

Tip Top Egg Drop

On August 22, 1994, David Donoghue tossed a raw egg out of a helicopter. He dropped the egg from a height of 700 feet onto a golf course. The egg didn't break. With this action, David set the record for the longest egg drop in the world.

Today, students in science classes are challenged to replicate David's results through the classic egg drop experiment. In this experiment, they design, evaluate, and test a container that will keep a raw egg from cracking when dropped. There are three basic ways to approach the egg drop problem.

The first idea is to slow down the speed that the egg falls. One method of slowing the descent is to attach the egg to a parachute. This tactic can be effective as long as the parachute stays open.

The second idea is to provide a cushion for the egg. The cushion absorbs the impact of the landing so that the egg doesn't crack. The large end of an egg has air trapped inside. The compression of the air upon landing acts like a car's air bag to cushion the yolk. Providing extra cushion on the large end of the egg will emphasize the egg's natural design and strength.

The third idea is to position the egg so that it lands on the strongest part of the shell. The arch on either end of the egg is stronger than the sides. Positioning the arch downward can help the egg survive the crash.

Taking these approaches into account, students build contraptions for their eggs out of crafting supplies. They might use cups, string, tape, balloon, straws, or any other simple materials that work with their design. After they build their egg container, they test their design by dropping the egg from increasing heights. If they get to 700 feet without the egg breaking, they will have beat David's record.

It may seem silly to do an experiment like this. Why would it ever be important to drop an egg out of a helicopter and have it land unbroken? The answer is that being challenged to solve problems like the egg drop can help scientists prepare for real world problems.

For example, NASA scientists had the challenge of building a lander for the Mars Exploration Rover. The lander had to withstand both the heat of entry onto Mars and the impact of landing on the planet. They also needed to make sure that the rover could turn right side up no matter which way it landed. Students are often surprised to see how similar their egg drop projects are to the NASA solutions. Problem solving skills are important at every level of science. One day an egg drop design might make it to space!



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NAME: _____ DATE: _____

1. Which of the following is NOT one of the three basic approaches to the egg drop challenge?
 - a. Slow down the speed of the egg
 - b. Provide a cushion for the egg
 - c. Help the egg withstand heat
 - d. Position the egg so it lands at its strongest point

2. What part of the egg provides protection similar to a car's safety features?
 - a. The white
 - b. The air bubble
 - c. The yolk
 - d. The shell

3. Which part of the egg shell is the strongest?
 - a. The small end
 - b. The large end
 - c. Either end
 - d. The sides

4. Why is a problem solving experiment like the egg drop important?
 - a. Because eggs are precious
 - b. Because the solutions can apply to real world problems
 - c. Because it's fun for students to drop eggs
 - d. Because it might help NASA

Instructions for teachers:

These questions can be used to assess understanding of the reading passage.

The item in bold is the correct answer for each question.

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