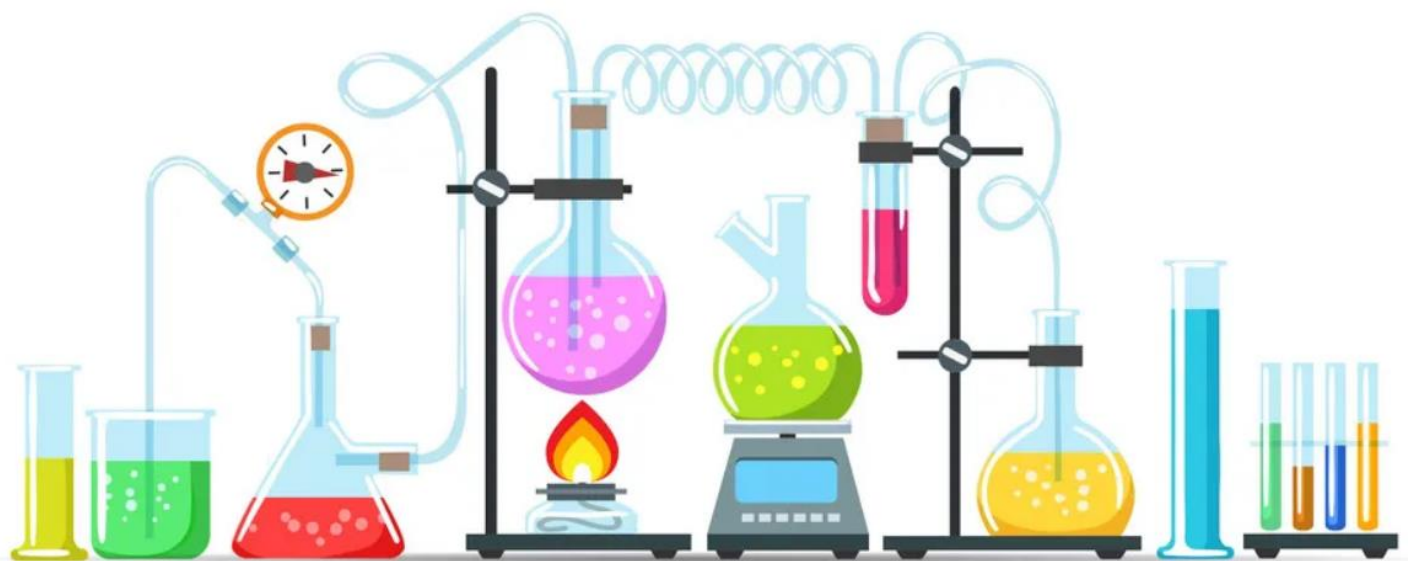


SCIENCE

Chapter 3: Fibre to Fabric



Fibre To Fabric



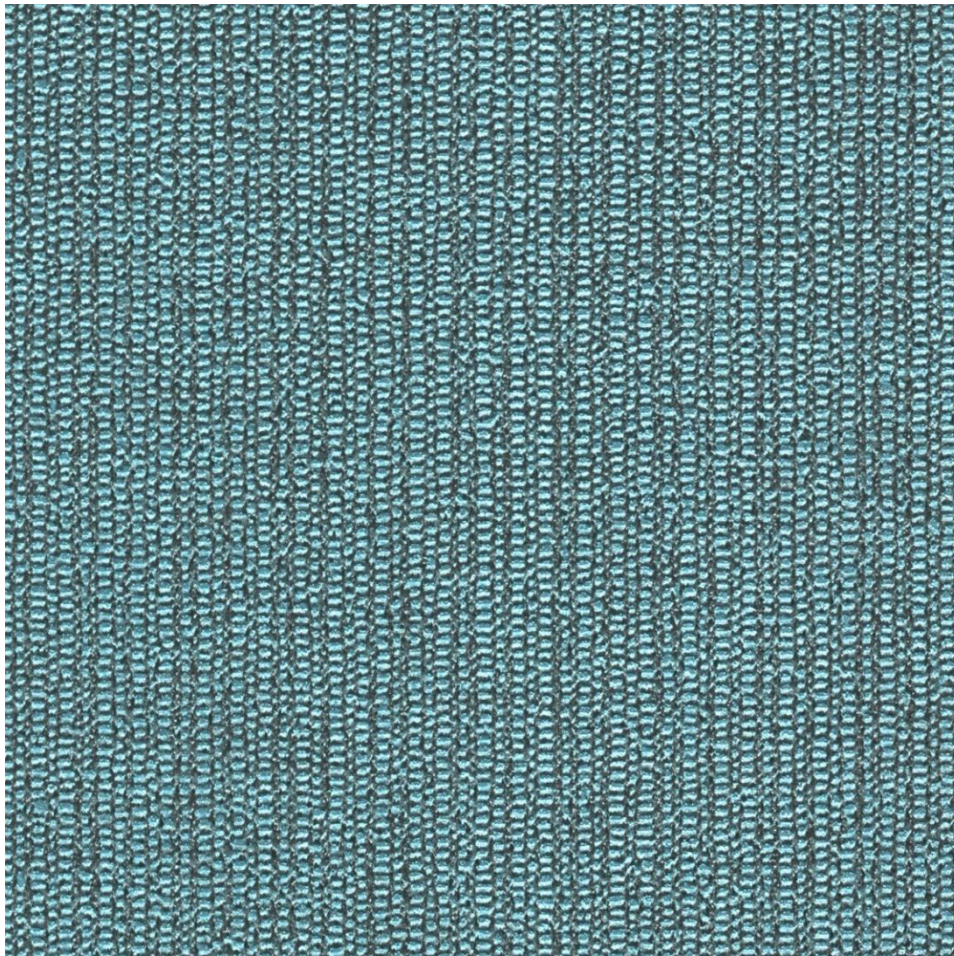
A variety of fabrics are found in our surroundings. These fabrics include cotton, wool, silk or synthetic fibres.

- **FABRIC:** Cloth or other material produced by weaving or knitting fibres.
- We wear clothes to protect our bodies against the weather- strong sunlight, extreme cold or heat, and rain.
- Clothing was invented between 50,000 and 1,00,000 years ago.
- The clothing of a person depends on various factors such as climate, culture, profession, weather changes etc.
- **YARN:** Spun thread used for knitting, weaving, or sewing.
- **FIBRE:** A thread or filament from which a vegetable tissue, mineral substance, or textile is formed.

Fibre

Many

made of
made of
thread-
cloth is
types–



kinds of clothing materials or fabrics are available. Fabrics are yarns, which in turn are fibres. Fibre is a very thin, like strand from which made. Fibres are of two natural and synthetic.

Enlarged View the piece of fibre



Types of Fibres

Natural Fibre

The fibres of some fabrics such as cotton, jute, silk and wool are obtained from plants and animals. These are called natural fibres.

Cotton

Cotton is the most widely used natural fibre. Cotton fibre is obtained from cotton bolls (fruits) of the cotton plant. The cotton plant needs black soil and warm climate for cultivation.

Separating seeds from cotton bolls is called ginning. Ginning can be done by hand (using steel combs) as well as by machines.

Yarn is spun from cotton fibres using a hand spindle or 'takli' or 'charakha'. This process is called spinning.

The process of spinning yarn into a fabric is called weaving or knitting. Weaving requires two yarns to make a fabric and can be done using handlooms or power looms. Knitting requires only one yarn to make a fabric and can be done by hand (using knitting needles) as well as on machines.

Cotton fibres are used for making fabrics, dresses, pillow filling and wicks of oil lamps.



Jute

Jute is obtained from the stem of the jute plant and is mainly grown in alluvial soil in the delta region of the Ganga and Brahmaputra rivers.

Jute plants are usually cut at the flowering stage. The stems of harvested jute plants are immersed in water for a few days. During this period, stems rot out to separate the fibres. This process is called retting.

Jute fibres are used to make ropes, wall hangings and gunny bags to pack and store grains.

In India, jute is mainly grown in West Bengal, Bihar and Assam.



Wool

Wool is obtained from the hair of sheep, goat, rabbit, yak and camel. It is used for making warm clothes such as sweaters, caps, shawls, gloves and blankets.



COIR

- Obtained from the outer covering or the husk of the coconut.
- Use – ropes, floor covering and also stuffing in mattresses and pillows.



SILK COTTON

- It is obtained from the silky hairs that surround the seeds of kapok trees that grows in India & Malaysia.

- It is light and fluffy.
- Used for stuffing cushions, mattress, sound insulation.



Silk

Silk fibre is obtained from the cocoons of the silk moth. The silk moth lives on the leaves of mulberry plants. There are four stages in the life cycle of the silk moth—egg, larva, pupa and adult. Silk is a costly fabric. Silk fibre is used for weaving cloth, especially traditional dresses in India, such as sari, kurta, shawl, and wedding clothes. Silk has always been prized for its lustre and fine quality.



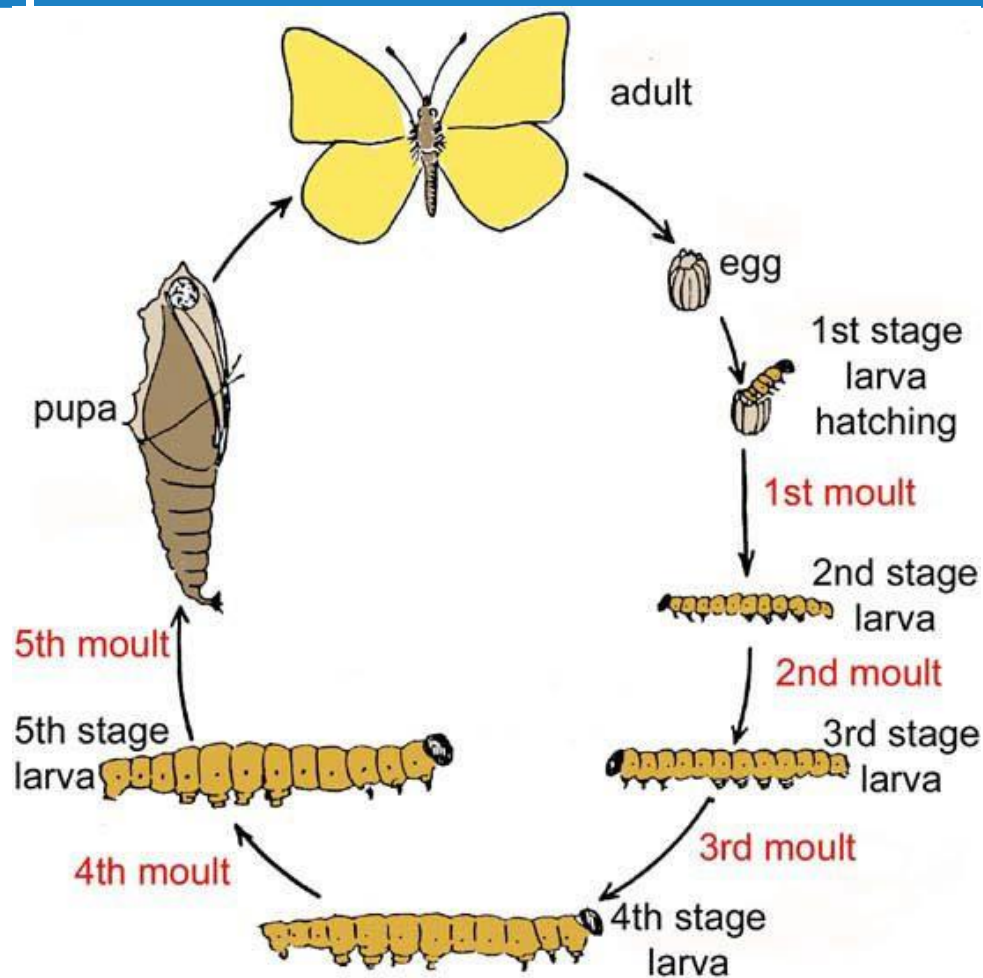
COCOON: The silky covering spun by the silkworm (or caterpillar) of silk moth is called cocoon. The cocoon is made by silkworm to protect its development as pupa.

The cocoon is boiled in water to kill the silkworm & then the silk fibre is removed.



SERICULTURE: Rearing of silkworms for production of silk is called sericulture.

First developed in China.



Synthetic Fibre

Fibres obtained by artificial means (using chemicals) are called synthetic fibres. Synthetic fibres are strong, wrinkle-resistant and quick drying. These fibres are used in making different materials such as clothes, neck ties, sails, sweaters, shawls, carpets and blankets. They are also used in making boats and skating boards.

Examples: Polyester, nylon, acrylic



Clothing in Ancient Times

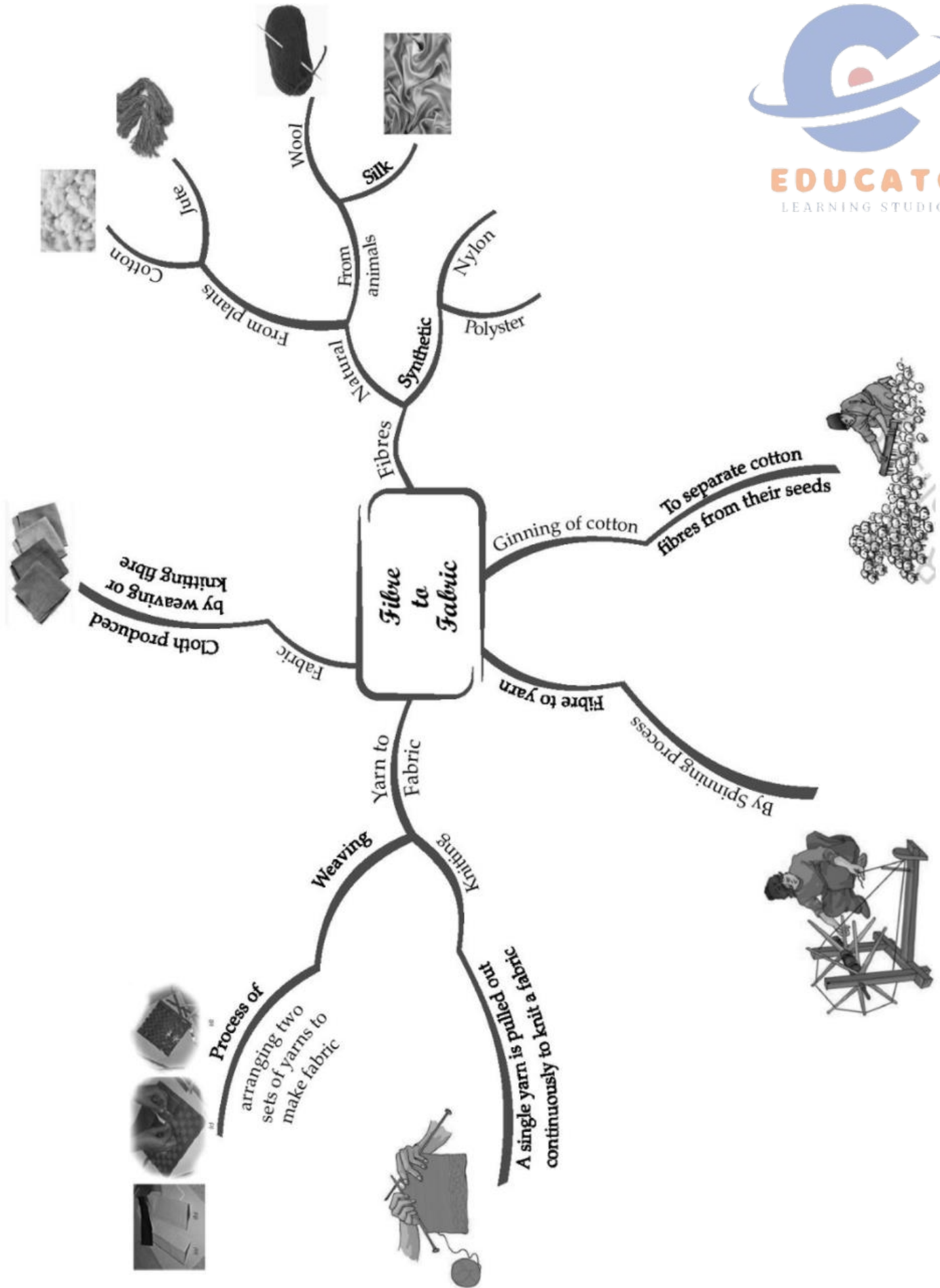


In ancient times, people used to cover their body using leaves, barks, animal skin and fur. With the passage of time, vines and animal fleece were used for clothing purposes.

Later, cotton and flax fibers were used to prepare clothes. Nowadays, different types of fabrics are used for stitching a variety of clothes which include shirts, pants, shorts, kurtas, pajamas, dresses and blouses.



CHAPTER - 3 FIBRE TO FABRIC



Important Questions



Multiple Choice Questions:

Question 1. The yarn is wound on big reels are called:

- (a) silver
- (b) bobbins
- (c) bailing
- (d) retting

Question 2. Compression of raw cotton fibres into bundles is:

- (a) bailing
- (b) bobbins
- (c) silver
- (d) none of these

Question 3. Rotting out of gummy spin of jute stem to separate fibres is:

- (a) bobbins
- (b) bailing
- (c) retting
- (d) none of these

Question 4. A single yarn is used to make a piece of fabric is:

- (a) gimming
- (b) spinning
- (c) weaving
- (d) knitting

Question 5. A machine is used for weaving of fabrics is:

- (a) loom
- (b) takli
- (c) charkha
- (d) none of these

Question 6. Some fibres such as cotton, jute, silk and wool obtained from plants and animals are called:

- (a) synthetic fibres

(b) natural fibres

(c) silver

(d) none of these

Question 7. Some fibres made from chemical changes are called:

(a) synthetics fibres

(b) natural fibres

(c) silver

(d) none of these

Question 8. Jute is obtained from the of plant.

(a) branches

(b) leaves

(c) stem

(d) none of these

Question 9. Name the jute plant.

(a) plastic

(b) paper

(c) patsun

(d) none of these

Question 10. 'Patsun' is cultivated during the season.

(a) winter

(b) rainy

(c) summer

(d) none of these

Question 11. In which soil jute plant grow ?

(a) black soil

(b) loamy soil

(c) white soil

(d) alluvial

Question 12. Where is jute grown in India ?

(a) Bihar

(b) Assam

(c) West Bengal



(d) All of these

Question 13. What is the colour of jute fibres ?

(a) white

(b) orange

(c) pale yellow

(d) black

Question 14. What is the length of jute fibres ?

(a) 6-8 feet in length

(b) 4-6 feet in length

(c) 2-4 feet in length

(d) none of these

Question 15. Name a simple device used for spinning?

(a) charkha

(b) handloom

(c) knitting

(d) takli

Very Short Question:

1. Name two varieties of cloth materials which are commonly used.
2. What are fabrics?
3. Name some fabrics in your surroundings.
4. Name the thing which is used to make fabric.
5. What are yarns made of?
6. How many types of fibres are there?
7. Name two natural fibres.
8. Name two synthetic fibres.
9. What material you use for making wicks for oil lamps?
10. Where does cotton wool come from?

Short Questions:

1. What do you observe when you are visiting a nearby tailoring shop?
2. List the steps involved in the preparation of fabric.
3. What are natural fibres? Explain with examples.
4. What are synthetic fibres?



5. Explain how jute is obtained from the jute plant.
6. What are looms?
7. What happens when a yam from a tom sock is pulled?
8. What were the materials used by people in ancient times in place of clothes?



Long Questions:

1. Describe the process of the formation of yam from cotton wool.
2. Describe the process of spinning and weaving.

Key-

Multiple Choice Answers:

1. (b) bobbins
2. (a) bailing
3. (c) retting
4. (d) knitting
5. (a) loom
6. (b) natural fibres
7. (a) synthetics fibres
8. (c) stem
9. (c) patsun
10. (b) rainy
11. (d) alluvial
12. (d) All of these
13. (c) pale yellow
14. (a) 6-8 feet in length
15. (d) takli

Very Short Answers:

1. Answer: Cotton, silk/wool.
2. Answer: Fabrics mean a woven material, textile or other materials resembling woven cloth.
3. Answer: Bed-sheets, blankets, curtains, table clothes, towels and dusters.
4. Answer: Yarns.
5. Answer: Yarns are made up of thin strands called fibres.
6. Answer: There are two types of fibres:



7. Answer:

- (i) Cotton
- (ii) Jute

8. Answer:

- (i) Polyester
- (ii) Nylon

9. Answer: Cotton wool.

10. Answer: Cotton wool comes from cotton bolls.

Short Answer:

1. Answer: In a tailoring shop we observe that there are many cuttings of fabrics left over after stitching. We see that some cuttings are of cotton, some are of silk or wool and some are of synthetic fibres.
2. Answer: The following steps are involved in the preparation of fabrics:
 - (i) Obtaining fibre,
 - (ii) Preparation of yarn from fibres by spinning,
 - (iii) When two sets of yarn are involved, yarns are woven on looms to make a fabric. When a single yarn is used, the fabric is prepared by knitting.
3. Answer: The fibres obtained from plants and animals are called natural fibres. For example, cotton from cotton bolls, jute from jute plant, silk from cocoon of silkworm and wool from hair of animals like sheep or goat.
4. Answer: The fibres which are made from chemical substances or which are not obtained from the plant and animal sources are called synthetic fibres. For example, polyester, nylon, and acrylic, etc.
5. Answer: The jute plant is normally harvested at flowering stage. The stems of harvested plants are bundled and immersed in water for 10 to 15 days. The stems rot (the process is called retting) and fibres are separated by hand. These fibres are converted into yarns to make fabrics.
6. Answer: The devices on which weaving of fabrics takes place are called looms. The looms are either hand operated or power operated.
7. Answer: When we pull a yarn from a torn sock then a single yarn, gets pulled out continuously as the fabric gets unraveled. Socks are made up of knitted fabrics from a single yarn.
8. Answer: It appears that in those days people used the bark and big leaves of trees or animal skin and furs in place of clothes.

Long Answer:

1. Answer: The cotton wool is obtained from cotton plants. The cotton plants are grown in fields. They are usually grown at the places having black soil and warm climate. The fruits of the cotton plants called cotton bolls are about the size of lemons. After maturing, the bolls burst open, and seeds covered with cotton fibres can be seen. From the cotton bolls cotton is picked by hands. Fibres are then separated from the seeds by combing. This process is called ginning of cotton. It is done by hand or by machines. These fibres are then converted into yarn.
2. Answer: Spinning: The process of making yarn from fibres is called spinning. In this process fibres from a mass of cotton wool are drawn out and twisted. By this fibre come together to form a yarn. Spinning can be done by hand, by takli and charkha. On a large scale, spinning is done with the help of machines.

Weaving: The process of arranging two sets of yarns together to make a fabric is called weaving. The process of weaving can be done on looms. The looms are either-hand operated or power operated.