

Interactive Notes- Magnetism

Materials per group of 4 students:

- Demo 1 1-small paper clip with ~20cm fishing line or very fine thread tied to it
 1-ring stand and utility clamp (something to fasten the magnet to)
 1-bar magnet
 4-note sheets
- Demo 2 1-compass
 1-small strip of newspaper
 1-small strip of aluminum foil
 1-small piece of steel wool
- Demo 3 1-hanging magnet holder
 1-bar magnet (different from the one in demo #1)
- Demo 4 1-blank sheet of copy paper
 1-sandwich bag with about 2 grams of iron filings (item [#WW94154M06 at sciencekit.com](#)), with a small hole in the bottom corner

Teachers-have your own set of materials to demonstrate how to do these

Procedure:

Before doing demo #1, you might want to have the student doing demo #3 to go ahead and place the bar magnet in the hanging holder, so it has time it needs to settle.

Demo 1- Tell student #1 (of the 4) to dangle the paper clip on the end of a string near the magnet, and observe how it behaves. Now it's time to do the impossible- as the picture on the PowerPoint shows, hold the paper clip below, but still close enough to the magnet that it stays when you let go.

Demo 2- Have student #2 find the strips of aluminum and newspaper, the piece of steel wool, and compass. Ask which of these 3 materials can and cannot be magnetized. You'll get all kinds of answers. Have student #2 drag/stroke the newspaper strip over the clamped magnet 30 times and check its magnetism using the compass. The needle doesn't deflect, so it's not. Do the same with the aluminum (it's not), and the steel wool (it is!).

Demo 3- Have student #3 check back on the magnet in the hanging holder, which should now either be perfectly still or close to it. Ask which way the north end of it is oriented. Then go around the room, and "discover" that all the magnets in the room are doing the same thing! Coincidence? There must be another magnet at work somewhere causing this to happen. Where is it? (*earth!*)

Demo 4- Have student #4 lay a bar magnet on the table in front of them, cover it with a sheet of paper, and sprinkle iron filings all over the paper. Patterns showing the gorgeous lines of force emerge.

Clean up- spend the last 5 minutes cleaning up/getting ready for the next class. Leave a stack of note sheets somewhere for students to get, and pieces of steel wool. Keep extra aluminum and newspaper strips handy. Click [here](#) for more about Interactive Notes, like getting ready, presenting, and materials management.