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Static Electricity (cont.)

Getting Ready for the Activity

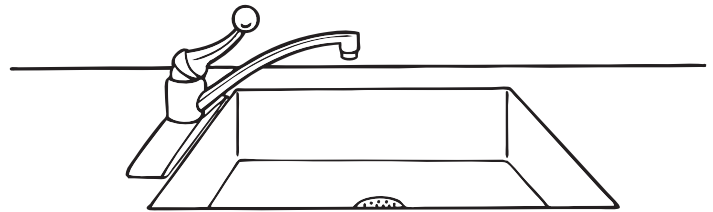
1. Make copies of the Science Journal page. Give one copy to each student.
2. Make copies of the Family Connection page. Give one copy to each student.
3. Reproduce word cards on cardstock (or heavy paper), laminate, and display.
4. Prepare the following stations prior to student participation. Determine how and when students will rotate (plan on 10 minutes per station). If water is not available, skip Experiment 2.

Station 1: Hair

- Hair Station Card
- balloons

Station 2: Water

- close proximity to a sink with a faucet
- Water Station Card
- balloons



Station 3: Styrofoam

- bag of Styrofoam pieces
- Styrofoam Station Card
- balloons



Introduce the Activity

1. Read a book of your choice that reinforces the theme of static electricity.
(**Suggestion:** *All About Electricity* by Melvin Berger)
2. Introduce the word cards for the unit. Discuss the meaning of new words and concepts.
3. Explain that the class will divide up into three groups and participate in three separate observation experiments. Each student will complete the experiments using the materials present at each station.
4. Describe the procedure for each of the experiments before having students break off into the three groups.
5. If appropriate, give each student a balloon. Have him or her blow it up and tie it off. Then, give each student a piece of string and have him or her tie it to the end of the balloon. Explain that the balloon will be used at all three stations. Some students may need help from an adult.



Static Electricity *(cont.)*

Procedure

Station 1: Hair

1. Rub the balloon on your hair.
2. Move the balloon near your partner's hair. Observe what happens.
3. Switch roles and repeat the experiment.
4. Record observations on the Science Journal page.

Note: If a student isn't able to use his or her hair to charge the balloon, they can rub their balloon on the carpet or their clothing.

Station 2: Water

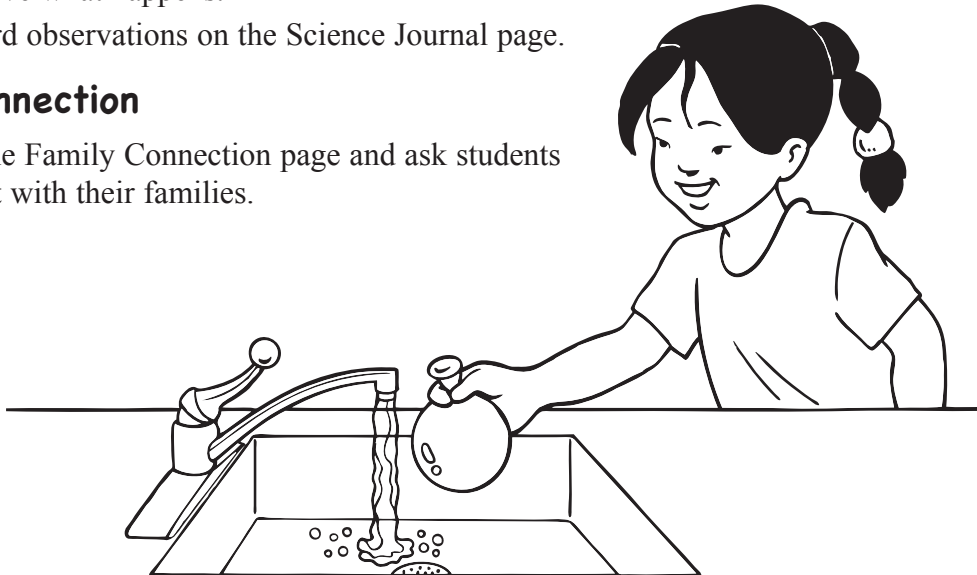
1. Turn on the faucet so there is a steady stream of cold water.
2. Rub the balloon on your hair for 10–15 seconds.
3. Move the balloon near the stream of water. Do not touch the balloon to the water.
4. Observe what happens to the stream of water as the balloon approaches. (The water should bend away from the balloon.)
5. Record observations on the Science Journal page.

Station 3: Styrofoam

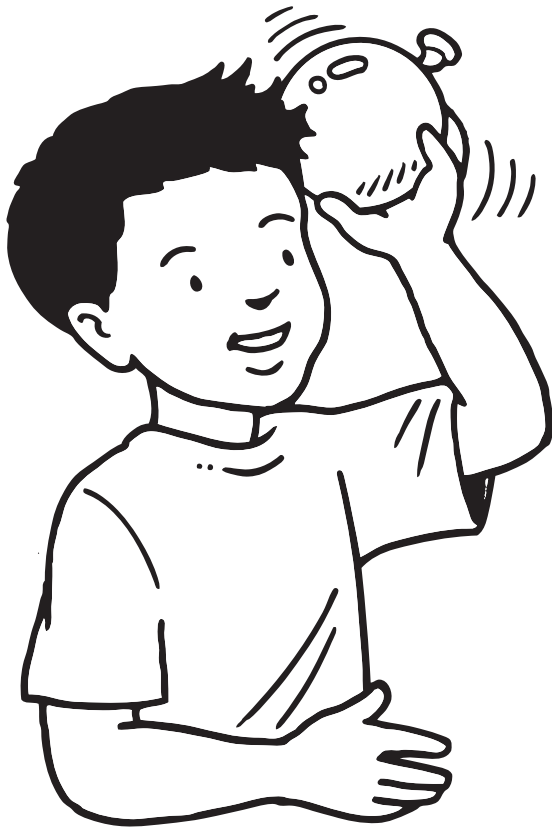
1. Rub the balloon on your hair.
2. Move the balloon over the top of the Styrofoam pieces.
3. Observe what happens.
4. Record observations on the Science Journal page.

Family Connection

Send home the Family Connection page and ask students to complete it with their families.



Fun Science Questions and Facts



What is Static Electricity?

All materials contain millions of tiny particles called protons and electrons. Protons have positive charges, and electrons have negative charges. They usually balance each other, but when two surfaces rub together (friction), some of the electrons rub off one surface and attach to the other, creating static electricity. Materials with like charges move away from each other, and those with opposite charges are attracted to each other.

When I rub a balloon on my hair, why does it make my hair stand up?

When you rub a balloon on your hair, the electrons from each hair jump onto the balloon leaving each individual hair positively charged. The balloon is negatively charged, and since your hair is positively charged, your hair and the balloon are attracted to each other. Since *like* charges move away from each other, each positively charged hair is trying to move away from another positively charged hair and ends up standing straight up.

Why do I sometimes get a “shock” when I touch the doorknob?

You create static electricity by walking across the carpet, and when you touch the metal doorknob—ZAP! You pick up extra electrons from your shoes rubbing against the carpet. Once you touch the doorknob, the electrons leave you and jump to the doorknob. You will feel a little shock, and if it is dark, you will see a little spark as the electrons jump across the air to the doorknob.

Name _____

Static Electricity

Station 1: Hair

Record what happened to your partner's hair during the experiment.

Station 2: Water

Record what the water looked like when you moved the balloon close to it.



Station 3: Styrofoam

Record what you observed when you moved the balloon close to the Styrofoam pieces.

