

# Magnets Coming and Going!

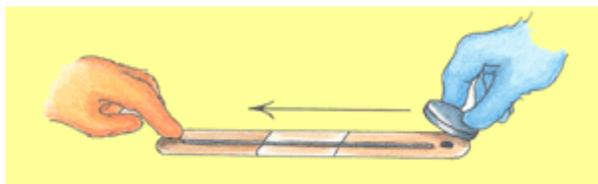
All magnets have two ends or poles. They are called the North pole and the South pole of the magnet. No matter how big or small the magnet is, it always has a north and a south pole. You can make two magnets and see how the poles of one magnet interact with the poles of the other.

## Materials:

- Strong magnet
- 2 metal paper clips
- 2 Popsicle sticks
- Tape
- Thread
- Pen

## Procedures:

1. Unbend the 2 paper clips until they are straight. Tape each paper clip to a Popsicle stick as shown.
2. Use a pen to make a dot or some other mark at one end of the Popsicle stick.
3. Take a strong magnet and place it on the paperclip at the end with the mark. Move the magnet along the paper clip all the way to the other end. Lift the magnet up and place the same end of the magnet back on the end of the paper clip with the mark. Move the magnet along the paper clip in the same direction as before.



4. Repeat step 3 about 10 times with each paper clip. This should make each paper clip into a magnet.
5. Take a piece of thread about 10-15 centimeters long and tie it around the center of one of the Popsicle sticks. Adjust the thread so that the Popsicle stick is balanced when you hold the end of the thread.

6. While your partner holds the end of the thread, pick up the other Popsicle stick. Bring the marked end of the stick near the marked end of the hanging stick. As you bring it closer and closer, what happens?



7. Now bring the marked end of the magnet you are holding near the unmarked end of the hanging magnet. What do you notice? Try other combinations of bringing the different ends near each other. What do your results show you?

## Think about this ...

If the same end of the magnets, like marked and marked or unmarked and unmarked, are brought near each other, the ends move apart or repel. If opposite ends, like marked and unmarked are brought near each other, they come together or attract. If you made another paper clip magnet but didn't mark the Popsicle stick, could you figure out a way to test it and then mark it so that its poles were the same as the first two paper clip magnets you made?

## Where's the Chemistry?

There are different ways to make a magnetic material into a magnet. One way is to move a strong enough magnet over and over the material in the same direction. This causes tiny areas of the material to become magnetized and to line up in an orderly way to make a magnet.



The American Chemical Society develops materials for elementary school age children to spark their interest in science and teach developmentally appropriate chemistry concepts. The *Activities for Children* collection includes hands-on activities, articles, puzzles, and games on topics related to children's everyday experiences.

The collection can be used to supplement the science curriculum, celebrate National Chemistry Week, develop Chemists Celebrate Earth Day events, invite children to give science a try at a large event, or to explore just for fun at home.

Find more activities, articles, puzzles and games at [www.acs.org/kids](http://www.acs.org/kids).

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## Safety Tips

This activity is intended for elementary school children under the direct supervision of an adult. The American Chemical Society cannot be responsible for any accidents or injuries that may result from conducting the activities without proper supervision, from not specifically following directions, or from ignoring the cautions contained in the text.

### Always:

- Work with an adult.
- Read and follow all directions for the activity.
- Read all warning labels on all materials being used.
- Wear eye protection.
- Follow safety warnings or precautions, such as wearing gloves or tying back long hair.
- Use all materials carefully, following the directions given.
- Be sure to clean up and dispose of materials properly when you are finished with an activity.
- Wash your hands well after every activity.

**Never** eat or drink while conducting an experiment, and be careful to keep all of the materials used away from your mouth, nose, and eyes!

**Never** experiment on your own!

**For more detailed information on safety go to [www.acs.org/education](http://www.acs.org/education) and click on "Safety Guidelines".**

