Laboratory #15
Electric Current

Part A. Be an Electrician For a Day

Concepts
Parallel circuits; Series Circuits; Resistors; Capacitor; Fuse; Galvanometer; Ammeter; Voltmeter

Introduction
Since Thomas Edison's introduction of the light bulb, people around the world have become completely reliant on electricity. The first household circuits were set up completely different than they are today.

In this experiment, you will learn the two basic ways to set up an electric circuit and the characteristics of each. You will also learn how to measure common electrical parameters within the circuit. You will also learn how to store electricity and observe electrical safety precautions.

Procedure

- Connect the circuit as shown in Figure A.
- Be sure you know how to use the ammeter and voltmeter (ask your instructor).
- Find the current in the circuit.
- Find the voltage across the resistor.

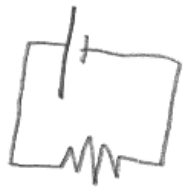

Figure A

- Connect the circuit as shown in Figure B, and observe the brightness of the light bulbs.

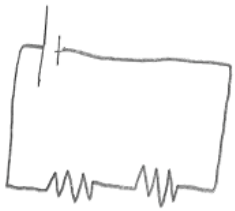

Figure B

- Connect the circuit as shown in Figure C.
- Find the current in the circuit, and the voltage across the resistor.

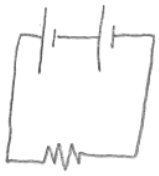

Figure C

- Connect the circuit as shown in Figure D.
- Find the current through each resistor, and the voltage across each resistor.

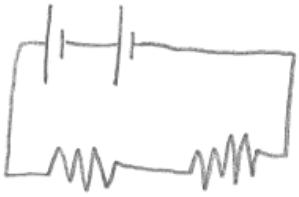

Figure D

- Connect the circuit as shown in Figure E, and observe the brightness of the lights.

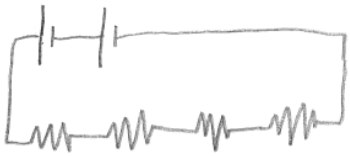

Figure E

- Connect the circuit as shown in Figure F.
- Measure the current through the circuit, and into each resistor.
- Measure the voltage across each resistor.

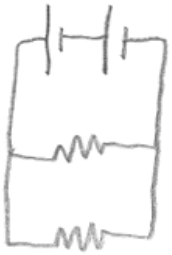

Figure F

- Connect the circuits as shown in Figures G and H observing the brightness of the lights in each case.

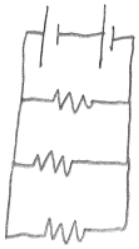

Figure G

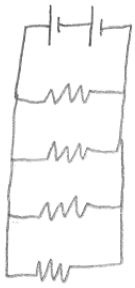

Figure H

- Connect the circuit as shown in Figure I and wait for about 1 minute.

Figure I

- Connect the circuit as shown in Figure J and observe what happens.
- Find a way to ‘blow’ the fuse.

Figure J

Lab Reporting Sheet
Laboratory #15

Name:_____

Date:_____

Part A: Be an Electrician For a Day

- **Which circuits are in series? Which ones are in parallel?**

- **What happens to the brightness of the lights when you hook them up in series?**

- **What happens to the brightness of the lights when you hook them up in parallel?**

Circuit	Current			Voltage	
A					
C					
D					
F					

- **How does the voltage across the resistor in Figure A compare to the voltage of the battery? Figure C?**

- **What do you notice about the current through each resistor in series circuits?**

- **What do you notice about the voltage across each resistor in series circuits?**

- **What do you notice about the current through each resistor in parallel circuits?**

- **What do you notice about the voltage across each resistor in parallel circuits?**

- **How does the capacitor act when it is hooked up like Figure J? Why?**