



STEAM Clown™ Productions

Bread Boards & LEDs



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Overview & Introduction

- This Lecture and Lab is an introduction to Breadboards, Electrical Circuit basics and LEDs
 - You will learn how a breadboard works
 - You will build an LED circuit and get it to light up
- You will use a Breadboard, Resistor, Switch and LED
- You will show me a working LED circuit and be able to explain how and why it is working



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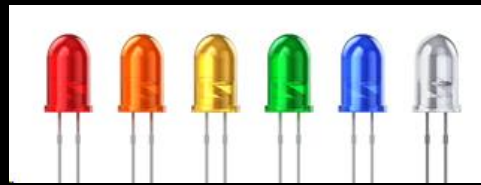
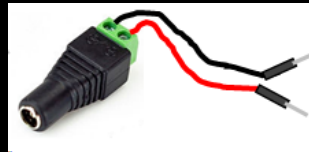
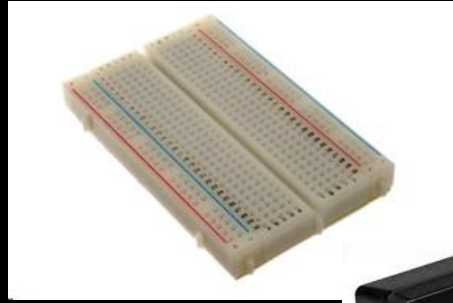


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Resources & Materials Needed

- (1) Breadboard
- (1) 5 volt Wall Power Supply
- (1) Power Adaptor
- (3-5) Jumper Wire (Male-Male)
- (1) LED
- (1) 330Ω Resistor
- (1) Push Button Switch



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What You Will Know...

Prior Knowledge

- I'm not expecting anyone to have any Electronics experience...
Some of you may, but it's not expected

What You Will Know & Be Able To Do

- Understand the theory of how a breadboard works
- Build an LED, resistor, and switch circuit on a breadboard
- Be able to describe a open and closed series circuit works



New Words...

- Breadboard
- LED
- Resistor
- Circuit
- Series Circuit



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How A Breadboard Works



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What Is A Breadboard?



What Is A Breadboard?



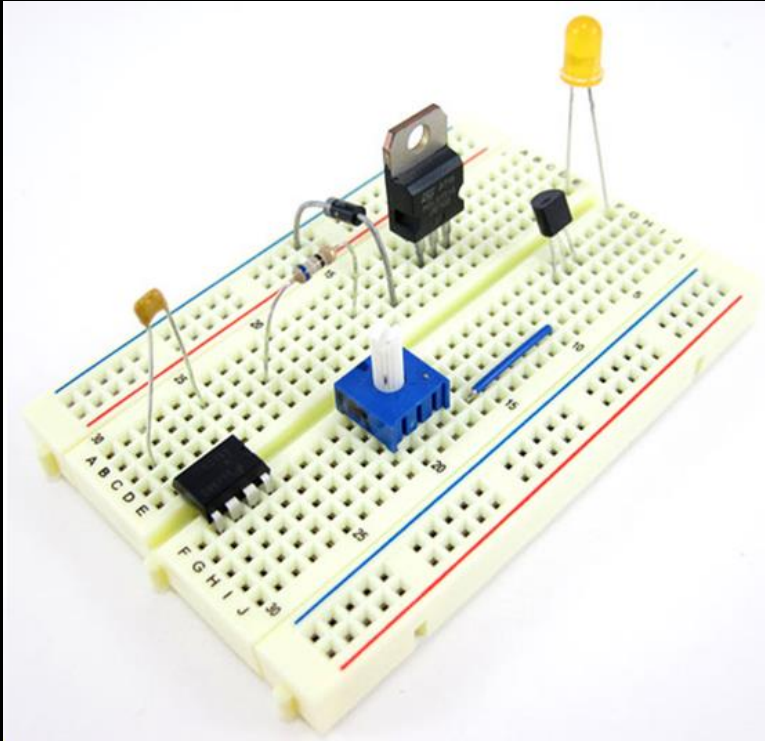
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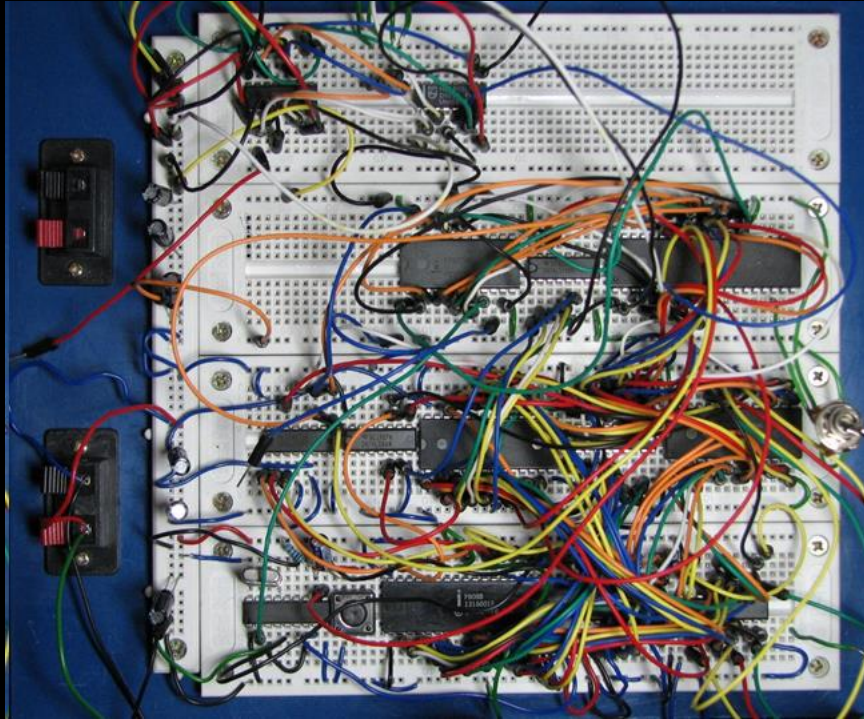
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What Is A Breadboard?



- The **breadboard** derives its name from an early form of point-to-point construction
- In the early days of radio, amateurs would nail copper wire or terminal strips to a wooden board (often literally a board for cutting bread), and solder electronic components to them.

What Is A Breadboard?



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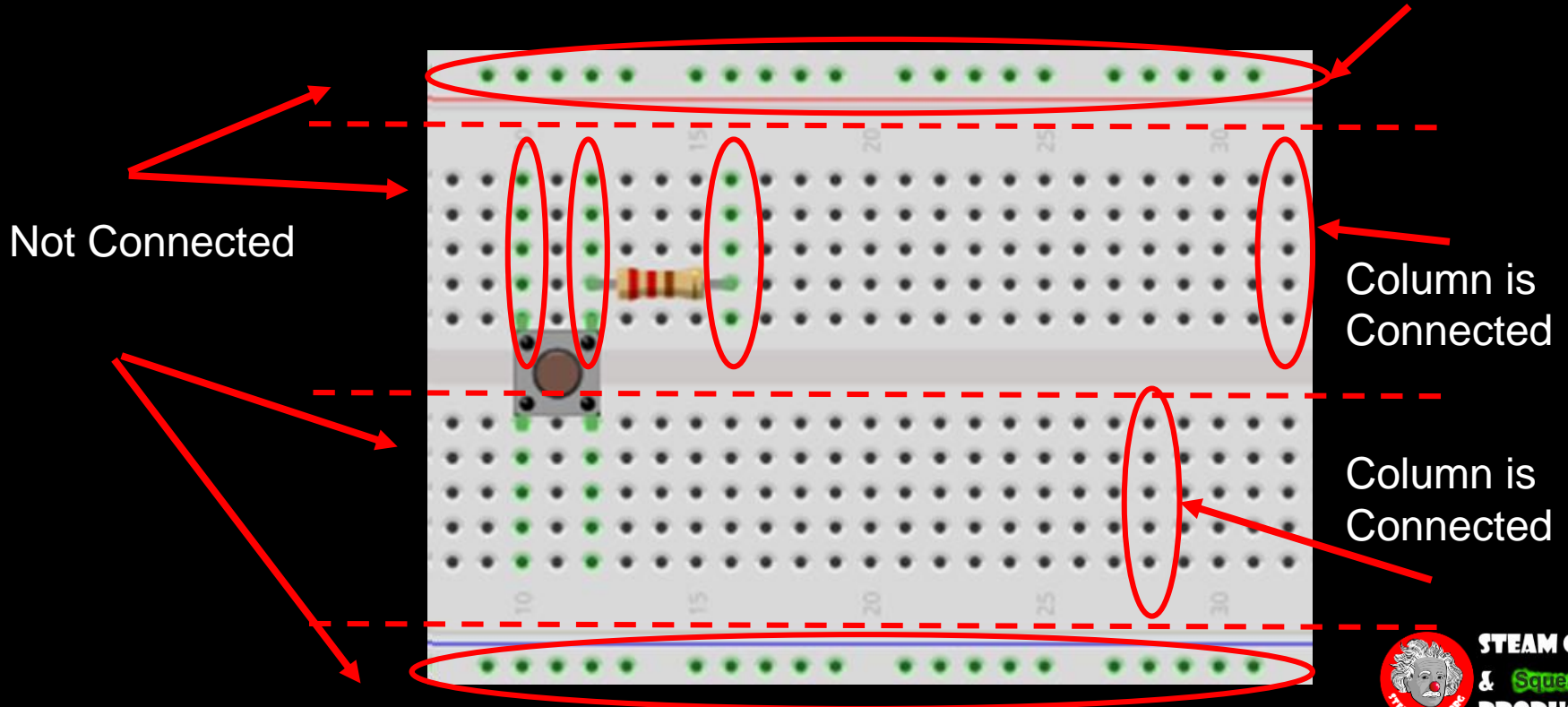


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How Does The Breadboard Work?

All Holes In The Row Are Electrically Connected



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Resources & Materials Needed

(1) Breadboard

(1) 5 volt Wall Power Supply

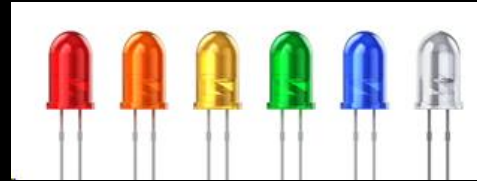
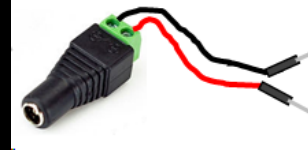
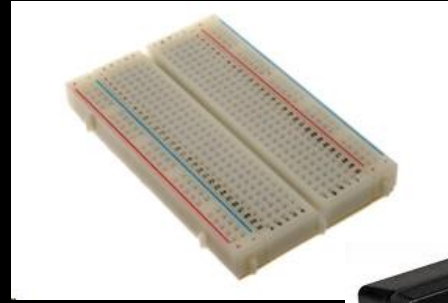
(1) Power Adaptor

(3-5) Jumper Wire (Male-Male)

(1) LED

(1) 330Ω Resistor

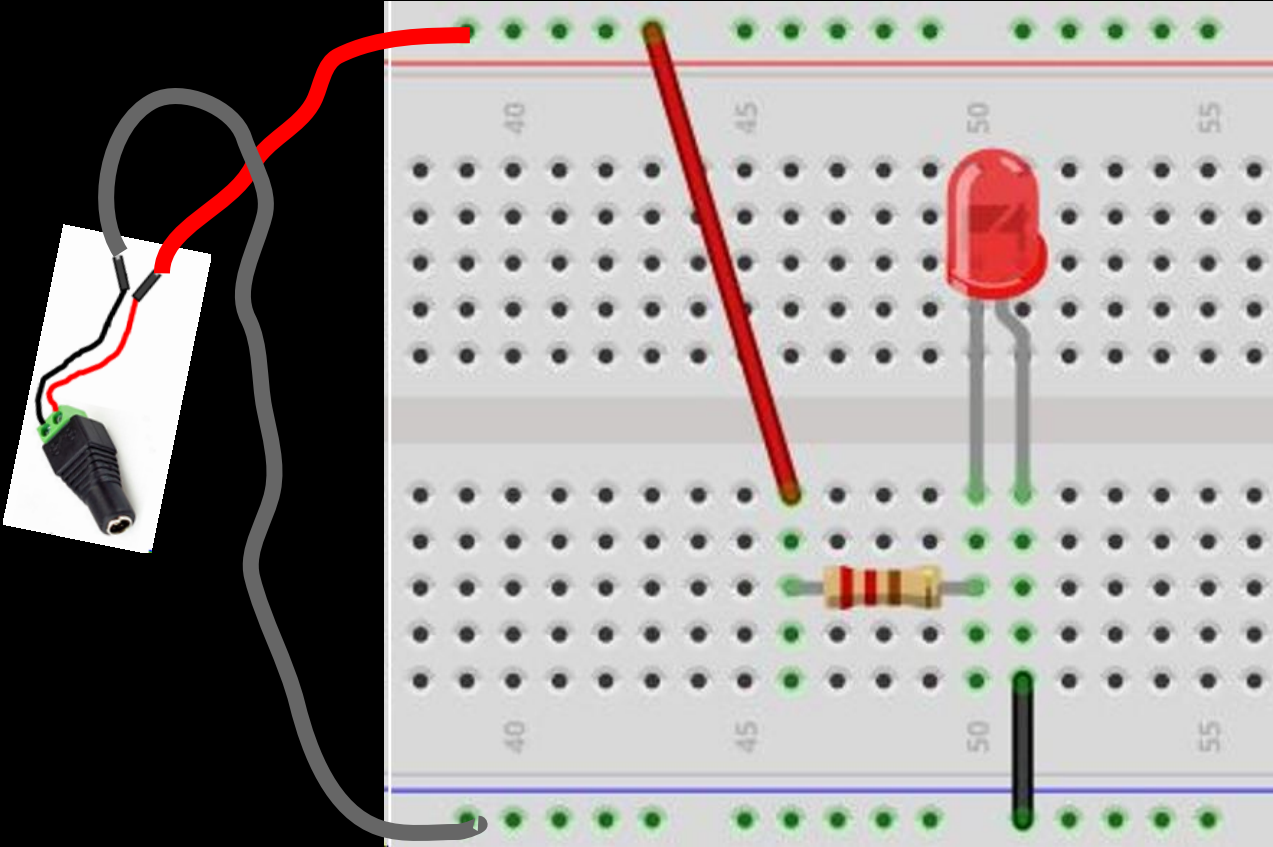
(1) Push Button Switch



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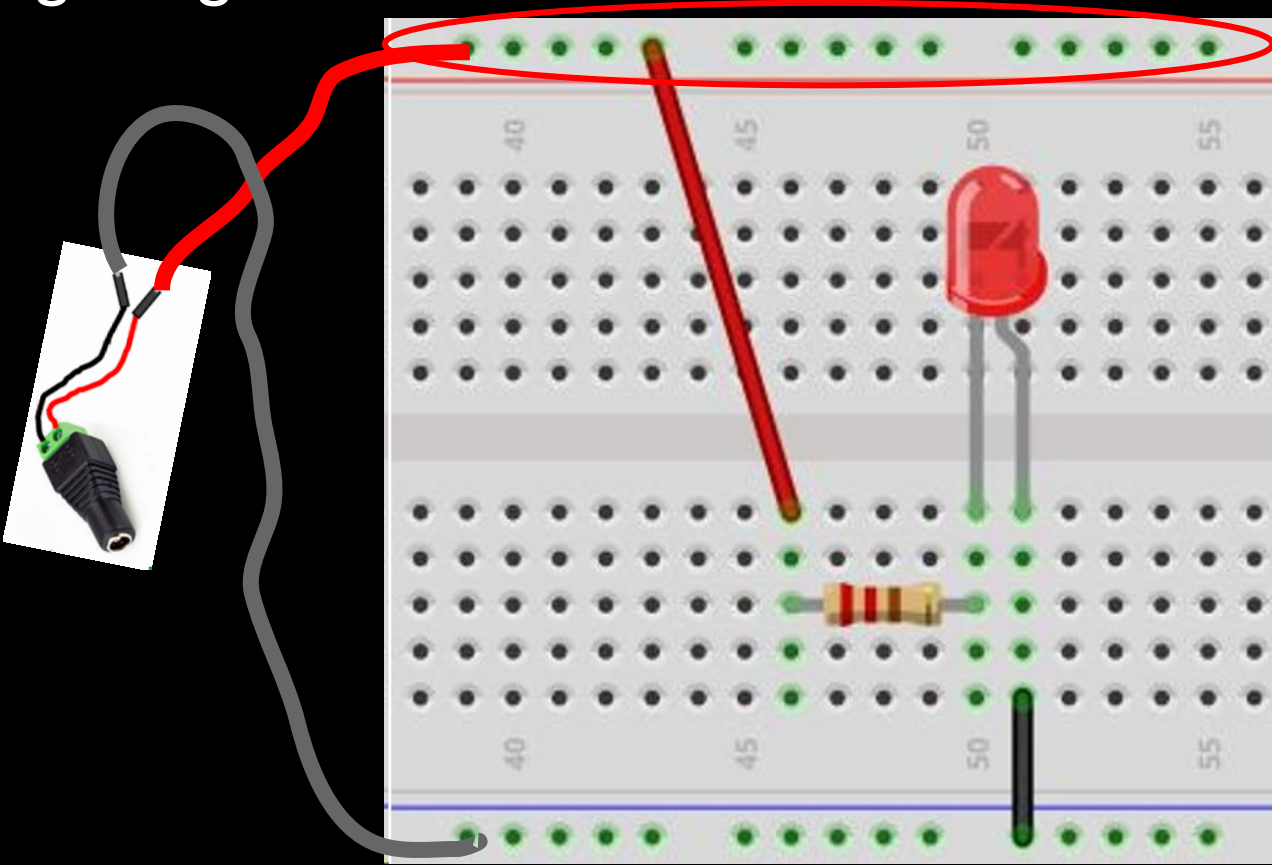
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Lighting An LED



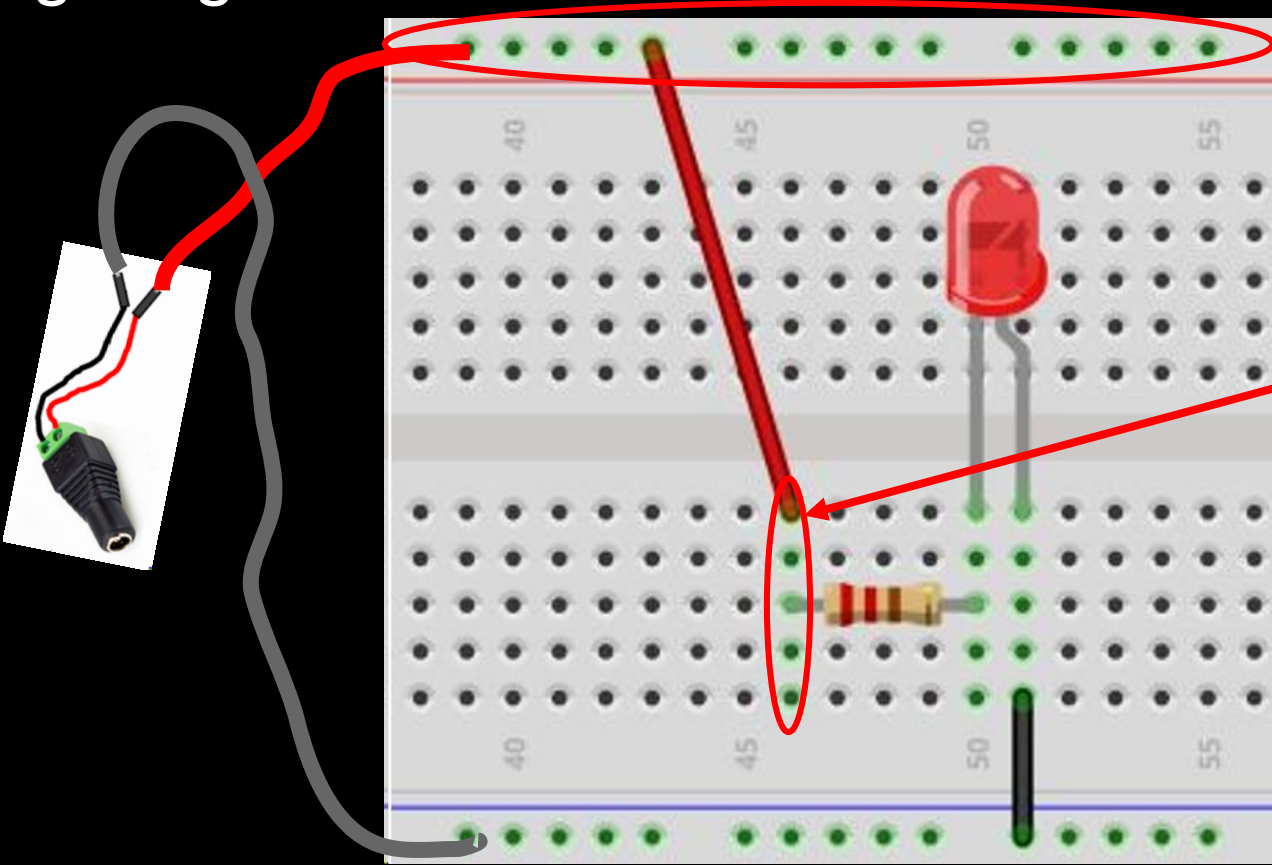
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Lighting An LED



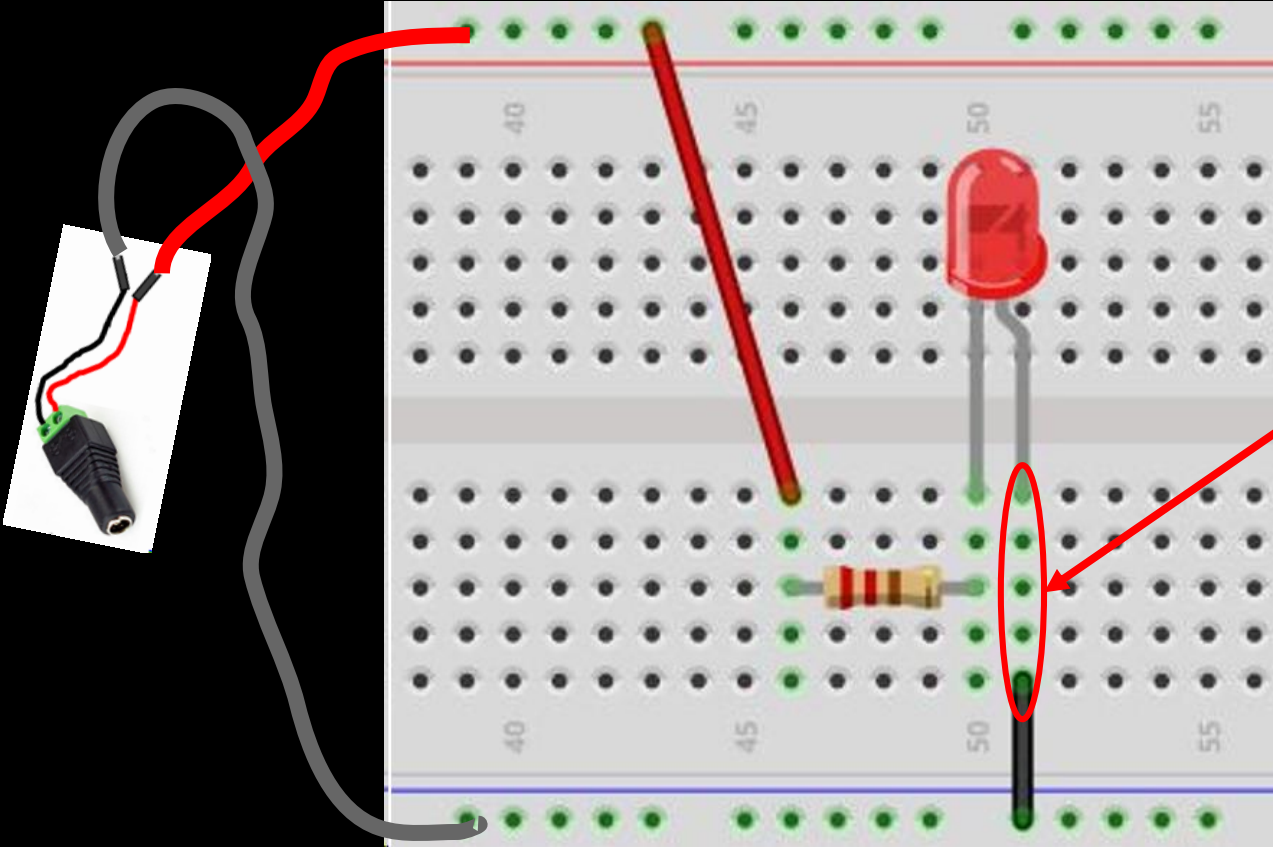
All Holes Are Connected

Lighting An LED



All Holes Are Connected

Lighting An LED

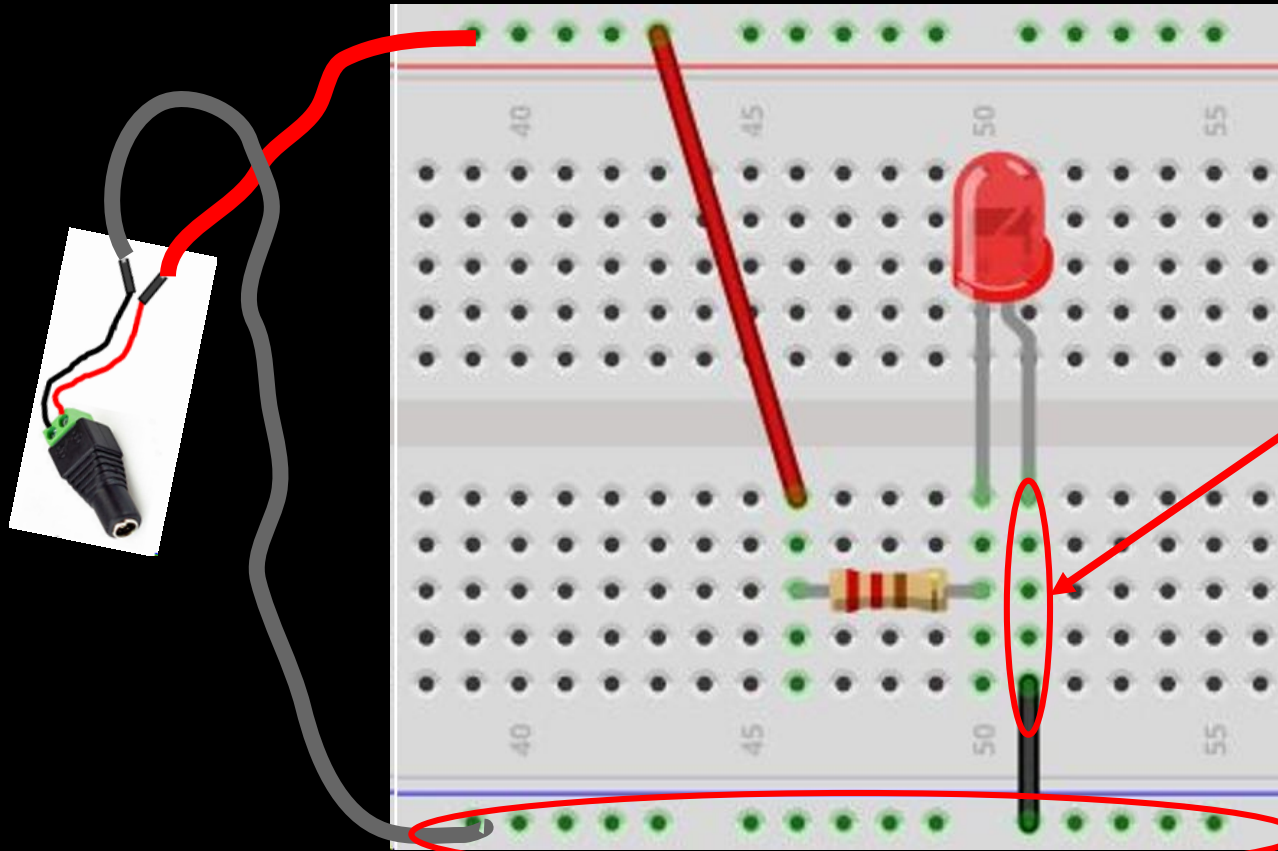


All Holes Are
Connected



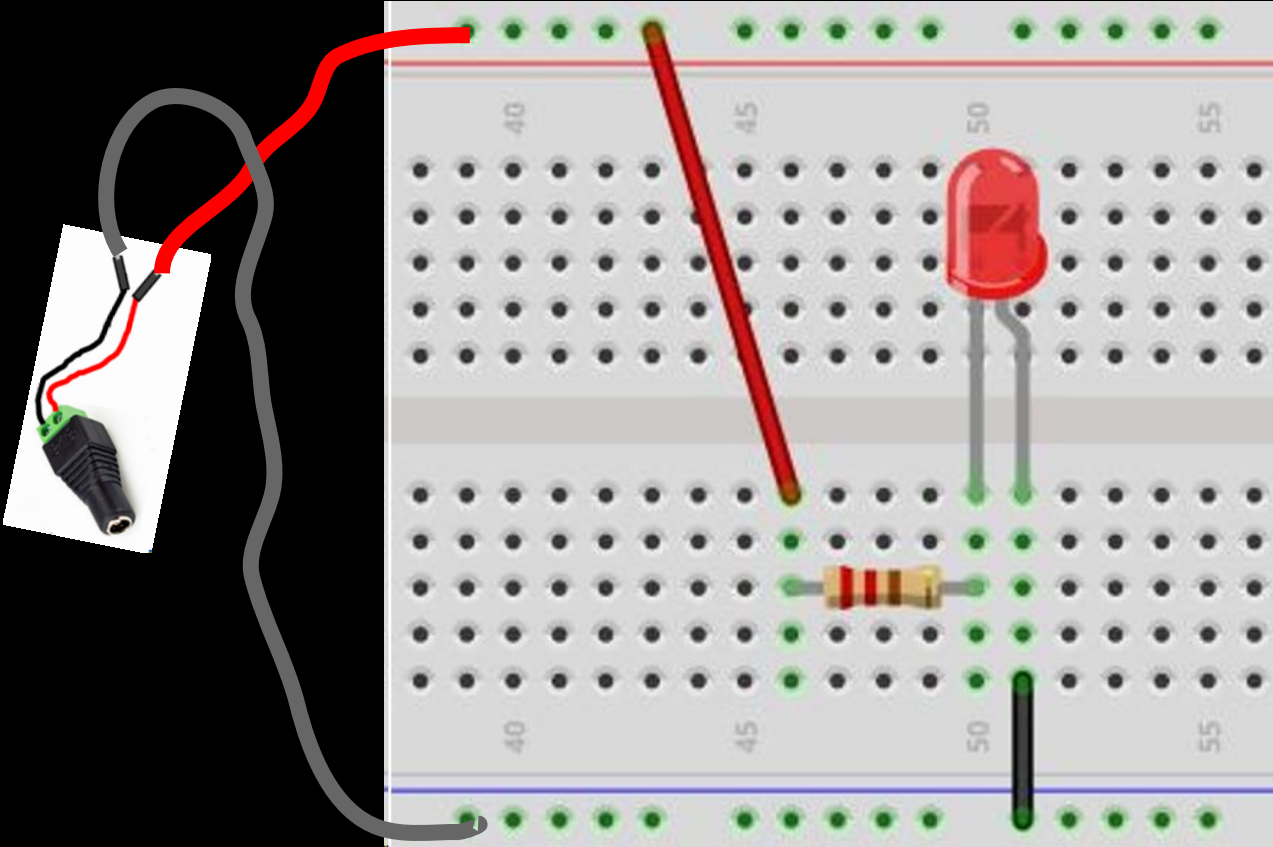
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Lighting An LED



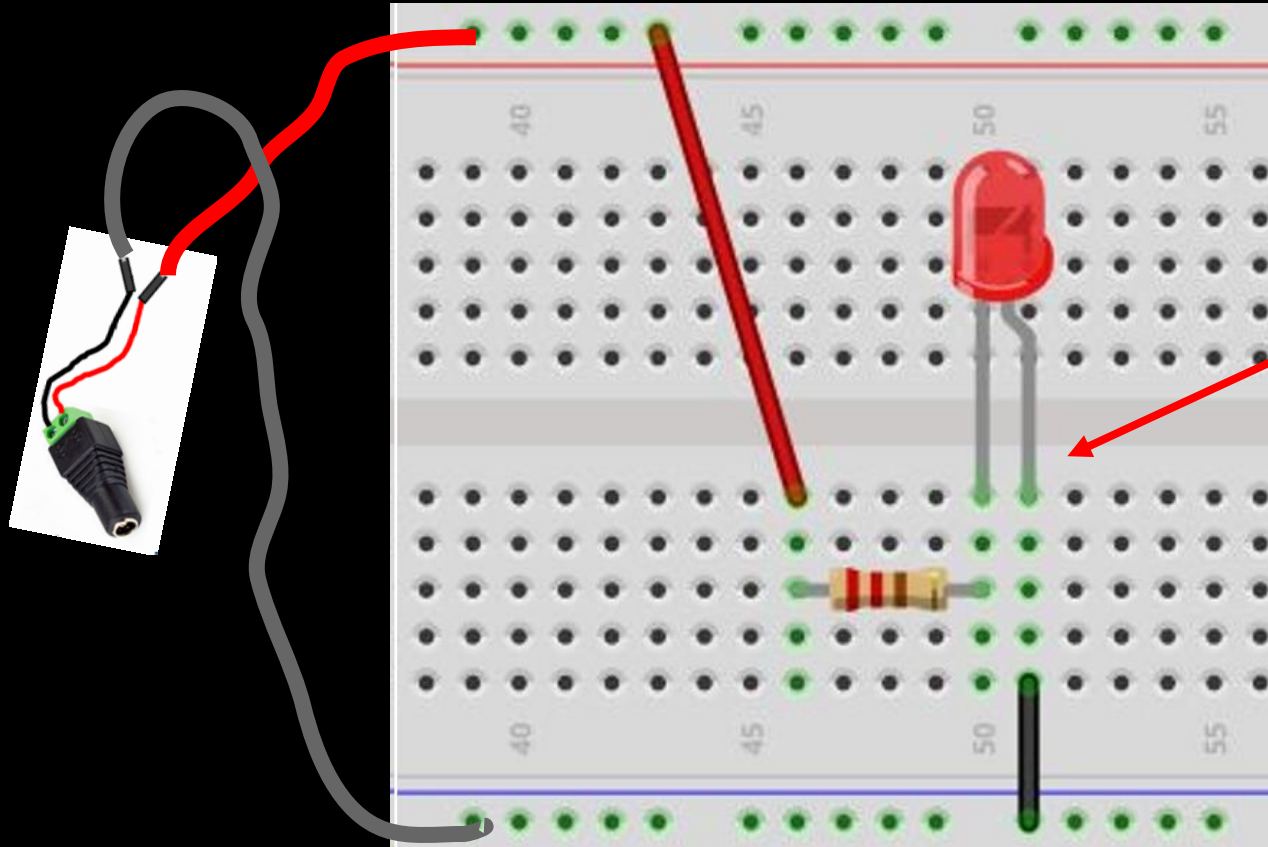
All Holes Are Connected

Lighting An LED



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Lighting An LED

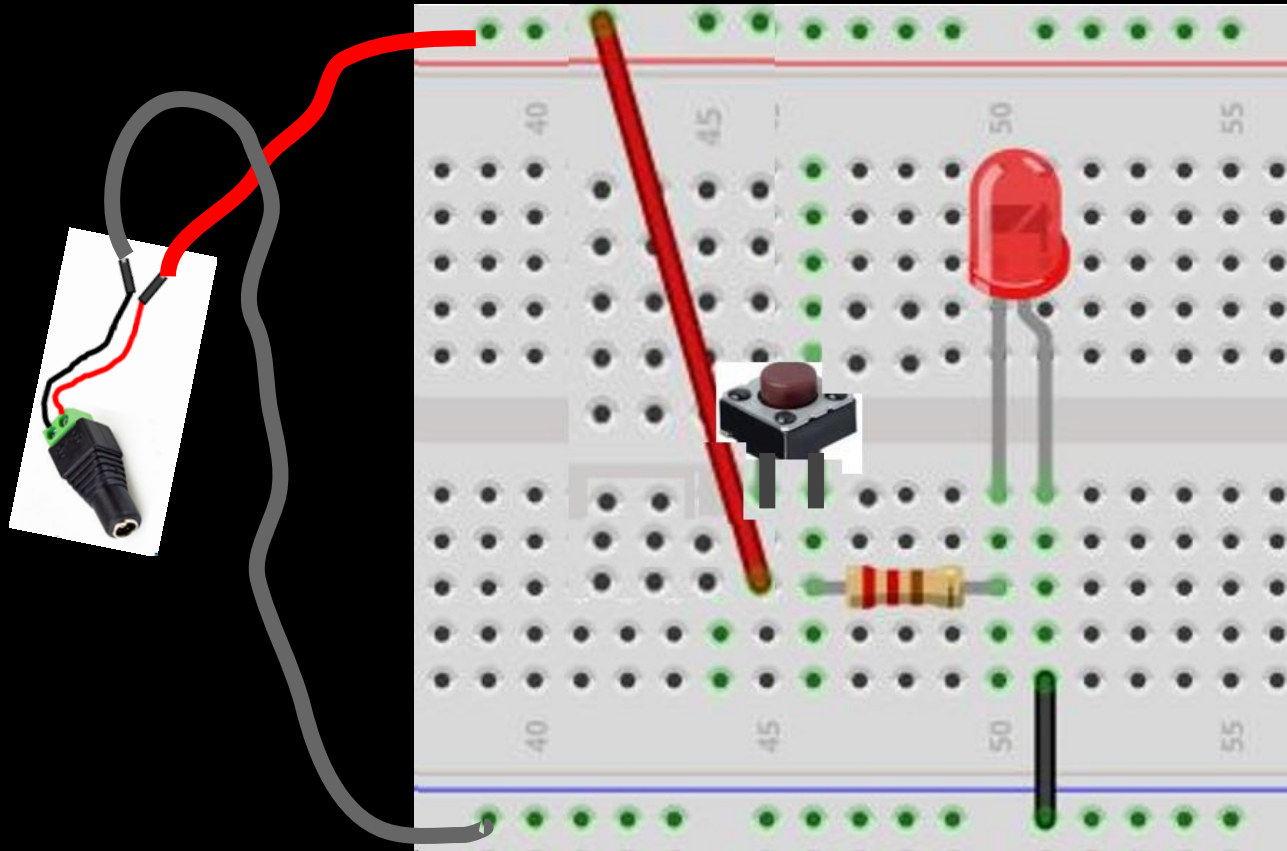


If the LED does not Light, Pull it out and turn it around to “Flip” the Pins



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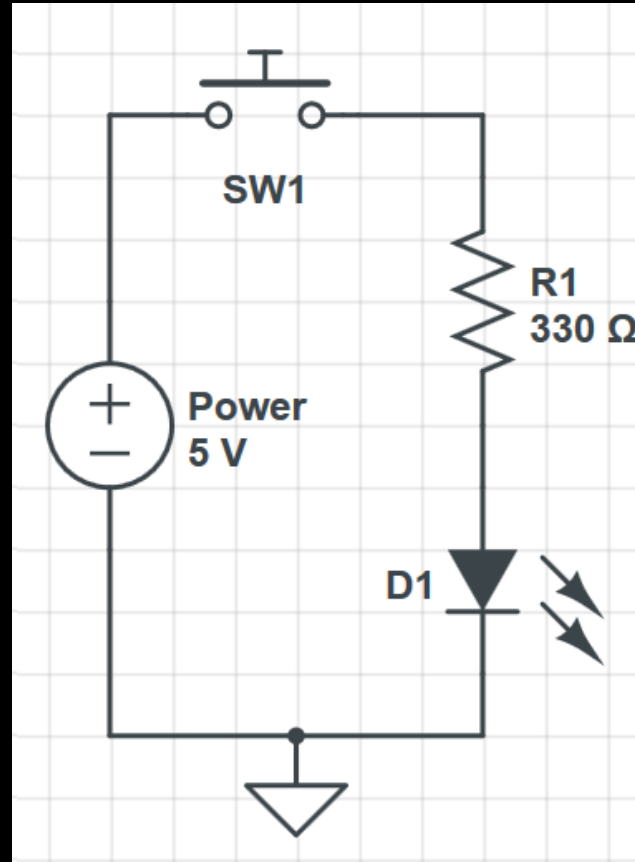
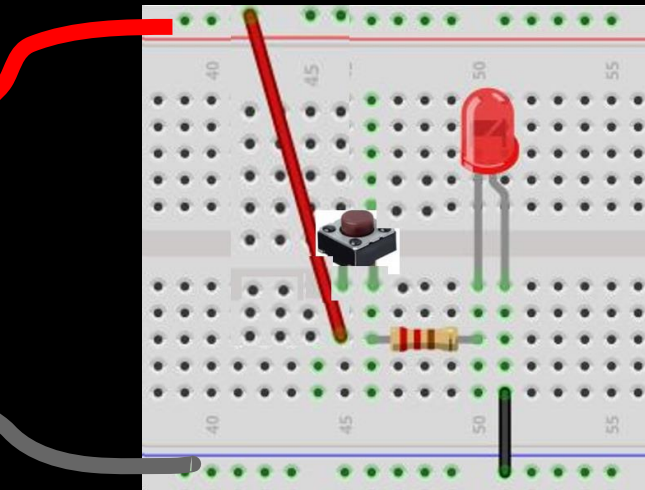
Lighting An LED With A Switch



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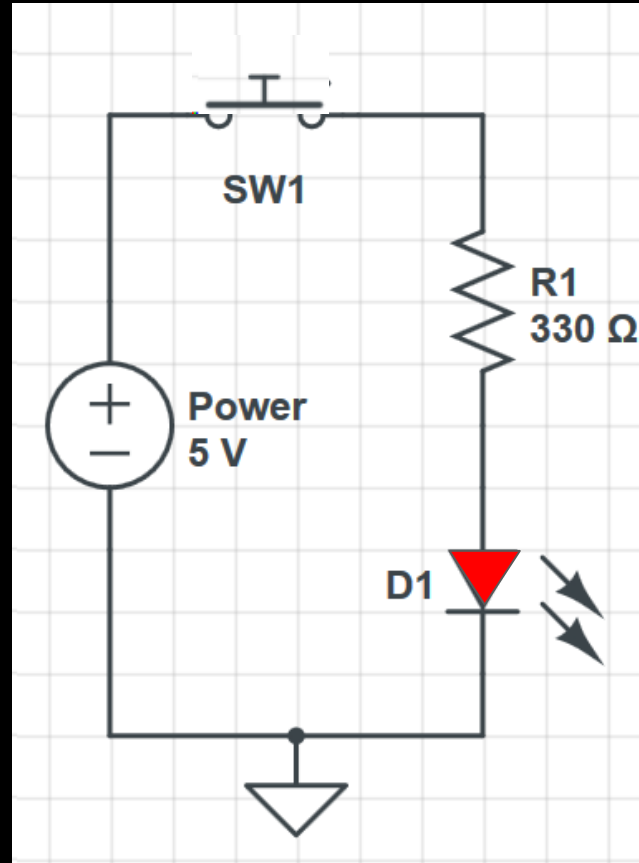
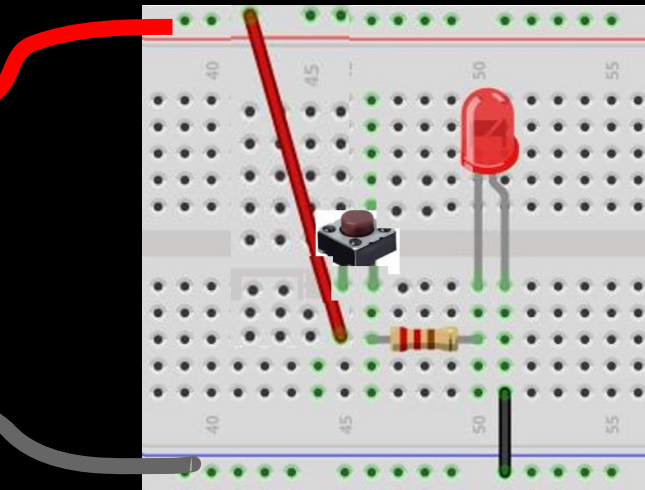
Series Circuit



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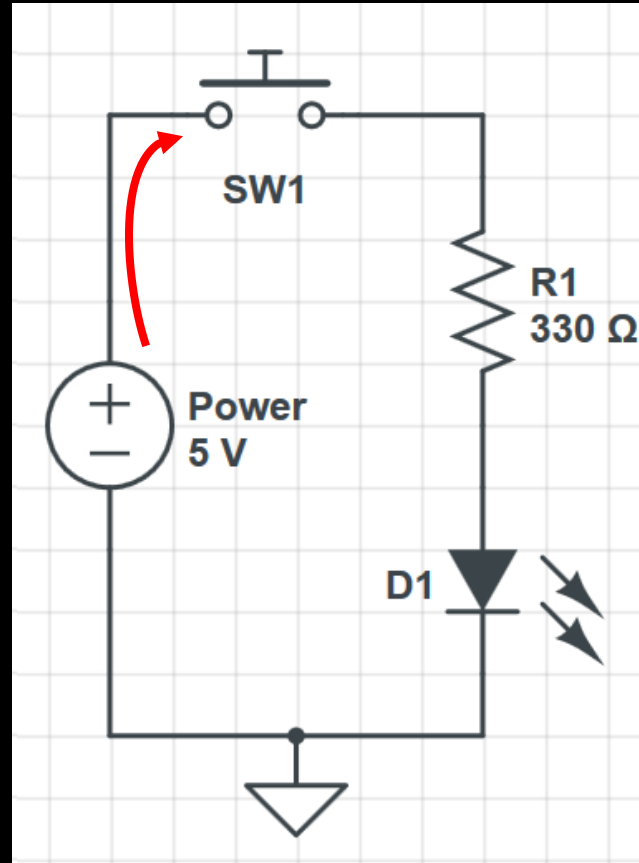
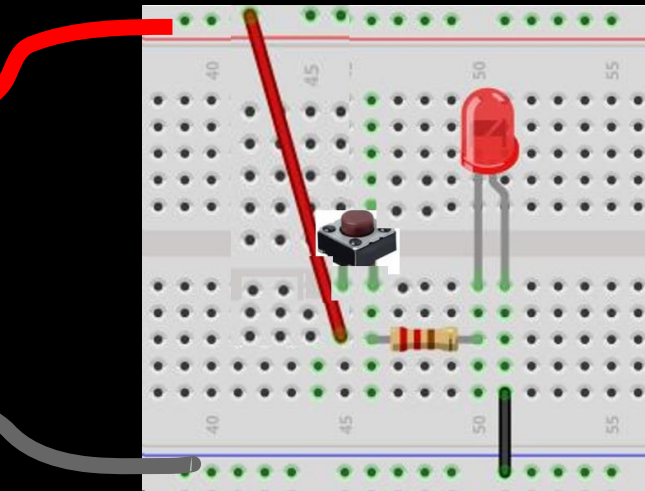
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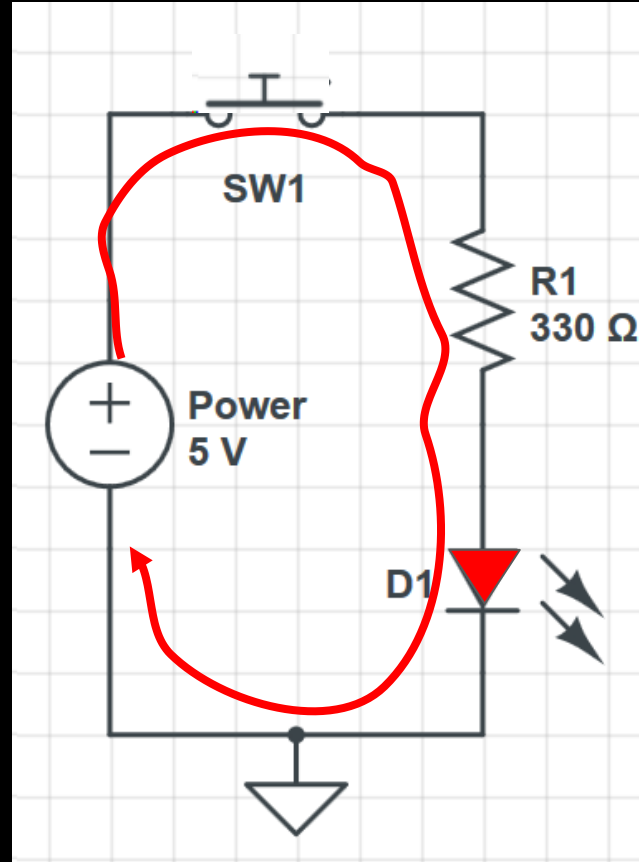
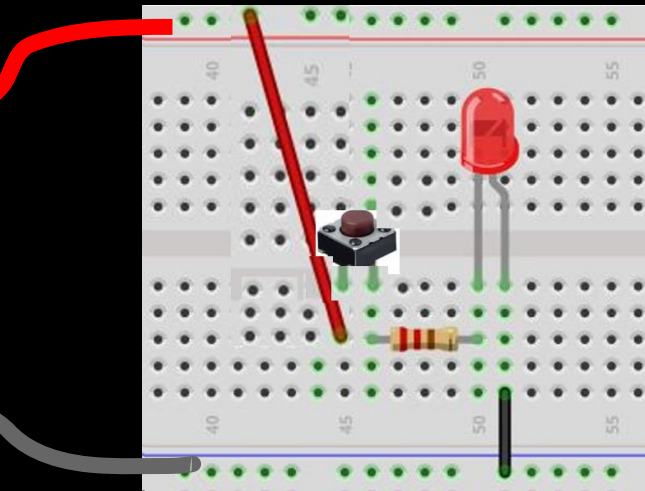
Series Circuit



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Series Circuit



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Reference Slides

- 5 Breadboarding Quick Tips - <https://makezine.com/2016/12/22/breadboarding-quick-tips/>
- What is a bread board - <https://i1.wp.com/makezine.com/wp-content/uploads/2016/12/breadboardworkshop.jpg>



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Appendix



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Appendix C: Primary Sources & Attribution for Material Used

- 5 Breadboarding Quick Tips - <https://makezine.com/2016/12/22/breadboarding-quick-tips/>
- What is a bread board - <https://i1.wp.com/makezine.com/wp-content/uploads/2016/12/breadboardworkshop.jpg>

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