

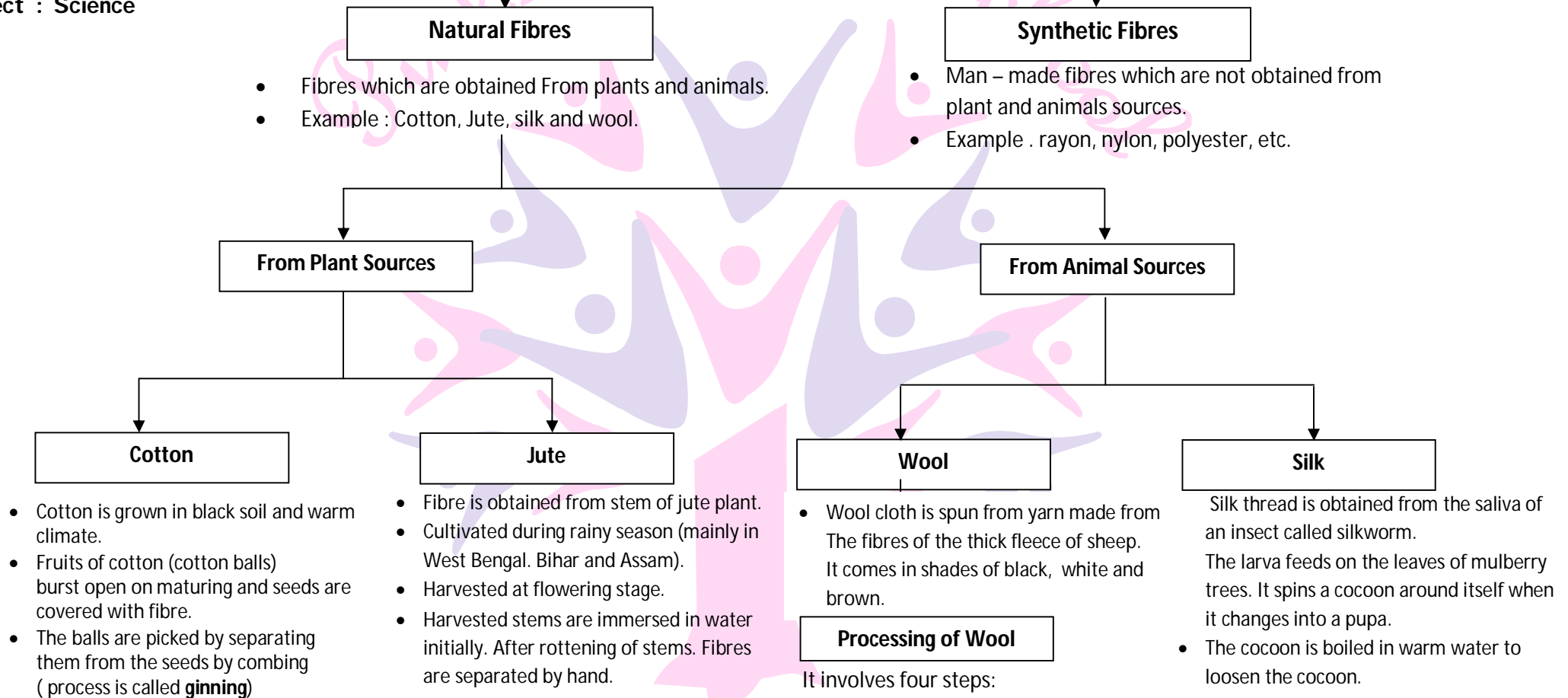
Chapter - 3 : Fibre to Fabric

FIBRES

BASIC CONCEPTS – A FLOW CHART

Grade : VI

Subject : Science



Processing of Wool

- It involves four steps:
- **Shearing** : Removal of wool from the sheep's skin.
 - **Grading** : Separating fleece from damaged wool.
 - **Carding** : After the wool has been washed and dried, it is passed through the rollers. (that have teeth)
 - **Spinning** : into a long rope and then twisted to make yarn. The yarn obtained is either weaved into fabric or retained for knitting.

FROM FIBRE TO FABRIC

Spinning of Yarn from Fibre

- Fibres are drawn out and twisted together to form yarn.
- Spinning by hand is done by takli or charkha.
- Spinning on large scale is done by machines.

Make Fabric from Yarn.

- It is done by two processes:
 - (i) **Weaving** : Two sets of yarns are arranged together to form fabric. It is done on looms
 - (ii) **Knitting** : A single yarn is used to make fabric. It is done by hand or machines .

I. Know the Terms

- **Fibres** : The thin strands of thread which are used to make yarns are called fibres. They are obtained from natural as well as man-made sources.
- **Natural Fibres** : The fibres that we get from plants and animals are called natural fibres. For example, Jute, silk, cotton and wool are obtained from natural sources like plants and animals.
- **Man-made/Synthetic Fibres** : The fibres which are not obtained from plants or animal sources and are made from chemical substances are called man-made or synthetic fibres. For example, Nylon, polyester and rayon are man-made fibres.
- **Animal Fibres** : Wool and silk fibres are obtained from animals. Wool is obtained from fleece of sheep or goat. It is also obtained from the hair of rabbits, camels and yak. Silk fibre is drawn from the cocoon of silkworm.

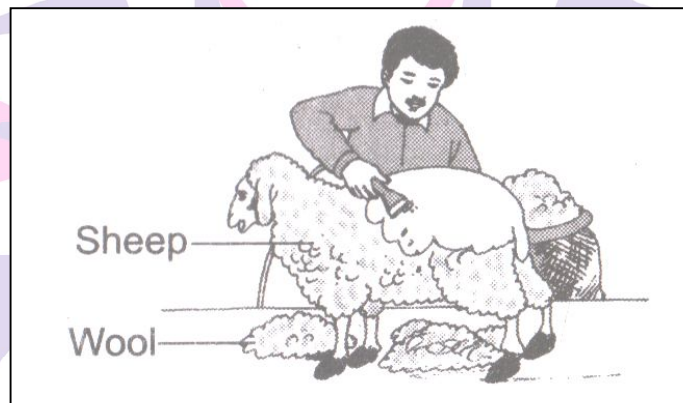


Fig. 3.1 Removal of fleece of sheep to obtain wool.

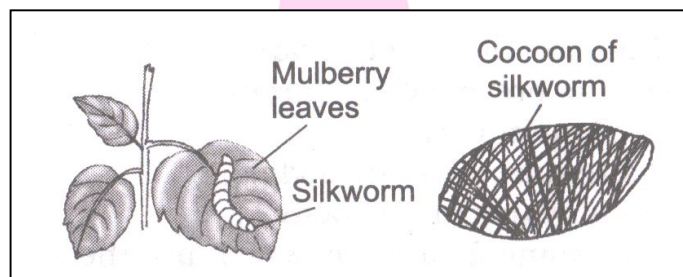


Fig. 3.2 Rearing of silkworm.

- **Yarn** : Commonly known as thread, they are formed by twisting the fibres. This brings the fibres together to form a yarn. The process of making yarn from fibres is called spinning. Twisting of fibres increases cohesion and strength of fibres.

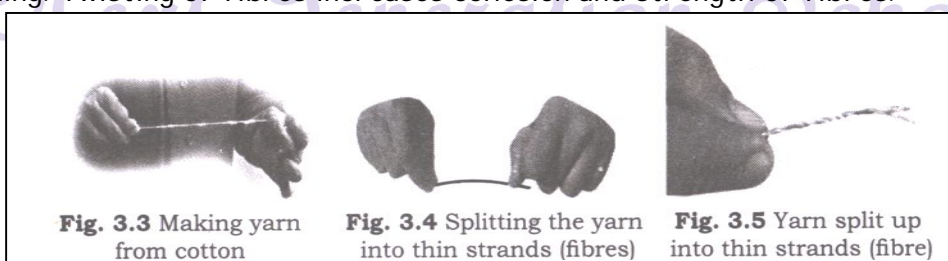


Fig. 3.3 Making yarn from cotton

Fig. 3.4 Splitting the yarn into thin strands (fibres)

Fig. 3.5 Yarn split up into thin strands (fibre)

- **Fabric** : Fabric means a woven material, a textile or other material resembling woven cloth. Fabric is made up of yarns. Fabrics are made by the two main processes known as weaving and knitting.

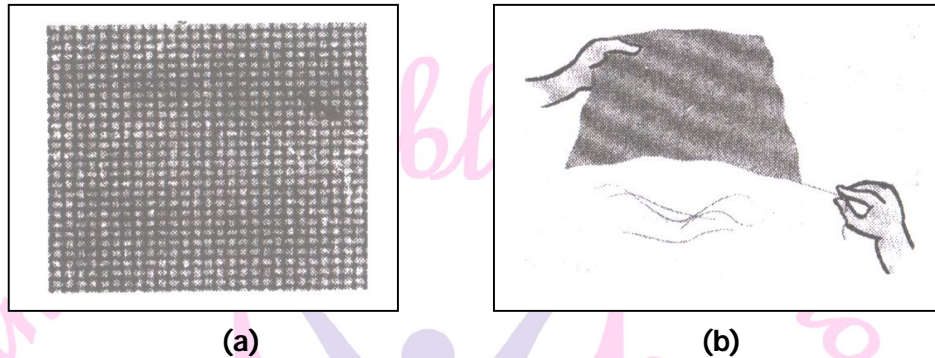


Fig. 3.6 (a) Enlarged view of a piece of fabric, (b) Pulling a thread from a fabric

- **Cotton Wool** : It is a fluffy wadding of a kind, originally made from raw cotton.
- **Cotton** : It is white fibrous substance covering the seeds of cotton. Cotton plants are grown as a crop to obtain cotton. Cotton plants are usually grown at places having black soil and warm climate. Cotton is grown in Gujarat, Maharashtra, Rajasthan, Tamil Nadu, Punjab and Madhya Pradesh.

- **Cotton Fibre** : The hair-like structure that grows on the surface of cotton seeds is called cotton fibre.
- **Cotton Ball** : The fruit of the cotton plant is known as cotton ball. Cotton ball is about the size of a lemon. After maturity, the cotton balls burst open and the seeds covered with cotton fibre become visible exposing the fibres.

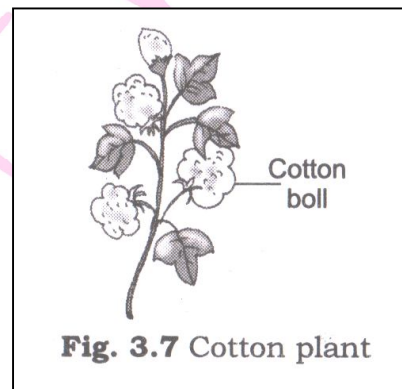


Fig. 3.7 Cotton plant

As the fibres dry under the sun, they become fluffy.

- **Ginning** : Cotton balls are usually picked by hand. Fibres are separated from the seeds by combing. This process is called ginning of cotton.

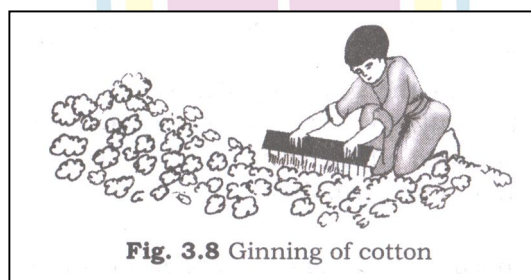


Fig. 3.8 Ginning of cotton

- **Charkha** : A device used for spinning. It is operated by hand.

- **Bales** : After ginning, cotton is compressed very tightly into bundles which may weigh about 200 kg. These compressed cotton bundles are called bales.
- **Sliver** : Raw cotton is cleaned, combed and straightened and finally converted into rope-like structure called sliver.
- **Weaving** : The process of arranging two sets of yarns together to make a fabric is called weaving.
- **Loom** : Weaving of fabric is done on looms. They are either hand operated or power operated.
- **Knitting** : The process in which a single yarn is used to make a piece of fibres called knitting.
- **Textile Industry** : The industry in which fibres are used to make clothes is called textile industry.

II. Know the Terms

- **Spinning** : The process of twisting fibres by hand or using machine to obtain thread or yarn.
- **Fruit fibres** : The fibres obtained from the fruits of the plants.
- **Bast fibres** : The fibres obtain from the stem of plants.
- **Leaf fibres** : The fibres obtained from the leaves of plants.
- **Retting** : The process of soaking jute stalks in water to soften them.
- **Shearing** : The process of removing hair from sheep.
- **Sericulture** : The rearing of silkworms of the production of silk is called sericulture.

Objective Type Questions

(1 Mark each)

I. Multiple choice questions

1. Paheli wants to present her friend a gift made of plant-fibre. Which of the following will she select? **(NCERT Exemplar)**

- a. Jute bag b. Woollen shawl c. Silk saree d. Nylon scarf

2. Which statement out of the following is incorrect?

- a. Use of Charkha was popularised by Mahatma Gandhi as a part of the independence movement.
- b. In India, jute is mainly grown in Kerala and Punjab.
- c. To make fabric, the fibres are first converted into yarns.
- d. Sufi saint Kabir was a weaver.

3. Which of the following materials did people use in ancient times for making clothes?

(NCERT Exemplar)

- i. Leaves of trees
 - ii. Newspaper
 - iii. Metal foils
 - iv. Animal skins and furs
- a. i and ii b. i and iii c. ii and iii d. i and iv

4. A natural fibre is:

- a. Nylon b. Rayon c. Polyester d. Silk

5. A synthetic fibre is:

- a. Cotton b. Rayon c. Wool d. Fur

6. Separation of seeds from cotton balls is known as:

- a. Weaving b. Knitting c. Ginning d. Spinning

7. Which of the following processes is carried out on looms?

- a. Weaving b. Knitting c. Ginning d. Spinning

8. Cotton balls are which part of the plant?

- a. Flower b. Fruit c. Stem d. Root

9. Takli is a device used for:

- a. Ginning b. Weaving c. Knitting d. Spinning

10. Twisting of fibres makes them:

- a. Colourful b. Soft c. Strong and soft d. Longer and stronger

11. Coir fabric is obtained from:

- a. Coconut plant b. Cotton c. Sheep hairs d. None of these

12. Patsun is another name of :

- a. Cotton plant b. Jute plant c. Kashmiri-sheep d. None of these

13. Which of the following is not a natural fibre?

- a. Cotton b. Jute c. Nylon d. Flax

14. Which set of substances is not used for making fibres?

(NCERT Exemplar)

- a. Silk, chemicals b. Yak hair, camel hair c. Husk, bones d. Flax, wool

15. Boojho went to a cloth shop. There he found a fabric which was smooth to touch, had vibrant colour and shine. The fabric could be: **(NCERT Exemplar)**
- a. Cotton b. Stem c. Fruit d. Leaf
16. Which part of the jute plant is used for getting jute fibre? **(NCERT Exemplar)**
- a. Flower b. Stem c. Fruit d. Leaf
17. Yarn is woven to get fabric using **(NCERT Exemplar)**
- a. Charkha b. Spinning machines c. Looms d. Knitting needles
18. Beera is a farmer. his field has black soil and the climate is warm. Which fibre yielding plant should he grow in his field? **(NCERT Exemplar)**
- a. Jute b. Cotton c. Coconut d. Wool
19. The correct sequence to get cloth is : **(NCERT Exemplar)**
- a. Fibre → fabric → yarn b. Fibre → yarn → fabric
c. Fabric → yarn → fibre d. yarn → fibre → fabric
20. Boojho wants to make yarn from fibre at home. Which of the following will he use to carry out the task? **(NCERT Exemplar)**
- a. Powerloom b. Handloom c. Charkha d. Knitting needles
21. This is made up of a number of fibres twisted together.
- a. Cloth b. Yarn c. Fibre d. Fabric
22. This is the only natural fibre obtained from an insect.
- a. Nylon b. Silk c. Wool d. Jute

1. a	2. b	3. d	4. d	5. b	6. c	7. a	8. b
9. d	10. d	11. a	12. b	13. c	14. c	15. c	16. b
17. c	18. b	19. b	20. c	21. b	22. b		

I. Fill in the blanks

1. _____ are tightly compressed bundles of cotton.
2. _____ is excellent for coconut crop.
3. The _____ fibre absorb sweat, thus giving cooling effect.
4. _____ and _____ are used for making yarns from fibre.
5. Weaving is done on _____.
6. _____ is obtained from the bast or skin of the plant stem.

7. The invention of the _____ wheel revolutionised clothing.
8. _____ is the process by which fibres are spun to form cotton yarn using spinning machines.
9. Jute is _____ and recyclable and thus environment friendly.

Answers				
1. bales	2. Coastal area	3. Cotton	4. Weaving, knitting	5. Looms
6. Jute fibre	7. Spinning	8. Spinning	9. Biodegradable	

II. Fill in the blanks

Complete the following with a suitable word / words.

1. For cultivation of cotton crop _____ soil is excellent.
2. Silk is obtained from _____ of silk worm.
3. Separation of cotton fibre from its seeds is known as _____.
4. Jute is cultivated in _____ season.
5. The stems of jute plants are immersed in water to rot, before separation fibre. The process is called _____.
6. Plant fibres are obtained from _____ and _____.
7. Animal fibres are _____ and _____.

1. black	2. cocoon	3. ginning	4. rainy
5. retting	6. cotton , jute	7. silk , wool	

I. True or False

1. Fibres are made up of yarns.
2. Silk is natural fibre.
3. Cotton keeps the body cool in all seasons.
4. Jute and patsun are two types of fibres.
5. Weaving of fabric is done on powerlooms.
6. Ginning is the process of taking out fibre from cotton ball.
7. Nylon and rayon are stronger than cotton.
8. Flax is an artificial fabric.

9. Bihar, West Bengal and Assam are major jute producing state in India.

10. Shearing is the process of obtaining wool from sheep.

1. False	2. True	3. False	4. False	5. True
6. False	7. True	8. False	9. True	10. True

II. True or False

State whether the following statement are True or False. If false, correct them.

1. Silk is a plant fibre.
2. Jute is obtained from the leaves of a plant.
3. Weaving is a process of arranging two sets of yarn together.
4. Cotton yarn on burning gives an odour similar to that of a burning paper.
5. Yarn is made from fibres.
6. Spinning is a process of making fibres.
7. Jute is the outer covering of coconut.
8. The process of removing seed from cotton is called ginning.
9. Weaving of yarn makes a piece of fabric.
10. Silk fibre is obtained from the stem of a plant.
11. Polyester is a natural fibre.

1. False. Silk is an animal fibre		
2. False. Jute is obtained from the stem of a plant		
3. True	4. True	5. True
6. False. Spinning is a process of making yarn		
7. False. Husk is the outer covering of coconut		
8. True	9. True	
10. False. Jute fibre is obtained from the stem of a plant		
11. False. Polyester is a man-made fibre		

III. True or False

Write 'True' or 'False' against the following statements.

1. There is only one variety of fabrics.
2. To make fabric, fibres are converted into yarns.
3. Nylon is a natural fibre.
4. To make fabrics weaving is used.
5. Cotton is a synthetic fibre.
6. The process of arranging two sets of yarns together is called weaving.
7. The process of making yarn from fibres is called ginning.
8. Jute fibre is obtained from the stem of jute plant.
9. The fruits of cotton plant are as big as apple.
10. Use of charkha was popularised by Mahatma Gandhi.

1. False	2. True	3. False	4. True	5. False
6. True	7. False	8. True	9. False	10. True

I. Match the following

I. Column A	Column B
a. Jute and silk	i. Looms
b. Thin strands of threads	ii. Natural fibres
c. Weaving of fabric	iii. Patsun
d. Jute	iv. One set of yarn
e. Knitting	v. Fibres

a. ii	b. v	c. i	d. iii	e. iv
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II. Column A	Column B
a. Silk	i. Sheep
b. Polyester	ii. Cocoons
c. Wool	iii. Charkha
d. Spinning	iv. Looms
e. Weaving	v. Synthetic fibre

a. ii	b. v	c. i	d. iii	e. iv
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III. Column A	Column B
a. Cotton	i. Jute fibres
b. Retting	ii. Synthetic fibres
c. Coir	iii. Bast
d. Hemp	iv. Coconut
e. Nylon	v. Ginning

a. v	b. i	c. iv	d. iii	e. ii
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II. Match the following

I. Match the articles given in Column I with the articles of Column II. (NCERT Exemplar)

Column A	Column B
a. Sweater	i. Jute
b. Cotton balls	ii. Wool
c. Dhoti	iii. Ginning
d. Gunny bags	iv. Jute Cotton

a. ii	b. iii	c. iv	d. i
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II. Match the articles given in Column I with the articles of Column II. (NCERT Exemplar)

II. Column A	Column B
a. Weaving	i. A single yarn used to make a fabric.
b. Knitting	ii. Combing of cotton fibres to remove seeds
c. Spinning	iii. Yarns are made from these thin strands
d. Ginning	iv. These are spun from fibres and then used to make fabrics
e. Fibre	v. Process of arranging two sets of yarn together to make a fabric
f. Yarn	vi. Process of making yarn from fibres

a. v	b. i	c. vi	d. ii	e. iii	f. iv
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III. Match the following

Match the items given in Column A with those given Column B.

Column A	Column B
a. Thin strands of thread	i. Knitting
b. Jute and Silk	ii. Saree
c. Weaving of fabric	iii. Fibres
d. A single thread used to make a piece of fabric	iv. Natural fibres
e. Used as an un-stitched piece of fabric	v. Weaving
f. The process of arranging two sets of yarns together.	vi. Loom

a. iii	b. iv	c. vi	d. i	e. ii	f. v
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Quiz Time

1. What are the constituents of yarns?
2. Name one synthetic fibre.
3. Why is the stem of jute plant kept immersed in water for some days?
4. What is the process of making yarn from fibres known as?
5. Name two plants other than cotton plant which are used for making fabric.
6. Which fabric is obtained from the stem of plant flax?

7. What are the fibres on the outer covering of coconut called?
8. Which is easier to pass through the eye of the needle – a strand or a thread?
9. Do rabbits also produce wool?
10. Who encouraged people to wear clothes made of homespun yarn?

1. Fibres	2. Nylon / polyester / acrylic			
3. To rot stem so that fibres can be separated by hand				
4. Spinning	5. Jute and flax	6. Linen	7. Coir	8. Thread
9. Yes	10. Mahatma Gandhi			

NCERT CORNER

Intext Questions

1. **The coats worn by warriors are made up of metal. What would happen, if these coats are made up of some kind of fibre?**

If the coats worn by warriors are made up of some kind of fibre then it may cause harm to warriors easily because sword can easily cut the fibre jacket.

2. **Can you name some states of our country where cotton is grown?**

Cotton is grown in Punjab, Gujarat, Maharashtra, Tamil Nadu, Madhya Pradesh and Rajasthan. Warm climate and black soil are essential for growth of cotton plants.

3. **Have you seen any fabric that are made of the fibres on the outer covering of coconut? What are these fibres normally used for?**

These fibres are normally used for a variety of clothing items by using process of spinning weaving and knitting.

4. **Boojho knows that burning of cotton yarn gives an odour similar to that from burning paper. He is wondering if he can assume that paper is also made from plants. How is the burning different from other yarns?**

Cotton yarns burn without shrinking or melting. They give an odour similar to that from burning paper.

Silk yarns burn with shrinking but do not melt.

They have the odour of charred melt.

Wool yarns burn with shrinking but do not melt.

They have strong odour of burning hair.

Synthetic yarns burn with shrinking and also melt.

They give out an odour similar to burning plastics.

Intext Questions

1. Classify the following fibres as natural or synthetic.

Nylon, wool, cotton, silk, polyester, jute

Natural fibres : Wool, Cotton, Silk, Jute

Synthetic fibres : Nylon, Polyester

2. State whether the following statements are true or false.

- Yarn is made from fibres.
- Spinning is a process of making fibres.
- Jute is the outer covering of coconut.
- The process of removing seed from cotton is called ginning.
- Weaving of yarn makes a piece of fabric.
- Silk fibre is obtained from the stem of a plant.
- Polyester is a natural fibre.

a. True	b. False	c. False	d. True	e. True	f. False	g. False
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3. From which parts of the plant are cotton and jute are obtained

Fibre	Part of plant
Cotton	Fruit of cotton plant
Jute	Stem of jute plant

4. Name two items that are made from coconut fibre.

- Rope
- Mat

5. Explain the process of making yarn from fibre.

The process by which yarn is obtained from fibre, is known as spinning. In the process fibre from a mass of cotton wool are drawn out and twisted, which brings the fibres together to form a yarn.

I. Very Short Answer Type Questions

1. Yarn, fabric and fibres are related to each other. Show the relationship by filling the blanks in the following sentences.

Fabric of cotton saree is made by weaving cotton _____ which in turn is made by spinning thin cotton _____.

(NCERT Exemplar)

Yarn, fibres

2. Some terms related to fabrics are jumbled up and given below. Write them in their correct form.

a. Onttoc

b. Sinnping

c. vingwea

d. bisref

(NCERT Exemplar)

The correct forms of terms are:

a. Cotton

b. Spinning

c. Weaving

d. Fibres

3. Which process is carried out on looms?

Weaving

4. Name two synthetic fibres.

Rayon and Nylon

5. Give names of two fabrics obtained from animals.

Wool and silk.

6. Between natural and synthetic fibres, which are stronger?

Synthetic fibres

7. Which country first invented silk?

China

8. State whether the following statements are true or false. If false, correct them.

a. Silk is a plant fibre.

b. Jute is obtained from the leaves of a plant.

c. Weaving is a process of arranging two sets of yarn together.

d. Cotton yarn on burning gives an odour similar to that of a burning paper.

(NCERT Exemplar)

a. False, as silk is an animal fibre.

b. False, as jute is obtained from the stem of a plant.

c. True

d. True

9. Once, paheli visited a tailor shop and brought home some cuttings of fabric to study their properties. She took two pieces and found that one of the pieces were shrinking when it was burnt with a candle. However the other did not shrink on burning. Can you help her to find out which of the two was a cotton fabric and which a silk fabric?

(NCERT Exemplar)

Cotton fabric does not shrink on burning, however, silk fabric shrinks on burning.

10. One way of making fabric from yarn is weaving. What is the other?

The other way of making fabric from yarn is knitting.

11. How many yarns are used for knitting?

A single yarn is used for knitting.

12. What is spinning?

The process of making yarn from fibre is called spinning.

II. Very Short Answer Type Questions

1. Define fibres.

Fibres are thin hair-like threads. They can be straight or curly, smooth or coarse.

2. Why do people prefer to wear woollen clothes in winters?

Because woollen fibres have air-locking capacity which helps in keeping the body of the weaver warm.

3. What do you mean by ginning?

Ginning is the process of removal of cotton seeds from the cotton bolls.

4. What do you understand by weft and warp?

Warp is the yarn placed length-wise in the loom. Weft is the yarn which moves cross-wise through the warp.

5. What are bobbins?

Bobbins are the wooden or plastic reels on which yarn is wound.

6. What are natural fibres?

Fibres that are obtained from plants and animals are called natural fibres. For example, cotton.

7. What is retting?

The jute plants are made to sink in stagnant water of a pond for few days where the stem rots to separate the fibre. This is called retting.

8. How did early man cover his body?

In ancient times, people used bark of tree, big leaves or animal skin to cover their bodies.

9. Rahul burns a piece of cloth, it gives the odour similar to that of a burning paper.

Which fibre is this cloth made of?

The cloth is made of cotton.

III. Very Short Answer Type Questions

1. Name two varieties of cloth materials which are commonly used.

Cotton, silk/wool.

2. What are fabrics?

Fabrics mean a woven material, textile or other materials resembling woven cloth.

3. Name some fabrics in your surroundings.

Bed-sheets, blankets, curtains, table clothes, towels and dusters.

4. Name the thing which is used to make fabric.

Yarns.

5. What are yams made of?

Ans. Yarns are made up of thin strands called fibres.

6. How many types of fibres are there?

There are two types of fibres:

(i) Natural fibres

(ii) Synthetic fibres

7. Name two natural fibres.

(i) Cotton

(ii) Jute

8. Name two synthetic fibres.

(i) Polyester

(ii) Nylon

9. What material you use for making wicks for oil lamps?

Cotton wool.

10. Where does cotton wool come from?

Cotton wool comes from cotton balls.

11. What are fruits of cotton plants called?

Cotton balls.

12. What type of soil is used to grow cotton plants?

Black soil.

14. What is jute?

Jute is a fibre obtained from the stem of a jute plant.

15. Name the states where jute plants are mainly grown in India.

West Bengal, Bihar and Assam.

16. Name two hand-operated devices used for spinning.

Ans. (i) Takli (ii) Charkha

17. How are fabrics prepared?

Fabrics are prepared from the yarns by weaving or knitting.

18. Name the process used to prepare fabrics from yarns.

The processes which are used to prepare fabrics are: (i) Weaving and (ii) Knitting

19. What is weaving?

The process of arranging two sets of yarns together to make a fabric is called weaving.

20. What is knitting?

The process in which a single yarn is used to make a piece of fabric is called knitting.

21. Name two methods of knitting.

(i) By hands (ii) By machines

22. Where were the cotton and flax plants cultivated in ancient Egypt?

Cotton and flax plants were cultivated near the river Nile in ancient Egypt.

23. Name some modern fabrics formed by unstitched piece of fabric.

Saree, dhoti, lungi and turban.

24. How are natural fibres better than synthetic fibres?

The natural fibre absorbs sweat, gives cooling effect and comfort in any season.

25. Are all fibres produced by plants?

No.

26. Cotton on burning gives paper burning smell and cotton is obtained from plants. Is paper also obtained from plants?

Yes, paper is also obtained from plants.

27. Name two fibres obtained from plants?

Cotton and Jute.

28. The process of making yarn from fibres is called

Spinning.

29. Name the Part of plants from where jute fibres are extracted?

From stem.

I. Short Answer Type Questions

1. What do you observe when you are visiting a nearby tailoring shop?

In 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. List the steps involved in the preparation of fabric.

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. What are natural fibres? Explain with examples.

The fibres obtained from plants and animals are called natural fibres. For example, Cotton from cotton balls, jute from jute plant, silk from cocoon of silkworm and wool from hair of animals like sheep or goat.

4. What are synthetic fibres? Explain with examples.

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. Explain how jute is obtained from the jute plant.



A jute plant

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 (Fig. 3.10).

6. What are looms?

The devices on which weaving of fabrics takes place are called looms. The looms are either hand operated or power operated.

7. What happens when a yarn from a torn sack is pulled?

When we pull a yarn from a torn sack then a single yarn gets pulled out continuously as the fabric gets unravelled. Sacks are made up of knitted fabrics from a single yarn.

8. What were the materials used by people in ancient times in place of clothes?

It appears that in those days people used the bark and big leaves of trees or animal skin and furs in place of clothes.

9. When did people learned to make fabrics?

When people began to settle in agricultural communities then they learnt to weave twigs and grass into mats and baskets. Vines, animal's fleece or hair were twisted together into long strands. These strands were woven into fabrics.

10. When we burn wool why do we get the smell of burning hair?

Wool is obtained from the fleece (hair) of sheep, goat, yak, etc. This is the reason why burning of wool resembles the burning of hair.

11. When we burn nylon, why we do not get the smell of burning paper or burning hair?

Nylon is a synthetic fibre made from chemicals. On burning nylon these chemicals don't produce the smell of burning paper or hair, which are natural substance.

II. Short Answer Type Questions

1. Classify the following fibres as man-made and natural:

(i) Nylon

(ii) Wool

(iii) Cotton

(iv) Silk

(v) Polyester

(vi) Rayon

(vii) Acrylic

(viii) Jute

Man-made fibres: Nylon, polyester, rayon, acrylic.

Natural fibres: Wool, cotton, silk, jute.

2. How is jute harvested?

Harvesting of jute plants is done at the flowering stage. The harvested plants are immersed in water for a few days. The stems rot emitting a bad odour and fibres are then separated by hand. Later, its fibres are converted into yarns to make fabric or for use.

3. What kind of climate and soil are suited for the cultivation of jute?

Jute is a rainy season crop, grown best in warm and humid climates.

4. On what factors does our type of clothing depend?

The type of clothing depends on climate, occupation, culture and daily needs.

5. Why are cotton and woollen clothes rough while silk and nylon clothes smooth to touch?

Cotton and woollen clothes are rough because they have many folds and uneven silk laces but silk and nylon have long, plain and fine structure.

6. What kind of climate and soil does cotton require for a good yield?

Cotton plant requires warm temperature ranging from 21°C-27°C with sunny and dry weather, and rainfall between 50 and 80 cms. Cotton is grown in black soil.

7. Write two uses of jute fibre.

- (i) It is used to make sacks and coarse cloth.
- (ii) It is used to make cloth for wrapping bales of raw cotton.

III. Short Answer Type Questions

1. What is retting?

Jute stems are immersed in water for rotting, as jute fibres can be extracted from the rotten stems easily. This process is known as retting.

2. Write two characteristic properties of cotton.

- i. Cotton is a soft fabric. It lets air pass through it.
- ii. The sweat absorbed by cotton fabric evaporates and so it cools the body.

3. Boojho with perfect eyesight was finding it difficult to pass a thread through the eye of a needle. What can be the possible reason for this? (NCERT Exemplar)

The possible reason for this can be:

The end of the thread was separated into a few thin strands.

(Or)

The thread was quite thick.

4. In ancient times stitching was not known. People used to simply drape the fabrics around different parts of their body. Even today a number of unstitched fabrics are used by both men and women. Can you give four such examples of clothes?

Saree, lungi, dupatta and towel.

5. Besides the textiles, what is the other major use of cotton?

cotton is also used in hospitals as absorbent and for preparing bandages.

6. What did people in ancient times use to cover their body?

In ancient times, people used bark and big leaves of tree or animal skins and fur to cover themselves. Later on, they began weaving twigs, grasses etc. They twisted vines, animal fleece or hairs together into long strands. They were woven into fabrics.

7. Why are coconut fibres used for making ropes? Write another uses of coconut fibre.

Coconut fibres are used for making ropes because these fibres are rough and very hard. Another use of coconut fibre is in making mattresses.

8. What is weaving? Name the device that is used for weaving.

The process of arranging two set of yarns together to make a fabric is called weaving. The device used for weaving are looms.

9. Name two hand operated devices that are used for spinning. name the person who made the charkha popular.

Two hand operated devices that are used for spinning are:

- i. Hand spindle (takli)
- ii. Charkha

Charkha was made popular by Mahatma Gandhi.

10. Fill in the blanks to complete the life story of cotton fibre.

My parents, cotton plants were grown in _____ soil and _____ climate. The plants bore fruits called _____. I, the cotton fibre was separated from seeds in the cotton balls by the process of _____. Other cotton fibres and myself were made into yarn by the process of _____. The yarn was _____ to give beautiful colours and then _____ to get cotton fabric.

black, warm, cotton bolls, ginning, spinning, dyed, woven.

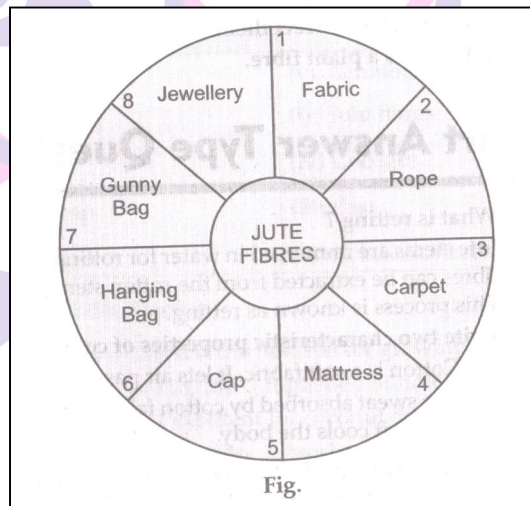
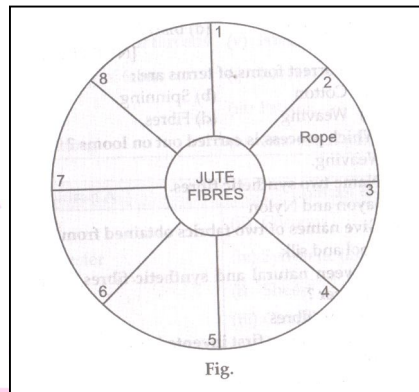
13. What are natural fibres? Give two examples for each-plant and animal fibres.

Fibres obtained from plants and animals are called natural fibres.

Examples of plant fibres : cotton, jute and coconut.

Examples of animal fibres : silk and wool.

14. Fill in the names of useful items made from jute fibres in Fig. One such example is given. (NCERT Exemplar)



15. Match the terms given in column I with the statements given in column II.

Column I	Column II
a. Weaving	(i) A single yarn used to make a fabric
b. Knitting	(ii) Combing of cotton fibres to remove seeds
c. Spinning	(iii) Yarns are made from these thin strands
d. Ginning	(iv) These are spun from fibres and then used to make fabrics
e. Fibres	(v) Process of arranging two sets of yarns together to make a fabric
f. Yarns	(vi) Process of making yarn from fibres

a. v	b. i	c. iv	d. ii	e. iii	f. vi
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16. How are synthetic fibres more advantageous and economical than natural fibres ?

Synthetic fibres are more advantageous and economical than natural fibres due to following reasons :

- (i) synthetic fibres are cheap
- (ii) more resistant to water
- (iii) high mechanical strength
- (iv) easy to wash and handle
- (v) dry up quickly.

17. Classify the plant fibres.

Plant fibres are classified into three categories on the basis of parts of plant from which these fibres are extracted :

- (i) Fruit fibres : These fibres are obtained from the fruits of the plant. e.g., cotton and coconut fibres.
- (ii) Bast fibres : These fibres are obtained from the stems of plants. e.g., Jute fibre.
- (iii) Leaf fibres : These fibres are obtained from the leaves of plants. e.g., Sisal fibre.

18. Which is the best season for the cultivation of jute ? In which part of India is jute grown ?

Rainy season is the best season for cultivation of jute. It is grown in Bihar, Assam and West Bengal.

I. Long Answer Type Questions

1. A cotton shirt, before it reaches you, completes a long journey. Elaborate this journey starting from cotton balls. (NCERT Exemplar)

Cotton is world's most popular plant fibre, used to make clothes. It is obtained from the cotton plant. The cotton plant bears fruits called cotton balls. When they are ripe, the balls burst exposing the seeds surrounded by soft cotton fibres. Cotton fibres are usually picked by hand from cotton balls. This process is called hand picking. The cotton fibres are then separated from the seeds by the process, called ginning. Now, fibres are twisted together to form yarn by using spinning machines. This process is called spinning. Fabric is formed by the arrangement of two sets of yarn by the process, called weaving. Weaving is done on looms. Now, on sewing this cotton fabric by needle, a cotton shirt is prepared.

2. Describe the two main processes of making fabric from yarn. [NCERT Exemplar]

The two main processes of making fabric from yarn are weaving and knitting.

Weaving : It is the arrangement of two sets of yarn to make a fabric. The threads are crossed over and under each other. This is done on machines called looms.

Knitting : It is the formation of fabric from single yarn. It is done by hand as well as by machine.

3. Mention the sources and uses of the following fibres : cotton, jute, silk and wool.

Cotton

Source: Fruits of cotton plants

Uses : It is used in making clothes, bed sheets, curtains, towels and quilts.

Jute

Source: Bast or skin of jute plant stem

Uses : It is used in making curtains, chair coverings, carpets and rugs.

Silk

Source: Cocoons of silkworms

Uses : It is used in making clothes, velvet etc.

Wool

Source: Fleeces of sheep or other hairy animals such as yak, camel, goat etc.

Uses : It is used in making clothes, sweaters, carpets etc.

4. How can the quality of cotton fabrics be improved?

The quality of cotton fabrics can be improved by :

- (i) improving the quality of soil.
- (ii) protecting the crops from pests.
- (iii) discarding infected fibres.
- (iv) twisting the fibres to make yarn properly.
- (v) ensuring minimum or no gaps during weaving.

5. Classify the following fibres as natural and synthetic : Acrylic, Wool, Jute, Polyester, Rayon. Give reason also.

Natural fibres : Wool and Jute.

- Wool is an animal fibre which is obtained from sheep.
- Jute is a plant fibre which is obtained from plant.

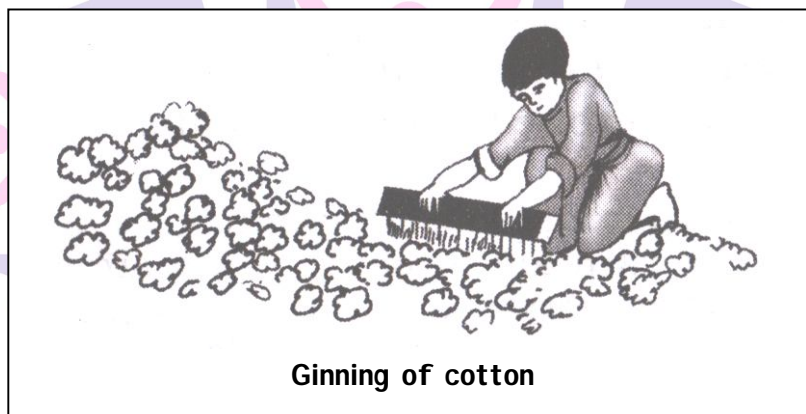
Synthetic fibres : Acrylic, Polyester, Rayon.

- These are man-made fibres which are prepared from different chemical substances.

II. Long Answer Type Questions

1. Describe the process of the formation of yarn from cotton wool.

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 balls are about the size of lemons. After maturing, the balls burst open and seeds covered with cotton fibres can be seen. From the cotton balls 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.



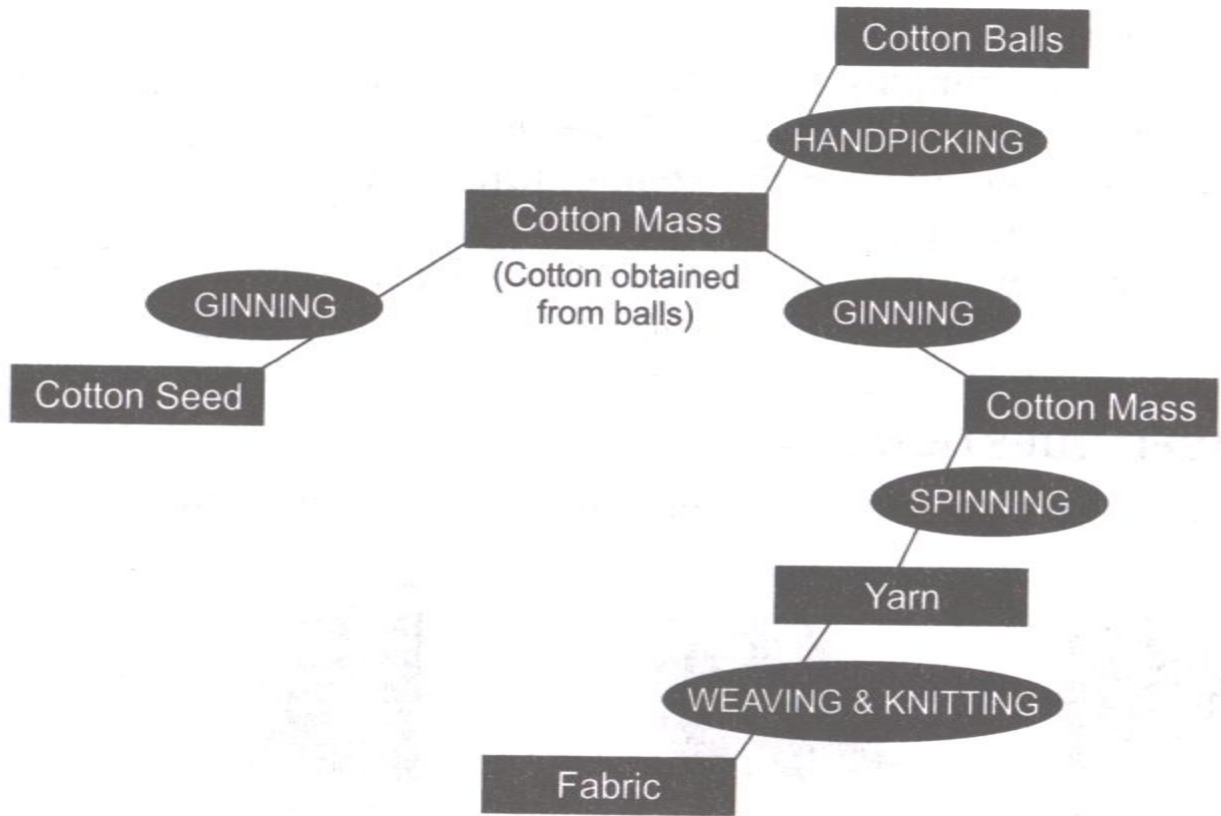
2. Describe the process of spinning and weaving.

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, fibres come together to form a yarn. Spinning can be done by hand, 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.

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3. Depict diagrammatically the formation of fabric from cotton ball.



III. Long Answer Type Questions

1. Explain the process of making yarn from fibre.

(NCERT Exemplar)

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. This brings the fibres together to form a yarn. A simple device used for spinning is a hand spindle, also called takli. Another hand-operated device used for spinning is charkha. Spinning of yarn on a large scale is done with the help of spinning machines. After spinning, yarns are used for making fabrics.

2. Distinguish between the following:

- (a) Natural fibres and Synthetic fibres
- (b) Knitting and Weaving
- (c) Spinning and Ginning

a.

S.No.	Natural fibres	Synthetic fibres
i.	Fibres obtained from natural sources of plants and animals.	Fibres which are man-made.
ii.	For example, cotton, jute, etc.	For example, nylon, rayon, etc.

b.

S.No.	Knitting	Weaving
i.	A way to turn thread or yarn into cloth.	A way of arranging two sets of yarn make a fabric.
ii.	It is done either by hand or by machines.	It is done using the machine called loom.

c.

S.No.	Spinning	Ginning
i.	The process of making yarn from fibres.	The process of separating cotton from its seeds.
ii.	It is done by takli or charkha.	It is done by machines.

I. High Order Thinking Skill (HOTS) Questions

1. The following is an answer given by Boojho to a question asked by his teacher -
"Cotton, wool, silk and jute are classified as natural fibres whereas nylon and polyester are classified as synthetic fibres."

Can you tell what question the teacher has asked?

The teacher has asked to classify the fibres as natural and synthetic fibres.

2. Why do we not prefer wearing clothes made of the jute fibre?

We do not prefer wearing clothes made of the jute fibre because jute fibre is very coarse and rough which hurts the skin.

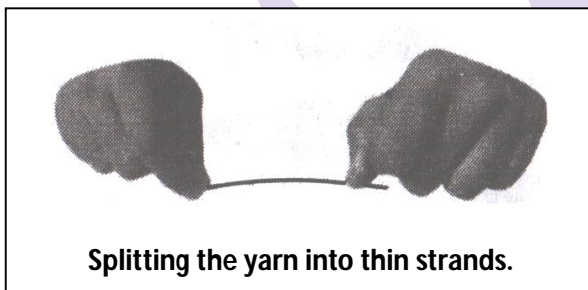
II. High Order Thinking Skill (HOTS) Questions

1. Why does wearing many layers of cotton clothes keep you warmer in winter than wearing one thick sweater?

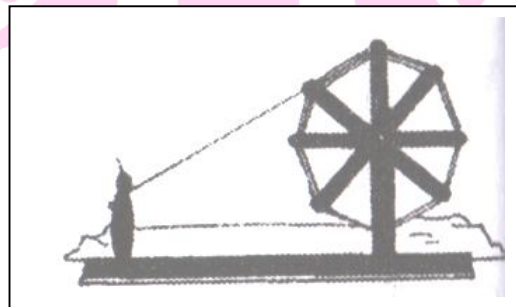
Cotton fibre has many layers. When many layers of cotton clothes are worn, air is captured in between them. Air being a bad conductor of heat does not let body heat to go out. Thus it keep one's body more warmer than one thick sweater.

I. Skill - Based Questions.

1. Draw a diagram to show splitting the yarn into thin strands.

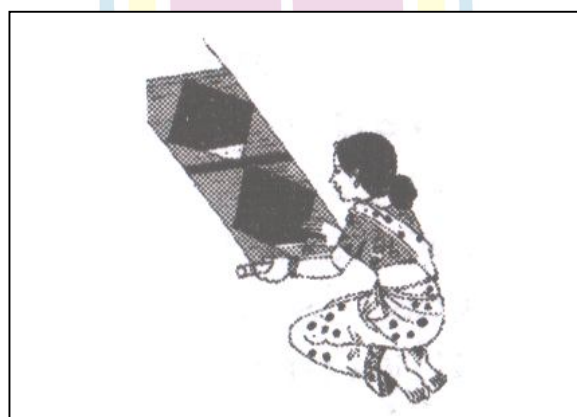


2. Identify the following figure and name who popularised the use of this device.



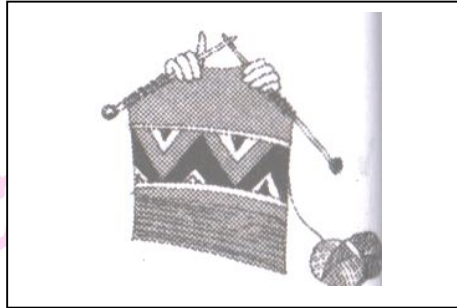
The figure shows a Charkha. The use of charkha was popularised by Mahatma Gandhi.

3. i. Observe the following figure and tell what the woman is doing in the figure.
ii. Name of device by which this process can be done.



- i. The woman is weaving fabrics on loom by hand.
- ii. This process can be done using hand-operated or power-operate looms.

4. Identify the following figure and name the process.



The process is knitting. It is used to convert single yarn into fabrics.

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