



**raspikidd**



**Internet  
Required**

**USING A LIGHT  
DEPENDANT RESISTOR**

**WITH**

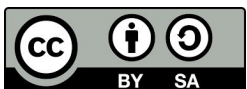
**KITRONIK INVENTOR'S KIT**

**AND**



**EduBlocks**

**Making the transition from  
Scratch to Python easier**

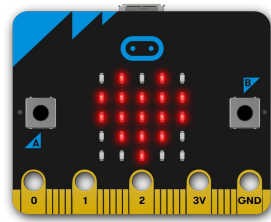


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# USING A LIGHT DEPENDANT RESISTOR



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## OBJECTIVE

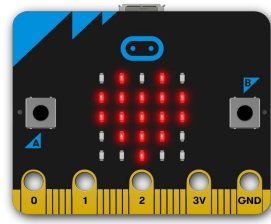
We are going to use an LDR (Light Dependant Resistor) to make the micro:bit LED matrix change depending on whether it is light or dark by reading the analog voltage which allows the micro:bit to react depending on the amount of light.

## WHAT YOU WILL NEED

- A micro:bit
- Kitronik Inventor's Kit
- Micro USB cable
- A Computer to Program the micro:bit
- Battery pack for micro:bit (optional)



# USING A LIGHT DEPENDANT RESISTOR



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## GETTING STARTED

1. Go to a web browser (e.g. Chrome) on your chosen computer whether it be PC Mac or Raspberry Pi.
2. Type the following web address in the search bar of your web browser or click on the link below:

<https://microbit.edublocks.org/>

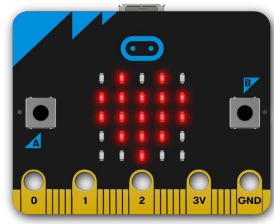
## CREATING THE CIRCUIT

From the Kitronik inventor's kit you will need:

- 1 x LDR (Light Dependent Resistor)
- 1 x 10k ohm resistor
- 3 x Male to Female Jumper wires



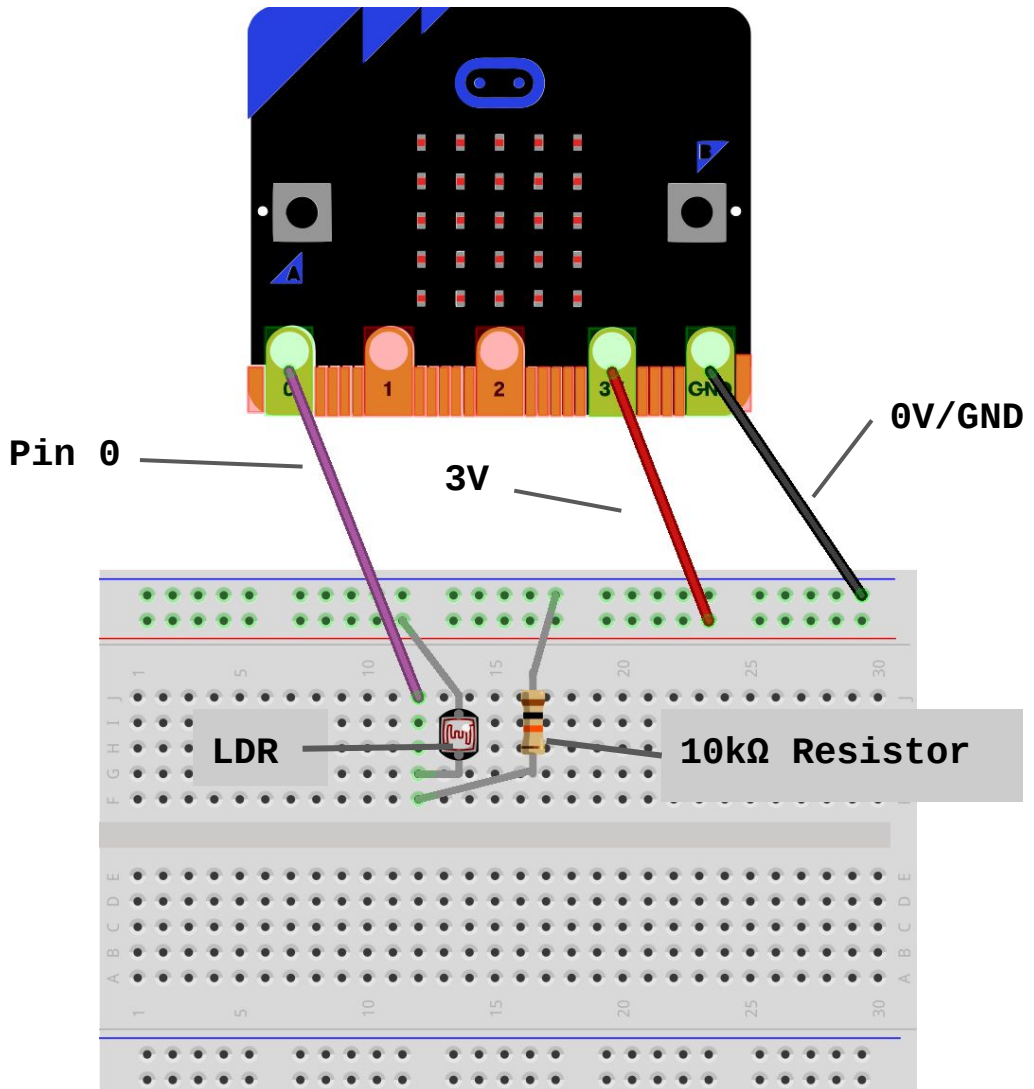
# USING A LIGHT DEPENDANT RESISTOR



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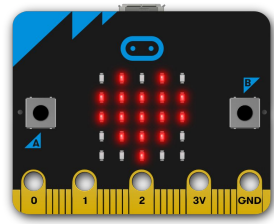
## CREATING THE CIRCUIT

Your circuit should look like the image below, but with the edge connector attached to the micro:bit





# USING A LIGHT DEPENDANT RESISTOR



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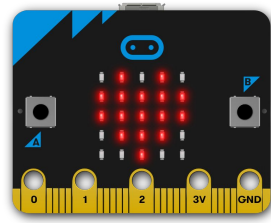
## CODING

Now we can create some code. The pink blocks are located in the basics menu and the green blocks are located in the display menu.

```
from microbit import *  
  
sun = (" 9 0 9 0 9 :"  
       " 0 9 9 9 0 "  
       " 9 9 9 9 9 "  
       " 0 9 9 9 0 "  
       " 9 0 9 0 9 ")  
  
moon = (" 9 9 9 0 0 "  
        " 0 9 9 9 0 "  
        " 0 0 9 9 0 "  
        " 0 9 9 9 0 "  
        " 9 9 9 0 0 ")  
  
while True:  
    light = pin0.read_analog()  
    if light > 512 :  
        display.show( sun )  
    else:  
        display.show( moon )
```



# USING A LIGHT DEPENDANT RESISTOR



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## **RUNNING THE CODE**

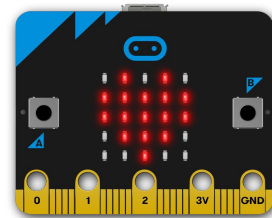
1. Click on download .hex. This will download the .hex file to your computer.
2. Plug your micro:bit into your computer using the MicroUSB cable.
3. Copy the .hex file to your micro:bit
4. Wait for the light on the back of the micro:bit to stop flashing.
5. Put your finger over the LDR to see what happens.

## **WHAT WILL HAPPEN**

Once the LED on the back of the micro:bit has stopped flashing, you should see an image of a sun displayed on the LED matrix. Cover the LDR with your finger and you should see an image of a moon appear on the LED matrix.



# USING A LIGHT DEPENDANT RESISTOR



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## **FINAL WORDS**

Well done you have completed the second project in the Kitronik inventor's kit. Continue with the next project for more electronics and EduBlocks fun.