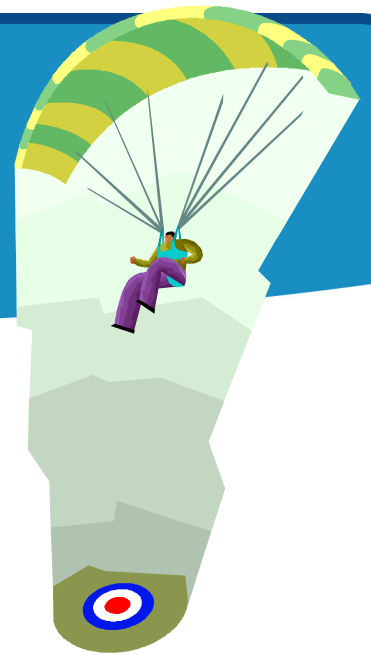


# Hang



Design parachutes that maximize the hang time of the paratrooper.

# Time

**Ages: 10-15 years old**

**Time: Two 45-60 minutes sessions (minimum)**

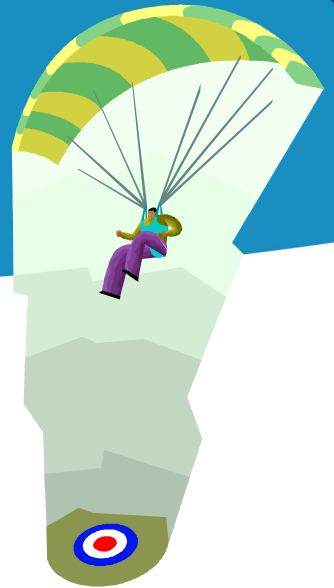
## Materials Needed:

**Plastic bags, scissors, tape measure, string, marker, tape, paper clips, weight (plastic army men work well), stopwatch, Excel**

## Instructions:

1. Have participants share what they know about parachutes and how they work (be sure to encourage participants to use science vocabulary like air resistance, drag and turbulence).
2. Explain that participants will be designing and constructing their own parachutes using the materials provided. The goal is to create a parachute that has the maximum hang time. Groups will be required to calculate “hang time” as a function of rate of descent using the distance formula ( $d=rt$ ). Calculations should be recorded in Excel.
3. Allow groups to design their parachutes and provide an area for them to perform test flights. Have groups test their parachutes from at least 3

# Hang



different heights to calculate an average rate of descent. Record the results in Excel.

# Time

4. As a group, have participants make conjectures about their results. Why did some groups achieve slower rates of descent? Have them brainstorm a list of variables they believe influences "hang time".
5. If time permits, allow groups to make a redesigned parachute and repeat the experiment to see if they can achieve a longer "hang time".

## Youth Development

### Ideas:

If desired, allow teams to graph and track the results of their parachute experiments. Teams can use lines of best fit to determine the average rate of descent.

Consider having the group "publish" the results of their parachute experiments. What did the group learn about the relationship between parachute construction and drag?

### Submitted By:

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