SCIENCE

CLASS – 7

Ch- 3 fibre to fabric

TEACHING - AID

- Key points
- Answers in very short
- Answers in short
- Long ques / ans
- Diagrams
- Flow chart
- Activity

FIBRE

A material which is available in the form of thin and continuous strand is called **FIBRE.**

There are two types of fibre, viz.

1) Natural fibre and
2) Man-made Fibre or Synthetic Fibre

IMPORTANCE OF CLOTHES

- Following are the importance of clothes :

1) They protect from heat.
2) They protect from cold.
3) They make us look nice & decent(सभ्य).

TYPES OF FIBRE:

NATURAL FIBERS

The fibers which are obtained from plants and animals are called Natural Fibers.

Examples: cotton, jute, silk, wool.

MAN-MADE FIBERS

The fibers that are synthesized in laboratory are called **Man-made Fiber.**

Examples: Nylon, Acrylic, terrylene, terry-cotton Polyester etc.

TYPES OF NATURAL FIBRE:

PLANT FIBRE:

The fibers which are obtained from plants and animals are called Plant fibers.

Examples: Cotton, jute and flex.

ANIMAL FIBRE:

The fibers which are obtained from plants and animals are called Animal fibers.

Examples: Silk and wool.

ANIMAL FIBRES

The common animal fibers are wool and silk.

- Wool is obtained from sheep, goat, yak, camel, llama, alpaca etc.
- Silk is obtained from silk worm.

GOAT

WOOL

- Wool is obtained from the fleece (hair) of sheep, goat, camel, yak, rabbit, llama, alpaca and other animals.
- These animals have a thick coat of hair on their bodies because the hair traps air and air is a poor conductor of heat.
- So thick layer of hair keeps their body warm and protects them from harsh cold.
- For obtaining wool, animal are reared and then their hair is cut and processed into wool.

Fleece and Wool bearing animals

Fleece and Wool bearing animals like sheep, goat, camel, yak, etc. bear two types of hair – coarse hair and fine-soft under hair.

Fine soft hair is found close to the skin in such animals.

The fine soft under hair of animal like sheep goat etc. is called **FLEECE.**

Animals having fine soft hair (fleece) on their body are called **Wool Bearing Animals**.

PROCESSING OF WOOL

The processing of changing fleece into wool involves following six steps:

1) Shearing
2) Scouring
3) Sorting
4) Burrs separation
5) Dyeing
6) Spinning

PROCESSING OF WOOL

1) The fleece (hair) of the sheep is removed from its body along with a thin layer of dead skin by using machines.

   The process of removal of the fleece from animal is called **shearing.**

2) The sheared skin with hair is washed in tanks to remove grease, dust and dirt.

   The process of washing the sheared wool in hot water followed by drying is called **scouring.**

PROCESSING OF WOOL

3) The hairy skin is sent to a factory where hairs of different textures are separated.

   The process of separating hair of different textures from the fleece is called **sorting.**

4) **Burrs separation:** The small fluffy fibres called burrs are separated from the hairs and again washed and dried.

5) **Dyeing:** the natural hair of sheep is white, brown, black. The raw fibres are dyed in different colours.

6) **Spinning:** The raw fibres are then straightened, combed and rolled into yarn. They are then spun and woven into fabric.

WOOL & YARN

SILK

Silk fiber is obtained from the cocoons of the silkworms (silk moth). The silk moth lives on the leaves of mulberry plants.

TYPES OF SILK

Different types of silk worm produce different types of silk in terms of luster and texture.

For example- tassar silk, mooga silk, kosa silk, etc. are produced by different types of silk moth.

Mulberry silk is the most common silk moth.

SERICULTURE

The rearing of silkworms for obtaining silk is called sericulture.

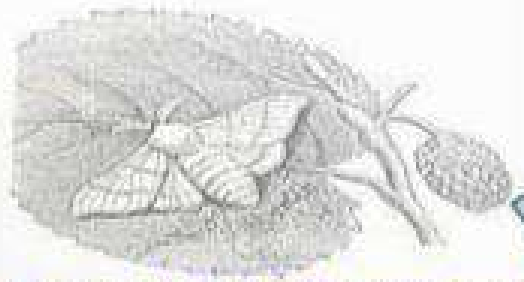
LIFE CYCLE OF SILKWORM

There are four stages in the life cycle of silk moth: eggs, larva, pupa and adult.

Female silk moth → Lays eggs → After about 14 days eggs are hatched into larva **(called caterpillars)** → Grown into Pupa → **Secretes fibers made of protein and weaves the fibres around itself completely** → **This covering is called cocoon.** → Live in the cocoon for some time → After coming out of cocoon grows into silk moth.

LIFE CYCLE OF SILK MOTH

Adult silk moth



Female silk moth with eggs

Eggs

Caterpiller (Larva)

Cocoon (Pupa)

Cocoon with developing moth

PROCESSING OF SILK

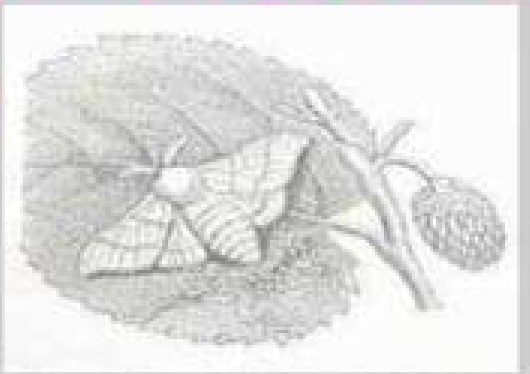
The process of obtaining silk from silk moth involves-

1) rearing of silkworms
2) reeling and
3) dyeing.

This is followed by

4) spinning and weaving

PROCESSING OF SILK






REELING OF SILK

DYEING, SPINNING AND WEAVING

DYEING

The silk fibres are then dyed in different coloured.

SPINNING AND WEAVING

The silk fibres are then spun into threads and woven into different types of silk cloth i.e. fiber.

SPINNING AND WEAVING OF SILK

USES OF SILK

Silk is a costly fabric.

Silk fiber is used for weaving cloth especially traditional dresses in India like sari, kurta, shawl and other wedding clothes.

Silk had always been prized for its luster and fine quality.

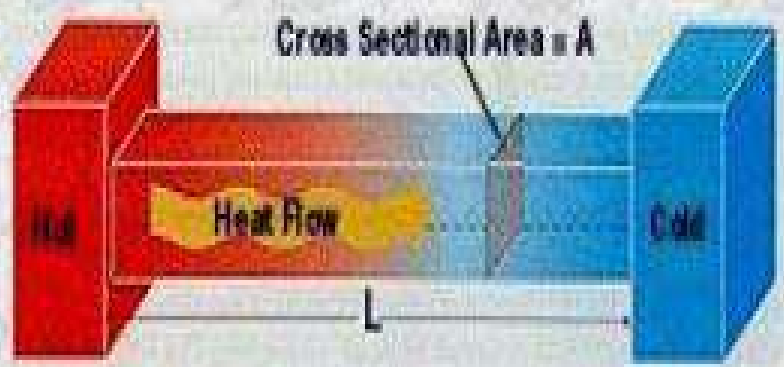
- The countries which produced silk on a large scale are china (first rank) & India.

HEAT

Heat is form of energy flowing from one body of matter to another spontaneously due to their temperature difference..

CHARACTERISTIC OF HEAT

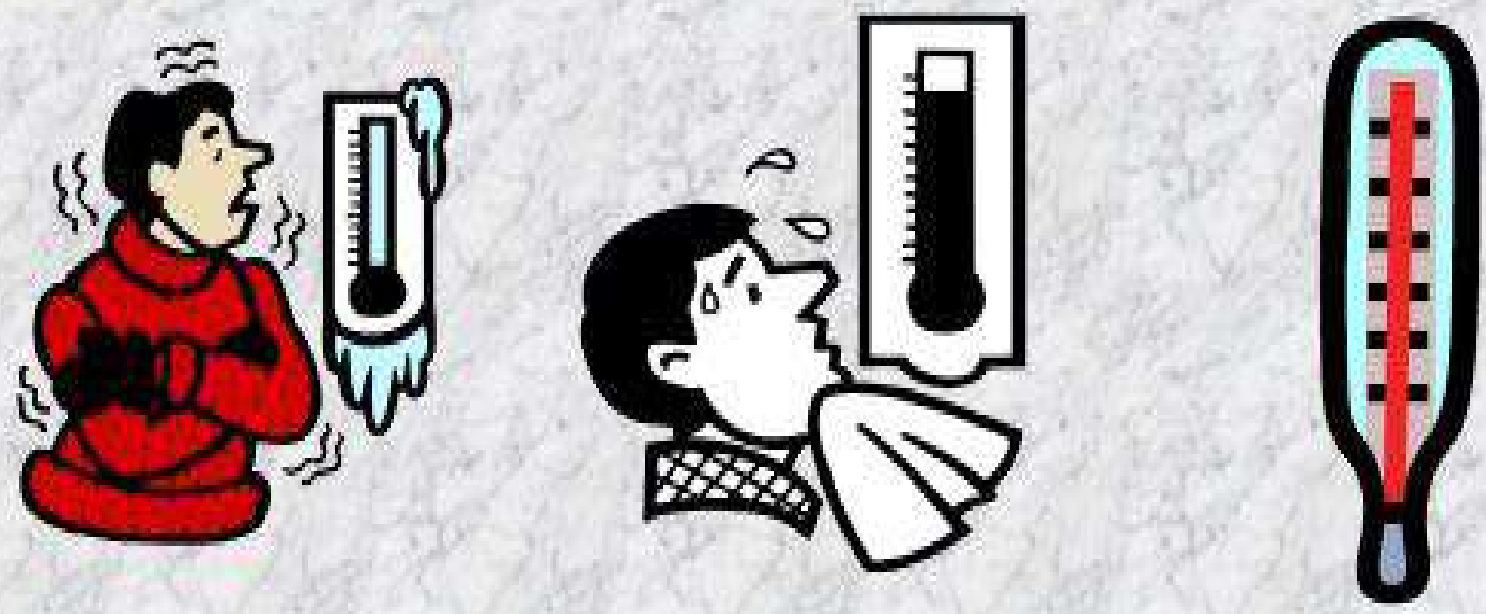
Heat always transfer from body of higher temperature to body of lower temperature or heat flows spontaneously from a hotter body to a cooler body



TEMPERATURE

Temperature is a measure of the degree of hotness or coldness of an object.

The temperature of something tells us how hot or cold something is.



CLINICAL THERMOMETERS

The thermometer that measures the temperature of our body is called clinical thermometer.

DIGITAL THERMOMETERS

Digital (electronic) thermometers are preferred over conventional mercury thermometer.

Digital thermometers are easy to read because it gives LCD Display of the temperature of the person.

They are also mercury free.

LABORATORY THERMOMETER :-

A laboratory thermometer has a long narrow glass tube. It has a bulb at one end containing mercury. It has a scale marked in °C (degree Celsius). The range of a laboratory thermometer is generally from - 10 °C to 110 °C.

6) TRANSFER OF HEAT :-

6) Transfer of heat :-

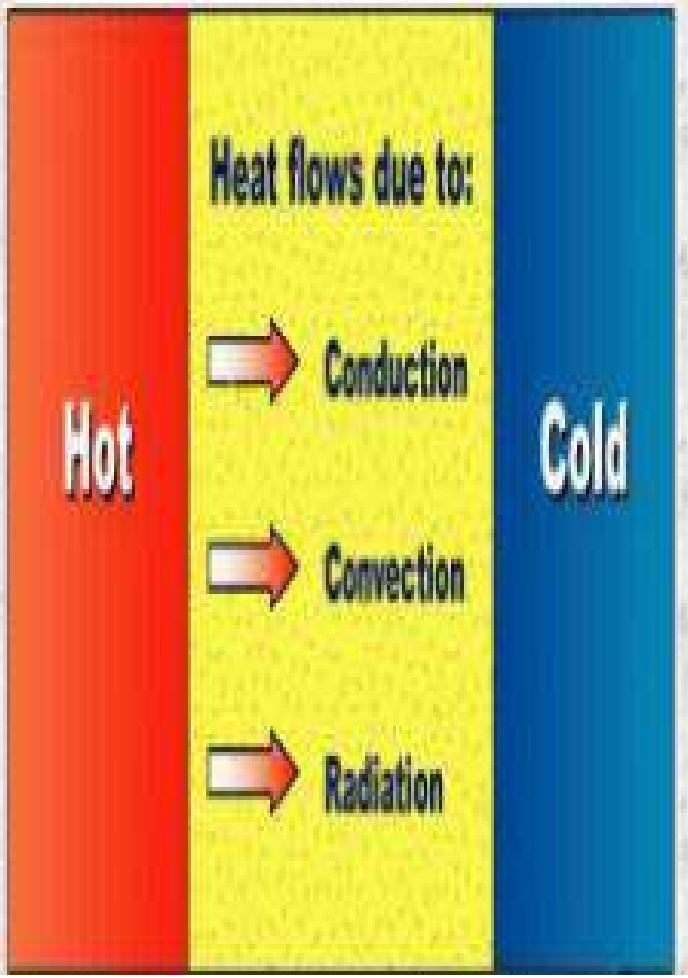
Heat flows from a body at a higher temperature to a body at a lower temperature. This is called transfer of heat.

Heat is transferred in three different ways. They are :-

i) Conduction

ii) Convection

iii) Radiation

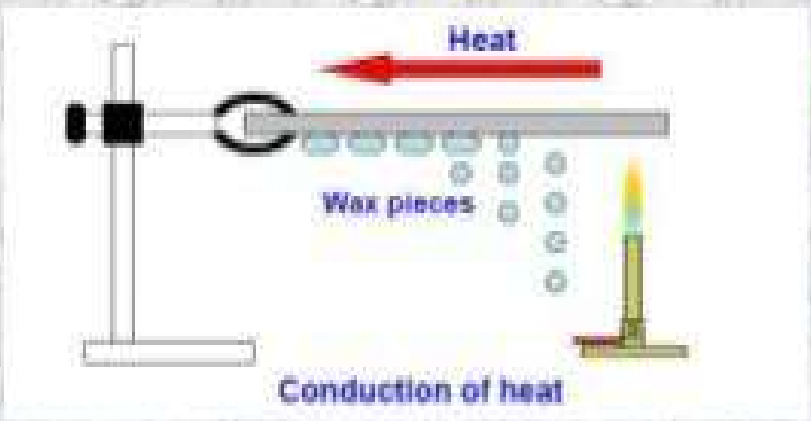


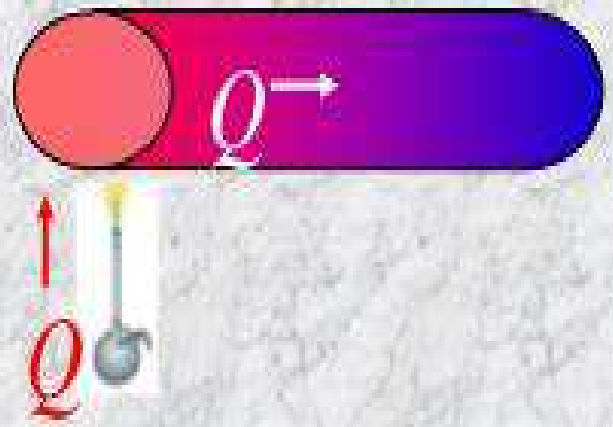
CONDUCTION

Conduction is the process by which heat is transferred in solids from the hotter end to the colder end.

Activity :-

Take an iron or aluminium rod or strip. Fix a few wax pieces on at equal distances. Clamp the rod to a stand. Heat the other end of the rod. The wax pieces begin to melt and fall down from the heated end. This shows that heat is transferred from the hotter end to the colder end by conduction.

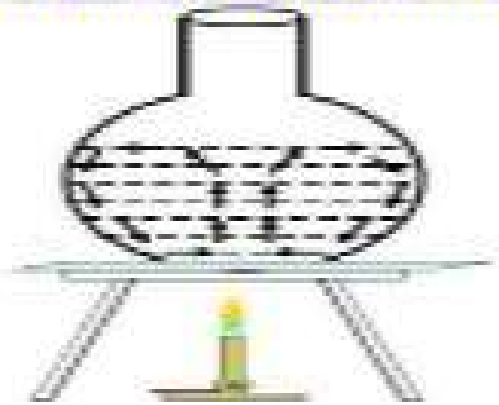




CONVECTION

Convection is the process by which heat is transferred in liquids and gases from the hotter part to the colder part.

Activity :- Take some water in a round bottom flask. Keep it on a tripod stand. Put a crystal of potassium permanganate in it. Heat it with a burner. The water at the bottom becomes hot and rises up and cold water from the top moves down. This water becomes hot and rises up and cold water from the top moves down and the process continues till all the water gets heated. This shows that heat is transferred by convection.



SEA BREEZE AND LAND BREEZE :-

i) Sea breeze :-

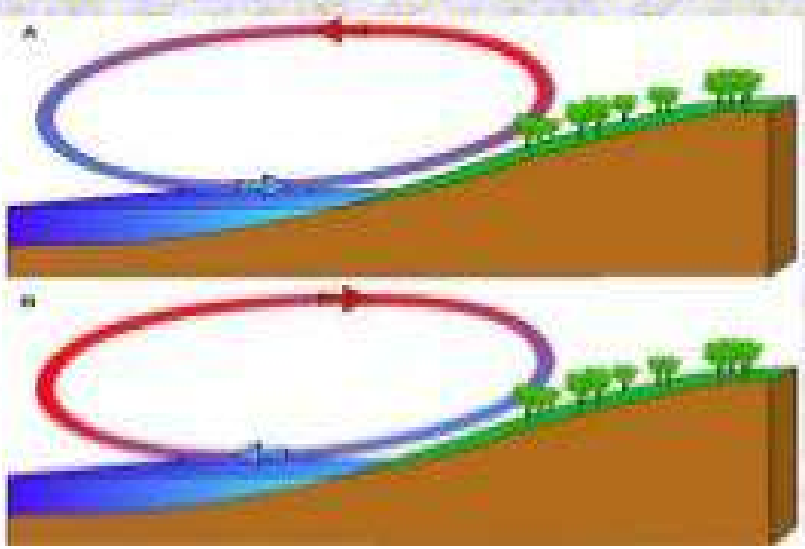
During the day the land gets heated faster than the sea. So the air above the land gets heated becomes hotter and rises up and cool air from the sea moves towards the land. This is called sea breeze.

ii) Land breeze :-

During the night sea cools down slowly than the land. So the hot air above the sea rises up and cool air from the land moves towards the sea. This called land breeze.

DAY TIME

NIGHT TIME



DARK COLOURED SURFACES AND COLOURED SURFACES

Dark coloured surfaces absorb more heat than light coloured surfaces

Take two tin cans of the same size. Paint the outer surface of one black and the other white. Pour equal amounts of water in each and leave them in sunlight for about one hour. Measure the temperature of water in both the cans. The water in the black can is warmer than the water in the white can.

Dark coloured surfaces radiate more heat than light coloured surfaces

Take two tin cans of the same size. Paint the outer surface of one black and the other white. Pour equal amounts of hot water of the same temperature (say 60oC). Leave them in a room or shade for 10 to 15 minutes. Measure the temperature of water in both the cans. The water in the black can is cooler than the water in the white can.

Recapitulation

- Asking them question related to the topic or make them to solve the worksheet.
- Recapitulation of topic.
- Oral drilling of key terms.

Weekly Test

- Key terms
- Define the terms
- Answer in one word
- Answer in one sentences
- Answer in brief

Remedial

- Additional Measure taken for slow learner
- Extra class can be conducted.
- Give them more general example to understanding.
- Again show them video and boost them to do well

- Thank you