

Science 9  
M. Lam

## Fruit Battery Lab

Name:

Block:

### **Purpose**

To determine what factors produce potential difference

### **Materials/Equipment**

lime, lemon or potato

various metal strips (copper, zinc, iron, nickel)

voltmeter

### **Procedure and Observations**

1. Select one piece of fruit and two metal strips (same or different).
2. Carefully insert the two metal strips into the fruit. The two metal strips should be about 2 cm apart and parallel to each other (use the same openings in the fruit each time).
3. Touch the leads from the voltmeter to the two strips and measure the voltage. Ensure the the reading is positive. If not, switch the leads.
4. Record the voltage readings in the table below.
5. When done with a set of metal strips, rinse and return them.
6. Repeat the steps until all combinations have been tried.

	Copper	Zinc	Iron	Nickel
Copper				
Zinc				
Iron				
Nickel				

## Calculations and Discussion

1. Draw a diagram showing the fruit, metal strips and charges (positive and negative) on the strips. Label the electrolyte and the electrodes.
2. What combination of metals produced the highest voltage?
3. What combination of metals produced the lowest voltage?
4. In general, how did the voltage produced by two similar metals compare to the voltage produced when two metals were different types?
5. Why was it important to use the same openings in the fruit each time?
6. How did the maximum voltage produced the fruit battery compare to a typical household battery (e.g. AA)?
7. List several reasons why fruit batteries would not be a good replacement for store-bought batteries.