

MAD SCIENCE



LearningWithoutBorders

European Educational Programme

After the last catastrophic landing, Bungle & Chumley feel that they should design some kind of emergency landing system. It's time to experiment!

PERFECT PARACHUTES

Materials and Equipment

Heavy weight garbage bags

Ruler

Scissors

Light weight string (at least 6.4)

A weight (a large coin should be fine) and tape

A safe, high surface about 2 m from the ground. A good place for your test might be a secure balcony, deck, or playground platform.

Stopwatch, accurate to at least 0.1 sec

Lab notebook

Procedure

You are going to make four different sized parachutes. When you have created your parachutes, drop them from a set height and time how long they take to hit the ground. Your task is to answer the question;

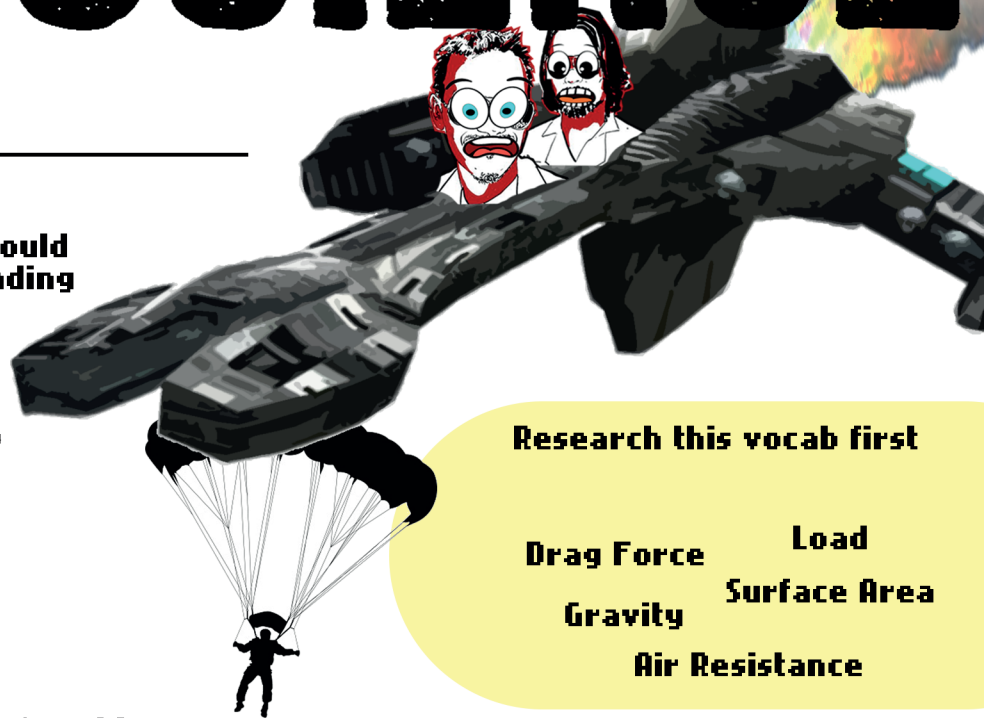
DO BIGGER PARACHUTES WORK BETTER THAN SMALLER PARACHUTES?

| Parachute | Length of Each Side (cm) | Surface Area (cm ²) |
|-----------|--------------------------|---------------------------------|
| 1 | 20 | 400 |
| 2 | 30 | 900 |
| 3 | 40 | 1600 |
| 4 | 50 | 2500 |

In this experiment you tested one variable, the surface area of the parachute. What other variables could be tested? Try an experiment to test these other variables:

Load - change the weight of the load
Height - drop the parachute from different heights
String Length - change the length of the string
Material - use different material for the parachute
Shape - try making parachutes of different shapes

| Parachute # | Trial 1 (seconds) | Trial 2 (seconds) | Trial 3 (seconds) | Average Time (seconds) |
|-------------|-------------------|-------------------|-------------------|------------------------|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |



Research this vocab first

Drag Force

Load

Gravity

Surface Area

Air Resistance