

IMPACT PROTECTION: EGG DROP

What's the Point?

Do you know why we wear helmets? They provide **impact protection** – or protection from falling, bumping another player, or any sort of impact. Helmets, like other impact protectors, have special mechanisms that work to keep you from getting hurt. Helmets in particular combine two types of impact protection, **cushioning** with compression foam to absorb impact forces and **suspension** with a hard rigid shell to spread out the impact. **Dilatant (shear thickening) materials** can harden on impact and are being researched for use in body armor. In this activity, you will get to test many different strategies combining different materials to keep an egg from breaking as it is dropped on the ground.

Glossary:

- Impact Protection
- Cushioning
- Suspension
- Shear thickening

You will need:

- One egg
- Household materials: foam, cardboard, packing material, paper, fabric, etc.
- Tape, glue, string or rubber bands to hold the device together
- A safe drop site
- Scissors

You can find these supplies in your cupboard!

Instructions:

1. Construct a protective device for your egg using common materials with different properties.



2. Drop the egg in its device from the drop site
3. Retrieve the egg and take it out of the package
4. Assess and discuss your damage results in terms of your protective strategy and materials

One step further: Challenge yourself! Use only certain materials. Set limitations of the size of your device. Try working with two eggs instead of one.

