



This segment will introduce students to magnets. They will use various magnets to demonstrate that magnets push and pull other magnets and can move and pull magnetic objects. This leads to understanding that magnets attract and repel.

Student Science Performance

Grade or course: First Grade	Title:
Topic: Magnets	To Attract or Not to Attract

Performance Expectation for GSE:
S1P2: Obtain, evaluate, and communicate information to demonstrate the effects of magnets on other magnets and objects.

- Construct an explanation of how magnets are used in everyday life.
- Plan and carry out an investigation to demonstrate how magnets attract and repel each other and the effect of magnets on common objects.

Performance Expectations for Instruction:

- Students will explore how magnets are used in everyday life.
- Students will investigate how magnets attract and repel one another.
- Students will explore how various objects will be affected by a magnet.
- Students will observe that motion is dependent on the strength of the push or pull to move objects attracted by magnets.

[Additional notes on student supports](#)

Materials: Magnets, various materials to include magnetic objects and nonmagnetic objects (feathers, metal objects, spoons, cups, plastic items, paper etc.) chart paper, markers

Students will continuously obtain, evaluate, and communicate information. This is not a linear process. Students will communicate through writing and discussions to allow for formative assessment. This benefits the teacher, student, and whole group to guide instruction to clarify misconceptions or extend content.

Engaging Learners	<p>Phenomenon: Magnets can attract (pull) and repel (push) other magnets. Students should understand that magnets are used in everyday objects and are used to push or pull things. Some objects move only when you touch them while others move without being touched.</p> <p>Ask students how we move things? Do objects move only when we touch them? Are there ways to move an object without touching it? Move something with a magnet. Ask students what moved the object?</p> <p><i>Teacher Notes: Teacher will explain to students that magnets can also attract and repel one another. Magnets are attracted to objects that have iron in them.</i></p>
	<p>Obtaining</p> <p>Students will obtain information from exploration and make predictions about things that magnets can pick up. Show students several objects, such as a plastic spoon, a feather, paper clip, pencil, pen, crayon, etc. Ask students to make predictions about which objects the magnet would attract.</p> <p><u>Handout for Student Data</u></p> <p><u>Common Objects Data Sheet</u></p> <p><i>Teacher Notes: Never allow magnets near electronic devices including computers.</i></p>
	<p>Evaluating</p>

	<p>Allow students to freely investigate with magnets and various materials. Encourage them to generate questions as they explore. Focus on a few questions that can be investigated in the classroom. Students will then explore to determine which objects are attracted to the magnets. Students will discuss why magnets attract some objects and not others? What types of objects do magnets stick to?</p>
<p>Exploring</p>	<p>Communicating Students will discuss where they can find magnets in their homes, school, classroom? Students will discuss how magnets are used in everyday life around the classroom or home. (Magnets hold things in place etc.)</p>
	<p>Obtaining Using various types of magnets, students will explore how magnets push and pull. Give students two magnets and let them explore how magnets attract and repel each other and attract other objects. Students will explore the school or classroom and find objects that magnets are attracted to.</p> <p>Extension: Students will explore how magnets repel each other. Teachers will have students walk around the class to see if the magnets repel any other objects. When the students are done exploring the teacher will ask, what did the magnets repel? Explaining to students that magnets only repel other magnets.</p> <p>After exploring various objects, students will see how far they can repel each other or how close they get before they attract each other. Teacher will ask probing questions, what does it feel like when the magnets get closer together at opposite poles?</p> <p>Caution! Magnets near a computer or monitor will erase pixels and data. Do not allow students to put magnets near purses, electronics, telephones, tablets, etc.</p> <p><i>Teacher Notes: Students should understand that magnets repel one another because their opposite north and south poles.</i></p>
	<p>Communicating Students will discuss which objects were attracted to the magnet. Students will also discuss what happened when the two magnets came in contact with each other. Teacher will ask students why do magnets sometimes push apart and sometimes pull together?</p>
	<p>Formative Assessment of Student Learning</p>
<p>Explaining Finalizing Model</p>	<p>Obtaining Students will compare objects that were attracted to magnets and not attracted to the magnets. Teacher should remind students of why magnets are attracted to certain objects and not others. What materials are attracted to magnets (metals like iron and steel).</p> <p>Evaluating:</p>

	<p>Teacher will give students sticky notes and magnets. Have students go around the room and place sticky notes on items that they think will attract magnets. Teacher will ask probing questions: Why did you chose this item? Why would a magnet attract to this object? Did you find any items that magnets wouldn't attach to? Why not?</p> <p>Then have students test their theories using magnets. If the magnet does not attract to the item, ask them why did they think it did not attract?</p> <p>Ask: Are all metals attracted to a magnet? How could you find out? Have them work in groups to discuss their choices and make revisions to their choices as needed.</p>
<p>Elaborating Applying Model to Solve a Problems</p>	<p>Communicating Students will discuss in small groups what they have learned about magnets and then do a comic strip of a person using a magnet to help them do work such as picking up paper clips, posting a picture on the refrigerator, etc.</p> <p>Explore: Magnet Powered Cars: Students will design and make magnet powered cars using magnets and toy cars. First, students will tape magnets to the tops of toys cars.</p>  <p>Then, students will use another magnet to attract or repel the car. This experiment shows kids that the magnets can affect objects even without physically touching them. Ask students would the car be attracted to the magnet without the magnet attached to it? If so, why. If not, why not?</p> <p>Student Magnets: Students will place dot or a sign on their shirt as if they are the magnet. Students pair up. Students will move according to how they think the magnets will interact. After each move, have students verify the magnet interaction with their magnets. Students will use the vocabulary to describe the magnets interaction (Attract/Repel).</p> <p>Obtaining Ask: How can a magnet push or pull a car? Where will you attach the magnet so that it will give you the best way to push or pull the car? Try different spots such as on top, on the bottom, in front, in back or on the side of the car.</p> <p><i>Teacher Notes: It is fundamental that students understand what makes magnets attract or repel things. Students must understand that magnets are attracted to items that are made from iron or some metals. Also, that magnets only repel other magnets.</i></p> <p>Evaluating</p>



	<p>The teacher will hold up different items and ask students to predict if those items are magnetic or not. Then the students will test to see if some magnets are stronger than others.</p> <p>Communicating Have students draw a picture and label parts. They can then write what they have learned about magnets in their science journals.</p>
Evaluation	<p style="text-align: center;">Assessment of Student Learning</p> <p>Students will draw a picture about the objects that are attracted to magnets and label the magnet. Students can write a sentence about what they learned about magnets.</p>
SEP, CCC, DCI	Science Essentials
Science and Engineering Practices	<ul style="list-style-type: none"> ● Asking questions and defining problems ● Planning and carrying out investigations ● Developing and using models ● Constructing explanations and designing solutions ● Obtaining, communicating, and evaluating information
Crosscutting Concepts	<ul style="list-style-type: none"> ● Patterns ● Cause and Effect ● Matter and Energy
Disciplinary Core Ideas	<p>From <u>A Framework for K-12 Science Education:</u></p> <p>PS2.B Types of Interactions</p>

Additional Supports for struggling learners:

The following supports are suggestions for this lesson and are not the only options to support students in the classroom. These supports target students that struggle with science material, this lesson or a previous lesson. These are generalized supports and do not take the place of IEP accommodations as required by each student’s Individualized Education Program.

General supports for the following categories:

<u>Reading:</u>	<u>Writing:</u>	<u>Math:</u>
<ol style="list-style-type: none"> 1. The teacher can have students match letters prior to reading to remind them of the alphabet. 2. The teacher can have students identify words that they know in the text as the class reads. 3. The teacher should remind students to use strategies when they are reading. 	<ol style="list-style-type: none"> 1. The teacher can provide practice for students in the area of writing both in context and practicing just letters. 2. The teacher can provide a sentence starter for the students. 3. The teacher should continually give encouragement to the students. 4. The teacher can provide constructive positive feedback during the writing process to help students understand the expectations. 	<ol style="list-style-type: none"> 1. Provide students with opportunities to interact with numbers. 2. The teacher can provide manipulatives to allow the students to count and interact with materials.

Supports for this specific lesson if needed:

Performance expectations for instruction:

1. The teacher should provide information to students in various formats to reach as many students as possible.
2. The students should be given adequate time to complete each part of the lesson.
3. The students should be allowed to express their knowledge in various formats.
4. The teacher should be sure to provide multiple ways for the students to communicate their knowledge of the material.

Engage:

1. The teacher should consider showing students a video of magnets in action.
2. The teacher should have clear and consistent guidelines for class discussions. These guidelines should make students feel more comfortable and be more likely to participate in the discussion.
3. The teacher should consider providing students with the materials to test their magnets.

4. The teacher should consider having students try using magnets in the classroom with the guidelines that they only use magnets on the objects that were provided to them.
5. The teacher should consider having students draw the observations that they make while using magnets.
6. The teacher should consider reminding students of question stems. This should assist students in developing questions about magnet use.
7. The teacher can then help students narrow down the questions to find the ones that relate to the lesson and standard.

Exploring:

1. The teacher should provide students with magnets and materials to test them.
2. The teacher should ask if students can explain why magnets repel. This can be a class discussion and then time can be given to students to test their ideas.
3. The teacher should tell students that the expectations, if they want to test the magnets on something other than what was given to them, is that students ask first.
4. The teacher should consider providing students with a t-chart and images of the things that they are testing. Then students can sort the images into attract or not attract.
5. The teacher should be sure to provide multiple ways for the students to communicate their knowledge of the material. This could include labeling images, drawing pictures, writing or verbally explaining.
6. Students may need additional time to complete their assignments.

Explaining:

1. The students can use their t-charts from the explore section to look for patterns in what was attracted to the magnet and what was not attracted to the magnet.
2. The teacher should be prepared to extend wait time for the students to walk around the room and identify objects that would attract magnets.
3. The teacher should provide students with different metals to try with the magnets and have students observe how the different metals react to the magnet.
4. The teacher should be sure to provide multiple ways for the students to communicate their knowledge of the material. This could include labeling images, drawing pictures, writing or verbally explaining.

Elaborating:

1. The teacher should consider giving the directions a little at a time. Chunking the directions will allow students to feel less overwhelmed by the task.
2. The teacher should have clear and consistent guidelines for class discussion. These guidelines should help students feel more comfortable and be more likely to participate in the discussion.
3. The teacher should have explicit instructions and guidelines for the activity that has students moving like magnets. The students may experience anxiety if they do not have clear guidelines and expectations for this activity.
4. The teacher should be sure to provide multiple ways for the students to communicate their knowledge of the material. This could include labeling images, drawing pictures, writing or verbally explaining.
5. Students may need additional time to complete their assignment.

Evaluating:

1. Students may need additional time to complete their assignment.
2. The teacher should be sure to provide multiple ways for the students to communicate their knowledge of the material. This could include labeling images, drawing pictures, writing or verbally explaining.

Name _____ Date _____

Directions: Color the 😊 face next to the items that magnets attract or color the ☹️ face next to the items that magnets do not attract.

Objects	Attract	Not Attract
		
		
		
		
		
		

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Name _____ Date _____

Directions: Color the ☺ face next to the items that magnets attract or color the ☹ face next to the items that magnets do not attract.

Objects	Attract	Not Attract
		
		
		
		
		
		
		

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