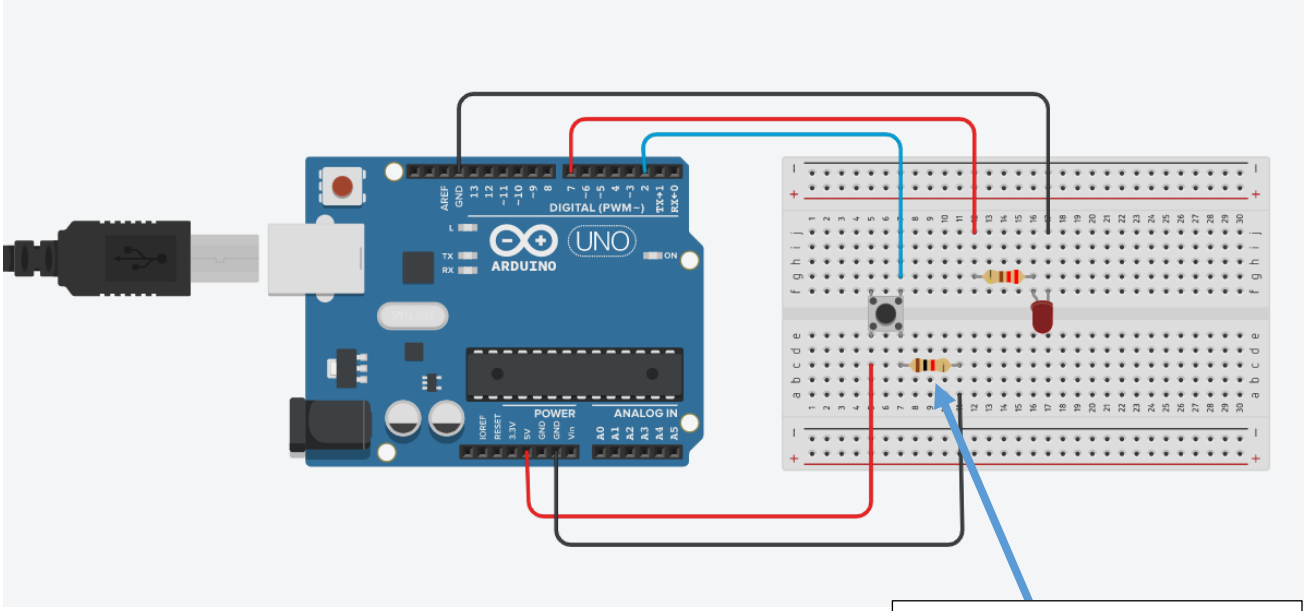
Program 3: Push Button

1. Navigate to TinkerCAD > Create the following circuit > Circuit > Create a New Circuit > Rename to Push Button > Create the following Circuit

Circuit



Wires

Button

1. Red: 5V to Button: Powers Circuit
2. 1K Ohm Resister to Drop Voltage to 0
3. Black: LED to Ground

LED

1. Red: Signal Arduino Port 2 to 220 Ohm Resistor; also provides voltage when set to HIGH. Keeps track with the number of times the button is pressed. Hint: Create variable of counter
2. 220 Ohm Resistor to LED
3. LED to Black Wire to Ground: Grounds circuit

2. Type the following code

```
int buttonpin = 2;            //Digital Port for Button to sense being pressed
int ledpin = 7;              // Digital Port to Turn LED ON/OFF

int buttonstate = 0          //Variable buttonstate is assign 0 = OFF/Not Pressed and 1 =ON/Pressed State

void setup() {
  // put your setup code here, to run once:
  pinMode (ledpin, OUTPUT);     //Sends only output instructions to ledpin (Port 2)
  pinMode (buttonpin, INPUT);   //Recieves only input instructions from button (Pressed v Not Pressed)
}

void loop() {
  // put your main code here, to run repeatedly:
  buttonstate = digitalRead (buttonpin);      //digitalRead reads the signal coming from the button and
                                              //assigns 0 = OFF/Not Pressed and 1 =ON/Pressed State to Variable buttonsate
  //Module PushButton
  //LOW State = Button Not-Pressed
  //HIGH State = Button Pressed
  if (buttonstate == HIGH)                    //Condition sees if button has been pressed
  {
    digitalWrite (ledpin,HIGH);               //Button Pressed LED turns ON
  }
  else
  {
    digitalWrite (ledpin, LOW);              //Button Not-Pressed LED turns OFF
  }
}
```

Assignment: Push Button

1. Modify the program so the serial monitor screen shows
    a. Text On (Button Pressed) and Off (Button Released)
    b. Counter showing how many times the button has been released
2. Limit of On/Off
    a. Maximum presses = 5
    Hint: think how about comparing how fast you can push the button and release it vs the electricity being cut off and the Arduino not reading the signal (Delay Statement)
    b. Once Limit is met do the following
        i. Stop the light from turning on and off when button is pressed
        ii. Print in Serial Monitor “ALL DONE!” twice on separate lines
        (HINT: Serial.println)

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