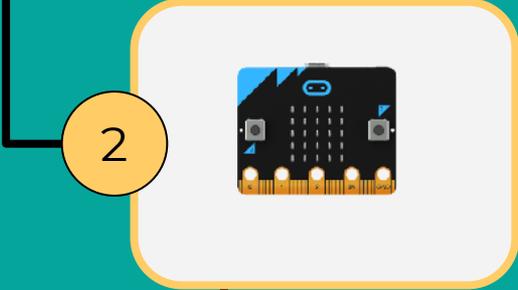




Click 'ADD DEVICE'  
Select device(s) from list



Connect the micro:bit battery



Click 'CONNECT'



Select device from list  
Click 'Pair'

Code a program that represents the door closed on M.A.S

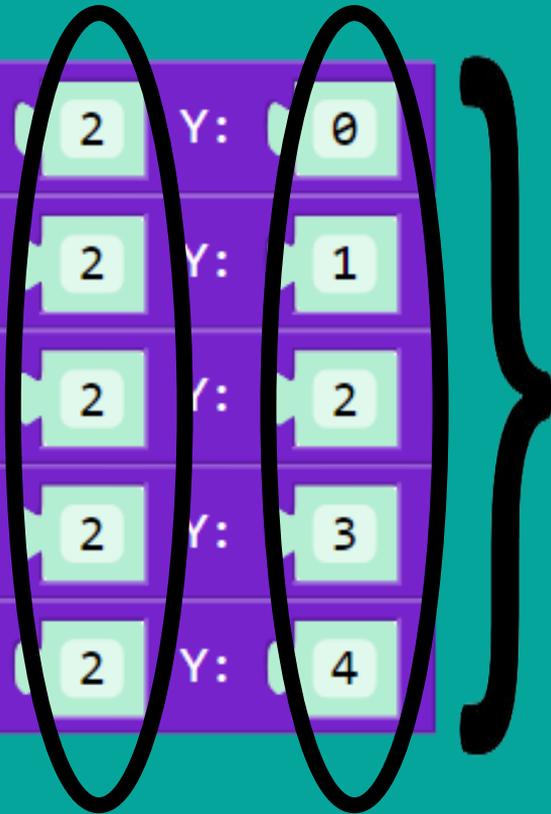
Rename the function by entering text.



```
to doorClosed
```

From 'Functions'

```
to doorClosed  
  on micro:bit plot X: 2 Y: 0  
  on micro:bit plot X: 2 Y: 1  
  on micro:bit plot X: 2 Y: 2  
  on micro:bit plot X: 2 Y: 3  
  on micro:bit plot X: 2 Y: 4
```



From  
'micro:bit'  
'Actions'



This creates another program on the workspace.

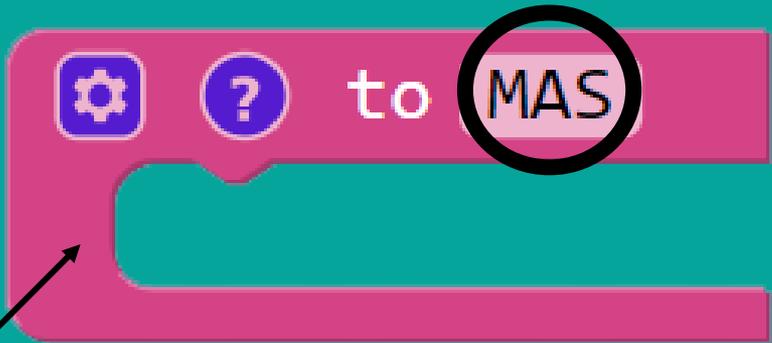
```
when micro:bit A is pressed  
  doorClosed
```

From 'micro:bit' 'Events'

From 'Functions'

Once a function is created, new blocks named the same are added to the 'Functions' tab.





From  
'Functions'

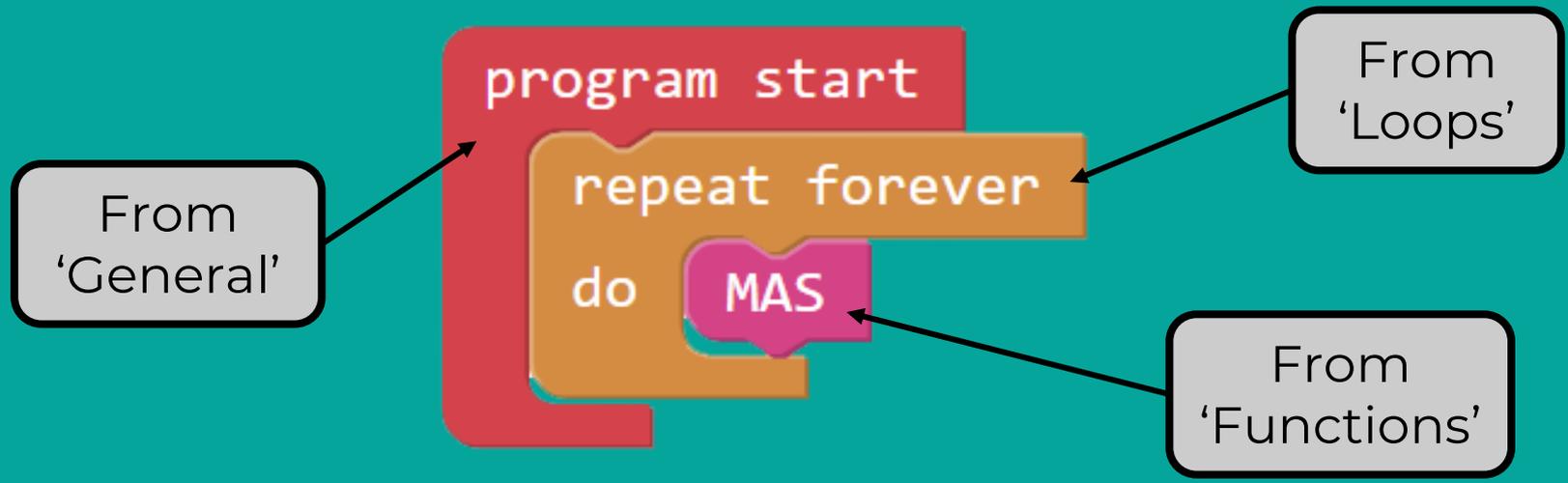
```
to MAS
  on micro:bit plot X: 0 Y: 2
  wait for 0.2 seconds
  on micro:bit unplot X: 0 Y: 2
  wait for 0.2 seconds
end
```

From 'micro:bit' 'Actions'

From 'General'

This function will create a flashing LED to indicate the presence of M.A.S.!





This program activates the 'MAS' function within the forever loop which means this program will keep going until it is stopped.



```

to doorClosed
  on micro:bit plot X: 2 Y: 0
  on micro:bit plot X: 2 Y: 1
  on micro:bit plot X: 2 Y: 2
  on micro:bit plot X: 2 Y: 3
  on micro:bit plot X: 2 Y: 4

```

```

to MAS
  on micro:bit plot X: 0 Y: 2
  wait for 0.5 seconds
  on micro:bit unplot X: 0 Y: 2
  wait for 0.5 seconds

```

```

when micro:bit A is pressed
  doorClosed

```

```

program start
  repeat forever
  do MAS

```

Test your program!

When the program runs, M.A.S.'s location will flash.

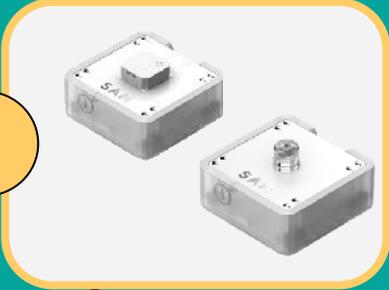
When the 'A' button is pressed, the LEDs will show 'door closed'.



1



Click 'ADD DEVICE'  
Select device(s) from list



Turn on the Buzzer and the Light Sensor

3



Click 'CONNECT'

4



Select device(s) from list  
Click 'Pair'

```
when micro:bit B is pressed
  on micro:bit display
  clear micro:bit LEDs
```

From  
'micro:bit'  
'Actions'

Code a program that activates an alert when Light Sensor values indicate the 'door' has been opened

Rename the function by entering text.



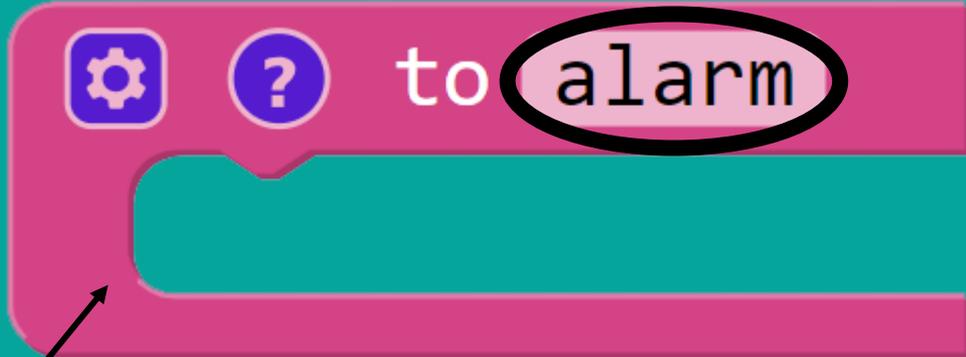
From 'Functions'

```
to doorOpen  
  clear micro:bit LEDs  
  on micro:bit plot X: 2 Y: 0  
  on micro:bit plot X: 3 Y: 1  
  on micro:bit plot X: 3 Y: 3  
  on micro:bit plot X: 2 Y: 4
```

From  
'micro:bit'  
'Actions'



From  
'micro:bit'  
'Actions'



From  
'Functions'

From 'General'

```
to alarm
  set Buzzer pitch to 100
  wait for 0.5 seconds
  set Buzzer pitch to 30
  wait for 0.5 seconds
```

From 'Buzzer' 'Actions'



```
when Light Sensor value changes  
  doorOpen  
  alarm
```

From  
'Light Sensor'  
'Events'

From  
'Functions'

```

to doorClosed
  on micro:bit plot X: 2 Y: 0
  on micro:bit plot X: 2 Y: 1
  on micro:bit plot X: 2 Y: 2
  on micro:bit plot X: 2 Y: 3
  on micro:bit plot X: 2 Y: 4
  
```

```

when micro:bit A is pressed
  doorClosed
  
```

```

to doorOpen
  clear micro:bit LEDs
  on micro:bit plot X: 2 Y: 0
  on micro:bit plot X: 3 Y: 1
  on micro:bit plot X: 3 Y: 3
  on micro:bit plot X: 2 Y: 4
  
```

```

to alarm
  set Buzzer pitch to 100
  wait for 0.5 seconds
  set Buzzer pitch to 30
  wait for 0.5 seconds
  
```

```

to MAS
  on micro:bit plot X: 0 Y: 2
  wait for 0.5 seconds
  on micro:bit unplot X: 0 Y: 2
  wait for 0.5 seconds
  
```

```

program start
  repeat forever
    do MAS
  
```

```

when Light Sensor value changes
  doorOpen
  alarm
  
```

```

when micro:bit B is pressed
  on micro:bit display
  clear micro:bit LEDs
  
```



There are four functions within this program:

'doorClosed':  
a straight line  
displays

```
to doorClosed
  on micro:bit plot X: 2 Y: 0
  on micro:bit plot X: 2 Y: 1
  on micro:bit plot X: 2 Y: 2
  on micro:bit plot X: 2 Y: 3
  on micro:bit plot X: 2 Y: 4
```

'doorOpen':  
four LEDs  
display

```
to doorOpen
  clear micro:bit LEDs
  on micro:bit plot X: 2 Y: 0
  on micro:bit plot X: 3 Y: 1
  on micro:bit plot X: 3 Y: 3
  on micro:bit plot X: 2 Y: 4
```

'alarm':  
Buzzer two-  
tone alert

```
to alarm
  set Buzzer pitch to 100
  wait for 0.5 seconds
  set Buzzer pitch to 30
  wait for 0.5 seconds
```

'MAS':  
an LED  
flashes

```
to MAS
  on micro:bit plot X: 0 Y: 2
  wait for 0.5 seconds
  on micro:bit unplot X: 0 Y: 2
  wait for 0.5 seconds
```

```
program start
  repeat forever
    do MAS
```

```
when Light Sensor value changes
  doorOpen
  alarm
```

```
when micro:bit B is pressed
  on micro:bit display
  clear micro:bit LEDs
```