Egg Drop Project

Goal: Students build devices to protect an egg being dropped. After completing this activity, students should understand the importance of safeguarding and taking extra precautions when designing and manufacturing devices. Students also learn about gravity, force, acceleration, and how those components of physics are connected (via math equations and/or conceptually).

Materials -

- Ladder
- Timer

For each team:

- Eggs for each team
- Plastic Bags
- Tissue Paper
- Misc boxes
- Newspaper
- Masking tape
- Straws
- Cardboard
- Toilet Paper
- Balloons
- Cotton
- Glue

Procedure -

1. Give all the materials necessary to each team
2. After 20 minutes, drop each project from the tallest point of the ladder
3. After dropping the device, see if the egg is intact

☆ Explanation: Equations:

$KE = (\frac{1}{2})mv^2$

$U = mgh$

$F = ma$

$a = \Delta v/\Delta t$

Gravity is a force that pulls objects down towards the Earth. The higher an object is, the more potential energy it has (show equation). As the object falls, that potential energy is converted to kinetic energy, and thus, the device hits the ground at a higher speed (velocity and KE are proportional values --this is why we drop the devices from a ladder). In other words, gravity causes the device to accelerate -> more force at impact.

Image(s) -