

Name: _____

Period: _____ Date: _____

BATTERY LAB
(1/2 Point Each, 6 Points Total)

Learning Target: I can explain the potential for electron flow based on the preponderance of electrons in the materials (electrodes) that are placed in close proximity and separated by a conducting medium.

Procedure:

- Go to the University of Colorado – Boulder PhET simulation website at <http://phet.colorado.edu/en/simulation/battery-voltage> and press <Run Now!>.
- Each rectangle represents a rectangular solid. In your own words describe what you see on your screen when the “voltage desired” slide is in the middle of the dial. Make sure to count the number of blue spheres on both sides.

- Move the “voltage desired” slightly slide to the left, observe what happens, and describe what you see, below. Point out where the preponderance of blue spheres is, after a few seconds.

- In one sentence, what is your hypothesis about the identity of the blue spheres being transferred?

- Move the “desired voltage” slide well to the right hand side, and observe what happens. Describe what you see.

- Click on the “Show Battery” box and check it (v). Which side is “top part of the battery”, right or left?

- Are the electrons at the “top of the battery” or at the “bottom of the battery”?

- Which side of the battery has the electron holes, right or left?

9. Slide the “voltage desired” slide all the way to the left, and observe what happens. In this new state,
- The “top of the battery” changed position because this part of the battery contains an excess of _____.
 - The “bottom of the battery” contains an excess _____. Because they are concentrated on that side of the battery, the battery electric charge on that side is (positive/negative). _____.
 - The materials that make up the ends of the battery are called **electrodes**. The **anode** is the positively-charged electrode. In the anode, the electrode material contains an excess number of electron holes. The anode of the battery is at the (top of the battery/bottom of the battery) _____.
 - The **cathode** is the negatively-charged electrode. In the cathode, the electrode material contains an excess number of electrons. The cathode of the battery is at the (top of the battery/bottom of the battery) _____.

ROOM FOR IMPROVEMENT

APPLICABILITY: This lab is best suited for (check all that apply):

- Physics I Honors/ Pre-IB Physics IB Physics 2 IB Physics 3 None of These

Comments:

IMPROVEMENT: This lab can be improved by:

Comments:

When complete you may either print and turn in a hardcopy or upload an electronic version to Focus. Ensure your filename is “LastnameFirstinitialPerXLabName”