

Snappy Circuits

Student Worksheet



Name: _____

Part	I notice...	I wonder...	I learned...
Battery			
LED			
Buzzer			
Alligator Clips			

Something I hope to learn by building scrappy circuits is _____

_____.

Turn and Talk-Share what you hope to learn with the other members of your group. Listen to what they want to learn.

Project 1: LED Light and Battery

Directions: Build a circuit with one LED light and one battery.

1. When the circuit is open, the light is _____ (on or off).
2. In which picture should the light be on? (A or B) _____

A.



B.



Why? _____

Project 2: LED Light, Battery and Switch

Directions: Build a circuit with an LED light, battery and switch.

1. If the switch is open, the light is _____ (on or off)
2. What happens if you switch the direction of the LED light?

Project 3: Buzzer and Battery

Directions: Build a circuit with a buzzer and battery.

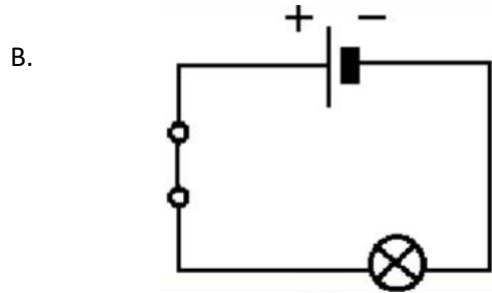
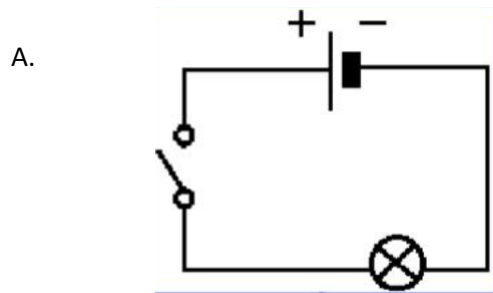
1. What happens to the light if the red wire from the buzzer is connected to the positive end of the battery? (on or off) _____

2. What happens to the light if the red wire from the buzzer is connected to the negative end of the battery? (on or off) _____
3. What charge is the red wire? (positive or negative) _____

Project 4: Buzzer, Battery and Switch

Directions: Build a circuit with a buzzer, battery and switch.

1. If the switch is closed, the buzzer is _____ (on or off)
2. The diagram below is known to engineers as a **schematic**. These special diagrams use symbols to show how electricity flows through a circuit. The "X" represents a light, and the two circles with the line show a switch. Look at the schematic below. Which circuit will turn the light on? (A or B)



3. How could you make the buzzer louder? Explain:

Project 5: Series Circuits

Directions: Build a circuit with an LED light, buzzer and batteries.

1. Draw a diagram of your circuit once everything is working. Label the light, buzzer, battery, and positive and negative charges.

2. Describe how the electrons are flowing through the circuit:

Project 6: Parallel Circuits

Directions: Build a parallel circuit. It must include at least one battery and two LED lights.

1. Draw a picture of your parallel circuit once it is working. Label each part.

2. How many paths are there for electrons to flow? _____

Optional Extension: Scrappy Clips

1. You were given alligator clips to connect your bricks into circuits. Why do you think alligator clips were used?

2. Imagine alligator clips were not available. What is another material you could use to connect your bricks? If time allows, test your idea. Did it work?
