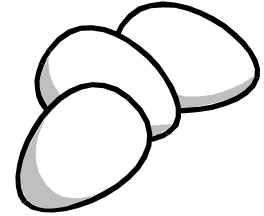


EGG DROP!!



Target Age: Grade K-2

Objectives:

Students will be able to:

1. Work in a team of two or three to create the egg-drop helmet.
2. Design a container or helmet for carrying a fragile object at great speeds.
3. Understand why safety helmets are designed the way they are: i.e. size, weight, and comfort.
4. List items that require careful packaging: glass, china, tomatoes, eggs, etc.

Michigan Content Standards & Benchmarks

Strand IV: *Use Scientific Knowledge from the Physical Sciences in Real-World Contexts*

Content standard 1. All students will measure, weigh and describe...

Content standard 2. Construct simple objects that fulfill a technological purpose.

Safety: Be careful with the scissors, they have sharp points!! No throwing packages.

Room Arrangement

- Have students work in groups of 2-3 at tables.
- Arrange to use bleachers in a gym for the drop, so the vehicle may be dropped from 15' or more.

Materials

- Tarp to cover floor
- Paper towels for cleanup
- Variety of building materials:
- Hard-shell containers (cardboard, boxes, plastic yogurt or sour cream containers, etc)
- Soft padding (bubble wrap, Styrofoam peanuts, foam, tissue paper, etc)
- Scissors, tape, rubber bands
- Measuring device that can weigh grams
- 1 egg per group in a small Ziploc freezer bag
- Rulers - for measuring size of package
- Data sheets & pencils



Timeline for 40-minute Presentation:

5 min introduction

5 min explanation of the EGG DROP design process

15 min to construct the delivery vehicle (give Egg with 3-5 min left in construction)

10 min to drop the vehicle (tarp)

5 min for discussion of the results & summary

Introduction & Attention-Getter:

Ask students questions about riding their bike. "Who here likes to ride a bike? Do you wear a helmet? Why is this important?" Drop an egg in a freezer bag so it smashes. "You wear a helmet because you don't want this to happen right?!" The egg's explosion is contained by the bag. Show it and then throw it away.

Procedure

1. Your team will design and manufacture an Egg Drop “helmet”.
 - You may use any material provided in the construction of the vehicle.
 - The vehicle will be dropped, not lowered.
 - There will be no parachute designs; we need maximum accuracy.
 - The vehicle will be dropped by a human release system---height of the drop will be 1 story ~15’.
2. Review safety precautions. (Scissors – be careful)
3. Students should examine their helmet and classify their helmets, recording the appropriate smiley faces on their data sheet (see attached).
4. Students will drop their vehicles, and open them on the tarp to see if their egg survived. Dispose of broken eggs. Reuse whole eggs.
5. Calculate vehicle efficiency = how happy are you with the results?
6. Repeat with a new design trying to improve survivability. If your egg survived, try to reduce weight and size with your next design.

Your vehicle will be judged as follows:

(1) **EGG Survivability**

(2) **Size**

(3) **Weight**

Results & Summary:

Ask students the following questions:

1. What size helmet would you like better?
2. Which would be more comfortable: a heavy helmet or a light helmet?
3. What are some activities where you could hurt your head if you weren’t wearing a helmet?
Biking, snowboarding or skiing, football, hockey
4. Whose egg (brain) survived the crash?
5. Which materials worked the best? (*Ex’s: Bubble wrap, Styrofoam peanuts, tissue paper, etc.*)

Names: _____

Circle your package's condition, size, and weight in the chart below.

Point Sheet		
EGG Survival	Size	Weight
Whole = 😊	Happy with size = 😊	Happy with weight = 😊
Cracked = 😐	In-between = 😐	In-between = 😐
Broken = ☹️	Unhappy with size = ☹️	Unhappy with weight = ☹️

Total Points: _____

Names: _____

Circle your package's condition, size, and weight in the chart below.

Point Sheet		
EGG Survival	Size	Weight
Whole = 😊	Happy with size = 😊	Happy with weight = 😊
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Total Points: _____