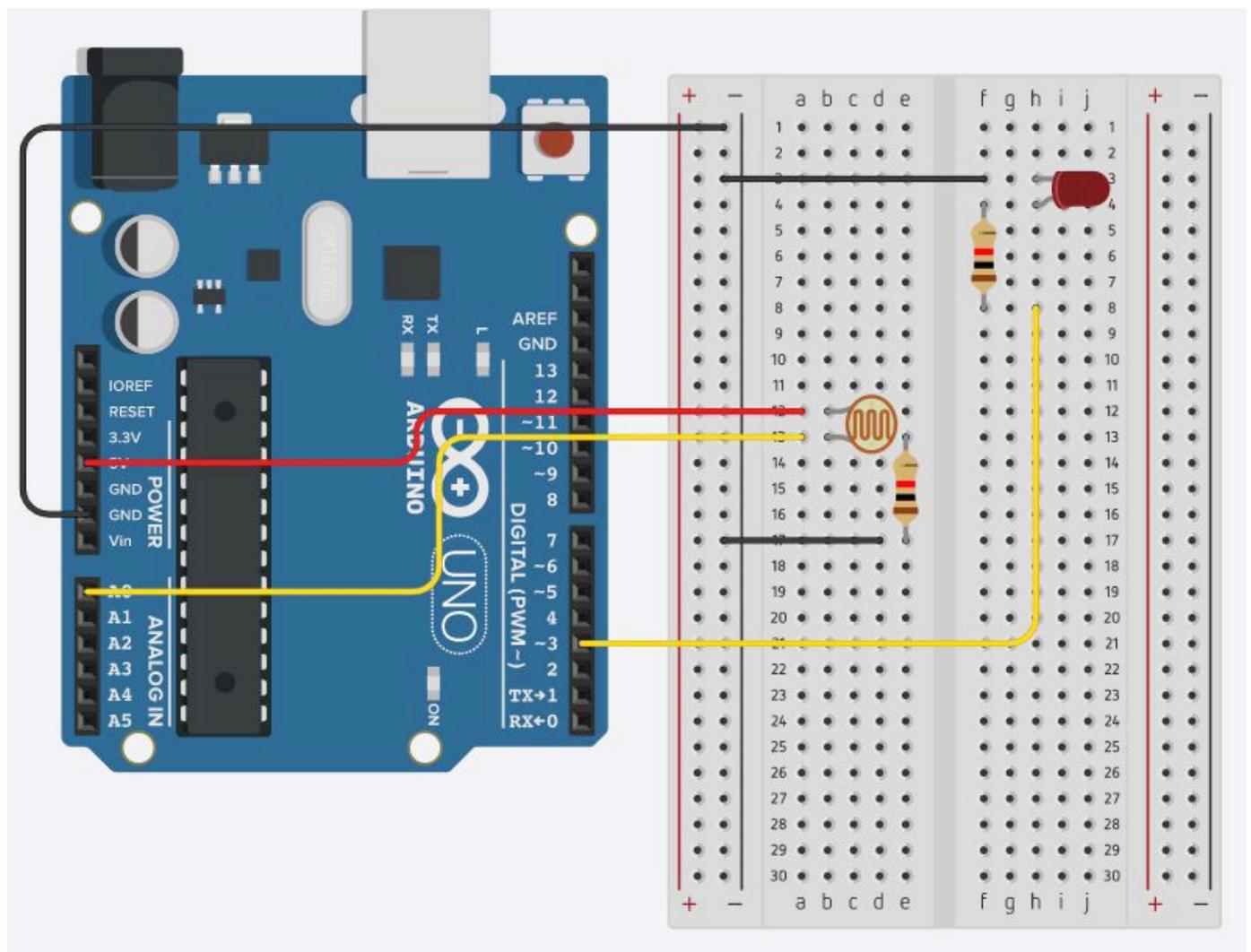


LED Dimmer with Sensor

The Circuit

The colours of the wires does not matter as long as they are in the correct position.



LED Dimmer with Sensor

The Code

```
int sensorPin = 0;
int lightPin = 3;

int darkest = 460;
int lightest = 620;

void setup() {
  Serial.begin(9600);
  pinMode(lightPin, OUTPUT);
}

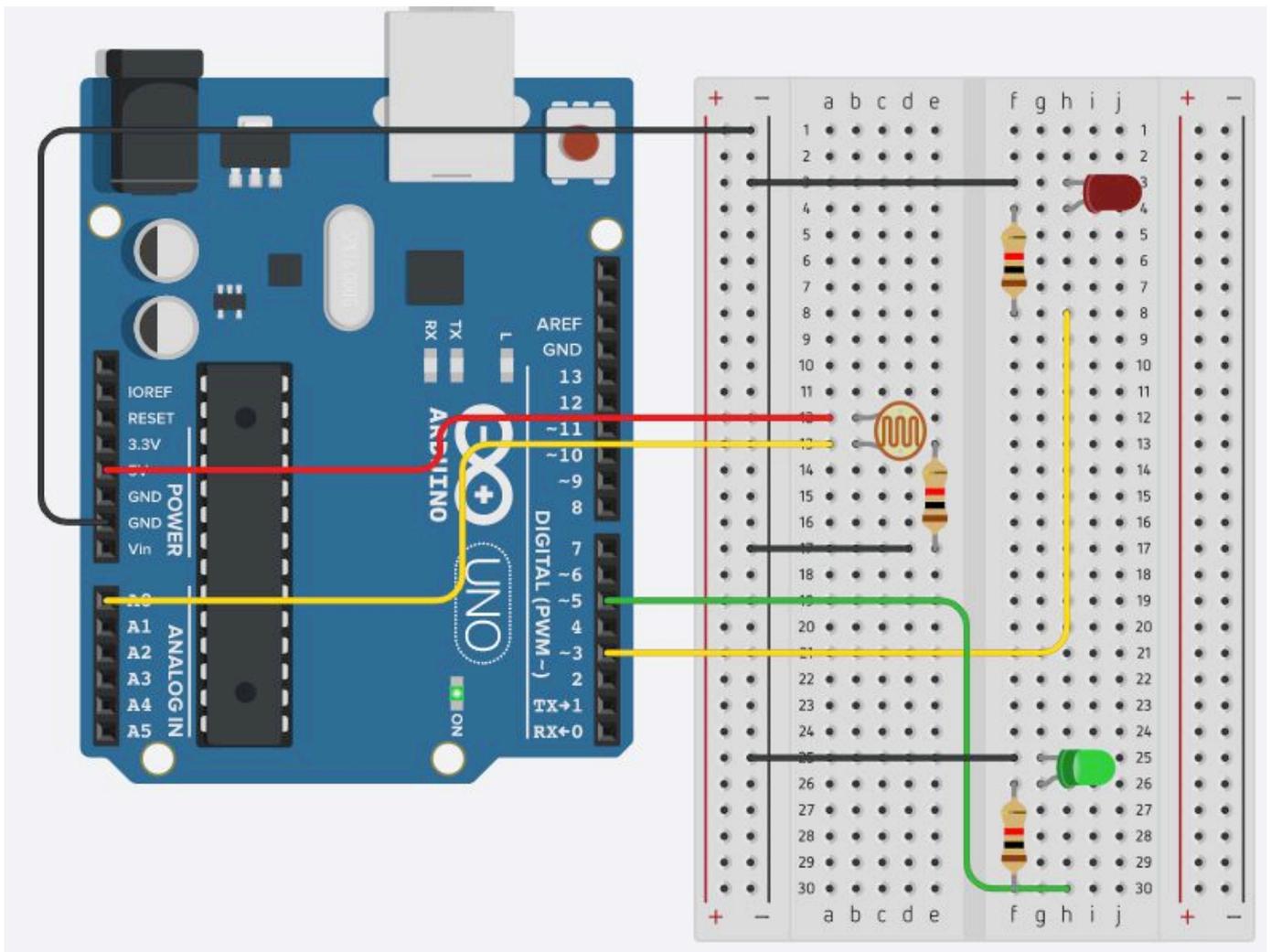
void loop() {
  int sensorValue = analogRead(sensorPin);
  Serial.println(sensorValue);
  int brightness = setBrightness(sensorValue);
  analogWrite(lightPin, brightness);
}

int setBrightness(int value) {
  value = max(value, darkest);
  value = min(value, lightest);
  value = map(value, darkest, lightest, 0, 255);
  value = 255 - value;
  return value;
}
```

Two LEDs

The Circuit

The colours of the wires does not matter as long as they are in the correct position.



Two LEDs

The Code

```
int sensorPin = 0;
int redLightPin = 3;
int greenLightPin = 5;
int threshold = 500;

void setup() {
  Serial.begin(9600);
  pinMode(redLightPin, OUTPUT);
  pinMode(greenLightPin, OUTPUT);
}

void loop() {
  int sensorValue = analogRead(sensorPin);
  Serial.println(sensorValue, DEC);

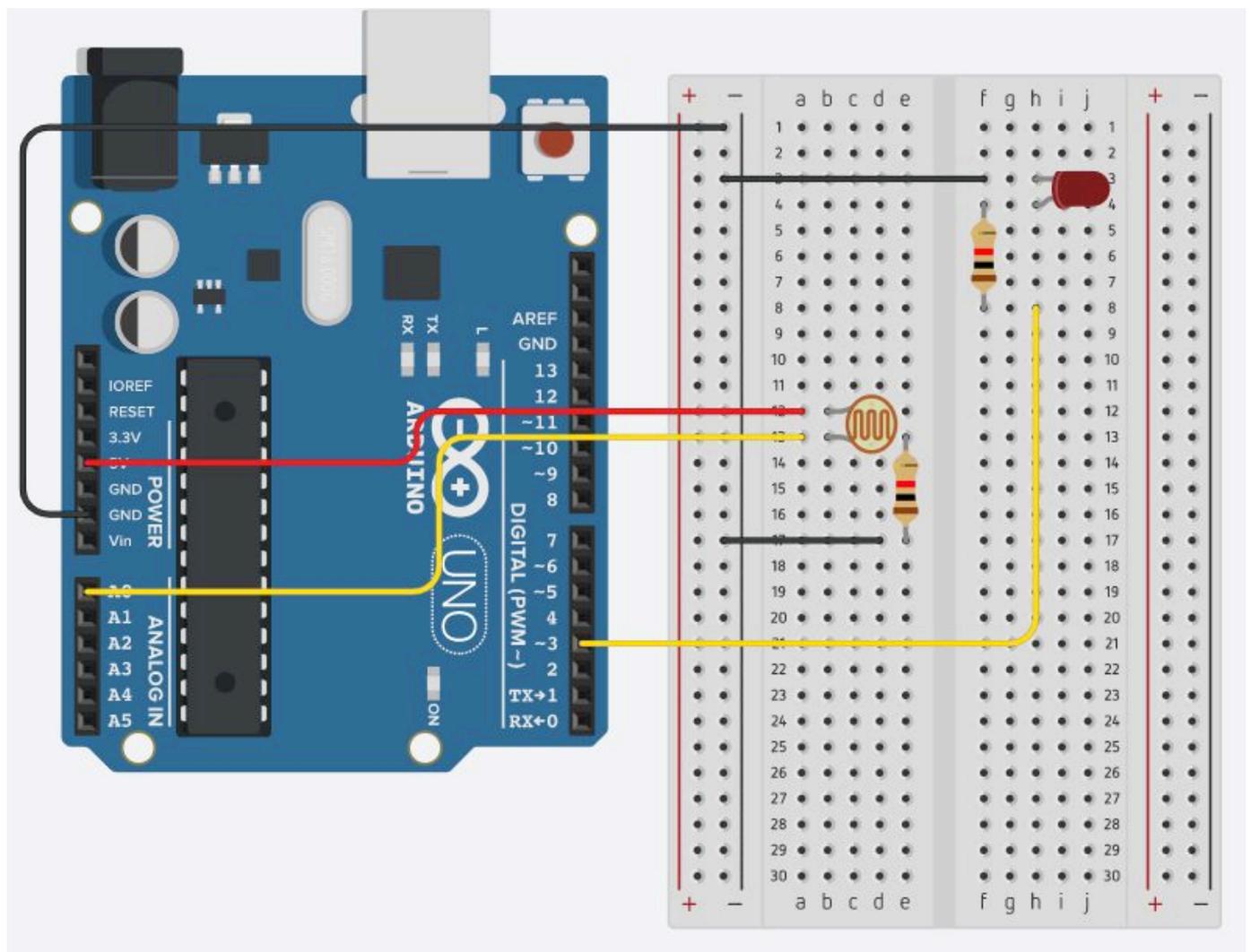
  if (sensorValue < threshold){
    digitalWrite(greenLightPin, HIGH);
    digitalWrite(redLightPin, LOW);
  }

  if (sensorValue > threshold){
    digitalWrite(greenLightPin, LOW);
    digitalWrite(redLightPin, HIGH);
  }
}
```

Smart Light

The Circuit

The colours of the wires does not matter as long as they are in the correct position.



Smart Light

The Code

```
int sensorPin = 0;
int lightPin = 3;
int threshold = 400;

void setup() {
  Serial.begin(9600);
  pinMode(lightPin, OUTPUT);
}

void loop() {
  int sensorValue = analogRead(sensorPin);
  Serial.println(sensorValue, DEC);
  if (sensorValue < threshold) {
    digitalWrite(lightPin, HIGH);
  }
  if (sensorValue > threshold) {
    digitalWrite(lightPin, LOW);
  }
}
```

Don't forget to set the threshold to be a value that is useful to your surroundings/lighting conditions.

Upload Instructions

Upload Instructions

Once you have finished you'll need to verify the code is correct in order to upload it to the Arduino. If when you click **verify** any errors pop up then fix these before continuing.



Next connect the Arduino to the laptop via the USB cable. Then select the correct port using **Tools > Port > ArduinoUno**. This will typically be called something like **dev/cu.usbmodem1401** or the one that is called **dev/Arduino** (Arduino/Genuino Uno).

Now you can click **download**, to put the code onto the Arduino.

Now test your circuit works!

If you have any issues check the monitor **Tools > Serial Monitor** and see whether the sensor is printing out values. These should change based on the amount of light it receives.

You may have to change your threshold or variables in order for the light to turn on when you expect it to. E.g. if when you cover the sensor the value printed to the serial monitor is ~500 then perhaps change your threshold to 550 instead of 400.