

# Engineering Parachutes



## Activity Description

In this activity, you can become an engineer by designing and engineering a miniature parachute! Like an engineer, you can create a blueprint for your miniature parachute and craft it using various materials like tissue paper, string, or paper clips.

## Materials

- Thin Light Paper (Tissue Paper, Napkins, Construction Paper, or Newspaper work well)
- Roll of Yarn
- Washers (or small toy to act as a weight)
- Scissors
- Tape

## Background Information

Engineers use a method known as the Engineering Design Process when they are developing a new project. Engineers research a potential issue and then create a blueprint for their idea. This blueprint includes a design of their project and what materials may be used. Once a blueprint is created, engineers create a prototype, or a first version, of their idea. After creating a prototype, engineers test their idea many times to collect data and think about any potential changes they might make. Engineers might make changes or create a new version of their idea or project after conducting tests on their prototype.

Engineers embrace failures in their designs. If a part of their prototype does not work properly, engineers use that information and make a better idea, project, or version, learning from failure.

When creating parachutes, engineers create many different types of parachutes to find the best version to use for objects approaching the Earth. Parachutes are very important for skydivers, pilots, and even, astronauts! Parachutes help people slowly and gently approach the Earth after being in the air. Can you design a parachute to help objects land safely on the Earth?

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## Procedure

1. Cut a circle or other shape from your paper (tissue paper, construction paper, newspaper, napkins). You can use a plate or bowl to help you draw your circle.
2. Fold your circle in half, and then into quarters, and if possible, one time into eighths so that your paper looks like a slice of pie.
3. Use your scissors to cut off the tip of your piece of pie.
4. Cut six pieces of equal length string and tape them at equal distances around the edge of your shape. You can use the fold lines as a guide for distancing.
5. Tape the other ends of the string to a weight.
6. To test the parachute, go outside and drop it from a safe height to see if it falls slowly and lands gently. Record your observations.
7. Repeat the process and try modifying the parachute design. Your goal can be to maximize the amount of time it takes for your parachute to hit the ground. Try changing the amount of weight attached or the type of material used to create the parachute.
8. Record your observations for your modified parachute to track your changes.

## Extensions or Adaptations

- You can try creating different types of parachutes. You can create a different shape or use different types of string or yarn. Perhaps you can create a new parachute design that is better than previous versions!