

Work and Energy

Sixth Grade

Activity: 7

Time: 1 Class Period

General Description

Kinetic energy and potential energy will be introduced using balloons, a wind-up clock and a battery-operated toy.

Objectives

Students will demonstrate knowledge the difference between potential and kinetic energy.

Arizona State Standards

SC06 S5C3 PO2 Identify several ways in which energy may be stored

SC06 S1C2 PO1 Demonstrate safe behavior and appropriate procedures

SC06 S3C2 PO3 Design and construct a solution to an identified need or problem using simple classroom materials

W06 S3C2 PO1 Record information (e.g., observations, notes, lists, charts, map labels and legends) related to the topic.

Teacher Information

Energy of motion is known as kinetic energy. Energy that is stored is known as potential energy. The class activities will show how energy can be stored and then used to do work. In the scientific sense, work is done whenever energy is used.

Materials

Wind up clock

Battery powered clock

Rubber bands

Batteries

Sting

Straws

Balloons (one per student)

Other materials to help students design toys (students could bring things from home)

Procedures/Exploration

1. Write the words “kinetic” and “potential” on the board. As a demonstration model, bring in a wind-up clock and a battery – powered clock
2. Have the students move around the room until they begin to feel tired.
3. Ask them the following questions: How do you feel? Why do you feel warm when you have been running? Discuss the kind of energy that was used.
4. Have each student blow up a balloon (storing energy). Ask if this energy can be used to do work. The students will hold on to the balloon and let the air blow out onto a scrap of paper. Is that evidence of work? Why or Why not?

5. Explain how the wind-up clock and battery toys are examples of stored energy that can do work.
6. Students will summarize potential and kinetic energy and give examples.
7. Students will design models using energy from the balloon's air, winding rubber bands or batteries to run a toy, i.e.: toy boat, toy jet on a string with straw, toy car or truck, etc

Reference: Dunn, Susan , and Rob Larson . Design Technology: Children's Engineering . Bristol PA: The Falmer Publishing , 1990.

Eichelberger, Barbara , Connie Larsen, Constructions For Children: Projects in Design Technology. Palo Alto CA: Dale Seymore Public, 1993.