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Introduction

I and my younger sister got the 1st position in the class. My father gave us 500 rupees as a prize. We were very excited and decided to use the prize money to buy some new clothes for our parents.

We went to a large cloth shop. We saw a large variety of cloth material. On seeing the different variety we got confused.

We said to shopkeeper please explain about the variety of clothes. He explained us that some clothes were cotton and some were synthetic. There were many cotton and silk sarees also. Woollen clothes such as shawls, mufflers etc. were also there. We decided to buy a woollen muffler and a cotton saree.

We all need clothes as they protect us from heat, dust, cold, rain, insect, bites. We feel very nice on wearing the clothes. We look smart and attractive when we wear decorative clothes. We wear different types of clothes. The necessity of clothes depend on seasons. For example, we wear light cotton clothes in summer and woollen clothes in winter.

The fabric used in the clothes we wear also varies.

DIFFERENT TYPES OF CLOTH MATERIALS

We come across several types of cloth materials called cotton, silk, woollen or synthetic. When we look at any fabric, it seems a continuous piece. But if we look at it closely we can notice some loose threads near the stitches. We can pull them out. A fabric is made up of threads arranged together.



Fibre

The thin strands of the yarn that we can see are made up of still thinner strands called fibres. Thus, all clothes are made up of the fibres. Fibres are long, narrow and thin structures.

The fibres are made up of yarns and yarns are further made up of fibres.

Where do these fibres come from ?

The fibres of some fabric such as cotton, jute, silk and wool are obtained from plants and animals. These are called natural fibres. Wool and silk fibres are obtained from the animals. Cotton and jute are examples of fibres obtained from plants. Wool is obtained from the fleece of sheep or goat. It is also obtained from the hair of rabbits, yak and camels. Silk fibre is drawn from the cocoon of silkworm.

Fibres are also made from chemical substances which are not obtained from plant or animal sources. These are called synthetic fibres. Nylon, polyester and acrylic are some examples of synthetic fibres.

NATURAL FIBRES FROM PLANT SOURCES

Fibres obtained from plants are called plant fibres. The world's most important non-food crop is cotton. So many things are made of cotton that it would be hard to go through a day without using or wearing cotton cloth. Cotton has been found in tombs in India dating back to 3,000 BC, Linen made from fibres of the flax plant is one of the world's oldest fabrics. Lesser known fibres such as ramie, jute and hemp have many uses, varying from finely woven fabrics to rope.



Natural fibres

Do You Know ?

All plant fibres are made up of cellulose. Cellulose is the material which forms the cell walls in all plants. Cotton fibres are 90% cellulose.

Cotton

Have you ever made wicks for an oil lamp ? What do you use for making these wicks ? This cotton wool is also used for filling mattresses, quilts or pillows.

Take some cotton wool, pull it apart and look at its edges. What do you observe ? The small, thin strands that you see are made up of cotton fibres.



Cotton flower

Where does this cotton wool come from ? It is grown in the fields. Cotton plants are usually grown at places having black soil and warm climate. Can you name some states of our country

where cotton is grown ? The fruits of the cotton plant are about the size of a lemon. After maturing, the balls burst open and the seeds covered with cotton fibres can be seen. Have you ever seen a cotton field that is ready for picking ? It looks like a field covered with snow. From these balls, cotton is usually picked by hand. Fibres are then separated from the seeds by combing. This process is called ginning of cotton. Ginning was traditionally done by hand. These days machines are also used for ginning.

Jute

Jute is a long, soft, shiny plant fibre that can be spun into coarse strong thread. It is produced from the jute plants. Jute is one of the cheapest natural fibres. Some of its useful properties are its durability, biodegradability and strength. It is especially useful for making strong packing materials.



Jute bag



Jute mat
Materials made of jute



Friendship band

Jute fibre is obtained from the stem of the jute plant. It is cultivated during the rainy season. In India, jute is mainly grown in West Bengal, Bihar and Assam. The jute plant is normally harvested when it is at flowering stage. The stems of the harvested plants are immersed in water for a few days.

SPINNING COTTON YARN



Spinning wheel

Spinning is the process of making yarn from fibres. In this process fibres are twisted to form a yarn.

A simple device called Takli was used for spinning of cotton yarn. Today spinning of yarn on a large scale is done with the help of spinning machines. During independence movement Charkha was extensively used to spin yarn. This encouraged people to wear clothes made of homespun yarn.

YARN TO FABRIC

There are many ways by which fabrics are made from yarns. The two main processes are given below :

Weaving

Weaving is the process in which two sets of yarn are arranged together to make a fabric. Loom machine used in weaving fabric from yarn or other fibres. A woven fabric produced on a loom is made by interlacing two sets of threads at right angles. The longitudinal threads are called the warp and transverse threads are called weft.



Weaving

The basic process of weaving consists of passing the weft threads alternative over and under the warp threads.

Weaving fabric with a hand on power loom involves several steps. To prepare the loom for operation, the warp threads are installed in the loom and held under tension, they form a surface of closely spaced, parallel threads. To begin the cyclic process that produces the fabric, first shedding occurs. Shedding raises some of the warp threads, so that the weft thread can be correctly placed. In a plain weave – a simple weave in which each weft is alternately threaded above and below the warp threads – every other warp thread is raised. The space between the raised and unraised warp threads is called the shed. Next, is the picking process, a device called a shuttle pulls the weft thread through the shed. Then in beating up a device forces the weft thread against the previously placed weft threads to compact fabric.

Knitting

Knitting is one of the several ways to turn thread or yarn into cloth. Knitting is done by hand or machines. Have you noticed how sweaters are knitted ? In knitting a single yarn is used to make a piece of fabric. Have you ever pulled the yarn from torn pair of socks? What happens ? A single yarn gets pulled out continuously as the fabric gets unraelled. Socks and many other clothing items are made of knitted fabrics. Knitting is done by hand and also on machines.



Knitting

DEVELOPMENT OF CLOTHING MATERIALS

Fibres are clothing materials. Fibres or clothing materials are developed in several stages. First of all cloth was made from plant fibres like cotton, flax and fibres from the inner bark of trees. Then came the animal fibres, their hair, especially wool, silk came later. Final and modern stage in the development came in the 20th century with the invention of man made synthetic fibres – rayon, nylon, polyester synthetic fibres were blended in different promotions for show. Comfort ability and durability. Now, we have terrycot and terry wool and many other varities for the sake of washability, look, climate and daily needs.

Burning Test of Fibres

To identify an unknown fabric, a simple burn test can be done to determine if the fabric is a natural fibre or manmade fibre, or a blend of natural and manmade fibres. The burn test is used by many fabric stores and designers. It takes practice to determine the exact fibre content. However, an inexperienced person can still determine the difference between many fibres to “narrow” the choices down to natural or manmade fibres. This elimination process will give information necessary to decide the care of the fabric.



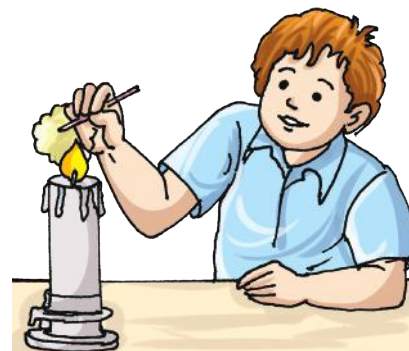


Warning : All fibres will burn! The burning test should be done with caution. Use a small piece of fabric only. Hold the fabric with tweezers, not with your fingers. Burn over a metal dish with soda in the bottom of the dish with soda in the bottom or even water in the bottom of the dish. Some fabrics will ignite and melt. The result is burning drips which can blow out a candle.

Linen is also a plant fibre but different from cotton in that the individual plant fibres which make up the yarn are long, whereas cotton fibre are short. Linen takes a longer time to ignite. The fabric closest to the ash is very brittle. Linen is easily extinguished by blowing on it as you would blow out a candle.

Silk is protein fibre and usually burns readily, not necessarily with a steady flame and smells like burning hair. Its ash is easily crumbled. Silk samples are not as easily extinguished as cotton or linen.

Wool is also a protein fibre but is harder to ignite than silk as the individual 'hair' fibres are shorter than silk and the weave of the fabrics is generally looser than silk. The flame is steady but more difficult to keep burning. The smell of burning wool is like burning hair.



Know the Keywords :

Fabric : The material made by weaving cotton, wool etc.

Plant fibres : Thin threads obtained from plants, which are used for making clothes.

Synthetic fibres : These are manmade fibres prepared from plant cellulose etc.

Point to Remember

- The fibres of some fabric such as cotton, jute, silk and wool are obtained from plants and animals. These are called natural fibres.
- Jute is a long, soft, shiny plant fibre that can be spun into coarse strong thread.
- Weaving is the process in which two sets of yarn are arranged together to make a fabric.

EXERCISE TIME

A. Answer the following questions :

1. What are fibres ?
2. What are natural fibres ? How are they obtained ?
3. What is jute ?

4. Describe spinning and weaving.
5. Explain the process of making yarn from fibre.

B. Fill in the blanks :

1. Plant fibres are obtained from _____ and _____.
2. Animal fibres are _____ and _____.
3. _____ are long, narrow and thin structures.
4. The fruits of _____ are about the size of a lemon.
5. In _____ a single yarn is used to make a piece of _____.

C. Write 'T' for true and 'F' for false statements :

1. Yarn is made from fibres.
2. Polyester is a natural fibre.
3. Weaving of yarn makes a piece of fabric.
4. The process of removing seed from cotton is called ginning.
5. Fibres are twisted to form fabric.

D. Pick out the odd one :

1. Cotton, jute, wool, hemp
2. Knitting, spinning, jute, weaving

E. Tick (✓) the correct option :

1. Clothes protect us from heat, rain and :
(i) cold (ii) animals (iii) none of these
2. A fabric is made up of :
(i) animals (ii) threads (iii) insects
3. Fibre is obtained from hair of rabbit, yak and :
(i) cow (ii) goat (iii) camel
4. Fibre obtained from plant is called _____ fibre.
(i) animal (ii) plant (iii) both of these
5. Spining is the process of making yarn from :
(i) fibres (ii) cotton (iii) woollen



Creative Work

- Collect samples each of cotton, jute and synthetic materials and make a collage.