

Project FOCUS  
Best Lessons  
FIRST GRADE

**Title of Lesson:** Exploring Characteristics of Magnets

**Theme:** Physical Science

**Unit Number:** 3      **Unit Title:** Magnets

**Performance Standard(s) Covered (enter code):**

S1P2b & S1P2c

S1CS6b

S1CS7b

**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):**

Concepts: Magnets pull through different substances (solids & liquids).

Different magnets have different strengths.

Items with iron are attracted to magnets.

Key Terms: magnet, attract (pull), iron, magnetic, non-magnetic

**Learning Activity (description in steps)**

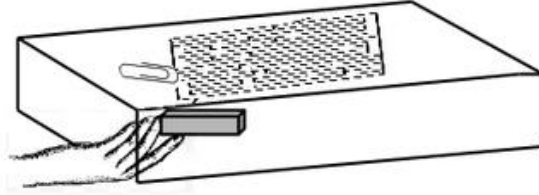
**Abstract (limit 100 characters):** Students work in groups and rotate between lab stations to explore characteristics of magnets.

**Details:** (Students should already know some basics about magnets before this lesson.)

Set-up each station beforehand, do a quick review with the class about what they already know, then explain the directions for each station and the behavioral expectations. Have students in groups of 4 rotate between stations, spending about 5-7 min at each one. Both you and the classroom teacher should facilitate (mainly stations 2 &4).

Station 1: Concept: Magnets can pull through some solid materials - paper & cardboard/wood & plastic.

\* Print out a maze(s) and tape it to one side of an empty cereal box(es). Students can put their hand in the cereal box, and holding a magnet, try to guide a paper clip through the maze. (If you have some really strong magnets, you can just print out the mazes and have the kids move the paper clip through their desks).



- \*Put a bunch of paper clips in an empty milk jug. Have students use a magnet to get the paperclips out of the jug while keeping the jug upright.
- \*Have students at this station take turns working with the milk jug and the mazes.

Station 2: Concept: Predicting strengths of different magnets (bigger magnets are not always stronger).

- \*Place a box of paperclips and 3-4 magnets of different shape/size and strengths at this station.
- \*Have the students work together to test the strength of each magnet by seeing how many paper clips each magnet attracts.
- \*Have them draw a picture of each magnet in their science notebooks (or on a piece of paper) and record the number of paper clips each magnet attracted, next to its picture.

Station 3: Concept: Magnets can pull through water.

- \*Set up a bucket/tub with about 2-3 inches of water (depending on the strength of your magnet), and place paperclips (or other small magnetic items) at the bottom.
- \*Have students try to collect all the items without getting their hands or their magnets wet.
- \*This lab doesn't take as much time as the others, so you can have the kids draw pictures of what they saw if they finish early.

Station 4: Concept: Predicting what is attracted to magnets, separating them, and recording data in a chart.

- \*Have a bag of different common household items (some magnetic, some not magnetic).
- \*Have students draw this chart in their science notebooks:

Picture of Item	Prediction (Yes/No)	Result (Yes/No)
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- \*Let students take turns picking an item out of the bag, drawing a picture of the item and making a prediction about whether or not it will be attracted to a magnet. Then have them test their prediction, separate the items into one of two piles (attract & does not attract), and record the result.

Station 5: Concept: Coins are made from different metals. Some metals attract and some do not.

- \*Some European coins (and other country's coins) are magnetic, while U.S coins are not.
- \*Have a Ziploc bag containing a mixture of some coins that are magnetic and some that aren't.
- \*Have students test each coin with a magnet to see if it is attracted, and then sort the coins into two piles.

### **Materials Needed (type and quantity):**

- \* Small magnets (1 per student is best)
- \* 1 box of paper clips (for mainly station 2, but also 1 & 3)
- \* 3 different kid's mazes printed out & some tape
- \* 3 empty cereal boxes (unless you have really strong magnets that can work through desks)
- \* 1 empty milk jug
- \* 3 extra magnets of different size & strength
- \* 1 medium/large bucket or tub

- \* 1 bag of different common household items (3-5 magnetic, 3-5 non-magnetic)
- \* 1 small Ziploc bag of coins (some magnetic, some not - European coins vs. U.S. coins work well)
- \*ALSO\*Optional but helpful: A sign at each station with the Station #, pictorial directions, and also a main question or concept that you want students to answer or think about at that station.

**Notes and Tips (general changes, alternative methods, cautions):**

If you have time, you might want to split up this lesson into two separate days so that they can spend more time at each station. Station 3 (involving the water) can get messy, so depending on the normal behavior of your class, you might not want to do this station/ or you should save it for a different day. If working with strong magnets, make sure the students don't get their hands caught, or bring them near electronics.

**Sources/References:**

- 1) <http://www.dolvinpta.org/ACORNS/Boxes/Magnets.pdf>
- 2) <http://www.need.org/needpdf/Exploring%20Magnets.pdf>