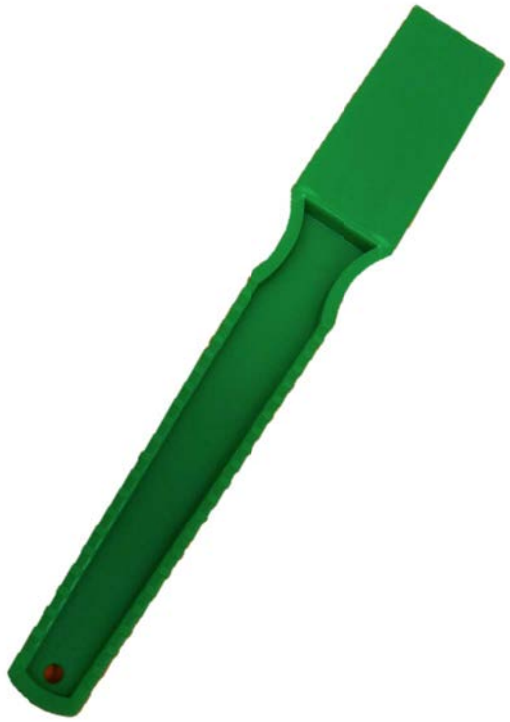
Magnet Cards

Instructions:
1. Make one photocopy of this page.
2. Cut along the dotted lines.



magnet wand

alphabet magnet

Material Preparation

MATERIALS

- two 1” wooden blocks
- large metal paper clip
- large strong horseshoe magnet
- small strong horseshoe magnet (remove metal bar)
- plastic sandwich bag with a zipper lock
- small plastic drinking cups
- sheet of 18” x 24” chart paper or poster board
- permanent marker

For each child:

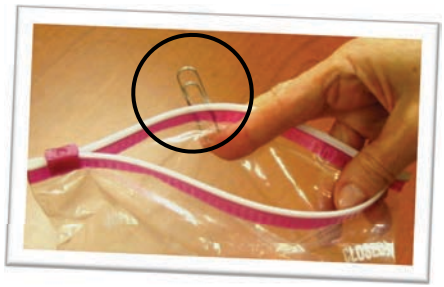
- 5-oz. cup containing 20 large metal paper clips
- magnet wand
- alphabet magnet
- *Ask Me About Magnets* sticker

TEMPLATES

Magnet Cards

PREPARE IN ADVANCE

- Attach a large metal paper clip to the plastic bag by making a small hole in the bag just below the zipper on one side of the bag. Hook the paper clip through the bag. Leave the zipper of the bag open.
- Fill one cup with 30 large metal paper clips.
- Create a *Comparison Chart*:
  - Write each child’s name on the chart.
  - Follow instructions on the *Magnet Cards* page.
  - Tape *Magnet Cards* to chart.

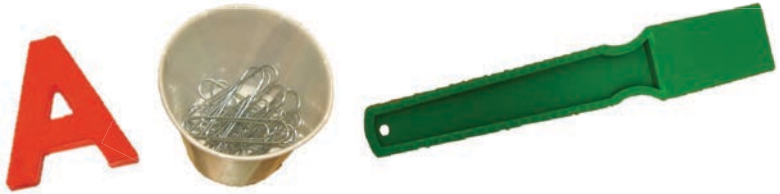


Comparison Chart

		
Michael		
Nick		
Brendan		
Ylsa		
Kayla		

SET UP THE LESSON AREA

- Gather the small horseshoe magnet, cup with 30 paper clips, two blocks, and the plastic sandwich bag.
- Set aside a set of materials for each child.
- Hide the large horseshoe magnet nearby.



For each child

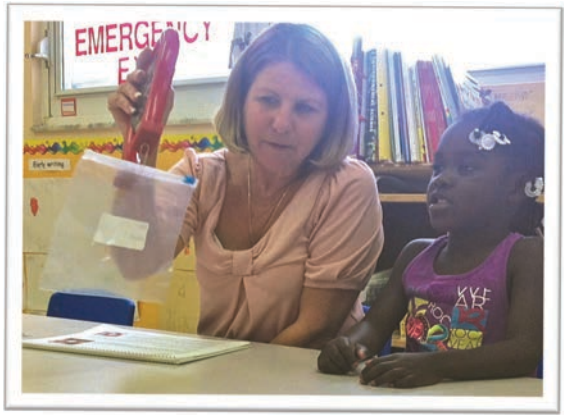
OBJECTIVE
Children will explore magnets and classify their magnetic strength.

EXCITE

1. Gather the children in the ECHOS lesson area. Hold the horseshoe magnet in your hand and hide it behind your back. Empty the cup of 30 paper clips on the table. Reveal the magnet. **Would you like to see something amazing? This horseshoe magnet is going to attract, or pick up, not one, but many paper clips. Watch what happens.**

2. Hold the magnet over the pile of paper clips. If the magnet does not attract all of the paper clips at once, continue to attempt to pick up all of them.

INTRODUCE



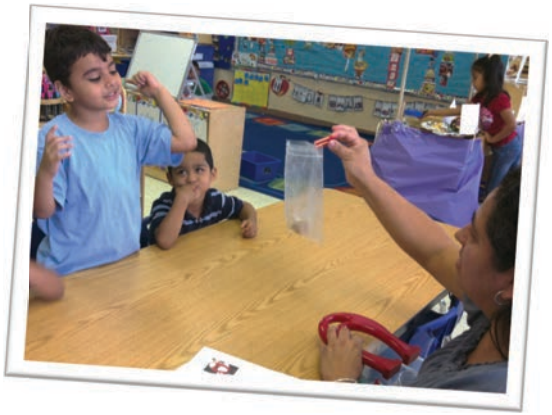
1. **This magnet picked up many paper clips.** Remove the paper clips from the magnet and leave them in a pile on the table. **It has a *strong magnetic force*.**

2. Hold the plastic bag in one hand. **Do you think this horseshoe magnet will pick up this bag?** Listen to the children's responses. **What do see on this bag? Yes, I put a paper clip on the bag. Remember, a paper clip is magnetic. Do you think the magnet can pick up the bag?** Accept responses.

3. Hold the horseshoe magnet over the paper clip hooked to the bag. Count: **1, 2, 3.** Attempt to pick it up. The magnet will pick up the bag. **What happened?** Listen to the children's responses.

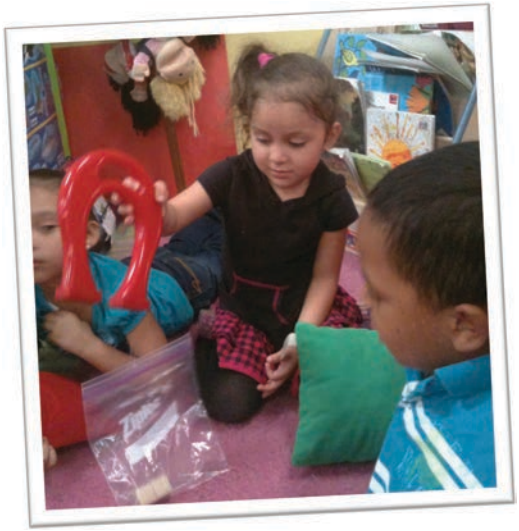
4. Place one of the blocks in the plastic bag. Hold the horseshoe magnet over the paper clip hooked to the bag. **Do you think this horseshoe magnet will pick up this bag?** Count: **1, 2, 3.** Attempt to pick up the bag. **What happened?** Listen to the children's responses and observations. The magnet should pick up the bag. Try until it does. You may need to make several attempts or adjust the paper clip's connection to the magnet.

5. **Let's investigate the *strength* of another magnet.** Hold up the small horseshoe magnet in one hand and the large horseshoe magnet in the other hand to compare their size and shape with the children. **What's different about these magnets?**



6. **Let's see if this small magnet can do the same thing as the big magnet.** Use the same bag with one block in it. **Do you think it will pick up this bag?** Listen to the children's responses. Count: **1, 2, 3.** Attempt to pick up the bag. **What did you see happen?** Listen to the children's responses and observations. The small horseshoe magnet should pick up the bag.

7. **Let's make the bag heavier and see how strong these magnets are.** Add another block to the bag. **We'll try both magnets again this time. I will let someone else try.** Choose one child and give him/her the large horseshoe magnet. **Try to pick up the bag with this big magnet.** The bag will not be lifted at all or lifted just a little, and then drop.

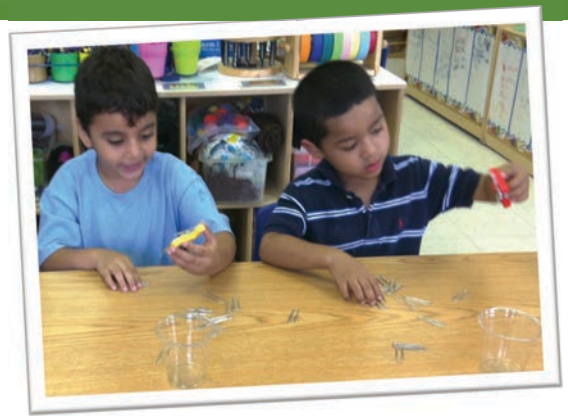


8. **Now, try to pick up the bag with the small magnet.** Give the child the small strong horseshoe magnet. **What happened?** Listen to the children's responses.

9. **Let's have someone else try to pick up the bag with the small magnet.** Choose another child. Give the child the small horseshoe magnet. Compare the two attempts. **Which magnet picked up the bag when it had two blocks in it?** Listen to the children's responses. Hold up the strong magnet. **Yes, this magnet was *stronger* even though it is smaller.**

EXPLORE

1. **Now it's your turn to investigate magnetic strength.** Give each child an alphabet magnet. **This is an alphabet magnet. Look on the back to see the little magnetic pieces. These magnetic pieces will attract paper clips.**



2. Here is another type of magnet. Give each child a magnet wand. **This one is called a magnet wand. This magnet wand can attract paper clips, too. Which do you predict is stronger?** Listen to the children's responses. **Let's investigate and find out!**

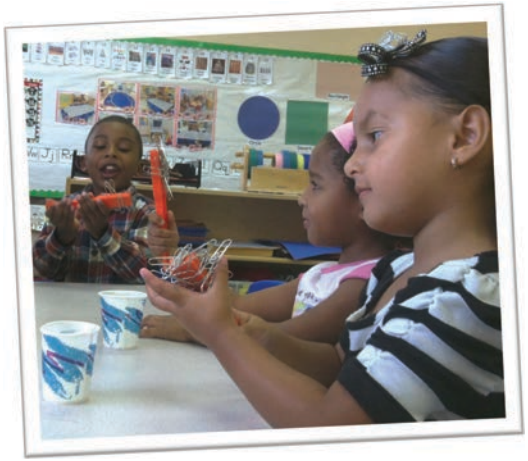
3. **Let's try the alphabet magnet first. Empty your cup of paper clips onto the table and place the magnet over the pile. What do you see happening?** Listen to the children's responses. Allow time for free exploration.

4. **Try to collect as many paper clips as possible and then STOP! Let's count how many. I have a chart with your names on it and next to your name I'll write how many paper clips were attracted to your alphabet magnet.** Guide the children as they count the paper clips one by one as they pull them from the magnet. Write the number for each child in the alphabet magnet column.

Comparison Chart

		
Michael	4	
Nick	2	
Brendan	3	
Ylsa	3	
Kayla	2	

5. **Let's compare the strength of the magnet wand to the alphabet magnet. I wonder which magnet will be stronger. Let's find out.**
   - **Set aside your alphabet magnet.**
   - **Put your paper clips in the cup.**
   - **Empty your cup again.**
   - **Place the wand over the pile. What do you see happening?** Listen to the children's responses. Allow time for free exploration.

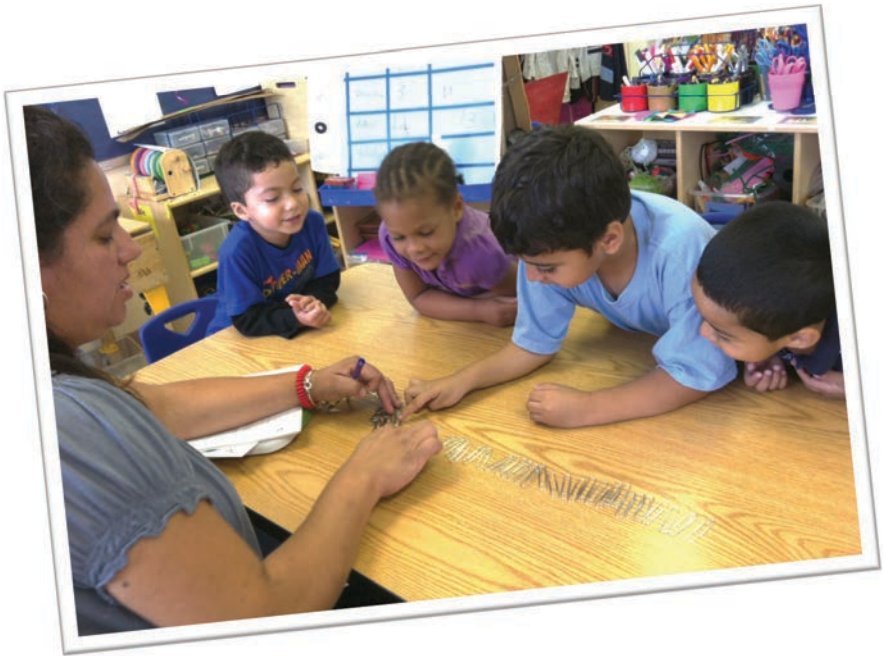


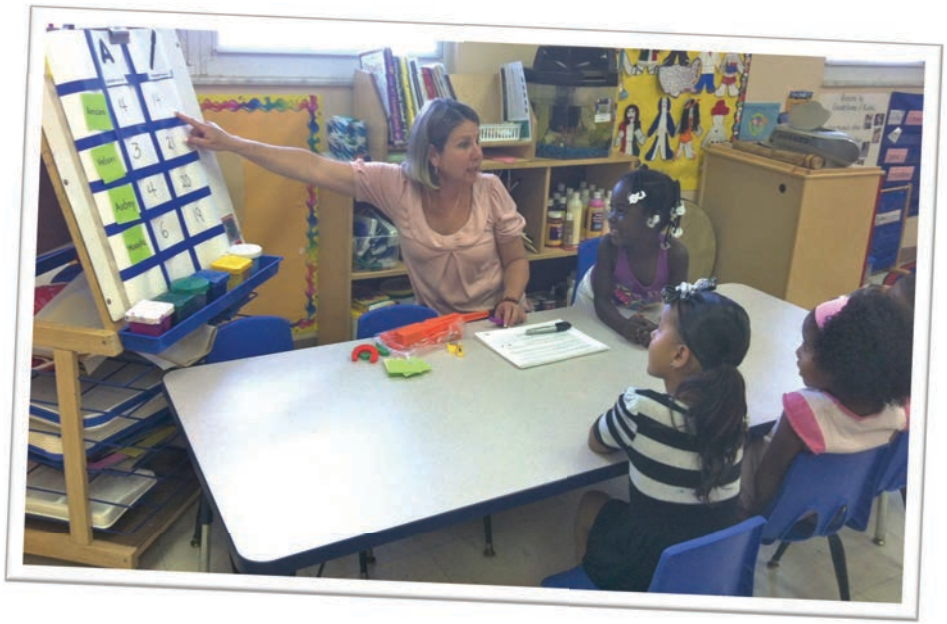
6. **Keep trying to collect as many paper clips as possible and then STOP! Let's count how many. I'll write how many paper clips were attracted to your magnet wand on the next column.** Guide the children as they count the paper clips one by one as they pull them from the magnet. Write the number for each child in the magnet wand column.

7. **Which magnet was stronger?** Listen to the children's responses. **Let's look at our numbers.** Compare the two columns of numbers verbally. **The column with highest numbers is the stronger magnet. Which magnet picked up more paper clips?** Listen to the children's responses. **You were great magnet investigators today!**

Comparison Chart

		
Michael	4	10
Nick	2	12
Brendan	3	9
Ylsa	3	16
Kayla	2	13





INTERACT

Interact to accommodate children's individual needs and strengths. Use these suggested strategies as needed:

- Further descriptions of weak versus strong may help the children to recognize the varying strengths of magnets.
- Assist children as they remove their paper clips to count them.

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 learn about magnets today?**
   - **Do all magnets have the same strength?**
   - **How did you find out which magnet was stronger?**

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 #2: Mighty Magnets* with all the children in your classroom, add the ECHOS materials suggested below to your science area to encourage exploration.

Vocabulary

- magnetic force
- strength
- strong/stronger

alphabet magnets

	alphabet magnet	magnet wand
Michael	4	10
Nick	2	12
Brendan	3	9
Ylsa	3	16
Kayla	2	13

Comparison Chart

small strong horseshoe magnet

Magnet Cards

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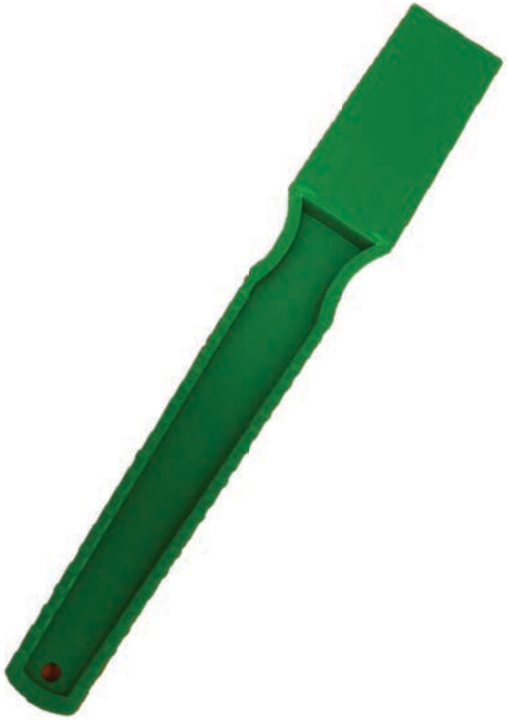

magnet wand

alphabet magnet