

Wool in Schools

Fact sheet

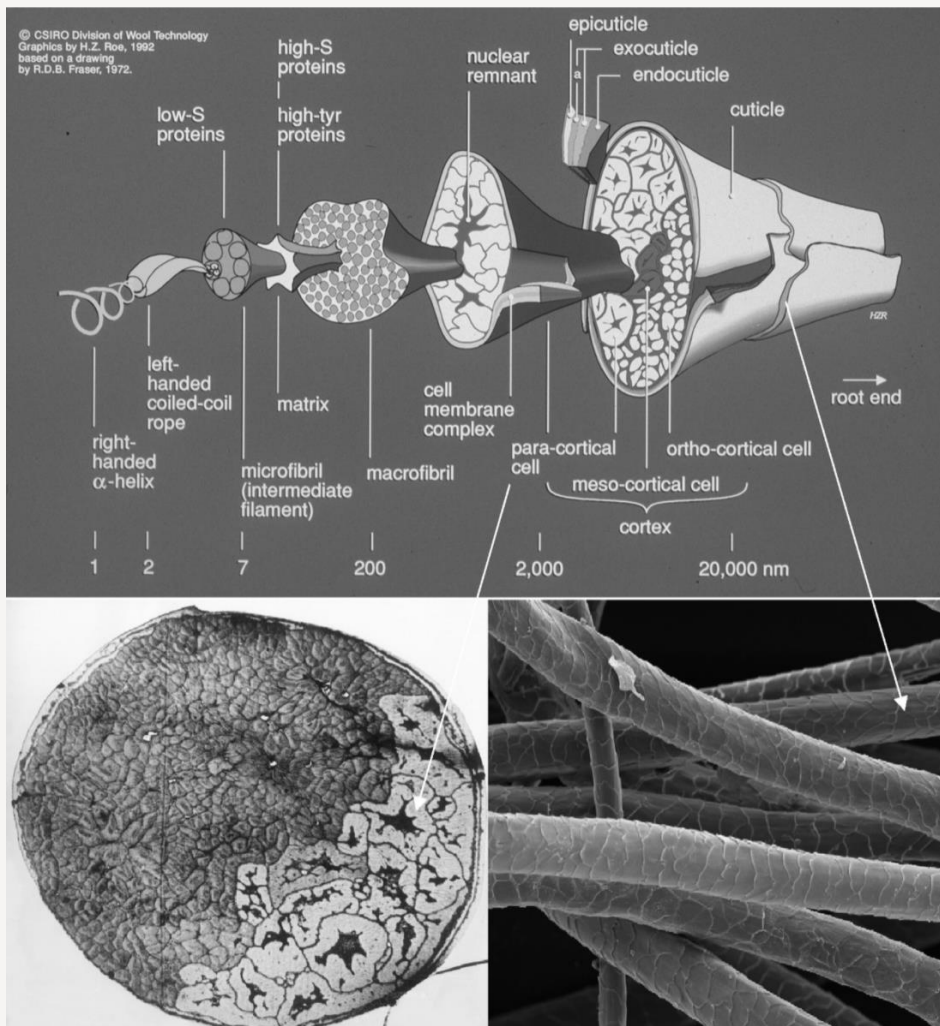
About wool

Learn about the inside of one strand of wool and how it makes wool an amazing super-fibre!



What does the inside of one tiny strand of wool look like?

When you magnify wool to thousands of times its actual size, it kind of looks like an alien from outer space!



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Stronger than steel but finer than a human hair!

What does each part of the wool fibre do?

- Cuticle – This is the waxy outside protective layer which has overlapping “scales”. This makes wool water-repellent.
- Cortex – This layer makes up 90% of the entire fibre. There are two components of the cortex which have different sized cells on each side. This creates the crimp (or waviness) of wool. Crimp gives wool its softness, sound absorption and temperature regulating properties.
- Macro and microfibrils – These are long filaments which add strength to the fibre. A bit like steel rods in a concrete building, these cells reinforce the fibre while maintaining flexibility.
- Matrix – The special proteins contained in the matrix attract water molecules which means wool can absorb up to 30% of its weight in water. It is the matrix which also removes odour causing vapour and locks away harmful pollutants from air pollution. Finally, the matrix gives wool its fire-resistant and anti-static properties. The matrix is pretty cool.
- Helix – Deep inside the fibre is a keratin-based protein chain that coils in a helix shape, a bit like a spring. This prevents stretching of the fibre and also gives wool its flexibility, elasticity and resilience. This means wool can ‘spring back’ over and over again without breaking. In fact, you can bend wool more than 20,000 times before it will break – you can’t do that with steel!

