

# Parachute Designer: Testing Parachute Materials

## Adventure Description:

In this adventure, students will think like a parachute designer and perform tests to determine the best material to use for a parachute.

## Activity

- **Teacher Note:** This activity requires a testing area that will allow students to drop action figures attached to parachutes from as high as possible. For example, figure out a spot where students could stand on a step stool and drop from a line that you have marked on a wall. Alternatively, students could drop their figures from the top of a stairway or from the stands in a gymnasium.

### Step One: Background Information on Parachute Designers and Parachutes (5-7 minutes)

- Ask students if they know anyone who has been skydiving before. Take a quick poll to see if students would ever go skydiving.
- Explain to students that parachute designers are in charge of making sure that parachutes are safe for people that go skydiving. A parachute is a large piece of material that is designed to slow a person down as they fall through the air. This is really important while skydiving!
- Tell students that there are a few things that parachute designers have to understand to be able to design parachutes that are effective at slowing people down when they skydive. Show [Handout: Parachutes](#).
- Explain to students that they will be performing tests to determine which material is the best for parachutes. To do this, students will conduct an experiment using several different materials.

### Step Two: Experiment Set Up (5-10 minutes)

- Explain to students that they will now set up their experiments.
- Divide students into pairs or small groups.
- Provide students with [Handout: Testing Parachute Materials](#). Walk through the handout together as a class.
- Provide students with the following materials:
  - 8" by 8" piece of plastic grocery bag
  - 8" by 8" piece of cotton cloth
  - 8" by 8" piece of craft tissue
  - 8" by 8" piece of newspaper
  - String or yarn
  - Scissors

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- Ruler

- Explain to students that they will now complete Step 1 on the handout. Students should make harnesses that attach to the parachutes. Explain to students that they will use the loops that they tied in the other end of the string to attach the parachute to the action figure.

## Step Three: Testing Parachutes (20-25 minutes)

- Explain to students that they will now conduct tests to determine which material is best to use for a parachute.
- Provide students with the following materials:
  - Timer
  - Action figure or other small toy
  - Spray bottle of water
- Explain to students that they will conduct a drop test, a rain test, and a crumple test. These tests will determine which material is the best material to use for a parachute.
- Instruct students to complete Step 2 on their handout.
- When students are finished testing, provide them with a highlighter. Have them complete Step 3 on their handout.
- After students finish Step 3, ask them to discuss which material they think is best to use for a parachute.
- Teacher Note: The plastic grocery bag is the best overall material to use as a parachute. See our results on [Handout: Data Table Key](#)

## Step Four: Build a Backpack (15 minutes)

- Explain to students that they will now create a backpack that can safely store their parachutes.
- Have students complete step 4 on the handout and create a backpack that can be used to store their parachutes!
- When students are finished, ask them to talk about their backpack to the class.

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## Materials List

### Provided online:

- Handout: Parachutes
- Handout: Testing Parachute Materials
- Handout: Data Table Key

### Not provided (One set per class):

- 8" x 8" pieces of each material below:
  - Plastic grocery bag
  - Craft tissue
  - Newspaper
  - Cotton material
- String
- Action figure or other small toy
- Scissors
- Ruler
- Timer
- Spray bottle of water

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