3M

Young Scientist Lab

in partnership with: Discovery EDUCATION

WHELMERS

Balloon Electroscope

An electroscope is a device that indicates the presence of static charges. You can use balloons to make an electroscope and witness the effect of static charges before your very eyes!

Note: This activity works best on a cool, dry, low-humidity day.

WHAT YOU NEED

- two balloons of similar size
- string (4 feet long)
- tape to attach the string
- wool cloth
- nylon cloth
- plastic wrap
- newspaper

WHAT YOU DO

1. Inflate the balloons with air until they are the same size, and tie them.
2. Attach one end of a 4-foot piece of string to each balloon. Hold the string at the midpoint and allow the balloons to hang freely.
3. Using one of the cloths, stroke both balloons in one direction, not back and forth. Experiment with different cloth types. One will probably work better than the others, depending on the humidity in your house or classroom. The like-charged balloons will repel each other and push apart.

WHAT HAPPENS

What we call electricity is really a collection of tiny particles called electrons. If electrons are in motion, we call them current electricity. If the electrons are not moving, we call them static electricity.

The stroking motion removes a number of electrons from the cloth (which acts as a charging cloth) and deposits them on the balloon, creating a static charge. Rubber is not a good conductor of electrons, so the electrons remain on the surface of the balloon.

Electrons bear a negative charge, and objects with like electrical charges repel—which is why the balloons push away from each other. Objects with unlike electrical charges attract each other. You might notice that the charging cloth often is attracted to the balloons.