

SCIENCE

CHAPTER-3: FIBRE TO FABRIC



Fibre to Fabric

Wool

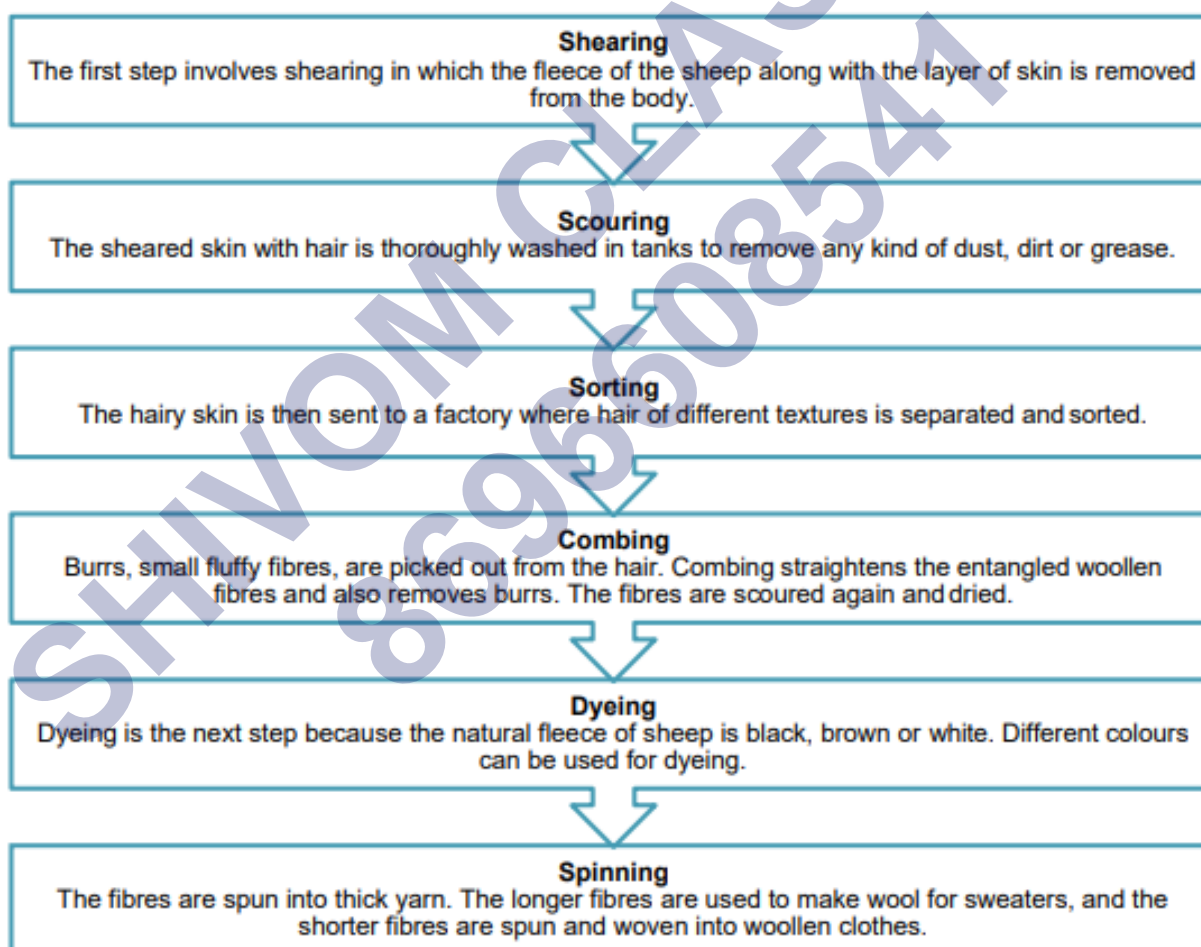
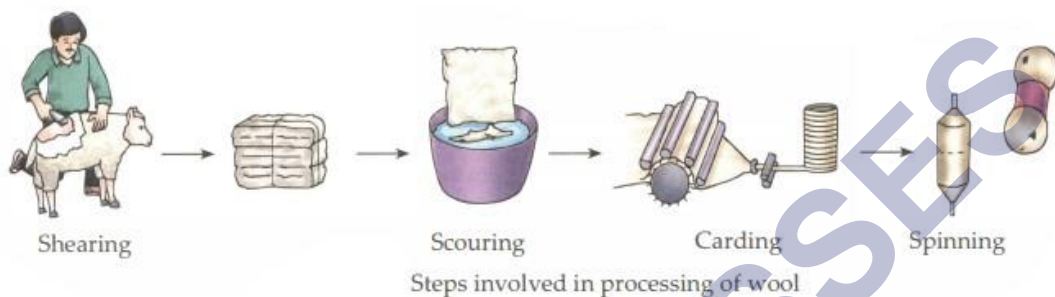
- The source of wool is animals like sheep, goat, yak which have hair on their bodies.
- These hairs keep the body of these animals warm.
- Sheep hair is called fleece.
- Fleece is made up of coarse beard hair, and fine soft under-hair close to the skin.
- The soft under hair is used to make wool.
- Selective breeding: This is a process of selecting parents so that the offspring can inherit selected set of special characters.

Animals which are a source of wool:

Animals	Breed	Quality of fabric	States where it is found
Sheep	Lohi	Good quality wool	Rajasthan, Punjab
	Rampur bushair	Brown fleece	Uttar Pradesh, Himachal Pradesh
	Nali	Carpet wool	Rajasthan, Haryana, Punjab
	Bakharwal	For making woolen shawls	Jammu and Kashmir
	Marwari	Coarse wool	Gujarat
	Patanwadi	For hosiery	Gujarat
Yak			Tibet and Ladakh
Goats	Angora Goats	Soft and can be woven into Pashmina shawls	Jammu and Kashmir

Camels	Llama and Alpaca		South America
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Processing of Fibres into Wool



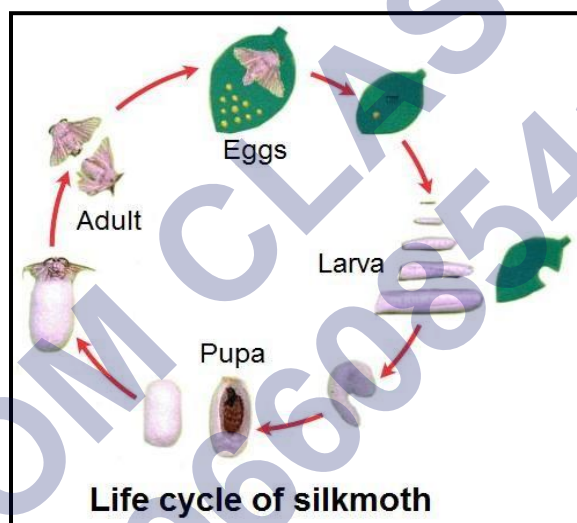
Fiber to wool:

- Sheep are reared for their fleece. After cutting the hair, the wool is processed into wool
- Rearing and breeding of sheep:

- Sheep's feed mainly on grass and leaves in fields, lawns etc. is known as grazing.
- Breeders and rearers also use a mixture of pulses, corn, jowar, oil cakes and minerals.
- In winter season sheep are fed on leaves, grain and dry fodder.
- After the growth of thick hair, the hair is shaved off for getting wool and processed further.

Silk

- Silk is obtained from **silkworms**.
- Rearing of silkworms for obtaining silk is called **sericulture**.



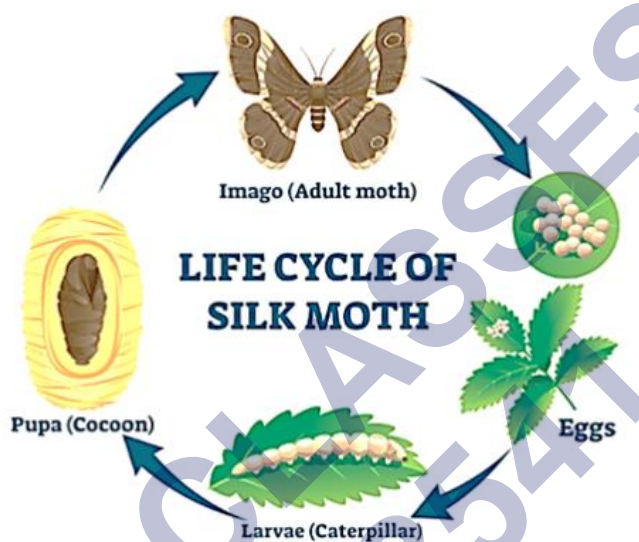
- The different varieties of silk are **tassar silk, mooga silk, kosa silk** etc.
- Natural silk is obtained from the cocoon of silkworms and is made of protein. Artificial silk, also known as **rayon**, is obtained from **wood pulp** and is made using modified plant material **cellulose**.

Life history of silk moth:

- There are different stages in the life cycle of a silk worm.
- **Eggs:** the female moth lays eggs on mulberry leaves.
- **Larvae:** the young caterpillar's which hatch out of the eggs are called as larvae.
- **Pupa:** In this stage of life the larvae grow in size. In the initial stage, the pupa starts to weave the 1st fibers of the cocoon and spins the net from side to side.
- The larvae secrete fibers by moving its head. The silkworm fiber is composed of protein

which hardens when it comes in contact with air which is then called the silk fiber.

- Once the cocoon is spun completely around the larvae it is called the pupa.
- Silk threads are obtained from the cocoon and then are processed into silk cloth
- Silk fiber has good tensile strength, it is soft to touch.



Types of silks:



Mulberry



Eri



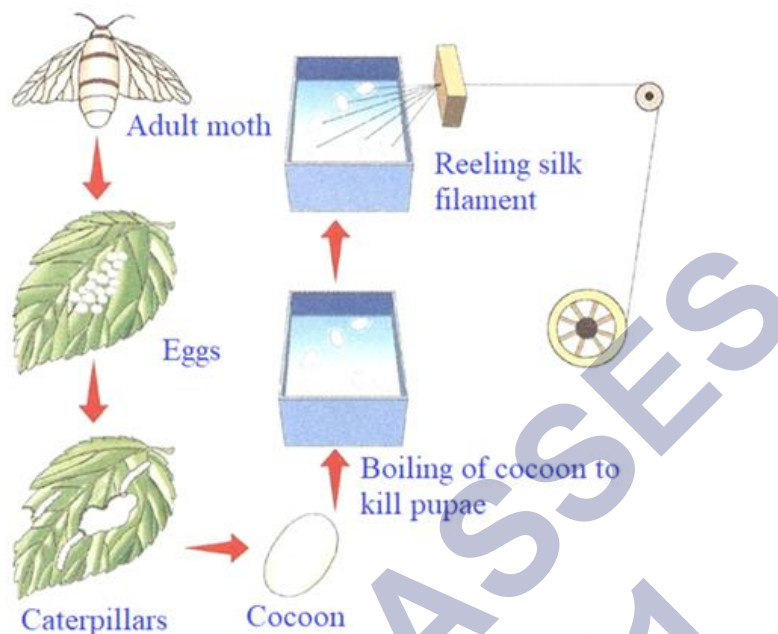
Muga



Tassar

- Different types of silk fibers can be distinguished on the basis of their texture like coarse, smooth, shiny, etc.
- Moths of different types can be used to prepare different silk threads like tassarsilk, mulberry silk, erisilk, moogasilk, kosasilk, etc.
- Mulberry silk moth is very common and produces silk which is soft, lustrous, elastic and can be dyed easily.

Journey from cocoon to silk threads:



1. Culturing silkworms:

- The female moth lays large number of eggs.
- These eggs are stored on paper or cloth until they are sold to silkworm farmers.
- The farmers store the egg in optimum temperature and humidity.
- the eggs are kept at a suitable temperature to help them hatch at the time when the mulberry trees have fresh leaves.
- The larvae feed on these leaves and increase in size to a very large extent.
- The caterpillars are kept on bamboo trays for 25 to 30 days where they feed on mulberry leaves.
- After this period the larvae starts spinning the cocoon around itself

2. Processing silk:

Steps in Silk Production.

Rearing and Breeding: Rearing of sheep involves the grazing of sheep, feeding of sheep on a mixture of pulses, corn, jowar, oil cakes etc. for producing wool. Breeding refers to the production of new offspring from the parents by make them mating.

Shearing: Shearing of sheep is defined as the process of removing woollen fleece of the sheep.

Scouring: The sheared skin with hair of sheep is then washed thoroughly to remove dust, grease, or dirt, this process is termed as scouring. Scouring can be done in tanks or by machines.

Sorting: Hairs of different textures are separated in sorting.

Separation of Burrs: Burrs are small fluffy fibres that are separated from the hair.

Dyeing: Fibres are dyed in various colours.

3. Rearing of Silkmoth

A female silkmoth lays hundreds of eggs at a time.

The eggs laid by the silkmoth are stored on cloth or paper and kept under hygienic and appropriate conditions.

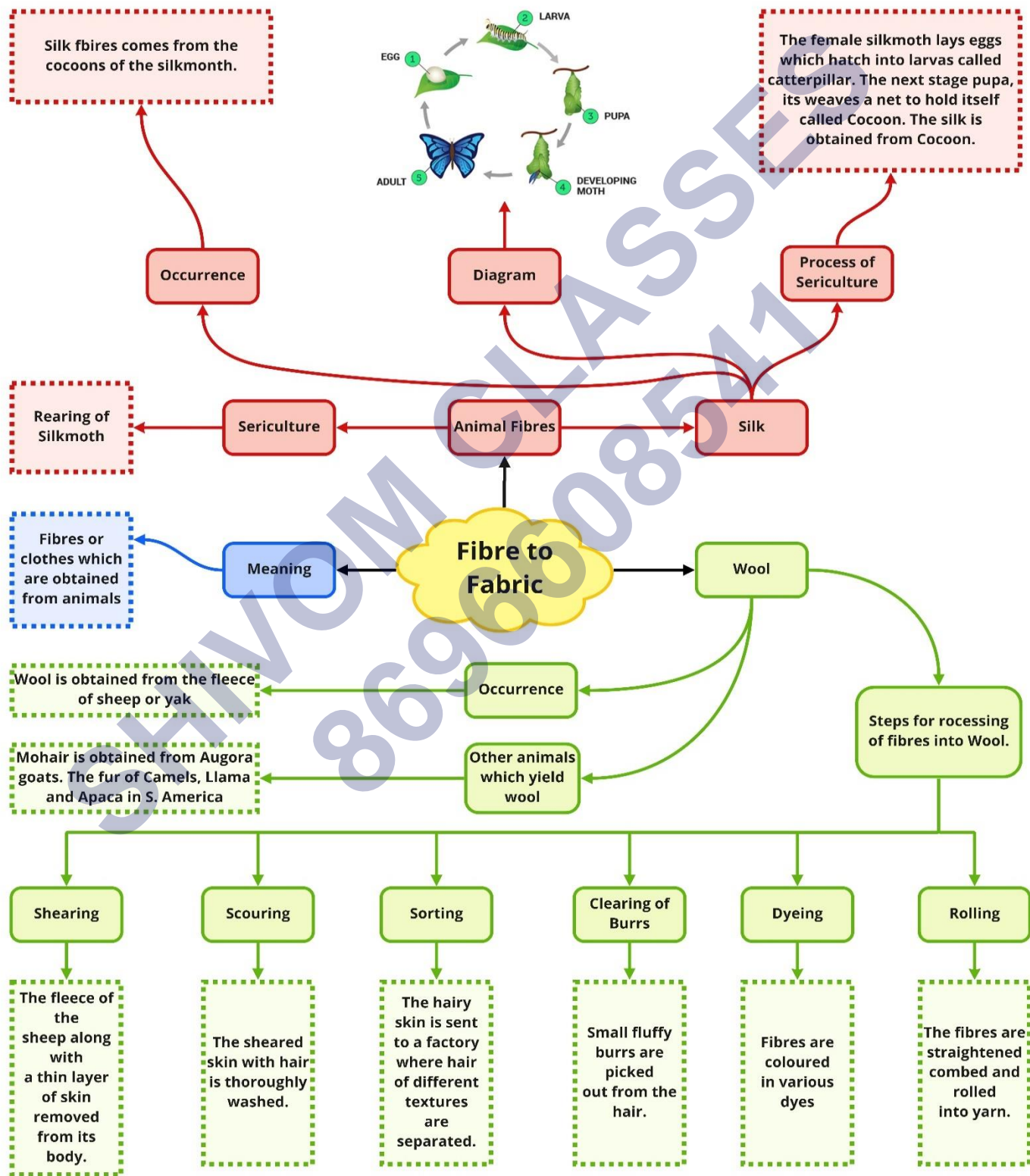
The eggs are warmed to a suitable temperature for larvae to hatch from eggs.

The larvae feed on mulberry leaves kept in clean bamboo trays and increase enormously in size.

After 25-30 days, the caterpillars are moved to a tiny chamber of bamboo in the tray to spin cocoons.

The caterpillar or silkworm spins the cocoon inside which develops the silk moth.

Class : 7th Science
Chapter- 3 : Fibre to Fabric



Important Questions

➤ Multiple Choice Questions:

Question 1. Fibre is obtained from

- (a) animals
- (b) plants
- (c) both(a) and (b)
- (d) none of these

Question 2. Silk is obtained from

- (a) Llama
- (b) yak
- (c) sheep
- (d) cocoon

Question 3. Which one of the following is a wool-yielding animal?

- (a) Sheep
- (b) Angora goat
- (c) Camel
- (d) All of these

Question 4. Which of the following is not a wool-yielding animal?

- (a) Goat
- (b) Yak
- (c) Sheep
- (d) None of these

Question 5. Yak wool is common in

- (a) india
- (b) america
- (c) tibet
- (d) china

Question 6. Which of the following wool-yielding animal is suitable for making Pashmina shawls?

- (a) Kashmiri goat

- (b) Angora goat
- (c) Llama
- (d) Alpaca

Question 7. Sheep are:

- (a) herbivores
- (b) omnivores
- (c) carnivores
- (d) parasite

Question 8. Which of following breeds of Indian sheep is suitable for hosiery?

- (a) Patanwadi
- (b) Marwari
- (c) Nali
- (d) None of these

Question 9. Which of the following fibres are made into wool for sweaters?

- (a) Shorter fibres
- (b) Longer fibres
- (c) Both (a) and (b)
- (d) None of these

Question 10. Which of the following article obtained from animal do not kill the animal?

- (a) Leather jacket
- (b) Silk saree
- (c) Woollen shawl
- (d) Ivory bangles

Question 11. Which of the following is not a type of silk?

- (a) Tassar silk
- (b) Moth silk
- (c) Mooga silk
- (d) Mulberry silk

Question 12. The caterpillars of silkworms feed on

- (a) peepal leaves

- (b) grass
- (c) rose leaves
- (d) mulberry leaves

Question 13. Silk yarn is obtained from

- (a) caterpillar
- (b) cocoon
- (c) pupa
- (d) none of these

Question 14. Silkworms secrete fibre made of

- (a) fat
- (b) cellulose
- (c) protein
- (d) starch

➤ **Fill In the Blanks:**

1. Wool is obtained from the _____ of sheep or yak.
2. A fabric is made up of _____.
3. The fibres are spun into _____ and then it is woven into _____.
4. Fibres can be obtained from both _____ and _____.
5. The wool-yielding animals have _____ on their body.
6. The quality of wool depends upon the _____ of sheep.

➤ **True or False:**

1. Rampur bushair breed of Indian sheep has carpet quality wool.
2. Coarse wool is obtained from Marwari breed sheep.
3. Wool is obtained from skin of sheep.
4. Separation of wool of different textures is called shearing.
5. In India, camels and goat are generally reared for obtaining wool.
6. Shearing hurts the sheep.

➤ **Very Short Question:**

1. Name some animals which provide us with wool.
2. Name the place where Angora goats are found in plenty.

3. Name some Indian breed of sheep.
4. Which parts of the black sheep have wool?
5. Name the protein which is the chief component of wool fibres.
6. Name the process involved in getting fibres from the sheep.
7. Define sericulture.
8. Silk is a good conductor of heat or poor conductor of heat?
9. What is yarn?
10. What is ginning?

➤ Short Questions:

1. Define wool.
2. What are the different sources of wool?
3. Why sheep have a thick coat of hair on their body?
4. Define a fibre.
5. Why a cotton garment cannot keep us as warm in winter as a woollen sweater does?
6. Explain the process of making yarn from fiber?
7. Which parts of the black sheep have wool?
8. What do you mean by the white fleece of the lamb?

➤ Long Questions:

1. What is selective breeding?
2. Differentiate between natural and man – made fibres.
3. Write short notes on rearing.
4. Write short notes on shearing.
5. Explain sericulture.

✓ Answer Key-

➤ Multiple Choice Answers:

1. (c) both(a) and (b)
2. (d) cocoon
3. (d) All of these
4. (d) None of these
5. (c) tibet

6. (a) Kashmiri goat
7. (a) herbivores
8. (a) Patanwadi
9. (b) Longer fibres
10. (c) Woollen shawl
11. (b) Moth silk
12. (d) mulberry leaves
13. (b) cocoon
14. (c) protein

➤ **Fill In the Blanks:**

1. Fleece
2. fibres
3. yarns, fabric
4. plants, animals
5. hair
6. breed

➤ **True or False:**

1. False
2. True
3. False
4. False
5. False
6. False

➤ **Very Short Answers:**

1. Answer: Sheep, goat yak etc.
2. Answer: Hilly region like Jammu and Kashmir.
3. Answer: Lohi, Rampur, bushair, Nali, Bakharwal, Marwari and Patanwadi
4. Answer: The hairy skin called fleece have wool in black sheep
5. Answer: Keratin is the chief component of wool fibres
6. Answer: The sheep's hair are Sheared off from its body, scoured, sorted, dried, dyed, spun

and woven to yield wool.

7. Answer: The rearing breeding and management of silkworms for obtaining silk is called sericulture.
8. Answer: Poor
9. Answer: Yarn is a long continuous thread that is made up of fibre.
10. Answer: The process of removing seed from cotton called ginning.

➤ Short Answer:

1. Answer: Wool is the soft, curly fibres obtained from the fleece of sheep, goat and yak etc., it clothes made from wool keeps us warm.
2. Answer: The fleece of sheep is the main source of wool. Apart from that, Angora wool is obtained from angora goats. The fur (hair) on the body of camels is also used as wool like Llama and Alpaca.
3. Answer: The thick coat of hair on their body traps a lot of air. Air is a poor conductor of heat thus, hair keeps sheep warm.
4. Answer: A fibre is a long strong thread, which is obtained from natural sources like plants or manmade sources like synthetic fibres, e.g., Rayon
5. Answer: Cotton clothes are thin and do not have spaces in their fabrics through which air can be trapped, to keep us warm thus Cotton clothes do not prevent heat coming out of our body.
6. Answer: The process of making yarn from fiber is called spinning. In this process, fibers from a mass of cotton wool are drawn out and twisted. this brings the fibers together to form a Yarn
7. Answer: The hairy skin called fleece have wool in black sheep.
8. Answer: White fleece means the hairy skin which is white in colour.

➤ Long Answer:

1. Answer: Certain breeds of sheep have thick coat of hair on their body which yields good quality wool in large quantities. As these sheep are "selectively bred" with one parent being a sheep of good breed. The process of selecting parents for obtaining special characters in their offspring is known as selective breeding.
2. Answer: Fibres are classified into two types on the basis of their sources. Plant fibres and animal fibres and synthetic fibres. The fibres, which are obtained from plants and animals are called natural fibres e.g., jute and wool.

Animal fibres are obtained from animals, e.g., silk and wool. Those fibres which are made by the human beings are known as Man-made or Synthetic Fibres, e.g., Rayon.

3. Answer: Rearing is raising livestock like goat, cows, sheep etc. for commercial purpose by taking them out in herds for grazing, feeding them on a mixture of pulses, corn, jowar, oil cakes (material left after taking out oil from seeds) and minerals for better growth and yield of produce like meat, milk, wool. Beside this in extreme climatic condition like winter these are also provided shelter and fed on leaves, grain and dry fodder.
4. Answer: Shearing is the process in which fleece of the sheep along with a thin layer of skin is removed from its body. Machines similar to those used by barbers are used to shave off hair. Generally, the hair is removed during the hot weather which enables the sheep to survive without their protective coat of hair. The hair provides woollen fibres. Woollen fibres are then processed to obtain woollen yarn. Shearing does not hurt the sheep as the uppermost layer of the skin is dead.
5. Answer: Sericulture is the rearing, breeding and management of silkworms for the production of raw silk. For obtaining silk, silk worm moths are reared and their cocoons are collected to get silk threads. Silk yarns come from the cocoon of the silkworm. The caterpillar hatches from a very small egg and is an eating machine. Their diet of continually eating mulberry leaves results in a semi-liquid protein called fibroin. When the silkworms start its spinning process in the cocoon, the worm's head is coated with a gummy protein called sericin. The silkworm rotates its body thousands of times extruding one continuous strand of silk the length of 12 football fields. The silk adheres to itself, forming the cocoon.