

No scrambled eggs!

This short-term challenge comes from the Creative Challenge guide entitled "Relevez le défis", published by the Conseil de développement du loisir scientifique (CDLS)

All secondary-school students

Key words: aerodynamics

Space: Indoor or outdoor staircase or balcony

Number of participants: 2

Your mission

You are at the top of a cliff. You know that friends have been without food somewhere below for several days. Climbing down the cliff will take several hours and you have to find a way of quickly getting your friends food and water so that they can get their strength back.

The challenge

You have 30 minutes to design and build a container equipped with a parachute that is able to safely house an egg. You will drop the container and the egg from a height of 2.5 m.

Materials

- Paper bags to build the container
- Plastic bags to build the parachute
- String
- 1 roll of tape
- Thread
- 1 large egg (raw)
- 1 or 2 stopwatches accurate to 0.01 second (essential)

A few rules

- Build a container equipped with a parachute
- With a piece of string on the launch ramp, indicate the height from which the container will be dropped.
- At the start, the container and the entire assembly must be above this line.
- The ramp can be a staircase or a balcony. **ENSURE THAT THE PARACHUTE LAUNCH AREA IS SAFE.**
- The height of the ramp should be no less than 2.5 m, otherwise the descent times will be very difficult to measure. From this height, the parachutes will descend in less than 5 seconds.

Test flight

- Ensure that the assembly is above the starting line (string) when you launch your parachute. We suggest you appoint someone specifically for this very important task, because you must start timing the descent as soon as the assembly is dropped.
- Time the descent.
- The team whose parachute has the slowest descent without breaking the egg will be declared the winner.
- It is preferable to make more than one descent in order to take the average of the 2 times (or, if you prefer, the slower of the 2 times). Since the results will be only hundredths of seconds apart, you will need at least 2 descent times, especially if you meet the challenge with friends and must determine a winner.
- Remember to have mops, rags and a bucket on hand to clean up any scrambled eggs!

Scientific principle

This challenge involves speed—or a lack thereof—and the principles of aerodynamics. The aim is not to gain speed but to try and make the parachute descent as slow as possible. Take some time to discuss or research the approach and the scientific principles before starting your assembly.

Want to know more?

Make a library or on-line research using the Key words at the beginning of this challenge.