
Unit 4 – Movement, Force, and Balance

Unit Overview:

In this unit the students will be exposed to the concepts of motion, force and work. Students will learn about how ramps, pulleys, and levers can assist in work. They will experiment with objects at rest and objects in motion. Students will also experiment with balance. This unit will provide opportunities for students to predict and experiment as they continue to learn about the jobs of scientists.

Lesson 4-1: Day 1

Objective: Students will be introduced to the new unit on Movement, Force, and Work. They will be introduced to a new group of scientists.

Skills attained: Students will be able to describe the work of a physicist.

Topics:

Movement, force, work, physics and physicist.

Vocabulary:

Movement: the process of changing location or position; Force: an exertion of physical strength; Physics: the science of matter and energy and their interaction; Physicist: a scientist who specializes in physics

Procedure:

Introduce students to the new unit. Tell them that some scientists like to study how things move. Can they think of things that move? Students will be able to generate a large list of things that move. Ask students if they know what makes all those things move? Students may suggest motors, energy, wind, etc. Explain that their answers are correct but that there are special words for what makes the things move. One of those words is force. Can they define the word force? Another word is work. What do they think work is? Tell students that during this unit they will spend time learning about force, work and movement.

Now tell students that one group of scientists who studies movement is physicists. Physicists want to understand how force, work, and movement help an object or system to function. Put the word physicist on the class list of scientists. Put the words force, movement, and work on the science bulletin board.

Ask students what tools a physicist might use to study how things move? Write the list on a chart or board. Students might be able to suggest measurement tools (rulers, yardsticks, tape measures, stop watches); things that help someone to see movement (microscopes, video cameras); tools to measure speed (speedometers, radar guns), and other measurement tools.

Unit 4 – Movement, Force, and Balance Daily Lesson Plans

Talk about how some of these tools might help a physicist to measure the movement of an object.

Ask students to open their Student Journals to 4.1. They will draw a picture of an object moving, a physicist watching the movement, and one tool he/she would use. They will then complete the sentence at the bottom of the page. “The physicist is ___”

Materials list:

chart paper, Student Journal 4.1

Motivation:

Students are excited by the opportunities in this unit to experiment with balls, ramps, pulleys and levers. This unit is an introductory unit for the concepts of movement, force and work and should allow students time to “play” with the objects provided. Putting the objects in a science center after their introduction can allow students further opportunities to explore.

Content Background:

The purpose of this unit is to introduce students to the ideas of force, motion, and work through a series of hands-on activities. Students will have a chance to see how work produces movement. They will experience the force needed to move an object. They will see the difference between an object at rest and an object in motion. This is an introductory unit for each concept. The second grade student does not need to memorize the definitions, but rather to explain each term by the experiments they perform. The assessment will entail drawing and describing the experiments done in class. The introduction of the physicist continues the yearlong theme that all students can be scientists.

Teaching Strategy:

The discussion for this unit is best done with students together at the circle area. The brainstorming about the objects that move can be recorded on a chart so that students can refer back to the objects when they think about how they move.

Students may need help thinking about the ways to study the movement of an object, the tools that the physicist uses. Questions that encourage students to think about how they could measure the speed of an object, the distance it moved, or what made the object move can help student thinking.

Follow Up: Begin the science center for this unit by placing books about gears, levers, pulleys and balance in the science center. Also place rulers, a stopwatch and several small objects in the center.