केंद्रीय विद्यालय संगठन , क्षेत्रीय कार्यालय, मुंबई

KENDRIYA VIDYALAYA SANGATHAN, REGIONAL OFFICE MUMBAI

Azadi Ka Amrit Mahotsav

BRIDGE COURSE

ACADEMIC YEAR- 2022-23

SUBJECT- SCIENCE

STANDARD- SEVENTH

मुख्य संरक्षक/Chief Patron

श्रीमती सोना सेठ

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उपायुक्त केविसं क्षेत्रीय संभाग , मुंबई

Deputy Commissioner, KVS R.O. Mumbai

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Assistant Commissioner, KVS R.O. Mumbai

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Vice Principal K V AFS Ojhar

सदस्य

Members

1. **श्रीमती सैयद कहकशा टीजीटी (जीव विज्ञान)**

Mrs. Syed Kahkasha TGT (Biology)

केवि वायुसेना स्थल ओझर / KV AFS Ojhar

2. **श्रीमती निधि श्रीवास्तव टीजीटी (जीव विज्ञान)**

Mrs. Nidhi Shrivastav TGT (Biology)

केवि वायुसेना स्थल ओझर /KV AFS Ojhar

Instructions for students / parents

Dear students,

In the academic year 2021-22, you could not go to school as usual, but your teachers tried to bring education to you through various media like google meet, whatsapp , google classroom etc.. Even though our school was not regular, but the teaching learning process continued. Now we are getting ready for the new academic year. This bridge syllabus has been prepared for the purpose of Pre-preparation for the academic year 2022-23 as well as a review of the previous year Syllabus.

1. This Bridge Course is based on the important concepts of the previous class.

2. The duration of the bridge course has been fixed 18 days (03 weeks) and consists of 18 day wise Module.

3. Each Module in the bridge syllabus has been prepared with the aim of clarifying important concepts.

4. **The Module is constructed** as follows:

- **Objectives:** The concepts included in the Module are given here.

● **Learning Outcomes:** Learning Outcomes and developing competencies that can be achieved through the given Module.

● **Content:** A brief explanation is given to make the concept clearer. It includes tables, concept diagrams, flow charts, figures, etc.

● **Assessment:** The questions are designed with a balance of knowledge, understanding, application and skills to further practice the concepts and contents understood.

● **TLM and Reference:** To strengthen the concepts in the Module, video links of related concepts on the Diksha portal, YouTube links etc. & references are provided.

● **Feedback** : At the end of Module each student should give feedback based on the Module.

5. Each Module should be solved under the guidance of the teacher. Parents and Students should keep in touch with the teacher to stay consistently in the study.

6. Attempts should be made to complete it within the time allotted for each Module.

7. The answers to the questions in the Module should be solved in a separate notebook and preserve the notebook for internal assessment.

8. Small activities as well as experiments are given. These should be performed by the

students in the presence of parents or teachers.

9. Students should understand the concept by watching the related videos using the links given at the end of the Module.

10. Seek the help of your parents or teachers if you have any problems, solving the Module. We are confident that you too will successfully complete this bridge course and prepare yourself for the new academic year 2022-23 with confidence.

Best wishes for completing the bridge course with sincerity and self-effort.

Instructions for teachers

The global crisis of coronavirus outbreak in the academic year 2021-22 has led to many difficulties in direct classroom teaching. We all tried to reach out to the students using various media like Google Meet, Google Classroom etc. We also had great success in it.

But due to lack of direct teaching, our efforts were facing many limitations. The crisis is not over yet. There is a question mark over the commencement of schools in the academic year 2022-23. This bridge syllabus is created to review the studies done by our students in the academic year 2021-22, as well as for pre-preparation of the current academic year curriculum.

1. The bridge course is to be completed in a period of 18 days (three weeks).

2. In this bridge syllabus, the most important concepts of the previous year have been Included and presented in the form of Module.

3. Each Module is constructed in such a way that they contain small activities and experiments which can be easily performed by the students using the materials that are readily available.

4. Understand the structure of the Module in a systematic way, so that it will be easier to solve.

Objectives: Here are the key concepts included in the Modules related to last year's lesson. Much emphasis has been placed on last year's concepts, which have been further expanded this year.

Reference: Reference is made to last year's lesson. Students should be instructed to

use their last year's NCERT textbook & Exemplar.

Learning Outcomes: Learning Outcomes and developing competencies that can be achieved through the given Module. While solving the Module, attention should be paid to the achievement of the learning outcome, as well as to the development of the relevant competency.

Content: A brief explanation is given to make the concept clearer. It includes tables, concept diagrams, flow charts, figures, etc. Here you can design various other learning experiences. Important points and brief information are provided to make your teaching easier. You can add explanations to those concepts as per available time.

Assessment: The questions are designed with a balance of knowledge, understanding, application and skills to further practice the concepts and contents understood. The practice questions in each Module should be written by the students in an independent notebook. This will lead to revision as well as writing practice. These notebooks should be submitted after completion of the bridge course.

TLM/ Links for more study: To strengthen the concepts in the Module, video links of Related concepts on the Diksha portal & YouTube Links etc are provided. Students should be instructed to watch these videos at home.

5. This bridge course will be useful for understanding various concepts in the present class, for awakening the students' for knowledge as well as for reviewing the students' learning.

6. Observe that the students solve the Worksheets & MCQ type questions given in **assessment** strictly as per the plan given in the index.

7. The teacher should pay attention to the fact that the students will solve the Module in the bridge syllabus honestly and with self-effort. Understand their problems and help them accordingly.

8. After completing all Module, a test should be attempted by the students.

After checking the test, they should be evaluated by adopting proper criteria and the Marks should be recorded.

9. After the evaluation of test, the students who need therapeutic teaching should be properly guided..

10. After completing this 03 weeks bridge course, you should start teaching your regular

course.

Best wishes for the academic year 2022-23.

Index

Bridge Course Module Day -1

Standard: VII **Subject: Science** **Duration: 40 Minutes**

Topic- Sources of Food

Objectives

- List the food variety and ingredients
- Identify the sources of food material
- Name edible part of plant
- The categorization of animals into herbivores, carnivores and omnivores.

Learning Outcomes

Makes efforts to understand ingredients required to make different food items, familiarize students about different parts of food that we obtain from plants and animals.

CONTENT

INGREDIENTS

The materials required to prepare a dish are known **as ingredients**.

For Example: To make **vegetable sandwich** ingredients are Bread , Cheese , Cucumber and Tomato is required.

Plants give us vegetables, fruits, cereals, pulses, coffee, tea, sugar, oil, spices,

Different **parts of the plant are eaten as food**

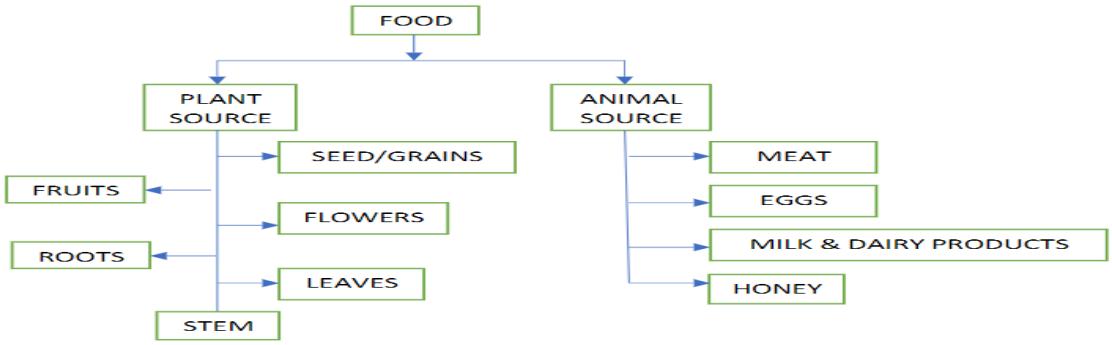
LEAF-spinach, mustard, cabbage

STEM-sugarcane, potato, ginger.

ROOT-carrot, radish

Flower-Broccoli, cauliflower, pumpkin

Fruits-Banana, Apple, grapes

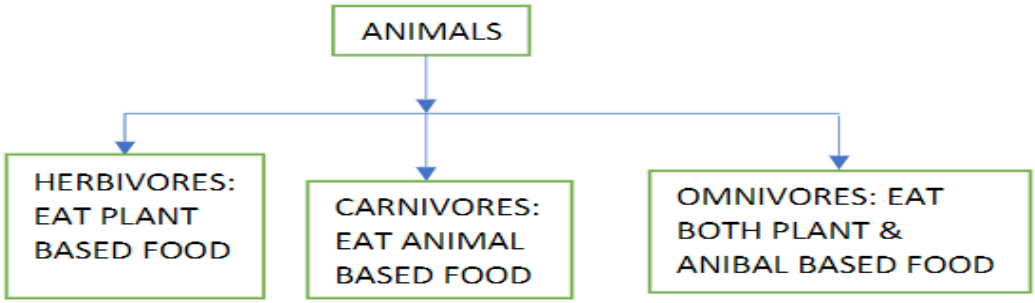


Seeds-mustard, fenugreek

Sprouted Seeds

The sprouted seeds are obtained by the process of SPROUTING. The white structure comes out of the seeds soaked in water and wrapped in a wet cloth. The seeds of MOONG and CHANA can be sprouted.

Food we get from Animals



The food which we get is milk ,paneer and mainly dairy products which we use in our daily life.There is only one insect which give us product honey which is obtained by a honey bee.We get meat and eggs from animals like goat , hen and chicken

Three types of Animal

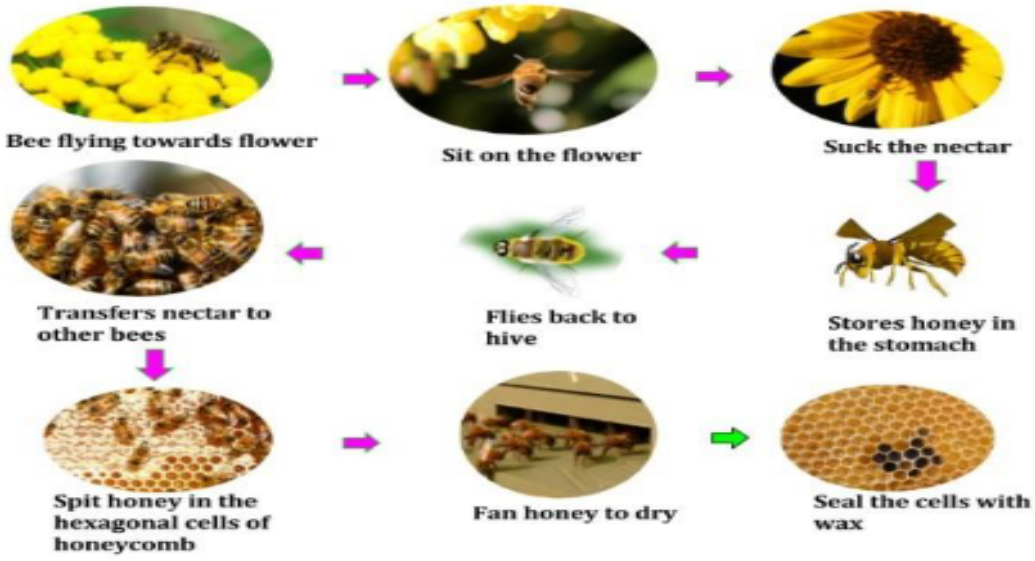
Carnivores-carnivores are animals who eat other animals flesh to survive.eg-lion, tiger etc.

How do bees make honey?

1. Bees fly down to nearby flowers and sit on them.
2. Then, they start sucking the nectar from the flowers.
3. Then, the nectar gets collected into honey stomach, which is different from the normal stomach.
4. When the honey bees have collected enough honey, they fly back to their hives.
5. Then, the bees pass the nectar to other bees in the hives with their mouths. They keep on passing the nectar from one mouth to the other mouth for chewing.The other worker bees keep chewing the nectar till it gets converted into honey.
6. When it is finally converted into honey, they spit the honey into hexagonal cells of the honeycomb.
7. The honey bee keeps fanning the honeycomb with its wings to dry the wet honey until it becomes sticky.
8. When it is dry the honey bee covers the hexagonal honey cells with wax so that it is not contaminated.

Herbivores-herbivores are animals who eat plants grass.eg-cow , goat

Omnivores-omnivores are the animals who eat the flesh of the other animals and also eat grass and plants. eg-dog, cat.



TLM : PPT, Chalk & Board , YouTube links , alternating academic calendar & Diksha Link

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ASSESSMENT

Multiple Choice Questions :

1. Given below are names of some animals:
(i) Goat (ii) Human beings
(iii) Cockroach (iv) Eagle

Which of the above animals form a pair of omnivores?
(a) (i) and (ii)
(b) (ii) and (iii)
(c) (iii) and (iv)
(d) (ii) and (iv)

2. Given below is a list of edible plants:
(i) Banana (ii) Pumpkin
(iii) Lady's finger (iv) Brinjal

Which pair of plants have two or more edible parts?

(a) (i) and (ii) (b) (ii) and (iii)
(c) (iii) and (iv) (d) (i) and (iv)

3. The part of a banana plant not used as food is
(a) flower
(b) fruit
(c) stem
(d) root

4. Read each set of terms and identify the odd set
(a) Cow, milk, butter
(b) Hen, meat, egg
(c) Goat, milk, meat
(d) Plant, vegetable, butter milk

5. Honeybee makes honey from
(a) pollen (b) petals
(c) nectar (d) bud

Answer the following questions

6. **Complete the Table**

Sr. No.	Plant	Plant part used as food
1	Tomato	
2		Stem
3	Turmeric	
4	Sugarcane	
5		Seed

7. Those animals that feed only on plants are called_____

8. Those animals that feed on both plants and animals are called _____

9. Those animals that eat the flesh of other animals are called _____

10. Name two ingredients in our food that are not obtained from plants or animals. Mention one source for each ingredient.

FEEDBACK :

Leaner's Diary:-

i. What I learnt:

ii. What I found Challenging:

iii. What I found interesting :

Bridge Course Module Day -2

Standard: VII **Subject: Science** **Duration: 40 Minutes**

Topic- Nutrition and Diet

Objectives :

a) Applies learning to scientific concepts in day to day life.

b) Selecting food items for balanced diet.

Learning Outcomes:

Applies learning to scientific concepts in day to day life. For example selecting food items for balanced diet.

CONTENT

a) Living things take food and water and use them for a variety of purposes such as: obtaining energy, growth of the body, to carry out day to day functions of the body, to fight diseases.

b) **Nutrients and food stuffs** Carbohydrates, fats, proteins, fibers, vitamins, minerals, are the main nutrients.

c**) Energy giving nutrients :**

Carbohydrates : Our main need is energy, which is fulfilled by carbohydrates. Hence our diet includes rice, chapati, bhakri and bread.

Fats : Oil, ghee and butter also gives us energy We get energy in the form of heat from food. Heat is measured in kilocalories. Hence the energy in food items is also measured in kilocalories.

Protein : We need proteins for the purpose of growth, repairing the wear and tear of the body. We get protein from sprouts, milk, and milk products, meat and eggs.

Mineral	Function	Sources	Deficiency Diseases
Iron	Carrying oxygen to all parts of the body	Meat, spinach, apples,raisins	Anaemia
Calcium and phosphorus	Strength bones and teeth	Milk and milk products. Green leafy vegetables, meat	Bad teeth, brittle and weak bones
Iodine	Controls growth, speeds up chemical reactions in the body	Raisin, beans, fish, sea food	Goitre
Sodium and potassium	Maintain the body's water balance and functioning of the muscles and the nervous system	Salt, cheese,leafy vegetables, fruits, pulses	Inefficiency of muscles

Minerals and Vitamins: To improve the body's resistance to disease and for other life processes the body needs vitamins, minerals and fibre in the diet. We obtain these nutrients mainly from vegetables and fruits.

Probiotics:-Micro-organisms which convert milk into yogurt are present in yogurt and in buttermilk. They are called probiotics. Lakhs of microorganisms reside in our intestines. Their presence in such large numbers is essential for our health.

TLM:

PPT, Chalk & Board, YouTube links, alternating academic calendar & Diksha Link

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ASSESSMENT

Multiple Choice Questions

1. Which one of the following food item does not provide dietary fibre?
(a) Whole grains
(b) Whole pulses
(c) Fruits and vegetables
(d) Milk

2. Which of the following sources of protein is different from others?
(a) Peas
(b) Gram
(c) Soyabeans
(d) Cottage cheese (paneer)

3. Which of the following nutrients is not present in milk?
(a) Protein
(b) Vitamin C
(d) Calcium
(d) Vitamin D

4. Read the food items given below:
(i) Wheat
(ii) Ghee
(iii) Iodised salt
(iv) Spinach (palak)
Which of the above food items are “energy giving foods”?
(a) (i) and (iv) (b) (ii) and (iv)
(c) (i) and (ii) (d) (iii) and (iv)

Answer the following ?

1.What is nutrition ?

2.Which unit is used to measure energy in food items ?

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3. Write any two names of mineral and its sources

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4. What will happen if ...

i)There is deficiency of iodine in the body.

ii)Vitamin A is reduced in the body

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5. What should be consumed in a diet ?

i). There are symptoms of BeriBeri.

---

ii). Scurvy is detected by a doctor.

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6. Classify following into carbohydrates, protein, fat, vitamin Cereals, ghee, paneer, wheat, meat, papaya, milk, egg, bhakri, cucumber, orange, fish, oil, carrot

Carbohydrates	Prtotein	Fat	Vitamin

FEEDBACK

Leaner's Diary:-

i. What I learnt:

ii. What I found Challenging:

_____
_____

iii. What I found interesting :

_____

_____

Bridge Course Module Day -3

Standard: VII **Subject: Science** **Duration: 40 Minutes**

Topic : Fibre to Fabric

Objectives

Kinds of Fibres and their sources

Learning Outcomes :

Process of making fabric from fibre

Content :

- There is a variety of clothing material or fabric, such as, cotton, silk, wool and polyester.
- Fabrics are made from yarns, which in turn are made from fibers.
- Fibers are either natural or synthetic.

Natural fibers

- The fibers of some fabrics such as cotton, jute, silk and wool are obtained from plants and animals. These are called natural fibers.
- For example Cotton, wool, silk and jute are some natural fibers.
- Fibers like cotton and jute are obtained from plants

Synthetic fibers

- Fibers are also made from chemical substances, which are not obtained from plant or animal sources. These are called synthetic fibers.
- For example nylon and polyester etc.

The journey starting from cotton bolls to a cotton shirt is as follows

1. **Picking:**
    - Cotton bolls burst open after maturing.
    - The seeds covered with cotton fibres are handpicked from the cotton bolls.
2. **Ginning:**
    - The process of separating the seeds from fibres by combing is called ginning.
    - These days ginning is done with the help of machines.

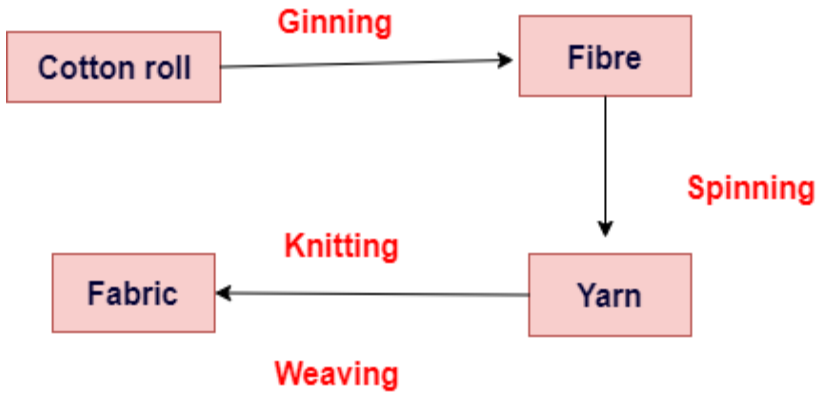
Ginning of cotton

3. **Spinning:**
    - In spinning, fibres from a mass of cotton wool are drawn out and twisted.
    - This brings the fibres together to make a strong yarn.
    - Spinning is done with the help of hand – operated devices such as charkha or by using spinning machines.

4. **Weaving and knitting:**
    - Weaving and knitting are the two methods of converting cotton yam into cotton fabric.

    - A cotton shirt is usually made by weaving. In weaving, two sets of yarns are arranged together to make a fabric.

5. **Stitching:**
    - The cotton fabric is then stitched into cotton shirt.



TLM : PPT, Chalk & Board, YouTube links, alternative academic calendar & Diksha Link
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Assessment

Choose the correct option in the following questions:

1. Which one of the following is a synthetic fibre?

(a) Nylon
(b) Rayon
(c) Polyester
(d) All of these

2. The clothes are made up of thinner and thinner strands called

(a) yam
(b) thread
(c) fibre
(d) fabric

3. Separation of fibres of cotton from its seeds is known as
(a) weaving
(b) spinning
(c) knitting
(d) ginning

4. Number of yams used to make fabric by weaving and knitting are
(a) two sets of yams in each case
(b) single yam in each case
(c) two sets of yams in weaving and single in knitting
(d) single yam in weaving and two sets in knitting

5. Weaving of fabric is done in
(a) handlooms
(b) power looms
(c) both (a) and (b)
(d) takli

6. Paheli wants to present her friend a gift made of plant-fibre. Which out of the following will she select?
(a) Jute bag
(b) Woollen shawl
(c) Silksaree
(d) Nylon scarf
Solution:
(a): Jute is a long, soft, shiny plant fibre that can be spun into coarse strong threads. It is obtained from the stems of jute plants Corchorus). Jute is a natural plant fibre. Wool is obtained from hair of animals like sheep, yak etc. Silk is obtained from silkworms and nylon is a man made fibre which is synthesised in factories using chemicals.

Answer the following questions

7. From which parts of the plant cotton and jute are obtained?

8. Explain the process of making yarn from fibre.

Feedback:

Leaner's Diary:-

i. **What I learnt**:

ii. **What I Found Interesting**:

Iii. What I found Challenging:

Bridge Course Module Day -4

Standard: VII Subject: Science Duration: 40 Minutes

Topic: SEPARATION OF SUBSTANCES

Objective:

To know the various methods of separation with suitable examples

Learning Outcome

Students can use the methods of separation in day to day life and relate the concepts in everyday activities

Content

- There are many instances when we notice a **substance being separated from a mixture of material.**
- Various methods can be used for separation.
- Some simple methods of separating substances that are mixed together are discussed below.

Handpicking

- This method of handpicking can be used for **separating slightly larger sized impurities like the pieces of dirt, stone, and husk from wheat, rice or pulses**.
- The quantity of such impurities is usually not very large.
- In such situations, we find that handpicking is a convenient method of separating substances.

Threshing

- The process that is used to **separate grain from stalks** etc. is threshing.
- In this process, the stalks are beaten to free the grain seeds.

Winnowing

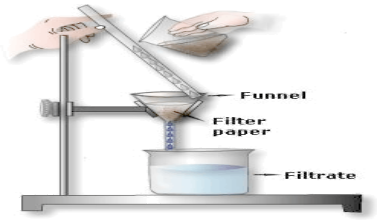
- Winnowing is used **to separate heavier and lighter components of a mixture by wind or by blowing air**.
- Husk is separated from heavier seeds of grain by winnowing.

Sieving and filtration

- Difference in the size of particles in a mixture is utilised to separate them by the process of sieving and filtration.
- **Sieving allows the fine flour particles to pass through the holes of the sieve while the bigger impurities remain on the sieve**.

Filtration can be used to separate components of a mixture of an insoluble solid and a liquid

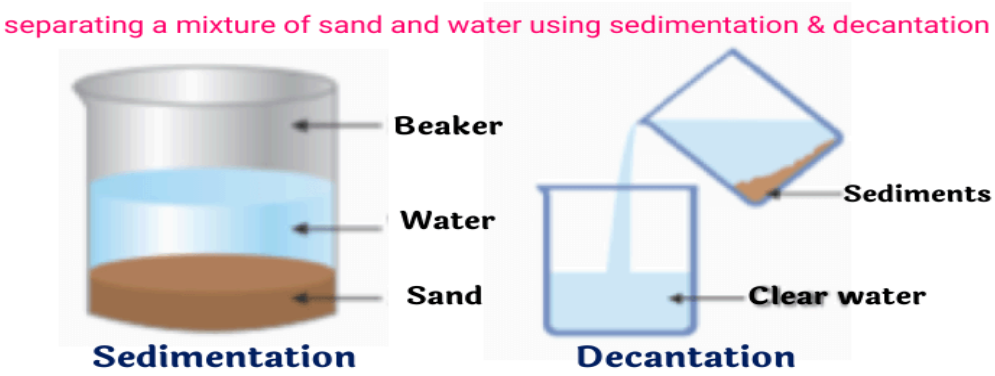
Sieving



Filtration

Sedimentation and Decantation

- When the **heavier component in a mixture settles after water is added to it**, the process is called sedimentation.
- **When the water (along with the dust) is removed**, the process is called decantation.
- In a mixture of sand and water, the heavier sand particles settle down at the bottom and the water can be separated by decantation.



TLM： PPT, Chalk & Board, YouTube links, alternating academic calendar & Diksha Link

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https://youtu.be/Skog2s8EGHI

Assessment

Multiple Choice Questions

1. Paheli bought some vegetables such as french beans, lady's finger, green chillies, brinjals and potatoes all mixed in a bag. Which of the following methods of separation would be most appropriate for her to separate them?

(a) Winnowing (b) Sieving

(c) Threshing (d) Hand picking

2. Boojho's grandmother is suffering from diabetes. Her doctor advised her to take 'Lassi' with less fat content. Which of the following methods would be most appropriate for Boojho to prepare it?

(a) Filtration (b) Decantation

(c) Churning (d) Winnowing

3. The correct sequence to get cloth is
(a) fibre → fabric → yarn
(b) fibre → yarn → fabric
(c) fabric → yarn → fibre
(d) yarn → fibre → fabric.

Answer the following questions

3. Fill in the blanks with appropriate words:

(i) Small pieces of stone can be removed from rice by _____.

(ii) _____ are obtained from stalks by threshing.

(iii) Husk from wheat flour is generally removed by _____.

(iv) The process of settling of heavier particles is called _____.

(v) Filtration is helpful in separating an insoluble _____ from a _____.

4. One way of making fabric from yarn is weaving, what is the other?

5. A cotton shirt, before it reaches you, completes a long journey. Elaborate this journey starting from cotton bolls.

Feedback:

Leaner's Diary:-

i. **What I learnt**:

ii. **What I Found Interesting**:

Iii **What I found Challenging**:

Bridge Course Module Day -5

Standard: VII **Subject: Science** **Duration: 40 Minutes**

Topic- Changes: Reversible or Irreversible

Objectives

- Reversible Changes
- Irreversible Changes

Learning Outcomes

Makes efforts to identify and understand various changes happening around us and classifying them as Reversible and Irreversible.

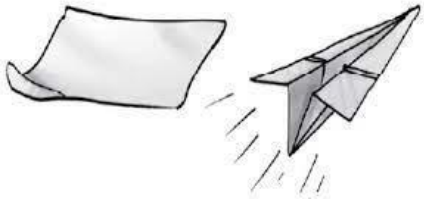
CONTENT

- Many changes are taking place around us on their own.
- In the fields, the crops change from time to time.
- Sometimes, leaves fall from trees, change colour and dry out.
- The flowers bloom and then wither away.
- Changes can be classified into two groups as **Reversible and Irreversible**.

Reversible Changes

- The changes which can be brought back to their original form are known as reversible changes.

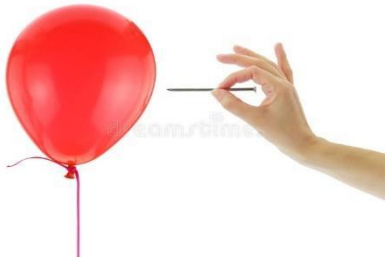
Some examples of reversible changes are listed below :

	A balloon changing its size and shape on blowing air into it
	A toy aeroplane made by folding paper
	A ball of dough and a rolled out roti

Irreversible Changes

- The changes in which the matter cannot be brought back to its original state are known **as irreversible changes.**

Some examples of irreversible changes are listed below :

	Pricking balloon with the pointed tip of a pencil/ nail

	An aeroplane cut out of paper
	Rolling out a roti from the ball of dough and baking it on a tawa

TLM : PPT, Chalk & Board , YouTube links , Alternative Academic Calendar & You tube link

https://youtu.be/x57rfuFZPJI

https://youtu.be/zxfun6TvBEo

https://youtu.be/xK1ZdOHjrGU

ASSESSMENT

Multiple Choice Questions

1. Pick the change that can be reversed from the following
   (a) Cutting of trees (b) Melting of ghee
   (c) Burning of candle (d) Blooming of flower
2. Rolling of chapati and baking of chapati are the changes that
   (a) can be reversed.
   (b) cannot be reversed.
   (c) can be reversed and cannot be reversed, respectively.
   (d) cannot be reversed and can be reversed, respectively.
3. Which of the following change cannot be reversed?

(a) Hardening of cement
(b) Freezing of ice cream
(c) Opening a door
(d) Melting of chocolate

4. Iron rim is made slightly smaller than the wooden wheel. The rim is usually heated before fixing into the wooden wheel, because on heating the iron rim
(a) expands and fits onto the wooden wheel.
(b) contracts and fits onto the wooden wheel.
(c) no change in the size takes place.
(d) expands first, then on cooling contracts and fits onto the wooden wheel.

5. Which is a way to make a change happen?
(a) Heating a substance
(b) Cooling a substance
(c) Mixing a substance with another substance
(d) All of these

Answer the following questions

6. Boojho's sister broke a white dove, a symbol of peace, made of Plaster of Paris (POP). Boojho tried to reconstruct the toy by making a powder of the broken pieces and then making a paste by mixing water. Will he be successful in his effort? Justify your answer.

7. A piece of iron is heated till it becomes red-hot. it then becomes soft and is beaten to a desired shape. What kind of changes are observed in this process-reversible or irreversible?

8. Conversion of ice into water and water into ice is an example of change which can be reversed. Give four more examples where you can say that the changes can be reversed.

9. Paheli mixed flour and water and (i) made a dough, (ii) rolled the dough to make a chapati, (iii) baked the chapati on a pan, (iv) dried the chapati and ground it in a grinder to make powder. Identify the changes (i) to (iv) as the changes that can be reversed or that cannot be reversed.

Feedback:

Leaner's Diary:-

i. **What I learnt**:

ii. **What I Found Interesting**:

Iii **What I found Challenging**:

Bridge Course Module Day - 6

Standard: VII Subject: Science Duration: 40 Minutes

Topic : Parts of a leaf

Objectives

- Leaf and its parts
- Venation in leaf
- Roots and its types
- Transpiration
- Photosynthesis

Learning Outcome

- Differentiates tap and fibrous roots on the basis of their properties, structure and functions
- Understand the structure of a leaf , processes of transpiration and photosynthesis

Content:

- Various types of plants are found in many places around us.
- Some plants like grass are short, while others are tall and have a canopy. Some plants grow underwater, while some others float on water.
- We find that some plants grow even in deserts.
- Plants make their own food in sunlight. Such plants are called autotrophic

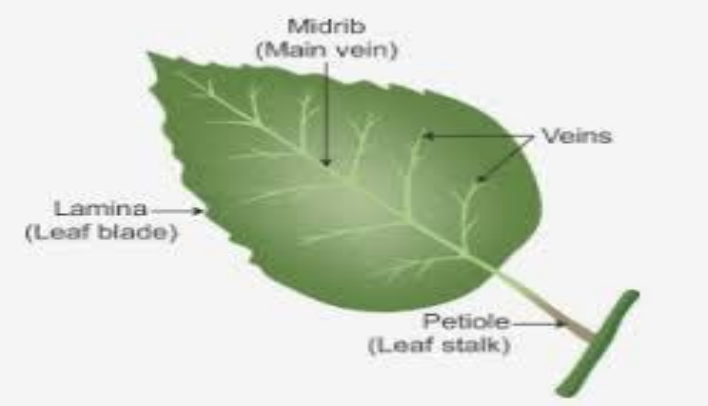
plants.

- Some plants use other plants for food and are said to be heterotrophic plants.
- Plant structure can generally be divided into two parts – the stem which grows above the ground and the root which grows below the ground surface.

The leaf

- The leaf is flat. It plays an important role in the production of food.

Parts of a leaf



- The part of leaf by which it is attached to the stem is called petiole. The broad, green part of the leaf is called lamina.
- The lines on the leaf are called veins. A prominent line in the middle of the leaf is called the midrib.

leaf venation

- The design made by veins in a leaf is called the leaf venation.
- If this design is net-like on both sides of midrib, the venation is reticulate.
- In the leaves of grass you might have seen that the veins are parallel to one another. This is parallel venation.

- The height, shape and size of a plant depends upon the stem.
- The stem carries out the functions of production, conduction and storage of food. In some plants, it has the function of reproduction.
- It gives support to other parts of the plant

The root

- Roots hold the soil firmly and anchor the plant. The main functions of the root are to absorb and transport water and nutrients from the soil.
- The roots of the carrot and radish also store food.
- There are two types of roots : taproot and fibrous root.

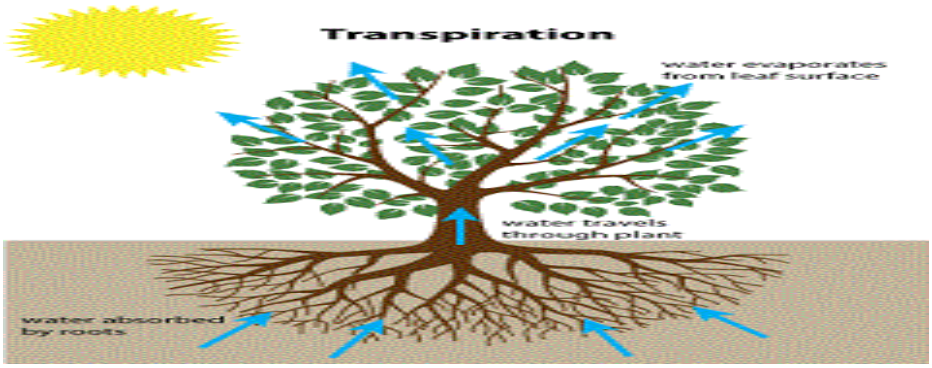
Tap root:

- The main root which is larger and fast growing is called tap root and the branched smaller roots is called lateral root.
- Plants with roots that do not have a main root. All roots seem similar and these are called fibrous roots.

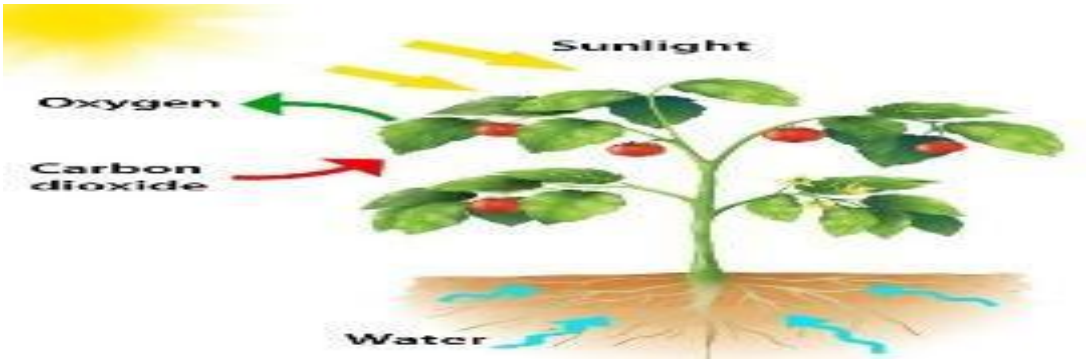
Some processes carried out by plants are :-

Transpiration

- Water comes out of leaves in the form of vapour by a process called transpiration.
- Plants release a lot of water into the air through this process.



Photosynthesis



- Leaves prepare their food in the presence of sunlight and a green coloured substance present in them.
- For this, they also use water and carbon dioxide.
- This process is called photosynthesis. Oxygen is given out in this process. The food prepared by leaves ultimately gets stored in different

TLM

https://ncert.nic.in?/
https://youtu.be/AHk1v9Buh3Q
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Assessment

Worksheet

1. **What types of roots are found in plants? Draw diagram.**

---

2. **Draw a diagram of the plant and show leaf, stem, fruit, flower and root.**

3. **Which of the following combination of features would you observe in grass?**

(a) Parallel venation and fibrous root (b) Parallel venation and tap root

(c) Reticulate venation and fibrous root (d) Reticulate venation and tap root

4. **Observe Figure 7.3 given below and attempt the questions that follow it.**

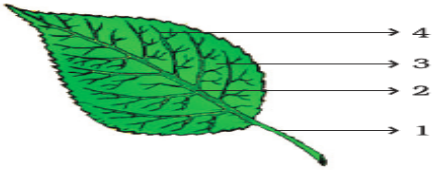


Fig. 7.3

(a) Label the parts 1, 2, 3 and 4 in the diagram.

5**. Read the function of parts of a plant given below:**

(a) fixes plant to the soil

(b) prepares starch

(c) takes part in reproduction

(d) supports branches and bears flowers

6. **Name the part of the plant which carries out the functions given above.**

7. **The process of loss of water by a plant through leaves is called**

(a) evaporation
(b) condensation
(c) photosynthesis
(d) transpiration

FEEDBACK

Leaner's Diary:-

i. **What I learnt**:

ii. What I Found Interesting:

Iii What I found Challenging:

Bridge Course Module Day -7

Standard: VII **Subject: Science** **Duration: 40 Minutes**

Topic : Parts of a flower

Objectives:

Identify different parts of flowers, draw different parts of flowers, different functions of flower parts

Learning Outcomes

Draws labelled diagrams / flow charts of organisms, e.g., parts of flowers

Content

Parts of a Flower

The different parts of a flower are mentioned below:

Petals:

- Different flowers have petals of different colours.
- This is a bright-coloured part that attracts bees, insects, and birds.
- Colour of petals varies from plant to plant; some are bright while some are pale coloured.
- Thus, petals help us to differentiate one flower from another.

Sepals:

- Sepal is the green-coloured part beneath the petals to protect rising buds**.**
- Some flowers have fused petals-sepals while a few have separated petals-sepals.

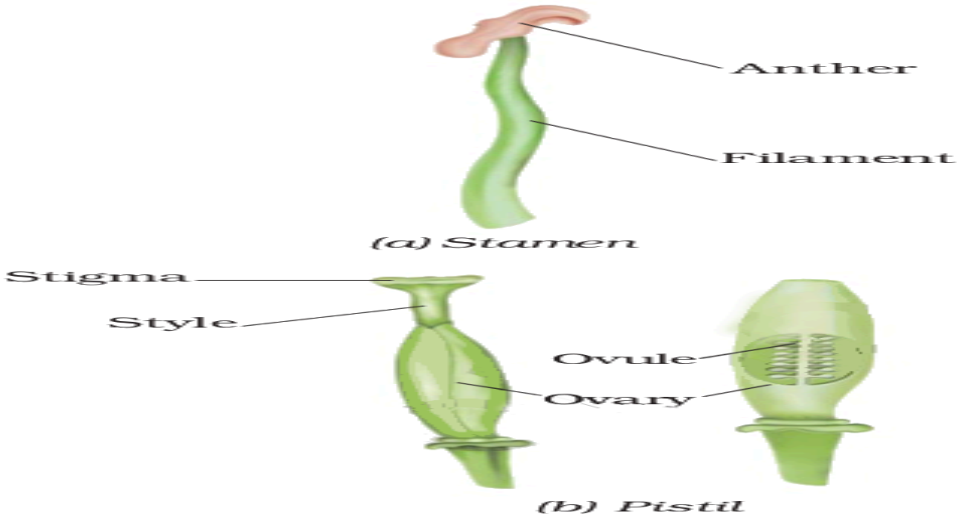
Stamen:

- This is the male reproductive organ and is also known as Androecium.
- It consists of two parts namely: anther and filaments.
- The anther is a yellowish, sac-like structure, involved in producing and storing the pollens.
- The filament is a slender, threadlike object, which functions by supporting the anther.

Pistil:

- This is the innermost part and the female reproductive organ of a flower which comprises three parts -stigma, style and ovary. This is collectively known as the pistil.

1. **Stigma:** It is the topmost part or receptive tip of carpels in the gynoecium of a flower.
2. **Style:** It is the long tube-like slender stalk that connects stigma and the ovary.
3. **Ovary**: It is the ductless reproductive gland that holds a lot of ovules. It is the part of the plant where the seed formation takes place.



Pollination

- Pollination is the process in which the pollens are transferred from anther to stigma.
- The process of pollination can occur through different mediums.

TLM : PPT, Chalk & Board , YouTube links , alternative academic calendar & Diksha Link

https://diksha.gov.in/play/collection/do_31272610911923404812463 8? contentId=do_31258036361718988 8211632 (flower)

https://youtu.be/KBRL3Bmx1KI

Assessment

Answer the following questions

1. Which of the following terms constitute the female part of the flower.

(a) sepals, petal and stamen (b) stigma, style and ovary

(c) ovary, stamen and stigma (d) ovary, style and stamen

2. Draw and label the different parts of the flower.

3. In which part of the flower, you are likely to find the ovary?

4. What is pollination?

4. Fill in the blanks:

(a) The small green leaves at the base of flowers are known as ----------.

(b) The swollen basal part of the pistil is the ---------- which bears the ----------

(c) Stamen has two parts called ---------- and ----------.

(d) The young unopened flower is termed as ----------.

Feedback form

Leaner's Diary:-

i. **What I learnt**:

ii. **What I Found Interesting**:

Iii **What I found Challenging**:

Bridge Course Module Day -8

Standard: VII **Subject: Science** **Duration: 40 Minutes**

Topic: Structure of plant and its classification

Objectives :

- **Autotrophic plants**
- **Heterotrophic plants**.
- **Plant structure**
- **Classification of plants**

Learning Outcomes:

Differentiates materials and organisms, such as, fibre and yarn; tap and fibrous roots; electrical conductors and insulators; on the basis of their properties, structure and functions.

CONTENT

Various types of plants are found in many places around us. Some plants like grass are short, while others are tall and have a canopy. Some plants grow underwater, while some others float on water. We find that some plants grow even in deserts.

- Plants make their own food in sunlight. Such plants are called **autotrophic plants**.

- Some plants use other plants for food and are said to **be heterotrophic plants**.

The structure of a plant

Plant structure can generally be divided into two parts

- **The stem** which grows above the ground and
- **The root** which grows below the ground surface.

The flower :

- This is the most attractive part of a plant. It is connected to the stem by a stalk which may be long or short.
- A flower has a typical colour and shape.
- The flower is an important means of reproduction.

The leaf :

- The leaf is flat.
- It plays an important role in the production of food.

Leaves are mainly of two types :-

- Simple and
- compound leaves.

The stem :

- The height, shape and size of a plant depends upon the stem.
- The stem carries out the functions of production, conduction and storage of food.
- In some plants, it has the function of reproduction. It gives support to other parts of the plant.

The fruit :

- Fruits have different shapes.

- Fruits contain one or more seeds.

The root :

- Roots hold the soil firmly and anchor the plant.
- The main functions of the root are to absorb and transport water and nutrients from the soil.
- The roots of the carrot and radish also store food.
- There are **two types of roots** : **taproot and fibrous root**.

Classification of plants :-

- We can easily notice the differences in the shape and height of the plants in our surroundings.
- It is easy to classify the plants on the basis of this observation.

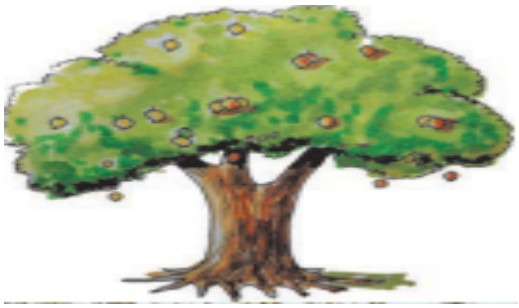
The **scientist Carolus Linnaeus** made the first scientific classification of plants.

According to the size and height of their stems, plants can be classified into three types :

- Trees
- shrubs and
- herbs.

Trees :

- Some plants grow tall. Their stem, or trunk, is hard and strong.
- They have branches at some height above the ground.
- They bear flowers and fruit for many years. Such plants are called trees.
- Trees are tall, big and perennial, i.e. They live for many years.
- For eg. mango, banyan and tamarind tree.



Shrubs :

- Some plants grow close to the ground.
- They give out branches very close to the ground.
- They are shorter and smaller than trees, but they have a thick and hard stem.
- The oleander, hibiscus, lantana, koranti and rose are shrubs that may grow up to two to three metres.

Herbs :

- Herbs grow 1 to 1.5 metres tall.
- The stems of herbs are green and quite flexible as compared to those of trees and bushes.
- Herbs may live for a few months or up to two years.
- Vines : The stem of a creeper is very flexible, soft and green.
- It grows rapidly with the help of a support.

TLM : PPT, Chalk & Board, YouTube links, alternative academic calendar & Diksha Link

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ASSESSMENT

Multiple Choice Questions

1. Which of the following is the correct match between the characteristics of stem and the category of plant?
   (a) Weak stem which cannot stand upright: Creeper
   (b) Green tender stem: Shrub
   (c) Thick, hard stem with branching near the base: Tree
   (d) Thick, hard stem with branches high on the plant: Herb
   Solution:
   (a) : Herbs are the small sized plants with green, tender stem. Shrubs are the medium sized plants having thick, hard stem with branching near the base. Trees are the tall plants having thick, hard stem with branches high on the plant.
2. Which of the following is not the primary function of stem?
   (a) Conduction of water
   (b) Photosynthesis
   (c) Formation of branches
   (d) Bears flowers and fruits

Solution:
(b): Photosynthesis is the primary function of leaf.

3. Which of the following is not a correct match?
   (a) Petiole: attaches leaf to stem
   (b) Lamina: green flat part of leaf
   (c) Margin: gives shape to the leaf
   (d) Veins: transpiration
   Solution:
   (d) : Veins: Transpiration Veins transport water, minerals and food in the leaf, and provide support to the leaf.

4. Read the following sentences about photosynthesis.
   (i) Sunlight, carbon dioxide, chlorophyll and water are necessary.
   (ii) Oxygen is absorbed.
   (iii) Leaves carry out photosynthesis.
   (iv) Proteins are made during photosynthesis. Choose the correct pair of sentences that are true to photosynthesis.
   (a) (iii) and (iv)
   (b) (i) and (iii)
   (c) (ii) and (iv)
   (d) (i) and (iv)
   Solution:
   (b) : Oxygen is released during photosynthesis. Carbohydrates (glucose) are made during photosynthesis not proteins.

Answer the following questions

1) **Circle the odd one out**.

a) Banyan tree, Mango tree, Rose, Tamarind tree.

b) Carrot, Radish, Beet, Coconut.

2) **Write the names of the different plants in your surroundings that have compound leaves.**

---

3) **Have you seen the cucumber tendrils that look like a spring? What is the use of the tendrils? Write it in your words**

---

4) **Write down the different uses of the plants**.

---

5. **Draw a diagram of the plant and show leaf, stem, fruit, flower and root.**

Feedback form

Leaner's Diary:-

i. **What I learnt**:

ii. **What I Found Interesting**:

Iii **What I found Challenging**:

Bridge Course Module Day - 9

Standard: VII **Subject: Science** **Duration: 40 Minutes**

Topic- Understanding our Skeletal System

Objectives:

Skeleton

Ball and Socket joint on of

Hinge Joint

Pivotal Joint

Fixed Joint

Gait of animals

Learning Outcomes:

Knowing the human Skeleton and its composition, exploring and locating the joints in the body and their movement, methods of locomotion of other organisms

CONTENT

Human Skeleton

- Bones and cartilage form the skeleton of the human body.
- It gives the frame and shape to the body and helps in movement.
- It protects the inner organs.

Human Skeleton

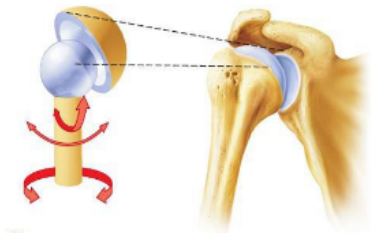
- The human skeleton comprises the skull, the back bone, ribs and the breast bone, shoulder and hipbones, and the bones of hands and legs.
- The bones are moved by alternate contractions and relaxations of two sets of muscles.
- All the bones in our body also form a framework to give a shape to our body.
- This framework is called the skeleton.

- **The bone joints** are of various kinds depending on the nature of joints and direction of movement they allow.

Some joints of our body are:-

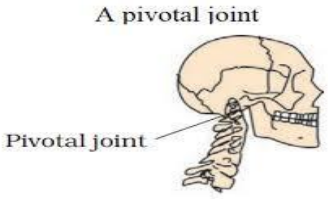
Ball and socket joint

- The rounded end of one bone fits into the cavity (hollow space) of the other bone .
- Such a joint allows movements in all directions.



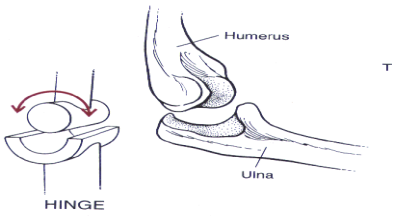
Pivotal Joint

- The joint where our neck joins the head is a pivotal joint .
- It allows us to bend our head forward and backward and turn the head to our right or left.
- In a pivotal joint a cylindrical bone rotates in a ring.



Hinge joint

- Hinge joints are a type of joint that functions much like the hinge on a door.
- Allowing bones to move in one direction back and forth with limited motion along other planes.
- The elbow has a hinge joint that allows only a back and forth movement.



Fixed joint

- Some joints between bones in our head are different from other joints.
- The bones cannot move at these joints. Such joints are called fixed joints.
- There is a joint between the upper jaw and the rest of the head which is a fixed joint.

Gait of Animals

- **Strong muscles and light bones** work together to help **the birds fly**.
- They fly by flapping their wings.
- **Fish swim** by forming loops alternately on two sides of the body.
- **Snakes slither** on the ground by looping sideways. A large number of bones and associated muscles push the body forward.
- **The body and legs of cockroaches** have hard coverings forming an outer skeleton. The muscles of the breast connected with three pairs of legs and two pairs of wings help the cockroach to walk and fly.

- **Earthworms** move by alternate extension and contraction of the body using muscles.
- **Tiny bristles** on the underside of the body help in gripping the ground.
- **Snails** move with the help of a muscular foot.

TLM: PPT, Chalk & Board , YouTube links , alternative academic calendar .

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Assessment

Multiple Choice Questions

1. Skeleton of human body is made up of
a. Bones
b. Cartilage
c. Both bones and cartilage
d. None of these

2. Fixed joints are found in
(a) lower jaw
(b) skull
(c) hands
(d) hip bone

3. Knee joints are
(a) hinge joints
(b) ball and socket joints
(c) pivotal joints
(d) fixed joints

4. Fish swims by
(a) forming loops alternately on two sides of the body
(b) forming loops on single side
(c) somersaulting
(d) alternate dipping and coming up

5. Which one of the following is the characteristic of birds?
(a) Strong muscles
(b) Light bones
(c) Hollow bones
(d) All of these

Answer the following questions

6. Name the type of joint of your hand which help you to grasp a badminton racquet.
7. Provide one word answers to the statements given below.

a) Joint which allows movement in all directions.
b) Hard structure that forms the skeleton
c) Part of the body with a fixed joint.
d) Help in the movement of body by contraction and relaxation.
e) Bones that join with chest bone at one end and to the backbone at the other end.
f) Framework of bones which gives shape to our body.
g) Bones which enclose the organs of our body that lie below the abdomen.
h) Joint where our neck joins the head.
i) Part of the skeleton that forms the earlobe.

Feedback form

Leaner's Diary:-

iii. What I learnt:

iv. What I Found Interesting:

Iii What I found Challenging:

Bridge Course Module Day -10

Standard: VII **Subject: Science** **Duration: 40 Minutes**

Topic- The Living Organisms: Characteristics and Habitats

Objectives

- Characteristics of living things
- Adaptation
- Habitats
- Terrestrial Habitats
- Aquatic Habitats

Learning Outcomes

- Summarize the key features of living organisms

- Differentiate between terrestrial & aquatic habitats.
- Importance of abiotic factors for the growth & sustenance of life on earth
- Different physical feature that assist inhabitants to survive in harsh conditions
- Various adaptive features of different organisms in their habitats
- Characteristics of organisms

CONTENT

- Due to the geographical conditions, there are many kinds of life on earth.
- Some parts of the earth have hot weather all year round.
- Some are high mountains, some are plains, some are very rainy and some are dry and arid deserts.
- There are freshwater rivers, as well as saltwater oceans.
- Due to such diversity on earth, the diversity of living things found here is also evident.
- Following ar**e the characteristics :**

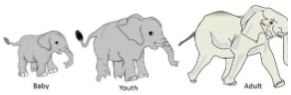
Nutrition

Living things need food for:

- growth
- survival
- producing energy required for various activities
- repairing worn out tissues

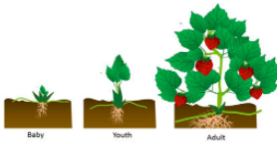
Growth

Living things grow and develop



Development:

- cells divide
- grow
- get bigger in size

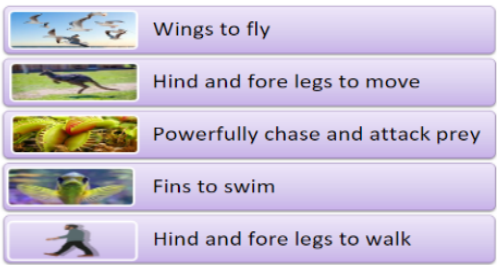


Growth:

- to get bigger in size

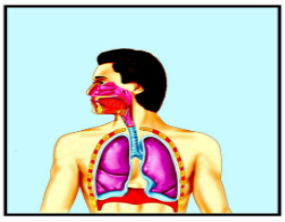
Movement

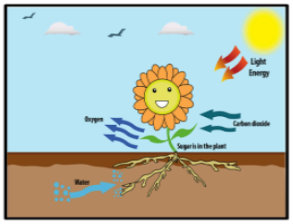
- Living things can move
- Plants move towards light
- Change happens when flower opens and closes



Respiration

All living things carry out a chemical process called respiration to release the energy contained in the food.





Animal Adaptation

Adaptation

The presence of specific features or certain habits, which enable a plant or an animal to live in its surroundings, is called adaptation.

- Different animals are adapted to their surroundings in different ways.
- Eg: Fish have slippery scales on their bodies.
- These scales protect the fish and also help in easy movement through water.

To know more about Adaptation, visit the link below;

Adaptation

Habitats

Surroundings

- The different surroundings or areas have different organisms that live in.
- E.g.: The deserts have camels, the mountains have goats and yak.

Habitat

The surrounding where living organisms survive is known as habitat.

- The organisms depend on their habitat for their food, water, air, shelter and other needs.
- Habitat means a dwelling place (a home).
- Several kinds of plants and animals may share the same habitat.

Biotic Components

- The **living components** of a habitat are called biotic components.
- Eg: plants, animals

Abiotic Components

- The **non-living components** of a habitat are called as abiotic components.

- E.g.: rocks, soil, air, water etc

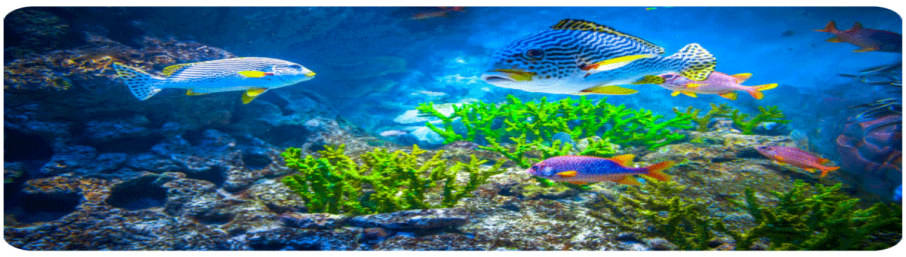
Terrestrial Habitats

- The plants and animals that **live on land** are said to live in terrestrial habitats.
- E.g.: forests, grasslands, deserts, coastal and mountain regions.

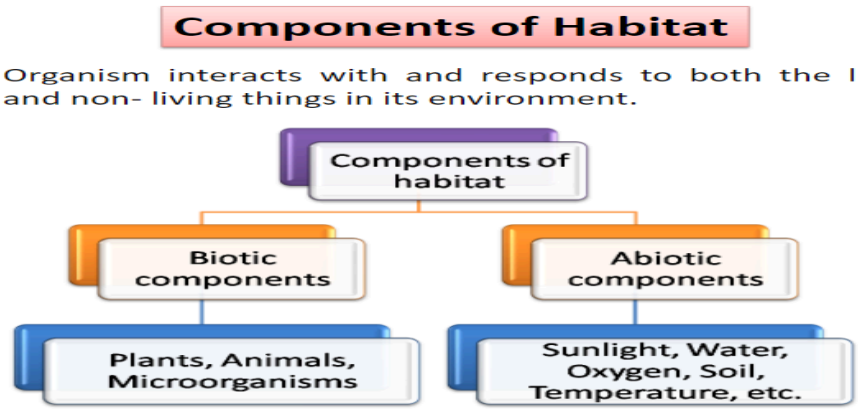
Forest, a typical terrestrial habitat

Aquatic Habitats

- The habitats of plants and animals that **live in water** are called aquatic habitats.
- E.g.: ponds, swamps, lakes, rivers and oceans.
- Aquatic habitats could be fresh water (river, pond) or marine (sea) or even estuarine (delta of river meeting with the sea)



Ocean, an aquatic habitat



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ASSESSMENT

Multiple Choice Questions

1. Which is not an abiotic component of environment?

   a. Soil
   b. Bacteria
   c. Water
   d. Air

2. _____ is an example of an animal found in mountain region?

   a. Leopard
   b. Yak
   c. Mountain goat
   d. All of these

3. _____ is a biotic component of environment?

   a. Plants
   b. Animals
   c. Microorganisms
   d. All of these

4. Which one of the following statements is correct?

   a. Several kinds of plants and animals may share the same habitat
   b. All the animals and plants in a habitat are adopted to it.
   c. Both the statements are correct.
   d. None of these

5. Animals like a camel can survive in a desert. Which of these features in the camel helps them to survive in the desert?

   a. Hump of the camel produces food
   b. Long neck help to store more water
   c. Long legs protect them from heat of the sand
   d. Thicker skin help in the transpiration of more water
      Correct Answer: Option (c)

6. Animals like polar bears living in cold regions have long hairs in their body. How do these hairs help an animal to survive in a cold region?

   a. It keeps their body warm
   b. It helps an animal to run faster
   c. It helps the animal to swim in water

d. It absorbs water from the atmosphere
Correct Answer: Option (a)

Answer the following questions

7. Give an example of a non-living things, which shows any two characteristics of living things.

_____

_____

_____

8. List the common characteristics of the living things.

_____
_____

Feedback form

Leaner's Diary:-

i. **What I learnt**:

ii. **What I Found Interesting**:

Iii **What I found Challenging**:

Bridge Course Module Day -11

Standard: VII **Subject: Science** **Duration: 40 Minutes**

Topic- Motion and its Types

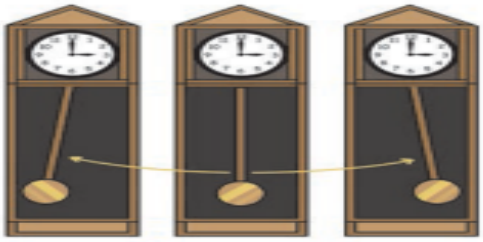
Objectives :

- Linear & Non – Linear Motion
- Oscillatory Motion
- Circular Motion
- Periodic Motion
- Random Motion
- Speed and its formula

Learning Outcomes:

Explaining the concept of motion and giving day to day examples of motion such as Non - Linear

Motion, Oscillatory Motion, Circular Motion, Periodic Motion and Random Motion.



CONTENT

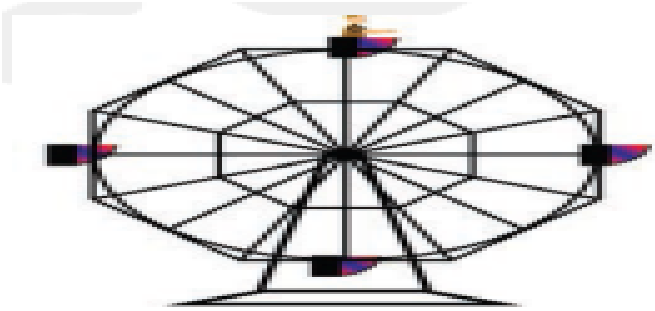
Linear Motion :- Objects travelling in a straight line or in the same direction is known as **linear motion.**

Non - linear motion - Object that does not move in a straight line is known as **non linear motion**.

Oscillatory motion - The motion of the body that is oscillating, which is going back and forth is known as **oscillatory motion**.

Circular motion - The motion of an object along a circular path is known as **circular motion**.

Periodic motion - The motion which passes through a certain point again and again after a fixed period of time is known as periodic motion.



Random motion - The motion that changes its direction and speed continuously is known as random motion.

Note: - A moving object may not have only one type of motion.

Speed : - The distance travelled by an object in unit time is called Speed .

Formula :

$$\text{Speed} = \frac{Distance\ Travelled}{total\ time\ taken}$$

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ASSESSMENT

Multiple Choice Questions:

1. The distance between Delhi and Mumbai is usually expressed in units of
   (a) decametre
   (b) metre
   (c) centimetre
   (d) kilometer

2. Which of the following does not express a time interval?
   (a) A day
   (b) A second
   (c) A school period
   (d) Time of the first bell in the school

Fill in the blanks.

(i) Motion of an object or a part of it around a fixed point is known as_____ motion.
(ii) A body repeating its motion after certain interval of time is in_____ motion.
(iii) In rectilinear motion, object moves a_____ line_____.
(iv) SI unit of length is_____.

Solution:
(i) Circular
(ii) periodic
(iii) along; straight
(iv) metre

Answer the following questions:-

1. Write an example of motion in our day to day life.

---

2. Identify the types of motion by the given pictures.

---

3. If a taxi covers the distance of 350 kilometres in 7 hours then how many kilometres would it cover in 1 hour? (use the formula of speed)

---

4. Do and find

i) Play on the swing and tell the type of the motion.

---

ii) Ride the bicycle on the straight road, observe your bicycle and tell which type of motion of your bicycle and the wheels of the bicycle?

Feedback form

Leaner's Diary:-

i. **What I learnt**:

ii. **What I Found Interesting**:

Iii **What I found Challenging**:

Bridge Course Module Day -12

Standard: VII **Subject: Science** **Duration: 40 Minutes**

Topic- Motion and Measurements

Objectives

- Explaining the concept of motion and giving day to day examples of motion such as Non Linear motion -Oscillatory motion, Circular motion, Periodic motion, Random motion.
- Distinguish between rest and motion in order to classify objects as in motion or at rest.
- Find out the similarities and differences between the two objects based on the types of motion.
- Identify to find any errors associated with finding measurements using standard measurement devices

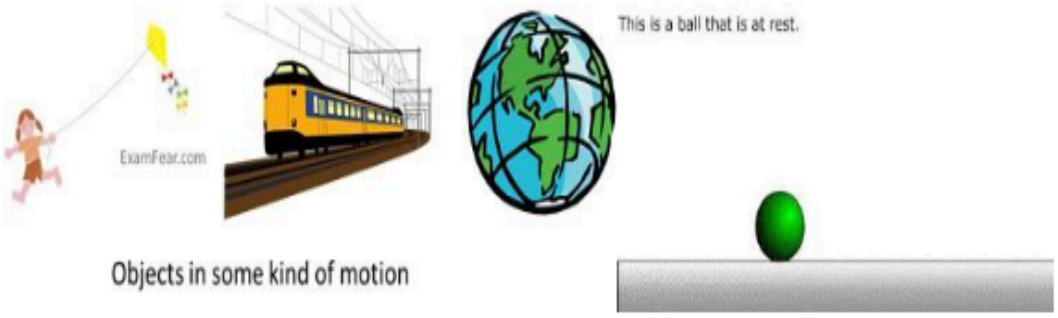
Learning Outcomes:

- Understands the concept of motion
- Distinguishes between rest and motion
- Classifies objects as in motion or at rest.
- Finds measurements using standard measurement devices

CONTENT

Rest- A body is said to be at rest when it remains at the same position with respect to its surroundings. Example- a man sitting on a chair

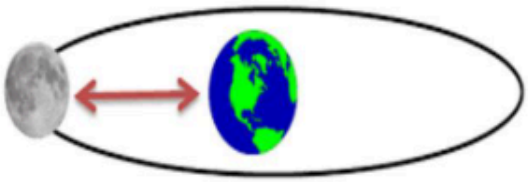
Motion- A body is said to be in motion if it is changing its position with respect to its surroundings and time. Example- a car moving on the road



Objects in some kind of motion

TYPES OF MOTION

The motion of all the objects is not of the same type. Different objects show different types of motion.



Objects having more than one type of motion

(i) The case of a bicycle- A bicycle moving on a straight road has two types of motion- rotational motion and rectilinear motion.

(ii) The case of a sewing machine- The sewing machine exhibits three types of motion i.e. rotational motion, rectilinear motion and periodic motion.

The Story of Transport

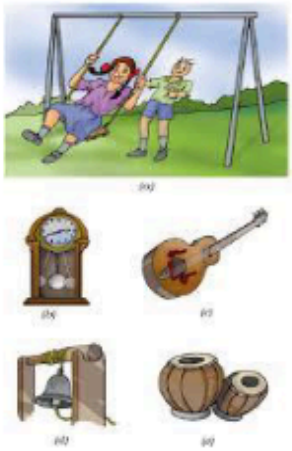
Transport is a means to carry people and goods from one place to another.

Examples-

Land transport- car, train, and bike

Water transport – ships, boats

Air transport- Aeroplane, rockets



Rotational Motion- When an object turns or spins about a fixed axis, it is called rotational
ıtion.

ımples-

a spinning top

rotation of earth

) turning of blades

(iv) turning of potter's wheel

(v) turning of windmill

(vi) turning of a wheel

Distances- The length of space between two points or two places is called distance.
Example- The distance between Delhi and Agra is 200 Km.
Measurement- The process of comparing an unknown quantity with some known quantity. The fixed unknown quantity is called a **UNIT**.

Standard Units of Measurement- A unit of measurement which has fixed value and which does not change from person to person or place to place is called a standard unit of measurement.

SI Unit- International System of Units (SystemeInternationale De Unites: in French)

Example- **Metre** is the SI Unit of **length.**

Need to develop a uniform system of measurement
In ancient times, people used length of a foot, length of finger, the distance of a step as units of measurement. This caused confusion and hence a uniform system of measurement was developed.
A fist or a foot step cannot be used as a standard unit of length because they are not accurate as every individual's body is not of the same size.

UNITS OF MEASUREMENT

I. Ancient Units of Measurement

1. Cubit- A cubit as the length from the elbow to the middle finger tip was used in ancient Egypt and was also accepted as a unit of length in other parts of the world.

2. Hand Span- The distance between the tip of stretched thumb and little finger in an expanded palm is called a span.

3. Yard- The distance between the end of outstretched arm and the chin is called a yard.

4. Anguli/finger/fist

5. Inch

6. Foot (length of an adult person's barefoot)

7. Pace (foot step)

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ASSESSMENT

1. A student wants to measure the length of a curved line. Which of the given methods the student should use to measure the length correctly?

(a)using a thread

(b)with foot steps

(c)with hand span

(d)using a metre scale

Correct Answer: Option (a)

2. Two students measure the length of a curved surface using a string. The students then measured the length of the string with different methods as shown.

Student	Method
P	A metre scale
Q	Hand span

Which option compares the accuracy of the used methods?

(a)Both a meter scale and hand span give accurate result

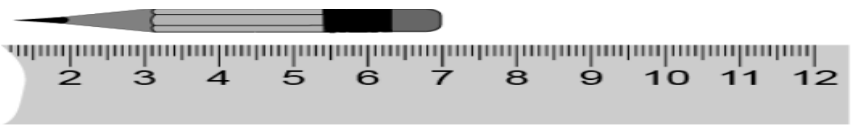
(b)Both a meter scale and hand span give inaccurate result

(c)The meter scale gives more accurate results than hand span

(d)Hand span gives more accurate results than the meter scale

Correct Answer: Option (c)

3. A student measures the length of the pencil using a broken ruler. The image shows the measurement by the broken ruler.



The student made an error and records the length of the pencil as 7 cm. How can this error be removed?

a) By measuring with the hand span

(b)By adding the initial and final reading

(c)By measuring the length from the end of the ruler

(d)By subtracting the initial reading from final reading

Correct Answer: Option (d)

5. In ancient India, people used to measure the length with fist and hand span. What is the advantage of using of the 'Standard units of measurement' for measurements?

(a)It is easy to measure

(b)It gives the uniform result

(c)It does not require any device

(d)It does not require any calculation

Correct Answer: Option (b)

Feedback form

Leaner's Diary:-

i. **What I learnt**:

ii. **What I Found Interesting**:

Iii **What I found Challenging**:

Bridge Course Module Day -13

Standard: VII **Subject: Science** **Duration: 40 Minutes**

Topic- Light and its propagation

Objectives :

- Light
- Luminous objects
- Non luminous objects
- Propagation of light

Learning Outcomes:

Make efforts to understand about luminous and non-luminous objects and propagation of light.

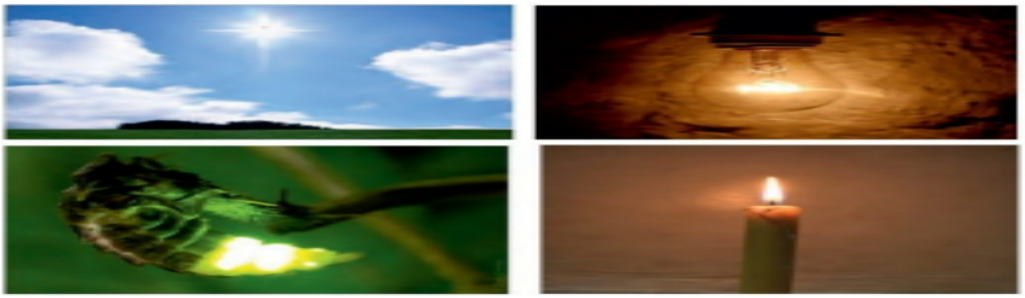
CONTENT

Can we see anything in total darkness? What helps us to see the objects around us? Look at the picture. Write names of objects from which we get light.

- We need light to see any object.

- **Light**: Light is a form of energy which helps us in seeing objects. When light falls on an object, some of the light gets reflected. The reflected light comes to our eyes and we are able to see an object.

- **Luminous objects or materials:** The objects or materials which emit light means those which themselves are source of light are called **luminous objects or materials**.



- The intensity of light is determined by the extent to which the object emit light

Ex. The light emitted by an electric torch is more intense than that obtained from a candle.

- Sun is a main natural source of light.
- Other stars seen in the night sky, fireflies, some anglerfish as well as honey mushrooms are natural sources of light.

Non luminous objects or materials

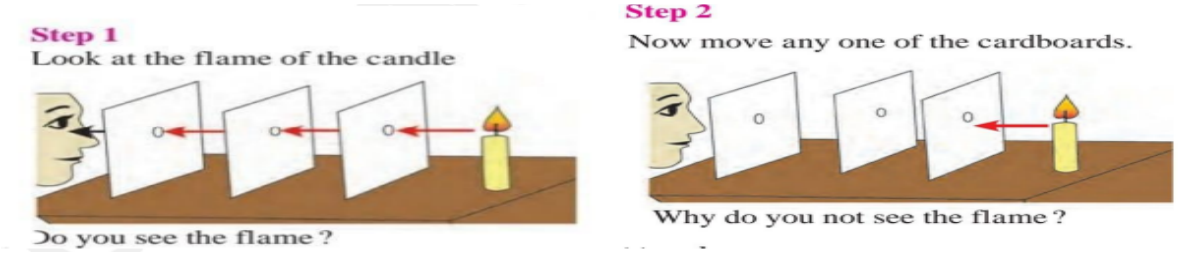
The objects or materials that are not a source of light themselves are called **non luminous objects or materials.**

Ex. torch, electric bulb.

Propagation of light.

- You may have seen in the afternoon, rays of light entering through a slit in a door or a small hole in the roof.
- As these rays of light from the slit or the hole move towards the floor, the dust particles in their way are seen clearly.
- Due to these particles the path of the light becomes visible and we can see that their path is along straight lines.

- Take three cardboards. Make a small hole in the centre of each cardboard using thick wire.
- Make three holes in the same line as shown in figure.
- Stand a burning candle on one side of the cardboards and look at the flame of the candle from the other side.
- Now move any one of the cardboards.



Why do you not see the flame? Light travels in a straight line. This is called the linear propagation of light.

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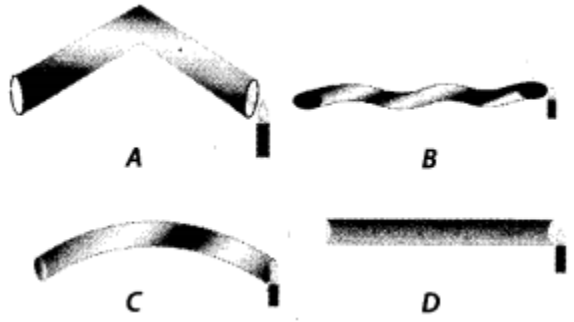
ASSESSMENT

Multiple Choice questions

1. Four students A, B, C and D looked through pipes of different shapes to see a candle flame as shown in figure.



Who will be able to see the candle flame clearly?
(a) A
(b) B
(c) C
(d) D

2. Which of the following is/are not always necessary to observe a shadow?
(a) Sun
(b) Screen
(c) Source of light
(d) Opaque object
Solution:
(a): Sun is a source of light. Any source of light can replace it. So, sun is not always necessary to observe a shadow.

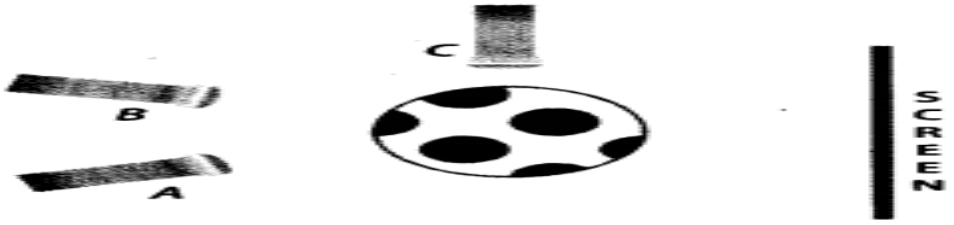
3. Which of the following can never form a circular shadow?
(a) A ball
(b) A flat disc
(c) A shoe box

(d) An ice cream cone
Solution:
(c)

4. Two students while sitting across a table looked down on to its top surface. They noticed that they could see their own and each other's image. The table top is likely to be made of
(a) unpolished wood
(b) red stone
(c) glass sheet
(d) wood top covered with cloth
Solution:
(c): Out of the given options, only glass sheet can reflect light properly in order to form their images.

Answer the following questions:

1. Three torches A, B and C shown in figure are switched on one by one. The light from which of the torches will not form a shadow of the ball on the screen.

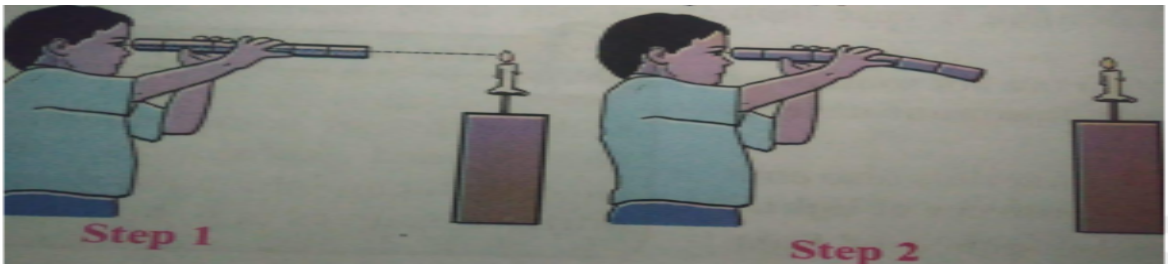


   Solution:
   The light from torch C will not form a shadow of the ball on the screen. Torch C is parallel to the screen and light travels in straight line.
2. You are given a transparent glass sheet. Suggest any two ways to make it translucent without breaking it.
   Solution:
   (i) By applying oil, grease, butter on it or pasting a butter paper on it.
   (ii) Grinding (rubbing) the surface of the glass by any abrasive material.
3.

Determine and write things which are luminous or non luminous

Things	Luminous / non luminous
pen	
Burning candle	
Torch	
Bulb	
Tyre	
Stars in sky	

4. As shown in figure, take a straight tube that can be bent easily. Place a burning candle on a stand, and look at it through the tube and look at the candle again. What do you see?



In which step do you see the proper flame? Why?

---

3. List the things and distribute them between natural sources of light and artificial sources of light.

Luminous things	Natural source of light	Artificial source of light
1		
2		
3		
4		

FEEDBACK

Leaner's Diary:-

i. **What I learnt**:

ii. **What I Found Interesting**:

Iii **What I found Challenging**:

Bridge Course Module Day -14

Standard: VII **Subject: Science** **Duration: 40 Minutes**

Topic- Formation of Shadow

Objectives

- Understand the nature, importance and basic properties of light
- Distinguish between luminous and non-luminous objects
- Comprehend the phenomenon of formation of shadows

Learning Outcomes:

- Understands the basic properties of light
- Distinguish between luminous and nonluminous objects
- Comprehend the phenomenon of formation of shadows
- Classifies luminous and non-luminous objects

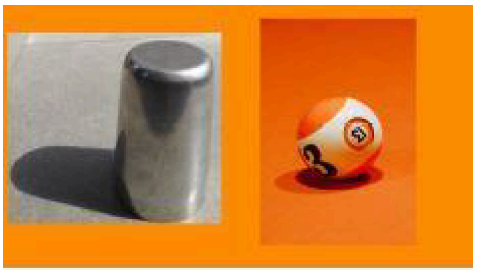
CONTENT

- **Light**: Light is a form of energy which helps us in seeing objects. When light falls on an object, some of the light gets reflected. The reflected light comes to our eyes and we are able to see an object.
- **Luminous Object:** An object which produces light is called a luminous object, e.g. sun, bulb, etc.
- **Non-luminous object:** An object which does not produce light is called non-luminous object, e.g. moon.

Formation of Shadow

Shadow – The dark area produced by a body coming between the rays of light and the Surface is called shadow.

- When light falls on an opaque object, a dark patch is formed on the other side of the object; if a screen is present on the other side. Three things are required for formation of shadow, viz. a **source of light, an object and a screen**.



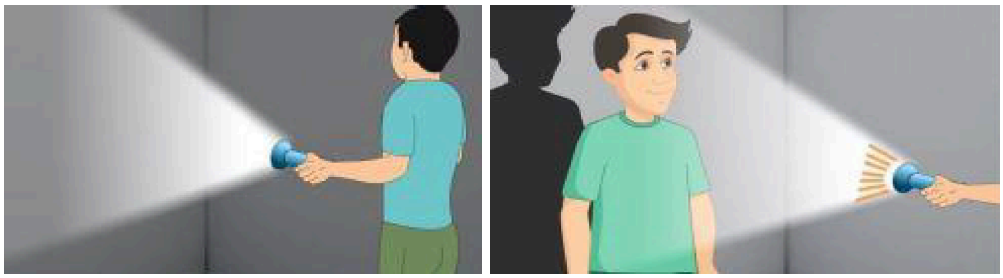
- The size of **shadow depends on the distance of source of light and on the angle** at which the light rays fall on the object.

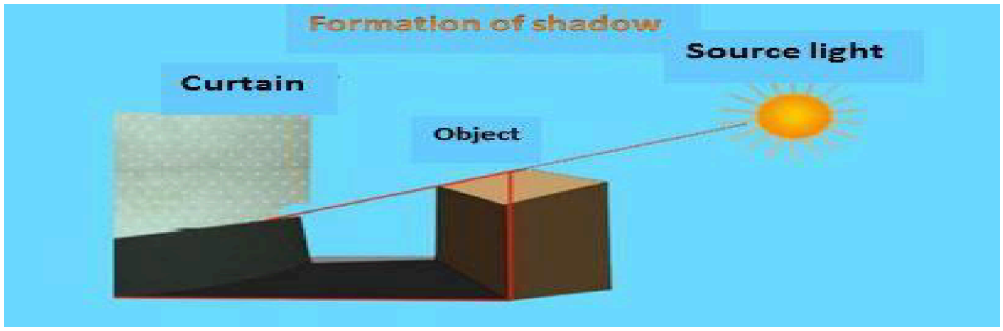
Distance of source of light

- If the source of light is closer to the object, a larger shadow is formed than when the source of light is far from the object.
- The shadow of an object formed due to sunlight is **long in the mornings** and Evenings and **short in the afternoon**.
- We can be easily note these changes if we observe the trees along the roadside.

Activity

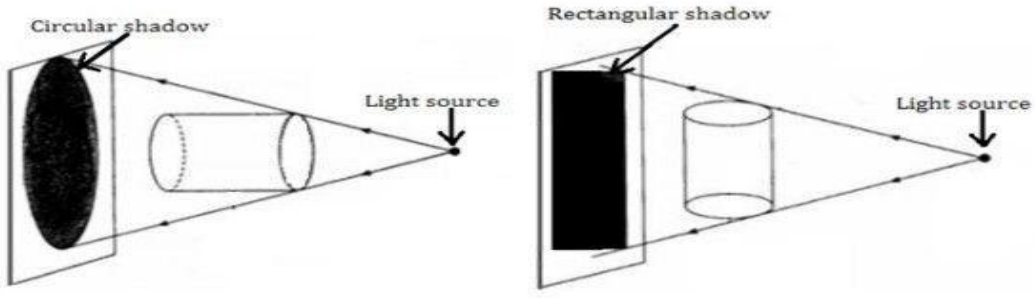
Do as shown in the following figure. Take a torch. Flash its light on a wall.

- 
- Now make your friend stand in between the torch and the wall. See what Happens? You can see your friend's shadow on the wall.
- The light falls on your friend i.e.an opaque object and then we can see the shadow of your friend on the wall.



Angle at which the light rays fall on the object

- If the **angle of incident light is smaller**, the shadow is longer.



- On The other hand, if the angle of incident light is bigger, the shadow is smaller. This explains, why our shadows are longer in the morning and evening and smaller in the noon.

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ASSESSMENT

1. Can a completely transparent object cast a shadow?

_____
_____
_____

2. How does light travel?

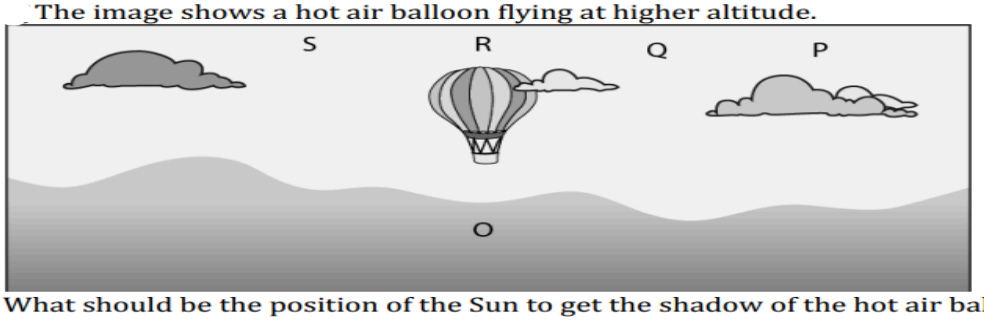
_____
_____
_____

3. What is a ray of light?

_____
_____
_____

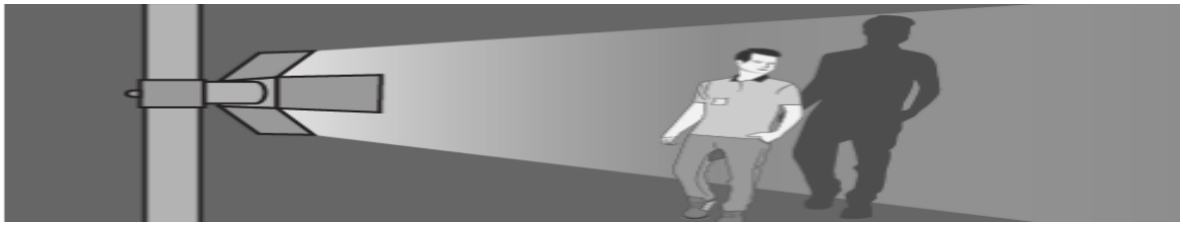
4.

The image shows a hot air balloon flying at higher altitude.



What should be the position of the Sun to get the shadow of the hot air balloon at O?

(a) at P
(b) at Q
(c) at R
(d) at S



5.)A student stands in front of a lamp to produce the shadow of his body. The shadow of the boy is formed on the screen as shown. What can be concluded from the observation regarding formation of the shadows?

(a)the screen must be placed in front of the opaque object

(b)the opaque object must be placed behind the source of light

(c)the opaque object must be placed between source of light and the screen

(d)the source of light must be placed between the opaque object and the screen

Correct Answer: Option (c)

FEEDBACK

Leaner's Diary:-

i. **What I learnt**:

ii. **What I Found Interesting**:

Iii **What I found Challenging**:

Bridge Course Module Day - 15

Standard: VII **Subject: Science** **Duration: 40 Minutes**

Topic- Components Of Electric Circuit

Objectives

- Electric cell and its terminals
- Bulb and its parts
- Simple Electric circuit

Learning Outcomes

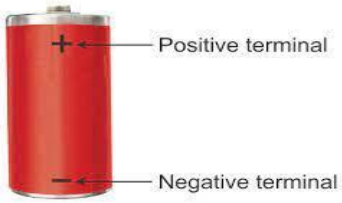
- Understand the function of an electric cell and an electric bulb .
- Electric current flows in a simple circuit.

CONTENT

- We use electricity for many purposes to make our tasks easier.
- Electricity makes it possible to light our homes, roads, offices, markets and factories even after sunset.

ELECTRIC CELL

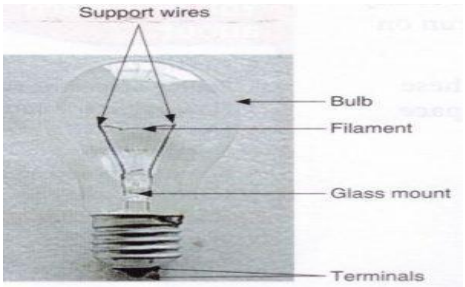
- Electricity to the bulb in a torch is provided by the electric cell.
- Electric cells are also used in alarm clocks, wristwatches, transistor radios, cameras and many other devices.
- You might have noticed that it has a small metal cap on one side and a metal disc on the other side.
- A positive (+) sign and a negative (–) sign is marked on the electric cell.



- An Electric Cell metal cap is the positive terminal of the electric cell.
- The metal disc is the negative terminal.
- All electric cells have two terminals; a positive terminal and a negative terminal.
- An electric cell produces electricity from the chemicals stored inside it.
- When the chemicals in the electric cell are used up, the electric cell stops producing electricity.

BULB

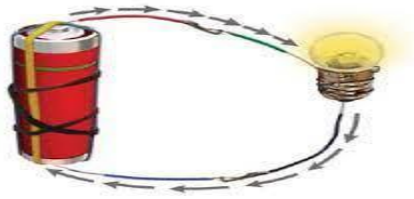
- The thin wire that gives off light is called the filament of the bulb.
- The filament is fixed to two thicker wires, which also provide support to it.
- One of these thick wires is connected to the metal case at the base of the bulb.



- The other thick wire is connected to the metal tip at the center of the base.
- The base of the bulb and the metal tip of the base are the two terminals of the bulb.
- These two terminals are fixed in such a way that they do not touch each other.

AN ELECTRIC CIRCUIT

- The electric circuit provides a complete path for electricity to pass (current to flow) between the two terminals of the electric cell.
- The bulb glows only when current flows through the circuit.
- In an electric circuit, the direction of current is taken to be from the positive to the negative terminal of the electric cell.
- When the terminals of the bulb are connected with that of the electric cell by wires, the current passes through the filament of the bulb.
- This makes the bulb glow.



ELECTRIC SWITCH

- A switch is a simple device that either breaks the circuit or completes it.
- The switches used in lighting of electric bulbs and other devices in homes work on the same principle although their designs are more complex.

TLM : PPT, Chalk & Board , YouTube links , Alternative Academic Calendar & You tube link

https://youtu.be/v42MG2b_XXg

ASSESSMENT

Multiple Choice Questions

1. In an electric bulb, light is produced due to the glowing of

(a) the glass case of the bulb.

(b) the thin filament.

(c) the thick wires supporting the filament.

(d) gases inside glass case of the bulb.

2. Filament of a torch bulb is

(a) a metal case. (b) metal tip at the center of the base.

(c) two thick wires. (d) a thin wire

3. Paheli is running short of connecting wires. To complete an electric circuit, she may use a

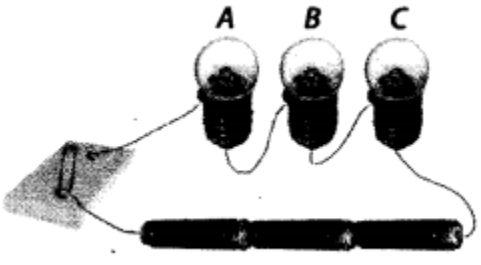
(a) glass bangle. (b) thick thread.

(c) rubber pipe. (d) steel spoon

4. Cell is a device which
(a) converts chemical energy into electrical energy
(b) electrical energy into light energy
(c) electrical energy into magnetic energy
(d) None of these

5. A bulb has
(a) two terminals and one filament
(b) two terminals and two filaments
(c) multiple terminals and single filament
(d) single terminal and single filament

6. In the circuit shown in figure, when the switch is moved to'ON' position,



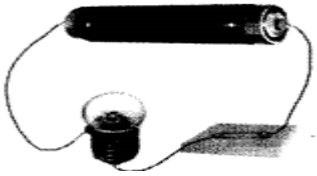
(a) the bulb A will glow first
(b) the bulb B will glow first

(c) the bulb C will glow first
(d) all bulbs will glow together.
Solution:
(d): As soon as the circuit gets completed, current is found at every point in the circuit instantly.

Answer the following questions

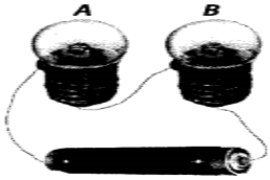
7. You are provided with a bulb, a cell, a switch and some connecting wires. Draw a diagram to show the connections between them to make the bulb glow.

8. An electric bulb is connected to a cell through a switch as shown in figure. When the switch is brought in 'ON' position, the bulb does not glow. What could be the possible reason/s for it? Mention any two of them.



9. Paheli connected two bulbs to a cell as shown f in figure,

She found that filament of bulb B is broken. Will the bulb A glow in this circuit? Give reason.



FEEDBACK

Leaner's Diary:-

i. **What I learnt**:

ii. **What I Found Interesting**:

Iii **What I found Challenging**:

Bridge Course Module Day -16

Standard: VII **Subject: Science** **Duration: 40 Minutes**

Topic- Fun with magnets

Objectives

- Magnet
- Magnetic force
- Shapes of Magnet
- Magnetic materials
- Non-magnetic materials.

Learning Outcomes

Applies learning to scientific concepts in day to day life.

CONTENT

- The material to which objects made from iron, nickel, cobalt etc. get attracted is called **a magnet**. This property of materials is called **magnetism.** When a magnet attracts an object that object is displaced due to the **magnetic force**.
- In places like factories, ports, garbage depots, large objects are shifted from place to place.
  For this purpose, cranes with magnets are used. Work is done by magnetic force. This shows that magnetism is a **kind of energy.**
- The magnets were discovered in Magnesia.
- **In magnetite**, the properties of magnet appeared. They are also called **lodestone** (leading stones). These stones then came to be used for finding the directions while travelling to unknown regions.

These led to the invention of the **marine compass.**

Different shapes of Magnets :

			
Horse shoe magnet	Cylindrical magnet	Ring shaped magnet	Bar magnet

Disk magnets, bar magnets, bar magnets, ring shaped magnets, horse shoe magnets are the different shapes of magnets.

Activity :

Let's try this - Take a mixture of sand, pieces of paper, sawdust, leaves, iron filings and pins in a saucer and pass a magnet around the mixture. You will see pins and iron filings stick to the magnet.

Magnetic materials

The materials that stick to a magnet are called **magnetic materials**. (pins, iron filings, nickel, cobalt etc.).

Non-magnetic materials.

The materials that do not stick to a magnet are called non-magnetic materials. (saw-dust, sand, pieces of paper, leaves etc.).

TLM :- PPT, Chalk & Board, YouTube links, alternating academic calendar & Diksha Link

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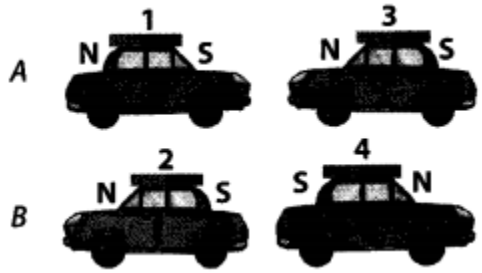
ASSESSMENT

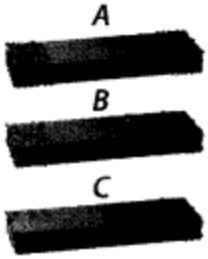
Multiple Choice Questions:

1. Observe the pictures A and 8 given in figure carefully.



Which of the following statement is correct for the above given pictures?
(a) In A, cars 1 and 2 will come closer and in B, cars 3 and 4 will come closer.
(b) In A, cars 1 and 2 will move away from each other and in B, cars 3 and 4 will move away.
(c) In A, cars 1 and 2 will move away and in 8,3 and 4 will come closer to each other.
(d) In A, cars 1 and 2 will come closer to each other and in 8,3 and 4 will move away from each other.
Solution:
(d) Unlike poles attract each other while like poles repel each other.

2. Three magnets A, B and C were dipped one by one in a heap of iron filing. Figure shows the amount of the iron filing sticking to them.



The strength of these magnets will be
(a) A > B > C
(b) A < B < C
(c) A = B = C
(d) A < B > C
Solution:
(a): The amount of the iron filing sticking to magnets is directly proportional to their strengths.

3. North pole of a magnet can be identified by
(a) Another magnet having its poles marked as North pole and South pole.
(b) Another magnet no matter whether the poles are marked or not.
(c) Using an iron bar.
(d) Using iron filings.
Solution:
(a): That pole of the magnet which is repelled by the north pole of the given magnet will be considered as north pole of the magnet.

4. A bar magnet is immersed in a heap of iron filings and pulled out. The amount of iron filing clinging to the
(a) North pole is almost equal to the south pole.
(b) North pole is much more than the south pole.
(c) North pole is much less than the south pole.
(d) Magnet will be same all along its length.
Solution:
(a): Magnetic strengths of north pole and south pole of a magnet is same.

Answer the following questions

1. Boojho dipped a bar magnet in a heap of iron filings and pulled it out. He found that iron filings got stuck to the magnet as shown in figure.

(i) Which regions of the magnet have more iron filings sticking to it?
(ii)What are these regions called?
Solution:
(i) The ends of the magnet have more iron filings attached to it.
(ii) These regions are called poles of the magnet.

2. A bar magnet is cut into two pieces A and B, from the middle, as shown in figure.

Will the two pieces act as individual magnets? Mark the poles of these two pieces. Suggest an activity to verify your answer.
Solution:
Yes, the two pieces A and B will act as individual magnets. A magnet will always have two poles – north and south pole. Each piece will have two poles.

By the test of repulsion, we can conclude that these two pieces A and B will act as individual magnets.

3. Make a list of appliances in your house which have magnets in it.

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4. Why is this so?

(a) Pins in a pin holder do not fall even if it is held upside down.

(b) While we are shutting the door of the fridge, we find that it closes automatically from a certain distance and does not open unless pulled again.

---

4. Write the name of the instrument in the picture and where it is used

FEEDBACK :

Leaner's Diary:-

i. **What I learnt**:

ii. **What I Found Interesting**:

Iii **What I found Challenging**:

Bridge Course Module Day -17

Standard: VII **Subject: Science** **Duration: 40 Minutes**

Topic- Components of Air

Objectives:

- Natural resources
- Air and Air constituents
- Uses of gases in air

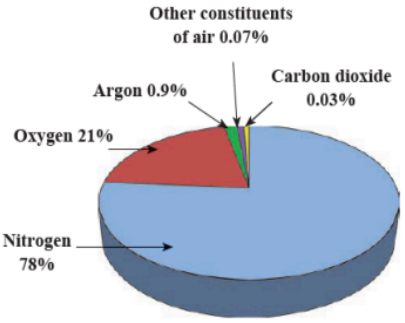
Learning Outcomes:

Makes efforts to understand the components of air and the presence of various gases in air.

CONTENT

Natural resources

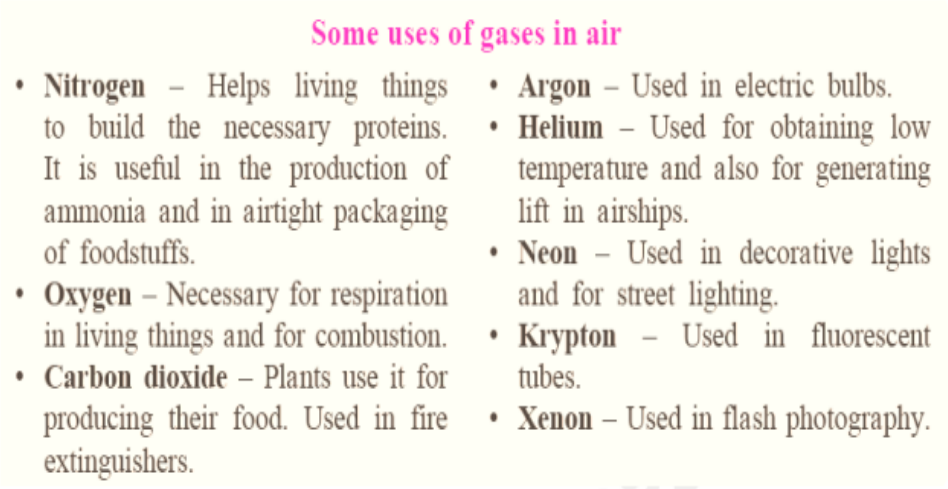
- Air, water and land are the factors important for sustaining the living world on the earth and for fulfilling their basic needs. They are called natural resources.
- Air, water and land are called the earth's atmosphere, hydrosphere and lithosphere, respectively.



Proportions of the various gases in the air

Air and Air constituents

- The proportions of the air constituents: - The air in the atmosphere around the earth contains nitrogen, oxygen, carbon dioxide, nitrogen dioxide, sulphur dioxide, six inert gases, water vapor and dust particles.
- The troposphere contains about 80% of the total mass of gases in the air, while this proportion is about 19% in the stratosphere.



Always remember…

- The living world on the earth is sustained due to the balance between various gases and other constituents of air.
- The atmosphere is a very important filter.
- It allows the light and heat of the sun to reach the earth, which is necessary for life.
- But it prevents the harmful components from reaching the earth.
- It is in the atmosphere that fog, clouds, snow and rain are produced

TLM : PPT, Chalk & Board , YouTube links , alternative academic calendar & Diksha Link

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ASSESSMENT

Multiple Choice Questions

1. Which of the following components of air is present in the largest amount in the atmosphere?
   (a) Nitrogen
   (b) Oxygen
   (c) Water vapour
   (d) Carbon dioxide

2. The components of air which are harmful to living beings are
   (a) nitrogen and carbon dioxide
   (b) dust and water vapour
   (c) dust and smoke
   (d) smoke and water vapour.

3. Ushatooka lump of dry soil in a glass and added water to it till it was completely immersed. She observed bubbles coming out. The bubbles contain
   (a) water vapour
   (b) only oxygen gas
   (c) air
   (d) none of these.

1. **Answer the following**

a) The percentage of Nitrogen gas present in air is

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b) When hydrogen gas is burned in air it combines with carbon dioxide and water is formed.

---

2. **Fill in the blanks by using the words given below. (Argon, oxygen, xenon)**

a) In flash photography _____ gas is used.

b) In an electric bulb _____ gas is used.

c) Gas is used for respiration in living things _____

3. What is in the picture below? What will you do to control this? Write down in your words.



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Leaner's Diary:-

i. What I learnt:

ii. **What I Found Interesting**:

Iii **What I found Challenging**:

Bridge Course Module Day -18

Standard: VII **Subject: Science** **Duration: 40 Minutes**

Topic : Water – Our Lifeline

Objectives :

- Water – Distribution of water on earth
- Water Cycle

Learning Outcomes : Understanding the distribution of water on earth Water cycle and its importance

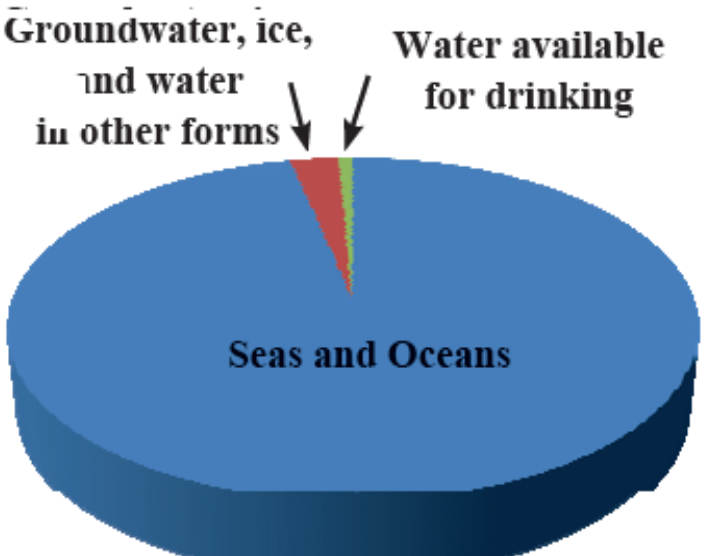
Content

Water – Distribution of water on earth

- If hydrogen gas burns in air, it combines with oxygen and water is formed.
- The water vapour formed from oceans is the main source of water in the water cycle.
- It gets converted into rain, creating fresh water sources on earth.
- We cannot use all the water on earth because seawater is salty.
- Some water is frozen.
- A very small quantity of water is available for drinking.
- Yet it is enough for all living things.

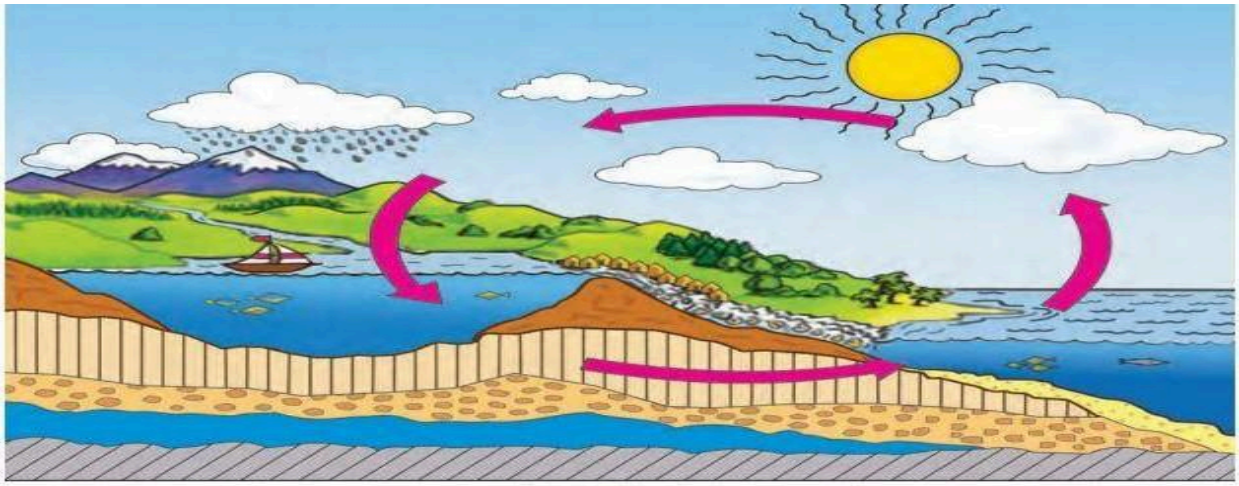
In nature, water occurs in three states i.e. Solid , Liquid and Gases .

- Water does not have colour, taste or odour.
- Many substances readily dissolve in water.
- Therefore, water is a universal solvent.



Available Water On Earth	Percentage
Seas, Oceans	97%
Groundwater, ice, and water in other forms	2.7%
Water available for drinking (fresh water)	0.3%
Total	100%

Water Cycle



The water cycle

- The sun's heat causes the earth's water to evaporate constantly.
- The water on the land evaporates due to the heat of the sun and mixes with the air.
- Since this vapour is lighter than air, it rises higher and higher in the

atmosphere. As it rises, it cools and condenses, forming fine water particles.

- These tiny particles of water, small and light, form clouds.
- When these tiny particles come together, they transform into large droplets.
- These drops cannot float because they are heavy, so they fall on the earth in the form of rain, this is what we call rain.
- The water that falls on the ground in the form of rain flows through streams, rivers and streams and finally reaches the sea.
- The heat of the sun forms ice water in the snowy region. That water also comes from rivers.
- This water evaporates and rises to the ground in the form of rain due to condensation. And finally gets to the sea.

- **Water evaporation, condensation, and rain** are continuous cycles. This is called the **water cycle**.

TLM

How does it rain?

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Assessment

Answer the following questions

1. Which of the following activity does not involve use of water?

(a) Washing clothes (b) Bathing

(c) Cleaning utensils (d) Drying wet clothes

2. In which of the following activities will you use minimum amount of water?

(a) Bathing (b) Brushing teeth

(c) Washing clothes (d) Mopping a room

3. Floods cause extensive damage to

(a) crops. (b) property and human life.

(c) domestic animals. (d) all of the above

4. Water in our tap comes from a

(a) river (b) lake

(c) well (d) river, lake or well

5. Write the names of the animals and plants found in the region below-

a) Polar region

_____

b) Grasslands

_____

c) Deserts

6.Draw a diagram showing the correlation between evaporation, condensation and rain.

7. Observe the pictures below and write down the region in which the plants are found.

Feedback Form

Leaner's Diary:-

i. **What I learnt**:

ii. **What I Found Interesting**:

Iii **What I found Challenging**

Kendriya Vidyalaya Sangathan Mumbai Region

Bridge course Test

TIME- 1. 5 HRS SUBJECT – SCIENCE CLASS- VII M.M = 25

(A) MULTIPLE CHOICE QUESTIONS. (1x10=10)

1. Read each set of terms and identify the odd set

(a) Cow, milk, butter

(b) Hen, meat, egg

(c) Goat, milk, meat

(d) Plant, vegetable, butter milk

2. Which of the following nutrients is not present in milk?

(a) Protein

(b) Vitamin C

(d) Calcium

(d) Vitamin D

3. Separation of fibres of cotton from its seeds is known as

(a) weaving

(b) spinning

(c) knitting

(d) ginning

4. Which of the following change cannot be reversed?

(a) Hardening of cement

(b) Freezing of ice cream

(c) Opening a door

(d) Melting of chocolate

5. **Fixed joints are found in**

(a) lower jaw

(b) skull

(c) hands

(d) hip bone

6. **Which is not an abiotic component of environment?**

a. Soil
b. Bacteria
c. Water
d. Air

7. **The student made an error and records the length of the pencil as 7 cm. How can this error be removed?**

(a) By measuring with the hand span

(b) By adding the initial and final reading

(c) By measuring the length from the end of the ruler

(d) By subtracting the initial reading from final reading

8. **Filament of a torch bulb is**

(a) a metal case.

(b) metal tip at the center of the base.

(c) two thick wires.

(d) a thin wire

9. **A student stands in front of a lamp to produce the shadow of his body. The shadow of the boy is formed on the screen as shown. What can be concluded from the observation regarding formation of the shadows?**

(a) The screen must be placed in front of the opaque object

(b) The opaque object must be placed behind the source of light

(c) The opaque object must be placed between source of light and the screen

(d) The source of light must be placed between the opaque object and the screen

10. **Animals like a camel can survive in a desert. Which of these features in the camel helps them to survive in the desert?**

a. Hump of the camel produces food
b. Long neck help to store more water
c. Long legs protect them from heat of the sand
d. Thicker skin help in the transpiration of more water

(B) FILL IN THE BLANKS. (1x 5=5)

1. Husk from wheat flour is generally removed by _____.

2. The percentage of Nitrogen in air is _____ %.

3. on heating the iron rim _____ and fits onto the wooden wheel.

4. The process of settling of heavier particles is called _____.

5. A body repeating its motion after certain interval of time is in_____ motion.

(C) ANSWER BRIEFLY. (2x 5 =10)

1. **Name two ingredients in our food that are not obtained from plants or animals. Mention one source for each ingredient.**

2. **What will happen if ...**

i) There is deficiency of iodine in the body.

ii) Vitamin A is reduced in the body

3 Make a list of appliances in your house which have magnets in it.

4. Draw and label the different parts of the flower.

5. List the common characteristics of the living things.

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