PACE Electrical Engineering

Basic Circuits Lab

PACE - MONMOUTH

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Basic Circuits Lab

Purpose

The goals of this lab are the following:

- To learn to connect together circuit components.
- To learn to build circuits from a schematic
- To learn to draw a schematic of a circuit
- To begin to learn to analyze a circuit based on its schematic
- To learn about series and parallel connections
- To design a circuit to perform a prescribed function
- To learn to use wire strippers and screwdrivers

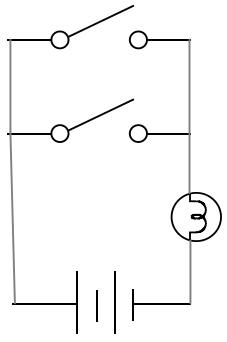
Parts and Equipment

You will need the following parts:

- 1 - 9V battery and corresponding battery holder
- 2 – Single Pole SingleThrow (SPST) switches
- 2 – Single Pole Double Throw (SPDT) switches
- 1 – small light bulb and corresponding bulb holder

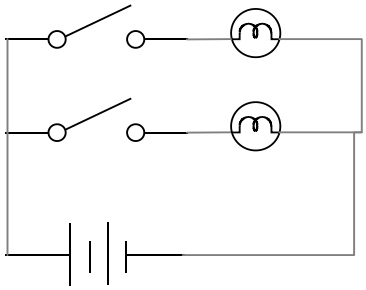
Procedure

1. Build a circuit with a SPST switch, bulb, and battery in a loop. How do you turn on the light bulb? Draw the schematic for the circuit.
2. Build a circuit with two SPST switches, bulb, and battery in a loop. What must be the state of the switches in order for the bulb to be lit? Draw the schematic for the circuit.
3. Build the following circuit:



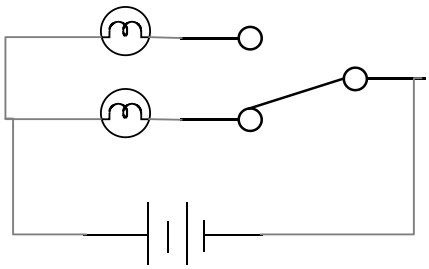
What must be the state of the switches in order for the bulb to be lit?

4. Build the following circuit:



What must be the state of the switches in order for the bulb to be lit?

5. Build the following circuit:



What does the circuit do?

6. Using two SPDT switches, a bulb, and battery can you design and build a circuit where each switch controls the bulb independently?