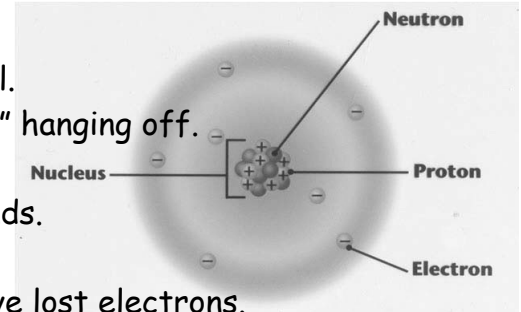


\*\*\*\* Electrons have a negative charge. \*\*\*\*

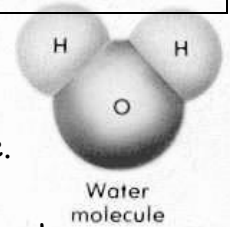
1. Pull a strip of tape of ABOUT 15 cm each off the roll. Place it sticky side down on your table with a "handle" hanging off. Repeat so you have two pieces of tape to use later. Make small "handles" by folding under the hanging ends.



2. Objects have a p\_\_\_\_\_ CHARGE when they have lost electrons. Objects have a n\_\_\_\_\_ CHARGE when they have gained electrons.
3. Electrons move from one object to another when touched or rubbed against another, like shoes on a rug. Sometimes these electrons move from your shoes through your hand to a door knob and you get a S \_\_\_ K! This is called S \_\_\_ C electricity.
4. Contact between two surfaces is important. Rubbing increases the surface area in contact, but is not necessary. For tape the two surfaces start in very close contact. When we pull the tape off the roll, or the table, one side of the tape likes electrons more than the other side, and it takes more than its share of el\_\_\_\_\_ with it when it goes. The one with the most electrons will have a \_\_\_\_\_ CHARGE.
5. Take one piece of your tape, and hang it from your fingertip. You can show it is has a CHARGE. Anything that attracts or repels another thing has a charge. Bring the strip NEAR (don't touch) another finger. What do you observe? \_\_\_\_\_
6. If the tape is attracted to your finger, that shows they each have a ch\_\_\_\_\_.
7. Next, take your second strip of tape and hang it from a finger on your other hand. Bring the strips toward (don't touch) each other. What happens? \_\_\_\_\_
8. You should find that the two strips are CHARGED the same way, which makes sense since they were both pulled off the same place. If they are charged the same way, they are both p\_\_\_\_\_ or both n\_\_\_\_\_. They should r\_\_\_\_\_, because like CHARGES R \_\_\_\_\_. If they don't repel, put them back on the table and pull off again.
9. Now, you will charge your two pieces of tape so they are CHARGED oppositely.
  - a) Take a piece of tape and put it down on the tabletop (leave one end up).
  - b) Put the second piece on top of it and rub it down (leave one end up).
  - c) Pull the two strips up together and touch them to eliminate CHARGE.
  - d) Now pull the strips apart and put them on your fingertips as before.
  - e) Bring them close together, without touching. What happens? \_\_\_\_\_

10. Opposites do A \_\_\_\_\_ !!

Have Checked



11. Now try this to demonstrate that water has a CHARGE.
- Using a faucet, get a smooth and thin, not drippy stream.
  - Prepare to charge a piece of tape by rubbing it down on a surface.
  - Pull the piece of tape up by both ends with your index fingers.
  - Hold the tape close to the water, with the sticky side facing the water
  - Look for ANY movement in the water stream.
  - Do the tape and water attract, repel or show no obvious affect?

- \_\_\_\_\_
- While holding the tape and WITHOUT TOUCHING the WATER with the TAPE, slowly make a half circle of tape around the water.
  - Do the tape and water attract, repel or show no obvious affect?
- \_\_\_\_\_

12. So we show the water has a CHARGE if it \_\_\_\_\_

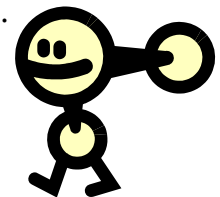
13. This lab shows forces between CHARGES. ELECTRICAL ENERGY means that you have CHARGES in motion. Electrical energy, the force that drives electrical current in a circuit, such as through the wires of light bulbs, is the basis for ELECTRICAL ENERGY.

\*\*\*\* REMEMBER TO REMOVE ALL TAPE FROM TABLES WHEN FINISHED!! \*\*\*\*

Try THIS:

14. Water has been shown to have BOTH negative and positive charges.

15. The OXYGEN in the water molecule GAINED ELECTRONS from the H \_\_\_\_\_ atoms.



16. The 2 H \_\_\_\_\_ each gave up an electron, to the OXYGEN.

17. For the water molecule, the hydrogen "ears" have a \_\_\_\_\_ charge and the oxygen "chin" has a \_\_\_\_\_ charge. Label the diagram at the top of the page, and the cartoon "water" character in this section.

18. Try to DEMONSTRATE:

- Give two strips of tape opposite charges as on the first page.
  - Try the water stream test with each, one at a time.
  - What did you observe? \_\_\_\_\_
- \_\_\_\_\_

Have Checked