# **Electrostatic Mixed-Up Tapes: Bonus**

Name(s):	
Bonus: Build a Tane Flectroscope	

An electroscope is an instrument that detects electric charges. Simple electroscopes have been around for hundreds of years. Benjamin Franklin used one as part of his experiments with electricity.

#### You will need:

- A roll of tape
- O A wooden dowel rod, ruler, yardstick, or piece of scrap wood at least 12 inches long.
- Something metal, like a key
- O Something rubber, like an eraser or ball
- A marker

### Directions:

- 1. Make a new set of Top and Bottom Tapes. Remember to label each tape.
- 2. If you do not remember the charges for the Top or Bottom Tapes, look back at Section IV.
- 3. Tape the Top and Bottom Tapes to the wooden dowel so the tabs are up and the long ends hang freely. Leave several inches between the two pieces of tape.
- 4. Rub the key several times.
- 5. Then, slowly bring the key towards the Top Tape and observe what happens.
- 6. Repeat using the Bottom Tape.

Remember, a charged object can attract an uncharged object or an object with the opposite charge. A charged object will repel an object with the same charge. Use this information to help you figure out whether the key is positively charged, negatively charged, or uncharged.

- 1. Next, repeat Steps 1-4 using the eraser instead of the key.
- 2. Use a fresh set of Top and Bottom Tapes each time unless you are working very guickly in an area with very dry air.

## What Happened?

Complete the table with your observations. There are extra rows so you can add your own materials to investigate.

Item	Top Tape (attract or repel)	Bottom Tape (attract or repel)	Item's Charge
Key			
Eraser			

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# Reflect:

What was surprising to you about the results?	
I was surprised by	
Because	
Were there any items that you couldn't figure out? Explain.	
How might you improve your electroscope design so that it is better able to	o detect charges?

