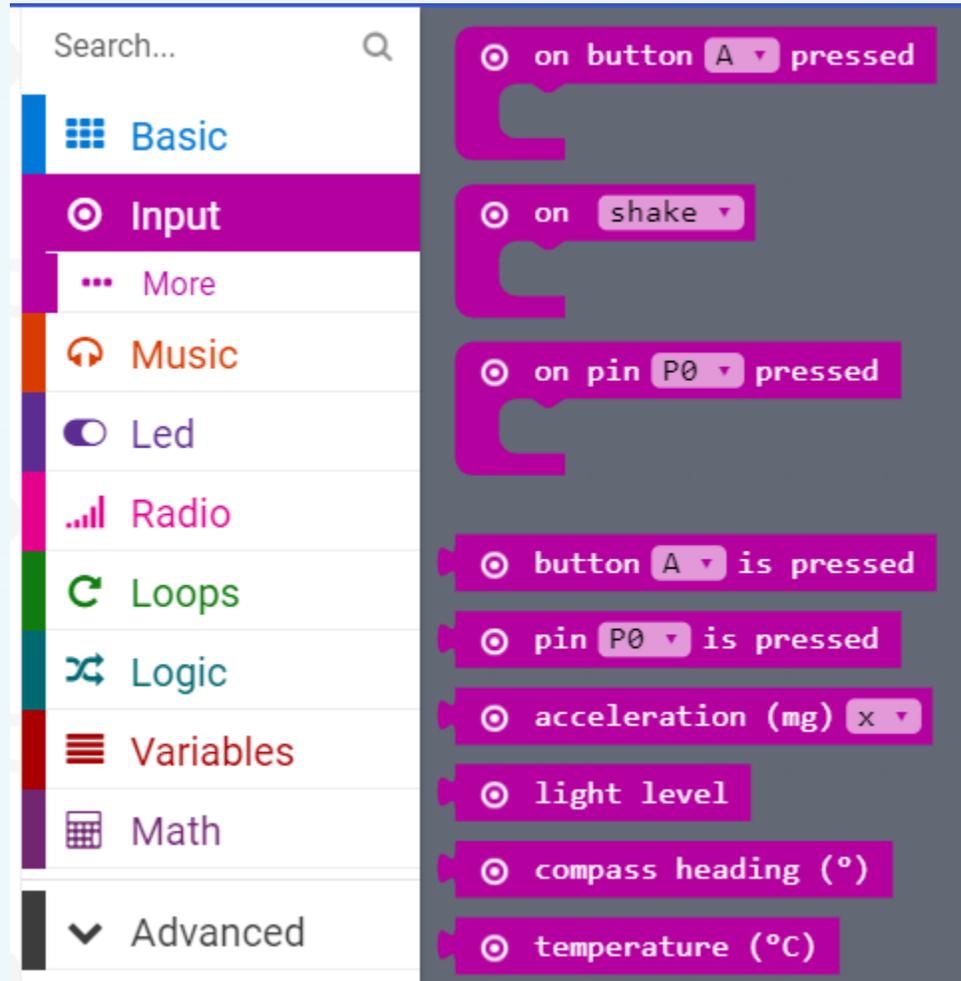
## Part 3

Search for  
blocks



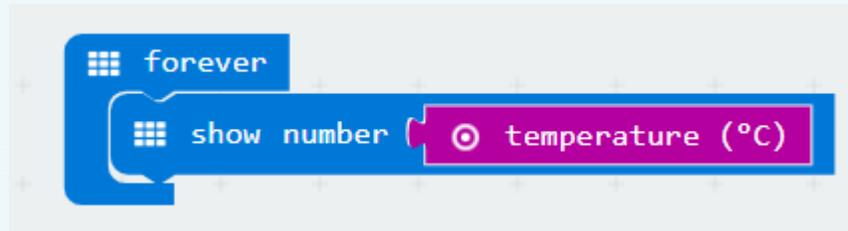
## Part 3

Search for  
blocks



## Part 4

## Combine blocks



## Part 5

### Tips

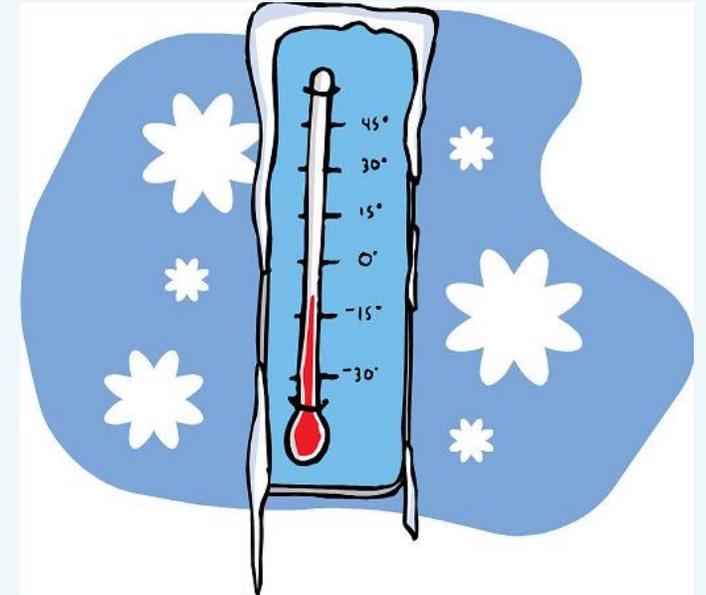
Do you learn the course today?

If you learn to do it, give yourself a top quack.



Now you have learned how to use the thermometer in micro:bit.  
But do you know what the temperature means?

Temperature is the physical quantity that represents the degree of cold and heat of a body. Microscopically speaking, it is the intensity of the thermal movement of an object molecule. In this experiment, we measured the Celsius temperature. The inventor was Anders Celsius, the freezing point was 0 degrees, and the boiling point was 99.974 degrees. So what are your temperature now, children?



## Lesson 5

micro:bit basic lesson 5 “Direction follower”



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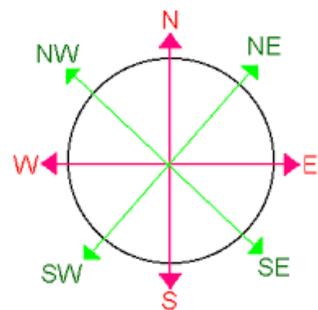
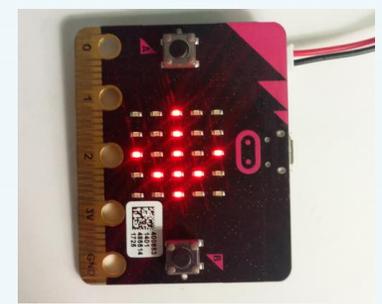
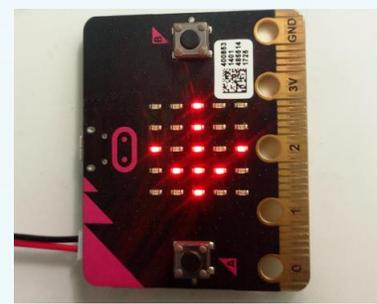
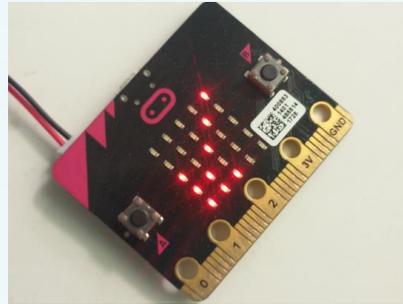
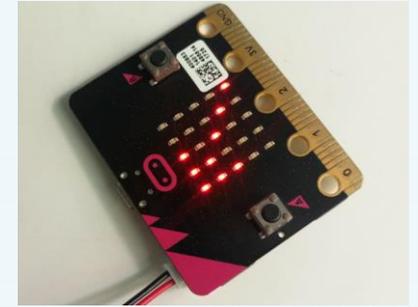
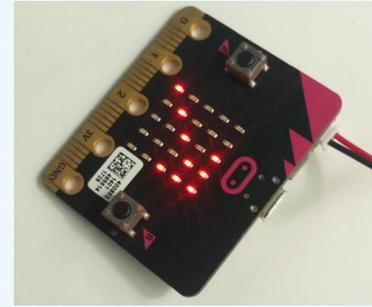
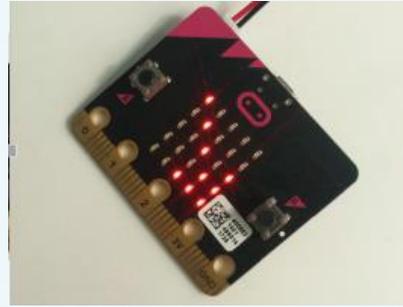
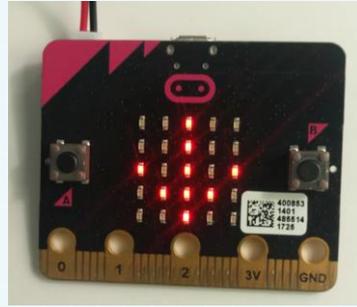
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Part 5

[Have a try](#)

## Part 1

### Learning goals



After downloading the program, the bit development board can be swung to the east, west, south, north, northeast, northwest, southeast, southwest eight different directions. You can see that no matter which direction the micro:bit swings, the pointer on the dot will point to this direction.

## Part 2

## Preparation

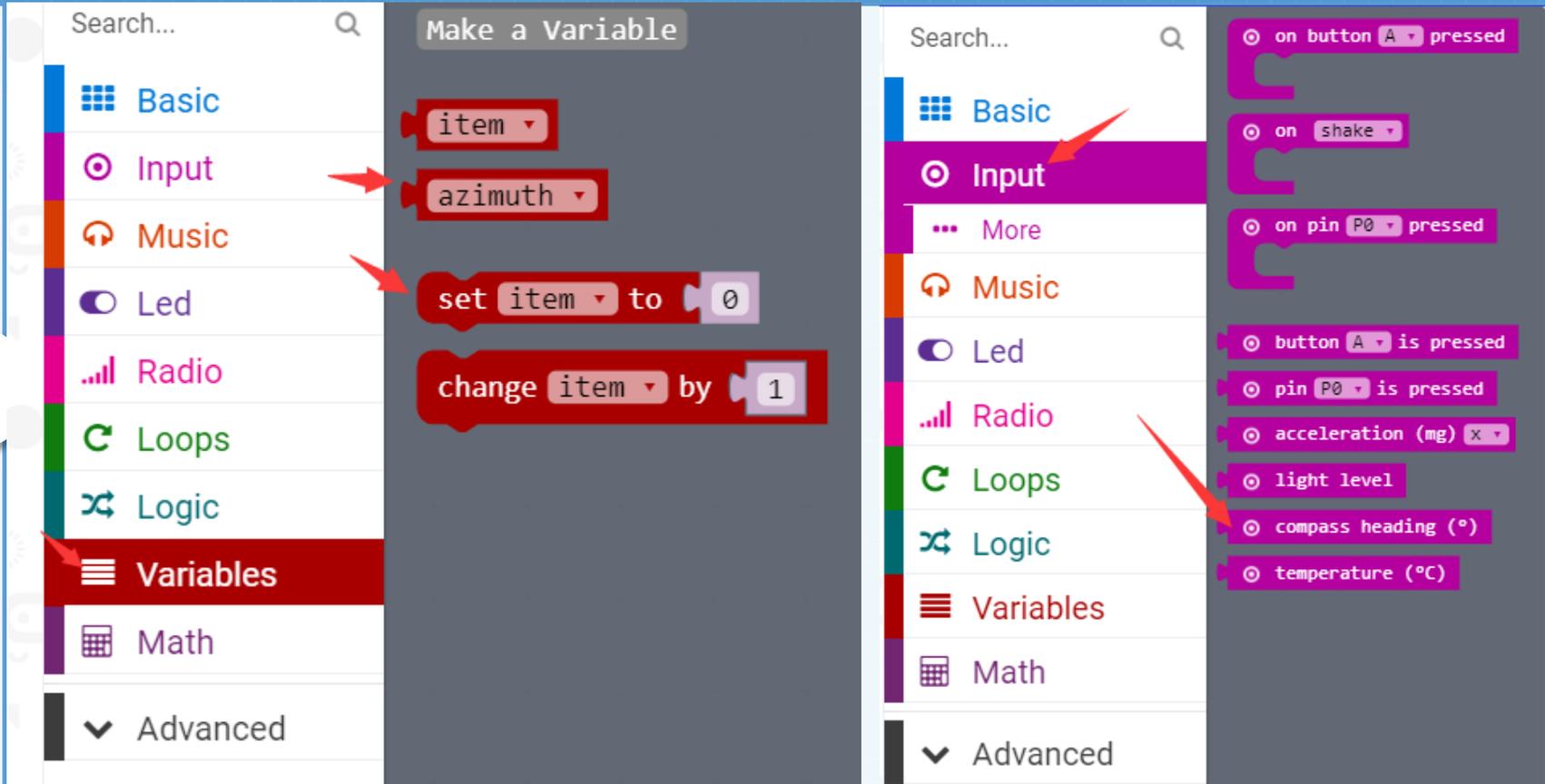
Hardware:

- 1 X Micro: bit Board
- 1 X Micro USB Cable
- 2 X AAA batteries

Then the micro:bit is connected to the computer through USB, and the computer will pop up a U disk and click the URL in the U disk to enter the programming interface.

## Part 3

Search for blocks



compass heading "the direction of the compass",  
In micro:bit, we use the degree to indicate its direction by default.

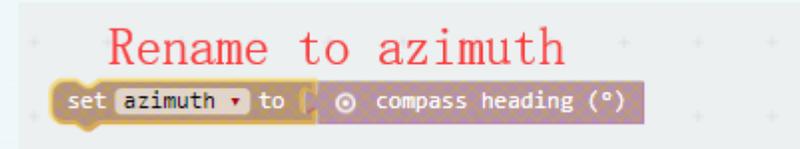
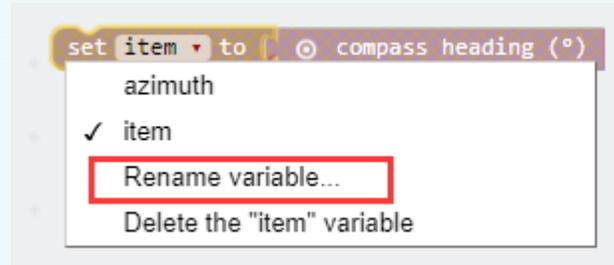
## Part 3

Search for  
blocks

The image displays two side-by-side screenshots of the micro:bit code editor interface. The left screenshot shows the 'Logic' category selected in the block palette, with an 'if' block highlighted. The right screenshot shows a completed code block with 'show number', 'show leds', 'show icon', 'show string', 'forever', 'pause (ms)', and 'on start' blocks.

## Part 3

Search for  
blocks



Rename all 'item' variables to:

azimuth |

Ok ✓

Cancel ✕

## Part 4

Combine blocks

```
forever loop
  set item to compass heading (°)
  if item >= 0 and item < 45
    then show leds
  if item >= 45 and item < 90
    then show leds
  if item >= 90 and item < 135
    then show leds
  if item >= 135 and item < 180
    then show leds
```

```
if item >= 180 and item < 225
  then show leds
if item >= 225 and item < 270
  then show leds
if item >= 270 and item <= 315
  then show leds
if item >= 315 and item <= 360
  then show leds
```

◆ The right blocks follow with the left

!!!Not  
e

After downloading the program, we need to calibrate the compass for normal use. The calibration method is: We need to bias the micro:bit in different directions, illuminate all the LED lights on the LED dot matrix, and a smile appears, indicating that the calibration is successful. We can use the micro:bit compass normally.

## Part 5

Have a try

Do you learn the course today?

If you learn to do it, give yourself a top quack.



Now give you a homework assignment.

Today, our content is a simple compass, the compass is one of the four great inventions of ancient China. Let's go and find out what the other three of the four great inventions of ancient China are.

Start your little brain. Try it.





## Lesson 6

micro:bit basic lesson 6 “Listen to music”





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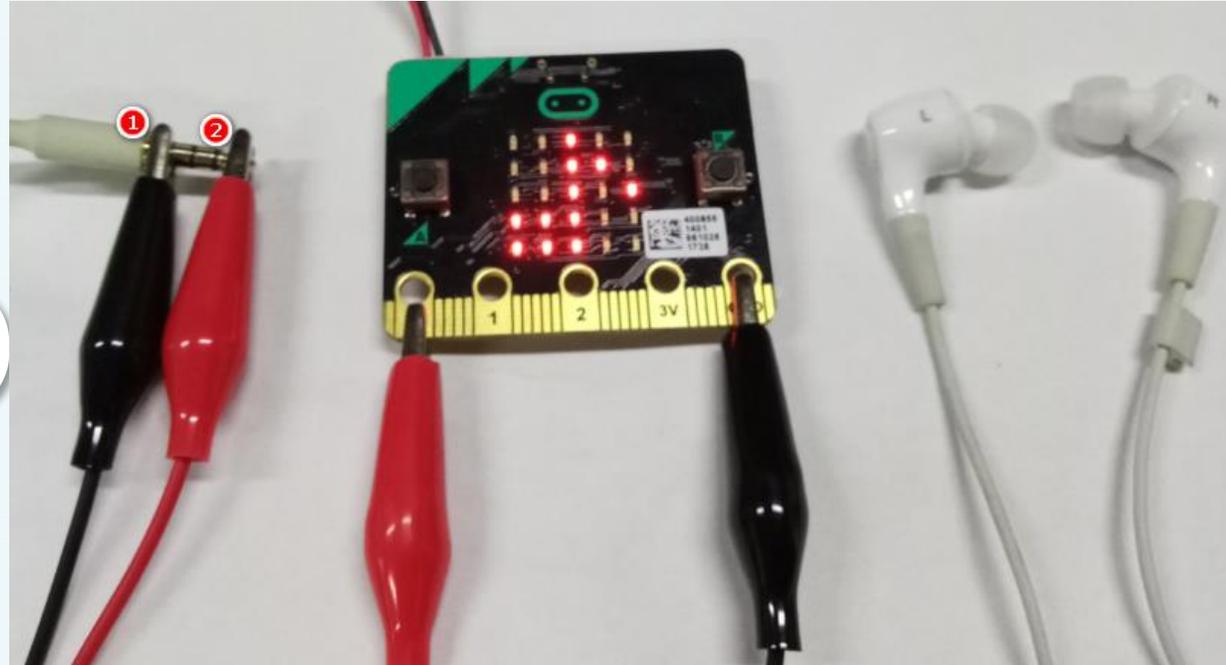
[Combine blocks](#)

Part 5

[Have a try](#)

## Part 1

### Learning goals



PIN	Description
1	Ground
2	Microphone
3	Right Side Earpiece
4	Left Side Earpiece

You need two crocodile clips and a pair of headphones for this experiment. First, the black crocodile clip is used to clamp the GND of micro:bit, and the black crocodile clip on the other side clamps the interface of the earphone. Then use the red crocodile clip to clamp P0, and the other end clamps the interface of the earphone 2. After downloading the program, you can play music from the earphone.

## Part 2

## Preparation

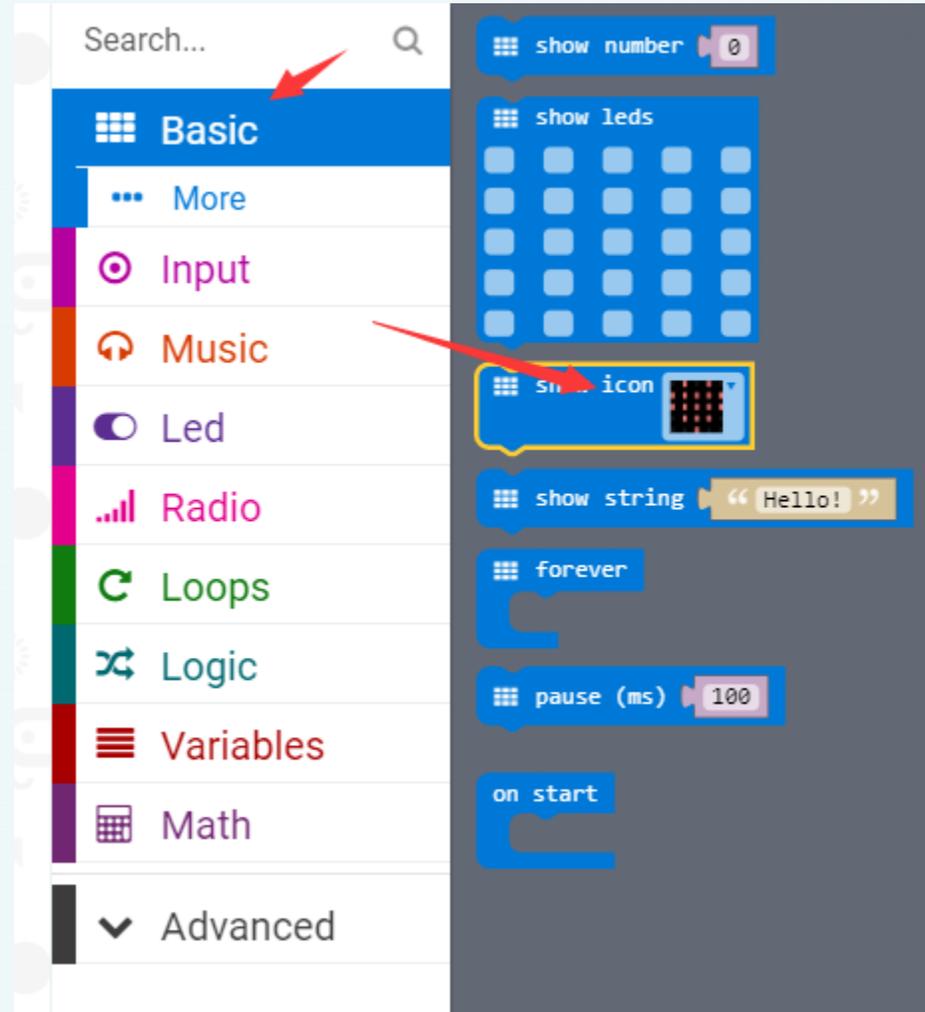
### Hardware:

- 1 X Micro: bit Board
- 1 X Micro USB Cable
- 2 X Crocodile clip cable
- 1 X Headphones
- 2 X AAA batteries

Then the micro:bit is connected to the computer through USB, and the computer will pop up a U disk and click the URL in the U disk to enter the programming interface.

## Part 3

Search for  
blocks



## Part 3

Search for  
blocks

The screenshot shows the micro:bit block editor interface. On the left, the 'Music' category is selected in the block palette, with red arrows pointing to it. The workspace on the right contains the following blocks:

- play tone (Middle C) for 1 beat
- ring tone (Hz) (Middle C)
- rest(ms) (1 beat)
- start melody (dadadum) repeating once
- music on (melody note played)
- Middle C
- 1 beat
- tempo (bpm)
- change tempo by (bpm) (20)
- set tempo to (bpm) (120)

## Part 4

Combine  
blocks

The screenshot displays the MakeCode IDE interface for a micro:bit. On the left, a micro:bit board is shown with a USB cable connected to its bottom edge. The board's LEDs are lit in a pattern. The central panel features a search bar and a category menu with the following items: Basic, Input, Music, Led, Radio, Loops, Logic, Variables, Math, and Advanced. On the right, the workspace contains a script starting with an 'on start' block, followed by two 'show icon' blocks and a 'start melody' block. The 'start melody' block is configured with the melody 'dadadum' and set to repeat 'once'.

## Part 5

### Have a try

Do you learn the course today?  
If you learn to do it, give yourself a top quack.   
Now give you a homework assignment.

**On the basis of the playing music we just realized, plus the function of the key, we play the song after pressing the key, and the name of the song is displayed on the dot matrix.**

Start your little brain. Try it. 



## Lesson 7

micro:bit basic lesson 7 “Dice game”





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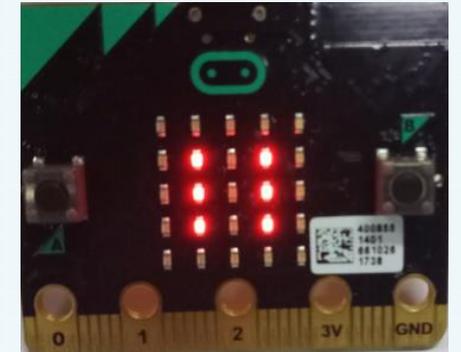
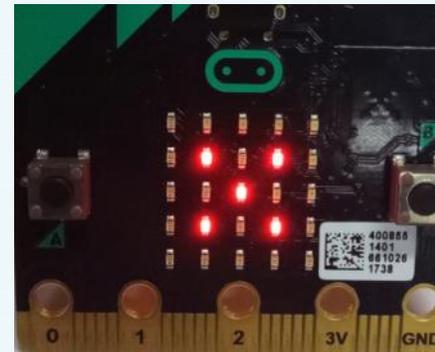
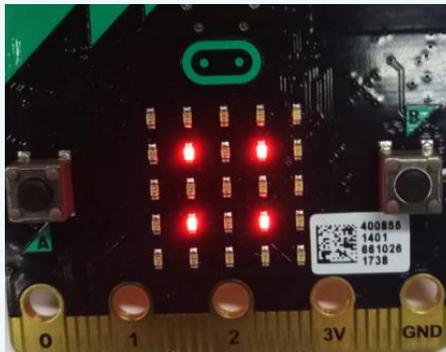
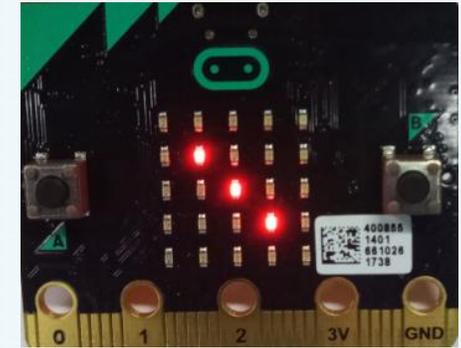
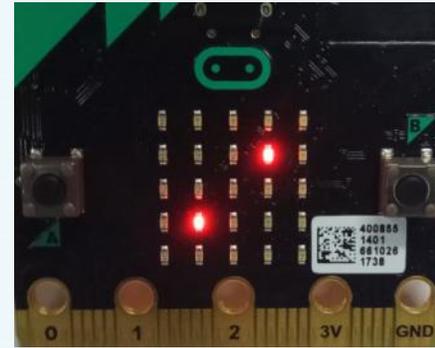
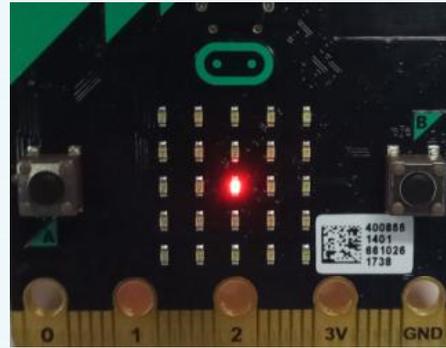
Part 5

[Have a try](#)



## Part 1

### Learning goals



After downloading the program, shake a roll of micro:bit. There are 1-6 points randomly appearing on the dot matrix, which is exactly the same as playing the dice. You can call your buddy to play this game, see who points out relatively large

## Part 2

## Preparation

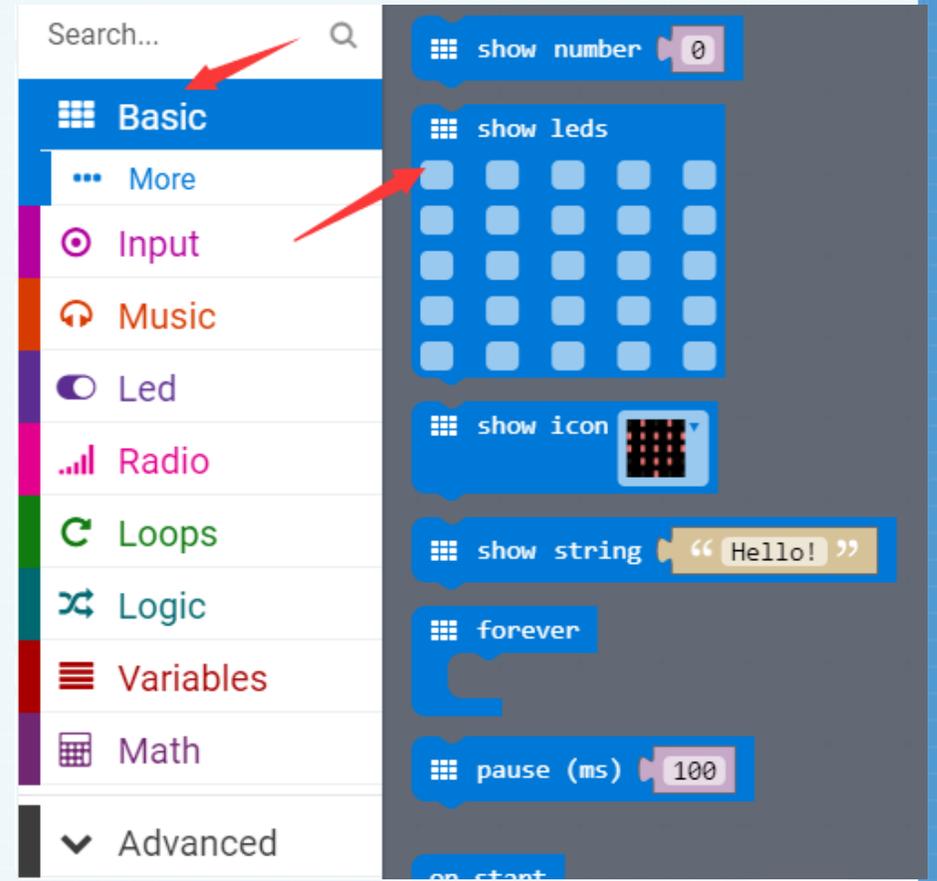
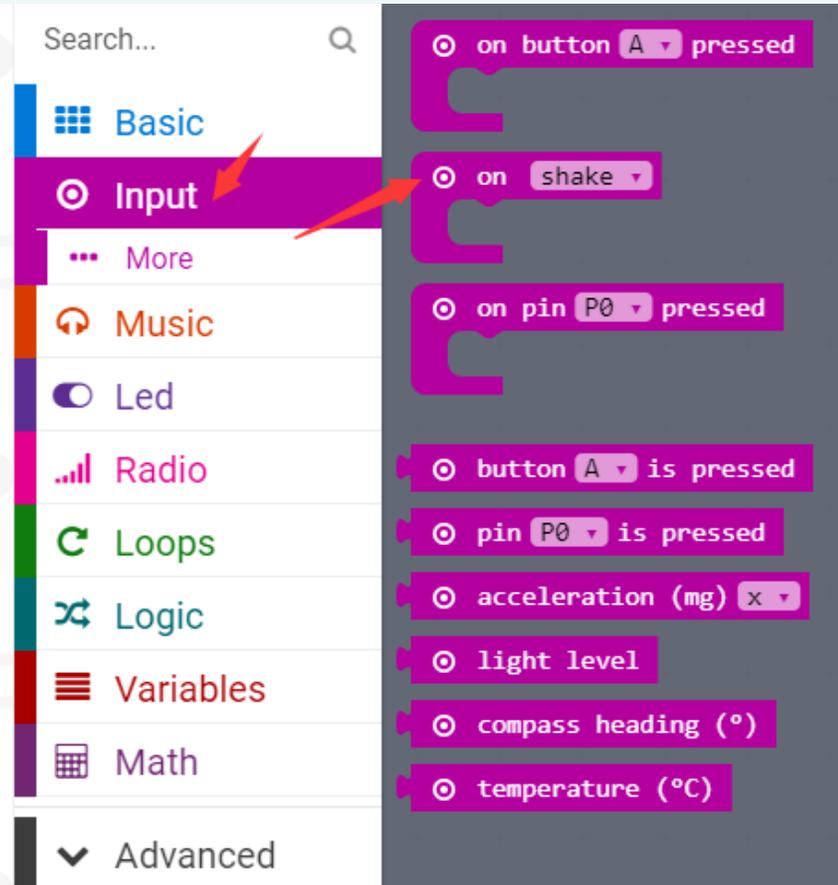
Hardware:

- 1 X Micro: bit Board
- 1 X Micro USB Cable
- 2 X AAA batteries

Then the micro:bit is connected to the computer through USB, and the computer will pop up a U disk and click the URL in the U disk to enter the programming interface.

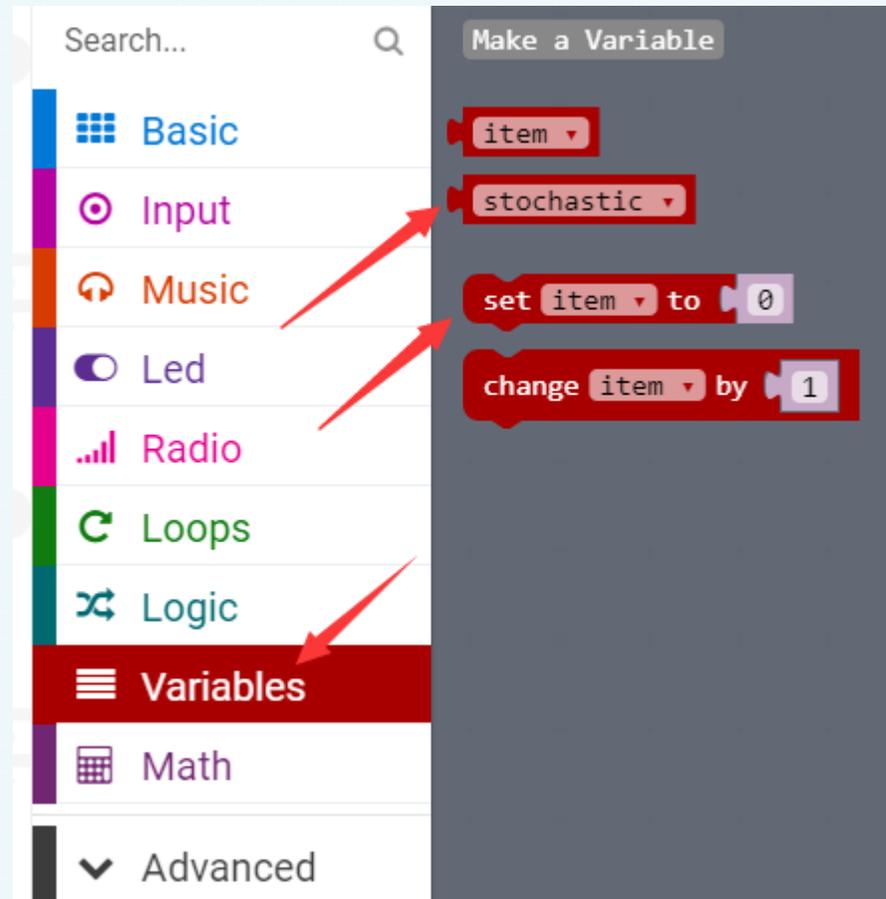
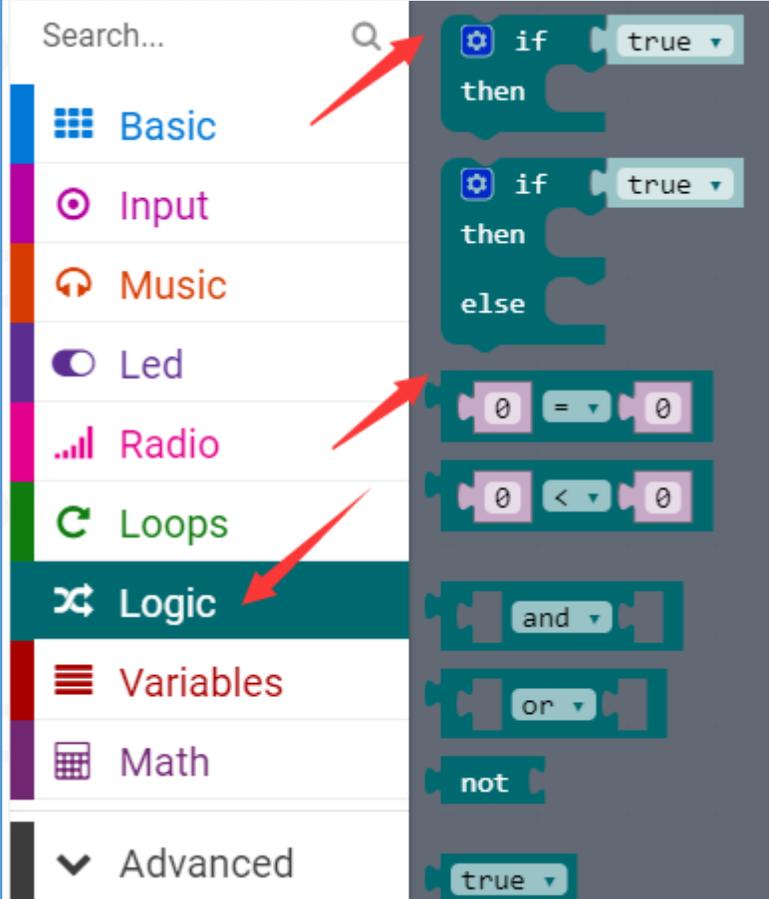
## Part 3

Search for blocks



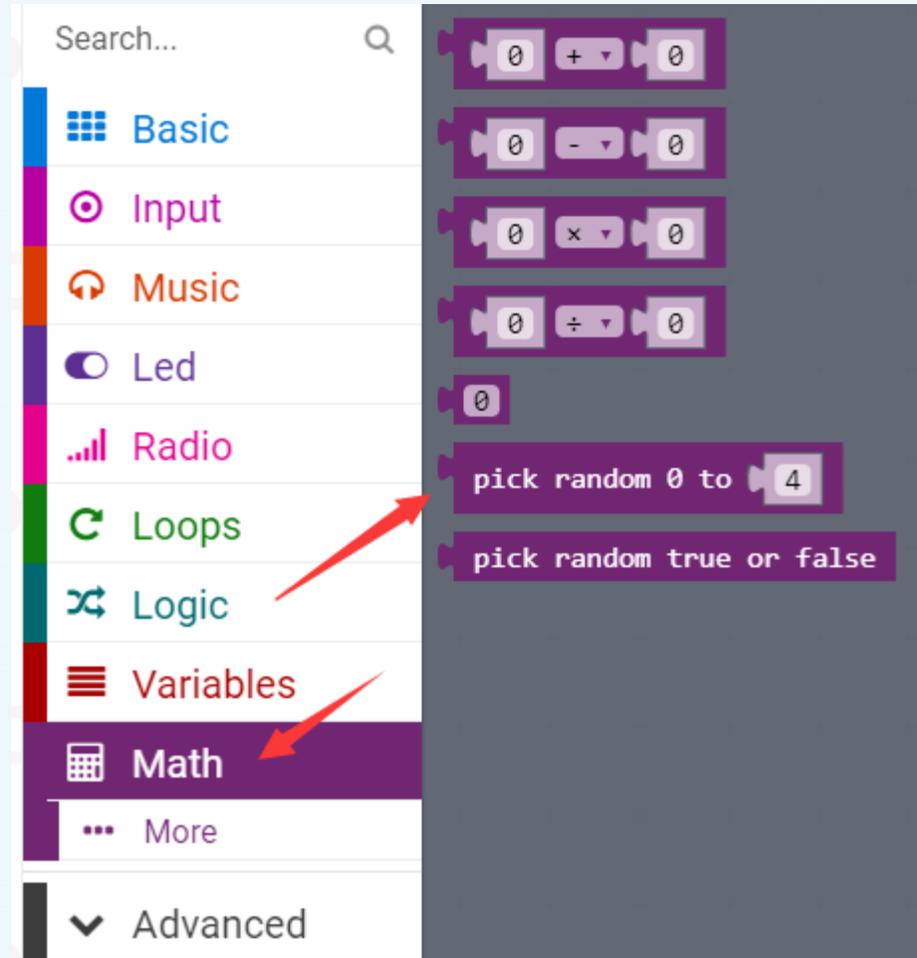
## Part 3

Search for blocks



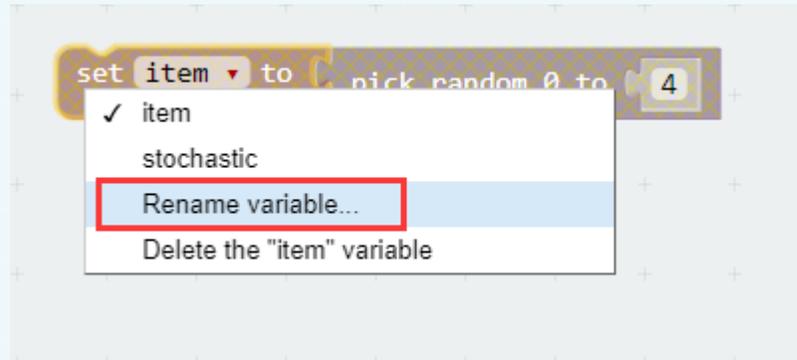
## Part 3

Search for blocks



## Part 3

Search for  
blocks

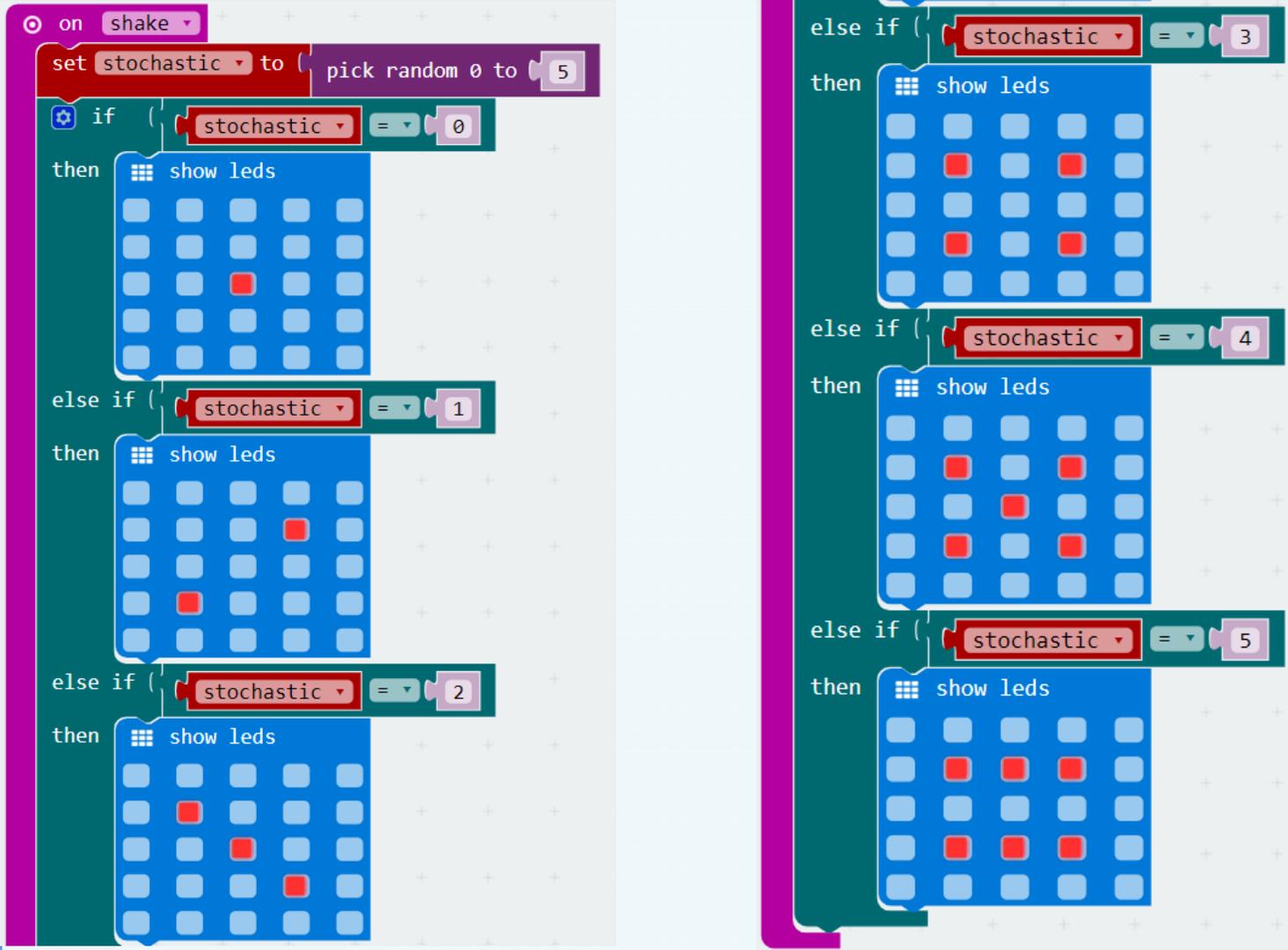


Rename all 'item' variables to:

Ok ✓ Cancel ✕

## Part 4

Combine blocks



```
on shake
  set stochastic to pick random 0 to 5
  if stochastic = 0
    then show leds
  else if stochastic = 1
    then show leds
  else if stochastic = 2
    then show leds
  else if stochastic = 3
    then show leds
  else if stochastic = 4
    then show leds
  else if stochastic = 5
    then show leds
```

The right blocks follow with the left

## Part 5

### Have a try

Do you learn the course today?  
If you learn to do it, give yourself a top quack.   
Now give you a homework assignment.

**On micro:bit, we can play a melody when we shake it.**

Start your little brain. Try it. 

## Lesson 8

micro:bit basic lesson 8 “Good morning, good night”



## Content



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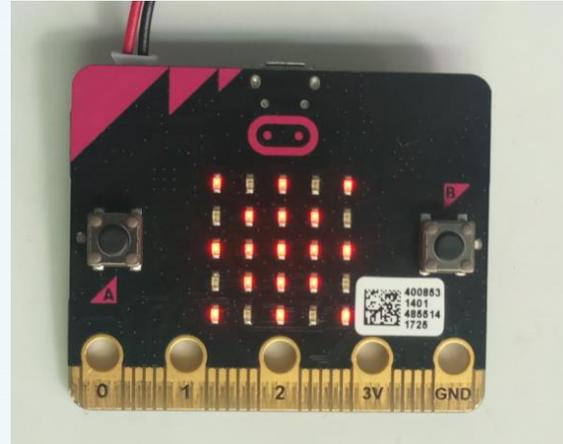
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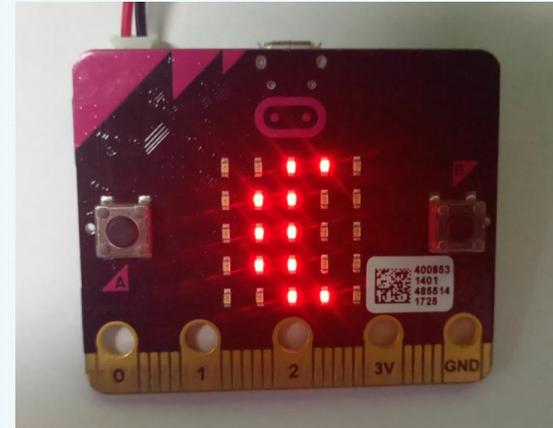
[Have a try](#)

## Part 1

### Learning goals



Sunlight  
(Good morning)



Moon  
(Good evening)

After downloading the program, When the micro:bit development board is in the brighter environment, a pattern of the sun will be displayed on the dot matrix, which means to say "good morning" to everyone. Similarly, when in a dark environment, the moon pattern will be displayed on the dot matrix, which means to say "good night" to everyone.

## Part 2

## Preparation

Hardware:

- 1 X Micro: bit Board
- 1 X Micro USB Cable
- 2 X AAA batteries

Then the micro:bit is connected to the computer through USB, and the computer will pop up a U disk and click the URL in the U disk to enter the programming interface.

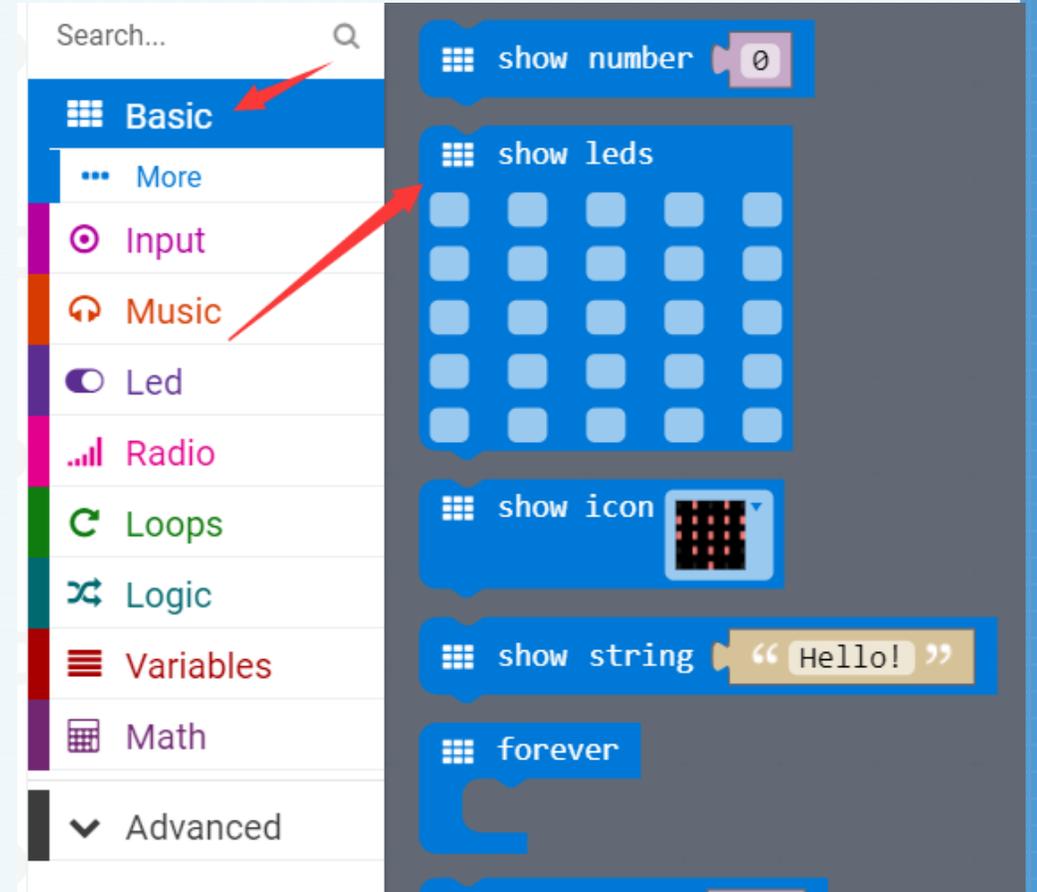
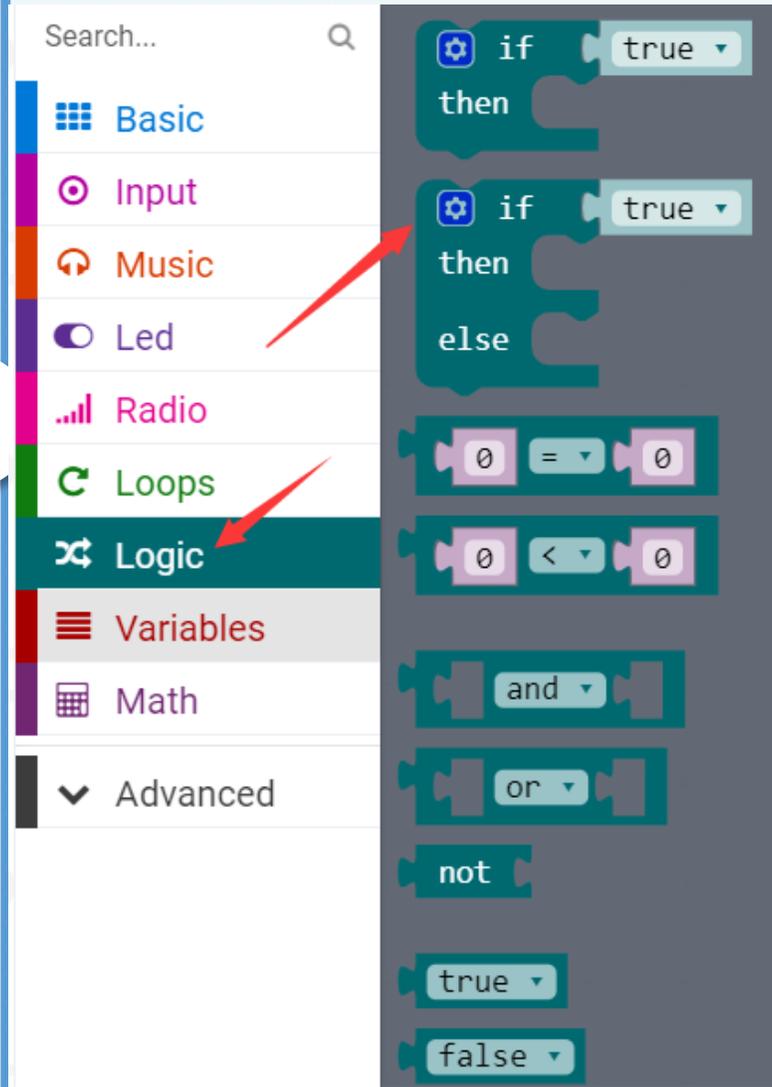
## Part 3

Search for blocks

The screenshot displays the micro:bit code editor interface. On the left, a sidebar menu lists various block categories: Basic, Input, Music, Led, Radio, Loops, Logic, Variables, Math, and Advanced. The 'Variables' category is highlighted in red. A search bar at the top of the sidebar contains the text 'Search...'. In the center workspace, a 'Make a Variable' block is active, showing a variable named 'item' with a dropdown arrow. Below it, two blocks are connected: 'set item to 0' and 'change item by 1'. On the right, another sidebar menu is visible, also with a search bar. The 'Input' category is highlighted in purple. A search bar at the top of this sidebar contains the text 'Search...'. The main workspace on the right shows a sequence of event-driven blocks: 'on button A pressed', 'on shake', 'on pin P0 pressed', 'button A is pressed', 'pin P0 is pressed', 'acceleration (mg) x', 'light level' (highlighted with a yellow box), 'compass heading (°)', and 'temperature (°C)'. Red arrows point from the 'Variables' category in the left sidebar to the 'item' variable block, and from the 'Input' category in the right sidebar to the 'light level' block.

## Part 3

Search for blocks



## Part 4

Combine  
blocks

```
forever loop
  set item to light level
  if (item <= 20)
    then
      show leds (5x5 grid with red LEDs in the center)
    else
      show leds (5x5 grid with red LEDs in the corners)
```

20 here is an intermediate value set freely, The meaning of building blocks is that: If the current light intensity is less than 20, the moon will appear on the dot matrix. If greater than 20, the sun will appear.

Median value: Put all the numbers in numerical order. If there is an odd number of results, the median is the middle number. If there is an even number of results, the median will be the mean of the two central numbers.

(in this course, you can set the middle value on your own).

## Part 5

Have a try

Do you learn the course today?

If you learn to do it, give yourself a top quack. 

Now give you a homework assignment.

**The value of the current luminance is displayed on the micro:bit dot matrix.**

**Children can use the mobile phone lights or turn off the lights at home to change the current brightness.**

Start your little brain. Try it. 

micro:bit  
project

Thanks for watching!

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