

# Egg Drop Lander

## Objective

Students will create a package to contain and successfully land a raw egg, unbroken from a fall to the ground. They will learn how velocity and acceleration from falling objects relate to a force on landing.

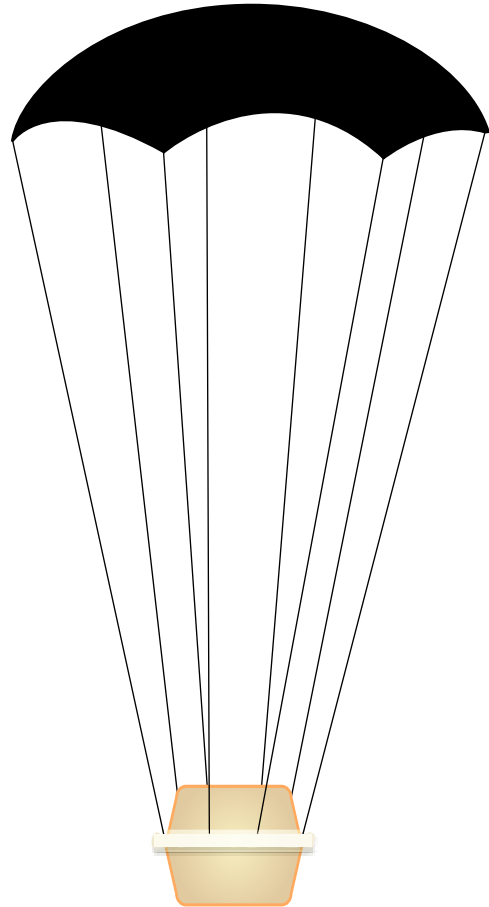
- Target concept: Acceleration
- Preparation time: 1 hour
- Activity time: 1 hour
- Student group size: Teams of three (3 to 12 per adult)

## Materials

- Raw egg
- Parachute material ( plastic trash or shopping bags)
- Packing material (gelatin, popcorn, foam, bubble wrap, etc.)
- Masking tape
- Yardstick or meter stick
- Stopwatch

## Procedure

1. Each team of three students will build its own lander capsule. You may wish to build more than one for experimentation. Select someone to be a timekeeper, distance measurer and data recorder.
2. Choose the parachute and packaging material you will use around the egg. Design and build your lander. Attach the parachute.
3. The landing site will be a 1×1 ft target.
4. From the top of a ladder over the target, drop your lander. A balcony is a good place to use too.



5. Record the distance and time it takes for the egg lander to reach the ground.
6. Examine and record the lander. A drop is successful if the egg does not crack.

## Data and Results

1. List the packaging material used. Which material and packing technique worked the best?
2. Draw your design.
3. Time of the fall \_\_\_\_\_ s
4. Distance of the fall \_\_\_\_\_ ft (m)
5. At what speed did the box hit the ground: ft/s (m/s)? \_\_\_\_\_  
(speed = distance/time or ft/s (m/s))

**Additional Approach**

From what you learned in packaging and protecting the egg in this lander drop test, design a capsule from a model rocket nose cone that can contain the egg. Test drop that capsule to prove the egg in it can land safely. There are also commercial rocket kits that can carry eggs. Get one of those as a design comparison and fly it, then have students build their own version of an egg-carrying rocket with their capsule. Launch the egg in the rocket and see how well the parachute brings it down.