

Project FOCUS
Best Lessons
THIRD GRADE

Title of Lesson: Electro Magnets

Theme: Magnets

Performance Standard(s) Covered (enter code):

S3P2. Students will investigate magnets and how they affect other magnets and common objects.

- a. Investigate to find common objects that are attracted to magnets.
- b. Investigate how magnets attract and repel each other.

Enduring Standards (objectives of activity):

Habits of Mind

- Asks questions
- Uses numbers to quantify
- Works in a group
- Uses tools to measure and view
- Looks at how parts of things are needed
- Describes and compares using physical attributes
- Observes using senses
- Draws and describes observations

Content (key terms and topics covered):

Electro Magnet

Electricity

Attraction

[Click here to enter text.](#)

Learning Activity (description in steps)

Abstract (limit 100 characters): During this lesson students will learn the key components needed to make an electro magnet (battery, copper wire, screw). Students will also learn that electro magnets work by using electricity to produce a magnetic field.

Details: Start the lesson by explaining what an electro magnet is to the students. Explain to the students that an electro magnet is created by using an electric current to produce a magnetic field. Once you have explained this to the students tell them what each part of their electro magnet will be used for (battery, copper wire, screw). Then divide the students into groups and pass out all the needed materials to each group. Start by having the students make a chart. One side of the chart will contain how many loops the copper wire makes around the screw and the other side will contain how many paper clips the electro magnet picks up. Once all the students have their chart made, demonstrate to them how to make an electro magnet. In order to make an electro magnet connect each end of the wire to each end of the battery and wrap the wire around the screw. The more loops you make

around the screw the stronger the magnet will become. Allow the students to make their electro magnets and explain that they need to start by only having 5 loops around the screw and increase by increments of 5 (5,10,15). Walk around the classroom and help out groups to make sure they are doing the experiment correct. After about 30 minutes bring the class back together and talk about the student's findings. The students should have seen that as the number of loops around the screw increases the stronger the magnet becomes. Make sure that the students use cotton balls when holding the wire to the battery because the battery has a tendency to become hot.

Materials Needed (type and quantity): [Click here to enter text.](#)

D Batteries

Cotton Balls

Screws

Copper Wire

Paper Clips

Notes and Tips (general changes, alternative methods, cautions): [Click here to enter text.](#)

Tip 1- You may want to explain how to make an electro magnet before passing out the materials because students have a tendency to play with the materials and not listen to you