

Paper-trooper Challenge

Collect

- Paper or cardstock
- 1 large diameter straw like a bubble-tea or milkshake straw
- 1 regular drinking straw (should be able to fit inside the large straw)
- String
- Tape
- Scissors
- A handful of paperclips
- Miscellaneous household materials such as plastic bags, wax paper, and fabric scraps

Build your paper-trooper.

1. Roll a piece of paper into a cone shape and secure it with tape.
2. Flatten one end of the larger straw and wrap it with tape to seal it.
3. Place the larger straw inside the paper cone, making sure the sealed end is pointed towards the tip of the cone. Secure it with tape.
4. Trim the open end of the straw so that it is level with the opening of the cone.

Design a parachute.

Parachutes are designed to catch air and help create drag to slow the speed of a falling object. For this challenge, you'll have to design a parachute to help your paper-trooper land safely.

5. Test a few different materials to see which one produces the most drag by attaching a few pieces of strings around the edges of a material and then tying the loose ends together around a few paperclips to add weight. Hold the material in the air and let it drop.
6. Compare each material, and then decide which material is right for your parachute.
7. Test different parachute types by using the same testing methods. How does changing the shape of the material to a triangle, square, hexagon, or circle change the drag? Pick your favorite shape.
8. Complete your design by attaching your finished parachute to the top of the paper-trooper cone.

Let it go!

To launch your paper-trooper, go outside or find a room with a high ceiling. Hold your paper-trooper so the point of the cone is facing up and drape the parachute over the tip of the cone. Place the small straw inside the large straw and blow to launch! As the paper-trooper falls to the ground, the parachute should catch the air and slow the descent.

