Egg Drop

Focus: Physics behind packaging **Grades K-4**

Background:

Understanding the rationale behind why packaging is necessary. There are many types of packaging, some thinner than others, some larger than other and some stronger than others. The type of packaging will depend on the product that needs protecting. Learn how protecting an egg can give you an idea of how that this process is done. Dropping the egg from a height of three feet and observing the status of the egg after the drop will give you an indication of why packaging is imperative.

Objectives:

- ✓ Students will demonstrate how to protect an egg from breakage.
- ✓ Students will demonstrate the force of motion.
- ✓ Students will observe results of a three feet drop.
- ✓ Students will be able to describe observed phenomena.
- ✓ Students will be able to hypothesize the effect of the force on a falling object.

Learning outcomes:

Learning outcomes from this lesson parallel the 4th grade Ohio proficiency test.

- ✓ Select instruments, make observations and/or organize observations of an event, object or organism.
- ✓ Identify and/or compare the mass, dimensions and volume of familiar objects in standard and/or non-standard units.
- ✓ Analyze a series of events and/or simple daily or seasonal cycles and predict the next likely occurrence in the sequence.
- ✓ Evaluate a simple procedure to carry out an exploration.
- ✓ Identify and/or discuss the selection of resources and tools used for exploring scientific phenomena.
- ✓ Demonstrate an understanding of safe use of materials and/or devices in science activities.
- ✓ Identify characteristics of a simple physical change.

Egg Drop Cont.

Lesson #1: Overview

- ✓ Introduce yourself.
- ✓ Discuss packing procedures, why it is needed and the reason behind it (I.e.) to protect preserve, to provide information, to contain or hold things and to recycle after use.
- ✓ Introduce various types of packaging.
- ✓ Explain how important it, the necessity and types.
- ✓ Discuss mathematical terms like velocity, free fall, acceleration force and mass.

Activity: Egg Drop

1. Preparation

    a. Set up a display table with various types of packing material for students to investigate.
    b. Have several options for them to choose from when deciding to protect their egg.
    c. Gather materials like packing peanuts, Styrofoam, Yogurt cups, egg cartons, tape a yard or meter stick, scale chalk or markers for a white board, bubble wrap, paper tubes and other soft material.
    d. Place students in a couple of groups and have a contest to see who has the best packaging and the least weight. Remember the least weight wins.

2. Experiment

    a. Prepare the egg for launch. Pack, wrap and tuck egg into something to protect it from breakage.

3. Release

    a. Weight package and record data.
    b. Hold packaged egg three feet in the air and release. (drop in plastic tub to prevent mess)
    c. Unwrap egg, check status. The egg that meet the weight criteria and doesn't break wins.