

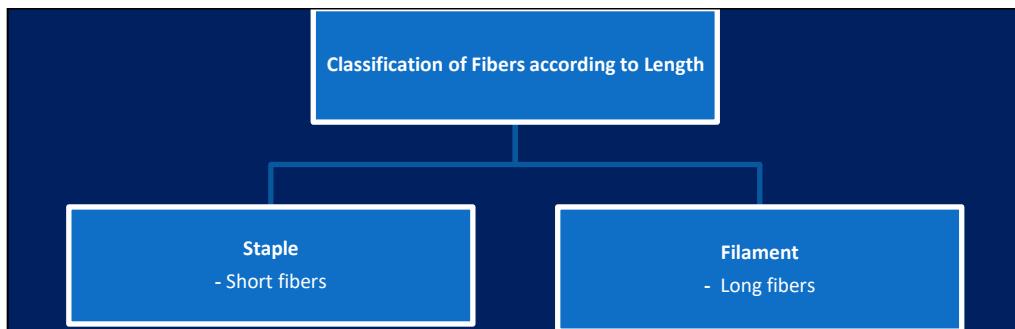
Lesson Number	Title of the Lesson	Skills	Activity
22	Introduction to Fabric Science	Creative thinking Decision Making	Collect small pieces of fabrics from a tailor's shop and identify the characteristics of their yarns by performing the burning test
		Problem solving Critical Thinking	

Summary

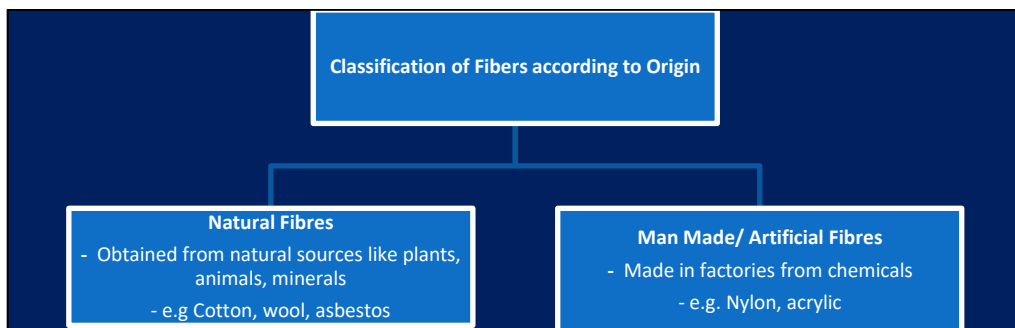
A fabric is any piece of cloth. It is used to make clothes, furnishings, towels, napkins carpets, curtains etc. Clothes are as important as food and shelter. They cover our body and protect us from the harsh climate and environment. They also make us look attractive. To get variety in clothes, we require variety in fabrics. This is obtained by the fiber that has been used to make the fabric. Each fiber has different properties depending on its origin and length. A study of all aspects of a fabric is called Fabric Science. It explains the behavior and identification of a fabric. Knowledge of the fiber and fabric is necessary to know its suitability, use and care. It also helps to identify imitation and thus prevent the consumer from getting cheated.

Principal Points

1. Classification of Fibers according to Length



2. Classification of Fibers according to Origin



Build your understanding

Characteristics of Fibers

A. Vegetable Fibers

- Obtained from plants
- Carbohydrates in nature-Made of Cellulose
- Obtained from different parts of the plant:
Cotton---Seed hair
Jute/Flax---Stem
Pineapple fibers ---Leaves
Coir and Coconut shell ---Outer covering of seeds
- Usually, Staple

B. Animal Fiber

- Obtained from animals' fur and hair
- Protein in nature
- Usually staple except silk which is a filament
- Wool and Silk are common examples

C. Mineral Fibers

- Obtained from minerals
- Usually, staple
- Asbestos and glass are common examples

D. Man-Made / Artificial Fibers

- Made from chemicals in factories
- They are Filaments
- Two types-Regenerated and Synthetic

What is Important to Know

1. Difference between Regenerated and Synthetic Fibers

Regenerated	Synthetic
Made from natural raw materials	Made from chemical substances
Can be cellulose or protein in nature	Fibers are generally filaments
Regenerated with chemicals e.g., Rayon	e.g., Nylon, acrylic, polyester

2. Properties of Fibres

Fibre	Length	Appearance	Moisture absorption	Heat conductivity	Strength	Resilience	Uses
Cotton	Staple	Dull/ gets dirty easily	Good	Good conductor	Strong when wet	Wrinkles easily	Clothes, sportswear furnishings, napkins
Wool	Staple	Dull/ rough	Very good	Poor conductor	Weak	Flexible, pliable	Winter wear, blankets, carpets

Silk	Filament	Smooth/ Shiny	Good	Poor conductor	Very strong but loses strength when wet	Does not wrinkle easily	Dress material, ties, scarves
Rayon	Filament	Smooth	Good	Good	Loses strength when wet	Wrinkles easily	Dress material, lining cloth, home furnishing
Nylon	Filament	Smooth	Does not absorb moisture	Poor conductor	Very strong	Does not wrinkle	Clothes, socks, ropes, tyres
Polyester	Filament	Smooth	Does not absorb moisture	Poor	Very strong	Does not wrinkle	Dress material, furnishings, ropes, bags, fishing nets
Acrylic	Filament	Rough but light in weight	Does not absorb moisture	Poor	Strong	Does not wrinkle	Substitute for wool, dress material, blankets, carpets

Did you know

Burning Test of Fibers

Fiber	Approaching flame	In flame	Remove from flame	odor	Residue
Cotton/Linen	Does not shrink	Burns quickly	Continue burning	Burning paper	Feathery grey
Rayon	Does not shrink	Burns quickly	Continue burning	Burning paper	Light fluffy, small amount
Wool	Curls away	Burns slowly	Stops burning	Burning hair	Black bead, brittle
Silk	Curls away	Burns slowly and sputters	Stops burning	Burning hair	Black bead, brittle
Polyester	Melts, shrinks away	Burns slowly and melts	Stops burning	Chemical smell	Black bead, brittle
Nylon	Melts, shrinks away	Burns slowly and melts	Stops burning	Chemical smell	Black bead, brittle
Acrylic	Melts, shrinks away	Burns quickly and sputters	Continue burning and melts like drops	Vinegar odor	Hard bead

Extend your Horizon

Identification of Fibers

Visual Inspection	Burning Test
Smooth	Fiber burnt and result observed
Fine	
Rough	
Shiny	
Dull	

Evaluate yourself

- Why are clothes made from synthetic fibers not suitable for kitchen?
- Why are uniforms of Fire-fighters made of asbestos?

Maximize your marks:

- Attempt all the exercises given in the lesson
- You have been given samples of fabrics, how will you identify them as Natural and Man-made