Air, Gravity & Parachutes Lesson Plan □

Suggested Age / Grade Level	Curriculum Covered	Duration
Grade 3 - 8 (8 - 13 years old)	Air resistance & Gravity History of parachutes	1 hr

Overview

Students will explore the concepts of gravity and air resistance. Students will learn about the history of parachutes. Students will also be able to apply what they have learned by making their own toy parachute.

Learning goals

- Explore the concepts of gravity and air resistance
- Learn about the history of parachutes

Materials

- Dinner napkin
- Yarn or string
- Scissors
- A pencil
- A small, light-weight figure (ex: Lego people, army figure, superhero figure, Littlest pet shop, polly pocket, etc.) - (**note**: very light figures work best!)
- Markers (optional)
- A paper or plastic cup (optional)

Instructions for Parachutes

1. Open up the napkin. **Optional:** decorate napkin using chunky or soft-tip markers
2. Flip napkin over and measure your string or yarn, a length and a half of the napkin (length of napkin + ½ length of napkin = length of yarn or string)
3. Cut three more pieces of string or yarn of the same length. You should have four in total.
4. Poke one hole at each corner of the napkin, about 2 cm away from the corner, using your pencil
5. Loop a piece of string in each of the holes you made and carefully tie a knot.
6. Pull all the four strings together and tie one big knot, leaving some excess string to tie the small figurine.
7. Use the remaining string to tie the small figurine. Cut off an remaining strands if there's still excess

Key terms

Gravity: a pulling force that works across space. Gravity pulls objects toward the center of the Earth.
Weight: a measure of the force of gravity pulling on an object.
Velocity: a measure of how fast something moves in a particular direction.
Acceleration: the rate of change of velocity, or how fast an object or person speeds up
Air resistance: (also called drag) opposes the direction that the object is moving and slows it down.
Vacuum: a space without any air

Lesson Summary

- All objects attract other objects because of a force called gravity
- Objects do not have to touch each other for the force of gravity to affect them
- On Earth, gravity pulls objects to the centre of the Earth
- Gravity is what makes things fall and gives them weight
- Galileo discovered that gravity accelerates all objects at the same rate regardless of what they're made of
- Resistance and friction cause changes in acceleration.
- AIr resistance (Drag) happens because objects bumps into a lot of air molecules as they fall. Air molecules bump into the object, it takes away some kinetic energy of the object which makes the object slow down
- Regardless of weight, the more friction an object has the slower it will fall
- If you drop things in a vacuum, they will fall at the exact same time therefore, they fall at the same speed
- To slow down the speed at which an object falls, more air resistance needs to be created
- People use the knowledge of air resistance to make something move faster or slower
  Example: Noses of airplanes "cut through the air", therefore creates low air resistance. Parachutes are designed to have lots of air resistance so they fall slower