

Name: _____

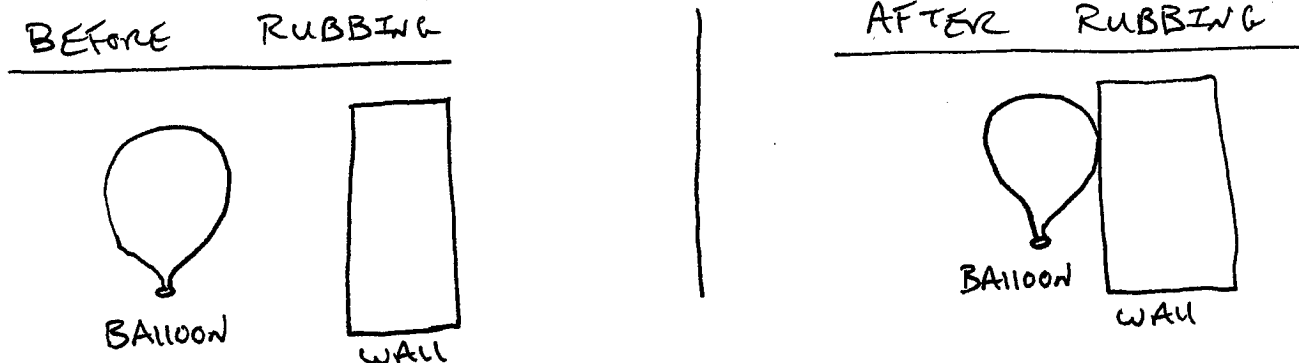
Date: _____

Hour: _____

Electrostatics Lab

1. Stuck-Up Balloon Activity

1. Blow up a balloon and tie the end so that the balloon stays inflated. Without doing anything else, hold the balloon against the wall and see if it will stick. Observe what happens.
2. Next, briskly rub the balloon across a piece of wool; you can use a sweater, sock, fur, hair, scarf, or rug.
3. Hold the balloon against the wall and see if it will stick. Does the balloon stay? _____
4. What conclusions can you make about the activity? Think about what might be happening to the atoms of the materials. Explain in terms of charge and polarization. Draw charges on the balloon and wall before rubbing and after to illustrate what is going on.



2. Dancing Balloon Activity

1. Blow up 2 balloons and tie each one closed so that the balloons stay inflated.
2. Tie a long thread or string onto the end of each balloon.
3. Give each balloon a static charge by rubbing it with fur, wool, or your hair as in the Stuck-Up Balloon Activity.
4. Hold each balloon by the end of the thread and try to bring the balloons close to each other. Observe what happens.
5. What conclusions can you make about the activity? Again, think about what is happening to the atoms in the balloons. Sketch a picture showing the respective charges on each balloon.

3. Run Away Cola Can

1. Blow up a balloon and rub the balloon on your head or a piece of wool to build up a charge.
2. Place an *empty* cola can (aluminum) horizontally on a smooth surface and slowly bring the charged balloon close to the can.
3. Observe what happens and record your observations.
4. Repeat steps 1 and 2 using a *full* can of cola.
5. Record what happened this time and why?
6. What causes the balloon and can to react the way they do?
7. Make a drawing of the scientific properties behind this investigation using the following terms: static, charge, positive (+), negative (-), attract, and repel.

4. Static Balloons

1. Rub a balloon on your hair, sweater, or piece of fur.
2. Now hold the balloon next to a pile of sugar.
3. What happened to the sugar when it was near the balloon?
4. What particles are responsible for making the sugar react?

5. Suspended Rods

1. Hang the plastic rod on a string by tying a string to the ceiling and taping the string to both ends.
2. Charge the hanging rod by rubbing the silk on the rod.
3. Charge another rod and place it near the hanging rod without touching them together.
4. Place the silk near the hanging rod without touching it to the rod.
5. What happened when the rods got near one another? Why?
6. What happened when the silk got near the rod? Why?

6. Paper Pickup

1. Gently rub a styrofoam plate with a piece of fur.
2. Pick the styrofoam plate up off the table and while holding it above the scrap pieces of paper, slowly lower it over top the paper bits.
3. What happens to the paper? At what height above the table does the charge start to effect the paper? Record this measurement. _____
4. When rubbing the styrofoam plate with the wool, does it pick up a positive or negative charge? How do you know?

7. Electrophorus

1. Test the interaction between the aluminum foil ball, pie plate, and styrofoam plate.
2. Carefully rub the styrofoam plate with a piece of wool or fur. Place the aluminum plate on the foam plate. Be sure to move the aluminum pie plate by only touching the foam cup. What happens to the metal foil ball? What does this indicate about the charge on the aluminum pie plate? Think about what you did to the styrofoam plate and how those charges affect the aluminum pie plate!
3. Now lift the aluminum pie plate to separate it from the foam plate. Record your observations. What happens to the metal foil ball? What does this indicate about the charge on the aluminum pie plate? How do you know?
4. Rub the styrofoam again with the piece of wool or fur. Now lower the aluminum pie plate back on top of the styrofoam. Observe the aluminum foil ball. Next move your finger towards the pie plate or aluminum foil ball. What happens? Where did the electrons move to?