Electronics Lesson 7

Overview

In this lesson students will learn how to wire and code an RGB LED.

Plan

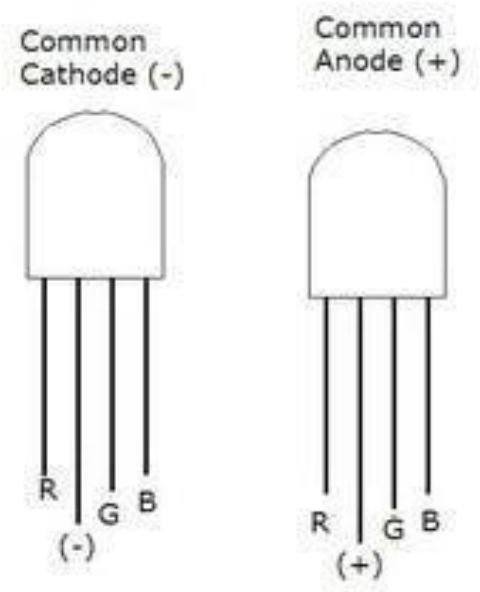
1. Cathode VS Anode
2. RGB LED
3. Free Play

Big Concept #1: Cathode VS Anode

Instructor: RGB LEDs have two different types of LEDs. Cathode and anode. You cannot tell if an RGB LED is a cathode or anode LED.

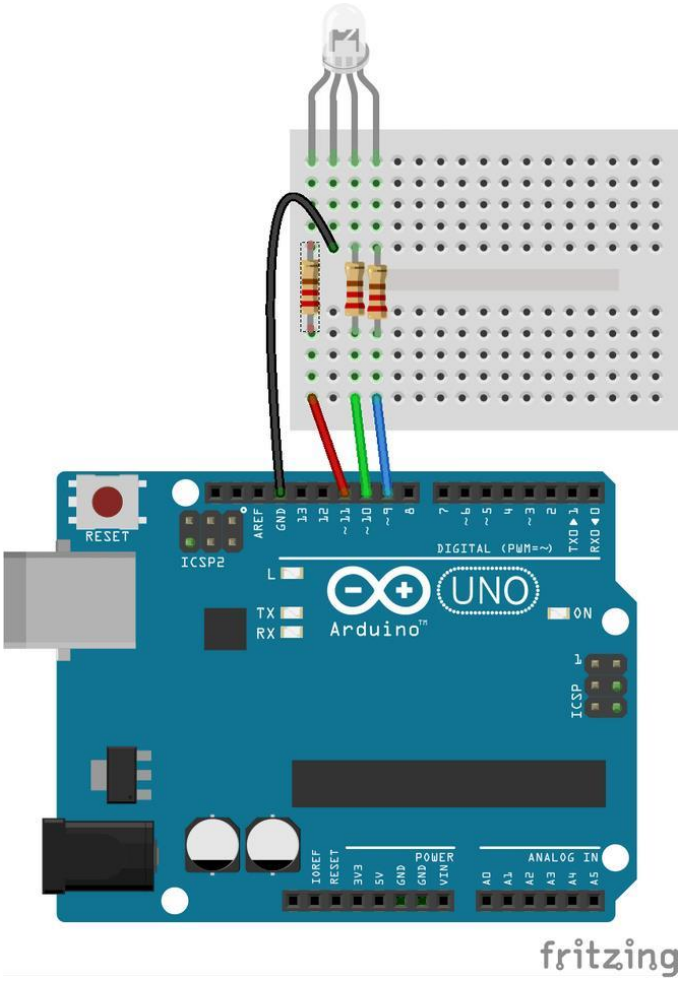
To students: Does anyone know how electricity works?
Expected Answer: Electrons flow from the negative side (surplus) to the positive side (deficiency).

Instructor: In the common **cathode** RGB LED, the power signal is negative. That means the voltage supply side is positive. An **anode** LED, it is positive, which means the voltage supply side is negative. The voltage supply side in this case is the Arduino.



Big Concept #2: RGB LED

Note: Wire the RGB LED as you would a normal LED. Pin into a resistor into the LED pin.
Note: If we are using the common anode RGB LED, the connect the long pin to the 5V of Arduino.



Code

```
int red_light_pin= 11; int
green_light_pin = 10; int
blue_light_pin = 9; void
setup() {
  pinMode(red_light_pin, OUTPUT);   pinMode(green_light_pin,
OUTPUT);   pinMode(blue_light_pin, OUTPUT);
}
void loop() {
  RGB_color(255, 0, 0); // Red
delay(1000);
  RGB_color(0, 255, 0); // Green
delay(1000);
  RGB_color(0, 0, 255); // Blue
  delay(1000);
  RGB_color(255, 255, 125); // Raspberry   delay(1000);
  RGB_color(0, 255, 255); // Cyan
delay(1000);
  RGB_color(255, 0, 255); // Magenta
delay(1000);
  RGB_color(255, 255, 0); // Yellow
delay(1000);
  RGB_color(255, 255, 255); // White
delay(1000);
}
void RGB_color(int red_light_value, int green_light_value, int blue_light_
value)         {             analogWrite(red_light_pin,     red_light_value);
analogWrite(green_light_pin,                                green_light_value);
analogWrite(blue_light_pin, blue_light_value); }
```

Big Concept #3: Free Play

Instructor: Use your imagination and what you learned from the last seven classes to build something!