

Let's Explore Magnets

7

Learning Goals

- Define magnets as pieces of metal to which certain other metal objects stick
- Explain how magnets attract some objects but not others
- Explain that magnets have two poles
- Demonstrate that like poles repel and opposite poles attract

Video Summary

Exploration Segment

What holds paper on refrigerator doors? Children discover that magnets are pieces of metal that stick to certain other metal objects.

Concept Development Segment

Children classify a variety of objects according to their attraction to magnets. The hostess tells a story of how magnetism might have been discovered. She displays a lodestone and some manufactured magnets. Some children and their teacher work with bar magnets to discover how like poles repel and opposite poles attract.

Application Segment

Viewers see that magnets can be very powerful and do important jobs. "You Try It" challenges children to perform a trick with magnets and paper clips.

Key Words

attract	to draw toward
lodestone	a rock having magnetic properties
magnet	a piece of metal that attracts iron, nickel, and cobalt
magnetic	acting like a magnet
magnetism	the power to attract like a magnet
pole	an end of a magnet
repel	to push back or away

Let's Do It

- Demonstrate how a magnet can hold a piece of paper to a metal trash can or other metal object. Ask students, *What is holding the paper to the can?* Have children take turns removing and replacing the magnets to feel their pull. Introduce magnets as pieces of metal that stick to some objects.
- Tell students: *Watch this video to see what you can learn about magnets.*
- Begin the tape. Stop/pause it after children in the video have classified several objects according to their attraction to magnets. Now help your children explore magnetic attraction. Give them a variety of objects and have them use magnets to help them sort the objects into two piles: a "Yes" pile for those that are attracted to magnets, and a "No" pile for those that are not attracted. When finished with the activity, watch the rest of the video.

You Try It

Can you do this "magic" trick? Help students use magnetism to perform the trick shown in the video: Place several paper clips on a card table. Have a child drag a large magnet against the underside of the table, directly beneath the paper clips. Ask students, *What happened? Why?* Encourage them to devise other tricks they can perform with magnets.

More Exploring

Compare the strengths of different magnets. Give students a variety of magnets and compare how well they stick to a metal can or metal furniture. Then have them predict which magnet will lift the most paper clips. Have students test their predictions, then arrange the magnets in a line according to the number of clips they lifted.

Hang several bar magnets with color-coded poles in draft-free places in the classroom. Spin the magnets, then later ask children to observe which way the bars point. After they have hung overnight, ask children to observe their direction again. *Do they all point in the same direction?* Discuss how this action might be useful to people.

Hunt for objects that are attracted to magnets. Have students work in groups to tie one-foot-long pieces of string to ring magnets. The students should then walk around the room and slowly swing the magnets to see what objects are attracted to them. The groups should list the attracted objects with words or pictures. Compare the groups' lists.

How do magnets help us? Have children list the ways shown in the video, then brainstorm further ways that we use magnets. Emphasize how magnets can be used in the classroom (in cabinet fasteners, on bulletin boards, etc.).

Explore how magnets help metal recycling. Tell children that when we recycle cans, we must divide them into groups according to the metal they contain. Give students an assortment of cans that have been collected for recycling. Ask students how they could use magnets to sort the cans, then have them test their ideas.

Invent new tools that use magnets to perform unusual tasks. Have children draw or make models of their tools.

Play Go Fishin' by attaching a strong magnet to the end of a string. Tie the other end to a pole, creating a fishing rod. Spread a box of paper clips over the floor and see how many clips each child can retrieve with the magnetic rod. Or, spread objects made of different materials across the floor, and have students use the fishing rod to discover which objects are attracted to the magnet.

Math—Use the "Go Fishin'" activity above, attaching math problems to some of the paper clips and answers to other clips. Challenge students to fish for the answers that solve each problem.

Language arts—Use the “Go Fishin’” activity above, attaching words to each clip. Challenge students to write sentences using the words. For vocabulary lessons, attach a number of spellings (including only one that is correct) for certain words, then call out a word and have students fish for the correct spelling.

Have children use the key words from this lesson to write sentences about magnets.

Read aloud the following story (presented in the video) of how magnets might have been discovered, then answer the questions below.

Who First Discovered Magnetism?

One story says that thousands of years ago, a shepherd named Magnes stood on a certain black rock. When he tried to move, he felt something pulling at his sandals. The shepherd was standing on a magnetic rock called lodestone. The lodestone was pulling at the iron nails in his sandals. Some people say that magnets were named after Magnes the shepherd.

- *What was pulling on Magnes’ sandals?*
- *What was special about the rock where Magnes stood?*
- *What would happen if all rocks were magnetic, like lodestones?*

Write stories or draw pictures that tell your ideas.

