

Understanding Wool Fibre

Stronger... Smarter... Safer

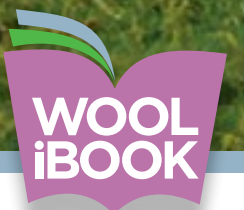


THE CAMPAIGN FOR WOOL

Patron: HRH The Prince of Wales

What is Wool?

Wool is the fleece or the coat of an animal, most commonly sheep. As a natural textile fibre it ages beautifully and provides a distinct look and feel.



Types of **Wool**

All wool is not the same as there are many different breeds of sheep in the world and the wool is also different.

Soft/Fine Wool

Used mainly
in fashion

Mid Micron Wool

Used in upholstery,
blankets and
some clothing

Strong Wool

For carpets,
rugs, upholstery
and tweed

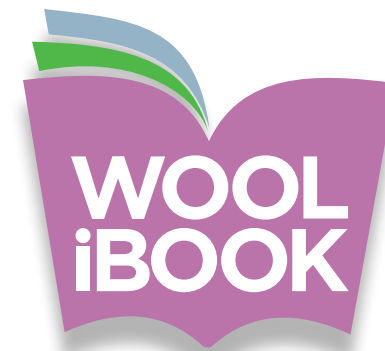


Wool Quality

Factors that can influence the quality of wool:

- Breed
- Climate
- Habitat/diet
- Age
- Health
- Gender
- Care & Shearing





Natural and Environmental Characteristics



THE CAMPAIGN FOR WOOL
Patron: HRH The Prince of Wales

Wool... Naturally

Wool is grown naturally on sheep that graze freely.

- Sheep re-grow their fleece every year making wool one of the most “green” and sustainable fibres available.
- Sheep live on and from the land, roaming freely in the countryside.

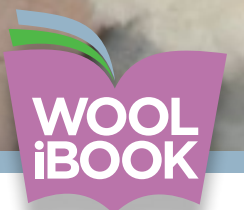


Renewable & Sustainable

Wool is the ultimate sustainable fibre.

- Sheep grow wool continuously and can be shorn every 9-12 months, making wool rapidly and readily renewable.
- Shearing does not harm or cause pain to the sheep in any way.

As long as there is grass for sheep to eat, wool can be produced, in contrast to synthetic fibres which require oil and refineries, a non renewable resource for man-made fibre production.



100% Biodegradable

Wool is made from keratin, a tough insoluble natural protein with a unique structure and in its pure form will decompose without causing harm to the earth.

At the end of its life, if kept warm and wet, or buried in soil, 100% wool will biodegrade releasing valuable nutrients.

In soil wool can be used as a slow release fertiliser or as weed mats to inhibit weed growth and to control erosion, stabilizing slopes and for protection of new seed, providing valuable nitrogen fertiliser as they decompose.



Energy Efficient Manufacturing

Wool production has advanced with new technology allowing control and management of environmental considerations. These include improvements in:

- Energy efficiency.
- Heat recovery.
- Water recycling.
- Waste recycling and composting.

The energy reduction in wool manufacturing helps to minimise carbon dioxide emissions and green house gases.

Harvesting wool uses less energy than it takes to make fossil-fuel dependent synthetic fibre.

Energy Efficient in the Home

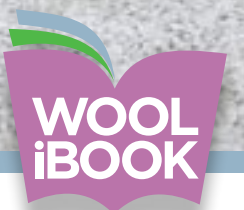
- Wool can help to reduce energy costs from heating and air conditioning.
- Lower energy usage reduces the carbon emissions.

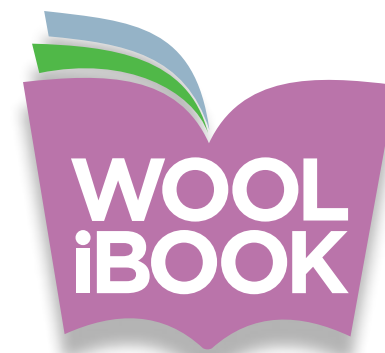


Long Lasting

Wool is one of the most durable carpet fibres and retains its good appearance for many years.

In carpet, the natural crimp and elasticity of wool endures constant wear and compression, while wool's bulk resists crushing and matting providing for better appearance retention and resulting in less frequent replacement and waste.





Anatomy of Wool

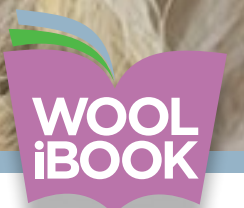


THE CAMPAIGN FOR WOOL
Patron: HRH The Prince of Wales

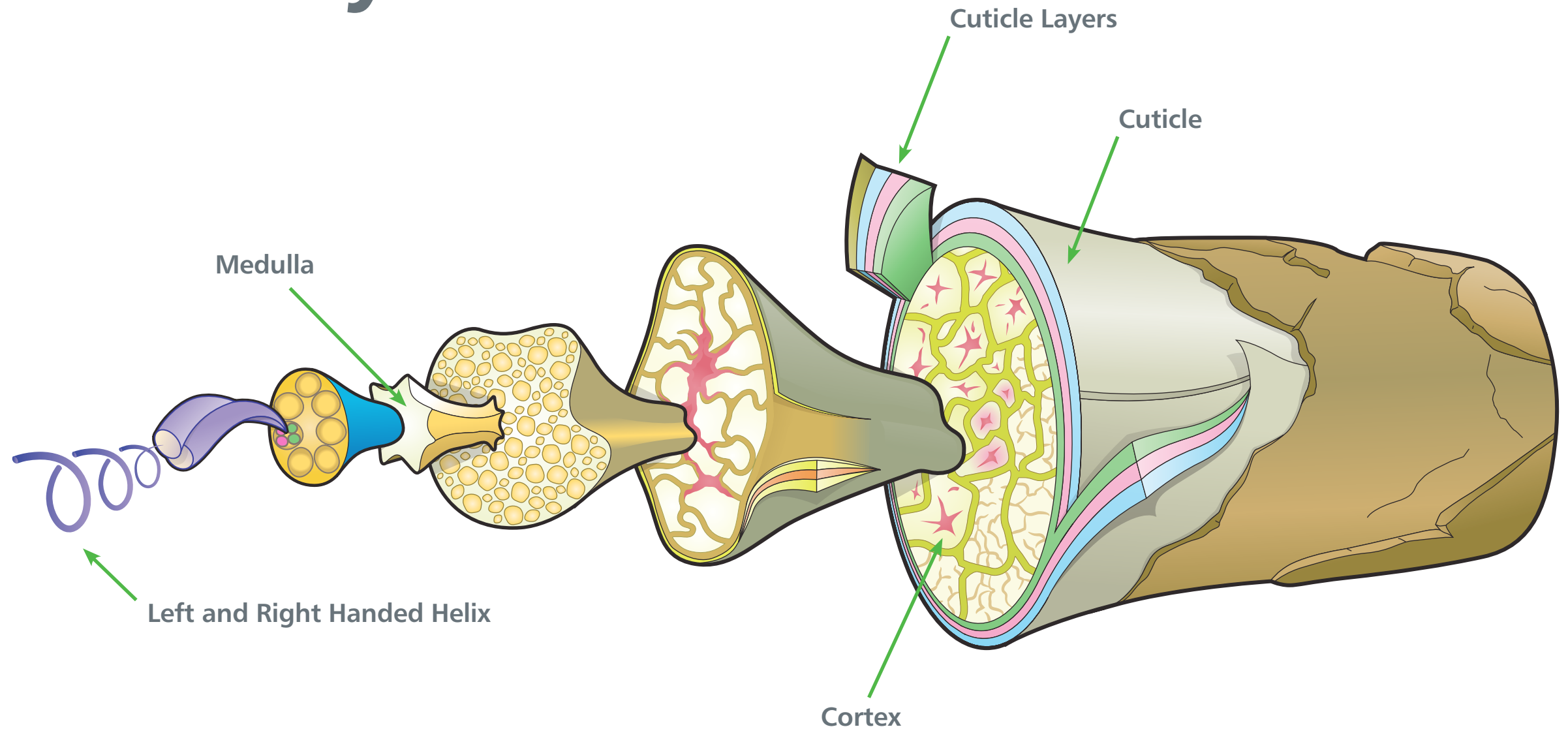
Anatomy of Wool

Wool is a complex fibre composed of proteins that provide it with flexibility and superior performance characteristics.

The simple structure of synthetic fibre does not provide it with the same versatility and performance.

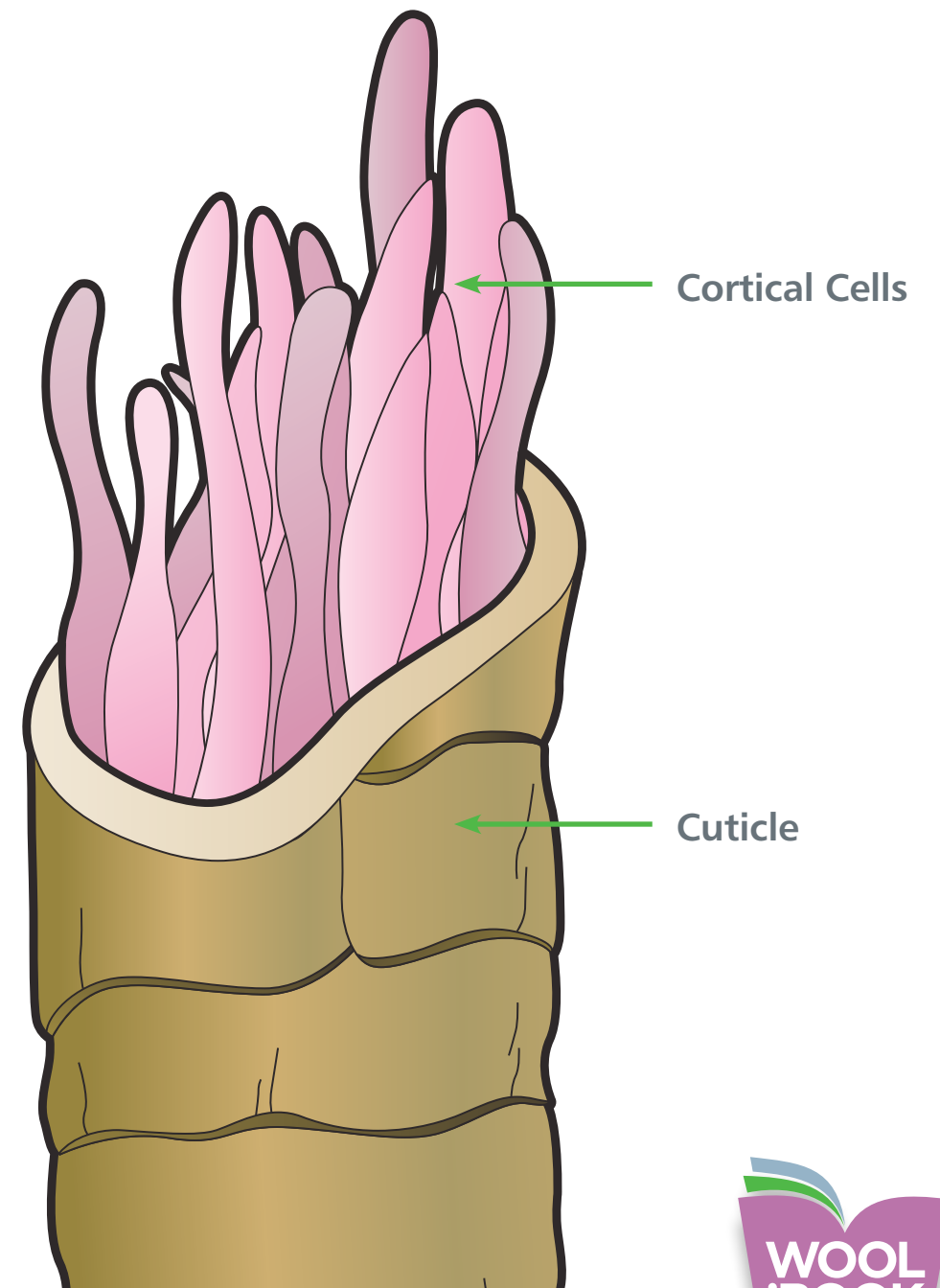
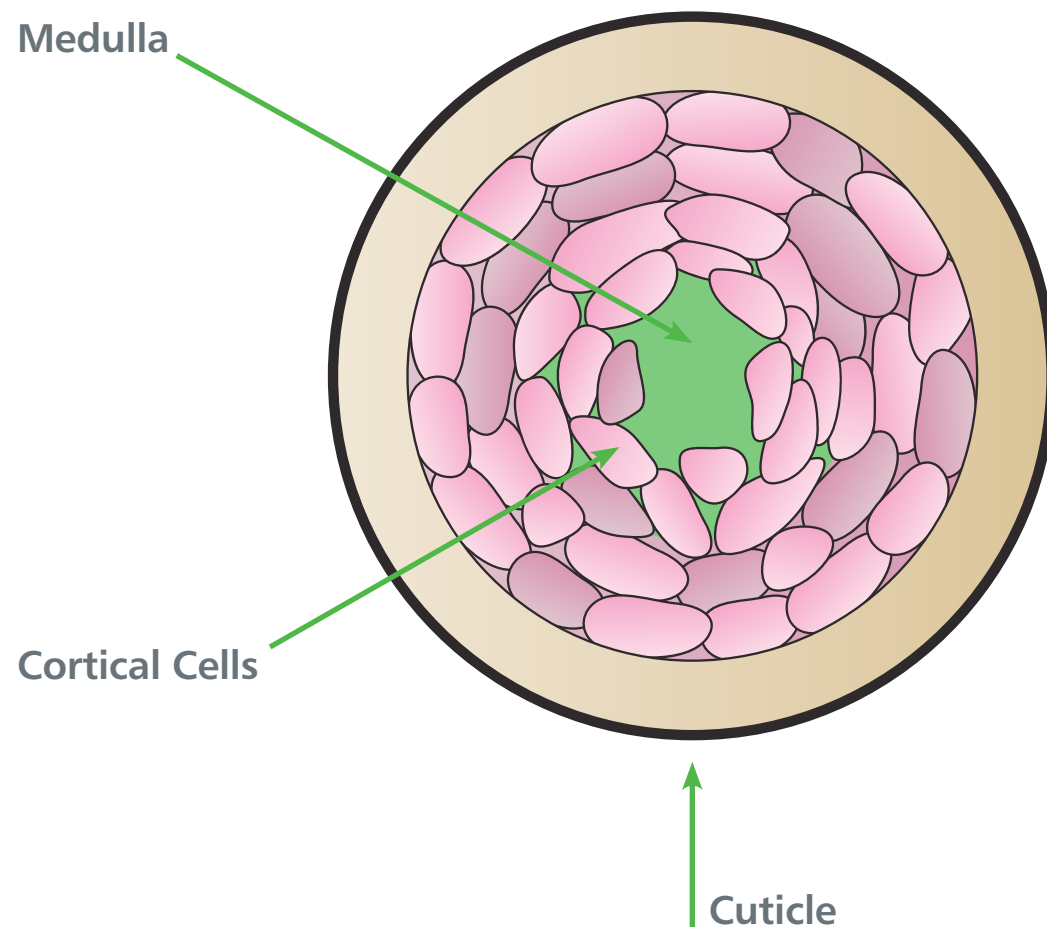


Anatomy of Wool



Outer Layer: Cuticle

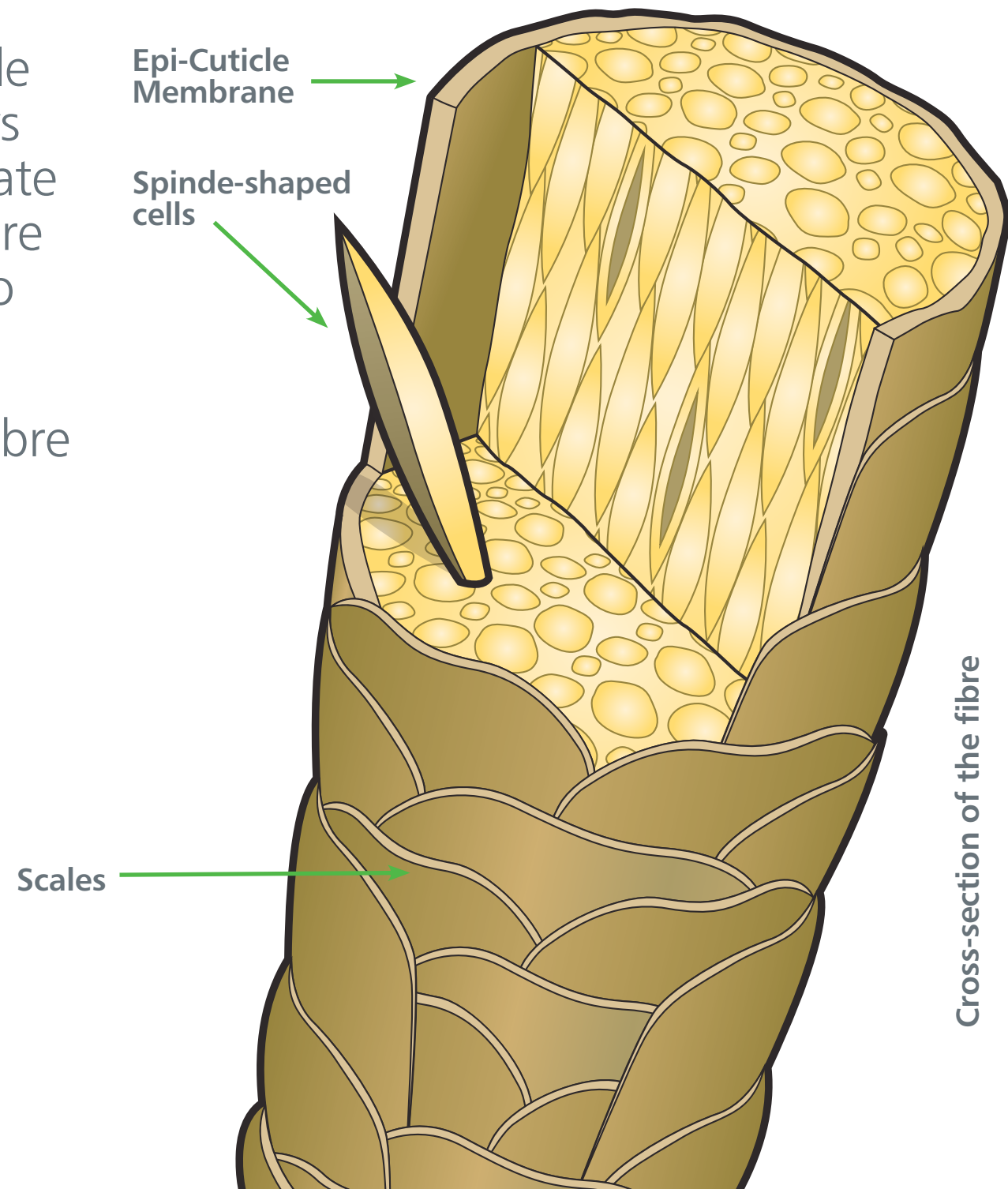
The cuticle is a protective layer of overlapping scales with a porous, filmy skin. This layer gives wool its inherent aesthetic qualities, such as softness and luster, as well as other performance features.



Membrane

The membrane between the cuticle and the cortical cell (cortex), allows both dyes and moisture to penetrate into the wool and provides the fibre with its natural ability to hold onto color (dyes) well.

This membrane also enables the fibre to absorb humidity and airborne toxins, producing a cleaner, more comfortable indoor environment.



Lanolin

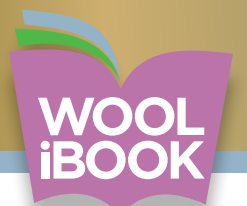
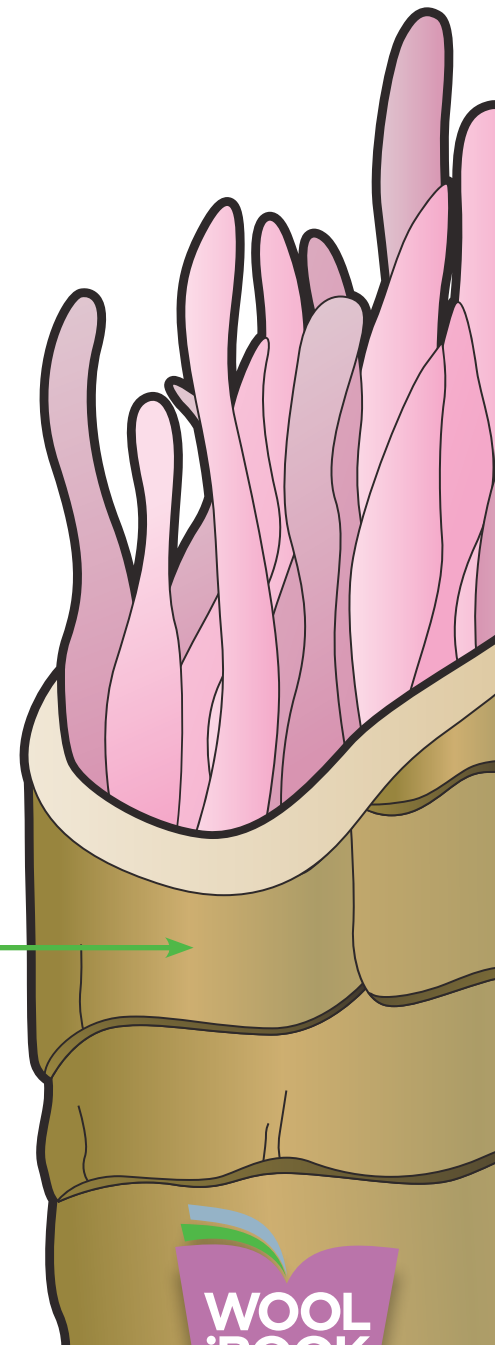
The cuticle is surrounded by glands that produce lanolin, that serves to protect the wool and skin of the sheep against the environment and climate.

Lanolin, also called “wool grease” is completely removed when the wool is processed.

Lanolin is a byproduct of wool processing and is used in a variety of products from pesticides to moisturizers to industrial lubricants.



Cuticle

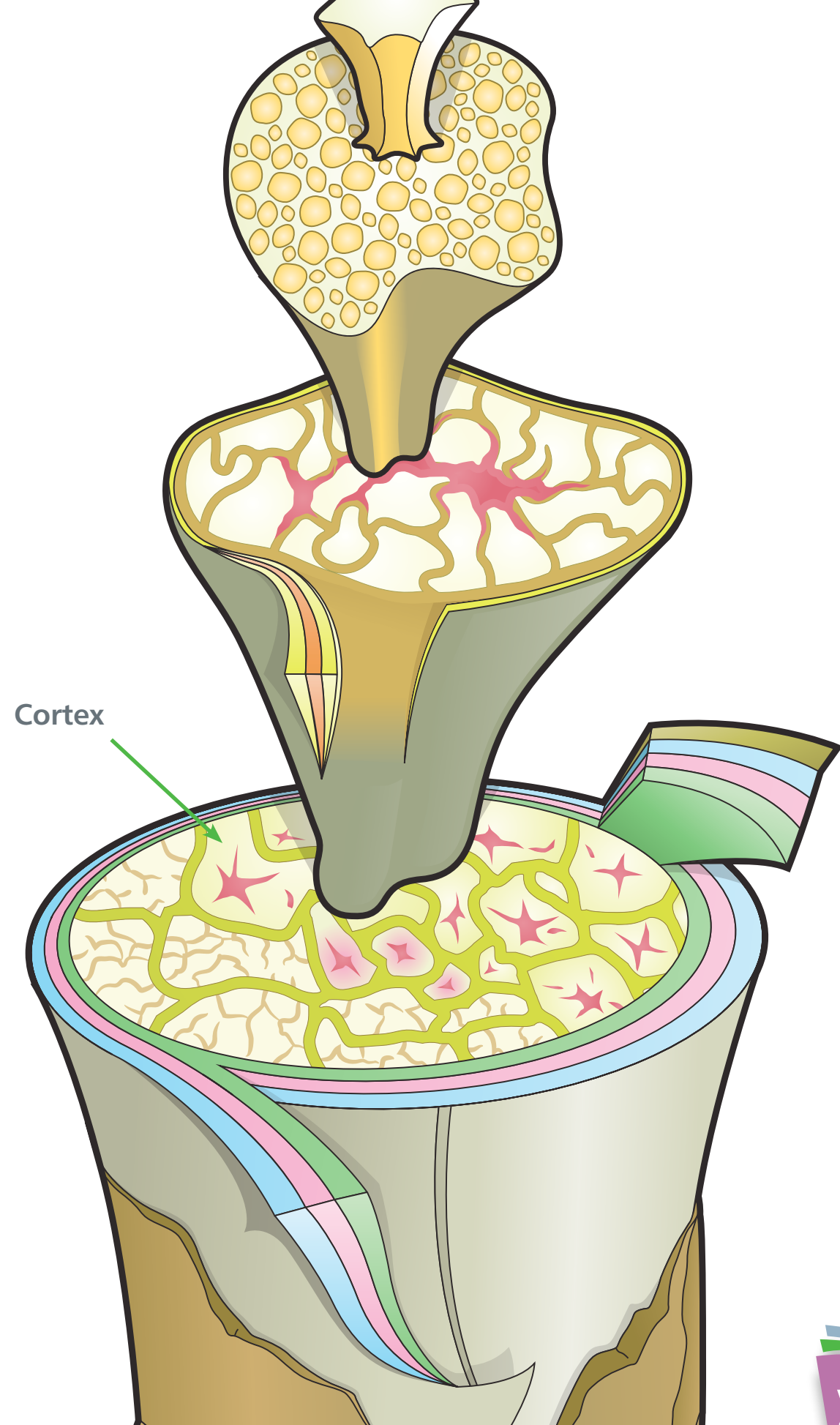


Cortex

The cortex or core forms the bulk of the fibre, about 90% of its volume.

It's composed of millions of long cells that are held together by natural binding materials.

There are two types of cortex cells that spiral around one another.



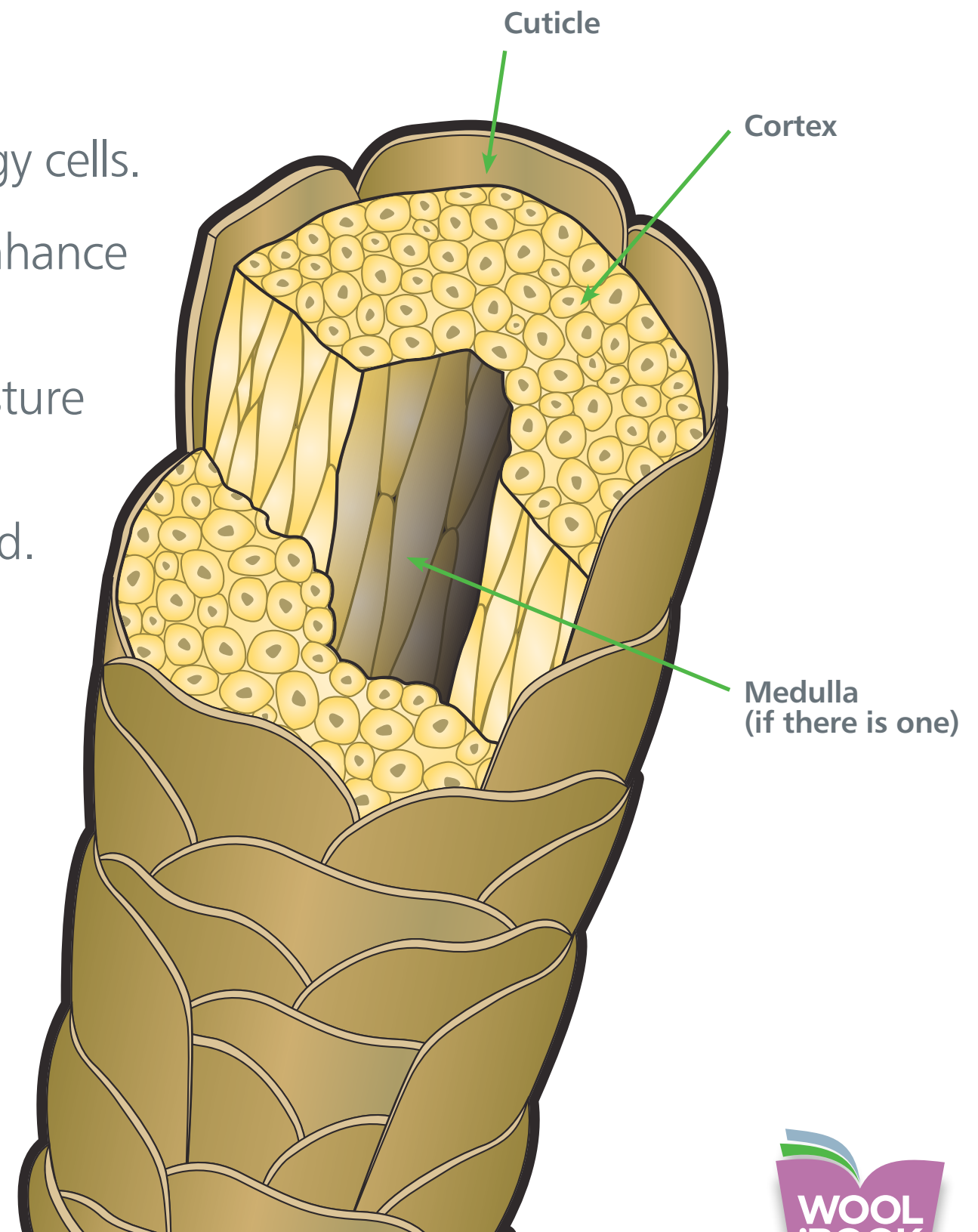
Inside Layer: **Medulla**

The medulla is a cluster of the hollow, spongy cells.

- Creates air pockets that help to trap air, enhance insulation and warmth.
- As well as aid wool in its retention of moisture and dyes.

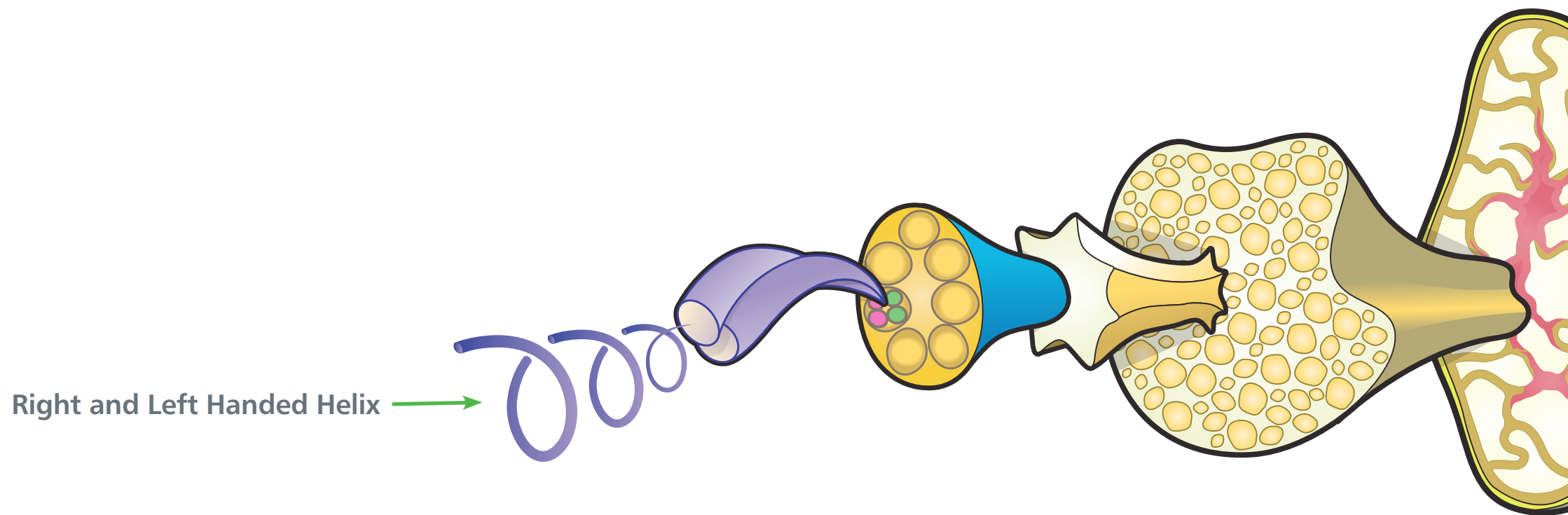
The medulla varies in size based on the breed.

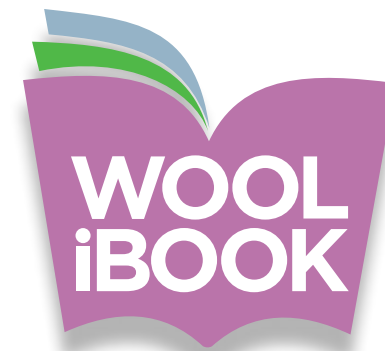
- Coarser wools have a thicker medulla.
- Finer wools may not have this layer at all.



Right Handed Helix and Left Handed Helix

The Helix is buried in the centre of the fibre and has two countering forces one from the left and one from the right - which are coiled together like a rope but offer an intense spring and elasticity. This is a great asset to wool as it lends important structure to the fibre. It is capable of continuously resisting pressure and can be bent many thousands of times and still spring back.





Wool Features and Benefits



THE CAMPAIGN FOR WOOL
Patron: HRH The Prince of Wales

Strength

Wool's chemical structure is linked together in a spiral shaped chain (crimp), making it strong and flexible.

A single strand can be stretched and compressed many thousands of times and retain its original shape, making wool furnishings, fabrics and particularly carpets, a great choice for lasting appearance.

Benefits:

Resilient Strength

On-going Durability

Lasting Appearance



Elasticity

Elasticity is the ability of wool to return to its original form after having been forced out of shape by pressure.

Benefits:

Stretches & Recovers

- Resulting in long-lasting strength and resiliency.

Resists Crushing

- The natural crimp in wool gives it superior resistance to crushing and matting.

Increases Durability

- Helps to retain appearance longer than other fibres, particularly in carpets and rugs.



Liquid Repellency

The scales on the outside of wool fibre cause liquids to bead up and stay on the surface helping to keep wool stain free.

Benefits:

- Keeps accidental spills on the surface for quicker, easier clean up.
- Quicker clean up leads to less chance of developing a permanent stain.



Natural Insulator

Wool can trap air between the fibre and is a great insulator, retaining heat for a warm and cosy home.

Wool is a naturally breathable fibre, which constantly adjusts to the conditions of the room. This helps regulate temperature making wool furnished rooms more comfortable as they are never too hot or too cold.

Noise Absorbing

Room-to-room sound and noise levels between floors are reduced with wool flooring.

- Limits the transfer of vibrations and noise through floors, doors and walls.
- The dense cortex combined with trapped air between fibres helps reduce the impact of noise in wool furnished spaces.
- Sound absorption is one of the primary reasons wool carpet is used most often in aircrafts, casinos & hotels.



Flame Resistant

Wool is considered one of the safest fibres for flooring and fabrics as it naturally resists fire:

- Difficult to ignite due to high water and nitrogen content.
- Does not melt, drip or emit noxious fumes.
- Low flame spread.
- Burns slowly.
- Self-extinguishes.





Soil Resistant

Wool's natural oils, and scaled structure keep dust and dirt from penetrating into the fibre.

Maintains a better appearance.

Benefits

- Keeps soil on the surface for easy clean up.
- Releases soiling more easily, making the surface easier to clean and maintain.

Hypoallergenic

Wool contributes to a healthier indoor environment by helping remove pollutants and allergens from the air and temporarily trapping dust and allergens which can aggravate allergies.

Wool does not promote the growth of dust mites or bacteria or give off harmful emissions.



Regulates Humidity

- Wool has a natural ability to regulate the humidity of an interior space because it 'breathes'.
- Wool naturally absorbs moisture when the atmosphere is damp, and releases it when the atmosphere is dry, creating a more comfortable interior.



Color & Style

Wool takes and retains dye in the centre of the fibre enabling it to hold and maintain rich and complex coloration without deterioration. This asset provides better value over time than other fibres, making it a worthwhile investment.



Comfort & Safety

- Soft and luxurious for super comfort.
- Naturally resists static build up due to its high moisture content.
- Wool flooring is slip free and cushions fall, preventing children and the elderly against serious injury.



Live Naturally... Choose Wool

The Campaign for Wool was initiated by HRH The Prince of Wales to highlight the natural, sustainable story of wool and improve understanding of the fibre's many attributes. From small beginnings, it now operates internationally and is supported by sheep farmers, manufacturing partners, major brands, retailers and consumers. It is funded by the world's leading wool organisations which work conscientiously to support the ethos of wool as the superior natural fibre for fashion, interiors and the built environment.

#choosewool
@campaignforwool
info@campaignforwool.org
www.campaignforwool.org



THE CAMPAIGN FOR WOOL
Patron: HRH The Prince of Wales