NATURAL FIBRES

AS TEXTILES THEORY

LEARNING OBJECTIVE

By the end of the lesson I should be able to…

Explain how natural fibres are produced

Identify and explain a range of natural fibres

WHAT IS ..... A FIBRE?

A fibre is a fine strand that looks a little like a human hair. There are long or short fibres and smooth or fluffy ones. What the fibre is like will have an impact on what the fabric it is made into is like.

Fibres are categorised by their length;

Staple fibres – short fibres (cotton, wool and linen

Filament fibres – long fibres (silk and manmade fibres)

There are 3 types of fibres:

Natural Regenerated Synthetic

A fibre is made of monomers joined together in long chains to form polymers

FORMATION OF FABRICS

Fibre

Twisted

Yarn

Felted or
Bonded

Woven
or Knitted

Fabric

CELLULOSIC FIBRES

Fibres that originate from plants

(e.g. The cotton plant or flax plant)

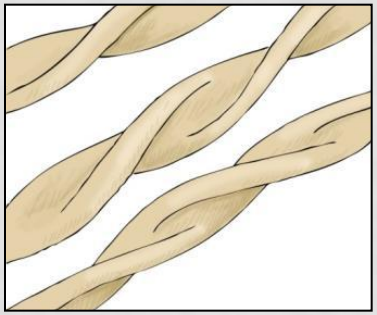
Natural Cellulosic Fibres

Linen, Cotton, Jute, Hemp, Ramie, Pineapple, Banana, Bamboo

Natural fibres that grow in the ground are called **vegetable** or **plant** fibres. All plants are made from cellulose fibres so you will sometimes hear this term. **Cotton** and **linen** are the most common vegetable fibres but there are other types, e.g. jute, hemp.

Advantages	Disadvantages
Strong	Crease badly**
Good at absorbing moisture	Take a long time to dry
Can be washed and ironed at high temperatures	Can shrink**
	Easy to set alight

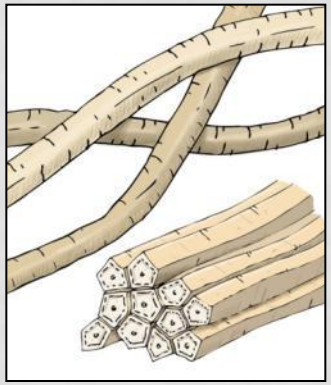
COTTON



- **Source** – grows on plants in hot, wet climates
- **Physical properties** – strong, resists abrasion, durable, absorbent, dries slowly, creases easily, cool to wear
- **Aesthetic properties** – fibres are 15–50mm long and fabrics tend to have a slightly fluffy surface because of this
- **End uses** – underwear, bedding, nightwear, t-shirts, shirts, dresses, jeans, towels, handkerchiefs
- **Fabric names** – denim, poplin, terry towel, velvet, corduroy, chintz
- **Aftercare** – Can be washed and ironed at high temperatures, best ironed when damp, can be bleached
- **Other facts** – Mercerized finish can remove fluffy surface, commonly blended with Polyester. Uses a lot of water during growth

HOW COTTON IS MADE

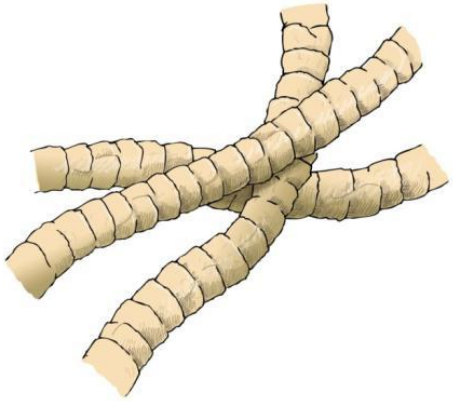
LINEN



- **Source** – the stem of flax plants that grow in wet climates
- **Physical properties** – strong, resists abrasion, durable, absorbent, dries slowly, creases very easily, cool to wear
- **Aesthetic properties** – long fibres (25–40mm) which give fabrics a smooth and slightly shiny surface
- **End uses** – tablecloths, jackets, skirts, trousers, suits, handkerchiefs
- **Fabric names** – duck, holland, huckaback, crash
- **Aftercare** – can be washed and ironed at high temperatures (best ironed when damp), can be bleached
- **Other facts** – one of the earliest known fibres to man, dating back to the Egyptians

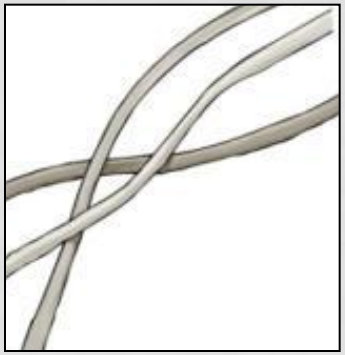
WOOL

Wool is prone to **felting**. It shrinks when exposed to heat, water and rubbing. This can be limited if a finish is applied to it.



- **Source** – grows on sheep
- **Physical properties** – very absorbent but doesn't feel wet, resists creases, soft, warm, not very strong, felts/shrinks with heat, water and rubbing. Takes a long while to dry
- **Aesthetic properties** – scaly fibres, short fibres that make fluffy fabrics, has a natural crimp (like curly hair
- **End uses** – suits, sweaters, socks, scarves, blankets, carpets
- **Fabric names** – flannel, felt, tweed, serge
- **Aftercare** – usually only washed by hand in low temperatures as heat and movement causes shrinking, can't be bleached, medium temperature iron, can't be tumble dried and is normally laid flat to dry
- **Other facts** – can be blended with Polyester or Nylon to make it easier to look after

SILK



- **Source** – fibre is from the cocoon spun by the Mulberry caterpillar
- **Physical properties** – strong but weak when wet, durable, doesn't crease easily, absorbent, warm/cool to wear, drapes well, smooth, shiny surface, damaged by deodorants and perspiration, weak when wet, lightweight
- **Aesthetic properties** – long fibres give smooth, shiny fabrics
- **Fabric names** – chiffon, satin, taffeta, damask, organza
- **Aftercare** – hand wash in low temperatures as fibres are weak when wet, and high temperatures and movement cause them to break and fabrics look permanently creased, can't be bleached or tumble dried and should be dried away from direct sunlight, medium temperature when ironing
- **Other facts** – to maintain the long fibres the caterpillar is boiled alive. If it breaks out of the cocoon the fibres are shorter and give a lower quality fabric

HOW IS SILK FABRIC MADE?