Summary

Students will use their creative skills to determine a way to mail raw spaghetti. The students will need to choose a way to safely package their raw spaghetti using only the materials provided. To test the packing designs, the spaghetti will be mailed through the postal system and evaluated after delivery.

Engineering Connection

Packaging engineers are responsible for creating packages for all types of products. They design cardboard boxes that are simply held together with glue and/or tape, boxes that have more intricate folds to increase the strength, and the protective material found within the boxes. Some factors they consider when designing the packaging are; the size and shape of the object, whether it is fragile, and if it needs special temperature control.

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Grade Level: 4 (3-5)  
Group Size: Not defined

Time Required: 20 minutes  
Plus discussion time.

Expendable Cost Per Group US$ 4  
$20 to $30 per class.

Keywords: design, mail, packaging, postal system, spaghetti

Related Curriculum

Subject areas  Physical Science  
Science and Technology

Educational Standards

- Massachusetts Science
- 2.3 Identify relevant design features (e.g., size, shape, weight) for building a prototype of a solution to a given problem. (Grades 3 - 5) [2001]
1.1 Identify materials used to accomplish a design task based on a specific property, i.e., weight, strength, hardness, and flexibility. (Grades 3 - 5) [2001]

Learning Objectives

• Students will learn about design and packaging techniques.
• Students will learn what happens to mail in the postal system.

Materials List

• Raw spaghetti (handful per student)

• 8 ½" x 11" Envelopes
• Stamps
• Packaging materials
• Newspaper
• Tissue paper
• Packing foam
• Construction paper
• Bubble wrap
• Tape

Introduction/Motivation

Accidents happen, sometimes your packages are dropped, and letters get bent. How can you protect a special delivery from such unfortunate mishaps?

Procedure

Background

Sending mail in the postal system is not always the safest. Mail can get bent or dropped, etc. It is up to the student to design safe packaging for the spaghetti.

Recommended Resources:

http://www.usps.com/postalhistory/welcome.htm

http://www.postalmuseum.si.edu/exhibits/2c_moving.html
Related activity - Egg drop and the packaging considerations

Directions

Assemble materials.

Talk about what happens to the mail after it is placed in the post office mailbox. Discuss with the class what might happen to their package as it travels through the mail.

1. Divide students into small groups.
2. Give each group a handful of raw spaghetti and an envelope.
3. Have students package the spaghetti so that it may be mailed. Remind students that they may only use the materials provided.
4. To test the packing styles, students can mail the spaghetti. Have the students mail the spaghetti back to the school. Make sure each student puts their name on their envelope so that when the spaghetti comes back the students will know which one is theirs.

Investigating Questions

- What packaging worked the best? Why?
- What is important to keep in mind when packing the spaghetti?
- What is the best way to pack it?
- What happened to the spaghetti that did not make it through the mail safely?
- How can this activity be applied to real life situations?
- How many students mailed their spaghetti safely?

Assessment

- Rubric for Performance Assessment (doc)
- Rubric for Performance Assessment (pdf)

Owner

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