Digital Input & Output

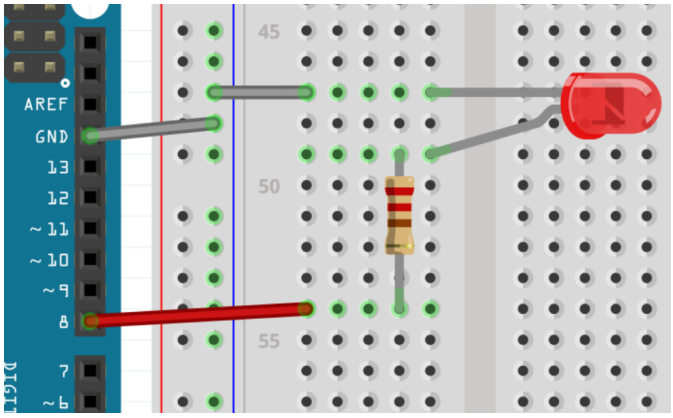
Name: _____

Digital signals are either `0` or `1`, the Arduino Uno has a total of 14 digital pins.

The first example demonstrates how to blink a LED.
The second example demonstrates how to read a button's state.

What You'll Need:

- 1 x Arduino Uno board
- 1 x Breadboard
- 1 x LED
- 1 x Button
- Jumper wires



This code would blink a LED on Pin 8

```
void setup() {
  // Configure Pin 8 as output pin
  pinMode(8, OUTPUT);
}

void loop() {
  // Set LED on Pin 8 to ON
  digitalWrite(8, 1);
  delay(500);

  // Set LED on Pin 8 to OFF
  digitalWrite(8, 0);
  delay(500);
}
```

> Challenge: Blink 3 LEDs one at a time. Imagine traffic lights running 2 seconds Green, 1 second Yellow, and 2 seconds Red.
> Each LED must have a resistor.

Read the Button State

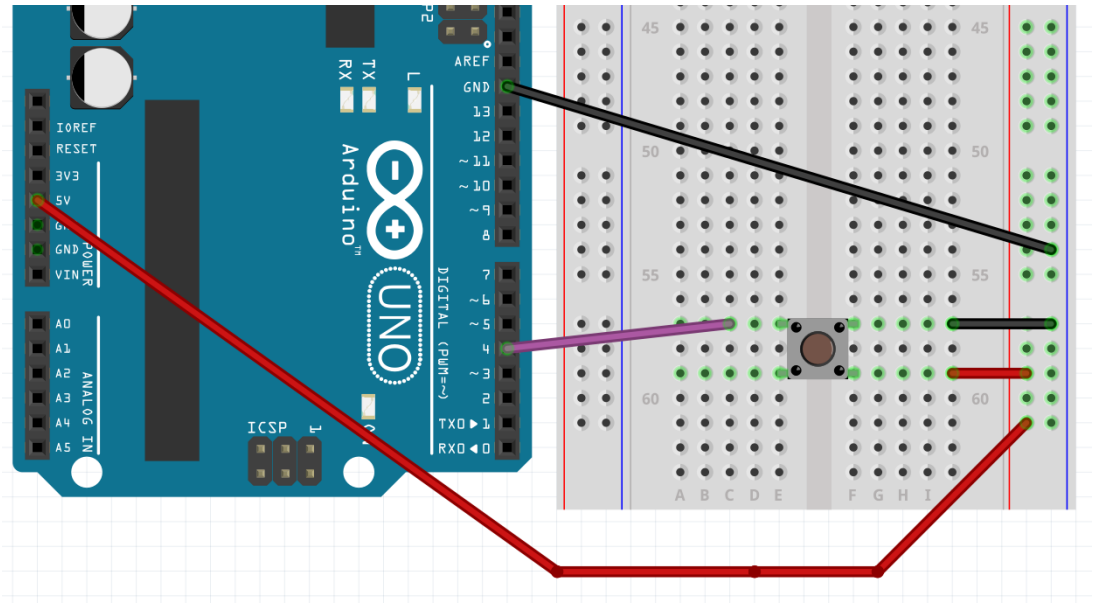


Figure 1: Pin 4 Button Circuit

In this example, we print the value read on `Pin 4` to the Serial Monitor

```
void setup() {
  // Configure Pin 4 as an Input for button
  pinMode(4, INPUT);

  // Configure Pin 8 as an Output for LED
  pinMode(8, OUTPUT);
}

void loop() {
  // If button is pressed
  if (digitalRead(4)) {
    // Turn on LED
    digitalWrite(8, 1);
  } else {
    // Turn on LED
    digitalWrite(8, 1);
  }
}
```

> Open the `Serial Monitor` with `Ctrl` + `Shift` + `M`

> Challenge: Make a counter with a button.
> Each time the button is pressed, add 1 to the count.
> Print the count in the serial monitor.
> Hint; Create a `count` variable