

Material Preparation

MATERIALS

- large metal paper clip
- small bowls
- magnetic and nonmagnetic objects:
 - *magnetic*: large metal paper clip, metal key ring, large metal washer or baby food jar lid, pair of child-safe metal scissors, metal kitchen spoon or utensil
 - *nonmagnetic*: craft stick, rubber band, large plastic button or bead, wooden block, sea shell, small plastic game chip, real or artificial leaf, cotton ball
- large strong horseshoe magnet
- strong ring magnet
- ECHOS Book: *Why Is This Rock Special?*

For each child:

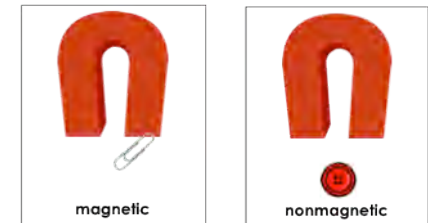
- bowl containing an assortment of magnetic and nonmagnetic objects (see suggestions above)
- magnet wand
- set of *Magnetic and Nonmagnetic Sorting Cards*
- *Ask Me About Magnets* sticker

TEMPLATES

Magnetic and Nonmagnetic Sorting Cards

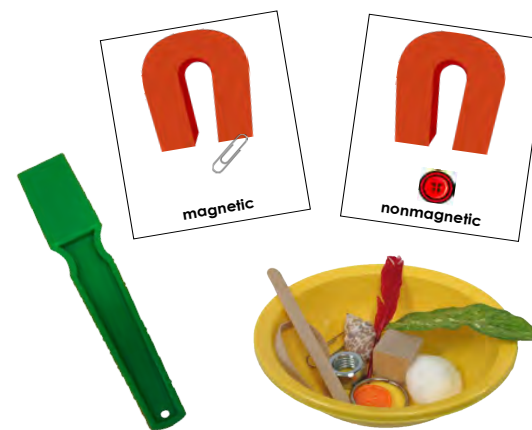
PREPARE IN ADVANCE

- Follow the instructions on the *Magnetic and Nonmagnetic Sorting Cards* to create one set of sorting cards per child.
- Fill one small bowl per child and one for the teacher with magnetic and nonmagnetic objects from the material list.



SET UP THE LESSON AREA

- Gather the horseshoe magnet, ring magnet and one large metal paper clip.
- Set aside one bowl of magnetic and nonmagnetic objects, a magnet wand and a set of sorting cards for each child.



For each child



OBJECTIVE

Children will classify objects as magnetic or nonmagnetic.

EXCITE

Gather the children in the ECHOS lesson area. **I am going to pick up this paper clip without using my hands. Watch and see.** Reveal the ring magnet. Place the magnet just above the paper clip so as to make the paper clip jump up toward the magnet. **Wow! Did you see that? I didn't even use my hands.** Hold up the ring magnet for the children to see. **I used something special to pick up the paper clip. I used a *magnet*.**



INTRODUCE

1. Remove the paper clip and set the ring magnet aside. **Today I am going to read you a story about a little girl who discovers something special about magnets.** Reveal the ECHOS storybook: *Why Is This Rock Special?* **The title of this book is *Why Is This Rock Special?*** Read the story to the children.
2. Set the book aside. **Clara discovered something about magnets. We can discover something, too.** Hold up the horseshoe magnet. **I have another magnet that is a different size and shape. This one is called a *horseshoe magnet*.** Hold up the ring magnet in the other hand for the children to observe and compare them. **What is different about these two magnets?** Listen to the children's responses.
3. **Let's see if this horseshoe magnet can pick up the paper clip.** Point to the bottom of the horseshoe magnet. **The magnets are located at the bottom of the horseshoe magnet.** Select a child and guide the child to move the magnet just above the paper clip until it jumps up to the magnet. **Wow! You did it.**



4. **Let's see what other objects this magnet will pick up.** Empty one bowl of magnetic and nonmagnetic objects on the table. Pass the magnet to another child. **Move the magnet around just above the objects. Let's see what happens.**

5. Remove the magnetic objects from the magnet and place on the table. **This horseshoe magnet picked up some of the objects, but not all of them.** Hold up a magnetic object. **Did the magnet pick up this object? Yes, it did.**

6. **This object is *magnetic*. A magnet can *attract* or *pull* the magnetic object toward it. Let's say that word while I clap. Ready?**

Mag-net-ic

(clap) (clap) (clap)

Say it fast. Yes, magnetic.

7. Hold up a nonmagnetic object. **Did the horseshoe magnet attract, or pull this object? No, it didn't. Objects that are not attracted by a magnet are called *nonmagnetic*. That's a long word. Let's say it while I clap.**

Non-mag-net-ic

(clap) (clap) (clap) (clap)

Say it fast. Yes, nonmagnetic.

8. Point to another nonmagnetic object. **Do you think this object is magnetic? Listen to the children's responses. Let's find out. Did the horseshoe magnet pick it up? Listen to the children's responses. No, it didn't. It's nonmagnetic.**



EXPLORE


1. Place all the objects back in the bowl. **Let's take turns using the magnet. I will give you each a turn to use a magnet. Choose an object from the container, holding it closed in your hand. Select a child who will go first. Hold out your hand and I will give you something. Look closely at the object.**
2. **Do you predict that your object is magnetic or nonmagnetic?** Listen to the child's response. **That's a good prediction. Now let's test your prediction.** Give the child the horseshoe magnet to test his/her prediction. Repeat until every child has had a turn to choose an object, and then predict and test whether it is magnetic or not.
3. **Next, you will explore on your own.** Give each child a bowl of objects, a magnet wand, and a set of *Magnetic and Nonmagnetic Sorting Cards*.
4. **Use your magnet wand to test whether each object in your bowl is magnetic or nonmagnetic.** Hold up a *Magnetic Sorting Card*. **Place all magnetic objects on the *Magnetic Sorting Card*.** Hold up a *Nonmagnetic Sorting Card*. **Place all nonmagnetic objects on the *Nonmagnetic Sorting Card*.** Interact with the children as they explore the objects. Assist when needed, so that the children are correctly identifying the objects as magnetic or nonmagnetic and placing the objects on the correct sorting card.
5. Conclude with a comparison of objects on each child's cards, reinforcing which objects were magnetic and which were nonmagnetic.



INTERACT

Interact to accommodate children's individual needs and strengths. Use this suggested strategy as needed: Some children may need help sorting objects correctly. Suggest/prompt by asking: **Did it pick up the object? If it picked it up, it is magnetic. Was the object shiny? Shiny objects are more likely to be magnetic, but you'll have to test it with a magnet to make sure.**

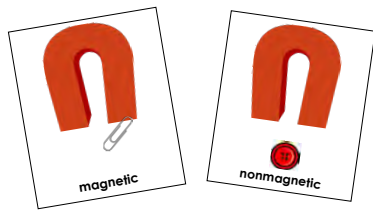
OUTCOMES

1. Regroup the children in the ECHOS lesson area. **What did we discover today?**
Listen to the children's responses. If needed, use suggested prompts to elicit key concepts and vocabulary. Encourage responses from everyone.
 - **What did you notice about magnets?**
 - **Which objects were magnetic?**
 - **Which objects were nonmagnetic?**
 - **How did you find out which objects were magnetic and which were nonmagnetic?**
2. Give each child an *Ask Me About Magnets* sticker. 

Remind the children to tell their family something they have learned about magnets.
3. After you have completed *Lesson #1: What Does a Magnet Do?* with all the children in your classroom, add the ECHOS materials suggested below to your science area to encourage exploration.

VOCABULARY

- attract
- horseshoe magnet
- magnet
- magnetic/nonmagnetic
- pull



**Magnetic and Nonmagnetic
Sorting Cards**



magnet wands



large horseshoe magnet



ring magnet



**bowl containing an
assortment of magnetic
and nonmagnetic objects**

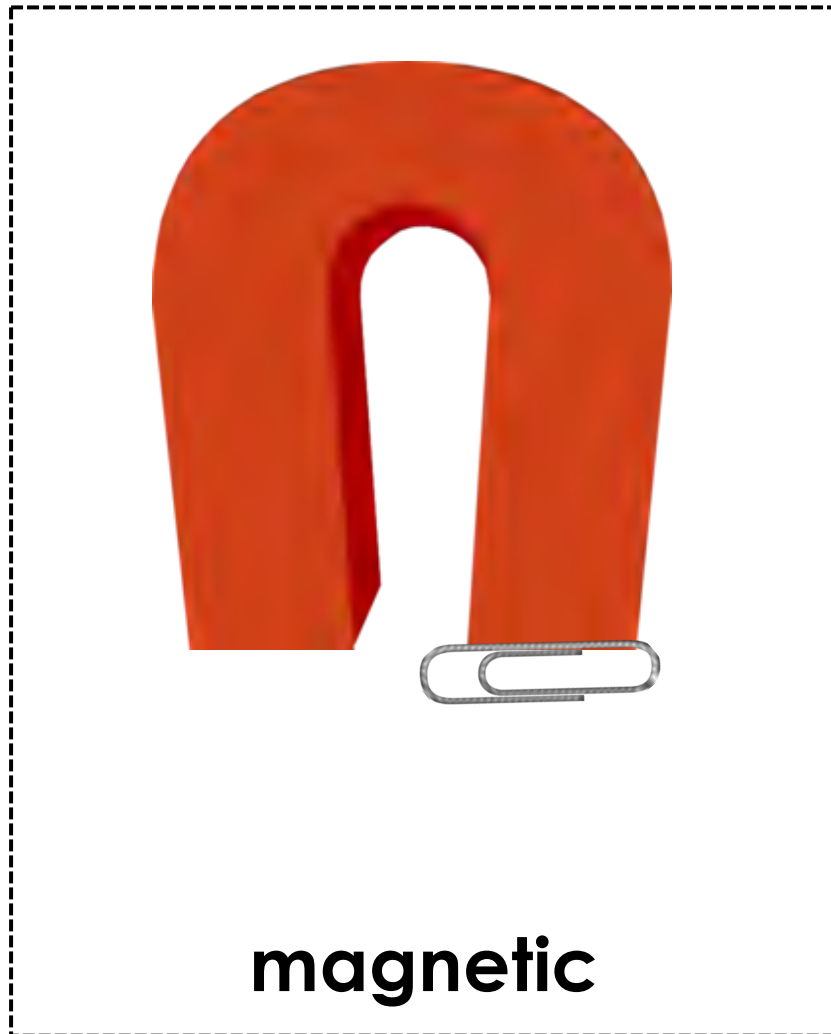


**ECHOS Book:
Why Is This Rock Special?**

Magnetic and Nonmagnetic Sorting Cards

Instructions:

1. Make one photocopy of this page per child.
2. Cut along the dotted lines.
3. Each child gets one *Magnetic Sorting Card* and one *Nonmagnetic Sorting Card*.



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