Exploring Electric Charge

In completing this activity, you are to utilize some online applications and other online resources to make some conclusions regarding electric charge.

First, follow this link http://phet.colorado.edu/en/simulations/category/physics , select the given simulation, use the simulation and then respond to the questions listed.

Balloons and Static Electricity

1. What is the sign of the charge that moves from object to object? What are these charged particles called?

2. If only one type of charge moves from object to object, why can objects end up with an overall charge of both types (positive & negative)? It might be helpful to show only charge differences when trying to answer this question.

3. What do you need to do to charge a balloon? Explain what is occurring as you do this. Why is this necessary?

4. What occurs to the charge distribution in the wall when a charged balloon is brought near the wall?

5. Why does a charged balloon stick to the wall?

6. Why does a charged balloon stick to the sweatshirt?

7. Why doesn't the balloon simply lose its charge when it touches the sweatshirt, the second balloon, or the wall?

8. Explain how this simulation exemplifies Coulomb's Law as given in class and your reading.

John Travoltage

9. What are the purple things travelling through John?

10. Where do the purple things come from?

11. How is John different from the balloon in the previous simulation? (Hint: John is similar to the metal door knob).

12. Why, when John only has a few charges, don't the charges jump from John's hand to the door knob?

13. Explain why it takes more charge to shock John when his hand is farther from the door.

14. What is the sign of the charge induced in the door knob JUST BEFORE John is shocked. Explain.

15. Perform some online research and determine how lightning during a thunderstorm is formed. Briefly describe your findings in your own words.

16. Compare and contrast what you learned about lightning with what you observe with John in this simulation.

Electric Field Hockey

17. Describe how this simulation exemplifies Coulomb's Law. In your response, you MUST give specific examples that clearly illustrate how the applet illustrates this concept.

18. Now for your ultimate challenge. Try to score a goal on Difficulty Level 3. Record how many positive and negative charges you end up using to score your goal. Your objective is to use as few charges as possible.