

Helmet-to-Helmet

Before watching the big game, try this engineering challenge and see what it takes to design an egg-cellent football helmet.

The Challenge

Football players wear lots of protective gear to keep them safe on the gridiron. For this challenge, you'll be designing a helmet that will keep an egg football player safe.



Collect

- A few raw eggs
- Egg carton
- Assortment of materials such as bubble wrap, yarn, paper, pipe cleaners, cotton balls, tape, balloons, and cardboard

Build it!

Football helmets contain lots of padding to help absorb the impact of a hit. Take a look at the materials you collected and think about which ones might absorb an impact the best. Football helmets also have a harder outer layer to help evenly distribute the force of a direct hit. Do you have any materials that might make a harder outer shell for the helmet? Once you have an idea, start building!

Remember, real helmets are designed to be taken on and off. Think of designs that don't involve just wrapping or taping material completely around the egg. Can you design a helmet that can be easily removed and put back on? If you want to keep your egg player extra safe, you can also use some of the materials to create a face mask.

Test it!

1. Place a sheet of newspaper on the ground. This will be the testing zone.
2. Hold the egg so the helmet is facing the newspaper target.
3. Using a ruler, hold the egg three inches above the ground and drop it.
4. Did the helmet keep the egg safe? If the egg cracked, try another design. If it didn't, try dropping it from six inches and then at twelve inches.