

8.8: Thinking about the material

8.8.1: Reflect and research

1. When did Lagrange publish his theory of classical mechanics, and what was the name of the publication?
2. What is D'Alembert's contribution to the field of classical mechanics?
3. Who first proposed the Principle of Least Action, and when?
4. What is an example of a situation not already covered that you can describe where mechanical energy is conserved?
5. Under what symmetry is angular momentum conserved?
6. Think of three renewable energy sources and describe how they use conservation of energy to produce electricity.
7. What is a Rube Goldberg machine? Look up some videos of Rube Goldberg machines, and find the coolest one!

8.8.2: To try at home

1. Design a small catapult or slingshot that you can build using materials found at home. Describe how these machines work using conservation of energy.

8.8.3: To try in the lab

1. Propose an experiment to test that energy is conserved in a system where only gravity acts.
2. Simulate the launch of a space probe out of the solar system using a gravity assist.
3. Model and investigate the craters that are created when objects are dropped into a bed of sand.

This page titled [8.8: Thinking about the material](#) is shared under a [CC BY-SA 4.0](#) license and was authored, remixed, and/or curated by [Ryan D. Martin, Emma Neary, Joshua Rinaldo, and Olivia Woodman](#) via [source content](#) that was edited to the style and standards of the LibreTexts platform.

- [8.7: Thinking about the material](#) by Ryan D. Martin, Emma Neary, Joshua Rinaldo, and Olivia Woodman is licensed [CC BY-SA 4.0](#).
Original source: <https://github.com/OSTP/PhysicsArtofModelling/blob/master/README.md>.