Activity 2: Button with LED:

Description:

This circuit includes LED and a button that turns on when the button is pressed.

Materials:

1 Arduino Uno R3
1 Breadboard
1 Pushbutton
1 10 kΩ Resistor
1 400 Ω Resistor
1 LED
Wires

Codes:

```
int led = 11;
int button = 10;

void setup() {
pinMode(led, OUTPUT);
pinMode(button, INPUT);
}

void loop() {

if(digitalRead(button) == HIGH) {
digitalWrite(led, HIGH);
}
  else {
    digitalWrite(led, LOW);
}
}
```

Explanation on codes:

int led = 11;
int button = 10;

`int led = 11;`
led: variable name
11: the value you assign to that variable.

- int means integer, it is the primary data type for storage of numbers without decimal points.
- This section of the codes declares the value 11 to be named “led” and the value 10 to be named “button”.
- On the picture, you can see that the LED is attached to pin 11 and the button is attached on pin 10 so we declare that the led and button is on pin 10 and 11 respectively.
- You can freely change the variable name, it is best to name your components according to what component it is. If there are multiple then you can put numbers after the name.
- If you are having any trouble, always check your codes and your components on the board.

void setup() {

pinMode(led, OUTPUT);
pinMode(button, INPUT);

}

- Since we named our values we replace the numbers to the declared names, this is called **Global Variables.**
- This section sets up the pins to be either output or input.
- The difference between the two is that the output is letting the Arduino write to a pin and input is letting the Arduino read from a pin.

void loop() {

if(digitalRead(button)==HIGH) {

digitalWrite(led, HIGH);

```
}
```

- In this section, we have the function void loop().
- Next is the if statement, you write it as if(condition). Inside the parenthesis you can put any conditions. After the condition, it has brackets where you can put the actions if the condition is true. In this code, it has the condition of “if the digital reading in the pin “button” is high, it will turn on the pin “led”.”

Blue - is the condition
Red - is the action

```
else {
   digitalWrite(led, LOW);
}
}
```

- Lastly is the else statement, it will turn off the led if the button is not pressed. It will initiate if the condition in the if statement is false.