

# Magnets

Grades 4-6

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and S&S Learning Materials

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## Magnets and Magnetic Materials

Teacher Notes

Magnets are made of a material in which the electrons are aligned in one common direction, instead of randomly. Different types of magnets are used in the activities of this book:

- **The bar magnet is shaped like the letter “I”.**
- **The horseshoe magnet is shaped like the letter “U”.**
- **The donut magnet is shaped like a disk with a hole in the middle.**
- **Sticky strip magnets are typically sold in rolls. One side is covered in adhesive.**



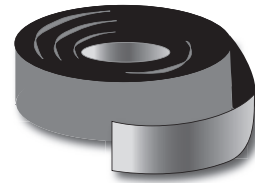
Bar magnet



Horseshoe magnet

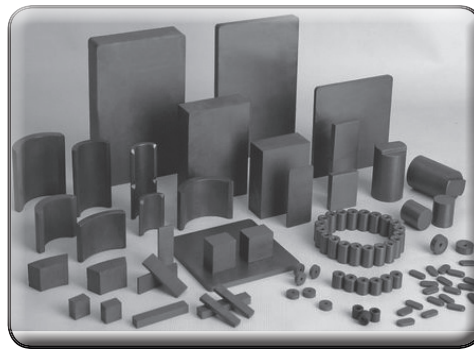


Donut magnet



Sticky strip magnet

The results of the experiments will be clearer if you use the most powerful magnets you can find. For example, ceramic magnets or rare-earth magnets work very well.



Rare earth magnets

### How to use magnets

- Avoid dropping magnets, as they may lose their strength.
- Do not place magnets near credit cards or they may be demagnetized.
- Do not place magnets near electronic devices, TVs, or computer screens, or they may be damaged.



# What Do You Know About Magnets?

Name: \_\_\_\_\_

Pre-assessment Quiz

## Activity I

You are going to be learning about magnets and doing all kinds of experiments with them. However, you probably already know a few things about magnets. How much do you know?

Which of the following objects can be attracted to magnets? Put a check mark ✓ in all the boxes that apply.

- |                                |                             |
|--------------------------------|-----------------------------|
| <input type="radio"/> Plastic  | <input type="radio"/> Wood  |
| <input type="radio"/> Iron     | <input type="radio"/> Paper |
| <input type="radio"/> Aluminum | <input type="radio"/> Glass |

**Do you think the following statements are true or false?  
Circle your answer.**

- |   |             |              |
|---|-------------|--------------|
| Magnets attract some metal objects.                   | <b>True</b> | <b>False</b> |
| A magnet could help me find a lost nail in a sandbox. | <b>True</b> | <b>False</b> |
| Magnets attract all metals objects.                   | <b>True</b> | <b>False</b> |
| Magnets come in different shapes.                     | <b>True</b> | <b>False</b> |
| Some rocks are magnetic.                              | <b>True</b> | <b>False</b> |
| Magnets are a new invention.                          | <b>True</b> | <b>False</b> |

Do you have any questions about magnets?

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# Magnets and Magnetic Materials

Teacher Notes

**Magnets attract some metals, but not all.**

## Some magnetic metals

- Nickel
- Iron
- Cobalt



## Some non-magnetic metals

- Copper
- Aluminum
- Lead
- Gold



Non-metallic materials (plastic, glass, cloth, paper) are generally not magnetic.

In the following activities, students will discover that magnets attract certain types of materials.

**Pick It Up** (page 15)

**What Is in My Cereal?** (page 17)

The teacher should prepare bowls half-filled with water for each student team, or ensure they have access to pitchers of water or a tap.

**Magnetic Money** (page 19)

The teacher should check the assortment of money in advance to make sure there are some magnetic coins and some non-magnetic coins included, in order to illustrate the idea that not all metals are magnetic.



# Introducing Magnets

Name: \_\_\_\_\_

## Activity 2



- a horseshoe magnet
- a bar magnet
- a donut magnet
- paperclips
- plastic buttons

In this activity, you will learn that there are many different kinds of magnets. You will learn what is special about magnets.

1. What do magnets look like?

a) A horseshoe magnet is shaped like the letter "U". Draw a picture of your horseshoe magnet.

b) A bar magnet is shaped like a rectangle. Draw a picture of your bar magnet.

c) A donut magnet is shaped like a donut! Draw a picture of your donut magnet.