

# Egg Drop Challenge

## Humpty Dumpty's Helmet

This challenge is to help you understand physics and Newton's Laws of Motion. Newton's Laws of Motion were discovered by Sir Isaac Newton, a famous physicist and mathematician. These laws explain why a moving object acts a certain way. The **1st law** is that an object at rest will stay at rest and an object in motion will stay in motion unless force is acted upon it. The **2nd law** is that acceleration is related to the magnitude of force and inversely related to the mass of the object. Basically meaning that if you push a big object and a small object (opposite mass) with the same amount of force (magnitude of force) then the small object will go faster (acceleration). The **3rd law** states that for every action, there's an equal and opposite reaction.



Extra Reading and sources:

- [Newtons Laws of Motion- Britannica](#)
- [Laws of Motion- Physics4Kids](#)

**Goal:** Build a safety container to put your egg in and drop it from 3ft, 5ft and 10ft and see if it breaks.

Materials:

- Raw eggs
- Common household items that you can construct to protect your egg. No metal or hard plastics.
- Ruler/ measuring tape
- Ladder

Instructions

1. Use your common household items to build a structure that will hold your egg and protect it from breaking
2. Measure 3 ft and drop your egg from this height. Record your eggs condition.
3. If your egg didn't break, measure 5ft and drop your egg from this height. Record your eggs condition.
4. If your egg still hasn't broken, measure 10 ft and drop your egg from this height. Record your eggs condition.

**\*Note:** if your egg broke, build a new structure and try again.

Egg Height	Did your egg break?! Write a description of the eggs' condition. How would you make adjustments if it broke?
3ft Drop	
5ft Drop	
10ft Drop	

**Discussion:** If your egg broke, why do you think that happened? What was your structure lacking that might have caused the crack? How did you modify your new structure to provide more support?