

Close Reading and Text Dependent Questions in Science Making Static (Magnetism and Electricity – Grade 4)

The text selection, *Making Static*, is found in *FOSS Science Stories Magnetism and Electricity*, pgs 10-11.



Look in the Student Learning Outcome (SLO) Documents for guidance on when this should be taught. These can be found on the BPS Science Department's website: <http://bpsscience.weebly.com/> You will find the Student Learning Outcomes documents organized there by grade level.



MAKING STATIC

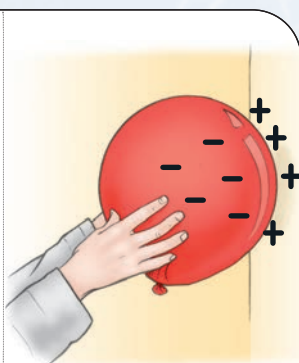
Electricity has different forms. One form is called *current electricity*. This electricity works the lights and TV in your home. Current electricity also flows in circuits you make with D-cells. Electricity has positive (+) charge and negative (-) charge. When electricity is flowing, charges are moving through the circuit.

Another form of electricity is *static electricity*. Static electricity is electric charge that is present on an object. Static means “stationary.” Static electricity is charge that is not moving.

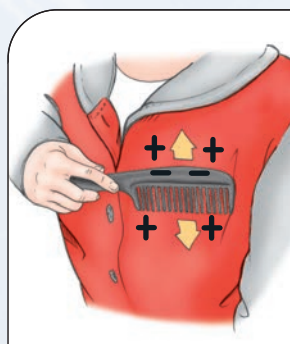
You can create a static charge in several ways. If you rub a balloon on a wool sweater, negative charges move onto the balloon. We say the balloon is negatively charged. If a charged balloon is brought near something that is positively charged, the opposite charges attract. A negatively charged balloon can stick to a positively charged wall. In the same way, a negatively charged comb can attract positively charged strands of hair.



Rub a balloon against your sweater.



Then stick it to the wall.

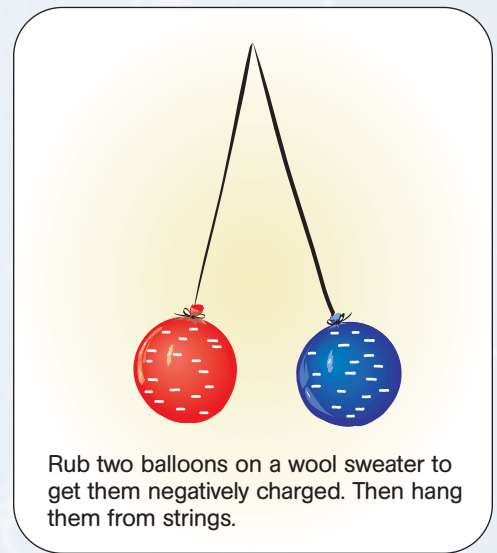


Rub a plastic comb against fabric.

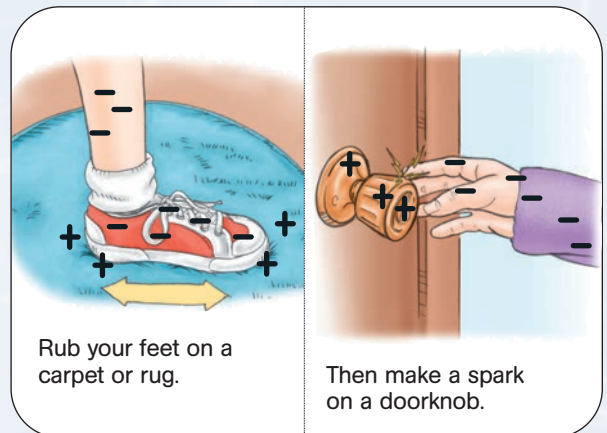


Then make your hair stand on end.

If you rub two balloons on a sweater, and hang them from strings, the balloons will repel each other. Why? Because they are both negatively charged. Similar charges repel.



When static charges build up really high, something exciting happens. A spark! When you reach for a doorknob after walking across a carpet, the charge jumps through the air. This is called *discharge*.



When clouds rub together, they pick up a huge static charge. When clouds discharge, a huge spark, called *lightning*, jumps from the cloud to the ground.

Making Static (Magnetism and Electricity – Grade 4) Student Questions

1. What does the phrase “current electricity” mean in the context it appears in the first paragraph?
2. What is the difference between current electricity and static electricity?
3. Why might a balloon stick to a wall?
4. How do the illustrations on page 10 help you understand the concept of attraction?

5. Why might two balloons that have been rubbed on sweaters not cling to one another?

6. Explain in your own words what causes lightning.

Making Static (Magnetism & Electricity – Grade 4)

Sample Answers

- 1. What does the phrase “current electricity” mean in the context it appears in the first paragraph?**

Current electricity is the kind of electricity you use to power lights and televisions, and is the kind of electricity that flows from batteries.

- 2. What is the difference between current electricity and static electricity?**

Static electricity, unlike current electricity, is a stationary electrical charge and not flowing or moving, like in current electricity.

- 3. Why might a balloon stick to a wall?**

By rubbing the balloon on a sweater, you can transfer negative charges onto the surface of the balloon. If the wall has positive charges on its surface, the opposite charges attract one another, causing the balloon to cling to the wall.

- 4. How do the illustrations on page 10 help you understand the concept of attraction?**

They show how positively charged hair will rise towards a negatively charged comb.

- 5. Why might two balloons that have been rubbed on sweaters not cling to one another?**

Both will have been given negative charges, and therefore with the same charges they will repel one another.

- 6. Explain in your own words what causes lightning.**

Lightning is caused when clouds rub together, build up a static charge, and then discharge. When the charge jumps through the air, from the cloud to the ground, you see lightning!