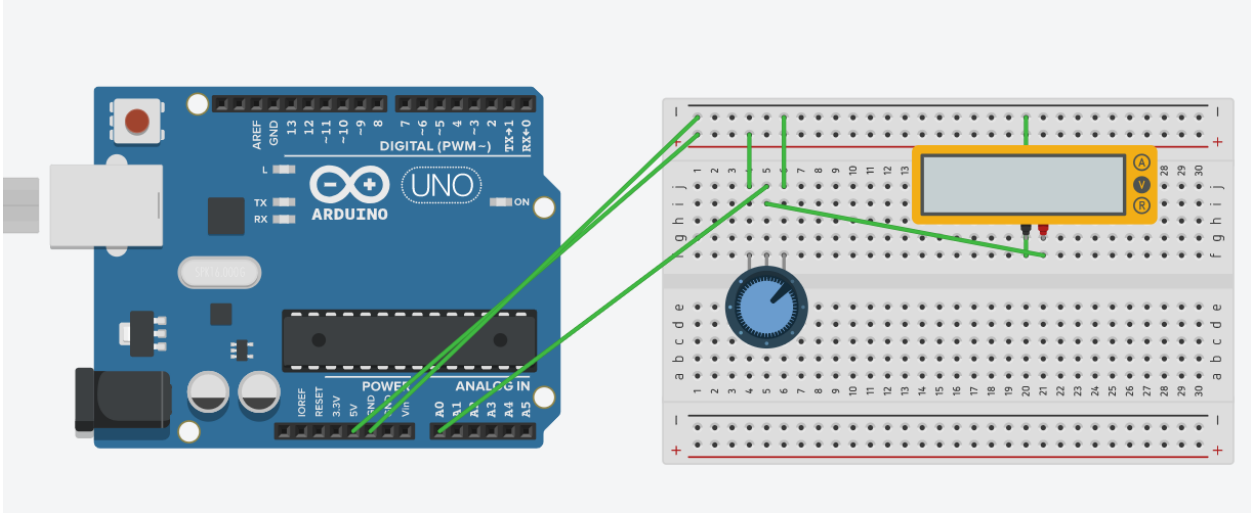
COMP 1045 Lab 3

Circuit diagram: Connect a potentiometer and a multimeter to the bread board



Level 1: Upload the source code and run it to show that the voltage changes when you rotate the potentiometer. Also open up the serial monitor on the bottom to see what values you can read from the rotation sensor.

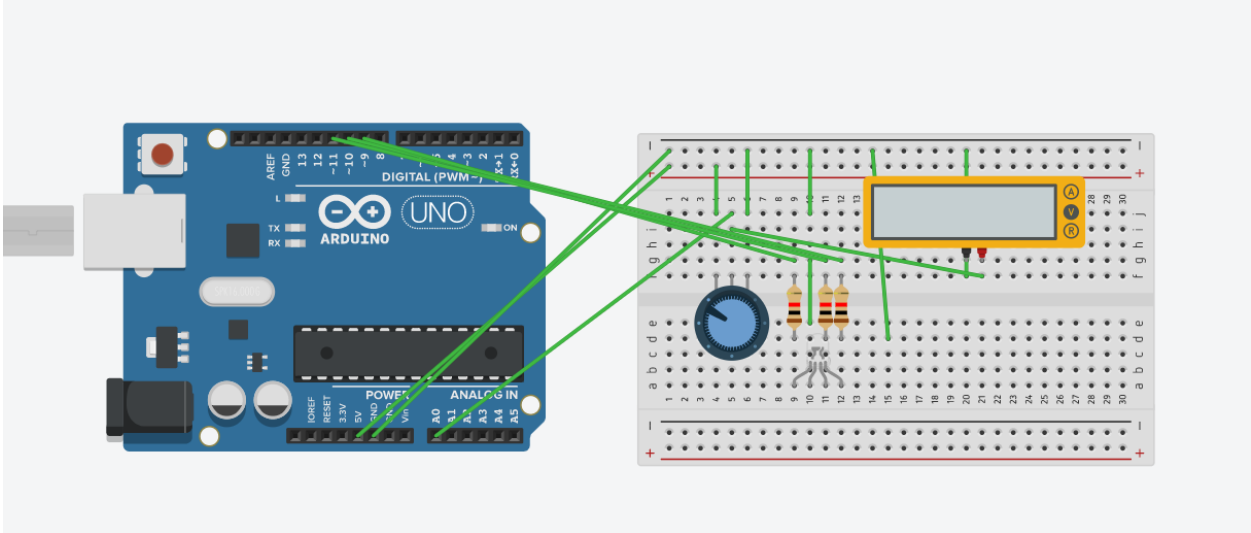
Source code:

```
int rotationPin = A0; //The rotation sensor is plugged into pin A0 of the Arduino.
int data=0;           //Used to store data from sensor.

void setup() { //The Setup function runs once.
Serial.begin(9600); //This will enable the Arduino to send data to the Serial
//monitor.
pinMode(rotationPin,INPUT);
}

void loop() { //The loop function runs forever.
data = analogRead(rotationPin);  //Read the value from the light sensor and store it
//in the lightData variable.
Serial.print("Rotation value =");
Serial.println(data);  //Print the data to the serial port.
delay(1000);           //Wait 1 second (1000mS) before running again.
}
```

Level2: Write a program that displays the following color sequence on the RGB LED (D9-D11) Red, Green, Blue. The speed at which the color changes is controlled by Rotation dial A0 on the board. As you turn the dial the speed of the RGB changes. When the dial is at zero the RGB speed is the slowest, when the dial is at max the speed is at max.



Level 3: Use the rotation sensor to cycle through the colours of the rainbow. (ROYGBP) depending on the value of the rotation sensor. (exL 0-150 = red from 150-300= Orange). Look up the RGB value for each colour and use analogWrite() to get the proper colours.

Level 4: Create a code that asks the user to input a pattern of colours using R, G or B. Then display that sequence of colours. Ex: "Please input any combination of R, G or B letters". You can assume that they will not use other letters. Reference 1 Reference 2

Extra challenge: Add other colours to the choices available to the user; C = cyan, M = Magenta, Y = Yellow, W = White. Additionally create two functions. The first performs error checking of the user's input to validate the letter. The second function is used to display the desired colour, using the user's input as a parameter.