Sensing Light and Outputting Sound

Y9 Digital Electronics Lesson 4

Task 1: Reading Light Levels

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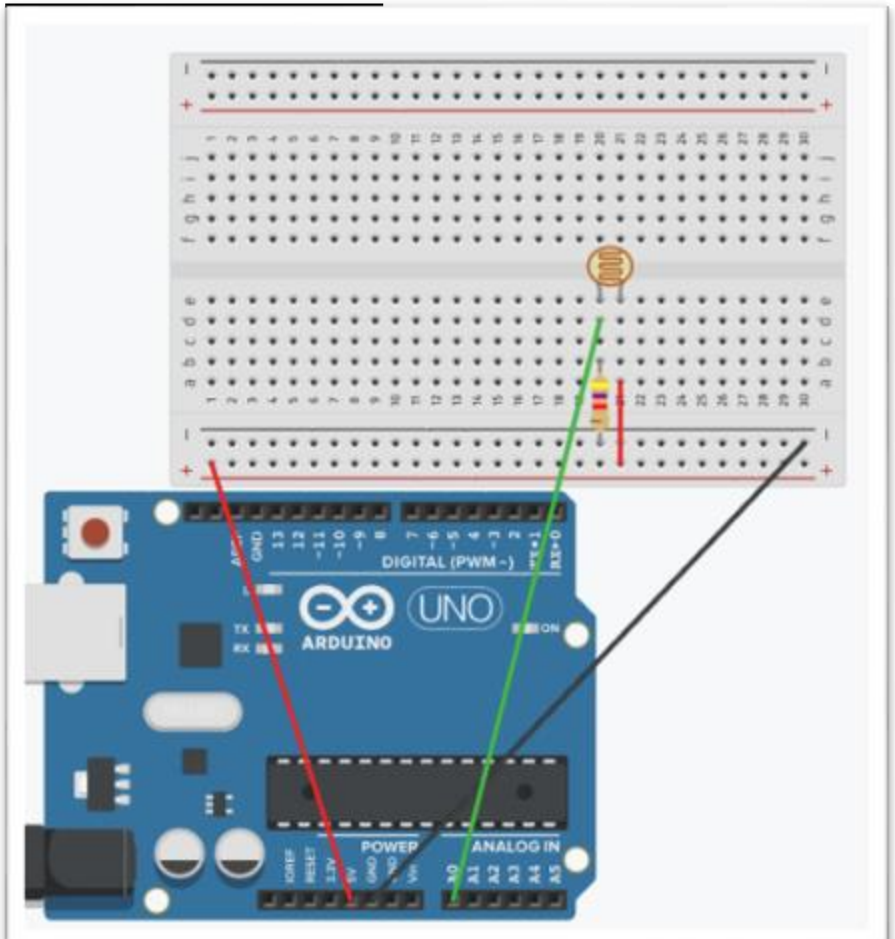
A photo resistor uses light to reduce the voltage of energy passing through a circuit. Create the circuit and program below to measure the light levels and output them to the consol.

The Circuit



The Code

```
1
2  int sensorValue = 0;
3
4  void setup()
5  {
6    pinMode(A0, INPUT);
7    Serial.begin(9600);
8  }
9
10 void loop()
11 {
12   // read the value from the sensor
13   sensorValue = analogRead(A0);
14   // print the sensor reading so you know its range
15   Serial.println(sensorValue);
16
17 }
```

Task 2: Adding an LED output

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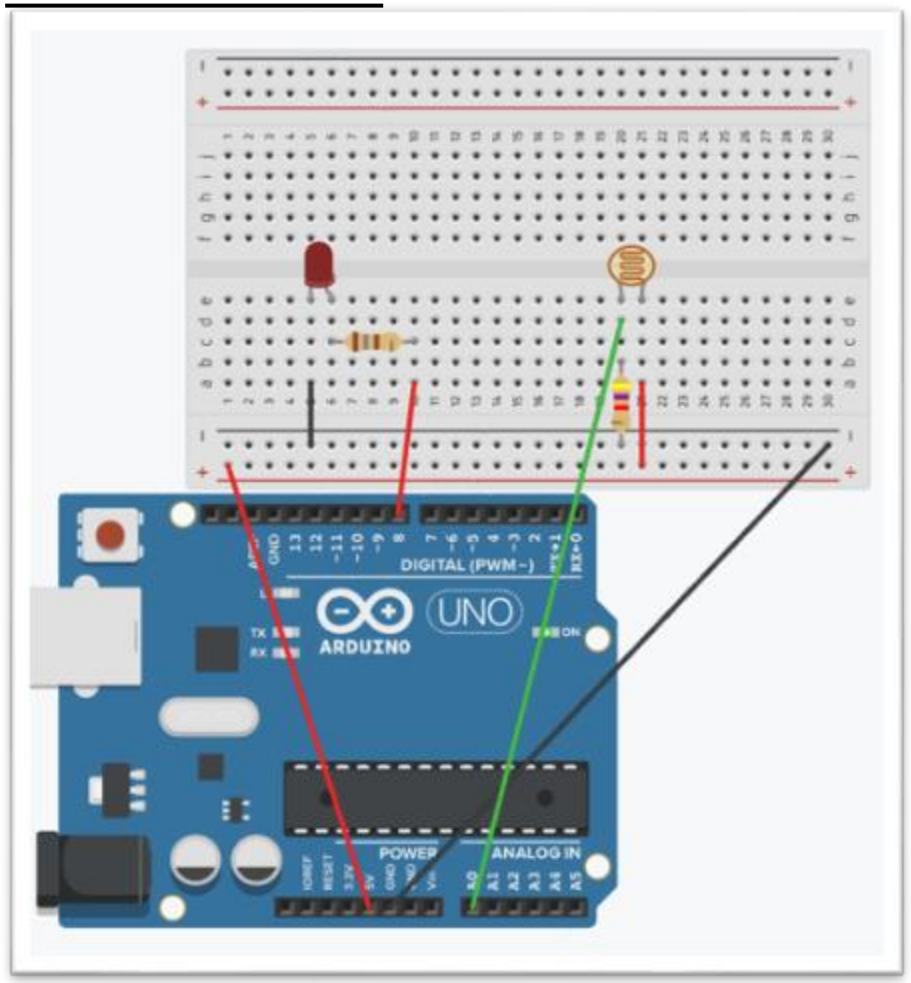
Add an LED which lights up if the temperature is above 20 degrees. You will need to adjust your code to send an output to an LED if the temperature variable > 20.

The Circuit



The Code

```
int sensorValue = 0;

void setup()
{
  pinMode(A0, INPUT);
  pinMode(8, OUTPUT);
  Serial.begin(9600);
}

void loop()
{
  // read the value from the sensor
  sensorValue = analogRead(A0);
  // print the sensor reading so you know its range
  Serial.println(sensorValue);

  if(sensorValue < 200){

    digitalWrite(8, HIGH);

  }else{

    digitalWrite(8, LOW);

  }

}
```

Task 3: Independent Challenge

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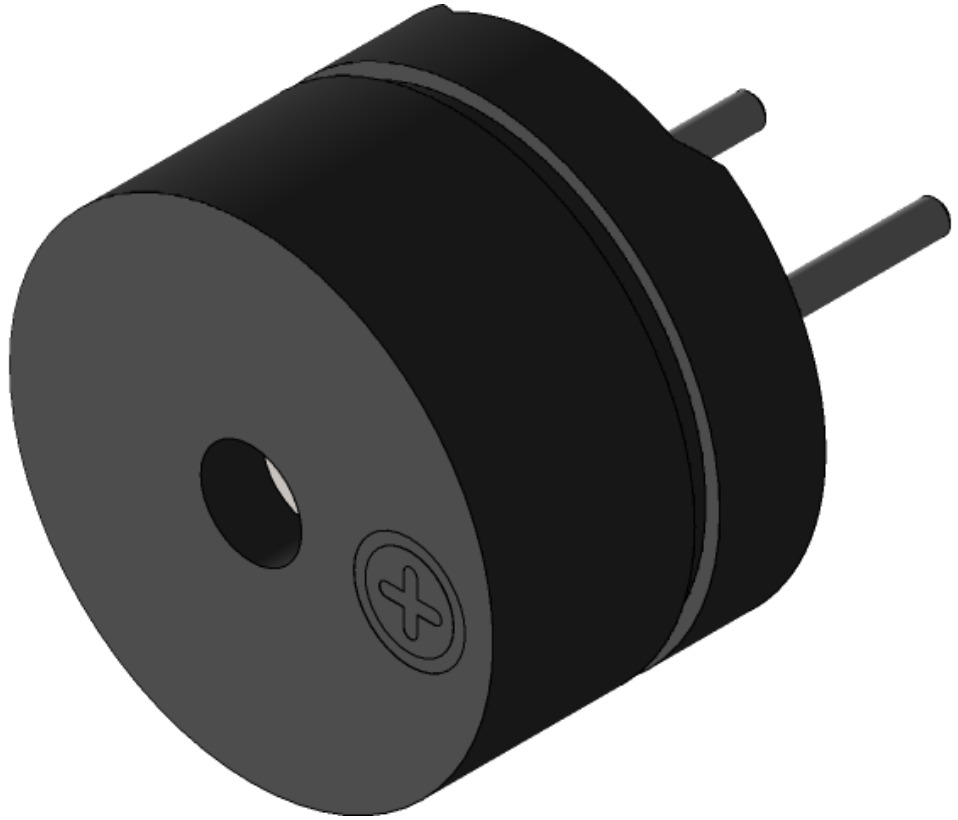
A buzzer can be used to emit sound from the circuit.

Add a buzzer to your circuit which emits a sound when the light levels hit 0.



Your circuit should:

- Power should leave through a pin on the Arduino.
- Go through a 200 ohm resistor.
- Enter the + leg of the buzzer.
- Return to ground.