

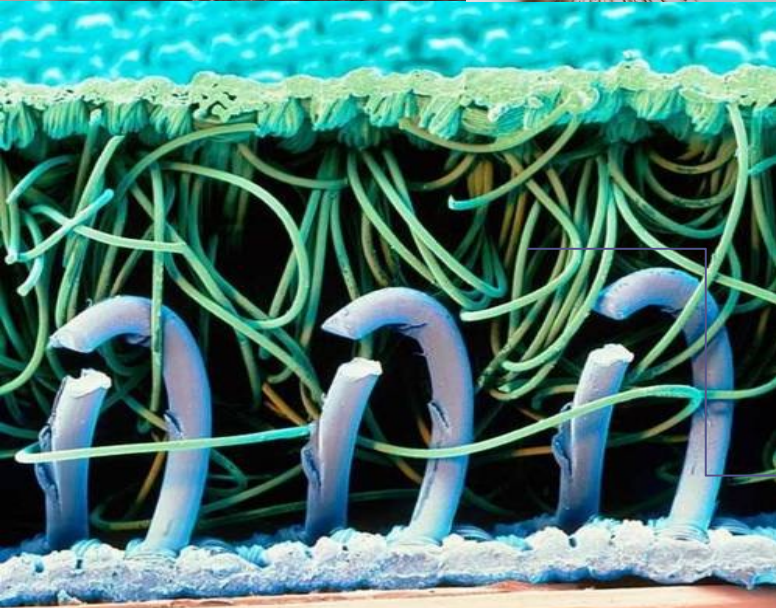


# How Strong Is Velcro?

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# The Invention Of Velcro!

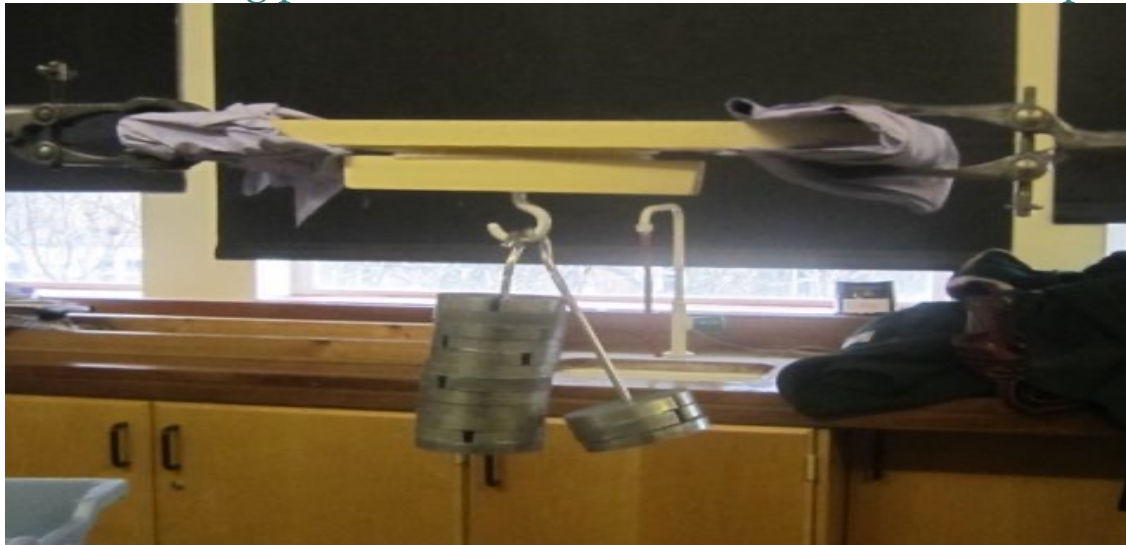


In 1941, after a hunting trip with his dog in the Swiss Alps, Georges de Mestral was surprised by the ability of burr seeds' to stick to his dog's fur and his own clothes. When he got home, he put the burr seeds under a microscope and saw that its barbed seed pods hooked easily with the looped fibres of his dog coat and his clothes. He realized that he could produce a new type of fastening product .e.g. like the zipper. It was not an easy task, though, eventually taking him 10 years to perfect the product, using cotton but settling on nylon. At first people laughed at the idea but by the time Georges de Mestral (1907 – 1990) received a patent for the product in 1955 the idea for the “zipper- less zipper” which was credited for its fastening abilities, from the French words velour's meaning velvet, and crochet meaning hook. Today, Velcro is used almost everywhere: clothes, shoes, leashes, nuclear power plants, battle tanks, in the space shuttle and many more. All thanks to the burr plant.

→ The strands of the nylon interlock themselves with the hooks on the other side of Velcro make the famous fastening mechanism.

# My Experiment

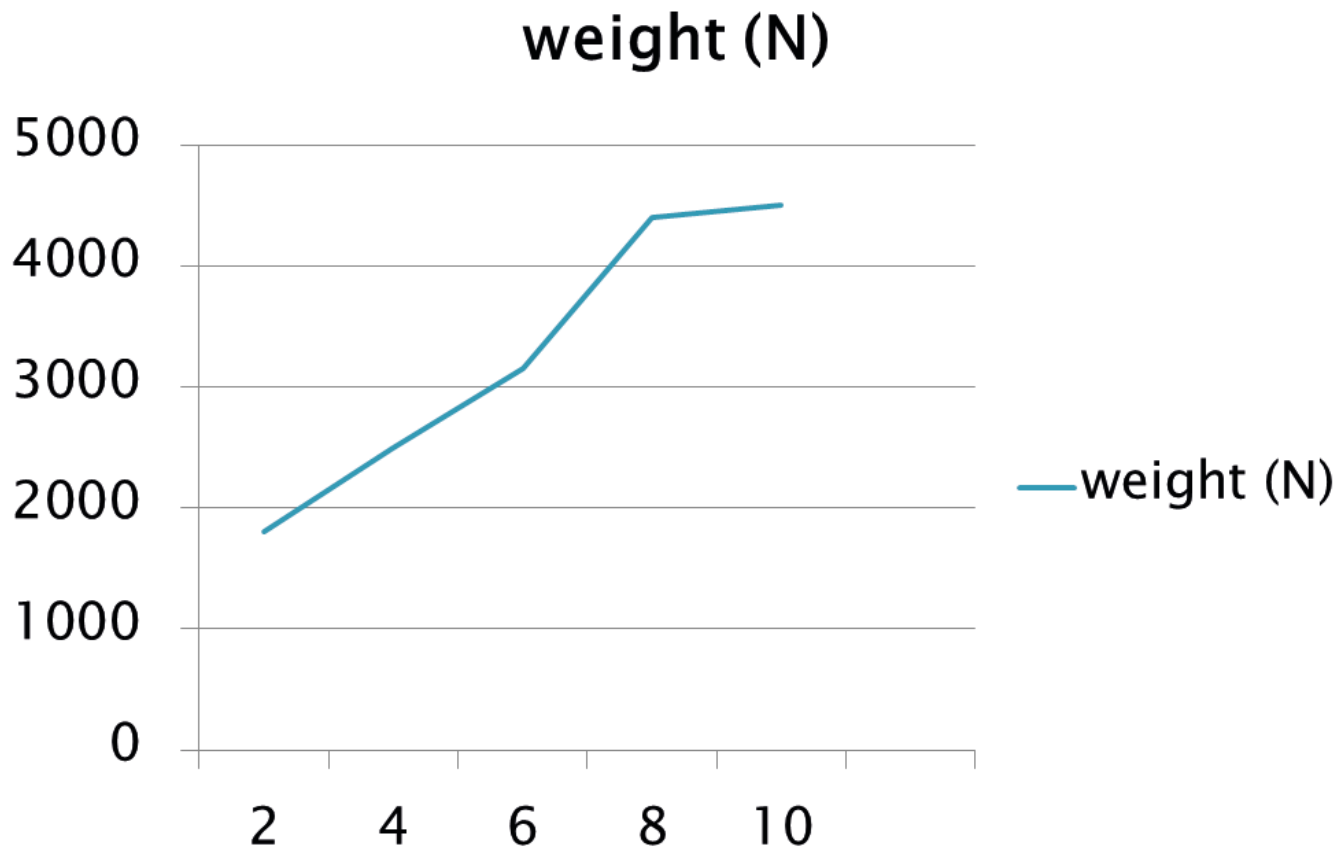
- In my experiment I am answering the question “How Strong is Velcro”?
- In my experiment I put a long piece of wood between two clamps and attached a piece of Velcro. Then I got two small pieces’ each with different lengths of Velcro one with 2cm long piece of Velcro and the other with 4 cm long Velcro. Both having hooks at the bottom.
- Which would carry weights and more would be added until it finally detached itself from the long piece of wood. \*this will all be shown in a practical\*



# My Data Collection

Length of Velcro (cm)	Mass required to take Velcro off? (g)	
	Test 1	Test 2
2cm	1900g	1800g
4cm	2500g	2500g
6cm	3200g	3200g
8cm	4400g	4400g
10cm	4500g	4400g

# My Graph Of Results: Average mass carried



# MY INTERPRETATION OF MY EXPERIMENT

- During my experiment I found out that if you increased the surface area of the Velcro, it allowed the Velcro to carry more weight. As it showed when I changed the length of Velcro from 2cm to 10cm the weight the Velcro could carry had increased meaning more grams measured.
- Also to make the test more reliable as I added every 100 gram, I gave the Velcro 30 seconds to see if it could hold the weight. Then if it did would keep on adding more weights until it finally gave in. And I tested the Velcro twice per go to also test reliability.

# My Conclusion

- As I did my experiment I finally realised how strong Velcro and how underestimated it is. Because for Velcro of such a small I didn't think it would reach passed 500 grams. So if a 2cm length of Velcro can carry 1900 grams how much weight could a 100 cm length piece of Velcro carry? It brings about all of these questions that make you think whether Velcro is being put to the right use? Instead of being used as shoe straps , could it be the next heavy lifting mechanism!



**Thank You For Listening to my  
experiment &  
And I hoped you enjoyed it!  
( any questions please do ask?)**