



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:

perform an incredible science trick to demonstrate gravity, motion, and other forces! Younger students may need assistance.



## Supplies Required:

- 1 plastic cup of water with a mouth wide enough to fit the egg.
- 1 10" (25 cm) piece of cardboard or a small tray with a SMOOTH bottom
- 1 cardboard tube (paper towel or toilet paper tubes work well)
- 1 Egg (uncooked for more drama)

## Video

Learn about Newton's Laws here: <https://tinyurl.com/z52brmm>  
Watch a live egg drop challenge here: <https://tinyurl.com/se6rnsw>

## Overview

This activity is based in Sir Isaac Newton's First Law of Motion. Newton said that objects in motion want to keep moving and objects that are stationary want to stay still—unless an outside force acts on them. Inertia describes an object in terms of how much energy is needed to move it or stop it from moving. Since the tray and tube are very low mass (lightweight), they have very little inertia, and will easily move out of the way.

The egg, however is heavier (has more inertia) and so it is not easily moved, leaving it in place for gravity to bring it down into the cup. You can take it further! Try testing longer cardboard tubes from a roll of paper towel, different size glasses or different size eggs. Do small eggs work as well as jumbo eggs?



## Instructions



1. Place the tray centered over the cup.
2. Place the tube on its end in the center of the tray.
3. Place the egg horizontally on the tube.
4. When ready, strike the tray hard enough with your palm to send the tray flying, but not so hard you hit the glass of water. If all goes well, the tray and paper tube will go flying, but the egg will safely drop into the water.

## Additional Resources

1. Learn more about Newton's First Law: <https://tinyurl.com/ycfb5fyg>
2. Read more inertia facts for kids: <https://tinyurl.com/rkynl9p>
3. Try more inertia activities: <https://tinyurl.com/rkjd6tc>

## Share It Out

Talk about it with your family and friends and have them try this challenge!

**Share on social media:** try the egg drop challenge and post a video online using the hashtags:

#EggDropChallenge  
#ProjectExploration  
#StemAtHome

Tag a friend and challenge them to build their own tower! You can also tag @sciencebob and @livekellyandryan on their social media!

**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 403. 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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