

ARE YOUR ROCKS ATTRACTIVE?

(MODIFIED FOR ADEED)

INSTRUCTIONS



Science Concept:

Rocks can be magnetic.

Objectives:

The student will:

- describe that some rocks are magnetic;
- make observations and inferences; and
- write complete sentences.

GLEs Addressed:

Science

- [3] SD1.1 The student demonstrates an understanding of geochemical cycles by recognizing that most rocks are composed of combinations of different substances.
- [3] SA1.1 The student demonstrates an understanding of the processes of science by asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring and communicating.

Writing

- [1] W1.1.1 The student writes about a topic by writing complete sentences with a subject and a predicate.

Vocabulary:

attract- to draw to itself; a magnet attracts nails

attribute- a quality belonging to a person or thing

classify- to sort objects into groups according to their properties or order objects according to a pattern

explore- to look into closely; examine

infer-to use facts and data you know and observations you have made to draw a conclusion about a specific event based on observation and data; to construct a reasonable explanation

magnetic- of or relating to magnetism or magnets; able to attract iron and steel

predict- to state what you think will happen based on past experience, observations, patterns, and cause-and-effect relationships

repel- to drive off; force back, or keep away

sort- to arrange according to class, kind, or size; classify

substance- a single kind of matter that has certain properties, something is made of

Materials:

- Lodestone
- String
- Magnetic rocks and non-magnetic rocks (several of each type per group)
- Trays (one per group)
- Magnifiers(one per student)
- Magnets (one per student)
- Baggies of assorted items, for example (paper clips, erasers, pencil with erasers, rubber bands, feathers, magnetic letters, marbles, safety pins, pens, nails, finger nail clippers, etc.)
- Science journal (one per student)
- STUDENT WORKSHEET: "T-Chart"

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Resource:

Houghton Mifflin intermediate dictionary. (1986). Houghton Mifflin Dictionary.
Houghton Mifflin science textbook for grade 3. (2007). Houghton Mifflin Science.

Activity Preparation:

1. Place the rocks on trays so there are several magnetic and several non-magnetic rocks on each tray. Each group should have a tray.
2. Prepare a vocabulary list with definitions.

Activity Procedure:

Please refer to the assessment task and scoring rubric located at the end of these instructions. Discuss the assessment descriptors with the class before teaching this lesson.

Gear Up

Process Skills: communicating, describing, inferring, and observing

1. Tie a piece of lodestone to a string. Hold it up for all students to observe, while you put a magnet near it. The lodestone will be attracted or repelled. Ask students why that occurred. Record responses on the board.
2. Ask students to turn to their neighbor and tell them something they know about magnets. After one minute call on each student to share their neighbor's ideas about magnets. Write each idea down on the chart paper, along with students' initials.
3. Review vocabulary word list and discuss.

Explore

Process Skills: communicating, observing, questioning, classifying, and describing

4. Divide students into pairs. Discuss safety of magnets around computers. Pass out trays of rocks, magnets, and magnifiers to each group.
5. Instruct students to explore the attributes of the rocks using the magnets and magnifiers. Students should classify the rocks as they explore. Ask them to be ready to explain how they classified the rocks. Instruct students to draw and label their observations of the rocks in their science journals.
6. While students explore, circulate the room, observe, and listen to students' interactions.

Generalize

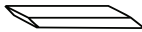





Process Skills: inferring, communicating, questioning, describing, and observing

7. Gather students as a group. Ask the class these questions and write responses on the board.
 - a. What observations or findings did you make when you were exploring the rocks?
 - b. Why did some rocks attract to the magnet?
 - c. What would make these rocks magnetic? How do you know?
 - d. What attributes did you notice about the magnetic rocks?
 - e. What attributes did you notice about the non-magnetic rocks?

Apply

Process Skill: observing, communicating, inferring, describing, and classifying

8. Pass out bags of rocks, baggies of assorted items, and magnets to each group. Distribute STUDENT WORKSHEET: "T-Chart." Ask students to draw and label the T-chart to sort their items as to whether they are magnetic or not magnetic. Gather as a group and discuss students inferences about why some rocks are magnetic. A T-chart example is shown below for teacher reference.

Magnetic	Not magnetic
 eraser	 paper clip
 feather	 rock
 rock	 nail

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RUBRIC

Assessment Task

Write two or more complete sentences describing that some rocks are magnetic and identify at least two attributes of such rocks. Make sure the sentences include two or more inferences about why some rocks are magnetic. Remember to include a subject and a predicate when writing your sentences.

Rubric

Objective	GLE	Below Proficient	Proficient	Above Proficient
The student describes that some rocks are magnetic.	[3] SD1.1	In his or her science journal, the student describes magnetic rocks and less than two attributes.	In his or her science journal, the student describes magnetic rocks and identifies two attributes.	In his or her science journal, the student describes magnetic rocks and identifies three or more attributes.
The student makes observations and inferences.	[3] SA1.1	The student makes less than two inferences about why some rocks are magnetic.	The student makes two inferences about why some rocks are magnetic.	The student makes three or more inferences about why some rocks are magnetic.
The student writes three complete sentences.	[1] W1.1.1	The student writes less than two sentences about magnetic rock attributes, and does not have a subject and/or predicate.	The student writes two complete sentences about magnetic rock attributes with a subject and a predicate.	The student writes three or more complete sentences about magnetic rock attributes with a subject and a predicate.



Group Names _____, _____, _____

T-CHART

Directions: Draw and label each object and classify as magnetic or not magnetic.

Magnetic	Not Magnetic