Name: _____

Block: _____

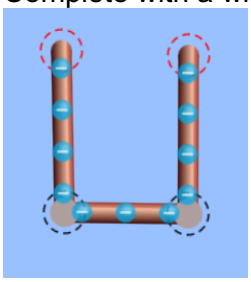
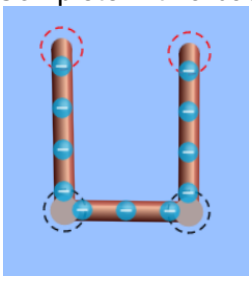
Science 9
Wolfe, Spring 2019

Phet Circuits Intro
(adapted from Clarke Phet Circuits Lab, Briana Clarke at Envision Academy)

1. Type “PhET html Circuit intro” to find and run lab.

Notice: A circuit is a path, like a circle, whose start and end are at the same place.

a. Complete the circuits below by drawing the missing element.
b. Write observation about electrons

Drawing	Observations about electrons
Complete with a wire 	
Complete with a battery 	
(Battery and eraser) 	

Notice: Current is the movement of electrons; it is measured at a rate through which electrons pass a certain point, like a battery, per second. The faster the electrons move, the higher the current.

2. Was there current for the circuit with the eraser? _____

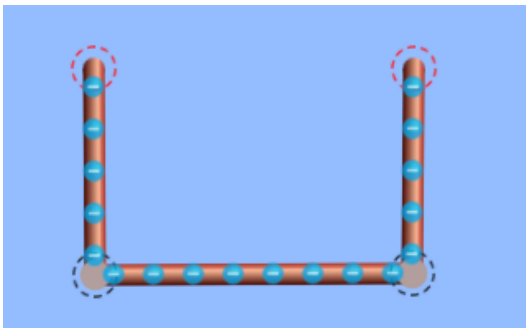
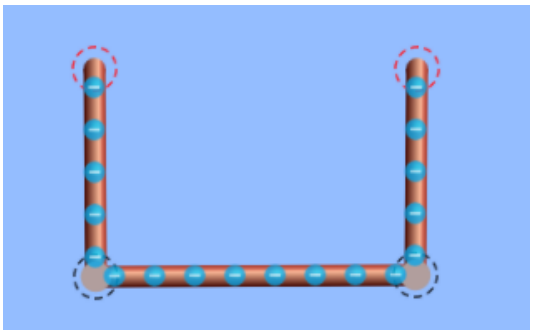
   Was there current for the circuit with just the wire? _____

3. Materials that are good at letting electricity through are called conductors. Try each item and see which let electricity flow easily and which slow or stop it.

Good conductors: _____

Poor conductors: _____

Batteries, like the ones in a tv remote controller, provide voltage. That voltage is pressure force that gives electrons the potential energy to move through a circuit.

Complete /Draw with a battery & paper clip	Complete/Draw with a battery and resistor
	

4. Compare the difference in current between the 2 pictures.

_____

_____

5. What does the resistor do to the electrons/current?

_____

_____

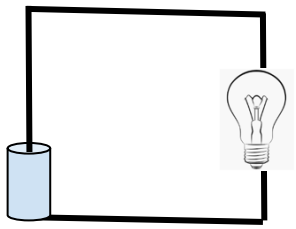
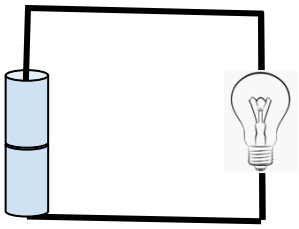
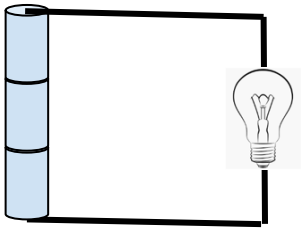
6. What do you think the resistor's purpose is?

_____

_____

Create 3 separate circuits side by side.

7. Draw circuits below with **light rays** for each scenario to represent “brightness.”
Label speeds of currents “slow, medium, and fast” and Label light bulbs “dim, medium, bright”

1 battery, 1 light bulb, wires	2 batteries, 1 light bulb, wires	3 batteries, 1 light bulb, wires
		

8. What happened to the current (speed of electrons) as the number of batteries increased?

_____

_____

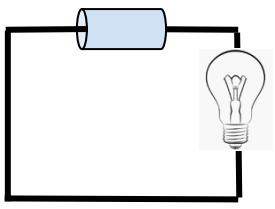
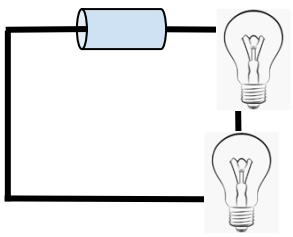
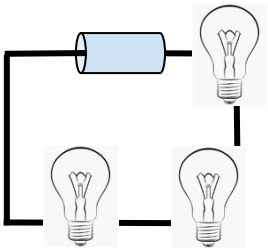
9. What happened to the bulb’s brightness as the number of batteries increased?

_____

_____

Create 3 separate circuits side by side.

10. Draw circuits below with **light rays** for each scenario to represent “brightness.”
Label speeds of currents “slow, medium, and fast” and Label light bulbs “dim, medium, bright”

1 battery, 1 light bulb	1 battery, 2 light bulbs	1 battery, 3 light bulbs
		

11. What happened to the current as the number of light bulbs increased?

_____

_____

12. What happened to the bulbs' brightness as the number of bulbs increased?

_____

_____

13. Try to think about how questions 11 and 12 are related. Give a theory to explain.

_____

_____

_____

_____

14. Remember what a resistor does. (Check Q&A 5). What do a resistor and a light bulb have in common?

_____

_____