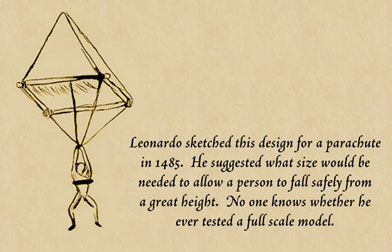
Leonardo Da Vinci’s inventions

 Leonardo da Vinci was a famous figure during the Renaissance. He was an accomplished painter, inventor, and scientist.

Fascinated by the idea of human flight, he designed several inventions intended to fly or float through the air.

Historians often credit him with the first concept of the parachute.

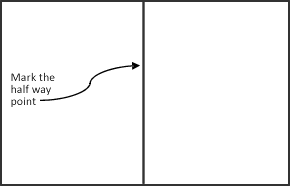
Although da Vinci never built his design, one of his sketches shows *"a cloth material pulled tightly over a rigid pyramidal structure,"* according to the website *Parachute History*.

This science project, **“Leonardo’s Parachute,”** explores how a parachute is constructed and how it works. To understand it, you will need to know the forces of **gravity** and **air resistance**.

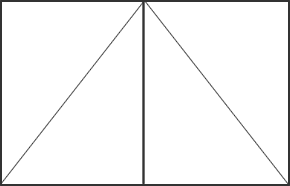
***Experiment 1 Design Leonardo’s parachute***

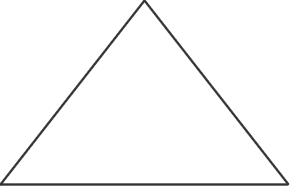
Things you’ll need

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

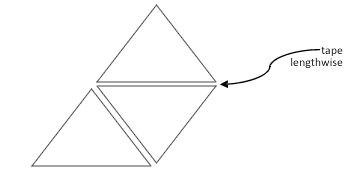
*Instructions*

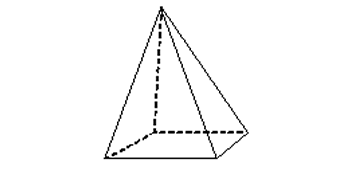
1. Cut a square of plastic from the garbage bag. Make sure all corners form right angles. You can use an A4 sheet as a template. Mark the midpoint.

2. Draw a diagonal line from the midpoint to one of the corners to create a triangle.

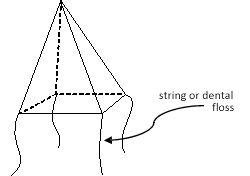


3. Cut out the triangle. Repeat steps 1 to 3 until you have three identical triangles

4. Tape the triangles together along their shorter sides, forming one large shape,



5. Carefully tape the remaining two edges together to form a pyramid.



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

7. Tie all the strings to a metal ring. Drop the parachute from a safe height and observe. If needed, adjust your design.

***Experiment 2: Creating a standard parachute***

Things you’ll need

* Plastic garbage bag
* Sticky Tape
* Four 30 cm pieces of string or dental floss
* Metal Ring
* Scissors
* Ruler



*Instructions*

1. Cut out a **35.5 cm** square of plastic from the garbage bag. Make sure all corners form right angles.

2. Attach a **35 cm** piece of string or dental floss to each corner using tape.

3. Tie the ends of the strings to a metal ring. Drop the parachute from a safe height and observe its movement. If needed, improve your design.

***Experiment 3: Testing and Designing Your Own Parachute***

Things you’ll need

* Leonardo’s parachute
* Standard parachute

*Instructions*

1. Compare the performance of Leonardo’s parachute and the standard parachute.  
Drop each parachute from the same height and **measure the time** it takes to reach the ground.  
Decide whether the **shape** affects the speed of descent.  
**Record all your results carefully!**

2. Choose **one variable** to change and test its effect on parachute performance. You can adjust:

* the **size** of the parachute,
* the **length** of the strings,
* or the **material** used (e.g. plastic, newspaper, or cloth).

You can also test the effect of **shape** by designing parachutes in different forms, such as a rectangle or an octagon.  
Drop each design from the same height and measure the descent time.

💡 Try to explain **why** certain shapes or materials cause faster or slower descent.  
📋 **Don’t forget to record all your results!**

3. Think about the following questions:

* Does the **shape** of a parachute affect its descent rate?
* Does the **size** make a difference?
* What other **factors** influence how fast a parachute falls?
* Based on your results, what would be the **best design**?

✍️ Use your answers to help you create an improved version of the parachute.

4. Use the key terms **speed**, **acceleration**, and **terminal velocity** when you describe your results. Do some extra research to understand how **terminal velocity** affects the motion of falling objects.