

## Circuit Inquiry

Name \_\_\_\_\_

Date \_\_\_\_\_

Period \_\_\_\_\_

We learned that Heat naturally flows from hot to cold. Engines tap into that natural flow to do work. We now know that opposite charges attract. If we have a reservoir of positive charges, and a reservoir of negative charges, can we their desire to flow toward each other to our advantage??

The answer is YES. We call this Electricity. This lab is to help understand how we can cause charges to flow, and how we can use that flow to our advantage.

### **Equipment**

- 1 Battery Holder
- 2 “D” cell batteries
- 4 Wires with alligator clips at each end
- 2 Light bulb holders (red)
- 2 Light Bulbs
- 1 Straw
- 1 Coin
- 1 Pencil

### **Predictions**

- 1a. Why do you think the Battery is an important part of the “circuit” puzzle?
  
- 1b. Why do you think the wires with alligator clips at each end are an important part of the “circuit” puzzle?
  
- 1c. Why do you think the light bulbs are an important part of the “circuit” puzzle?

### **Exploration Scenarios**

Try to set up the following scenarios. Your teacher will come around during the lab and randomly ask for you to set up one of these scenarios so be sure you know how to repeat what you have done.

1. Make a light bulb light up using only **one battery**. Draw your set up.

2. Make a brighter light bulb. Draw your set up.

3. Make two light bulbs light up. Draw your set up.

4. Make two light bulbs light up, and when you remove one wire, they both turn off. Draw your set up.

5. Add a straw to your circuit (use this as an extension of a wire with alligator clips at each end).  
What happens?

6. Add a coin to your circuit (use this as an extension of a wire with alligator clips at each end).  
What happens?

7. Add a pencil to your circuit (use this as an extension of a wire with alligator clips at each end).  
What happens?

### **Questions**

1. How did two batteries in the circuit change the circuit?

2. How did adding two light bulbs change the circuit?

3. Why do you think the lights didn't light up with the straw or the pencil in the circuit but they did light up with the coin?

4. List some things that are REQUIRED for a circuit to work.