

Energy & Motion Lab: Rubber Band Launcher Experiment

Background Information

In this lab, you will explore how stored energy (potential energy) is converted into motion (kinetic energy). A stretched rubber band stores elastic potential energy. When released, this energy becomes kinetic, causing the object to move. This experiment demonstrates how energy and force interact to produce motion.

Objectives

- Observe how potential energy is converted into kinetic energy.
- Measure how the pullback distance affects motion.
- Identify the forces involved in motion.

Develop a Hypothesis

What do you think will happen to the distance the object travels as you increase the pullback distance? *Write your hypothesis as a complete sentence.*

If . . . _____
_____,
then . . . _____
_____.

Materials

- 1 meter stick
- 1 ruler
- 1 rubber band
- 1 pom-pom
- 1 pencil or marker (to anchor the rubber band)
- Lab worksheet or notebook

Procedure

1. Set up the launcher by anchoring the rubber band to the end of a meter stick using a pencil or marker.
2. Place the projectile (pom-pom) in the rubber band.
3. Pull the rubber band back to a measured distance (2 cm) and release.
4. Measure and record the distance the object travels.
5. Repeat steps 3–4 for 4 cm, 6 cm, and 8 cm pullbacks.
6. Record all results in the data table and complete the graph.

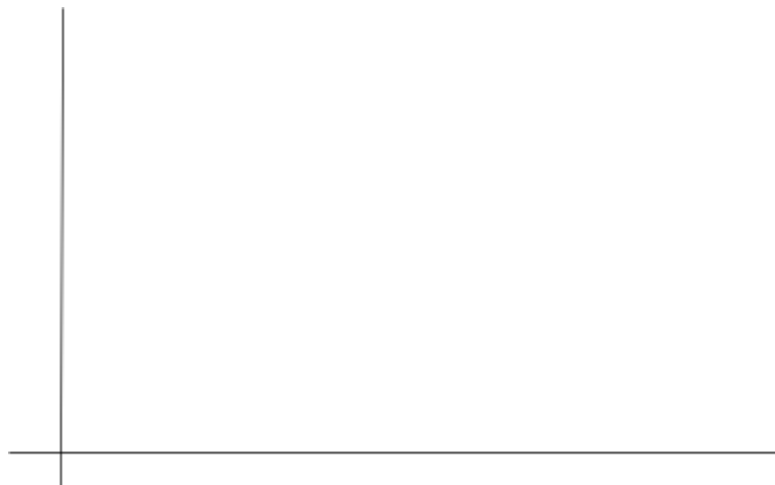
Results

Data Table:

Pullback Distance (cm)	Distance Traveled (cm)	Observations (note: arc shape, veered left, projectile rolled, etc.)
2 cm		
4 cm		
6 cm		
8 cm		

Graph Your Results

Create a line graph below or on graph paper. **Label** your x-axis (Pullback Distance in cm) and y-axis (Distance Traveled in cm) and add a title.



Conclusion

Was your hypothesis supported? Why or why not? *Write your response in complete sentences.*

Analysis Questions

Write your responses in complete sentences.

1. What type of energy did the rubber band have before you let go?
2. What happened to that energy after release?
3. How did increasing the pullback distance affect the motion?
4. What forces slowed the object down?

Adapted from:

https://www.sciencebuddies.org/science-fair-projects/project-ideas/ApMech_p017/mechanical-engineering/rubber-bands-for-energy