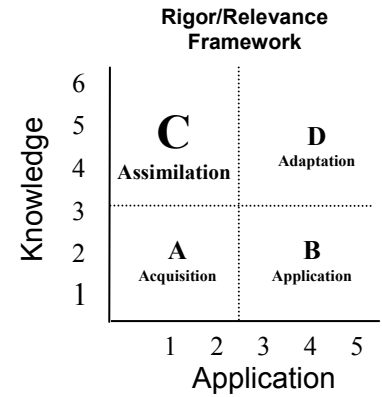




Gold Seal Lesson

COME BACK CAN



Subject

SCIENCE

Grades K-4

Instructional Focus

Unifying Concepts and Processes: Students recognize patterns and processes, making connections in terms of systems and subsystems that explain the interrelationships of the natural and designed world.

Science as Inquiry: Students demonstrate knowledge and skills necessary to perform scientific inquiry.

Habits of Mind: Students develop habits of mind including curiosity, open-mindedness and persistence.

Writing: Students write for a variety of purposes and audiences with sophistication and complexity appropriate to the grade level.

Performance Task

The student's task is to make a "come back can" and explain why it behaves the way it does when it is rolled on the floor. This can be done as a demonstration, or preferably, in groups. Each group will need a cylindrical can such as a potato chip or a peanut can with one plastic lid for each end. Cut out the bottom of the can with a can opener.

Have students consult the Come Back Can Chart (attached) and follow the directions below.

1. Drill or poke two small holes in each of the can lids about 2 centimeters apart from the center.
2. Take two or three thin rubber bands, cut them, tie them together, and thread them through the two holes in each of the lids on opposite sides of the can.
3. Before tying the rubber bands together on the inside of the can, thread the rubber band through a heavy weight such as a large nut or several large washers. Be sure the rubber band is taut and the weight pulls downward slightly before tying the bands together. Do not let the weight drag on the bottom of the can. Take your time. This is a stretchy procedure.
4. Place the lid back on the can and you are ready for a demonstration. Roll the can on the floor or a tabletop. Record results in a journal.

Performance Task

continued

5. Roll the can on a board that is held up on one side by a book to form a slight inclined plane. Record what happens. Put a second book under the ramp and repeat. How many books can be put under the ramp before the can is not able to come back?

6. Have students share the can with parents or friends without telling them how it was made. Roll the can on the floor and let them tell you why they think it behaves that way. Record their thoughts in a journal.

Ask students to write a summary of how the come back can was built and the observations made when the can was rolled on different surfaces. Include your answers to these questions in the summary. Why did the can roll back? What is the purpose of the rubber band? What is the purpose of the weight on the rubber band? Include the reactions from your parents or friends in this summary.

Scoring Guide

4 Points. The student is able to follow directions carefully and construct a model capable of rolling out and back. If the can does not work smoothly, the student modifies the model independently. The student answers all questions in the summary. The summary is complete, clear, and demonstrates an understanding of energy being transferred from the rolling action to the rubber band. The student shares his/her creation with others and includes some thoughts in the summary.

3 Points. The student follows directions and carefully constructs a model capable of rolling out and back. The student requires help to make the can work smoothly. The student answers all questions in the summary. The summary is complete, but somewhat unclear. The student demonstrates some understanding of energy transfer. The student shares his/her can with others and includes some thoughts in the summary.

2 Points. The student needs help to follow directions. The student successfully constructs a model capable of rolling out and back. If the can does not work smoothly, the student requires help. The student attempts to answer all questions in the summary. However, the summary is unclear and demonstrated only a partial understanding of how the can works. The student shares his/her can with others and includes some thoughts in the summary.

1 Point. The student requires help in each step to construct a model that works. The student requires help to make it work smoothly. The summary is incomplete and does not demonstrate understanding of the behavior of his/her can. The student does not share his/her can with others.

Essential Skills

- Make observations using senses and instruments. Inferences and interpretations are arrived at based on observations. Classify observable properties and organize observations in a meaningful and logical way. (s5)
- Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures.) (s114)
- Plan and apply real or hypothetical models and constructions to facilitate investigation and learning and the solution to practical problems. (s115)
- Apply in writing the rules and conventions of grammar, usage, punctuation, paragraphing and spelling. (ela1)
- Use writing as a tool for learning in formats such as learning logs, laboratory reports, note-taking, journals and portfolios. (ela40)

International Center for Leadership in Education
1587 Route 146 - Rexford - NY - 12148
518.399.2776 Fax: 518.399.7607

Come Back Here Can ... continued

Chart

Come Back Can

