



# Electric and Magnetic Forces in Action

## Part 1. Electric Force

You will see how electric forces push and pull. This is what you will need:

- a roll of clear plastic tape
- a balloon
- something made of wool or a cat

This is what you do:

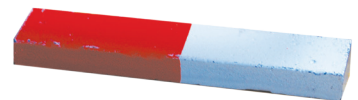
1. Tear off two pieces of tape about as long as your hand. Stick them to a desk or tabletop. Smooth them down. Leave one end free so you can peel them off.
2. Peel one strip of tape off with your right hand. Peel the other strip off with your left hand.
3. Let the strips hang down. Bring them slowly toward each other. Watch what happens.
4. Blow up the balloon and tie it shut.
5. Rub the balloon on the wool or the cat.
6. Try to stick the balloon to the wall or the ceiling.

Which things had the same charge (both positive or both negative)? Which things had different charges (one positive, the other negative)?

## Part 2. Magnetic Force

You will see how the same poles on a magnet push each other away. You will also see how different poles pull each other together. This is what you will need:

- three bar magnets—bar magnets look like this:
- a glass or plastic tube that the magnets will just fit into.



This is what you do:

1. Hold the tube up on end. Drop the magnets in one at a time.
2. What do you see? Are any of the magnets “floating”?
3. Try putting the magnets in different ways. Try to find a way that makes the top two magnets float above the others.

What does it mean when the top magnets float? What does it tell you about the magnet poles of the different magnets?