

Other



Egg Drop

Primary Audience:

Description: Design a protective package for an egg that will allow the egg to withstand a fall without cracking.

Keywords: Egg, Gravity, Protect

Concepts:

- Investigate the ability of a variety of materials to protect an egg from damage.
- Design a protective package for an egg.
- Evaluate the effectiveness of their packaging design.

Materials:

Per participant:

- 2 raw eggs

Per Group:

- Assorted materials to be used for protective packaging design (cardboard boxes, styrofoam, bubble wrap, newspaper, balloons, Easter grass, plastic cups, eco-foam, etc.)

(It will be necessary to have large trash bags or sheets of plastic strategically placed on the floor of the Solar Front to minimize clean-up time. The workshop team is responsible for cleaning up this area after the egg drop is completed!)

Instructions:

What types of products can you name that come in a package? What purpose does the package serve? Do all packages serve the same purpose?

Today, as packaging engineers for the COSI team, your challenge is to design and test a package that will protect a raw egg, and keep it from breaking, when we drop it from the upper level of the Solar Front walk-way to the lower level of the Solar Front.

You can work by yourself, or if you would like to pair up with someone and have a “design team” that is fine, too. Remember, creativity is the key! Each of you will get two eggs with which to work. The idea is to come up with a design, make the design, then

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test it. If it needs modification, then you can try your modified design with the second egg.

Once you have come up with a design, draw that design on this sheet and note the design elements and their purpose. Once you have done this, you are ready to actually make your packaging happen. Then, you're ready for the "drop"! We will go out to the Solar Front in groups of five or six, so when you are ready, let me know.

When you get out to the Solar Front, we will show you where to stand. Then you are to drop the egg and note the condition of the egg after it lands ! Did it remain whole? Did it crack? If it cracked or broke, come back and see if you can modify your design to either improve the protective power of the package, or cause the egg to fall more slowly and still end up on the lower level in good condition.

Let's get busy!

Once all participants have dropped their packages twice, clean-up the Solar Front and return to the workshop room.

When participants get back to the room, discuss what they learned and found out from this experience. Ask them to share their designs.

Now, let's think about other types of packaging. If we worked at the Kroger Bakery, where we will be going (or have already been on a tour, depending on the group), what would we need to consider if we were designing a package for cinnamon rolls? Bread is pretty soft, does the packaging that bread comes in keep it from getting squashed? Why do you suppose it doesn't? (The cost would probably be prohibitive in comparison to what the actual cost of the loaf of bread is.)

Relevant Ohio Science Content Standards: Physical Sciences: 3-5 C (3,3, 3,4), 6-8 B (8, 3), 6-8 D (7, 2), 9-10 D (9,22), 11-12 D (); Science and Technology: K-2 A (1,1), K-2 B (1,7, 1,8), 3-5 B (3,4, 3,5, 4,3), 6-8 B (6,5, 7,4, 8,3, 8,4)