Balloon Charging Lab
Physics

Name _____
1 2 3 4 5 6 7 8

www.simbucket.com -> Go to the sims! -> "Balloon Charging Lab"

Part I – Charging by Friction

1. Rub the balloon on the sweater. What happens to the electrons on the sweater?

2. Press the reset button to reset the simulation. Rub so that approximately half of the electrons transfer to the balloon. What happens to the balloon when you let go of it now?

a. The balloon is now charged (positive / neutral / negative).

b. The sweater is now charged (positive / neutral / negative).

Part II – A Charged Balloon + A Conducting Metal Can

3. Fully charge the balloon and wait for the sweater to disappear. You will now see a metal can. What do you notice about the electrons in the can?

4. Grab the balloon BEFORE it touches the can. Experiment by holding balloon close and far.

a. When the balloon is CLOSE to the can, the can is (very polarized / not very polarized).

b. When the balloon is FAR from the can, the can is (very polarized / not very polarized).

5. Hold the balloon CLOSE to the can, but NOT TOUCHING. Let go of the balloon. What does the balloon do?

a. The electrons in the can are (pushing the balloon away / pulling the balloon toward them).

b. The positive ions in the can are (pushing the balloon away / pulling the balloon toward them).

c. Overall, the force from the (electrons / positive ions) MUST be stronger.

5. Allow the electrons on the balloon to touch the can. You should notice that they jump to the can. Let go of the balloon. What happens to the balloon now?

Part III – A Charged Balloon + An Insulating Roll of Paper Towels

6. Reset the simulation, fully charge the balloon, and immediately switch to "Insulator". You will notice that the electrons in the insulator can't leave their atoms. Does the balloon still attract? Why or why not?

7. Is the net force on the balloon stronger or weaker than it was for the "conductor"? Why?