What Is a Magnet?

1. Make copies of Student Resource 1.1, Vocabulary, and cut it up to make flashcards. Use the cards to introduce vocabulary words as they come up throughout the section.

2. Show students one of the ferrite magnets. Tell them that this object is a magnet. Ask: **What is a magnet?** (Accept all reasonable answers.) **What is special about magnets?** (Magnets pull on certain objects.) **What things that you know of are magnets?** (Answers may include refrigerator magnets or magnets in the classroom.)

3. Ask: **Do you know what kinds of materials stick to magnets?** (Students may say that metals stick to magnets. Accept all answers for now.) Tell students that in the next activity, they will test different objects to see which ones stick to a magnet.

Student Resource 1.1 (p. 10)
1. Distribute the materials.
Distribute the materials to pairs in plastic trays. Point out the ferrite magnet on the tray. Have students experiment with the objects on their own for a few minutes.

2. Students identify materials objects are made of.
Ask: What is the spoon made of? (plastic) Hold up each item and have students name it and tell what it is made of. Make a chart on the board listing each item and material. (spoon-plastic)

3. Distribute the Student Resource.
Make copies of Student Resource 1.2, What Sticks to a Magnet?, and distribute to students.
4. Students test magnetism and record results.
Tell students to test all the objects in their tray to see which of the objects stick to the magnet and which do not. Tell students to record their observations by circling the pictures of the objects that stuck to the magnet on the Student Resource. Tell students to draw an “X” through pictures of the objects that did not stick to the magnet.

5. Discuss results of tests.
Have students name all the objects that stuck to the magnet. Ask: What did the objects that stuck to the magnet have in common? (They were made of a certain kind of dark metal.) Explain that objects that contain the metal iron are pulled by magnets. But other metals are not pulled. Ask: What metals were not pulled by the magnet? (aluminum and copper) Explain that the rock on their tray is a special magnetic rock called magnetite. Magnetite is a mineral that contains iron.

Assessment
Ask: Can you name two things that were pulled by the magnet? (paper clip, iron nail, magnetite rock) Can you name two things that were not pulled by the magnet? (brass brad, copper disk, aluminum foil, rubber band, plastic spoon, wooden ruler)

Homework
Testing Objects at Home
Have students test items at home for magnetic attraction. Tell them to draw or list the items that were and were not pulled by the magnet and share their results with the class. Lend a ferrite magnet to students who do not have one at home. Make sure students bring the magnets back to class.

Safety
Warn students never to put magnets near computers, VCRs, TVs, disks or tapes as they could cause damage to these devices.
SECTION 1 WHAT STICKS TO A MAGNET?

Can Magnets Pull Through Objects?

**20 minutes**  

**Pairs**

**Objectives**
- Students experiment to find out how far the magnetic force of a magnet extends.

**Materials**

For each pair
- 1 pc. aluminum foil
- 1 *book, thick
- 1 *book, thin
- 1 pc. *cardboard
- 1 *facial tissue
- 2 magnets, ferrite
- 1 *ruler, wooden
- 5 shts. *white paper

*Not provided in kit

**Student Resource**
- 1.3 Force Goes Through

**Inquiry Focus**
- Compare

**In Advance**
Cut one 3” x 4” piece of cardboard for each pair.

1. **Demonstrate magnetic force through objects.**
   - Ask: *Do you think a magnet’s force can go through objects? (Accept any answers for now.)*
   - Hold up a piece of paper. Put one ferrite magnet on one side of the paper, and one on the other side. Move the magnet on the back side. (It will look to the students as if the magnet on their side is moving by itself.) Ask: *Is the magnet’s force going through the paper? (yes)*

2. **Distribute the Student Resource and explain the activity.**
   - Make copies of Student Resource 1.3, *Force Goes Through*, and distribute to students. Tell students to look at the first object pictured on the sheet. Have them place their magnets on each side of the object. If the magnets hold each other in place, the force goes through the object. If the magnets do not hold each other in place, the force does not go through the object. Tell students to circle the pictures of the objects that the magnetic force goes through. Have them draw an “X” through the pictures of the objects that the force does not go through.

**Teaching Tip**

**Step 2:** Students could also try moving one of the magnets to see if the other one moves.
3. Students test other objects around the room. When students are done testing the objects on the Resource page, tell pairs they may go around the room and conduct their experiments on other objects, as long as they return the objects to their proper places. Students should add pictures of the new objects they test to their Resource pages, circling or crossing them out to indicate whether or not the magnetic force went through them.

4. Discuss students’ results. Ask pairs to share their results. If any students got conflicting results, discuss why this may have happened. Then allow students to retest the objects in question.

Assessment
Ask: Can you name three things in the classroom that the magnetic force went through? (paper, facial tissue, aluminum foil)

Extension

Painting with Magnets
As an art project, put a paper clip and several drops of paint on a piece of paper inside an inverted box lid. Hold a magnet against the underside of the box. Have students use the magnet to drag the paper clip through the paint, mixing the colors. This activity could also be done on a paper plate, but may be messier.

Safety
Step 3: Warn students never to put magnets near computers, VCRs, TVs, disks, or tapes, as they could cause damage to these devices. Hang a large “No” sign on objects students should not test.
1. Divide the class into three groups. While one group is working to complete the hands-on portion of the assessment, the other two groups should be completing the first page of the assessment. Rotate the groups until each student has completed each part of the assessment.

2. Make copies of Student Resource 1.4, Section 1 Assessment, Pages 1 and 2, and distribute to students. Give students the following instructions for completing each part:

**What Is It?**
Help students to write the name of the object pictured on the line provided.

**Will the Force Go Through?**
Tell students to look at the pictures and circle the objects that the magnet force would go through.

**Will It Stick to a Magnet?**
Tell students to look for objects in the classroom that will stick to their magnets. Then, have them make predictions by drawing pictures of two objects they think will stick to their magnet. (If students are struggling with drawings, have them tell you the object they have in mind and write the name of the object for them in the box.) Students should then test those objects and circle the objects that did stick to the magnet.

3. Discuss the answers as a whole-class activity.