

Hair Strength Experiment

On SCOPE's Animal Coverings episode, Tasmin performed an experiment to work out how strong human hair is. Here's how you can try it at home!



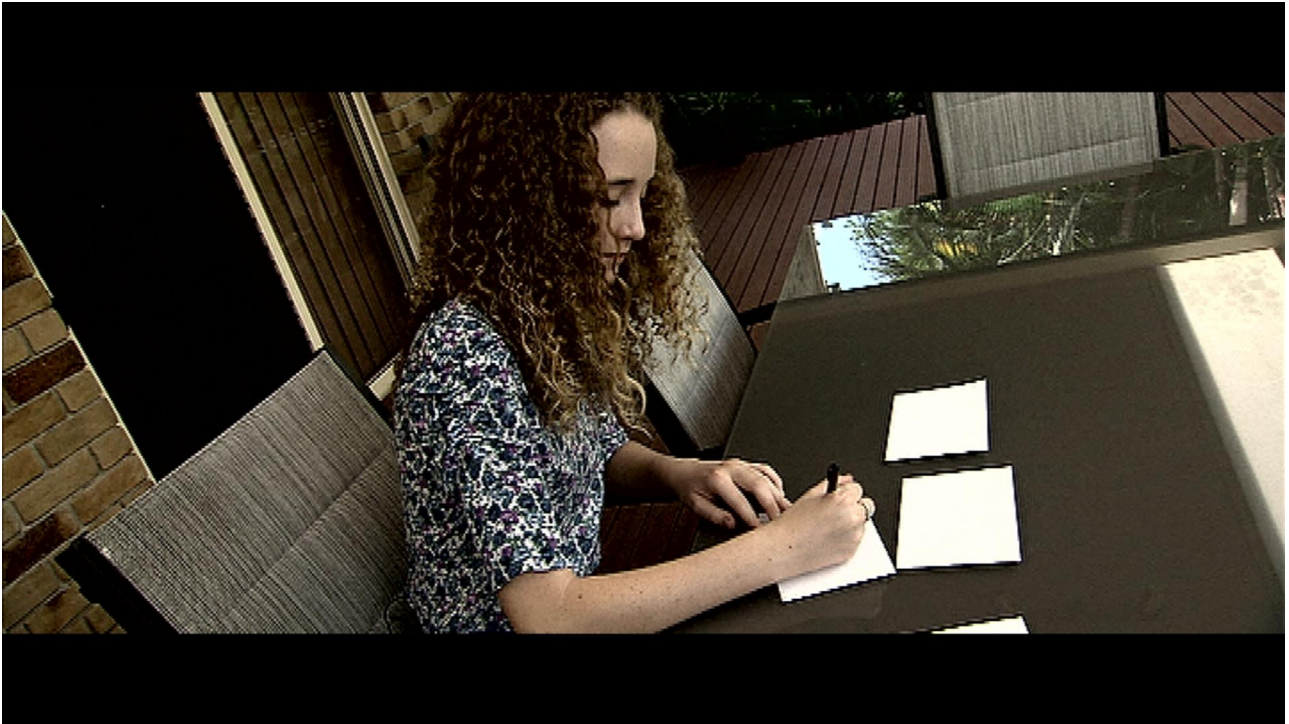
What you need:

- Samples of hair of different colours, textures or thicknesses that have been cut to the same length (at least 10 cm long).
- A jug of water
- A measuring container
- A plastic bottle with a handle (such as an empty large milk or juice bottle).
- A piece of paper and a pen to write down results

What to do:

1. Thread a single strand of hair under the handle of the empty bottle and hold the hair on either side of the handle with each hand.
2. Use the hair to lift the bottle and then place the bottle back onto the table
3. Use the measuring container to measure 20mL of water and add this to the bottle
4. Lift the bottle again using the hair
5. Repeat steps 3 and 4 until the hair breaks, being carefully to note down how much water was in the bottle when the hair broke.
6. Repeat this experiment for the other colours, textures and thicknesses of hair samples you have collected
7. Compare your results to see which sample could support the most water without breaking and so was the strongest!

Which strand of hair was the strongest? Did you collect strands of the same colour from different people and did they give different results? Was curly hair stronger or weaker than straight hair?



What's happening:

Considering how thin a single strand of hair is, the strands can usually support quite a lot of water! Tasmin found the strand of red hair she collected broke at 140mLs!

Hair is strong because is made up of a protein called Keratin. In the follicle of the hair, which is under the skin, Keratin is bound together like strands of a rope, giving the hair strength. The sebaceous gland also adds a layer of oil to each strand to stop it from drying out and becoming brittle, which why hair can be quite slippery.

Different people have hair strands of different thickness and strength. If the hair loses its oil or the strands of keratin are damaged, it can become dry and brittle and break more easily.