

Can You Pull It?

By Deborah Granberry

Concept:

To learn that different Forces and Energy can affect matter.

Alaska Science Education Standards:

- ✓ A5) Understand the strength and effects of forces of nature, including gravity and electromagnetic radiation.
- ✓ B1) Use the processes of science including observing, classifying, measuring, interpreting data, inferring, communicating, controlling variables, developing models and theories; hypothesizing, predicting and experimenting.

For a description of Alaska Education Standards visit the State of Alaska Department of Education & Early Development Website: www.eed.state.ak.us

Gear-Up:

Walk around the children with a magnet in your pocket and a pair of scissors stuck to the outside of your pocket. Ask students what might cause the scissors to stick to your pocket without falling off. When they discover it is a magnet, ask what other things will the magnet cause to stick to your pocket.

Ask the students, "What kind of objects will a magnet pull?" Ask, "What do you think will happen if you touch this magnet to a (pencil)? ...a (penny)?... a (key)?" Name several objects the students have in their package of objects as you ask the question to the students.

Provide an assortment of magnetic and nonmagnetic objects pre-packaged for teams.

Divide the students into small groups or teams. Give each team a bag of objects. Have students make 2 circles within each of their teams using yarn. Have students from each team write the words "pulls" and "does not pull" on 2 index cards. Place one index card in each circle. Each team will predict whether or not each object in their bag will be pulled or not be pulled by a magnet and place the object within the appropriately labeled circle. The teacher will walk around and make observations of students' predictions. When the students are finished predicting the teacher will guide the students in an discussion of their predictions for each object. Ask the students, "What kind of objects will a magnet pull?"

Gear-Up process skills:

Observing, Classifying, Predicting

Materials:

- ✓ horseshoe magnet
- ✓ scissors
- ✓ 2 yarn pieces to make circles (per group)
- ✓ 2 index cards (per group)
- ✓ crayon (per group)
- ✓ bags of magnetic and nonmagnetic objects (1 per group)
- ✓ chart for recording "Pulls" & "Does not Pull" for magnet test with listed objects
- ✓ magnet (per group)
- ✓ pencils
- ✓ paper for writing or drawing about what students learned (Each student: draw or name three things a magnet will pull)
- ✓ paper for writing answer to the question, "What will a magnet pull?"

Explore:

Have a team member come pick up a magnet and return to their group. Have students take turns testing each object from the circles to see if the magnet will pull it and replace it in the appropriate circle, changing their previous placement as necessary. Give students a chart to record the results as they test how the magnet interacts with each object. Each student will place an X under the appropriate column on the chart to show whether the magnet pulled or did not pull an object to record the results of their magnet test.

Explore process skills:

Observing, Classifying, Communicating

Generalize:

1. Have students look at the column on the chart that is labeled pulls and ask them to name an object that the magnet pulls. The teacher will list them on the board. At this point there may be some students who may need some clarifying of their responses. Discuss them and if necessary have someone take a magnet and check the object for all to see how it interacts.
2. Ask the students, "How are the objects that can be pulled by a magnet alike?" Ask, "Are there any metal objects in the circle that cannot be pulled by a magnet?" If anyone responds with a "yes" to the latter question, then ask, "What could this mean?"
3. Ask students if they would like to change their earlier answer to the question, "What kind of objects will a magnet pull?"

Generalize process skills:

Classifying, Communicating

Vocabulary:

Push, Pull, Magnet, Attract, Magnetic

Apply/Assess:

- ✓ Draw or name three objects a magnet can pull
- ✓ Write a sentence or draw a picture about what you learned that answers the question, "What kinds of things do magnets pull?"
- ✓ Ask the question: Can you think of how we could use magnets as a tool or to help?

Apply/Assess process skills:

Classifying, Communicating

Extensions:

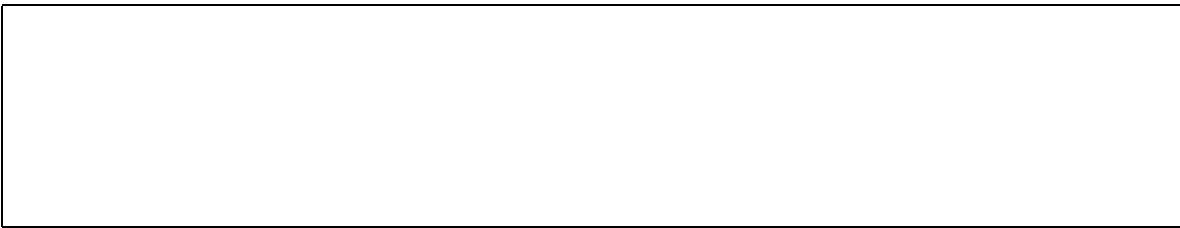
- ✓ Read the book, What Makes a Magnet?, by Franklyn M. Branley (HarperCollins, 1996)
- ✓ Allow students to explore around the classroom to find things a magnet will pull. (*Warn them first about dropping magnets and to keep magnets away from computers.*)
- ✓ Introduce the terms "attract" and "magnetic."
- ✓ Have students check for things at home that a magnet could pull.
- ✓ Name things that use magnets (*toys, machines, appliances, etc...*)
- ✓ Have students ask Native elders (*also parents and other relatives,*) how they used magnets in the past.
- ✓ Make a boat float by using a magnet.

Can You Pull It? Handout #1

Name _____

Date _____

Draw 3 things in the box that a magnet will pull.



Or...

Name three things that a magnet will pull.

1. _____

2. _____

3. _____

Name _____

Date _____

What kinds of things does a magnet pull?

Name _____

Date _____

A Magnet

	Pulls	Does not Pull
Balloon	_____	_____
Button	_____	_____
Coin	_____	_____
Cork	_____	_____
Crayon	_____	_____
Eraser	_____	_____
Foil	_____	_____
Animal Fur	_____	_____
Key	_____	_____
Marble	_____	_____
Nail	_____	_____
Paper	_____	_____
Pencil	_____	_____
Rubber band	_____	_____
Wire	_____	_____
Wood	_____	_____

Other Things:

Scoring Guide: Can You Pull It?

Activity or Event	Needs Improvement	Satisfactory	Outstanding
Student tests and sorts objects into one of two groups – those pulled by a magnet and those not pulled.	Student does not participate and makes little attempt to help team.	Student participates, partially completes activity and makes some attempts to help team.	Student participates, completes activity, cooperatively helps team complete activity and makes several or many attempts to help team.
Student records results of magnet test on chart.	Student does not participate, does record results on chart, records very little or answers most questions incorrectly.	Student partially records results and marks most correctly.	Records all of the results on the chart and does so correctly.
Student draws or names 3 objects that can be pulled by a magnet.	Student does not participate, or records only one object correctly.	Student records only two objects correctly.	Student records all three objects correctly.
Student writes a sentence or draws a picture to answer the question, “What kinds of things does a magnet pull?”	Student makes no attempt to write a sentence or draw a picture, does not finish or provides incorrect answer.	Student’s sentence or picture shows something that was learned or an activity that was completed. Provides partially correct answer.	Student’s sentence or picture shows details of what was learned and provides a correct answer.