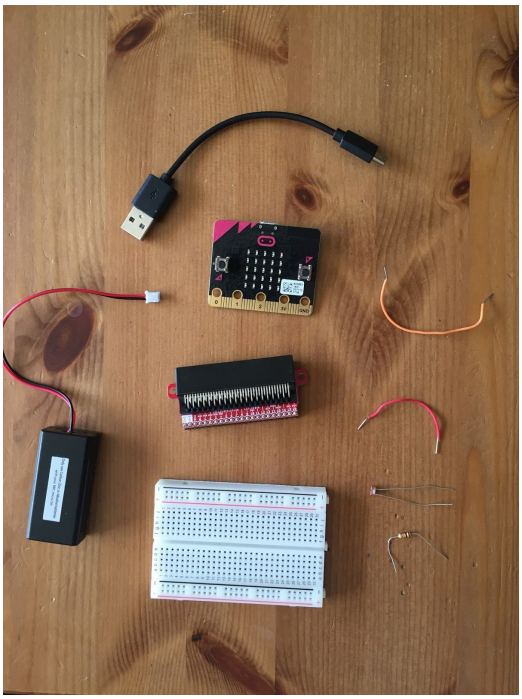
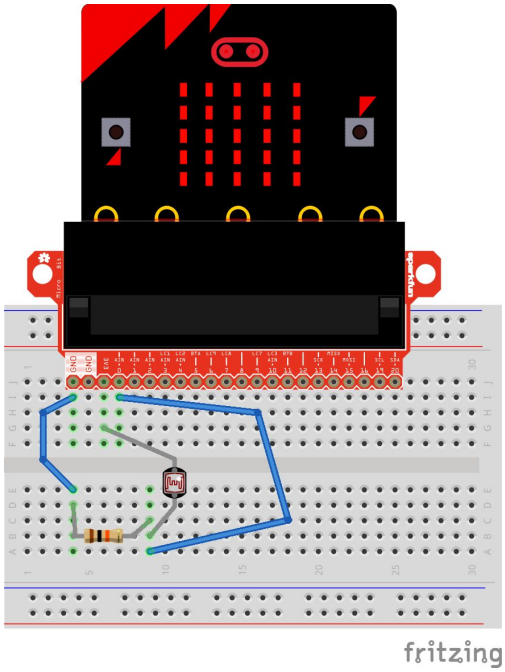
Light Sensor Breakout Board

Reference:
https://www.andreagrandi.it/2016/02/08/using-a-light-sensor-with-bbc-microbit-and-micropython/

A simple light sensor can be created using a Micro:bit combined with a breakout board and breadboard. To start collect the parts below and carefully wire up the design below.

Materials:

- 1 Micro:bit
- 1 battery pack (with 2 AAA batteries)
- 1 micro USB cable
- 1 micro photo cell
- 1 10,000Ω resistor
- 2 connecting wires
- 1 bread board
- 1 breakout board (https://www.sparkfun.com/products/13989)

Parts	Wiring
	

Once this is built, you will need to go into a code editor (https://makecode.microbit.org/) and create the code below.

Code:

1) Start with a forever block

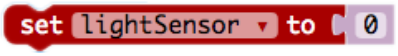
2) Go to the 

category and click 

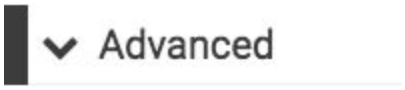
at the top of the window.

3) Name the variable “lightSensor”.

4) Drag in a 

block and change it to 

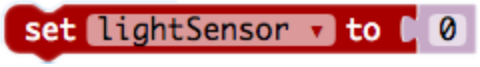
by clicking the down arrow.

5) Click the 

drop-down to reveal more possible block types.

6) Go to the 

category and select the 

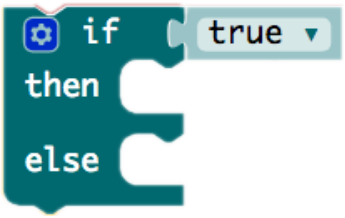
block. Connect it to the end of the 

block. The result should be:

Please note, the pin that is the “analog read pin” is set to “P0”. This corresponds to which pin you wired similar to above.

7) Now you need to determine if the light amount is ‘high’ or ‘low’. To do this, you will need to use an “if...then...else…” conditional. Go to 

drop-down to find and use the block below:

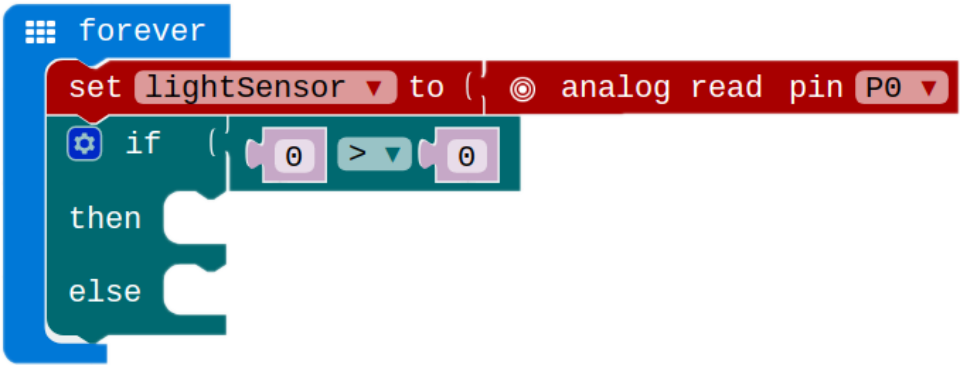


And insert it into the forever loop.

8) Now you need to set the conditions that you are comparing. First, go to 

and locate the comparison block 

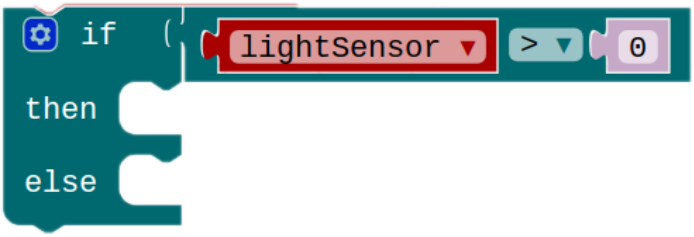
and change the “=” sign to “>” (as in the image). Connect this block into the “if...then...else” block



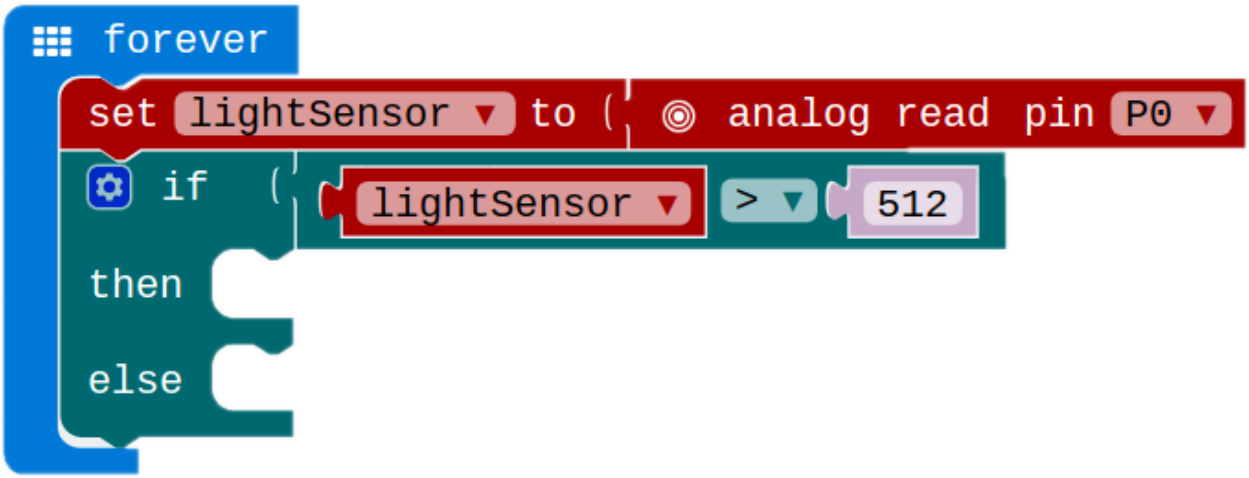
9) Now you will need to compare the reading of the light sensor to a set value. First go to 

and select the variable block 

and insert it into the if statement like:

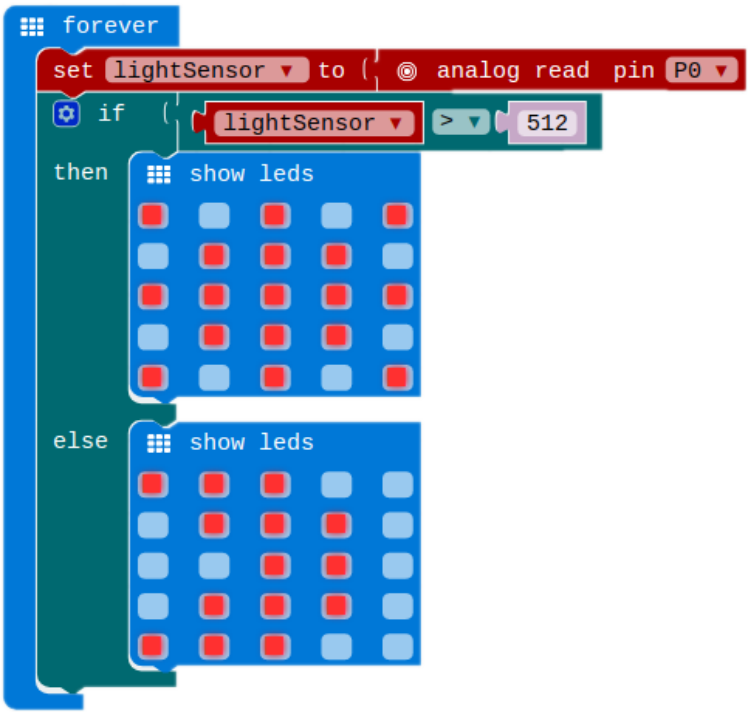


Now, set the 'zero' in your if statement to 512. This number is an arbitrary number. Once this project is built, try increasing and decreasing this number to see the effect on the 'sensitivity' of the project.



10) Finally, you can decide what you want to happen if it is 'bright' - lightSensor reading a value of more than 512; or 'dim' - lightSensor reading a value of less than 512. For this example, we have set the LED display to show a 'sun' for bright and 'moon' for dim.

Final Result:



Python Code:

```
# Add your Python code here. E.g.
from microbit import *

while True:
    lightSensor = pin0.read_analog()
    if lightSensor > 512:
        sun = Image("90909:"
                    "09990:"
                    "99999:"
                    "09990:"
                    "90909")
        display.show(sun)
    elif lightSensor < 512:
        moon = Image("99900:"
                     "09990:"
                     "00990:"
                     "09990:"
                     "99900")
        display.show(moon)
```