

EGG DROP CHALLENGE



Physics, biology, and engineering “smash” together in this fun and education experiment! A great way to celebrate spring, the Egg Drop Challenge provides a unique opportunity for children to learn about the fascinating world of eggs.



Materials

Raw Eggs
Household Items
Tape
Scissors
Imagination

WHAT IS THE EGG DROP CHALLENGE?

This fun STEM experiment is a way for children be scientists for a day! Using their imaginations, they will be challenged to design a protective structure that will keep a raw egg safe when it is dropped. Engineers and scientists do this process for many things, such as designing cars to protect people in the event of a crash! In addition to being an engaging science experiment, it's an opportunity for some friendly competition and artistic innovation.

WHAT IS HAPPENING?

Gravity is a force of attraction that pulls on a mass. Earth's gravity pulls on us and keeps us on the ground. When you drop your egg structure, gravity pulls it to the ground. The internal padding that surrounds your egg cushions it the way airbags in a car protect passengers. The external protection of your structure safeguards the egg by absorbing the impact felt when it hits the ground, just like the body of a car. Different designs create different physics reactions. Some will support the egg while others will jeopardize it.

Method

- 1) **Get outside!** Go for a nature walk to look for nests. Birds are building them all over during the spring, which means they are laying eggs too- If you're lucky you will see some! There are all different types of nests, and only some of them are the cup shapes we see in trees. Look for **THESE** different types of nests too!
- 2) **Collect Your Materials!** You will need a raw egg for every person taking the challenge. From there, simply gather materials from around your home that you think would help make a sturdy structure for your raw egg! Some suggestions: Egg cartons, cardboard, cotton balls, straws, tape, popsicle sticks, recycled plastic containers, cotton balls, toilet paper, balloons, newspaper, fabric, packing materials.
- 3) **Design!** Build a structure to house your egg, designing it to provide the most protection possible to keep it from cracking when dropped.
- 4) **Take the Challenge!** Drop your egg from up high. After it falls, open your structure to discover whether or not the egg has cracked.
- 5) **Investigate!** Examine the different structures and observe which protected the eggs and which did not. Together, ask questions as to why, analyze and interpret your data, and construct explanations that will help you design solutions for your next egg drop challenge. Science and engineering are all about testing, revising, and trying again. Design new structures based on these investigations and repeat the challenge. The design will get better and better each time!

OPPORTUNITIES FOR EXPANDED LEARNING

Consider these “STEM Questions for Reflection” from Little Bins for Little Hands:

These **STEM questions for reflection** are perfect prompts for children to talk about how the project went and what they might do differently next time around. Use these questions for reflection with your little ones after they have completed the Egg Drop Challenge to encourage analysis of results and critical thinking:

1. What were some of the challenges you discovered along the way?
2. What worked well and what did not work well?
3. What part of your model or prototype do you really like? Explain why.
4. What part of your model or prototype needs improvement? Explain why.
5. What other materials would you like to use if you could do this challenge again?
6. What would you do differently next time?
7. What parts of your model or prototype are similar to the real-world version?

Use this opportunity to explore the anatomy and diversity of eggs at the following resources:

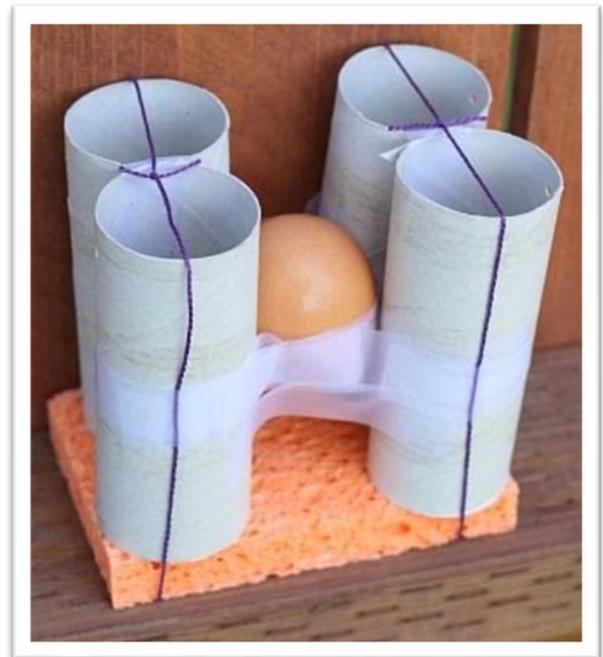
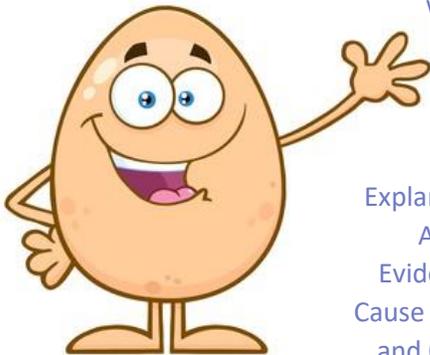
<https://kids.britannica.com/students/article/egg/274131>

<https://www.nsta.org/lesson-plan/whats-egg>

<https://www.youtube.com/watch?v=1s2XkG1E5GQ>

THE EGG DROP CHALLENGE SUPPORTS NGSS!

During this experiment, children will Ask Questions and Define Problems; Develop and Use Models; Plan and Carry Out Investigations; Analyze and Interpret Data, Construct Explanations and Design Solutions; And Engage in Argument from Evidence; all while learning about Cause and Effect; Scale, Proportion, and Quantity; Energy and Matter; Structure and Function; and Life and Physical Science.



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