SMART SKILLS

2017-2018

SCIENCE

GRADE- VI

Chapter No.	Title of the chapter
1	Food- where does it come from?
2	Components of food
3	Fibre to fabric
4	Sorting materials into groups
5	Separation of substances
6	Changes around us
7	Getting to know plants
8	Body movements
9	The living organisms and their surroundings
10	Motion and measurement of distances
11	Light, shadows and reflection
12	Electricity and circuits
13	Fun with magnets
14	Water
15	Air around us
16	Garbage in, garbage out

SYLLABUS

TERM I			
S. No.	Chapter no.	Title of the chapter	Month
1.	1	Food- where does it come from?	April – May
2.	2	Components of food	
3.	4	Sorting materials into groups	
4.	10	Motion and measurement of distances	July - August
5.	13	Fun with magnets	
6.	7	Getting to know plants	
7.	16	Fibre to Fabric	Term 1
8.	3	Garbage in and out	Term 1
TERM II			
1.	5	Separation of substances	October-November
2.	11	Light, shadows and reflection	
3.	9	The living organisms and their surroundings	
3.	6	Changes around us	December
5.	12	Electricity and circuits	December
6.	8	Body movements	January
7.	14	Water	Term 2
8.	15	Air around us	Term2

Science
Class VI

Term 1
April – May

Food – Where does it come from?

Food variety, food materials and sources, plant parts and animal products as food, classification of animals on the basis of their food habits.

Activities

1. Role play on food chain.
2. Collect pictures of food items eaten by people of different regions and stick them on the map of India.
3. Germination of seeds – Every child would make an assortment of sprouts and a day would be allotted to the class when they would bring the same as tiffin.
4. Observe the plants around you to find out their edible parts.

Components of food

What do different food items contain, test for presence of starch, protein and fats, balanced diet, deficiency diseases.

Activities

1. To bring various food items from home and test the same for the presence of protein, fats or starch.
2. Group work – make flash cards showing the cause, symptoms and cure for various deficiency diseases.
3. Online games

Fibre to Fabric – By project method ----------

Collect samples of at least five different types of fibres.
Cut each fibre into a sample size of 2" x 2".
Study the properties of each fibre (hardness, lustre, absorption of water, speed of drying, size of pores, and effect of heating.)

Sorting materials into groups

Objects around us, properties of materials, (appearance, hardness, solubility, etc)

Activities

1. To observe the things kept on the table for a minute. Recollect the names of the items shown and then classify them into different states of matter on the basis of differences between them.
2. Activities to demonstrate diffusion, magnetism, luster, solubility, transparency and conductivity. The students would also be taught to use materials judiciously.
3. Preparing a saturated solution of sugar and observe the effect on solubility with an increase or decrease in solubility.

SUMMER HOLIDAY PROJECT
Garbage in, Garbage out--- Activity method

Watch the video
https://www.youtube.com/watch?v=hee9JQvE_Ys
Activity
Part 1
Choose an area around your home or locality where people end up littering.
Take pictures of the littered locality, create a slide show and post it on Google Classroom.

Part 2
Make a poster to create awareness to stop littering.

POST SUMMER HOLIDAYS

July – August

Motion and measurement of distances.
Story of transport, some measurements, standard units of measurement, measurement of length, types of motion.

Activities
1. To measure the length of given objects using scientific measures and rough estimation.
2. Story telling on Neolithic age man's use of measures.
3. Learning the correct way to use a ruler.
4. Measurement of the lengths of regular and irregular figures.
5. Use of simple toys to observe the types of motion exhibited by the objects.

Fun with magnets
Discovery of magnets, magnetic and non-magnetic substances, properties of a magnet, testing magnets, uses of magnets, care of magnets.

Activities
1. Sorting magnetic and non-magnetic materials using a doll with magnetic hands.
2. Making toys move using magnets.
3. Magnetising an iron nail using single touch method.
4. To observe the correct way of storing magnets.
5. To play some games with magnets.

Getting to know plants
Herbs, shrubs and trees, stem, roots, leaf, flower
Activities

1. Collect leaves showing different kinds of venation, dry them and stick them on the worksheet.
2. A trip to school garden to observe the various paRts of the plant.
3. Identify the parts of a flower.
4.

SEPTEMBER------- TERM 1 EXAMINATIONS

TERM 2

October – November

Separation of substances

Pure substances and mixtures, physical methods of separation, separation using more than one method, solubility in water.

Activities

Demonstration of methods of separation of mixtures (sublimation, filtration, separating funnel, loading etc.

Light, shadows and reflection

Transparent, translucent and opaque objects, luminous and non luminous objects, shadows, pin hole camera, mirrors, reflection.

Activities

1. To observe samples of transparent, translucent and opaque objects.
2. Shadow play – Make different shadows on a wall using the concept of shadows.
3. To observe the different types of shadows formed at different times of the day.
4. Group work – make a pinhole camera and observe its working.

Living organisms and their surroundings

Organisms and their surroundings, habitat and adaptations, different types of habitat, characteristics of living beings.

Activities

1. Films showing the various types of habitat and how the abiotic and the biotic components work in harmony to ensure balance in nature.
2. Enacting organisms belonging to specific habitats after doing a research on their adaptive features .

December

Changes around us

Causes and effects of changes, reversible and irreversible changes, other types of changes (physical, chemical, slow, fast, desirable and undesirable changes), expansion on heating.

Activities

1. To show the difference between a reversible and an irreversible change.
2. Differentiate between a physical and a chemical change.
3. Each student will be asked to get his/her 2 photos – one recent and one when he/she was an infant and compare.
4. Newspaper cuttings of desirable /undesirable changes.

December

Electricity and circuits

Electric cell, electric circuit, electric switch, electrical conductors and insulators.

Activities

1. To observe the various components of a simple circuit.
2. An experiment to test whether the given material is an insulator or conductor.
3. Making a switch using drawing pins, a safety pin and wires.
4. To be able to identify a fused bulb.
5. To observe the MCB and be able to fix a blown fuse.

POST WINTER BREAK

January

Body movements

Human body and its movements, different types of joints in the body, gait of animals.

Activities

1.A visit to the biology laboratory to observe the human skeletal system and the use of various joints in the same.

2.Creating and presenting a rap song to understand the function of different bones in the body.

3.Observe specimens of snail, cockroach, earthworm, frog etc., to understand their locomotion

Video links

https://www.youtube.com/watch?v=elYHsOMD1Lw

https://www.youtube.com/watch?v=jjOJumWRt80

February

Water - Not assessed for the exams

Importance of water, causes and consequences, remediation of water pollution.

Air- Not assessed for the exams

Constituents of air and their relative percentage, maintainence of oxygen – carbon-di-oxide balance in the atmosphere, importance of air.

Activity

A KAHOOT quiz will be conducted after discussing the above chapters.

Chapter – 1
Food- Where does it come from?
Notes

Edible part plants:

a. Roots - Turnip, radish, carrot_____
b. Stems - Sugarcane, lotus, potato,_____
c. Leaves - Spinach, lettuce, cabbage_____
d. Flowers - Cauliflower, pumpkin flowers,_____
e. Seeds - Cereals, mustard,_____
f. Fruits-banana, brinjal,_____

Functions of food:

1. It provides us energy to do all the activities.
2. It is needed for growth and reproduction.
3. It is needed for the repairing of damaged cells.
4. It keeps us healthy and enables us to fight against diseases.

Classification of animals on the basis of their food habits:

a. Herbivores - _____
eg._____

Name two living giant mammals that are herbivorous._____

b. Carnivores - _____
eg._____

Why are long and sharp teeth present in these animals._____

c. Omnivores _____
eg._____

Name two omnivores present in the ocean?

d.Decomposers----------
---
eg.----------

e. Scavengers.----------
---
eg----------

HOTS:

All living organisms depend on each other for food, either directly or indirectly.What is this association called. Give two examples of these?

GROUP ACTIVITY- SPROUT PARTY

Write an activity to prepare sprouts:
Aim -_____

Materials required - _____

Procedure- _____
_____

Observation - _____

Conclusion - _____

Precautions -_____

Food: Where does it come from?
Assignment 1.1

Q.1. Write down the source of the following food items:

Food item	Source
Milk	Animal
Eggs	
Rice	
Curd	
Mango	
Butter	
Sprouts	

Q.2. List the parts of the following plants which can be used as food:

a) Mustard plant b) Banana plant
c) Coconut tree d)Lotus plant
e) Groundnut

Q.3. Classify the following animals as herbivores, carnivores or omnivores:
Cow, tiger, dog, deer, giraffe, fox, bear, crow, human being, butterfly, elephant, horse, cheetah

Herbivores	Carnivores	Omnivores

Q.4. Complete the following table :

Food item	Ingredients	Source
Palakpaneer	Paneer Palak Water Oil Salt Spices	Animal
Alooparantha		

Kheer		

Chapter – 1
Food: Where does it come from?
Assignment 1.2

Q.1. Are all plants edible? Name two plants which are inedible.

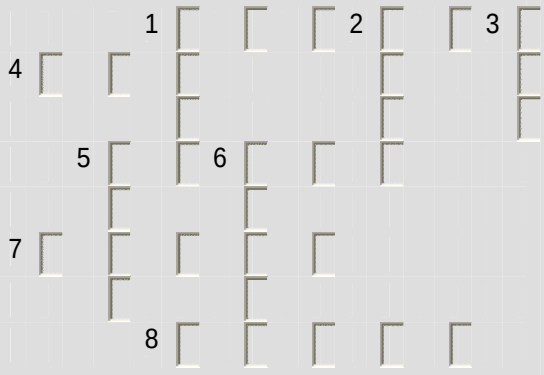
Q.2. Your mother wants to make sprout salad for a party. Can you help her obtain healthy sprouts? Which seeds can you use for the same?

Q.3. How can you classify animals on the basis of their food habits? In which category would you place yourself and why?

Q.4 We happily discard all those parts of our meal which we do not like. However, there is a large population of our country which does not have enough to eat. Can you suggest ways by which you can make food available to all?

Q.5. Why are green plants called producers of food whereas animals are called consumers?

Fun crossword



Across

1. Many people drink it in the morning with milk or cream.
4. British people drink it at 5 o' clock.
5. Juicy, round fruit with a stone-like seed.
7. You make wine from this fruit.
8. You make lemonade from this fruit.

Down

1. You serve it at birthday parties.
2. You can find them in an aquarium.
3. Hens lay it.
5. Meat from a pig.
6. Eve gave one to Adam.

Food: Where does it come from?

Activity 1

A list of food items is given here, name the states of India, where they are mainly eaten.

FOOD ITEM	STATE
Rice	
Chapati	
Sattu	
Idli	
vada	
Sambhar	
Parantha	
Upma	
Dhokla	
Pulses	
Khandvi	
Dal bati	
Cheela	
Rasam	
Gattey	
Churma	
Uthapam	
Banana chips	

Activity 2

Collect 10 pictures of animals that give us food. Paste it in the space provided.

Chapter – 2
Components of food

NOTES

All living organisms require food to live. Food comprises of six important nutrients - carbohydrates, proteins, fats, vitamins, minerals and water. Nutrients are essential to perform various metabolic activities. The main components of foods are carbohydrates, protein, fats, vitamins and minerals. These are called nutrients.

Carbohydrates: Carbohydrates are also called energy giving food. They are the main source of energy. They are made up of carbon, hydrogen, and oxygen. The main carbohydrates found in food are starch and sugars.

Protein: Protein helps in body growth and repairs the tissues so it is also called body building food. We get protein from milk, eggs, meat, fish and all kinds of pulse. The daily requirement of protein for adults is 1 gram per kilogram of the body weight. When the body is building new tissue, more proteins are required, so growing children need more protein.

Fats: Fats are made up of carbon, hydrogen and oxygen. Butter, ghee, milk, egg-yolk, nuts and cooking oils are the major sources of fat in our food. An adult needs about 35 g fat every day. Our body stores the excess energy in the form of fat. This stored fat is used by the body for producing energy as and when required so fat is considered as energy bank in our body. Fats are essential for the absorption of vitamins A, D, E and K in the body. Fat in our body also prevents heat loss from the body surface.

Vitamins: Vitamins are complex organic compounds which are essential for the growth and maintenance of our body. It does not provide energy. Our body requires vitamins A, C, D, E, K and B-complex. Our body can make only two vitamins, Vitamins D and K so other vitamins must be present in our food. The B complex vitamin is a mixture of several water-soluble vitamins.

Minerals: Minerals are required by our body in very small quantities. Iron, Iodine, calcium, phosphorus, sodium and potassium are common minerals. The sources of these minerals are plants and animals.

Dietary fibre: The fibrous indigestible material present in any food is termed as dietary fibre or roughage. It helps in preventing constipation. It adds bulk to the food and gives a sense of fullness after the meal. Salad, vegetables, sprouted grains and fruits are the sources of roughages.

Water-water is required for all body functions. Water is an important constituent of body cells and most of the body processes are mediated by it. Water is not food in itself,but is an essential part of our diet.

1.It helps in absorption of nutrients;transportation of nutrients throughout the body.

2.Maintenance of proper body temperature

3.Excretion of waste in the form of sweat and urine

Balanced Diet: The diet which contains all the essential nutrients in the right proportion is called a balanced diet. The food we eat must have all the nutrients. It should provide the required energy. Deficiency of one or more nutrients in our food for a long time may cause certain diseases or disorders called deficiency disease.

Nutrients-The process by which our body takes in food and uses it for growth and development is called nutrition. Food has some chemical substances called nutrients. These components of foods are needed by our body for maintaining good health.

Components of Food
Assignment 2 .1

Q.1. Fill in the blanks:

a) The food is made up of _____, _____, _____, _____,_____ and _____.
b) Green leafy vegetables are good for us because they provide us with _____ and _____.
c) Vitamin B and Vitamin C are _____ sensitive vitamins.
d) _____ are needed for growth and development, and therefore required more by growing children.
e) Deficiency of _____ can be treated by sitting in the sun.

Q.2. State true or false. If false, write the correct statement:

a) Balanced diet is very expensive.
Ans. _____.
b) To a certain extent body's water requirement is met by food alone.
Ans. _____
c) Fats are body building foods.
Ans. _____
d) It is better to eat raw fruits and vegetables than the cooked ones.
Ans. _____

Q.3. Classify the following food items according to the major nutrient present in them :
Groundnuts, sweet potato, eggs, wheat, bajra, rice, milk, fish, til, peas, paneer, potato

Carbohydrates	Proteins	Fats

Q.4. Complete the following table:

Vitamin / Mineral	Deficiency disease / disorder	Symptoms	Suggested food items / ways to cure disease
Vitamin A			Yellow fruits
Iron	Anaemia		Spinach, apple, liver
Vitamin D		Weak and bent bones	
Iodine			Iodised salt, Sea food
Calcium	Bone and tooth decay		

Q.5. Complete the following conversation Sunita had with her teacher:

Sunita : Is water important for our body?

Teacher : Yes, water is very essential for our body.

Sunita : Why is it so important for us?

Teacher : It helps us to absorb various soluble _____.

Sunita : Really! But do we retain all the amount of water we drink?

Teacher : No, some amount of water is lost in the form of _____ and helps in excreting wastes from our body as _____.

Sunita : Oh! Does water has any other function?

Teacher : Yes! It also helps in maintaining our _____.

Sunita : If all that is true, then how much water should a person drink?

Teacher : Well, on an average, an adult should drink_____ of water a day.

Now, I am sure, you have understood the importance of water.

Sunita : Yes, Ma'am! Thank you so much!

Chapter – 2

Components of Food
Assignment 2 .2

Q.1. Give reasons for the following:

a) Roughage does not give any nutrition but is considered an important component of food.
b) Eating yellowish orange coloured fruits and vegetables is good for us.
c) Excess of fats in our diet is not good for health
d) Peeled vegetables and fruits should not be washed repeatedly after cutting.

Q.2. Answer the following questions briefly:

a) Meena saw a child begging on the street with a swollen neck. Identify the deficiency disease. Suggest one simple treatment to help the child. What would happen if a pregnant woman suffers from this nutrient deficiency.

b) Many diet plans talk about 'no carbohydrate' or 'no fats' food intake. Do you think it is healthy? Why / Why not?

Q.3. The food sample leaves an oily stain if it is crushed between folds of a filter paper. What nutrient does the food sample contain?

Q.4. Why is food cooked? Mention its benefits.

Q.5. Rahul, a student of class VI, due to his misbehaviour in school was asked to sit in the science laboratory during lunch break. While eating his rice pulao, he dropped a bottle of some chemical solution in his lunch box. The colour of his rice changed to blue black.

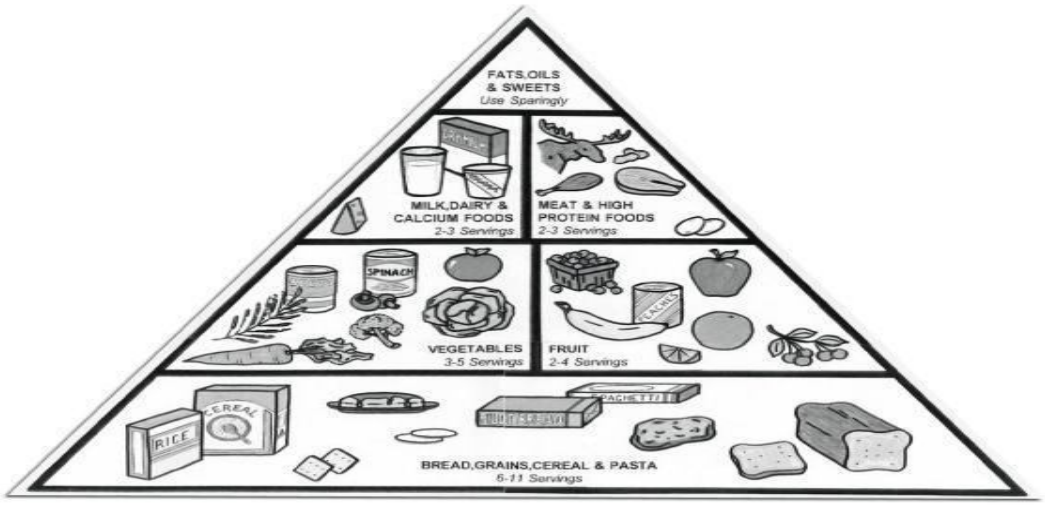
a) Identify the chemical solution.
b) Identify the nutrient present in rice responsible for the colour change.
c) Give two examples of food items containing this nutrient (other than rice).

Q.6. Shreya's mother was always concerned about her diet.She tried very hard to make it balanced. But, Shreya is very fond of junk food. She does not eat green vegetables, pulses etc., regularly. What kind of meal will you plan for such a child.

Q.7. Manu's mother packed him a large lunch box for the school picnic. But the school provided the children food. She took permission from his teacher and gave the packed food for the needy children who were there at the picnic sight. What would you do if you were in her place?

H.O.T.S

1. Now that you know so much about food and food groups, why don't we comprehend the food pyramid and write about the diagram shown below in a few lines



_____

2. Ashmin noticed that her mother strained out excess water from cooked rice and then used it to stiffen her cotton saree. How is it possible?

_____

3 . Steamed food is healthier than fried food. Give reasons to support this statement.

_____
_____

<u>Let's learn about few important minerals and their sources</u>

<u>FUNCTIONS-</u>

Iron-essential for the formation of haemoglobin (a red pigment present in red blood cells)

sodium-important for the proper functioning of the nervous system, maintains blood pressure

Potassium-needed for muscles and nerves to work properly, maintains normal body growth

Phosphorus-essential for the formation of bones and teeth, formation of energy molecules which supplies energy to each and every cell of the body

Iodine-essential for the production of thyroid hormone, needed for the body to convert food to energy(*Hormone: a chemical substance produced in the body or in the plant that encourages growth or influences how the cells and tissues function)*

SOURCES-

Calcium-milk and milk products, nuts, soyabean, ragi, tapioca and green leafy vegetables

Iron-red meat, liver, pulses, chickpeas (gram), green leafy vegetables and whole grains

Sodium-common salt, beetroot, milk and seafood

Potassium-fish, apricot, banana, potato, coconut water, soyabean and nuts

Phosphorus-meat, fish, eggs, milk and whole grains

Iodine-iodised salt and seafood (fish, seaweed)

Food Group Riddles

I am white. You can drink me. I am in the dairy group.
Who am I? _____

I can sometimes be light brown or white. I have yellow stuff inside me. I am a protein.
Who am I?

I am green or red. I am spicy and hot. I am in the vegetable group.
Who am I? _____

I am yellow and long. I am a fruit. Monkeys eat me.
Who am I? _____

I am green and when you cut me open I am red. You eat me in the summer time. I am a fruit.
Who am I? _____

I am green. I look like a tree. I am a vegetable.
Who am I? _____

Components of Food

Activity 1

Aim- To test the presence of fats in various food samples.

Materials Required- A sheet of paper, food items(apple, peanut, raisin, bread, orange, French fries, almond etc.)

Method- Place each item between the folds of the paper and rub slightly.

Unfold the paper and check if it has turned translucent.

Observation- _____

Diagram-

Result-

_____

_____

Activity 2

Aim- To test the presence of starch in various food samples.

Materials Required- watch glass or petri dish, dropper, iodine solution, food items

Method- Place each item on the petri dish.

Add a drop of iodine on the food item.

Observe for any change of colour.

Observation-

_____

Diagram-

Result-

_____

_____

Activity 3

Aim- To test the presence of proteins in various food samples.

Materials Required- Test tubes, test tube holder, food items, copper sulphate solution, caustic soda solution, dropper, test tube stand.

Method-

1. Take the given food item in a test tube.
2. Add two drops of copper sulphate solution.
3. Now add 10 drops of caustic soda solution.
4. Shake the test tube well.

Observation-

Result-

Fibre to Fabric (Project method)

Read the text and answer the following question

Q.1 Fill in the blanks:

1. _____ fibres do not absorb water.
2. yarn is made up of _____.
3. a simple device used for spinning is called _____
4. waving of woollen yarn is known as _____
5. soaking of jute plants is called _____.
6. fibre from which linen is produced _____.
7. the process of separating cotton seeds from cotton fibre is called _____

Short answer questions-

Q.1 Which soil is best for growing cotton?

Q.2 Spinning of fibres increases the strength of the yarn. how?

Q.5 Write a note on the history of clothing?

Project:

Different fabrics pass through different processes before we can wear them. Some of these processes are dyeing,printing,embroidery,painting and stitching.

Collect information about these processes and attach pictures.

Chapter – 4

Sorting Materials into Groups
Smart Notes

Classification- Grouping the objects on the basis of their similarities and differences.

Materials are classified on their properties-characteristics of a material such as its strength,transparency,conductionetc. are called its properties.

Advantages of classification

- Helps in identification of objects
- Helps in sorting of objects
- Helps in locating things
- Makes study of different objects easy and more meaning dull rather than studying them separately
- Helps to understand similarities and differences among objects

Materials can be classified on the basis of
I)Appearance-like Lustre and roughness
Lustre-

_____
_____

Roughness-

_____
_____

II)Density-

Floating –

_____
_____

Sinking-

_____
_____

III) **Ability to transmit light -- transparent, translucent, opaque**

Transparent objects-

_____
_____

Translucent objects-

_____
_____

Opaque objects-

_____

_____

IV) Solubility –

_____

_____

V) Compressibility –

_____

_____

Hard objects

_____

_____

Soft objects-

_____

_____

Miscible liquids----------

Immiscible
liquids_____

_____

Assignment 4.1

Q.1. Fill in the blanks:

a) _____ materials do not allow light to pass through them.

b) Sugar dissolves in water, so we say that it is _____ in water.

c) Liquids which mix completely are called _____ liquids.

d) _____ and _____ are examples of naturally occurring materials.

Q.2. In the table given below, classify the following substances according to the given property :

a) Property : Lustre
Substances : Chalk, fresh piece of iron, aluminium foil, silk, steel

b) Property : Hardness
Substances : Wood, cotton, steel, diamond

c) Property : Solubility in water
Substances : Sand, chalk powder, sugar, salt

a).	Lustrous	Non-lustrous
	Fresh piece of iron	
b).	Hard	Soft
c).	Soluble	Insoluble

Q.3. Match the objects with the kind of materials they can be made up of :
Iron, cement, mud, wood, cotton, marble, silk, steel, nylon, plastic, bricks, glass, wool, stainless steel, leather, rubber

	Objects	Materials
a)	Cloth	
b)	Spoon	
c)	Building	
d)	Shoe	

Q.4. Find the odd one out and give reason for your answer:

a) Spices, soft drinks, chalk, pulses

_____

b) Chair, table, bed, flower

_____

Assignment 4.2

Q.1. Define the following:
a) Solubility
b) Lustre
c) Classification
d) Saturated solution

Q.2. Differentiate between the following
a) Miscible and immiscible liquids
b) Transparent, translucent and opaque objects
c) Solute and solvent

Q.3. a) What is classification?
b) Why is classification of objects necessary?
c) On what basis are materials classified?

Q.4. Describe the method used to prepare a saturated solution of sugar in water.

Aim: _____

Materials required -_____

Theory- A solution in which no more solute can be dissolved in a given solvent at a given temperature is called a saturated solution. A solute dissolves by occupying the empty spaces in the molecules of the solvent.

Method / Procedure- -

_____

_____

_____

_____

Observations -_____

Result - _____

Precautions - _____

H.O.T.S
Give reasons for the following:

a) On heating, more solute can be dissolved in a solvent.
b) A piece of sponge becomes heavy when dipped in water.
c) A metal chair kept in sun becomes hot.
d) Aquatic plants and animals are able to survive in water

Fun time!!

Rearrange the following letters to form meaningful words:

a) LETAM – _____
b) SSLAG - _____
c) LASCITP - _____
d) OQUEAP – _____
e) BBURER - _____

Try this-

https://www.youtube.com/watch?v=J35rd3RC4vQ

https://www.youtube.com/watch?v=PjZSMu2SXt4

Petrol pump attendants close the fuel cap very quickly after filling petrol in vehicles. They do this because of a property of petrol. Which property of petrol could this be?
a.)It gets converted to a gas very fast.
b.)It attracts too much dust and dirt.
c.)It catches fire very easily in daylight.
d.)It mixes with the paint of the vehicle very easily.

You must have played with balloons. A balloon is made of a certain type of material. Nikhit blows a balloon and ties it up. Which of the following can pass through the material of this balloon?
a.)Air b.) dust c.) water d.) sound

Police stop a truck at a check post which claims to be carrying sacks of a black water soluble fertilizer. When the truck is examined, it is found to have sacks of at least four different materials which the police label W,X , Y and Z. They suspect that apart from the fertilizer, the truck is carrying iron filings, gun powder and black powdered wood. They conduct some tests whose results are as follows:

	W	**X**	**Y**	**Z**
Physical form	Black lumps	Fine black pieces	Black pieces	Fine black powder
Dissolves in water	Yes	No	No	No

Attracted to magnet	No	Yes	No	No
Burns when lit	No	No	Yes ,after some time	Easily,explosively

Which of them, if any,may be gunpowder?

a.)W b.) X c.) Y d.) Z

Which of these can be used to easily soak and wipe away some milk that has got split on a table?

a.)A bar of soap

b.) a sheet of rubber

c.) a piece of cotton vest

d.) a patch of rain coat

(a) Complete the following table by describing the change of state. The table has been partially completed to help you.

	Change of state	**Heat added or released**
Condensation		Released
Evaporation	Liquid →Gas	
Melting		Added
Solidification (Freezing)		
Sublimation		

(b) Match each **Description** on the left with the correct change of state on the right. You may use some changes of state more than once.

Term		Descriptor
	Ice is left out on the counter	Sublimation
	Frost forms on the window on a cold day	
	Water is left in a freezer	Condensation
	Clothes are left out to dry	Evaporation
	Dry ice is used to create fog	Melting
	T The bathroom mirror gets fogged up after a shower	Solidification
	A pond gets shallower at the end of a long hot summer--	
	Hair was wet when you left the house, but dries by the time you get to school-	
	The ice cream you are eating drips down your arm--	
	A full pot of soup reduces to half of the pot after simmering for 2 h--	
	Liquid glass cools and hardens----------	
	A cold drink is wet on the outside of the glass----	

Chapter 5

Separation of substances
Smart notes

PROPERTIES OF MIXTURES

- **The components of a mixture retain their individual properties. This is because, the molecules of the constituents do not change.**
- **The constituents of a mixture can be in any ratio.**
- **The constituents can be separated from a mixture by physical methods.**
- **Mixtures do not have a fixed melting and boiling points.**

Mixtures are of two types

1.Homogeneous Mixtures

Constituents are uniformly spread and each part of the mixture has the same property.

2.Heterogeneous Mixtures

Constituents are not evenly spread throughout the mixture and each part of the mixture does not have the same property.

Two or more components or substances mixed together, in any proportion, are called a _____.

Need for separation:

1. **To obtain two different but useful components of a mixture.**

   Eg. _____
2. **To remove impurities from a mixture.**

3. **Eg._____**
4. **To remove non-useful component of a mixture.**

Eg._____

Methods of Separation:

a. Hand picking – The method of separating a mixture of solids into its components using hands, is called hand picking. The method is useful when:

1. Quantity of impurity is not large.
2. Can be easily picked up by hand.
3. Have different size, shape or colour.

Eg._____

b. Threshing – The method of separating grains from stalks by beating the stalk on a wooden board to free the grain seed is called threshing. It is also done using bullocks or machines.

c. Winnowing – The method of separating husk or chaff from grain with the help of _____ is called winnowing. It is used to separate the components of a mixture when one of the components is _____ than the other.

d. Sieving – The method of separation of the components of a mixture when the size of one of the components is _____ than the other, by passing the mixture through a suitable sieve, is called sieving.
Eg. _____

e. Sedimentation and decantation – The process of separating insoluble heavier solids by adding water to it so that the solid settles down is called sedimentation.
The solid particles that settle down during this process are called _____.
The process of pouring out the upper liquid / water without disturbing the sediments is called_____.
Eg. _____

f. Filtration – The process by which two substances (an insoluble solid and liquid) are separated by passing the mixture through a filtering device is called filtration.
During filtration, the insoluble solid is retained in the filtering device and the liquid passes through it.
The substance retained is called _____ and the substance that flows through the filter paper is called _____.
Eg. _____

g. Evaporation – The process of conversion of water into water vapour (liquid to vapour state) is called evaporation. This method is used to recover the solid component that has dissolved in liquid.
Eg. _____

h. Condensation – The process of conversion of water vapour into water (vapour to liquid state) is called condensation.
Eg._____

A substance that dissolves in a liquid is called a _____. The substance in which a solute dissolves is called _____.

Eg. _____

Saturated solution – A solution in which no more _____ can be dissolved, at a given _____ is called a saturated solution.

A Saturated solution can be made to dissolve some more solute by----------.

How does heating a saturated solution help to dissolve more solute?

Water is known as universal solvent because it can dissolve many substances – solids, liquids as well as gases.

Separation of substances

Assignment 5.1

Q.1. Fill in the blanks:

a) Winnowing is used to separate mixtures containing components,differing in their _____.

b) Distillation is a process that takes advantage of the difference in the ---------- of liquids.

c) If one substance in a mixture changes directly to gas from solid, the method of _____ can be used for separation.

d) _____ is a universal solvent.

e) Solubility of a solid _____ on heating and _____ on cooling.

Q.2. Name the method or device, you can use to separate a mixture containing:

a). Immiscible liquids _____

b). Insoluble solid from a liquid _____

c). Soluble solid and liquid _____

d). Heavier and lighter solids _____

Q.3. Tick the correct answer(s):

a). A mixture of water and kerosene oil is separated by :

i). Sublimation ii). Separating funnel

iii). Filtration iv). Evapoartion

b). Which one of the following is not a pure substance?

i). Air ii). Sugar

iii). Salt iv). Gold

c). Which one of the following sublimes on heating?

i). Common salt ii). Sugar

iii). Iodine iv). Camphor

Q.4. Classify the following into pure substances or mixtures :

Gold, air, sea water, salt, tap water, rocks, iron, copper, lemonade

Pure substances	Mixtures

Q.5. Match the following :

A	B
a). Separating of grain from stalks	Sieving
b). Removing husk from flour	Threshing
c). Water to water vapour	Churning
d). Butter from milk	Evaporation
e). Water vapour to water	Winnowing
f). Wind acts as a major role in	Condensation

Separation of substances
Assignment 5.2

Q.1. What is the difference between (explain with the help of examples) :
a). Sedimentation and filtration
b). Residue and filtrate
c). Pure substance and a mixture
d). distillation and crystallization

Q.2. Answer in a word or two :
a) Device used to separate oil from water.

b). Any two substances which sublime
c). Process by which sand and iron-fillings can be separated
d). Chemical used for loading
e). Process used for separating butter from milk

H.O.T.S

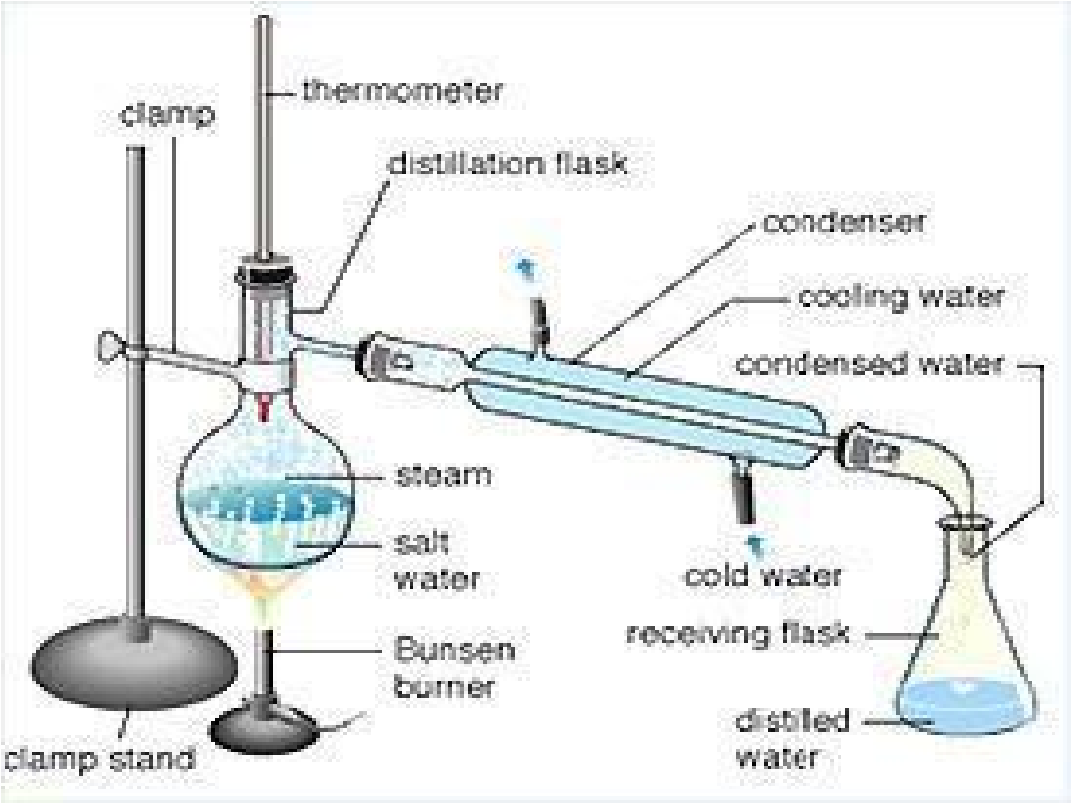
A strainer as shown below is used to filter tea leaves from tea so that there are no tea leaves in the tea when we drink it.

Which of the following is also used to filter things?

a.) A basket ball net b.)a mask c.) spray bottle d.)straw in a glass

Heat from the sun can be used to heat seawater and separate it into pure water and other substances normally dissolved in seawater. If you or one of your classmates can develop a very inexpensive method for doing this, you may win a lot of respect from citizens in many parts of the world. This is because the method can be enormously useful for:

a.)Killing germs in sea water
b.)Producing water for drinking
c.)Making steam that can run ships
d.)Generating chemicals from seawater



Given above is the distillation apparatus answer the questions based on this apparatus

a. What kinds of mixtures are separated using this apparatus?
b. On what principle does this work?
c. How is it different from evaporation?

_____
_____
_____
_____
_____
_____

PURIFICATION OF DRINKING WATER

Water undergoes several cleaning methods before being supplied to our homes as drinking water. The steps in the purification of water are as follows:

Step 1: At first, the water collected from pond, stream or river is passed through large screens (a type of filter) to remove large, solid impurities such as leaves, sticks, insects and pebbles. This process is called screening.

Step 2: Next, the water is allowed to stand. Finer solid impurities that are heavier than water settle down forming a layer at the bottom. This is sedimentation. At this stage, alum is added to water to speed up the sedimentation. This is known as loading. The dissolved particles of alum help the lighter and finer impurities to settle down. The cleaner water is then transferred, leaving behind the sediments, by the process of decantation.

Step 3: The water is then passed through sand filters. This is filtration. Sand filters separate very fine dirt particles from water. Often, a layer of coal is present above the sand filters.

Step 4: Chlorine is added to water to kill the germs (harmful microorganisms) present in it. This is called chlorination.

Step 5: The purified water is stored in large tanks. To make it potable, boiling is recommended to kill microbes completely.

Separation of substances
Activities

1. Aim-To show that tap water is a mixture of substances.

Materials required-china dish,tap water and flame.
Theory-When two or more substances are physically mixed in any ratio ,it forms a mixture. Mixture is not pure form of a substance.
Procedure-take water in a china dish and heat it till all the water evaporates. Observe the china dish.
Observations-

_____
_____
_____

Conclusion-

_____
_____
_____

Value learnt- Water is a precious resource and we should not waste water!
Pure water is tasteless and would not even quench our thirst.

2. Aim-To classify mixture into useful and harmful components.

Material required-wheat, cooked vegetables, rice with insects,boiled water with tea leaves
Theory-Separation of mixture should be done to either remove harmful impurities from the mixture or to separate two useful components .
Procedure –Separate the components of a mixture into useful or harmful by looking carefully at its ingredients .
Observation table-

S.N	Mixture	Useful components	Harmful components
1	Wheat obtained from field		
2.	Cooked vegetables		
3.	Rice with insects		
4.	Water with tea leaves		

Conclusion-

_____
_____
_____

Value learnt- Hygiene and cleanliness is very important while cooking and eating. One should watch and consume what he/she is eating. It prevents us from getting diseased.

3. Aim-To separate a mixture of pebbles and sand using sieving.

Material required- sieve, pebbles, sand
Theory-Sieving is the act of separating smaller particles from the bigger ones by passing them through a sieve.
Procedure-
Take the mixture of pebbles and sand and use a sieve to separate the components.
Observations-
_____
_____
_____

Conclusion-
_____
_____
_____

4. Aim-To understand the process of filtration in the laboratory.

Material required- Filtration funnel, filter paper, beakers, stirrer, chalk powder and water mixture.
Theory-the process of separating undissolved particles from a liquid by passing the liquid through the fine holes of a filter is called filtration
Procedure-
Take a mixture of chalk powder and water and pour the solution into a beaker.
Clamp a funnel onto the stand and insert a filter paper into the broad end of the funnel
Place a clean beaker below the funnel and pour the mixture in small quantities into the funnel ,using a glass rod.
Diagram-

Observations-
_____
_____

Conclusion-
_____
_____
_____

Value learnt-Its important to use clean water for drinking. This is done in modern day electric filters like kent, aquaguardetc

HOTS

- **Make fine powder of chalk pieces and mix it with flour. Can we separate them by sieving? Why or why not?**

- **Jisha poured chilled juice into a glass. After a while, she observed water droplets on the surface of the glass. Why?**

- **Which separation method will the following people use to separate the constituents of the given mixtures?**

    1. **Garima cannot eat spicy food. She saw a lot of green chillies in her bowl of chana-jor-garam.**

    2. **Rahul spilled oil into a water container.**

    3. **A carpenter wants to collect the nails which are lying in the box of plastic buttons.**

    4. **Shriram wants to clean the mud from his cooler.**

In the boxes provided, name the method of separating mixtures you would use to solve each of the problems below.

Which of the above pictures is the odd one out with respect to the topic of separating mixtures?

Chapter 6
Changes around us
Smart Notes

Whenever something changes form, a change is said to occur. A change may be accompanied with change in shape, size, colour, energy involved, chemical properties and molecular structure.

Types of changes-
I.Fast and slow change- A change that takes a short time to occur(a few seconds to a few minutes) is said to be a fast change.
Examples- _____
A changes that takes a long time to complete is called a slow change.
Examples_____

II. Reversible and irreversible changes- The changes in which the original substances can be obtained back by simple physical methods such as filtraton are called reversible changes.
Examples -_____
The changes in which the original substances cannot be obtained back by simple physical methods like filtration are called irreversible changes.
Example- _____

III. Periodic and non periodic changes- The changes which repeat after regular intervals of time are called periodic changes. Example- _____
The changes which do not repeat after regular intervals of time are called non periodic changes. Example- _____

IV.Physical and chemical changes- The changes in which no new substance is formed and the change occurs only in the physical properties such as shape, size etc are called physical changes. Some physical changes may be irreversible. Example- _____
The changes in which a new substance with different properties than the reactants is formed is called a chemical change. Example- _____
V. Desirable and undesirable changes - _____
_____
Example - _____

Expansion- The phenomenon by which the volume of a substance increases on heating is called expansion. On heating, the molecules move faster and the intermolecular spaces increase as a result it occupies more space. Metals expand on heating.
Applications of expansion-

1. Metal tools are heated before fixing them on the handle.
2. Transmission wires are not laid straight in summers.
3. Gaps are left between railway tracks etc.

Water is a wonder liquid as it shows anomalous expansion- The property of water to contract on cooling till 4 degree Celsius, but shows expansion when cooled below 4 degree Celsius.

Chapter – 6
Changes around us
Assignment 6.1

Q.1. Tick the correct answer(s) :

a) In a physical change
   i) shape and colour of a substance can change
   ii) Composition of a substance is not changed
   iii) no new substance is formed
   iv) all of the above

b) The growth of a plant to tree is
   i) a fast change
   ii) an irreversible change
   iii) a physical change
   iv) a reversible change

Q.2. Fill in the blanks:

a) Sand is _____ soluble than salt in water.
b) Solubility of sugar is more in _____water than in _____ water.
c) To reverse the change of ice into water, we must _____ the water.

Q.3. Classify the following changes as reversible or irreversible-

a) Melting of ghee _____
b) Bursting of a cracker _____
c) Mixing oil and water _____
d) Caramelizing sugar _____
e) Tearing a paper _____

Q.4. Correct and rewrite the following statements:

a) Wooden part of the bullock cart wheel is heated to fit in the iron part.
Ans. _____

b. Cooking is a reversible change.
Ans. _____

c) Conversion of cow dung to bio-gas is a physical Change.
Ans. _____

d). On heating, solids contract.
Ans. _____

Q.5. Mary and Jacob finished their homework quickly to help their mother to bake a cake for their father's birthday. What type of change is it? Why do you think they did so?
Ans. _____

Chapter – 6
Changes around us
Assignment 6.2

Q.1. In which of the following can the original substances be obtained back-

Melting of waxORBurning of a candle?

Give reasons to support your answer.

Q.2. Why are gaps left in the iron rails of the railway tracks?

Q.3. Human activities can cause desirable and undesirable effects, simultaneously. Explain the statement with the help of examples.

Q.4. Sharpening a pencil decreases the length of the pencil. Can the change be reversed?

Q.5. Why are tools often heated before fixing wooden handles?

Q.6. Are all physical changes reversible? Justify the statement.

Word search puzzle!
Try and search for all the terms related to this chapter

P	S	F	E	L	B	I	S	R	V	E	R
S	H	E	A	T	Q	K	Z	X	V	M	P
O	A	Y	Z	T	I	Z	D	V	F	F	I
L	P	X	S	N	K	N	K	Q	E	C	U
I	E	A	E	I	A	F	S	S	X	H	T
D	F	T	O	P	C	S	U	V	W	A	L
X	I	W	X	T	F	A	B	U	R	N	E
C	H	E	M	I	C	A	L	T	T	G	M
W	I	Q	T	B	O	B	I	X	G	E	M
B	X	W	S	L	O	W	M	N	G	S	N
D	I	U	Q	I	L	F	E	M	X	E	V

H.O.T.S

The phase of the earth is undergoing major changes due to the carbon emissions. Name the human activities that are responsible for this. Also, write down two steps you will take to minimise carbon emissions.

Chapter – 6

Changes around us

LaboratoryActivities

1. Aim-To differentiate fast changes from slow changes as well as classify them under different types of changes.

Material required-glass of water, salt, a piece of paper , tongs , match stick,
Theory-Fast changes are those changes which take place over a short period of time.
A slow change is one which takes a long time to occur.
Procedure-
1. Take a glass of water and stir a spoon full of salt in it.
2. Hold the piece of paper in tongs and burn it.
3. Take a few pieces of iron nails and put them in salt solution. See if they rust immediately.
Observation-

Conclusion-

Other changes into which the above listed changes can be classified-

Value learnt-'Haste makes Waste'. So try and do things patiently and not very fast.

2. Aim-To classify changes as reversible and irreversible changes.

Material required- a piece of paper, ice, tray, a pair of scissors, refrigerator.
Theory-A reversible change is the one in which we can recover the substance in its original form.
An irreversible change is the one in which we cannot recover a substance in its original form.
Procedure-
Keep a few ice cubes in a tray at room temperature and observe. Put the tray back in the freezer and observe.

2. Take a sheet of paper and tear it. Try fixing it back to its original form.
Observation-
_____
_____
_____
_____
Conclusion-
_____
_____
_____
_____
Value learnt-We cannot reverse everything, so use your resources judiciously.

3. Aim-To classify changes as physical or chemical.

Material required- sugar, spatula,burner, frying pan,iron rod or stainless steel scale.
Theory-Physical change is a process wherein the characteristic properties of a substance remain unchanged.
Chemical change is a process responsible for the conversion of the substance into a new product with changed characteristic properties. In a chemical change the substance present before the change are called reactants and the substances formed after the change are called products.
Procedure-Take a frying pan and put sugar in it. Now heat it over slow flame. Observe the changes.
Take a stainless steel scale and heat it over the flame. Make your observations.

Observations-
_____
_____
_____
_____
Conclusion-
_____
_____
_____

Value learnt-Our mothers are great chemists and kitchen is their lab. We must go to help them out in the kitchen and observe them while cooking. We will learn a lot of science.

Chapter 7
Getting To Know Plants
Smart notes

Classification of plants

They are classified on the basis of their life span

- Annuals- entire life cycle is completed within a year.eg brinjal, rice wheat gram
- Biennials- complete their life cycle in two years. Eg radish, turnip, carrot beet
- Perennials- remain alive for many years eg henna, neem , china rose mango

Classification based on form-

1. Herbs
- Small in height
- Have green , delicate, soft stem
- Have a short –life span

Eg wheat, radish , coriander

2. Shrubs
- Taller than herbs
- Have a woody stem
- Branching starts from base of stem
- Eg china rose, henna, cotton, rose

3. Trees
- Tall plants
- Have a hard woody stem called trunk
- Branching starts from high off the ground
- Eg mango, neem, banyan

4. Creepers
- Have a soft stem
- Cannot stand erect and so remain on ground
- Eg,watermelon,strawberry

5. Climbers
- Have a soft stem
- Have tendrils that help them to climb
- Eg peas, grape vine, money plant

STRUCTURE AND FUNCTION OF PLANTS

A flowering plant is made up of two main systems
The root system
The shoot system

ROOTS

- It is the underground non-green part of the plant.
- It consists of a primary roots and its branches.
- It grows towards soil and water and away from sunlight.(geotropism).

Functions of roots

- It anchors the plant in the soil(holds the plant firmly in the soil).
- It absorbs water and minerals from the soil
- It prevents soil erosion

Types of roots

TAP ROOT It is a primary root which is thick and long. Eg carrot, gram, mango, pea, radish Diagram:	FIBROUS ROOT Its a primary root is short lived and is replaced by a cluster of fibre Eg grass, maize, sugarcane Diagram:

STEM

- It is the ascending portion of the plant
- It grows towards sunlight
- Bears branches, flowers leaves, fruit buds
- Helps to conduct water and food throughout the plant.
- Some stems store food- onion, ginger, potato, sugarcane

LEAF

It is the flat green lateral outgrowth of the stem , arising from the node.

Function of leaf

·Photosynthesis- makes food for the plant using carbon dioxide and water and in presence of sunlight and chlorophyll converts it to food and oxygen.

· Transpiration- continuously loses water from the stomata in the form of water vapour.

· Respiration- exchange of gases from the stomata

Leaf Venation- The pattern of veins on the leaf lamina is called venation
There are two types of venation

Parallel- if all the veins arise from the leaf margin and end at the leaf base eg banana, grass, palm
Reticulate- when there is a network of veins criss crossing the entire lamina.
Eg rose, neem, hibiscus

Reproductive part of the plant

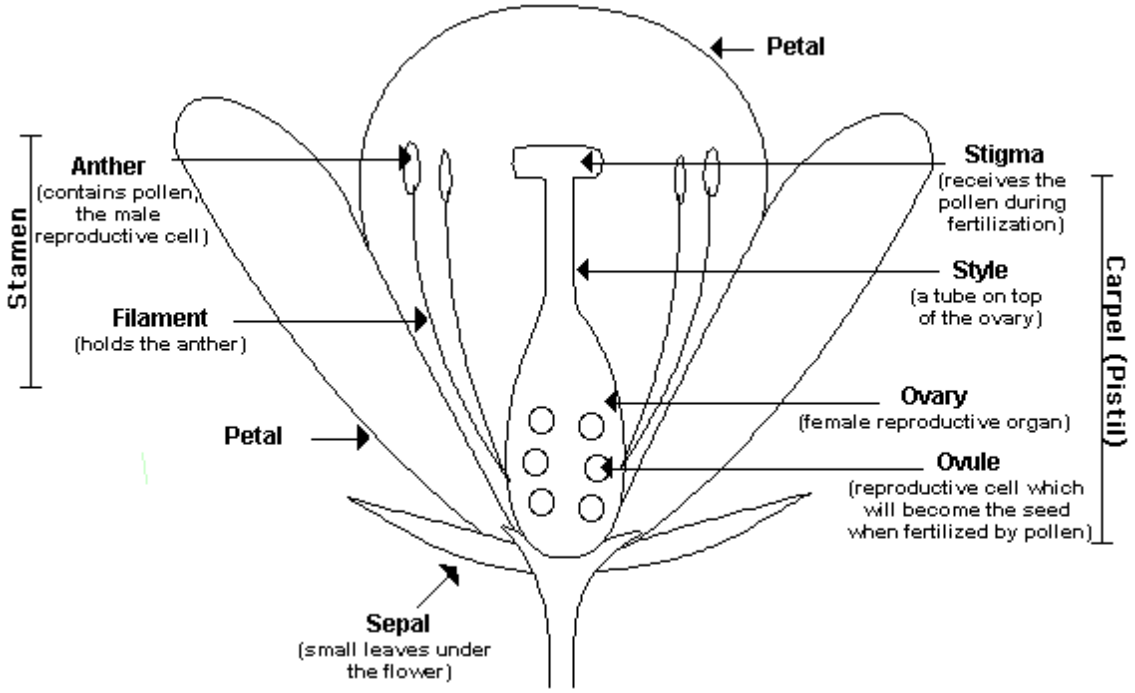
FLOWER

It is made up of four parts
1. Sepals- the green leaf like part that protects the flower in the bud stage.
2. Petals- the bright colorful part of the flower that helps to attract insects for pollination.

3. Stamen- It is the male part of the flower . It is made up of
- Anther- a lobe like structure that contains the pollen grains
- Filament- a thin thread like stalk

4. Pistil / Carpel
- It is made up of the following parts
1. Stigma- a sticky / feathery part for the pollen to land
2. Style- a tube like structure that carries the pollen grain till ovary
3. Ovary- swollen part at the base that contains the ovules
4. Ovule- it contains the female gamete.

After pollination and fertilization the ovary turns into fruit and the ovules become seeds.



Chapter– 7
Getting to know plants
Assignment 7.1

Q.1. Fill in the following blanks:

a) Based on their size, plants are classified as ----------, ---------- and ----------.
b) Stem of the plant ----------water.
c) A Peepal leaf shows ----------venation and a Grass leaf shows---------- venation.
d) Leaves prepare food for the plant by the process of ----------.
e) Plants store the food in the form of ----------.
f) If a plant has tap root, its leaves will show ---------- venation but if the root is fibrous it will show ---------- venation in its leaves.

Q.2. Match the columns:

Column A	Column B
a) The coloured part of the flower	Lamina
b) The broad green part of the leaf	Petal
c) Smaller branches of tap root	Edible roots
d) Carrot ,Radish	Sepal
e) The green, protective part of the flower	Transpiration
f) The process of loss of water from plant leaves	Reticulate venation
g) Peepal leaf	Lateral roots

Q.3. Tick the correct answer(s):

a) Tree trunk is
   i) Stem ii) root
   iii) Both iv) none of these
b) Which of these is not a part of a flower?
   i) Sepal ii) anther
   iii) Midrib iv) pistil

Q.4. Name the following part of a plant that:

a) Helps in reproduction _____
b) Anchors the plant firmly in the soil _____
c) Prepares food _____
d) Conducts water _____

Chapter– 7
Getting to know plants
Assignment 7.2

Q.1. When we cut the Pistil of a flower, what do we see? What happens to these structures after pollination?
Q.2. What is fertilization?What happens after fertilization?
Q.3. In which part of the plant, you are likely to find the ovary?
Q.4. Why do plants need light to grow?
Q.5. Correct and rewrite the following statements:
a) Stems absorb water and minerals from the soil.
b) Leaves hold the plant upright.
c) Leaves can be recognized by seeing the roots.
d) Trees are long and have soft and thin green stem.

H.O.T.S
Take a trip ` National museum of Natural History 'with your parents. Ensure that you take your note pad with you.

a. Find out the evolutionary path that the plants have taken over millions of years?
b. Find out when did the first fruit bearing plants emerge on the phase of the earth?
c. What are insectivorous plants and give the name of at least one of it.
d. Any one interesting detail, which you would like to share with your class, on plants that you saw there?

Activity 1

Stick pictures of any 2 of the following

1. Herbs
2. Shrubs
3. Trees
4. Creepers
5. Climbers

Activity 2

Trace the outline of 2 leaves (one with parallel venation and the other with reticulate venation)

Label all the parts of the leaf.

Activity 3

Stick 2 pictures each in the following category

1. 2 roots that we eat.
2. 2 leaves that we eat
3. 2 stems that we eat

Chapter 8
BODY MOVEMENTS
NOTES

One of the fundamental differences between living and nonliving organisms is that the living things respond to external stimuli.

They do so by showing movement, locomotion or both.

Different organisms show different types of movements.

The extent of movement is shown by a particular body part is determined by bones and how are they joined to each other.

THE HUMAN SKELETAL SYSTEM

All the bones of our body make our skeleton. An adult skeleton contains 206 bones. Children have more; the number reduces because many bones fuse together as a part of natural growth.
Following are the main functions of Skeleton system:

- It provides a hard support to the other soft body parts and gives our bodies shape. Without this system the human body will collapse.
- It protects our vital organs. Skull protects the brain; rib cage protects heart and lungs.
- The Bones and muscles help in body movements.
- The inside of big bones contains bone marrow, where blood cells are made on a continuous basis by the activity of adult stem cells.

The different parts of human skeleton are listed below----

- THE SKULL

This is the bony structure that protects our brain.
It contains a total of 14 bones. All these bones cannot move because they contain immobile joints.
The bone of lower jaw is the only bone that moves and helps us talk and chew our food.

- THE SPINE OR THE BACKBONE

Located at our back attached to the skull, this elongated part called the spine,consists of 33 very small bones called vertebrae.
Each vertebra is separated from the other by a small cartilaginous disc. They protect a very important part of Nervous system, The Spinal Cord,also called the spine or vertebral column, it forms the central supporting rod for the skeleton.

- THE RIB CAGE

The curved bones clearly visible in the chest region form a protective structure called the Rib Cage, which protects our chest cavity.
Chest cavity has vital organs like Heart and Lungs. The front part of the rib cage is made up of a flat bone called the Breastbone.
Apart from protecting vital organs, the rib cage along with diaphragm plays vital role in the breathing process.

- THE LIMBS(ARMSAND LEGS)

The arms and legs are attached to two girdle like structures of the skeletal system. Both the arms are attached to the Pectoral girdle and both the legs to the pelvic girdle.

The upper arm has a long bone called Humerus. This bone is attached to the pectoral girdle. The lower arm contains 2 long bones. The wrist and hands contain many small bones .

It is the movement of these small bones is what makes our hands capable of a variety of tasks. The longest bone of our body is the thigh bone or Femur. The lower half of the leg has the long shin bone and the calf bone. The ankles and feet contain a number of small bones. The Femur is attached to the pelvic girdle by the hip joint. Nearly half of the bones are located in hands, wrist, ankle and feet.

JOINTS

The joints are places in the body where the bones are joined together. Bones cannot be bent. We can bend or move our body only at the meeting points of bones: the joints.

These points are strong enough to withstand jerks. The ends of bones at these points are covered with another soft tissue called CARTILAGE. This tissue minimizes friction and also acts as shock absorber during movements. Cartilage is also present on the tip of nose and earlobes.

Another type of very strong tissue that attaches two bones at these joints is called LIGAMENT.

TYPES OF JOINTS

Joints are classified based on the degree of movement they show. These are

- IMMOVABLE
- SLIGHTLY MOVABLE
- FREELY MOVABLE

The bones of the skull except lower jaw do not allow any movement and are therefore classified under immovable joints.

The joint between the ribcage and the breastbone allows only slight movement and is classified under the second category.

Majority of bones of our body fall under the third category .i.e. FREELY MOVABLE

These are further divided into 4 types depending upon the type of movement they allow:

a. Hinge joint--- These allow movement in one plane only very much like hinge of a door and hence the name! These are found in elbow, knee and fingers.

b. Ball and Socket joint----- These types of joints allow maximum movement in all directions.

   The two bones that are present, interact with each other as ball and socket and the movement involves rotation. Humerus of arm and Femur of leg show this type of joint with the pectoral and pelvic girdle respectively.

c. Pivot Joint---- These types of joints allow movement in directions along a fixed axis. This is found in your neck.

d. Gliding Joint----Such joints allow gliding of small bones over each other allowing side to side as well as backward and forward movements. Such joints add greatly to the flexibility of a particular part. These are found in wrists and ankles.

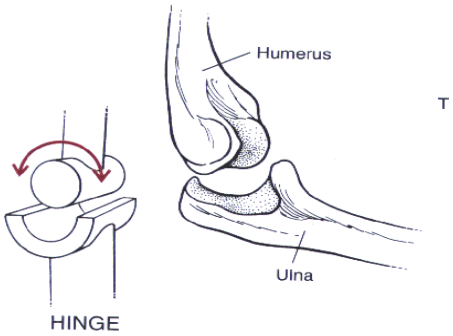
HOW DO BONES MOVE?
Bones are able to move with the help of another system called the muscular system. Muscles work in pairs and when one muscle of a pair expands the other contracts bringing about a particular movement.
To move the arm a pair of muscles called Biceps and Triceps is needed.

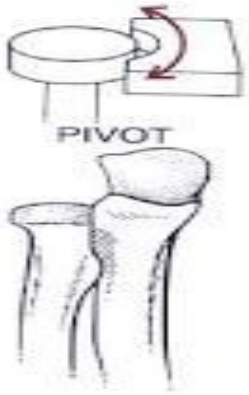
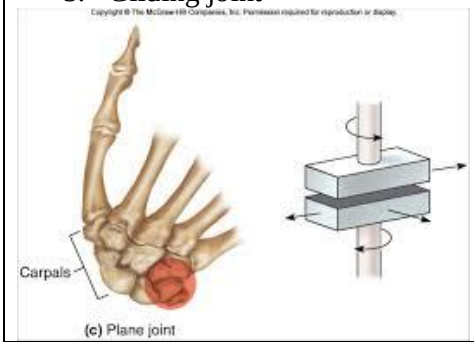
Ligaments-(bone to bone)connect the bones that forms the joint and prevent bones from falling apart during movements. They are elastic and can stretch to permit easy moves.

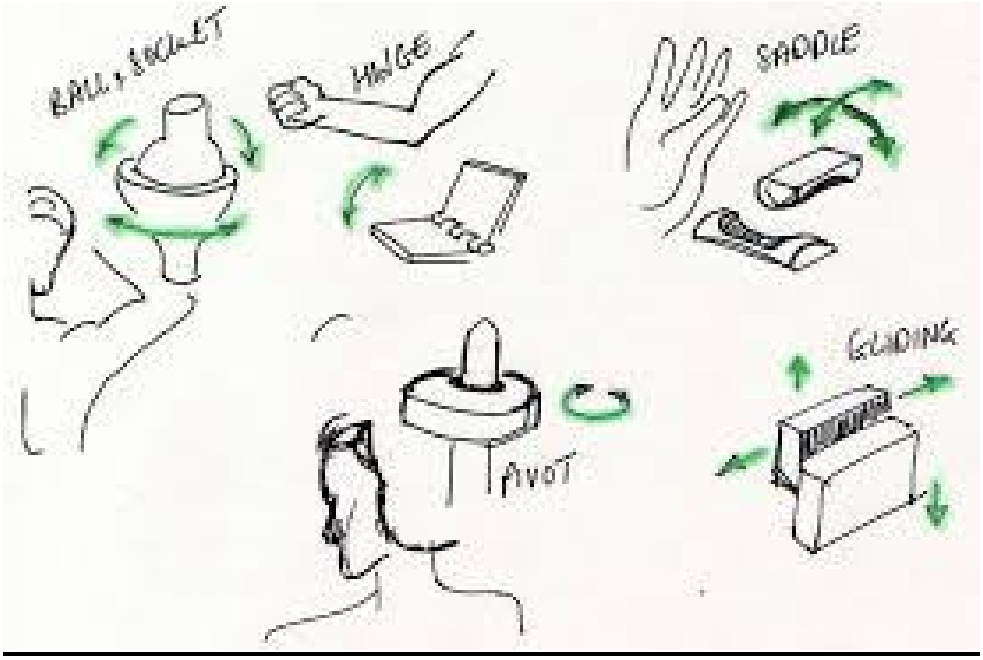
Cartilage-Soft tissue, covering the ends of bones. It allows the ends of bones to move/slide over each other smoothly preventing wear and tear to ends of bones. An oily liquid lubricates the cartilage present between vertebrae, end of nose, pinna (upper end of ears).

Tendons(muscle to bone)- The upper end and lower end of biceps and triceps are attached to shoulder blade and bones of lower arm through tendons.

BODY MOVEMENTS

Types of joints	**Body parts where it is present**	**Type of movement**
1. Hinge joint- Knob and cup 	Elbow, knee, finger joints(knuckles), lower jaw	Allows movement in only one direction.
2. Ball and socket joint 	Shoulders, hip joints, humerus of upper arm is joint to pectoral girdle	Enables maximum movement in any direction, rotation, forward, backward, side to side
3. Pivot joint- cylindrical bone turns in a ring type bone	Between skull and head, neck, between lower arm and palm, wrist.	Permits rotation around a fixed Axis.

		
4. Fixed joint (Immovable) Tightly held bones that do not move; Provides strenght and support to body, protects delicate organs like brain	Present in Skull(plate type bones) Hip bone Between upper jaw and skull	
5. Gliding joint 	Between vertebrae, In wrist In ankles	Permits reduced movements Not freely moving


BALL + SOCKET
HINGE
SADDLE
PIVOT
GLIDING

HOW DO OTHER ANIMALS MOVE?

Not all animals have bones and muscles .
Different animals have different mechanisms for this.

EARTHWORM: They do not have bones. The muscles of earthworm contract and relax alternatively which help in its movement.
They have bristles at the base that help to attach to a surface.

SNAIL: These animals move with the help of a strong muscular foot, which makes a series of wave like movements that push its body forward.

COCKROACH: They can walk, climb and fly.
They have 3 pairs of legs which move because of muscles
Two pairs of wings are attached to the muscles of the breast, movements of which bring about flying.

FISH: Their bodies are STREAMLINED to minimize friction with water.
In addition they have different types of Fins which help them navigate and change directions.

SNAKE: These animals show slithering movements. They also contain both bones and Muscles for movement. The backbone of snakes is a very long and flexible structure .The muscles interconnect the backbone, ribs and skin. The snake body curves into many loops, each loop gives a forward push by pressing against the ground. Since a long body makes many such loops snakes move very fast but never in a straight line!

Bird: A bird's skeleton is designed to allow flight. Some special features of a bird's body are:
1. Forewings are modified into wings to enable flight.
2. Hollow and light bones
3. Modified breastbones help them beat their wings during flight without tiring

Chapter– 8
Body Movements
Assignment 8.1

Q.1 Fill in the following blanks:

a) The framework of bones in our body is called ----------.

b) Cartilage is found in ---------lobes and ---------- of the body.

c) Muscles work in ----------.

d) Earthworm secretes---------- which helps in its movement.

e) The outer skeleton of snail is called ----------.

f) The bones of birds are ----------and ----------.

g) The body shape that tapers at both the ends is called ----------.

Q.2. State True or False. If False, Give the correct statement:

a) Cartilage is not a part of skeleton system.

Ans. _____

b) X Rays help localize the muscles in the body.

Ans. _____

c) Upper jaw shows hinge joint.

Ans. _____

d) Muscles working in pairs contract and relax simultaneously.

Ans. _____

e) The book 'The Gait of Animals' was written by Charles Darwin.

Ans. _____

Q.3. Name the following:

a) The strongest and the longest bone in the human body. _____

b) The body part by which muscles are attached to bones. _____

c) The body part protected inside the rib cage. _____

Chapter – 8
Body Movements
Assignment 8.2

Q.1. Discuss the following briefly giving their location in the body:
a) Ball and Socket Joint
b) Pivotal Joint
c) Hinge Joint
d) Fixed Joint
e) Rib Cage

Q.2. You might have heard about diseases like Arthritis and Osteoporosis .Try to find out more. Correlate how taking a diet rich in Calcium is helpful in management of bone related disorders.

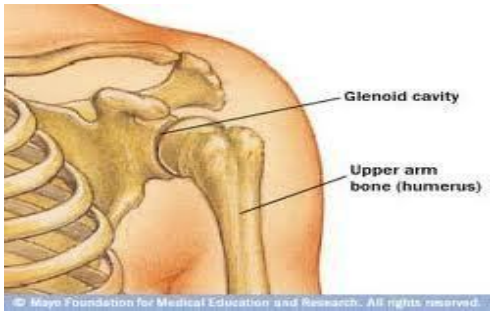
Q.3. Where are blood cells produced?

Q.4. How many vertebrae does a vertebral column of a human have?

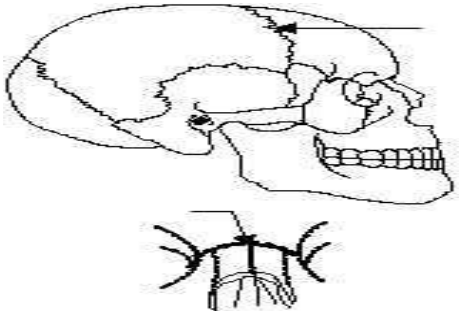
Q.5. Discuss how Cockroach is able to do both, walk and fly?

Q.6. How is the movement of Earthworm different from that of a Snail?

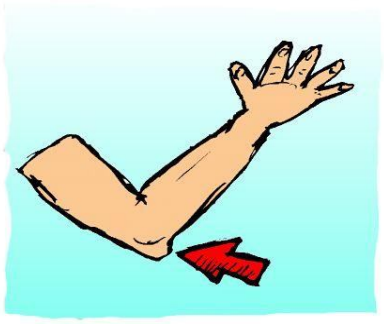
Q.7. Identify the joint shown in the picture and also mention its location.



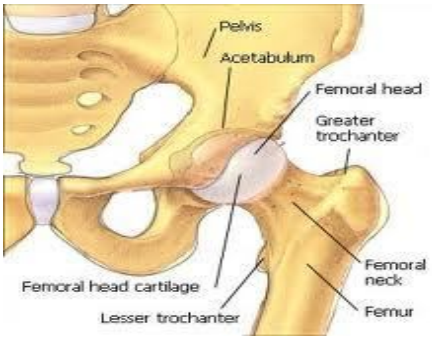
Type of Joint_____



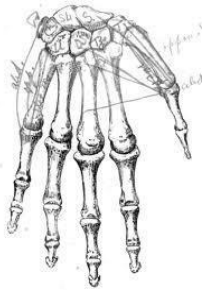
Type of Joint_____



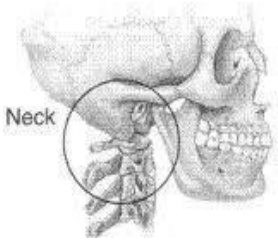
Type of joint_____



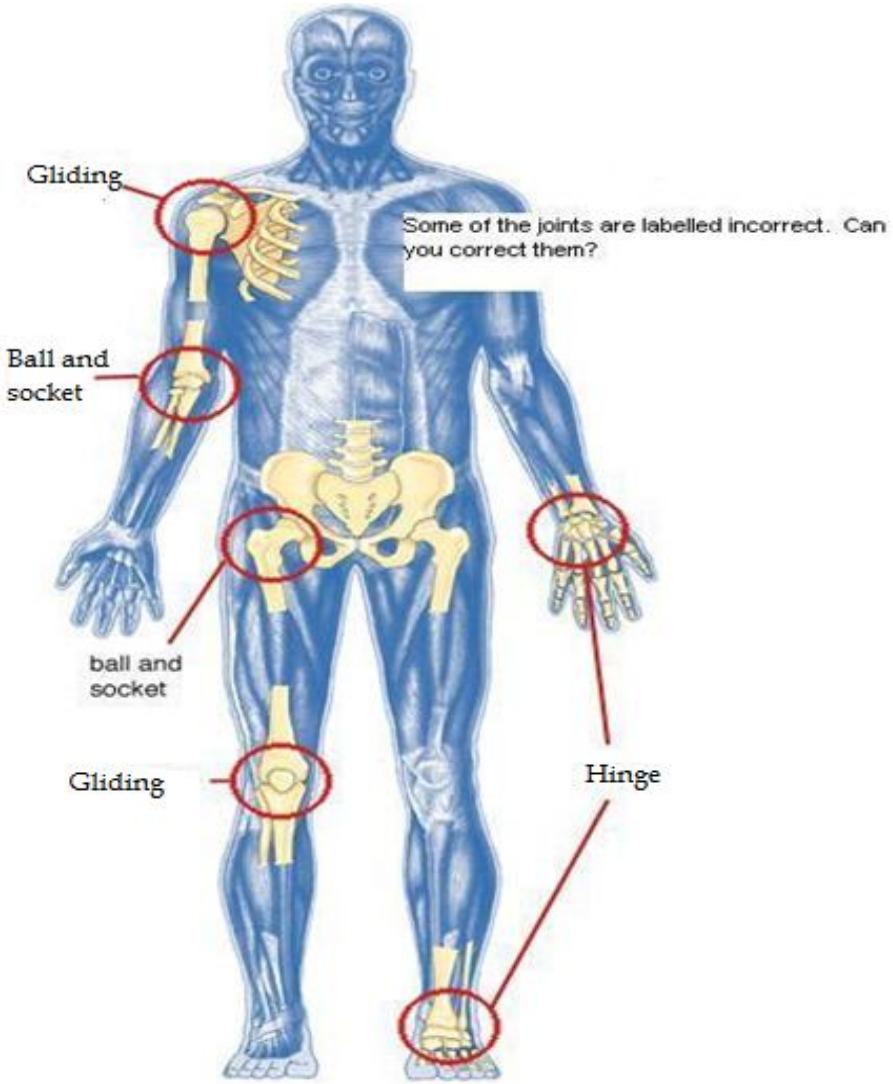
Type of joint_____



Type of Joint_____



Type of Joint_____



Chapter– 9

Living organisms and their surroundings

Notes

Living and non-living things

Characteristics of living things

- Cellular organisation →All living things are made up of cells. It is the basic structural and functional unit of life.
- Nutrition →Animals and plants both require food as it provides them with energy so that they can perform various activities.
- Respiration →All living things use oxygen to produce energy from the food consumed.
- Growth →All living things grow and their growth is permanent and internal.
- Excretion →It is the removal of waste materials from the body. Animals remove wastes in the form of carbon dioxide, sweat and urine: whereas plant wastes are given pot in the form of gums, resins and latex.
- Movement →Living things show movement. Animals move from place to place in search of food. Plants move only some part eg. Roots move downwards, shoot moves upwards, flowers open and close in response to light.
- Reproduction →All living organisms have the ability to produce young ones of their own kind. Animals lay eggs or have babies. Plants produce seeds or give rise to new plants from their body parts.
- Response to stimuli →Living things respond to changes in their surroundings. A response is an action which occurs as an answer to particular stimulus. eg. cold weather, hot object, sunlight and gravity are stimuli as a result of which respective responses like wearing of woollen clothes, withdrawal of hand, closing of eyes, bending of plants, downward growth of roots and moving clothes of animals takes place .
- Life cycle → Living things follow a life cycle. The life cycle consists of birth, growth, reproduction and death.

Living things	Non living things
They are made up of cells that have the living matter, the nucleus and the cytoplasm.	They are made up of molecules that do not have any living matter.
They grow or increase in size due to division of cells in the body	They do not grow. The increase in size sometimes is due to addition of external layers on the outer surface.
They have a definite shape, form and size.	They do not have any definite shape, form and size.
Animals move in search of food, water and shelter. Plants show internal movements.	They cannot move on their own. Outside force has to be applied to move them
They need food to get energy in order to grow and move	They do not need any food
They respond to different kinds of external stimuli such as touch, heat, light, sound, smell and chemicals.	They do not respond to stimuli.
They breathe in oxygen to release energy from the food	They do not breathe.
They excrete excess water and harmful waste materials from their body.	They do not excrete.
They reproduce their own kind.	They do not reproduce.
They adapt themselves to their surroundings.	They can be anywhere and need not adapt to their surroundings.
They have a definite life span.	They do not have a definite life span.

Components of the environment

The physical (non living) and biological world where living organisms live is called our environment.

It consists of 2 main components -

1. Abiotic or physical component
2. Biotic or living components

Abiotic – rock, soil, air and water on the earth are the physical components. The climatic factors like sunlight, temperature, rainfall, humidity, wind are also part of abiotic environment.

Biotic – Living things such as plants and animals.

Habitat

A place where an organisms live and which provides the organism with food , shelter and favourable climatic conditions, so that it can easily survive, breed and flourish, is called a habitat.

Types of habitats

There are 2 major types of habitat.

Terrestrial (land) – It is further classified as desert habitat, forest habitat, grassland habitat coastal habitat and mountain habitat.

Aquatic (water) – it is further classified as fresh water and marine.

Habitat	Features	Animals	Plants	Area
Desert	Hot and dry	Camels,rattle snakes	Cactus, date palms	Sahara, Kalahari, Rajasthan
Grasslands	Moderate rainfall	Zebras, giraffe, deer, Lion	Mainly grasses and Shrubs, less trees	Savannahs
Forest	Hot, wet, and Rainy	Monkeys, snakes, langurs, elephants	Large number of trees	Tropical forests
Mountain	Cold and windy, Lot of snow	Polar bear, reindeer, Penguin, goat, sheep, Yak	Lichens, moss, Fir, pine trees.	Arctic, Himalayan region
Freshwater	Lakes, rivers, ponds, stream	Ducks, frogs, insects, Fishes	Lotus, water Hyacinth, hydrilla	Dal lake, Ganges
Marine	Oceans, lakes	Whales , sharks, crab Octopus	algae	Pacific Ocean, Bay Bengal, ArabianSea

Adaptations→

The development of characteristics that helps an organism to survive in a particular environment is known as adaptation.

Xerophytic adaptation-

- These plants grow in deserts.
- Have extensive root system.
- Leaves are reduced to spines.
- Leaves are coated with cuticle to check loss of water
- Stomata are few and sunken in pits.

- Stem becomes thick and fleshy for conserving water
  Eg.Cactus, Agave, Yucca.

Hydrophytic Adaptation

- They grow in water
- Root system is poorly developed.
- The stem of these plants are long, hollow and light to help them remain afloat.
- Leaves are thin and ribbon like or large and flat and float on the surface of water.
- Cuticle and stomata are absent.
- Eg. Lotus ,*Hydrilla, Vallisnaria*
-

Adaptations in animals

Desert adaptations--

- A camel has long legs for walking in the sand
- The hump on the back is filled with fat.
- It can drink 50 L of water in one gulp.
- It excretes very little water.
- Its dung is dry
- It does not perspire.

Aquatic adaptation-

- Animals such as fish have a streamlined body
- It has powerful tail and fins for swimming.
- They have gills for respirations
- Their body is covered with scales to prevent decay.

Activity 1

Stick pictures of an animal and a plant of the following habitats

1 Desert

2 Mountain

3. Forests

4.Aquatic

Chapter– 9
Living organisms and their surroundings
Assignment 9.1

Q.1. Fill in the following blanks:

a) The process of getting rid of body waste is called----------.

b) During Respiration -------is used and ---------is evolved.

c) Changes in our surroundings are called ----------.

d) ---------- is the source of energy for all living organisms.

e) ---------- and ---------- are marine animals but do not have gills.

f) River, ponds and lakes are examples of ---------- habitat.

g) Plants and Animals constitute the ---------- factor of our surrounding.

Q.2. Classify the following as living and non-living:
Cheese, cotton, leaves, bed, snail, sugar, wood, plastic, silk, jackal, rose

Living	Non-living

Q.3. Give one word:

a) The plant whose leaves close or fold when someone touches it. _____

b) The small pores by which exchange of gases is done in plants. _____

c) The respiratory organ in humans. _____

d) An animal whose process of breathing is similar to humans. _____

Q.4. Match the columns:

A	B
a) Living things	Habitat
b) Biotic components	Water, air, land, etc
c) Dwelling place of animals	Respiration
d) Exchange gases in plants and animals, and release of energy	Changes in the surroundings make us respond to them
e) Stimuli	Plants and animals
f) Abiotic components	Reproduce

Chapter– 9
Living organisms and their surroundings
Assignment 9.2

Q.1. Give reasons for the following:

a) Leaves of submerged aquatic plants are thin and ribbon like.

b) Deer have long ears and their eyes are located on the sides.

c) Mountain trees show cone shaped canopy.

d) Frogs can live both in water and on land.

e) Cacti show spines instead of leaves.

Q.2. Enlist the characteristic features of living organisms. Do you think it is easy to define life? Why / Why not?

Q.3. How do light brown colour and eyes in front of the face help it to catch its prey?

Q.4. Why are the stems of plants in ponds long, hollow and light?

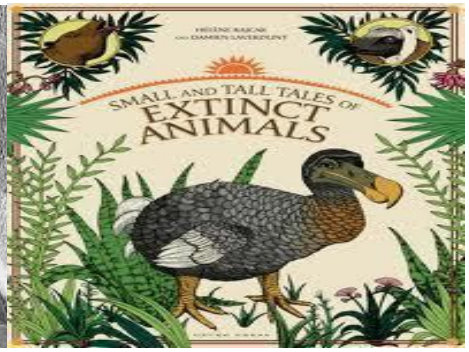
H.O.T.S

Q.1.You might have heard of 'Project Tiger 'a conservation program initiated by the Government of India to protect the Tiger population of the country. Collect some information on the project. Why is it important to protect the top carnivore to protect a habitat?

Find out potential tiger habitats in India and mark them on a map of India.

Q.2.Trace the animals and birds that have got extinct due to human activities and the repercussion that it has caused.

Q.3.Please visit National Science Centre and trace the history of extinction of Dinosaurs.



Chapter– 10

Motion and measurement of distances

Smart notes

Measurement - It is a comparison of an unknown quantity with a known fixed quantity.
Every measurement has two parts - _____ and _____.
For eg., the distance between two cities is 240 km.

Length -

- It is the distance between two fixed points.
- Its S.I. unit is metre (m).
- In earlier times, body units (like handspan, yard, foot, cubit) were used for measuring length.
- To overcome the confusion and inaccuracy caused due to body units, a more precise system of units was adopted called the "S.I. system of units" (International System of units).

Some important S.I. units:
Length - metre (m)
Mass - kilogram (kg)
Time - second (s)
Temperature - Kelvin (K)

Need for Standard units:
Standard units are preferred over body units because they are :

- Accurate and precise
- uniform
- universally accepted

Rules for writing units:

- Units must be written in small letters, unless derived from a scientist's name.

eg. cm, kg, K_____

- Units must be written in singular form.

eg. km and not kms, cm and not cms,_____

- There should be no full stop after the unit, unless it is at the end of the sentence.

eg. The length of my pencil is 10cm.
Sam is 1.5m. tall.

Precautions to be taken while measuring length of any object:

1. The scale should be_____.
2. If the zero mark of the scale is not clear or is broken, take reading from _____.
3. The position of the eye must be exactly in front or above the point where the reading is to be taken to avoid _____ error.

Diagram : Fig. 10.9 to be drawn in the notebooks.

Types of motion :

1. Random motion - An object is said to be in random motion when it is moving in any direction. For eg. -
   _____.

2. Rectilinear motion - An object is said to be in rectilinear motion, when its moves along a straight path. eg.
   _____.

3. Circular motion - An object is said to be in circular motion, when it moves in a circular path. the distance of the object from the center remains the same. For eg.
   _____
   ____

.

4. Periodic motion - An object is said to be in periodic motion, when it repeats its motion after fixed intervals of time. eg. _____

5. Oscillatory motion - An object is said to be in oscillatory motion, when it shows to and fro motion. eg.
   _____

6. Vibratory motion - An object is said to be in vibratory motion, when it shows fast oscillatory motion. eg. _____.

7. Combined motion - An object is said to be in combined motion, when it shows two or more types of motions simultaneously. eg.
   _____

Motion and measurement of distances
Assignment 10.1

Q.1. What do the following stand for?

a) S.I _____
b) MKS _____
c) CGS _____
d) FPS _____

Q.2. List the S.I. units for the following-

a) Temperature- _____
b) Time- _____
c) Length- _____
d) Weight- _____
e) Mass- _____

Q.3. Give one word for the following-

a) In India, the standard metre scale is kept here-
b) Every measurement has two parts- a number and a _____.
c) Name two objects which can be used to measure the length of a curved line._____

Q.4. Underline the mistakes in the following sentences and rewrite the correct ones-

a) Agra is 210Km from Delhi. _____
b) The temperature is 34^{o}c today. _____
c) Rajni weighs 27kgs. _____
d) My pencil is 17cm. long. _____

Q.5. What type of motion/s are exhibited by the following-

a) Flight of a bird- _____
b) Dropping a stone in water- _____
c) Ship taking a turn- _____
d) Strings of a violin when struck- _____
e) Blades of a fan- _____
f) Hands of a clock- _____
g) A giant wheel- _____
h) Children playing in the playground-_____

Chapter– 10
Motion and measurement of distances
Assignment 10.2

Q.1. Why are the standard units preferred over body units?

Q.2. Differentiate between rectilinear and circular motion.

Q.4. Convert-

a) 750m into km.

b) 245km15m into m

c) 45.82km into m

d) 20.5m into mm

If a track has 8 lanes each measuring 2m, express the total width of the track in m,mm,cm

Q.5. Can you use a ruler whose Zero marking is not clear? How?

H.O.T.S

Q.1. Meetu andAnuj had to measure the length of their circular lunch boxes. But they were unable to do so with a scale.

a) Can you explain where they went wrong?

Give an easy yet accurate method of measuring the length of their circular lunch boxes, with the help of an activity.

Q.2. Justify the following with examples-

a) All oscillations are not vibrations

b) Heartbeat of a human being is not considered to be periodic.

Q.3. Why is the discovery of wheel considered to be a revolution in the history of transport?

Q.4.Differentiate between :-

a.SI and FPS systems of units

b.Periodic and random motions

Jack was piloting a plane behind a car
but was never able to overtake it. Why?

(He was on a merry-go-round)

Chapter– 10
Motion and measurement of distances
Activities(5 marks each)

1. Aim - To measure the length of given objects using **body units/rough estimation** and comparing these measurements with the results of your classmates.
Materials required – Table / desk ; Classroom
Theory – Body units are not accurate as they vary from one person to another.
Method - _____
_____
_____
_____
_____

Observation – a. The length of table / desk = _____ hand spans
The length of classroom = _____ footsteps
b. The length of table / desk measured by your friend = _____ handspans
The length of classroom measured by your friend = _____footsteps.
Conclusion - _____
Precaution - _____

2. Aim - To measure the length of given objects using standard units and comparing these measurements with other classmates.
Materials required – Table / desk
Theory – Standard units are accurate as they do not vary from one person to another.
Method - _____
_____
_____
_____
_____

Observation – a. The length of table / desk = _____ cm
b. The length of table / desk measured by your friend = _____ cm

Conclusion - _____
_____
Precaution - _____

3. Aim - To measure the perimeter of an irregular object using a string / divider and a scale.
Materials required – A lunch box / pencil box, scale, a string / thread, pair of scissors.
Theory – Length of irregular / curved surfaces cannot be measured by scale alone as a scale is not flexible.
Method - _____
_____
_____

_____
_____
_____

Observation – The perimeter of lunch box/ pencil box = _____cm

Conclusion - _____
_____

Precaution -_____.

Chapter 11
Light, shadows and reflections
Notes

Light - Light is a form of energy.

It causes in us the sensation of vision.

Light travels in straight line. This property of light is called Rectilinear Propagation of light.Thus, light is an invisible form of energy, which enables us to see objects around us.

Sources of light

An object which emits light is called a source of light. All sources of light can be classified as natural and man-made.

Eg. Natural sources_____

Man-made sources _____

Luminous objects – Objects that give out or emit light of their own are called luminous objects.

Eg. _____

Non-luminous objects – Objects that do not give out light of their own or reflect light from luminous objects, are called non-luminous objects.

Eg. _____

Classification of objects on the basis of transparency:

a. Transparent objects – Those objects through which we can see clearly and light can pass through completely. Eg. _____
b. Transclucent objects – Those objects through which we can see, but not very clearly and light can pass through partially. Eg. _____
c. Opaque objects – Those objects through which we cannot see at all and light cannot pass through.
   Eg. _____

Shadows – A shadow is a dark patch formed on a screen when an opaque object comes in the path of light.

Characteristics of a shadow:

➔It is always black (a dark region), irrespective of the color of the object.

➔It gives only the outline of an object.

➔It can be formed only on a screen.

➔Sometimes shadow of an object gives an idea about its shape, while at times it can also mislead us.

Three essential conditions for the formation of a shadow:

a. A source of light
b. An opaque object
c. An opaque screen

Pinhole camera

A pinhole camera is a device that helps us get a real image. It is based on the principle that light travels in a straight line.

To view an image through a pinhole camera we need a regular rectangular cardboard box and we make a tiny hole in it using a compass. Light a candle (or any other object you wish to see) and then keep it in front of the hole. The screen which is behind the hole is moved towards the hole until we see a clear image of the flame or object.

Characteristics of an image formed by a Pinhole camera:

- ➔The image is upside down or inverted as compared to the object.
- ➔It is diminished (smaller in size than the object).
- ➔The details of the object, such as color, size, etc., are clear in the image.
- ➔It is obtained on a screen.

Periscope

A periscope is a device used for observation of objects which are not at the level of our line of sight. In its simplest form, it is a C-shaped or Z-shaped tube. At both the ends of the tube, the two mirrors are placed parallel to each other at 45 with the tube. Objects are seen using a periscope because of rectilinear propagation of light and reflection by plain mirrors.

Use a ruler and a sharp pencil to draw all the figures.

Diagram :-

Rectilinear propagation of light – This property of light suggests that light travels along a straight line. That is why, when opaque objects obstruct it, a shadow forms.

Diagram :-

Mirror – A mirror is a smooth, shiny and highly polished surface. It is an opaque object.
Light gets reflected from a mirror because it is smooth and shiny.
A mirror changes the direction of light that falls on it.

Diagram :-

Reflection – The phenomenon due to which a beam of light bounces off the surface of a brightly polished surface in some other direction is called reflection of light.

Diagram :-

Chapter– 11

Light, shadows and reflections

Assignment 11.1

Q.1. Fill in the blanks-

a) An _____ shows all details of the object while a _____ does not.

b) When the path of light is obstructed by an opaque object, a _____ is formed.

c) A non luminous object is visible to us because it _____ the light of a luminous object.

d. Light is a form of _____.

Q.2. Match the following:

A	B
a) Wood b) Glass c) Light d) Opaque objects form e) Butter paper f) Natural Pinhole camera g) Periscope	Multiple reflection Sunlight passing through spaces between the leaves Opaque Transparent Rectilinear propagation Shadows Translucent

Q.3. Rewrite the following letters, numbers and shapes as seen in a mirror:

Letters/ numbers	Mirror image
A V R 8 3 N	

Q.4. What is this property, of an image seen in a mirror, known as? _____

Q.5. Following given are the incorrect characteristics of an image formed by a plane mirror. Correct and rewrite the following statements in the space given below. Image formed by a plane mirror is:

a) larger in size as compared to the object.

Ans. _____.

b) closer in distance from the mirror than the distance of the object from the mirror.

Ans. _____.

c) upside down.
Ans. _____.

d) not laterally inverted.
Ans. _____.

Thus, the characteristics of the image formed by a plane mirror are as follows:-

_____
_____
_____
_____

Chapter 11
Light, shadows and reflections
Assignment 11.2

Q.1. Give reasons for the following-

a) You must not look directly at the solar eclipse.

b) Shadow of a flying bird is not seen on the ground even though it is opaque.

Q.2. Explain how is one able to see through a periscope using the principle of rectilinear propagation of light with the help of a neat labelled diagram?

Q.3. Differentiate between the characteristics of a shadow and a mirror image.

Shadow	Image

Q.4. Light is form of energy. Justify the statement giving an example.

Q.5. Show with the help of an experiment that light travels in a straight line.

Aim : _____

Materials required _____

Diagram :

Method -

_____

_____

_____

_____

Observations_____

Result -_____

Precautions - _____

Mention the factors that affect the size of a shadow?

H.O.T.S

Q.1.Why is a shadow not seen in a dark room?

Q.2.Can you see in space? Why?

Chapter 11
Light, shadows and reflections
Activities

1. Aim – To construct a pinhole camera and observe it's working.

Materials required – cardboard boxes, tracing paper, pair of scissors, sticking tape.

Theory – A pinhole camera is a device that helps us get a real ,inverted image and is based on the principle that light travels in a straight line.

Method -

_____
_____
_____
_____
_____
_____
_____

Observation -

_____
_____

Precaution - _____

Chapter– 12
Electricity and circuits
Notes

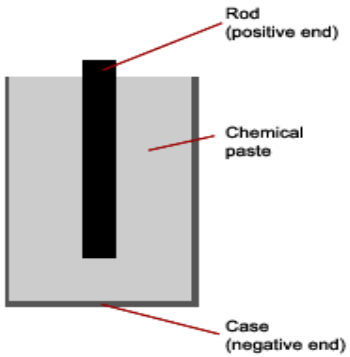
Q.1.What is the importance of electricity in our lives?

Ans._____
_____
_____
_____

Q.2.Name a few sources of electricity.
Ans. First source of continuous flow of electricity was a 'cell' (by Alessandro Volta) - Voltaic Cell.But these cells can provide electricity for a limited period of time and in small amounts.

For devices that need higher flow of current and for a longer time, electricity is generated at electric power plants. They use energy from different sources like:-

➔Wind energy power plant uses wind
➔A hydropower plant uses water
➔Thermal power plant uses heat (coal)
---Nuclear Power plant.



Structure of an ELECTRIC CELL

The top of the cell has a metallic cap in the centre. This is the positive terminal of the cell. The metal disc-shaped bottom end of the cell is the negative terminal of the cell.
➔All electric cells have two terminals – positive and a negative.

Q.3.What is a battery?
Ans. The combination of two or more cells is called a battery.

Structure of an ELECTRIC BULB
(Label the parts)

An electric bulb also has two terminals.
➔One of the terminals can be seen as a black spot at the bottom of the bulb and the other is the metal ring structure at its lower end.
➔Filament is a spring-like structure, made up of a very thin metal wire.
➔The two terminals do not touch each other.

Q.4.What is the purpose of an 'Electric switch'?
Ans. An electric switch is a device which can start or stop (discontinue) the working of an electrical device, without disturbing its connections.

Q.5.What is an electric circuit?
Ans. An electric circuit is a closed path of flow of electric current from one terminal of the cell to its other terminal through some necessary electric components (like switch, battery, bulb, wires, etc.).

Q.6.What happens when the bulb gets fused?
Ans. A fused bulb does not glow. This is because the broken filament causes a discontinuation in the path of flow of electric current.

Electric conductors and insulators

Materials which allow the flow of current through them are called conductors, while those materials which do not allow the current to pass through them are called insulators.

Examples of conductors - _____

Examples of insulators - _____

Q.8.Draw a circuit diagram with components like an electric bulb, a battery of two cells, an electric switch and connecting wires.

Q9. Draw an open circuit with a battery of three cells, switch, bulb and connecting wires.

Chapter– 12
Electricity and circuits
Assignment 12.1

Q.1. Fill in the blanks-

a) The current flows from _____ to _____ terminal.

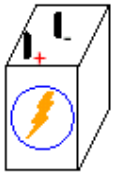
b) _____ is an optional component in an electric circuit.

c) _____ are substances which allow current to flow through it.

d) The metal cap serves as the _____ terminal in a dry cell.

e) A complete circuit is also called _____ while a broken or incomplete circuit is also called _____.

Q.2. Given a battery and a light bulb, show how you would connect these two devices together with wire so as to energize the light bulb:



Q.3. Classify the following examples as conductors and insulators:

Plastic, iron, copper, tap water, wood, aluminium, cotton, rubber, pure water

Conductors	Insulators

Q.4. Tick the correct answer:

a) The bulb glows when

i) circuit is complete. ii) circuit is not complete.

iii) current is flowing in the circuit. iv) none of these.

b) Which of the following can act as a source of current?

i) Bulb ii) Cell

iii) Battery iv) Key

Q5. Which of the following can be used to test the passage of current in a circuit-

i) Bulb ii) magnetic compass

iii) cell iv)Key

Chapter– 12

Electricity and circuits

Assignment 12.2

Q.1. The electricity of your room suddenly goes off while the rest of the house is amply lit. What could be the possible reason?

Q.2. Can a dry cell be reused? Why? Why are they replaced with rechargeable batteries?

Q.3. What will you observe if in an electric circuit, the switch is replaced with –Plastic scale, metal Key.

H.O.T.S

Q.1. An electrician must wear rubber gloves while working. Also, he must switch off the MCB before starting his work. Why?

Q.2. You are using a bulb whose filament is broken. Will the bulb glow when connected to battery? Give reason.

Q.3. What will you do if your friend has caught an electric shock?

Q.4. Given below is the conversation among various components / phenomena found in an electric circuit. Read the conversation carefully and recognise these various speakers:

Speaker A: Hello friends! Let us get together to make our beautiful and fragile friend 'B' glow.

Speaker B: Oh yes friends, I too want to light up this room. Will you please help me?

Speaker C: Ok! Let me help you all to connect with each other. Then our dear friend 'D' can easily move from one of you to another.

Speaker D: Certainly, but I need to be controlled by 'A'. Friend 'A', please let me move through 'C' only when required. Will you please do that?

Speaker A: Oh sure! But where is our friend 'E'? It is one of the most important and necessary part. None of us will be able to work without 'E.

Speaker 'E': Sorry friends! I got late. Actually, I was lying idle for a very long inside a toy car. But, now I am ready to work.

All of them got together to form an _____.

Name each component / phenomenon below:

Speaker 'A' _____

Speaker 'B' _____

Speaker 'C' _____

Speaker 'D' _____Speaker 'E' _____

Chapter– 12

Electricity and circuits

Activity

Aim – To construct a simple electric circuit.

Materials required – connecting wires, a bulb, an electric cell, a switch.

Theory –An electric circuit is a closed path of flow of electric current from one terminal of the cell to its other terminal through some necessary electric components (like switch, battery, bulb, wires, etc.).

Diagram -

Method -

_____
_____
_____
_____

Observation –

_____
_____
_____

Precaution - _____

+

Chapter– 13

Fun with magnets

Smart notes

Fun with magnets

Materials can also be classified as:

a. Magnetic materials – Those materials which get attracted towards a magnet are called magnetic materials. Eg. _____

b. Non magnetic materials - _____ _____. Eg._ _____

Types of magnets :

a. Permanent magnets – Those magnets which retain their magnetic properties for a longer period of time are called permanent magnets. Eg. _____

b. Temporary magnets - _____ _____. Eg. _____

Shapes of magnets : (Draw the magnets)

a. Bar magnet

b. Cylindrical magnet

c. Ball ended magnet

d.Ring shaped magnet

e. Horse shoe magnet

f. U shaped magnet

Properties of magnets:

a. Every magnet has _____ poles, North pole and South pole.
b. Poles of a magnet exist in _____ , i.e., poles can never be isolated.
c. Magnetism is maximum at the _____.
d. Like poles _____ whereas unlike poles _____.
e. _____ is the sure test for magnetism.
f. If a bar magnet is suspended freely, it aligns itself along the _____ direction.

g. Magnetism can be induced.
h. Magnetism can pass through water.

Demagnetisation : Magnets lose their magnetic properties when:

a. hammered
b. heated
c. dropped from a height
d. not stored properly

Storing magnets : Magnets should be stored with their unlike poles facing each other, separated by an insulator (eg. _____) and keepers (soft iron piece) on their sides.

Diagram :

Methods of making a new magnet:

a. Magnetic induction - By stroking a magnet repeatedly on a piece of iron, in the same direction and with a the same pole, for about 30-40 times, we can make a magnet on our own.

Diagram :

b. Electromagnets - By passing electric current through a copper wire coiled around a piece of iron, we get an electromagnet.

Diagram :

Uses of magnets:

a. in junkyards, to separate iron scrap using temporary magnets.
b. In a compass, to find directions.
c. To store information in CDs and DVDs.
d. In ATM, credit or debit cards.
e. In speakers of musical instruments.

Fun with magnets
Assignment 13.1

Q.1. Fill in the blanks-

a) _____ are used to prevent magnets from demagnetization.

b) _____ is a natural magnet.

c) A toy boat is placed in a tub full of water with an iron nail in between. A magnet was kept under the tub. The boat will _____ (float/sink).

d) _____ is the property of magnets which is a sure test for magnetism.

Q.2. Circle the non-magnetic materials:

Iron

Paper

Leather

Cobalt

Glass

Nickel

Q.3. State True or False

a) A cylindrical magnet has only one pole. _____

b) Artificial magnet is discovered in Greece. _____

c) A compass can be used to find east-west direction at any place. _____

d) A magnet always has two poles. _____

Chapter– 13
Fun with magnets
Assignment 13.2

Q.1. A tailor was mending a shirt. The sewing needle accidentally fell from his hand on the floor. Can you help him find it?

Q.2. A magnet fell into fire. When it was taken out, it did not attract iron nails. Why?

Q.3. Apart from rubbing method, can a magnet be made by any other way? If yes, how?

Q.4. Why does a freely suspended bar magnet point towards north-south direction?

Q.5. How are magnets useful in junkyards?

Q.6. How can a magnet get demagnetized? How will you prevent demagnetization?

H.O.T.S

Q.1. What will happen to the magnetism if a bar magnet breaks? Why?

Q.2. An Emperor in China had a chariot which could locate the directions. On what property of magnetism was the chariot based? Explain with the help of an activity.

Activities

1. Aim - Sorting magnetic and non-magnetic materials using a magnet.
   Materials required – a magnet and objects to be sorted.
   Theory – Materials / objects attracted by a magnet are called ----------
   Materials / objects not attracted by a magnet are called ----------

   Method -
   _____
   _____
   _____

   Observation table:

Magnetic materials / objects	Non-magnetic materials / objects

   Conclusion – Magnetic materials / objects are made up of _____' _____ or _____.

2. Aim - To magnetize a safety pin using magnetic induction method.
   Materials required - _____
   Theory – Magnetism can be induced.

   Diagram –

   Method –
   _____
   _____
   _____
   _____
   _____

   Observation - _____
   Conclusion - _____
   Precaution - _____

3. Aim - To magnetize an iron nail by electromagnetism.
   Materials required -
   _____
   Theory – An electromagnet is a temporary magnet that behaves as a magnet when electric current is passed through a wire coiled around a magnetic material (like an iron nail).
   Diagram –

   Method - _____
   _____
   _____
   _____
   _____

   Observation - _____
   Conclusion - _____
   Precaution - _____

Question Bank
Term I

Very Short answer type

1. Name the kind of animals which eat only plants.
2. Which nutrients provide energy to our body?
3. Name a metal which is in liquid state.
4. What is a natural magnet called?
5. Give an example of an object which exhibits periodic as well as rotatory motion.
6. Name the plants with green and tender stems.
7. Name the part of the plant which produces its own food. Name this process.
8. Is butter a translucent material?
9. Name the part of a plant which bears leaves, flowers and fruits.
10. When a magnet may lose its property?
11. From where do bees collect nectar?
12. In your garden, you find a plant which has a long but a weak stem. In which category would you classify it?
13. Write two soluble and insoluble solid substances in water.
14. To measure the length of a curved object, we can use a _____ and a ruler.
15. Which vitamin is good for healthy eyesight?
16. How is beri-beri caused?
17. How can roots be recognised without seeing them?
18. The height of a person is 1.76m. Express it in mm.

Short answer type

1. Write any two properties of a magnet. Can these properties be lost?
2. Write the similarities and differences between the motion of a pendulum and of earth.
3. What are fibres?
4. Name five objects that can be made from wood.
5. Draw the diagrams of leaves in parallel venation and reticulate venation.
6. Roughage does not provide any nutrient, but still it is an essential component of our diet. Why?
7. What is a balanced diet?

8. What would happen to person whose diet lacks both carbohydrates and proteins?
9. Differentiate between natural and synthetic fibre.
10. On what basis do we choose a material to make an object?
11. Why do we need to group materials?
12. What happens when we heat water in a pan?
13. Draw a flower and label all its parts.
14. How is photosynthesis different from respiration in plants?
15. A stem acts as a two way street. Justify the statement.
16. What would happen if two opposite poles of two magnets are brought closer?
17. Give examples where objects undergo combinations of different types of motion?
18. How should the eye be positioned for taking reading of a scale?
19. Gita always reminds her younger brother to wash his hands as soon as he comes home after playing. Why?

Long answer type

1. Explain with the help of an activity, how can you test for proteins in a food sample?
2. How do we make yarn from fibre?
3. With the help of an activity, show that stem conducts water.
4. Differentiate between taproot and fibrous roots.
5. Can you measure the exact length of your desk using a string? How?
6. Name a few body units. Are they still used for measuring length? Why?
7. What precautions do we need to keep in mind while measuring the length of a given object?
8. Differentiate between circular and rotatory motion, giving examples.
9. How can you make your own magne

Term II

Question Bank

Very short answer type

1. By which process, pebbles and stones are removed from sand?
2. Can sand and black gram be separated by sieving?
3. Wood is a luminous object. True or false?
4. Is candle a man made source of light?
5. Does light travel in a straight line?
6. Name the two components of a habitat
7. In what type of change, no new substance is formed?
8. Give an example of heterotroph.
9. How do plants reproduce?
10. What is electric circuit?
11. What gives the different parts of the body their shape?
12. Both conductors and insulators have useful applications. True or false?
13. _____ are the point of attachment of two or more bones.
14. Write one example of hinge joint.
15. What is wind?
16. Soil organisms use air present in _____ for their survival.
17. Write one use of windmill.
18. What will sink to the bottom of the vessel – rice or dust?
19. Is burning of candle a reversible change?

Short answer type

1. Why does a lump of cotton wool shrink in water?
2. Why is oxygen important to us?
3. Define adaptation. Give an example.
4. Give two examples to explain the difference between changes that are slow or fast.
5. Are a- biotic factors important for all living organisms?

6. Do all living things need food?
7. Bones cannot be bent. So how do we bend our elbow?
8. How is the movement of pivotal joint different from that of hinge joint?
9. What would have happened, if backbone was made up of only one long bone?
10. How does an earthworm fix parts of its body to the ground?
11. Why do we find different kinds of plants and animals in deserts and sea regions?
12. How do we know that something is living?
13. How are we able to see objects like chair, a painting or a shoe?
14. Shadows give us some information about the objects. Justify the statement.
15. Which method of separating tea leaves from tea is better, decantation or filtration? Why?
16. Why water is called a universal solvent?
17. Where does the torch get electricity from?
18. A bulb does not have its filament intact. Will the bulb glow? Why?
19. Differentiate between conductors and insulators.
20. When we dissolve salt in water, what kind of change will occur?
21. During summer, Zubeida keeps a bowl of water and grains in the balcony of her house. Why do you think she does so?

Long answer type

1. Explain with the help of an activity if rubber is an insulator or not.
2. For what all purposes do you use electricity?
3. How can you show that a mirror changes the direction of light that falls on it?
4. Explain with the help of a diagram, the working of a periscope.
5. Do plants excrete? Explain.
6. How are trees adapted to the conditions prevailing in their habitat?
7. What makes the bones move the way they do?
8. Differentiate between sieving and filtration taking an example.
9. How is cottage cheese prepared?
10. How would you separate a mixture of two liquids that mix with each other? Give an example.
11. Why are tools often heated before fixing wooden handles? Is this a physical or a chemical change? Why?

Term 2

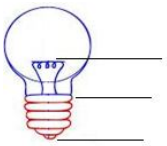
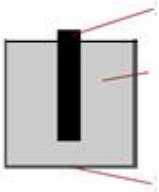
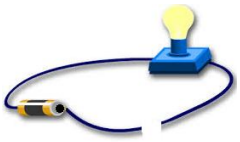
Revision assignments

Electricity and circuits

1. Match the following:

A	B
a. On- off device in electric circuits	filament
b. Wood	conductor
c. Spring like wire in bulb	positive terminal
d. Wet cloth	switch
e. Upper end of carbon rod in dry cell	insulator

2. The closed path of electricity is called
   a. Orbit b. circuit c. filament d. flow
3. The type of cells that can be charged again on being discharged are called _____.
4. A bulb with broken filament wire is called _____.
5. Can we replace electricity supplied by the mains instead of an electric cell?
6. Name two electrical devices that are used for :
   a. Cooking b. lighting c. producing sound
7. Why is an electric cable made of both, metal and plastic?
8. Mention any two properties of the filament of an electric bulb.
9. Which object you can use in place of a switch – a safety pin, pencil lead, a wooden scale, aluminium foil?
10. Label the following diagrams and name them:

a.  b.  c. 

11. Write T for true and F for false statements.
a. In thermal power station coal is used to produce electricity.
b. Both terminals of cell are positively charged.
c. Unreactive gas is filled in bulb to prolong its life.
d. Flow of protons cause electric current.
e. Battery is combination of two or more cells.
12. What do you mean by open and close circuit?
13. Fill in the blanks with suitable word.
a. --------- do not allow electric current to pass through them.
b. The bulb glows only when ---------- flows through the circuit.
c. Copper wire is a good ---------- of electricity.

Living organisms and their surroundings

1. Match the following:

A	B
a. Camel	webbed feet
b. Touch me not plant	desert plants
c. Duck	long legs
d. fleshy stem	mountains
e. cone shaped tree	response to stimulus

2. On being pricked with a pin, we quickly withdraw our hand. Which of the following is a stimulus here?

(A) Pin (B) Pricking with the Pin (C) Hand (D) Withdrawing hand

3. Frogs breathe through _____and_____.

4. Sunflower plant move towards sunlight. This is called _____.

5. Which of the following is not a 'biotic' component?

A. Plants B. Animals C. Water D. All are biotic

6. Whales use gills for breathing. True or False?

7. Shape of the body that tapers at ends and helps in movement in water is called _____.

8. Why is respiration necessary in living organism?

9. How are plants and animal adapted to survive in desert regions? (Take one example each)

10. Write T for true and F for false statement.

a. Camel excretes less quantity of urine.

b. Cockroach is a nocturnal animal.

c. Plant intake carbon dioxide during respiration.

e. Movement is the characteristic feature of all living organism.

11 List the common characteristic of living things.

12. Classify the habitats of these organisms as pond, sea or deserts.

Octopus, cactus, frog, Hydrilla, camel, starfish, shark, lotus.

13. Fill in the blanks with suitable word.

a. Pine tree are found in ---------- places.

b. Biotic components include all ---------- things of the environment.

c. Green leaves contain ---------- to absorb solar energy.

d. The transfer of pollen grain from anther to stigma is called ----------.

14. What is different between submerged and floating plants? Give example.

15. What may happen if:

a. A fish is taken away from water and placed on land.

b. A lotus plant is removed from water and planted on land.

c. Insect living in soil placed in a pond.

d. Mango sapling is planted under water.

16. Write T for true statement and F for false statement.

a. All animals are Autotrophs.

b. Light, temperature, soil, water are called abiotic components.

c. Organisms living in water are called terrestrial animals.

d. Habitat is the habit of living and non-living things.

e. Crocodile is an example of amphibian.

17. How plants and animals are interdependent on each other?
18. Write the importance of habitats?
19. Classify the following components of environment as biotic and abiotic.
a. Plants b. Bacteria c. Sunlight d. Fungi e. Soil f. Temperature.

Light, shadows and reflections

1. Match the following:

A	B
a. Non-Luminous	Lateral inversion
b. Natural source of light	Butter Paper
c. Translucent	Lunar eclipse
d. Left appears right in mirror	Water
e. Opaque	Sundial
f. Rectilinear propagation	Star
g. Shadow	Moon
h. Transparent	Wood

2. Can we surely deduce the actual shape of the opaque object from its shadow? Why or why not?
3. Comment on the heights of the images of two plants in a plane mirror, where one is 2 metre shorter than the other.
4. What does a mirror do to a ray of light falling on it?
5. A non-luminous natural body that shines in the absence of the sun:
   A. Earth B. Moon C. Water D. Plants

6. Write T for true and F for false statements.
a. Light is a form of energy which can not be seen.
b. The image formed by pin-hole camera is inverted.
c. We see the moon because it is a luminous body.
d. Colour of shadow depends on colour of the object.
e. Plane mirror is used in periscope.
7. What happens when light strikes a transparent body like glass?

Body movements

1. Number of vertebrae in backbone is _____.
2. Spine is protected from external injuries by _____.
3. A cockroach has _____ pairs of legs and _____pairs of wings.
4. Where is a pivotal joint present in the human body? _____
5. A joint is the meeting point of two _____.

6. Pattern of movement of a snake is by making _____.
7. An earthworm moves by continuous _____ and _____ of muscles.
8. Fills the blank with suitable word.
   a. The backbone is composed of ---------- vertebrae.
   b. The upper arm has a strong bone called ----------.
   c. The breaking of bone is called a ----------.

9. How bones of birds are adapted well for flying?
10. Earthworms are called farmers friend. Why?
11. Write the functions of skeleton in human body?
12. Solve the puzzle by filling suitable letters.
   a. These make up the human skeleton. B—N---.
   b. The red fluid in the body. – L—O ---D.
   c. Respiratory organ in our body. --- U --- G---.

13. Write T for true and F for false statements.
a. Bones are harder than cartilages.
b. Finger bones do not have joints.
c. Movement and locomotion is same in animals.
d. The fore arm has two bones.
e. Muscles help in movement of bone.
18. What is ball and socket joint? Give an example.
19. What would have happened if backbone was made up of single long bone?
20. Bones are hard structure, which can not be bent although we are able to move our hands, knee, elbow etc. comments.
21. Unscramble the jumbled words.
a. TNEMEVOM ----------.
b. LESKETON ----------.
c. EPAHS ----------.
d. LSECSUM ----------.
e. BOBACKNE ----------.

Changes around us

1. Fill in the blanks.
a. The solubility of a solvent ---------- on heating.
b. Metals ---------- on heating.
c. No change in composition of the substances takes place in ---------- change.
d. Germination of seed is ---------- change.
e. Changing of milk into curd is a ---------- change.
7. Give two example of changes in which energy is given out?
8. Classify the following changes in at least two ways.
a. Growth of baby
b. Formation of curd
9. What are undesirable changes? Give two example of it.
10. Classify the following as physical and chemical changes.
Melting of glass
Burning of incense stick

Tearing of cloth Formation of seed from flower
Cooking of food
Formation of cloud
6. Write T for true and F for false statements.
a. Cooking of rice is a physical change
b. Rotation of a fan is a fast change
c. Eruption of a volcano is a desirable change
d. Heat is absorbed or liberated during a change involving energy.
e. A change which produces new substance is a chemical change.
7. What is solubility? Write the constituent of solution?
8. Name a natural substance that is found in all three states in nature.
9. Write characteristic of chemical changes?
10. Iron rim is made slightly smaller than wooden wheel. How this rim is fitted on wooden wheel?
6. Fill in the blanks.
a. Changes in which a new substance is formed are called ----------.
b. Rotation of a fan is a ---------- change.
c. Dissolving salt in water is a ---------- change.
d. Eruption of a volcano is ---------- change
e. The glowing of a tube light is a ---------- change.
7. What are reversible changes? Give two examples.
8. What is sublimation? Write two examples of sublime substance?
9. Write some characteristics of physical changes?
10. Classify the following a reversible or irreversible change.
a. Growth of plant.
b. Ploughing of a field
c. Melting of Wax
d. Breaking of glass
e. Pulling of rubber string
f. Burning of paper.

Consolidated Science Revision Assignment

1. Mention one function for each:
   a. Skeleton -
      _____
   b. Switch -
      _____
   c. Ball and socket -
      _____
   d. Muscles -
      _____
   e. Light energy -
      _____

2.Will there be a solar eclipse on planet mercury? Why?

3.At night, in a stadium, during a cricket match, we see more than one shadow of ourselves/ players. Why?_____

4. a. Classify as luminous and non-luminous objects:
   torch, book, moon, table, sun, stars, earth
   b. Which of these are natural sources of light?_____
   c. What happens when moon reflects sunlight?_____

5. a. Draw a circuit diagram using an electric bulb, a switch, an electric cell and connecting wires.

   b. Mark the direction of current flow.
   c. What type of circuit is it – open or closed?
   d. How can this circuit be used to check if aluminium foil is a good conductor of electricity?

6. Mention adaptations for:
a. fish - _____
b. rats in deserts - _____
c. mountain goat - _____

7. Which of these is not a natural habitat? Sea, desert, zoo, mountains

8. Find errors in the following passage (each line has an error):
   Rohan wanted to drink a cup of milk, full of *iodine* ,*calcium*
   and fluorine, to keep his _____muscles strong. For reaching the cup kept on the table, from his sofa, _____he bent his backbone and stretched his ball and socket joint in the _____right elbow. He held the cup with his hand using his fixed joint in his fingers _____and hinge joint in his wrist.

9.Give reasons for the following :-
   a. Electrical appliances and tools have their handles covered with insulating materials.
   b. A gap is left between two rails.
   c. The leaves of *Mimosa* plant droop down when touched.
   d. What happens to cooked food when it is kept for 2 days

without refrigeration?

10. What is the difference between living things and non-living things?

11. Write the scientific terms for the following :-

a. To produce more of one's own kind
b. Spring like metal wire inside bulbs, which glows when current passes through it
c. An unwanted change brought about naturally or by us._____
d. Increase in volume due to a raise in temperature._____

12. Define the following :-

a. Stimuli
b. Circuit

13. Differentiate between :-

a. Physical and chemical changes
b. Closed circuit and open circuit
c. Evaporation and condensation

14. How does a tree with many leaves work as a natural pinhole camera?

15. Identify the type of joint and the body part that is being used in the action for carrying out the following activities: (any three)

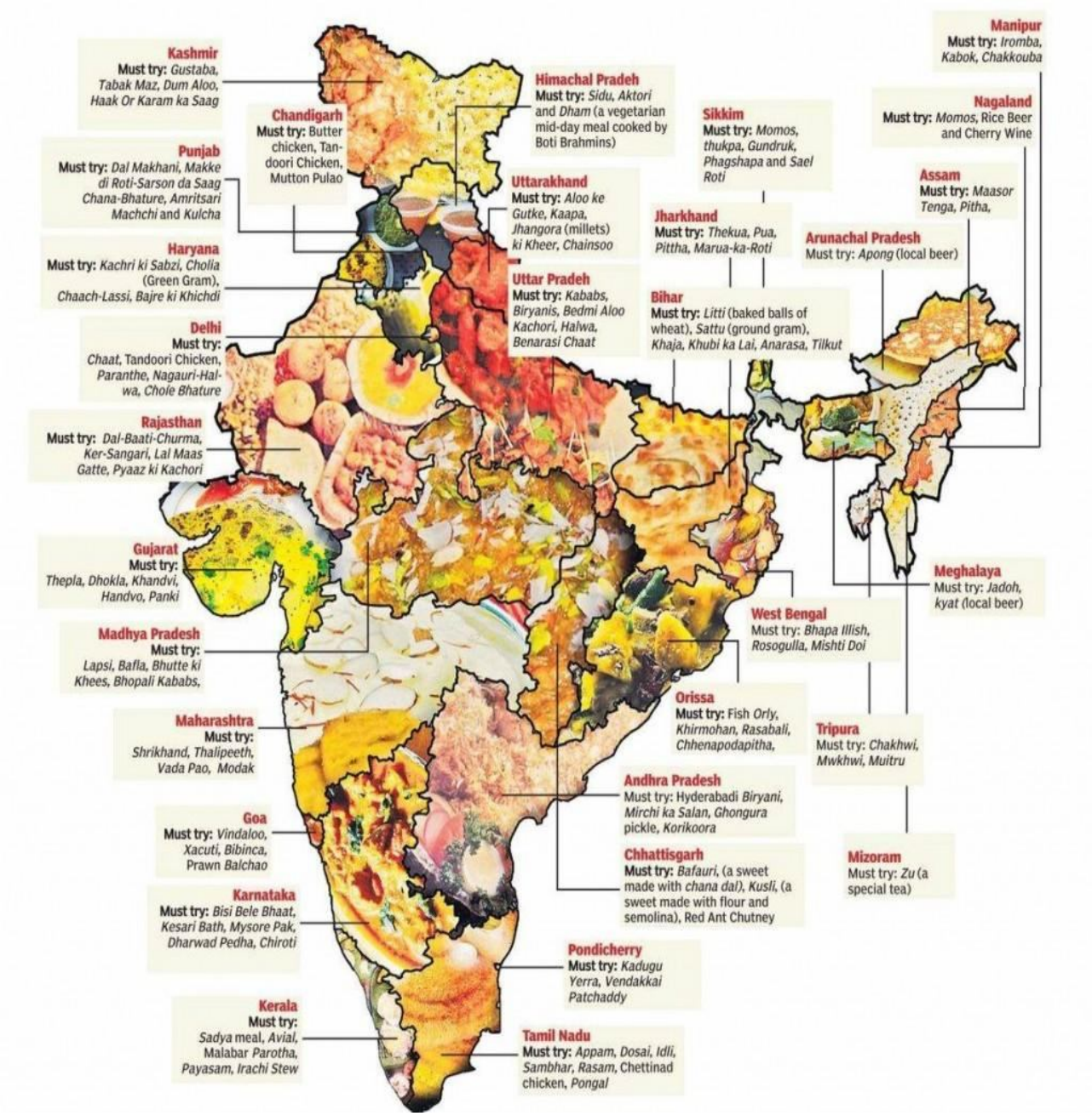
a. Lifting a bucket
b. Kicking a football
c. Nodding to say yes
d. Swinging a ball while playing cricket (bowler)
e. Squeezing a sponge ball with the hand.

16.Complete the following table: (Copy the table and fill in the missing spaces)

Habitat	Features of the habitat	Example of organism in the habitat	Adaptive features of the organism
Desert	a.	Cactus	b.
c.	Cold and windy, snows in winter	d.	Thick coat on body, strong hooves
Fresh water	e.	f.	g.
h.	Tall grasses, few trees, dry and windy	i.	j.

17. Draw a neat labelled diagram to show how the cells are connected in a torch? What is such a combination called?

Map – Staple foods of India



ACTIVITY

It has been proven over and over, that young children learn languages, formulae, concepts and other information much quicker in a fun and interactive way rather than slogging through heaps of textbooks. This year's science project aims at achieving this objective. The topic that has been chosen will be assessed only as a project and will not form a part of the term examination syllabus

Topic -Fibre and fabric (Chapter 3 of the textbook)

Since time immemorial, natural fibres have been used for apparel and home fashion. Today, many man-made fibres have been developed into beautiful fabrics that are being used by major designers. This summer break, have a great time sorting out your clothes and engaging with the given activity. Hope you enjoy doing this!

A. *Reading and Understanding – Begin with reading the chapter in the text book.*

B. *Research* - Collect as many different pieces and scraps of fibres and fabrics. Gather information on the fabrics under the following heads:

(i)Fabric and its source (Plant / animal / man-made)
(ii). Fabric and relevance of the region where it is used within India (cold and hot climate)
(iii). Fabric and relevance to the use(its purpose – like for making bags, clothes, mats,etc)
(iv). Properties of the fabric like strength, durability, absorption of water, etc.

C. *Fabric assemblage /Collage* -Now think of how you would like to present your collected fabrics as a collage.

- Take an A4 sheet of paper.
- Prepare a collage on one side of the paper using the fabrics collected.
- Use the other side to present the information that you collected under the Research head.

Make the collage on an *A4 size sheet* with the research (information) at the back of this page.

References

❾Class VI NCERT Text Book; http://42explore.com/fibers.htm ;
http://www.fabrics.net/projects.asp

Summer Holiday homework

Garbage in, Garbage out--- Activity method

Watch the video
https://www.youtube.com/watch?v=hee9JQvE_Ys

Activity
Part 1

·**Choose an area around your home or locality where people end up littering.**

·**Make a poster to create awareness to stop littering.**

·**Take pictures of the littered locality, create a slide show and post it on Google Classroom.**

Part 2

Make a poster to create awareness to stop littering.

Ruberic for evaluation	Innovation	Creativity	Presentation	Total
	2	3	5	10