

Materials Needed

- Paper
- 24 inches of thread
- Blocks
- Scissors
- Crayons
- Pasta box or something similar
- Rubber band

Grade Range

6-8

Topics/Skills

Engineering
Design
Physical Properties

Learning Standards

NGSS: Engineering Design [6-8](#)

Duration

30 minutes

Prep Time

10 minutes

Bread Bag Parachute

Float Your Avatar Safely Down to Earth

Jumping out of a working airplane may seem like an odd choice, unless you are testing out your new parachute design. Test different aerodynamic designs, and your creativity, in this activity.



Activity Challenge

Make a parachute that slows the landing of a falling object.

Preparation

1. Gather materials and tools.
2. Cut thread into smaller pieces that are the same length (about 3-7 inches will work best.).

To Do

1. Draw a person's body on the blank part of a pasta box. Include a face in the drawing.
2. Cut out the drawing.
3. Cut the bread bag into a rectangular shape. Using a 6inch x 12inch will work best. This will be the parachute.
4. Poke holes into opposite edges of the parachute (cut bag) and insert the thread.
5. Once the thread is halfway through the hole, leave one inch of slack and knot the open ends.
6. Wrap a rubber band around the cut-out drawing to make a harness.
7. Tie the thread to the harness.
8. Test parachute and make modifications if needed.

Observations

- Note how long the paper cut out drawing takes to fall to the ground without a parachute.
- From the same height, note how long the paper cut out takes to land with the parachute.
- Note the difference in times with each modification.

Extension

- Try using different shapes of canopies.
- Try a heavier or lighter skydiver.
- Try adding a paper box to the threads.
- What are the 5 basic parts of a parachute? What is terminal velocity?

The Content behind the Activity

Falling objects push on the air underneath as they drop. The force opposing the movement of an object through the air is called “**drag**”. Bicycle racers can go faster when they reduce drag by bending low to the bike rather than sitting upright. Sitting upright presents a larger surface area for the air to push against and that would cause an increase in drag.

A falling object needs a way to greatly increase drag in order to have a safe landing. The goal is to prevent too fast of a landing that could hurt a person or damage dropped supplies. To increase drag a parachute needs to present a large surface area to the air below. The parachute also needs to be made of light weight material, so the parachute itself does not cause harm when it collapses after a landing.

A parachute will fill with air as it falls. As more air enters the underside of the parachute some will try to escape from around the edges. That escaping air can cause a parachute to tip side to side during a fall. If the tipping is too great, then the parachute could collapse into a smaller shape, increasing the speed of the fall.