

Overview:

Objects can be moved by a push or a pull.

Objectives:

The student will:

- identify the force (push or pull) causing movement;
- make an inference about which force causes an object to move; and
- draw, label, and describe an event.

Targeted Alaska Grade Level Expectations:**Science**

- [3] SA1.1 The student demonstrates an understanding of the processes of science by asking questions, predicting, observing, describing, measuring, classifying, making generalization, inferring, and communicating
- [4] SB4.1 The student demonstrates an understanding of motions, forces, their characteristics, relationships, and effects by simulating that changes in speed or direction of motion are caused by forces. [Grades] GLE goes here.

Writing

- [2] LA1.2.1 The student writes for a variety of purposes and audiences by producing a variety of written forms for specific audiences.

Vocabulary:

direction - the line or course along which a person or thing moves

force - the capacity to do work or cause physical change

motion - the act or process of changing position or place

pull - to apply force to so as to cause or tend to cause motion toward the source of the force

push - to apply pressure against for the purpose of moving

Materials:

- Yo-Yo (1 or 2)
- Toy car (1 or 2)
- Ball (1 or 2)
- Chart paper
- Toy with wheels
- Task card/recording sheet
- Journal
- Yard stick (one per group)
- STUDENT WORKSHEET: "Task Card/Recording Sheet"

Activity Preparation:

1. Ask students to bring a moveable toy to school.
2. Prepare a KWL chart.
3. Prepare a vocabulary list with definitions.

Activity Procedure:**Gear Up**

Process Skills: observing, communicating

1. Begin with a KWL chart. Ask students what they already know about how objects move.
2. The teachers should demonstrate each toy listed (roll, bounce, toss it, push, pull). Ask volunteers to try them out as well.
3. As the volunteers are demonstrating, ask the class, "What is making these toys move?"
4. Record answers on chart paper.
5. When finished discuss results.
6. Use the vocabulary list to introduce/review the terms force, motion, push, and pull.
7. Ask students if any of the toys use the same force?

Explore

Process Skills: observing, measuring, communicating

1. Continue the KWL chart by asking students what they would like to learn about how objects move.
2. Each student should have a toy of their own from home. If students did not bring a toy from home, provide one. Have students work with a partner.
3. Dispense task cards. Go over the cards with the students and ask them to complete them as they explore.
4. Share toys and task cards when students have completed the explore section.

Generalize

Process Skills: communicating, describing

1. Ask questions of the whole class and record responses on the board:
 - a. What happened when you pushed your toy?
 - b. What happened when you pulled your toy?
 - c. Was there another way to move your toy? What was it?
 - d. How far did your toy travel?
 - e. What direction did your toy move when you pushed/pulled it? Was it straight or crooked?
2. Complete KWL chart by asking students what they learned about how objects move.

Apply

Process Skills: communicating, observing

1. Divide students into groups of two or three.
2. Announce you will be playing a game of charades. Students will demonstrate some form of pulling or pushing.
3. Allow them three to four minutes to come up with an idea.
4. Allow groups to perform and see if the rest of the students can determine which force they are portraying.
5. After each group finishes, list their motion on the board. Review all motions at the completion of the activity.

Extension Idea(s):

1. Have students create a simple toy that pushes or pulls.

Scoring Guide

Objectives	GLEs	Below Proficient	Proficient	Above Proficient
Identify the force (push or pull) causing movement.	[4] SB4.1	Does not give any information.	Identifies a force causing movement.	Identifies a force causing movement and explains how it caused movement.
Make an inference about which force causes an object to move.	[3] SA.1.1	Makes no inference about which force causes movement.	Makes one inference about which force causes movement	Makes two or more inferences about which force causes movement.
Draw, label and describe an event	[2]LA1.2.1	Does not draw or inaccurately draws, labels, and describes the recess activity.	Accurately draws, labels, and describes the recess activity in one sentence.	Accurately draws, labels, and describes the recess activity in two or more sentences.

PARTNER NAMES: _____ **STUDENT WORKSHEET**
TASK CARD/RECORDING SHEET

Directions: Work together with your partner to determine the force (push or pull) that causes each toy to move. Choose one toy to start.

Toy #1: _____

Can you push the toy? Yes No

Can you pull the toy? Yes No

List any other way to make the toy move:

Push the toy and record how far it goes. Measure the distance with a yard stick.

Feet _____ Inches _____

Toy #2: _____

Can you push the toy? Yes No

Can you pull the toy? Yes No

List any other way to make the toy move:

Push the toy and record how far it goes. Measure the distance with a yard stick.

Feet _____ Inches _____