



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.

In this activity, you will:

observe the transfer of kinetic and potential energy through a simple experiment!



Supplies Required:

Two different types of balls (basketball, tennis, ping pong)
Pen and paper
Yardstick (optional)

Video

Learn about potential and kinetic energy: <https://www.youtube.com/watch?v=Ehx1P4adv6I>

What are the stages of energy in a bouncing ball? <https://www.youtube.com/watch?v=2lqSaby2VB8>

Overview

Energy in motion is called *kinetic energy*. Kinetic energy is transferred when a *collision* happens. Some collisions you can see in everyday life are when you bump into someone in the hallway or hit a baseball. In the experiment you are about to do, the larger ball that bounces on the ground will transfer kinetic energy as it collides with the smaller ball that is still dropping on top of it.



Instructions

1. Set up your yardstick vertically, if one is available. If one is not available, use something else as a reference for height, like a fence or someone's shoulders.
2. Drop the first ball from your shoulders. Observe how high it bounces and record your observations.
3. Repeat step two with the second ball.
4. Stack the smaller ball on top of the larger ball, and drop both. Observe how much higher the smaller ball bounces. Record your observations.

Additional Resources

Think About It! Where did the ball have the most kinetic energy? The least? What position has the most potential energy? How do you know? Do you think energy never disappears? Explain your thinking!

1. Learn about kinetic energy with Khan Academy: <https://tinyurl.com/ybrysudt>
2. Read and learn about kinetic energy with Ducksters: <https://tinyurl.com/yaydzvu4>
3. Read and learn about potential energy with Ducksters: <https://tinyurl.com/y5xjaj4x>

Share It Out

Share on social media: Take a video of your experiment! Challenge friends to drop more than two balls at once and see who can drop the most balls stacked on top of each other!

Use the hashtags:

#BouncyBallEnergy
#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 301. Learn more at 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.



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

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