

Name: \_\_\_\_\_

Date: \_\_\_\_\_

## Up and Down

Electricity is the movement of electrons. Electrons create charge, which we can harness to do work. Your light bulb, your stereo, your phone, etc., are all harnessing the movement of the electrons in order to do work. They all operate using the same basic power source: the movement of electrons.

The three basic principles for this activity can be explained using electrons, or more specifically, the charge they create:

Voltage is the difference in charge between two points.

Current is the rate at which charge is flowing.

Resistance is a material's tendency to resist the flow of charge (current).

### I. Objectives

In this activity, you should be able to:

1. Identify the relationship between the voltage (V) and current (I)
2. Identify the relationship between the resistance (R) and current (I)

### II. Materials

Personal Computer/Tablet/Android Cell phone

Answer Sheet

### III. Procedure

1. Connect your personal computer/tablet/android cell phone to any internet connection.
2. Open [www.phet.colorado.ph](http://www.phet.colorado.ph)
3. Type "ohm's law" on the search bar.
4. Under the simulation section click "Ohm's law(HTML)". (Wait for it to load.)
5. Click the play button.

6. Drag the adjuster under the voltage (V) up and down. Observe what happen to the illustrations on the left side. Write your observation in Table 1.

7. Do the same under resistance (R). Write your observation in Table 2.

#### IV. Observations

Write in the blank decreasing if the value decreases and increasing if the value increases.

Adjusted	Resistance (R)	Current (I)
Up	_____	_____
Down	_____	_____

Table 1

Adjusted	Voltage (V)	Current (I)
Up	_____	_____
Down	_____	_____

Table 2

Resistance (R) $\Omega$	Voltage (V) V	Current (I) A
_____	9	0.8
200	_____	0.5
125	3	_____

Table 3

#### V. Questions

1. What happens to the value of the current (I) when the value of the resistance (R) increases?

Answer: \_\_\_\_\_

2. What happens to the value of the current (I) when the value of the voltage (V) increases?

Answer: \_\_\_\_\_

3. What is the relationship between the current (I) and the resistance(R)?

Answer: \_\_\_\_\_

