**Station #1 – Circuit Prediction Sheets**

**Instructions:** Fill in “A” if **all** the bulb(s) in the circuit drawn in each box will light **as shown.** Fill in “B” if **one or more** bulbs will not light.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Circuit 1" /></td>
<td><img src="image2.png" alt="Circuit 2" /></td>
<td><img src="image3.png" alt="Circuit 3" /></td>
<td><img src="image4.png" alt="Circuit 4" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image5.png" alt="Circuit 5" /></td>
<td><img src="image6.png" alt="Circuit 6" /></td>
<td><img src="image7.png" alt="Circuit 7" /></td>
<td><img src="image8.png" alt="Circuit 8" /></td>
</tr>
</tbody>
</table>

9. Which bulb lights when I close switch X?  
   a. Light A  
   b. Light B  
   c. Lights A + B  
   d. None of the Lights  

10. Which bulb lights when I close switch Y?  
11. Which bulb lights when I close switch X & Y?  

   ![Circuit 9](image9.png)

**True/False: (Safety/Principles/Definition)**  
12. It is **OK** to touch electrical cords that are broken or have wires showing, as long as your parents don’t see you.  
   a) True  
   b) False  

13. Electricity can flow through an **open circuit.**  
   a) True  
   b) False  

14. An **Insulator** is a material through which an electric current can flow.  
   a) True  
   b) False
1. Switch $S_1$ controls which Lights.

2. This is an example of what type of Circuit?

3. As drawn, are the Lights on or off?

4. Switch $S_2$ controls which Light(s).

5. $S_1$ is an example of what kind of Switch.

6. $S_2$ is an example of what kind of Switch.

7. $L_1$, $L_2$, & $L_3$ is an example of what type of Circuit?

8. As drawn, which Lights are on?

9. $D_1$ is a?
Station 3 - Circuit Tester

If necessary, build a circuit tester to answer the questions at this station

Conductors & Insulators

1. The **Paper Clip** is a(n)?
   a. Conductor
   b. Insulator
   c. Both

2. The **Chalk** is a(n)?
   a. Conductor
   b. Insulator
   c. Both

3. The **LED** is a(n)?
   a. Conductor
   b. Insulator
   c. Both

Mystery Circuit Cards

Use the Card and your Circuit Tester to answer the following questions

4. Button 4 is connected to Button?
   a) A
   b) B
   c) C
   d) D
   e) E

5. Button 5 is connected to Button?
   a) A
   b) B
   c) C
   d) D
   e) E

6. Button 6 is connected to Button?
   a) A
   b) B
   c) C
   d) D
   a. E
1. To measure the voltage of a battery on the table you would use what setting?
   a. $V_{AC}$
   b. $A_{DC}$
   c. BAT
   d. $\Omega$ OHMS
   e. $V_{DC}$

2. To measure the current output of a battery on the table you would use what setting?
   a. $V_{AC}$
   b. $A_{DC}$
   c. BAT
   d. $\Omega$ OHMS
   e. $V_{DC}$

3. The resistance of a penny is approximately?
   a. 110 Volts
   b. 0.3 Amps
   c. 110 Amps
   d. 0.3 Ohms
   e. 110 Ohms

4. If I have two 3 volt batteries in series, what is the Voltage of my circuit.
   a. 3V
   b. 6V
   c. 3$\Omega$
   d. 6$\Omega$
   e. 3A
   f. 6A
Using Schematic Symbols Only and the Space Below, Draw the Following Circuit:

2 Battery Cells in Series, Connected in Series to 2 LED’s in Parallel.

One SPST Switch Controls All of the Bulbs and the Bulbs are All “On”

1. Using Schematic Symbols Only and the Space Below, Draw the Following Circuit:

2 Battery Cells in Series, Connected in Series to 2 Incandescent Bulbs in series.

One SPST Switch Controls All of the Bulbs and the Bulbs are All “Off”

Using Schematic Symbols Only and the Space Below, Draw the Following Circuit:

A series parallel circuit using 3 batteries, 1 Incandescent bulb and 2 LED bulbs. The LED bulbs are in parallel

3 Battery Cells in Series, Connected in Series to 1 Incandescent Bulb in series with 2 LED Bulbs in Parallel.
Station 6 – Construct the Circuit

Construct the 3 circuits from the drawing section.