

## Points to be study

- 4.1 Classification of fibres
- 4.2 Plant fibres
  - Cotton
  - Jute
  - Moonj
- 4.3 Spinning, weaving of cotton, fibres and colouring, printing of clothes
- 4.4 Animal fibres
  - Wool
  - Silk
- 4.5 Our clothing

The clothes, bed sheets, curtains etc at our homes made up of different clothes. Will you identify some clothes from these? Let's understand –

### 4.1 Classification of Fibres :

#### Activity 1

Visit a tailor shop nearby your house. Collect some piece of clothes from there. Touch and feel each and every piece of cloth. Label the clothes with cotton, silk, wool and mix on the pieces of clothes. You take the help of tailor.



Figure 4.1 : Cuttings of different types of clothes at a glance



Pull a single thread from any piece of cloth. What this fibre or thread are made up of? Let collect some knowledge:

Those fibres which are obtained from plants and animals both are called Natural fibres. Example: - wool, cotton, jute, moonj, silk etc.



Cotton



Wool



Silk

**Figure 4.2 : Sources of Natural Fibres**

Those fibres which are made by human with chemicals are called **Artificial fibre** or manmade or synthetic fibres. Examples – Rayon, Dacron, Nylon etc.

#### 4.2 Plant Fibres :-

##### Cotton:

We get cotton from cotton plant. Its fruits are of the size of a lemon. After they mature, the ball of cotton fall off from the plant and cotton fibres are seen. If you observe cotton field at the time of fruiting it appear like covered with snow.

**Cotton from cotton balls:** Cotton is usually picked by hand. Fibres are then separated from the seeds by combing. This process is called ginning of cotton. We get cotton from cotton balls. These days, machines are also used for ginning.

##### Jute:

Jute fibre is obtained from the stem of jute plant. For obtaining jute fibre its plant is harvested when it starts flowering. The stems of the harvested plants are immersed in water for a few days. The stems got rotten and fibres are separated by hands. To make fabrics all these fibres are first converted into yarns. We make doormats, chatai and bags from jute.

##### Moonj :

Moonj is obtained from the moonj grass. The botanical name of this plant is *Saccharum moonja*. This is a monocot plant. It is generally found in Nagaur, Bikaner Sikar, Jhunjhunu, Ajmer districts. The stems of this plant is used to make





Figure 4.3 : Jute



Figure 4.4 : Jute Bag

huts, traditional furniture ( Table, Mudde), and eco friendly toys. Its fibres are also used to made different types of ropes which villagers used in bed, chairs, and decorative items.

In Ajmer district of Rajasthan moonj dependent small scale industry many different types of commercial products are made which provide financial support to the workers.

### 4.3 Spinning, weaving of cotton, fibres and colouring, printing of clothes



Figure 4.5 : Moonj



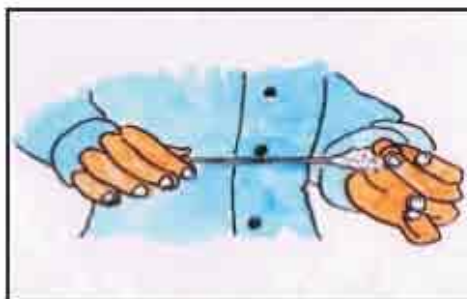
Figure 4.6 : Furniture made of Moonj

Fibres are used to make clothes. How fibres get converted into yarn? Let's understand.

#### Activity 2

Hold some cotton in one hand. Pinch some cotton between forefingers of the other hand. Now gently start pulling out the cotton while continuously twisting the fibre like you do for making thread for lamp. You observe that a long threaded yarn is formed.





**Figure 4.7 : Making yarn from cotton**

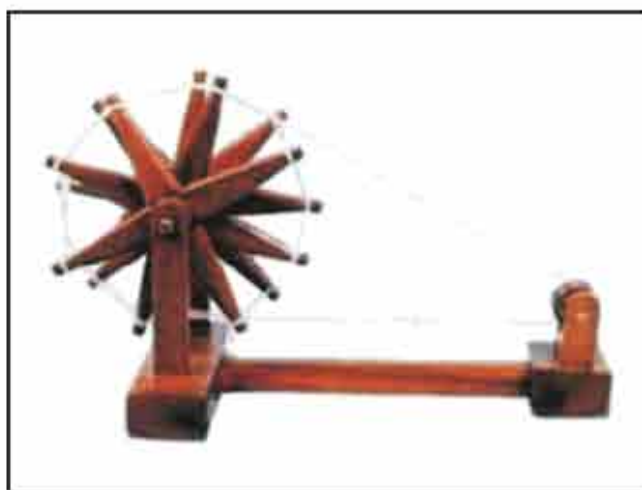
### Spinning :

The process of making yarn from fibre is called **Spinning**. In the process of spinning cotton is pulled and gently twisted simultaneously. This makes fibre close to each other and yarn is formed.

A simple device used for spinning is a hand spindle, also called **Takli**. Another hand operated device used for spinning is **Charkha**.



**Figure 4.8 : Hand spindle**



**Figure 4.9 : Charkha**

### Weaving :

The process of arranging two sets of yarns together to make a fabric is called **Weaving**. Weaving of fabric is done on looms. In knitting a single yarn is used to make a piece of fabric. Knitting is done by hand and also on machines.

### Colouring of Clothes:

Have you ever observed near pond or river the clothes of different colours. How these clothes are differently coloured?



Is all the clothes are coloured similarly?

What is mix to enhance colour on cotton clothes?

What the colouring man do to colour a single cloth with different colour?

In which art the printing on clothes is done?

To colour cotton clothes many types of colours are used. The colour which is to be used for colouring is mixing desired colour in cold water first. Now this colour is poured in hot water, and salt is added and stirred with a long stick. Now dip the clothes in this. The clothes kept dipped in colour till the water get cooler. After this the clothes are squeeze well and dried in shade. After drying iron the clothes.



Figure 4.10 : Colouring of Clothes

### Let us know

#### Tie and dye:

The clothes of tie and dye are popular in states of Rajasthan & Gujarat with tie and dye a beautiful pattern is made on clothes. It is a scale industry as it require low budget but more profit can be earn. Handkerchief, scarf, saree, blouse, salwar-suits, dupatta, bedsheets, curtains, cushions can be made through this. After this dyeing is done the place where the cloth is tightly threaded colour do not spread and rest whole cloth get dye. If we have to use more than one colour we proceed from light shade to darker one like from white, yellow to red. After colouring with the last colour it is kept to dry completely. After dry the threads are opened with utmost care. The clothes are then ironed with a warm iron. Now the cloth of tie and dye is ready.



Figure 4.11 : Tie and dye work





**Activity 3**

Take a handkerchief of cotton cloth, tie kidney bean seeds with the help of thread. Now dip it in any colour and dry it. Open the thread and see bandej.

**Printing on Clothes :** Sanganer (Jaipur) in Rajasthan has its name in art of printing. Other centres of printing in Rajasthan are Jodhpur, Udaipur, Barmer, Bhilwara, Pali, Bagru, Aakola (Chittorgarh) etc. Here printing is done by wooden blocks. For colouring and printing, Vail and cotton clothes like muslin cloth, and silk clothes are only used. The instruments used for printing is impression block, it is also called bhant. They are made up of wood or metal alloys. After making impressions they are kept in sesame oil for a night.



**Figure 4.12 : Printing of clothes**

Firstly colours are formed in a container for printing. Now this colour is poured on a sponge. Now printing block is kept on sponge so that it takes the colour. Printing is done in fixed pattern from these blocks. This printing is done on borders or on whole cloth. Now a day, machines are also used for printing.

Cotton clothes are formed from cotton plants which include muslin, rubies, vial, poplin etc.

The main significance of cotton clothes.

- 1) They are cool.
- 2) They absorb moisture
- 3) They are easy to dye.

**4.4 Animal Fibres:**

Fibres obtained from animals are called **Animal fibres**. From which animals we get fibres and how we obtained and make useful for us, let us study.

**Wool :**

Wool is obtained from the hairs of camel, sheep, goat, yak, rabbit etc. These animals have a thick layer of hairs on them, which keep their body warm.

Fibres like soft hairs are used to make wool.

**Manufacturing process of wool:**

How the hairs of animals used to obtain wool. Let us study -

**Changing the fibres in wool:** The following processes are involved in the making of wool.



1. The hairs are shaved from animals. It is known as **Shearing**. This process is done in summer season so that the animal doesn't suffer. These hairs are spun to form yarn.
2. Then these fibres are made oil, dust free etc. The process is called **Scouring** for this the hairs are dipped in big tanks and then washed with water.
3. Different types of hairs are then **Sorted**. Small, soft and puffed fibres called **Burr**, are sorted separately. Then they are dried and again scouring. The fibres obtained from this method are spun in thread.
4. Then wool is coloured in different colour.
5. The process of making threads straight and making its roll is called **Reeling**. Long fibres are used in sweater while short fibres are used in making woollen clothes.

In some parts of India, like Jammu and Kashmir wool is obtained from Kashmiri goat or Angora species of goat. This wool is softer and the shawls made from its fibre are called Pashmina shawls. In many states in India like Himachal Pradesh, Uttarakhand, Arunachal Pradesh, Rajasthan, Punjab, and Gujarat sheep are rear for wool also.

Clothes and dresses are also made from silk yarn. Let us know -

**Silk :** Silk is Natural fibre obtained from silkworm.

**Sericulture :** Rearing of silk moth for obtaining silk is known as **Sericulture**. Silk moth resides on mulberry plant and eats its leaves.

**Life cycle of silkworm:** Female silkworm lays eggs on leaves of mulberry tree. These eggs hatch into caterpillar larvae. They develop by eating leaves of this plant. They have a special gland called silk gland. This gland secretes a substance. These caterpillars form a thread like structure which wrap around themselves.

Later this threaded structure took round shape which is called **Cocoon**. In cocoon caterpillar changes to pupa stage. Then this pupa changes into adult silkworm and completes its life cycle. In the life cycle of silkworm, cocoon stage lies useful for sericulture. Before the cocoon changes to adult it is kept in sun or hot water or steam to obtain silk. The formation of silk thread from fibres is called **Reeling**. Then they are spun in yarn and weaver weaves them into clothes. 90% of India's silk production is done in Karnataka, Andhra Pradesh, and Tamil Nadu. China is the largest producer of silk in the world.

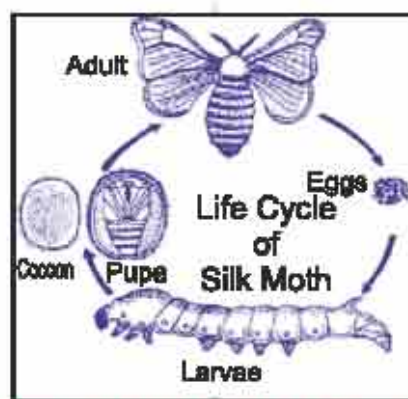


Figure 4.13 : Life cycle of silk moth





**Importance of silk clothes:-**

1. Silk cloth does not wrinkle.
2. They are shiny and attractive.
3. They are light weighted.

**4.5 Our clothing :**

Cotton, silk and woollen clothes are used in Rajasthani poshaks. The dresses which are wear on festivals, marriages and other occasion attract everyone. Chunri Dhoti, kurta, saga and Rajasthani poshak are main dresses wear by man and woman in Rajasthan.



**Figure 4.14 : Different Clothing**

**What have you learnt**

- Clothes are made from threads
- Thread are formed from fibres
- On the basis of sources of fibre we classify them into two
  1. Natural fibres
  2. Artificial fibres
- Natural fibres are further classify into two :-
  1. Plant fibres
  2. Animal fibres (man made).
- Cotton, jute, moonj etc are plant fibre.
- Wool and silk are obtained from animals.
- The process of making yarn from fibre is called Spining.
- Weaving is the process of making clothes form thread.
- Wool is made from sheep while silk from silkworm.



## Exercises

### Choose the correct options :

- The process of separating cotton fibres from its balls is.
 

(a) Spinning	(b) Weaving	
(c) Hand picking	(d) Scoring	( )
- The example of Natural fibre is.
 

(a) Rayon	(b) Nylon	
(c) Cotton	(d) Dacron	( )
- The example animal fibre is.
 

(a) Cotton	(b) Nylon	
(c) Wool	(d) Jute	( )
- From whom the fibre of silk is obtained.
 

(a) Sheep	(b) Goat	
(c) Wool	(d) Silk worm	( )

### Fill in the blanks:

- The process of making thread from fibre is called \_\_\_\_\_.
- The rearing of silk moth is known as \_\_\_\_\_.
- The \_\_\_\_\_ get wrap of silk fibre and form cocoon.
- Nylon, Rayon and Dacron are examples of \_\_\_\_\_ fibres.

### Short answer type questions:

- Explain the difference between natural fibres and synthetic fibres.
- Write any two significance of cotton fibre.
- In which state of our country is silk manufacture?
- Explain the process of making thread from fibre.

### Long answer type questions:

- List the name of clothes used in our daily life and write by which type of fibre they are formed of?
- How is silk obtained from silk worm? Explain.
- Explain the process of obtaining wool from sheep?



**Group activity:**

Do this group activity by making 4-6 groups according to the strength of your class and present in your class.

Group 1 - explanation of animals for obtaining wool.

Group 2 - production of wool.

Group 3 - cloth from cotton plants.

Group 4 - obtaining silk cloth from silk worm.

Group 5 - list of natural and artificial fibre.

Group 6 - list of things formed from moonj.

**Practical work**

1. Draw a print on an unuseful cloth by making blocks of Lady finger, potato and Lotus in the presence of your teacher.
2. Visit to a weaving industry and observe the weaving process.
3. Find out which crop is grown for obtaining fibre and uses of this at your nearby place.
4. Collect knowledge about BT cotton from an agricultural scientist or visit [envior. nic. in/divisions/csnv/btcotton/bgnote.pdf](http://envior.nic.in/divisions/csnv/btcotton/bgnote.pdf).

