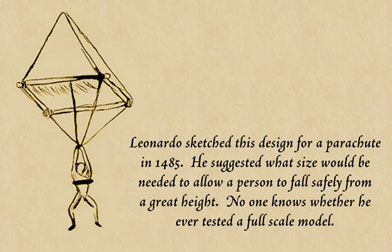
Leonardo Da Vinci’s inventions

Leonardo da Vinci was a famous man during the period known as the Renaissance. He was an accomplished painter, inventor and scientist.

He was fascinated with the idea of flight and created many inventions to fly or float in the air. Historians credit Leonardo da Vinci for coming up with the idea of the parachute.

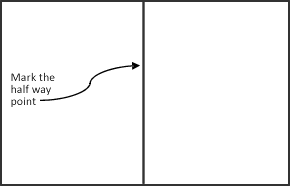
Although da Vinci never actually executed his design, "The sketch he drew consisted of a cloth material pulled tightly over a rigid pyramidal structure," says the website Parachute History.

The "Leonardo Parachute" science project focuses on learning how a parachute is made and how it works. It requires understanding the forces of gravity and air resistance.

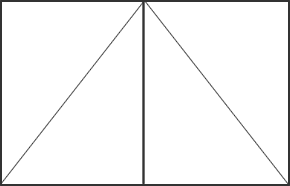
***Experiment 1 Design Leonardo’s parachute***

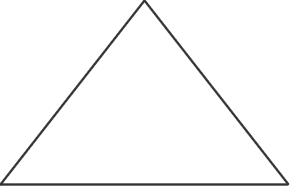
Things you’ll need

* Plastic garbage bag
* Sticky Tape
* Four cuts of 30cm long String or Dental Floss
* Metal Ring
* Scissors
* Ruler

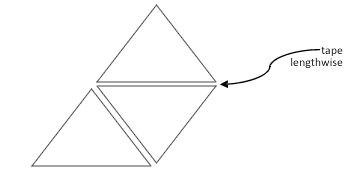
*Instructions*

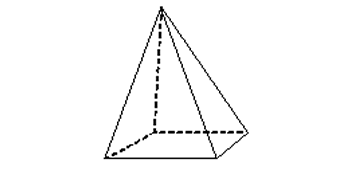
1. Cut out a square of plastic from the garbage bag, making sure that all angles are perpendicular to each other. Us an A4 sheet as a model. Mark the half way point.

2. Draw a diagonal line from the middle point to the edges creating a triangle

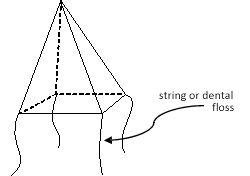


3. Cut out the triangle. Repeat these three steps for the three parts of the parachute.

4. Tape the triangles together lengthwise matching the shorter edges



5. Gently tape the left over two edges of the triangles together to form a pyramid



6. Tape a 35 cm piece of string or dental floss to each corner

7. Tie a metal ring to the string, throw the parachute from a safe height and observe. If necessary adapt your design.

***Experiment 2: Creating a “normal” parachute***

Things you’ll need

* Plastic garbage bag
* Sticky Tape
* Four cuts of 30cm long String or Dental Floss
* Metal Ring
* Scissors
* Ruler



*Instructions*

1. Cut out a 35,5 cm square of plastic from the garbage bag, making sure that all angles are perpendicular to each other.

2. Tape a 35 cm piece of string or dental floss to each corner

3. Tie a metal ring to the string, throw the parachute from a safe height and observe. If necessary adapt your design.

***Experiment 3: Designing a Parachute***

Things you’ll need

* Leonardo’s parachute
* Normal parachute

*Instructions*

1. Compare Leonardo’s parachute with a normal parachute in performance. Throw the parachute from a safe height and record how long it takes each parachute to reach the ground. Determine if the shape of the parachute makes it move faster or slower than the other parachute. *Record all results!*

2. Decide on one factor that you will change in creating two additional normal parachutes. For example, you might change the size of the square, the length of the strings or the material that the parachute is made of. (For this last factor, you might use newspaper and cloth as your two other variables.)

The size of a parachute changes its descent rates, as does the shape. To determine which shaped parachute descends to the ground the quickest, make parachutes of differing shapes, such as a rectangle and an octagon. Throw the parachute from a safe height and try to determine why different shapes make the parachutes descend at different rates.

*Don’t forget to record all your results!*

3. Questions you can ask yourself:

* Does the shape of a parachute change the descent rate?
* Does the size of a parachute change the descent rate?
* What factors influence the descent rate?
* What design would be the best? Create your best design.

4. Make sure to use the terms "speed," "acceleration", and "terminal speed" when discussing your science project. Do plenty of research beforehand so that you understand how terminal speed might affect the results of your experiment.