

## Chapter – 3: Fibre to Fabric

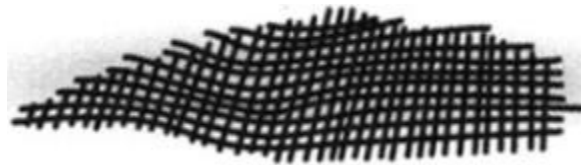
- Fibre – thin, thread-like structures – cloth made from these – *resha* in Hindi
- Fabric – finished product – weaving, knitting – twisted yarns – made of fibre
- Clothes – school uniforms, shirts, pants, skirts, sarees, shawls, bed sheets, curtains, etc – made of different types of fabrics

### Variety in fabrics

- Go to a cloth shop – variety of fabrics –
  - Cotton fabrics
  - Woollen fabrics
  - Silk fabrics
  - Synthetic fabrics
- Summer season (hot days) – cotton clothes are worn – winter season (cold days) – woollen clothes are worn
- Silk clothes – most comfortable
- Yarn – long thread – used for making fabric (cloth)

### What are fabrics made of?

- Fabric – made of yarns – made of fibres
- Look at a fabric – seems continuous – look more closely – fabric made of network of threads at right angles to each other



- Find a loose yarn – pull it out of fabric – keep pulling out – lots of yarns
- Conclusion – fabric – made of yarn



- Take a piece of yarn – fix one end – scratch out other end – yarn splits into smaller threads – fibres
- Conclusion – yarn – made of fibres
- Basic material – making cloth (fabric) – fibres

### Fibres

- Very thin, thread-like structure – makes fabric (cloth)
- Cotton, wool, silk, flax, jute, nylon, polyester, polyacrylic
- Fibre – spin into yarn – weave into fabric

### Types of fabric

- Natural fibres –
  - Obtained from natural sources – plants and animals

- Cotton, wool, flax – obtained from plants
- Wool, silk – obtained from plants
  - Wool – obtained from sheep, goat, rabbit, yak, camels
  - Silk – obtained from silkworm (cocoon)
- Used for making clothes
- Also used for making curtains and bedsheets
- Synthetic fibres –
  - 1000s of years – natural fibres – available
  - Last 100 years – fibres made of chemicals – available
  - Nylon, polyester (terylene), polyacrylic (orlon)
  - Also called – artificial fibres
  - Used for making clothes
  - Also used for making carpets and ropes
  - Much stronger than natural fibres
- Distinguish between fibres – burning test – take precautions while burning pieces of fabric
  - Cotton fabric – burns vigorously – smell of burning paper – do not melt
  - Woollen fabric – smell of burning hair – do not melt
  - Silk fabric – smell of charred meat – do not melt
  - Synthetic fabric – burns slowly – smell of burning plastic – does melt

### Some plant fibres

- Cotton –
  - Most widely used
  - Comes from cotton plant – grown in black soil with warm climate – Maharashtra, Andhra Pradesh, Madhya Pradesh, Gujarat
  - Fruits – size of lemon
  - After maturing – cotton balls burst – produce cotton seeds – covered with white, soft cotton fibres
  - Cotton fibres – picked from fields – contain seeds – separated by process – ginning
  - Ginning – done by hands (comb-like device) and machines
  - Cotton used to make –
    - Clothes, dresses
    - Pillows, mattresses
    - Wicks of oil lamps
- Flax –
  - Kind of plant – provides natural fibre
  - Obtained from stem – flax plant
  - Cloth made from it – linen
  - Used to make bedsheets
- Jute –
  - Obtained from stem – jute plant
  - Grown in West Bengal, Bihar, Assam
  - Jute plant – harvested – stem soaked in water – stem rots and fibre is separated
  - This fibre – collected by hand
  - Rough fibre – cannot make clothes – strong fibre – make ropes and jute bags – used to store wheat, rice, etc

- Coconut – outer covering – some fibres on it – make ropes and mats

## **Making of Fabrics**

- Fibre to fabric – 2 steps –
  - Fibre to yarn – spinning
  - Yarn to fabric – weaving or knitting

### **Fibre to yarn**

- Yarn – long, twisted thread
- Process of spinning – fibre from mass of cotton – pulled out and twisted – form yarn
- 3 devices used –
  - Hand spindle (takli)
    - Simple device – spin cotton – make yarn
  - Spinning wheel (charkha)
    - Hand operated
    - Popularized by – Mahatma Gandhi – during independence movement
    - He encouraged people – wear clothes of hand-spun yarn
  - Spinning machines
    - Large scale production in mills (factories)

### **Yarn to fabric**

- 2 processes –
  - Weaving –
    - 2 sets of yarn – arranged at right angles
    - Weaving – done by looms –
      - Hand looms – used by hands
      - Power looms – work on electricity
  - Knitting –
    - Single yarn – interlocking loops with knitting needles or machine
    - Example – sweater
    - Pull a yarn from knitted fabric – single yarn comes out

### **History of clothing material**

- Today – clothes made of various fabrics
- Ancient time – no fabric – people used bark of trees, big leaves, animal skins, furs – cover themselves
- People began agriculture – settled near water sources – people started weaving twigs (thin branches of plants)
- Afterwards – started weaving other things – started growing cotton and flax
- India – near Ganga – Egypt – near Nile
- Earlier days – no stitching and sewing – people draped fabric around bodies
- Afterwards – sewing needles invented – people started stitching
- Shirt, trousers, kurta, pyjama – stitched clothes
- Now a days – machines used for stitching