



Project Exploration creates transformative learning opportunities for youth underrepresented in the sciences –particularly students of color and girls – by equipping them with the skills, practices, and mindset needed for a lifelong pursuit of learning. STEM@Home makes activities around science, technology, engineering, and math accessible and fun to do at home. This STEMbook activity, resources, and more are available at [www.projectexploration.org/stemathome](http://www.projectexploration.org/stemathome).

## In this activity, you will:

create a structure to protect a raw egg from cracking when dropped. Protect your egg! We don't want any Humpty Dumpty!



## Supplies Required:

Scissors  
Recyclable materials: paper towel tubes, newspaper, pizza boxes, etc.  
Tape or glue  
1 - 2 raw eggs

## Video

Watch an example of an egg drop here: <https://tinyurl.com/y9y9hccr>

### Overview

The egg hitting the ground is a collision between the Earth and the Egg. When collisions occur, two properties of the colliding bodies are changed and/or transferred: their Energy and Momentum. This change and transfer is mediated by one or many forces. If the force is too strong, it can cause the shell of the egg to crack and break. You should think about creating a design that would reduce the amount of energy transferred from potential to kinetic energy on the egg shell. Some ways to do this would be to decrease the final speed of the egg using air resistance, increasing the time of the collision using some sort of cushion, transferring the energy into something else, or whatever else you can think of!



## Instructions

1. Brainstorm ideas that will protect your egg while it falls. Write down your ideas!
2. Construct and test your designs with one of your eggs.
3. Make modifications to your design and test a second time with another egg.
4. Take a picture of your final design! What worked? What could you change to make it better?

## Additional Resources

**Think About It!** What worked about your design? What would you like to improve? How does this experiment relate to parachute design or hot-air balloons?

1. Another fun experiment with eggs: <https://tinyurl.com/z2enoj7>

## Share It Out

Share your design and modifications with your family! Do they have any other ideas?

Share on social media: take a video of your egg dropping or a photo series of the before and after! Share your design using the hashtags:

#EggDropChallenge  
#ProjectExploration  
#StemAtHome

**Share via PE's website:** Students who complete STEM@home activities and share what they learned with the PE team via our website will earn points which can be traded in for cash prizes at the Explore Store. Your project number is 407. Learn more at [www.projectexploration.org/explore-store](http://www.projectexploration.org/explore-store)

### Join PE's character contest!

Design a STEM character who will lead kids through activities and be featured on our website and in our STEMbooks. Cash prizes will be awarded to the top 3 finalists. Learn more at [www.projectexploration.org/character-contest](http://www.projectexploration.org/character-contest).



Call or text us for help: 312-772-6634



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