



Lesson Directions Overview

Safety Usage Instructions:

- Place the LearnLauncher™ in the desired location, being mindful of where launched beanbags may fall.
- Identify one student as the launcher. This student will be the only one to touch the catapult at the time of launching. All other students should observe the experiment from a safe distance.
- When launching, the student places the beanbag on the launching pad and inserts the tether according to the included instructions.
- The student should announce the launch by counting down from 3 before pulling the tether release.
- Ensure all observers stand to the side of the launch and observe the experiment from a safe distance.

Equipment List:

- 1 LearnLauncher™
- 8 Protex™ Resistance Loops (4 ea Light, 2 ea Medium, 2 ea Heavy)
- 12 Beanbags

Learning Objectives:

1. Define a force as a push or pull on an object.
2. Determine which forces are evident in the launch of a beanbag.
3. Determine how changing resistance changes the force of the catapult.
4. Understand the meaning of accuracy and precision through various launch set ups.

Grade Levels: K-8 with lesson extensions for high school

Vocabulary Covered:

- Force
- Simple Machine
- Accuracy
- Precision

NGSS Topics Addressed:

- Forces and Interactions
- Energy