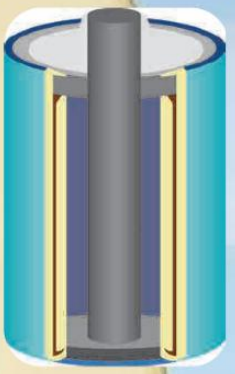
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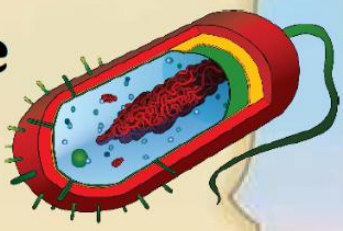
Bridge Course



Standard : Eighth

Subject : General Science

Academic Year 2021-22

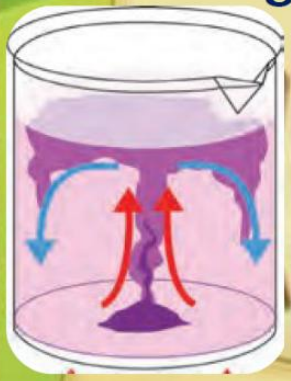




Academic Year 2020-21

ज्ञानसेवा तु साफल्यम्

State Council of Educational Research and Training, Maharashtra, Pune 30







Credentials

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- Motivation - **Hon. Vandana Krushna (I.A.S.)**
  Additional Chief Secretary School Education department, Government of Maharashtra
- Guidance- **Hon. Vishal Solanki (I.A.S.)**
  Commissioner (Education), Maharashtra, Pune
  Hon. Rahul Dwivedi (I.A.S.)
  State Project Director, Maharashtra Prathmik Shikshan Parishad, Mumbai
- Editor - **Hon. Dinkar Temkar**
  Director, State Council of Educational Research and Training, Maharashtra, Pune 30
- Co-editor - **Dr. Vilas Patil**
  Joint Director, State Council of Educational Research and Training, Maharashtra, Pune 30
- Executive Editor - **Vikas Garad**
  I/C Principal, State Council of Educational Research and Training, Maharashtra, Pune 30
  Tejaswini Aalwekar
  Senior Lecturer, Science Department, State Council of Educational Research and Training, Maharashtra, Pune 30
  Manisha Tathe
  Lecturer, Science Department, State Council of Educational Research and Training, Maharashtra, Pune 30
- Editing - Assistance **Shweta Dilip Thakur**
  Supervisor/BOS, Annasaheb Vartak Smarak Vidyamandir, Gopchar Pada, Virar (East)Block Vasai, District Palghar
  Rupesh Dinkar Thakur
  Assistant Teacher/BOS, Annasaheb Vartak Smarak Vidyamandir, Gopchar Pada, Virar (East)Block Vasai, District Palghar
- Creating - Assistance **Urmila Mahendra Hadekar,** Lecturer, Regional Academic Authority District Nagpur
  Shrinivas Shrihari Gajjam, Assistant Teacher, Annasaheb Kalyani Vidyalay, Camp, Sadar Bazar, Block & District Satara
  Anil Pandurang Patil, Assistant Teacher, Rayat Shikshan Sanstha's New English School, Kamothe, Block Panvel, District Raigad

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Rajendra Aasaram Shelke, Assistant Teacher, Shrikrushna Madhyamik Vidyalay, Mahanubhav Aashram, Paithan Road, District Aurangabad

Milind Narayanrao Meghe, Assistant Teacher, Dadasaheb Thackeray Highschool, Ashirwad Nagar, Nagpur

Sara Navid Anjum Magdum, Assistant Teacher, Dwaraka School, Mahalunge(Ingle), Chakan, Pune

Jyoti Jaydeep Kisave, Assistant Teacher, Colaba Municipal Highschool, Colaba, Mumbai

- Translation

Urmila Mahendra Hadekar, Lecturer, Regional Academic Authority, District Nagpur

Shrinivas Shrihari Gajjam, Assistant Teacher,Annasaheb Kalyani Vidyalay, Camp, Sadar Bazar, Block & District Satara

Pratibha Chandrakant Gohane, Subject Assistant, Regional Academic Authority, District Nagpur

Rajkumar Shankarrao Tirbhane, Assistant teacher Shri.Soham Vidya Mandir, Umari Block Karanja Ghadge District Wardha

Milind Narayanrao Meghe, Assistant Teacher, Dadasaheb Thackeray Highschool, Ashirwad Nagar, District Nagpur

Sara Navid Anjum Magdum, Assistant Teacher, Dwaraka School, Mahalunge(Ingle), Chakan, District Pune

Vasanti Vasant Gomase, Assistant Teacher, Zilla Parishad Upper Primary School, Palsad, Block Kamthi, District Nagpur

Jyoti Jaydeep Kisave, Assistant Teacher, Colaba Municipal Highschool, Colaba, Mumbai

Siddharth Vijay Shirgaonkar, Assistant Teacher, Sau. Yamunabai Yashwant Nijap Highschool, Shirgaon Block & District Palghar

Tukaram Sudhakar Garude, Secondary Teacher, Zilla Parishad Highschool Block Paranda, District Osmnabad

- Technical - Assistance

Sudhir Baburao Nikam, Assistant Teacher, Raigad Zilla Parishad School, Ratwad Adiwasi Wadi, Block Mangaon, District Raigad.

Instructions for students / parents

Namaskar dear students!

In the academic year 2020-21, you could not go to school as usual, but your teachers were trying to bring education to you through various media. Even though our school was not regular, the education 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 2021-22 as well as a review of the previous year's syllabus.

1. This year's syllabus is based on the important concepts of the previous class, the same concepts have been included in this bridge syllabus.
2. The duration of the bridge course has been fixed at 45 days and it consists of three tests. These tests are based on the Activity Sheets in the bridge syllabus.
3. Each Activity Sheet in the bridge syllabus has been prepared with the aim of clarifying important concepts.
4. The Activity Sheet is constructed as follows:
   - **Let's understand:** The concepts included in the Activity Sheet are given here.
   - **Reference:** Reference is made to last year's lesson.
   - **Learning Outcomes / Competency Statements:** Learning Outcomes and developing competencies that can be achieved through the given Activity Sheet.
   - **Let's take a look:** A brief explanation is given to make the concept clearer. It includes tables, concept diagrams, flow charts, figures, etc.
   - **Let's Practice:** The questions are designed with a balance of knowledge, understanding, application and skills to further practice the concepts and contents understood.
   - **Links for more study:** To strengthen the concepts in the Activity Sheet, video links of related concepts on the Diksha portal are provided.
5. The Activity Sheet should be solved under the guidance of the teacher. Parents and students should keep in touch with the teacher to stay consistent in the study.
6. Attempts should be made to complete it within the time allotted for each Activity Sheet.
7. The answers to the questions in the Activity Sheet 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 better understand the concept by watching the related videos using the links given at the end of the Activity Sheet.
10. Seek the help of your parents or teachers if you have any problems solving the Activity Sheet. We are confident that you too will successfully complete this bridge course and prepare yourself for the new academic year 2021-22 with confidence.

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

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Instructions for teachers

The global crisis of coronavirus outbreak in the academic year 2020-21 has led to many difficulties in direct classroom teaching. We all tried to reach out to the students using various media. 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 2021-22. This bridge syllabus is created to review the studies done by our students in the academic year 2020-21, as well as for pre-preparation of the current academic year curriculum.

1.The bridge course is to be completed in a period of 45 days.

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

3. Each of the Activity Sheets 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 Activity Sheet in a systematic way, so that it will be easier to solve.

Let's Understand: Here are the key concepts included in the Activity Sheet 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 textbook.

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

Let's take a look: 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.

Let's Practice: 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 Activity Sheet 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.

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Links for more study : To strengthen the concepts in the Activity Sheet, video links of related concepts on the Diksha portal are provided. Students should be instructed to watch these videos at this link at home.

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

6. Observe that the students solve the Activity Sheets strictly as per the plan given in the index.

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

8. After reviewing certain units, the given tests should be attempted by the students. After checking the tests, they should be evaluated by adopting proper criteria and the marks should be recorded.

9. After the evaluation of each test, the students who need therapeutic teaching should be properly guided. Thus all the three tests should be implemented.

10. After completing this 45 day bridge course, you should start teaching your regular course.

Best wishes for the academic year 2021-22 !

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State Council of Educational Research and Training, Maharashtra, Pune 30

Preparatory bridge course

Standard : VIII

Subject : General Science

Index

Activity Sheet No.	Name of the activity sheet
1st July to 15th July 2021	
1	Adaptations and Classification
2	Plants : Structure and Function
3	Properties of Natural Resources : Properties of Air
4	Properties of Natural Resources : Properties of Water
5	Nutrition in living organisms : Photosynthesis, fixation of Nitrogen
6	Nutrition in living organisms : Types of Nutrition
7	Food Safety
8	Measurement of Physical Quantities
Test No. 01 (Based on Activity Sheet No. 1 to 8)	
16th July to 30th July 2021	
9	Motion, Force and Work
10	Static Electricity
11	Heat
12	Disaster Management
13	Cell Structure and Microorganisms : Organisation in living organisms, types of cells
14	Cell Structure and Microorganisms : types of Microorganisms
15	Human Muscular system and Digestive system
16	Change:Physical and Chemical

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Test No. 02 (Based on Activity Sheet No. 9 to 16)	
31st July to 14th August 2021	
17	Elements,Compounds and Mixture : Matter, Elements
18	Elements, Compounds and Mixture : Compounds and Mixtures
19	Material we use : Toothpaste, Detergents, Cement
20	Natural resources
21	The effects of light
22	Production of sound
23	Properties of a Magnetic Field
24	In the world of stars
Test No. 03 (Based on all the Activity Sheets 1 to 24)	

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Preparatory Bridge Course
Std.: VIII Activity Sheet : 01 Subject : General Science

Let's Understand : Adaptation, Adaptation in plants, Adaptation in animals, Classification of living organisms.
Reference : Std. VII, Chapter 01 The Living World: Adaptations and Classification
Learning Outcomes: Differentiate materials and organisms such as digestion in different organisms; unisexual and bisexual flowers.
Let's take a look:
Adaptation - Gradual changes occur in the body parts and also in the behaviour of organisms which help them to adjust to their surroundings. Such changes are called adaptations.

Adaptation in aquatic plants	**Adaptation in desert plants**	**Adaptation in plants of snowy regions**
1.Some of the aquatic plants are firmly rooted in the soil. Their stems are submerged, while leaves and flowers float on the surface. 2.Air spaces in stems and petioles of aquatic plants are useful for floating in water. 3.The surfaces of leaves and stems of many aquatic plants are covered with a waxy layer. 4.Leaves of the plants are thin and slender like a ribbon. Eg. Lotus and Water hyacinth 	1.Desert plants are either leafless or their leaves are like small needles. 2.They have been modified into thorns. 3.The stem stores water and food and is therefore fleshy. 4.The stems are green as they perform photosynthesis in the absence of leaves. Eg. Cactus and babul 	1.These trees are conical in shape due to their sloping branches. 2.Their conical shape prevents the snow from accumulating on the tree. 3.The thick bark helps the tree to withstand the cold. Eg. Deodar and Pine 

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Adaptation in animals :-

Adaptation of aquatic animals	Adaptation in desert animals	Adaptation in aerial animals
1.Their body tapers towards both its ends, like a spindle. 2.Fish breathe with gills instead of a nose. 3.Fishes have scales on the skin and fins on the body. 4.They have air bladders within the body to help them to float. Eg. Rohu, Poplet and Shark 	1.Desert animals have a thick skin to prevent loss of water from the body. 2.Their legs are long with flat and cushioned soles. 3.The nostrils are protected by folds of skin. The eyelashes are long and thick. Eg. Camel 	1.The spindle-shaped body of birds also minimises the resistance of air while flying. 2. Body covering of feathers. 3.Modification of forelegs into wings. 4. Hollow bones - Their body is light in weight and adapted for flying. Eg. Pigeon, parrot 

Adaptation in animals of snowy regions:-

A white or silver body colour, long, thick hair on the skin are typical characteristics of animals of snowy region. yak, polar bear, white fox, mountain goat.

Classification of living organisms -'Hierarchy of classification'-

Hierarchy	Mango	Human
Kingdom	Plantae	Animalia
Phylum	Anthophyta	Chordata
Class	Dicotyledonae	Mammalia
Order	Sapindales	Primates
Family	Anacardiaceae	Hominidae
Genus	Mangifera	Homo
Species	indica	sapien

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Binomial nomenclature by Carl Linnaeus :

Binomial nomenclature is used to identify each organism. Accordingly, a scientific name has been assigned to each organism. It consists of two parts – the first part is 'genus' and second, 'species'.

Living Things	**Scientific Name**
Dog	Canis lupus familiaris
Cow	Bos taurus
Hibiscus	Hibiscus rosa-sinensis
Jowar	Sorghum bicolor

Let's Practice :

1. Match the following

Group A	Group B
i) Yak	a)Gill
ii) Cactus	b) Air spaces in stems
iii) Water hyacinth	c) thick hair on the skin
iv) Rohu	d) fleshy stem

2. Fill the following table.

Adaptation	**Animals**	**Use of Adaptation**
		Reducing water resistance
webbed toes		
	penguin	
Long and sticky tongue		

3. Search and write down the scientific names (binomial nomenclature) of any five animals and plants.

_____

_____

_____

4. Which part of the plant shows adaptation in the figure?



_____

_____

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5. In what way are sloping branches useful to plants in a snowy region?

_____

_____

6. Why does water trickle off from Calcasieu and lotus leaves?

_____

_____

_____

Links for more study :

Aquatic Adaptations

https://diksha.gov.in/play/content/do_31290047289627443211431?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content

Adaptations based on climate and nutrition

https://diksha.gov.in/play/content/do_31290047379683737618 05?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content

The living world adaptations and classification

https://diksha.gov.in/play/content/do_3130412625005199361114 5?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content

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Activity Sheet : 02

Let's Understand : Root, Stem, Leaves, Flowers, Fruits

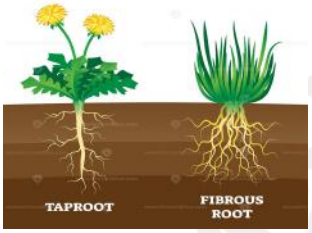
Reference : Std. VII, Chapter 02. Plants Structure and Function

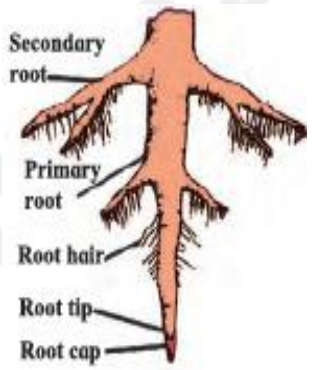
Learning Outcomes: Identify materials and organisms, on the basis of observable features, for example, appearance, texture, functions, etc.

Let's take a look :

Root :- The part of the plant growing below the soil for support is called 'root'.

Types of roots :- **Tap Root** :- Roots of some plants produce secondary roots that grow obliquely and spread far and wide in the soil. Roots support the plant. This type of root is called a tap root.





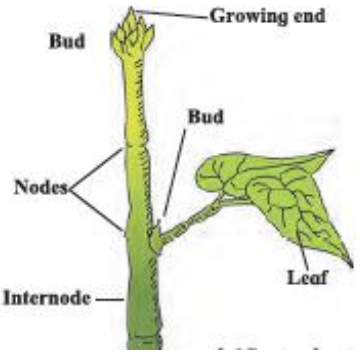
Fibrous root :- Thread-like or fibre-like roots arising from the stem are called fibrous roots. Wheat, maize, onion, coconut, banana.

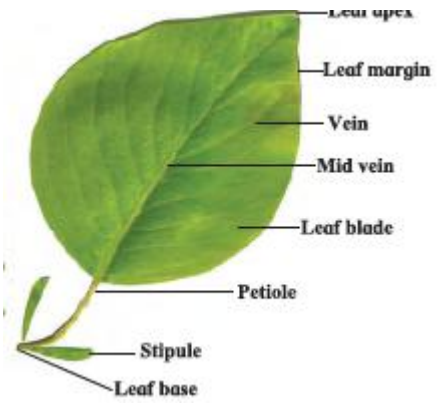
Dicotyledonous plants have tap roots while monocotyledonous plants have fibrous roots.



Activity- Take a glass jar and fill three quarters of it with water. Place an onion on the mouth of the jar such that its roots are towards water. Observe the growth of roots.

Stem : The stem grows above the soil from the plumule. There are nodes on the stem. Leaves come out at the nodes. The part of the stem between two nodes is called an internode. The tip or the apical end of the stem is called a **bud.**





Leaf :

Leaves grow from the nodes on a stem. Leaves are generally thin, flat and green in colour. The broad, spread-out part of the leaf is called the leaf-blade or lamina and its edge is called the leaf margin.

Types of leaves :-



Simple leaves :- Leaves of some plants have a single undivided leaf blade and a single mid-rib. Such leaves are called simple leaves. Eg. Mango Hibiscus, Guava.



Compound leaves :- The leaf-blade of leaves in some plants is divided into many small parts called leaflets. Such leaves are called compound leaves. Eg. Rose leaf, Neem.





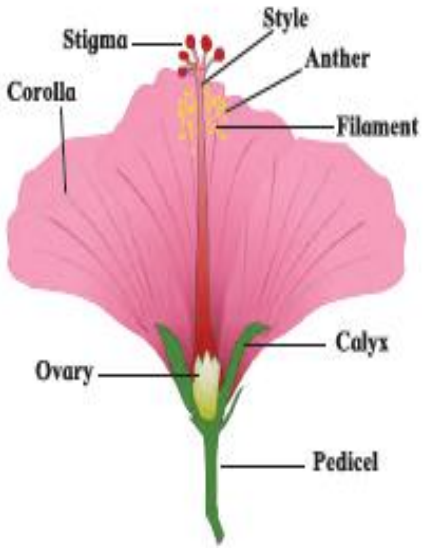


Reticulate venation :- The leaf is divided into two equal parts by a single mid-vein which lies along the midline of the leaf blade. Secondary veins arise from the mid-vein. They are branched and form a network or reticulum. Eg. Peepal, mango, banyaan

Parallel venation :- The veins are parallel, running from the leaf-base to the leaf apex. Eg. Maize, banana, tamarind, coconut.

Activity- Take a peepal leaf and soak it in water for 15-20 days. Dry it and make a greeting card.

Flower :-Calyx, Corolla, Androecium, Gynoecium are different parts of a flower.



Calyx : In the bud condition the petals are covered by leaf-like parts called sepals which are green in colour. They form the calyx.

Corolla : This is made up of colourful parts called petals.

Androecium : This is the male reproductive part of the flower. It consists of stamens. Each stamen is made up of anther and filament.

Gynoecium : This is the female reproductive part of the flower. This is made up of carpels. A carpel consists of stigma, style and ovary.

Fruit :- Activity : Soak the seeds of, pea, wheat, rice, jowar, groundnut in water for 3-4 hrs. Press the seeds with your fingers and observe them. Which seeds get divided into two equal parts?

Seeds which get divided into two equal parts are called dicotyledonous seeds. Seeds which do not divide into two equal parts are called monocotyledonous seeds.

Let's Practice :

1. a) Find the odd man out. Peanut, peas, apple, maize : _____

   b) Correlate the following.

   Leaf apex : Tip of leaf :: _____ : Leaf margin

2. Why are the underground parts of plants like radish, carrot, beet and sweet potato thick, fleshy and swollen? Which part of the plant are they?

_____

_____

_____

3. What is the use of insects flitting around the colourful flowers ?

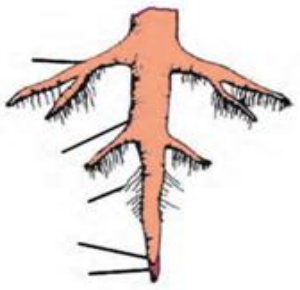
_____

_____

_____

4. Write the proper name at the proper place.

(Secondary root, Primary root, Root hair, Root tip, Root cap)



5. Observe any four plants in your area and fill in the information in the following table.

Name of plants	Type of leaf	venation	Stem pattern type	Types of root

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Links for more study :

Plant Structure – Leaves

https://diksha.gov.in/play/content/do_31292034819327590412522?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content

Plant Structure – Stem

https://diksha.gov.in/play/content/do_31292034748380774412521?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content

Plant Structure – Flower– Fruit and Seed

https://diksha.gov.in/play/content/do_31292034883262054412409?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content

Plants: Structure And Function

https://diksha.gov.in/play/content/do_31251815654925926429273?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content

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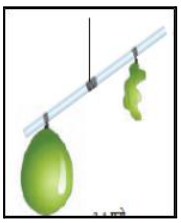
Activity Sheet : 03

Let's Understand : - Properties of air -mass and weight, atmospheric pressure, humidity and Droplets

Reference : Std. VII, Chapter 03 Properties of Natural Resources

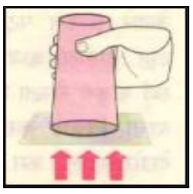
Learning Outcomes: Explain the uses of natural resources by classifying them. Relate processes and phenomena with causes, for example, wind speed with air pressure, crops grown with types of soil, depletion of water table with human activities etc.

Let's take a look : Properties of air 1) Air has mass and weight.



ACTIVITY - Take a stick from a broom. Tie a thread at its centre and hang it so that it remains horizontal. Tie two inflated balloons of same size at the two ends of stick. Pierce a needle in one balloon. Does the stick remains horizontal?

Atmospheric pressure :- The earth is covered with air by all sides. This covering is called the atmosphere.



ACTIVITY - Place a piece of cardboard on the mouth of glass completely filled with water. Holding the cardboard firmly in place with one hand, invert the glass quickly. Take your hand away from cardboard. What do you see?

The molecules of the gases in the air are in constant motion. When these molecules strike a body, they create pressure on that body. This is the pressure of air that we call 'atmospheric pressure'. atmospheric pressure is the same in all the directions.

Bernoulli's Principle -

According to Bernoulli's Principle, the pressure of air decreases when its velocity increases while the pressure of air increases when its velocity decreases. If a body is moving through air, the air pressure decreases perpendicular to the direction of the motion and then the air in its surroundings flows rapidly from higher pressure to the lower pressure.

Straw spray: - Try this experiment based on Bernoulli's principle.
https://www.youtube.com/watch?v=l17f8DbZ1E&ab_channel=IISERPuneScienceActivityCentreIISERPuneScienceActivityCentre

Humidity and Dew :-

The level of humidity of the air is determined by its capacity to hold water vapour. During the night or at dawn, when the temperature of air is low, its capacity to hold the vapour is less. At such times, the excess vapour is transformed into water droplets. This is what we call dew.

In the afternoon, when the temperature of the air is high, the capacity of the air to hold the moisture also increases. Then, compared to its full capacity to hold water, the proportion of moisture in the air is less and we feel that the air is dry. The proportion of water vapour in the air is high during the monsoons and in coastal areas. As a result, we feel the dampness or humidity.

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Activity - Take ice-cubes in a glass upto three-fourths of its height. Now observe what happens. How did the water droplets appear on the outside of the glass?

Due to the ice cubes in the glass, the air surrounding the glass cools down. As the water vapour in this air cools down, it condenses and gets transformed into water. It is this water that collects on the outer surface of the glass.

Scattering of light– Air is a mixture of very fine particles of some gases, dust, smoke and moisture. When rays of light fall on these minute particles, the particles spread the light in all the directions. This natural phenomenon is called **scattering of light**.

Molecules of gases like nitrogen and oxygen in the atmosphere radiate sunlight. The blue radiation is the highest, so the sky looks blue.





Let's Practice :

1. Write the answers to the following questions.

i) Complete the correlation.

Blue sky : Radiation of light :: Blowing winds : _____

ii) If there is no atmosphere around the earth, how will the sky look during the day time?

_____

2. Which of the two places, Goa or Mount Everest, has the lowest atmospheric pressure and why?

_____

_____

3. What natural phenomenon is shown in the picture? Explain it.

_____

_____

_____

_____

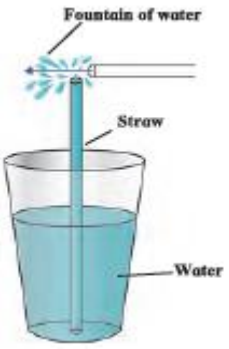
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4. Which principle is understood from the figure of the accompanying experiment? Explain the relevant principles/rules.



_____
_____
_____
_____
_____
_____
_____

5. Wet clothes dry quickly in the summer, but not quickly in the rainy season. Why does this happen? Explain it in your words.

_____
_____
_____

Links for more study :

Humidity and droplets
https://diksha.gov.in/play/collection/do_31252804685149798424679 6?contentId=do_312872113969405952119 62

Bernoulli's principle
https://diksha.gov.in/play/collection/do_31252804685149798424679 6?contentId=do_312872116579164160117 97

Properties of Natural Resources
https://diksha.gov.in/play/content/do_3125035459609231361232 0?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content

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Activity Sheet : 04

Let's Understand: Density of water, Anomalous behaviour of water, Water – Universal solvent

Reference : Std VII, Chapter 03. Properties of Natural Resources.

Learning outcomes : i) To verify by experiment the properties of air, water, soil.
ii) To explain uses of natural resources in human life.

Let's take a look :

Activity- 1) Take a plastic bottle, more than half filled with water. Mark the level of water on the bottle. Keep this bottle upright in freezer for making ice. Open the freezer after couple of hours and observe.
2) Take some water in a glass and add few pieces of ice to it. Observe what happens.

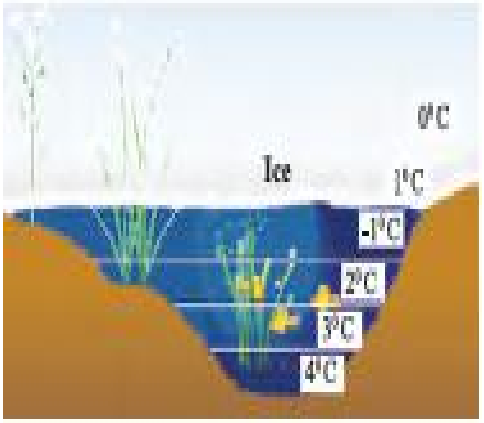


Properties of water – Water is a fluid substance. Water does not have its own shape, but it has volume.

Density of water- The space occupied by a substance is its volume. The store of matter in a substance is its mass.

Hence, **Density = mass / volume** Density is measured in g/cubic centimetre.

Anomalous behaviour of water: Usually, when the temperature of a substance is lowered, its density increases as the volume decreases; but water is an exception to this rule. When water at normal temperature starts cooling , its density increases like that of most liquids. However, if its temperature falls below 4^0C, its density starts decreasing. This means that the density of water is maximum at 4^0C. If the temperature of water is lowered below 4^0C Its density decreases and volume increases. It means that water expands when the temperature falls below 4^0C. This is called the anomalous behaviour of water.



Watch this video and try it – https://www.youtube.com/watch?v=Folj43W36AM



The density of water in glass is greater due to the dissolved salt. Therefore the lemon floats in that water.When the salt dissolves in water , its particles spread in water. Slowly they became smaller and smaller. Ultimately they became so small that they cannot be seen, that is, they mix completely with water. This is what is called dissolving.

The substance that dissolves is called **solute** (Salt).

The substance in which the solute dissolves is called **solvent**(Water).

When the solute dissolves in the solvent, we get a **solution**. Water is a universal solvent.

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Let's Practice :

1) Write the answer in one sentence.

i) At which temperature density of water is lowest?

_____

ii) One litre of water has 1 kg mass then what is the density of that water?

_____

_____

iii) Due to which property of water, water pipes get cracked, in cold countries in winter?

_____

_____

2) In cold countries, how do aquatic animals remain alive after the rivers or lakes freeze in winter?

_____

_____

3) Why is water called a universal solvent?

_____

_____

4) Take a bucket of water. Drop many different kinds of articles in it. Make a separate list of the articles which sink in the water and those that float on it.

_____

_____

Links for more study :

https://diksha.gov.in/play/collection/do_31252658185931161624051O?contentId=do_31301869490449612811 72

https://diksha.gov.in/play/collection/do_31252658185931161624051O?contentId=do_31301869491651379216 43

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Activity Sheet : 05

Let's Understand : Nutrition, photosynthesis. Transport system in plants Biological fixation of nitrogen

Reference : Std VII, Chapter 04. Nutrition in living organisms

Learning Outcomes : Conduct simple investigations to seek answers to queries, for example, extract of coloured flowers and their uses. Do leaves other than green also carry photosynthesis? Is white light composed of many colours?

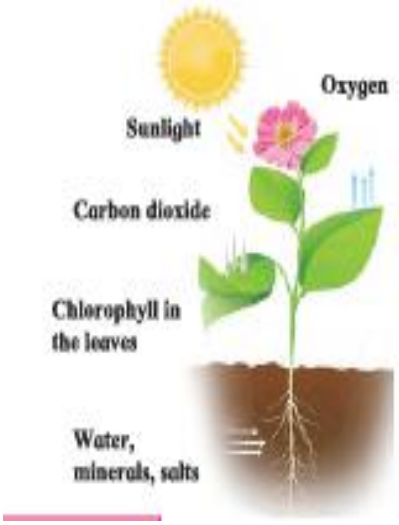
Let's take a look :

Nutrition- The process of taking in and using food, which takes place in living organisms is called nutrition.

Need for nutrition- 1. To supply the energy required for doing work. 2. Growth and development of the body. 3. To replace the damaged cells and repair tissues. 4. To fight diseases.

Autotrophic nutrition- Some organisms can produce their own food and thus nourish themselves. This is called **autotrophic nutrition**.

Heterotrophic nutrition Some organisms depend on other organisms, plants or animals, for their food. This is called **heterotrophic nutrition**.



Photosynthesis : Plants also need food for their growth. They can produce their own food with the help of sunlight and chlorophyll, plants make their food in their leaves, using water and nutrients from the soil and carbon dioxide from the air. This process is called photosynthesis.

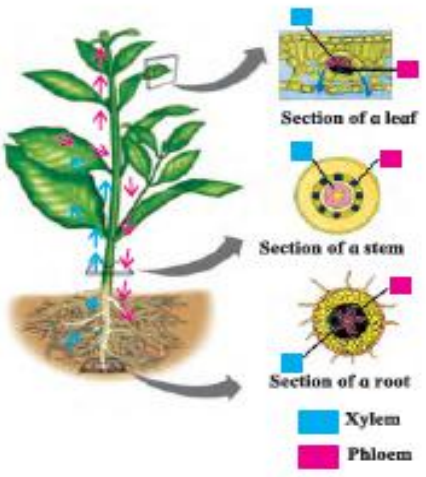
Carbon dioxide + water $\xrightarrow[\text{Chlorophyll}]{\text{Sunlight}}$ food (glucose) + oxygen

$6\,CO_2 + 6H_2O \xrightarrow[\text{Chlorophyll}]{\text{Sunlight}} C_6H_{12}O_6 + 6O_2$

Plants convert light energy into chemical energy and store it in the form of food.

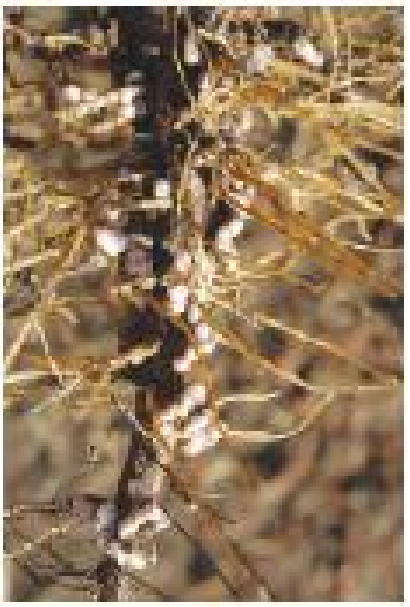
Transport system in plants

The transport system of plants consists of the **xylem** and the **phloem**. The xylem transports minerals and water from the root to all aerial parts of the plant. The phloem transports the food (glucose, etc.) from the leaves to other parts of the plant where it is either consumed or stored.



Air contains gaseous nitrogen. However, plants can not utilize gaseous nitrogen. It needs to be fixed i.e. converted into compounds. Fixation of nitrogen occurs by biological and atmospheric methods.

Biological fixation of nitrogen



Two different types of microorganisms can bring about biological nitrogen fixation. Root-nodules of leguminous plants contain the rhizobium micro- organisms. These micro-organisms absorb atmospheric nitrogen and convert it into its nitrate, a compound. Microorganisms like azotobacter are present in soil. They also convert atmospheric nitrogen into nitrates.

Atmospheric fixation of nitrogen : Lightning (thunderbolts) occur in the rainy season. This causes atmospheric nitrogen and oxygen to react with each other to form nitric oxide (NO) which is again oxidized to form nitrogen dioxide (NO2). The nitrogen dioxide dissolves in rainwater and is converted into nitric acid (HNO3) which gets added to the soil along with the rain-water. This acid reacts with different minerals in the soil and is converted into salts. Plants use these nitrogen salts for their growth.

Lets Practice :

1) Which four of the following are necessary for photosynthesis?
(Carbon dioxide, oxygen , water, light, chlorophyll in leaves, soil)

_____

_____

2) Explain in your own words, how photosynthesis is an important process for each and every living organism on earth.

_____

_____

3)Explain the importance of roots in the process of photosynthesis and nitrogen fixation in plants.

_____

_____

_____

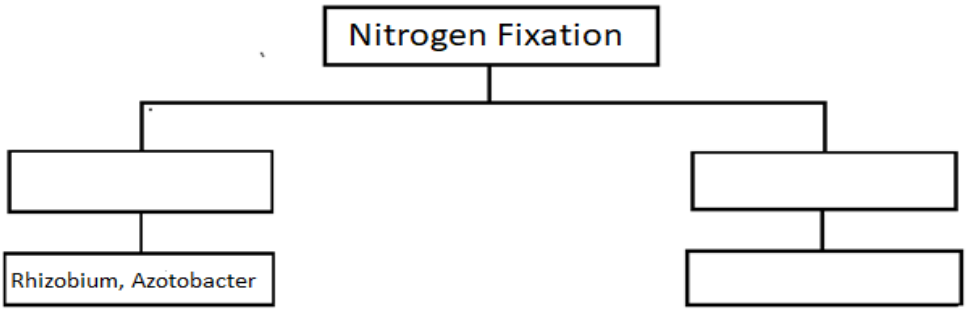
_____

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_____

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4) Complete the given flowchart and explain the importance of microorganisms in the process of nitrogen fixation.



_____

_____

5) Take one stem of a white – coloured flowering plant and put it in a water bottle. Add blue or red dye in that water and observe the changes in the colour of that flower. Note these changes and discuss it with your friends and write down.

_____

_____

Links for more study :

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Activity Sheet : 06

Let's Understand : Nutrition, photosynthesis. Transport system in plants Biological fixation of nitrogen

Reference : Std VII, Chapter 04. Nutrition in living organisms

Learning Outcomes : To explain the processes of feeding and digestion along with the related structures, correctly and in the proper sequence

Let's take a look :



Symbiotic nutrition–Two or more than two different types of plants live together to fulfill their needs of nutrition, protection, support, etc. with each others' help. This type of nutrition is called symbiotic nutrition.e.g.algae and fungi live together. Exa.Lichen



Heterotrophic plants– The plants that grow on the body of other plants to obtain food are called parasitic plants, for example- Loranthus, cuscuta, etc.

Insectivorous plants – some plants feed upon insects to obtain nutrients.These insectivorous plants generally grow in soil or water deficient in nitrogen compounds. Example - Drosera Burmannii, Venus flytrap



Saprophytic plants– Plants which obtain the food from dead and decaying bodies of other organisms are called saprophytic plants.

Nutrition in animals

Nutrition in animals involves various steps from ingestion to egestion.

Steps in nutrition

1. **Ingestion** - Food is taken into the body.
2. **Digestion** - Conversion of food into simple soluble forms.
3. **Absorption** - Transfer of soluble food to the blood.
4. **Assimilation** - Utilization of absorbed food by cells and tissues for energy production, growth and repair.
5. **Egestion** - Removal of waste products and undigested food from body.

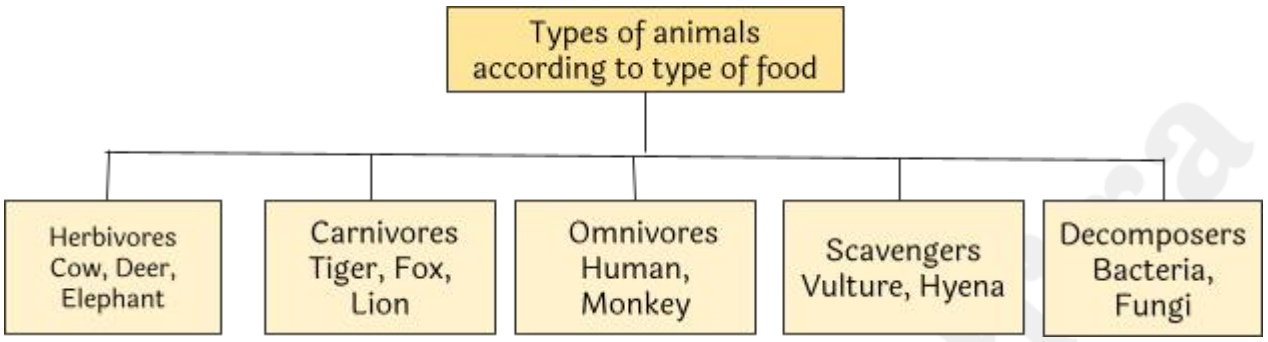
Types of nutrition in animals–

A) Holozoic nutrition– In unicellular animals like amoeba, euglena, paramoecium, etc. all the steps of nutrition occur within their unicellular body.

Mosquitoes and bed bugs use needle-like mouth parts to pierce and a tube-like mouth part to suck blood or other fluids.

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According to the type of food, animals can be classified as –



Scavengers obtain their food from dead bodies of animals, for example, vultures, crow, hyena, etc.

Decomposers are some microbes which obtain their food by decomposing the dead bodies of organisms or other materials.



B) Saprozoic nutrition -Some insects, unicellular animals, etc. obtain the nutrients by absorbing the liquid organic material from the dead bodies of other animals or from the environment. This is saprozoic nutrition. Example- Houseflies, Ants, Spiders, etc.



(C) Parasitic nutrition -Some animals depend upon other animals for food. They can obtain the food only from animals on whom they are dependent. This is called parasitic nutrition.

Ectoparasitic nutrition- live on the body surface of other animals and obtain their food by sucking their blood.

Example -Louse, bed-bug, tick



Endoparasitic nutrition-Animals like tapeworm and roundworms live inside the body of other animals and obtain their food. This is endoparasitic nutrition and these animals are known as endoparasites.

Let's Practice :

1) Who am I and in which nutrition type would you include me?

i) I live in your small intestine and absorb the nutrition from the food you eat.

_____

ii) I am a type of spice. I live with fungi and algae.

_____

2) Observe different animals in your surroundings and complete the following table.

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Name of animal	Food name/type	Method of ingestion
Cow		
Frog		
Snake		
Mosquito		

3) Are micro-organisms occurring at dirty places, insects in cow dung, and termites really useful? Write how and why?

_____

_____

_____

4) Identify the plant in the given picture and give its nutrition type.



_____

_____

_____

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_____

5) Write down steps of nutrition in animals.

_____

_____

_____

Link for more study :

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Activity Sheet : 07

Let's understand : Food spoilage, Food wastage, Food protection, adulteration of food.

Reference : Std VII, Chapter 05 Food Safety

Learning Outcomes : Identify factors responsible for food spoilage, Suggest ways to avoid food wastage.

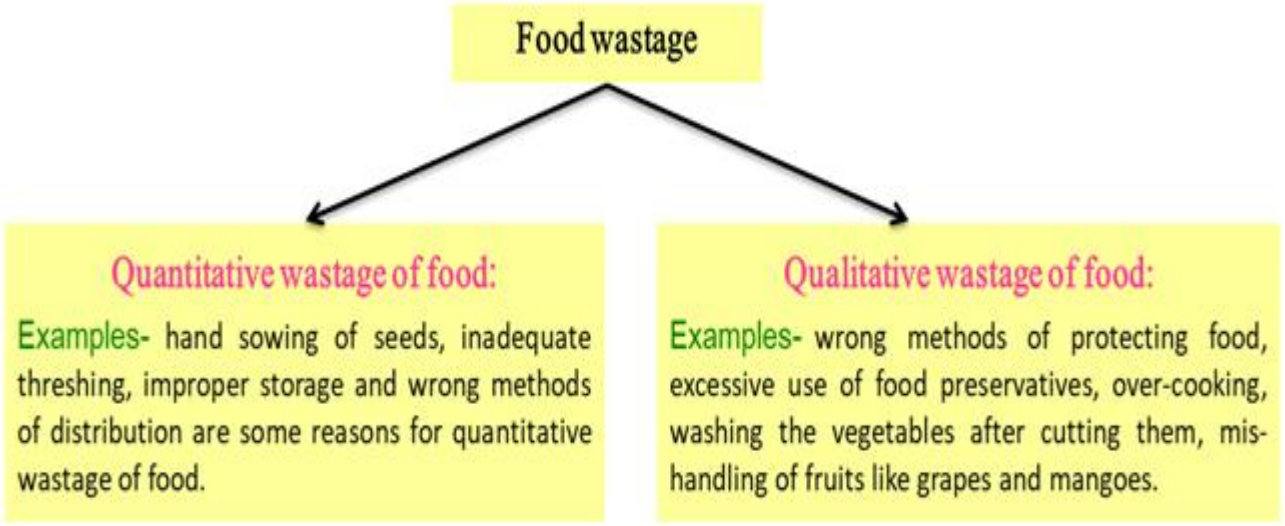
Let's take a look :

Food spoilage : Food is said to be spoiled if there is a change in its colour, odour, texture, quality, taste and there is a loss of its nutrient content.

Observe the following pictures.

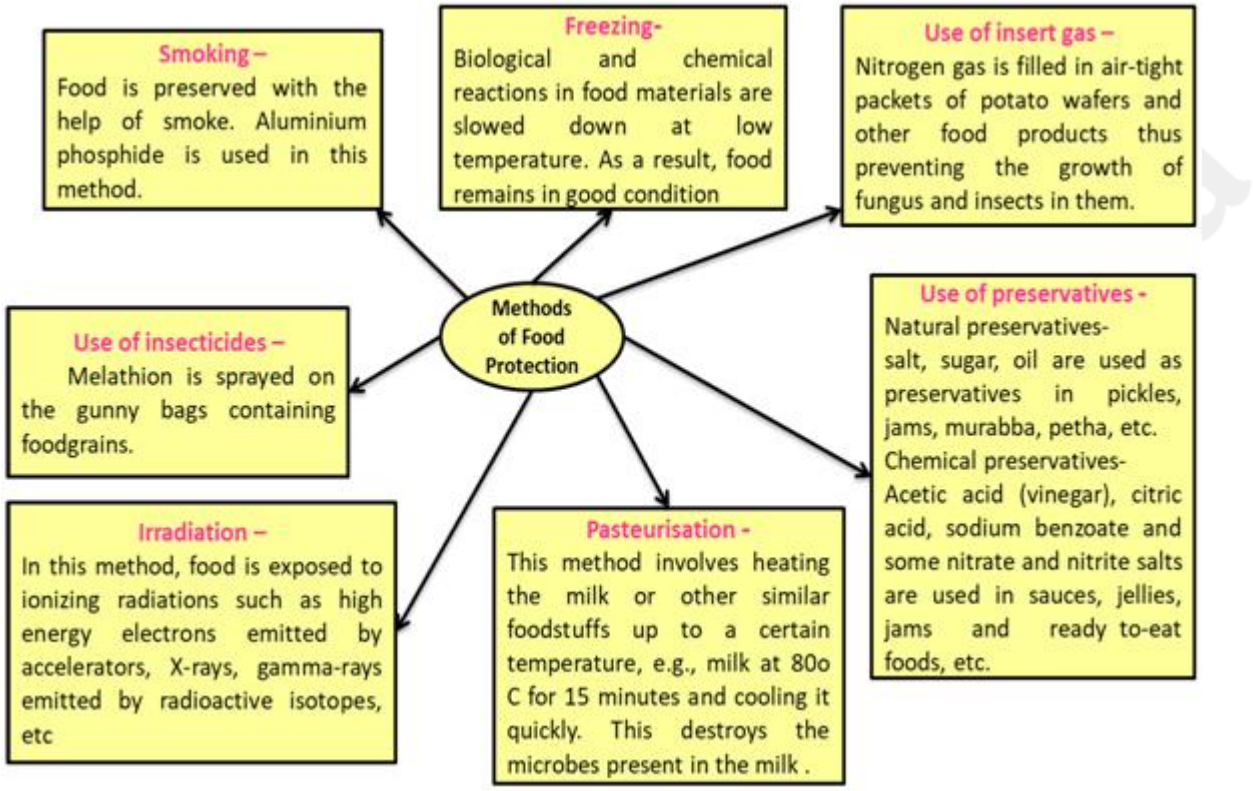


Factors responsible for food spoilage- Foods spoiled due to chemical reactions on contact with metals. Sometimes, foodstuffs may be spoiled due to contamination by microorganisms or insects from the surrounding air, water or soil.Sometimes, naturally available food materials are spoiled by wrong handling as when they are over - cooked, or improperly stored, say in a damp place.



Food protection : Prevention of food spoilage by microbial growth and infestation by pests is called food protection.

Food preservation: Use of various preservatives to prevent, for a long period of time, food spoilage due to internal factors is called food preservation.



How will you find out if food has been adulterated?

Food material	Adulterant	Test	Conclusion
Milk	Water	Put a drop of milk on a glass slide and slightly incline it to spread the drop.	If the spread-mark of milk does not appear milky white, water must have been added to it.
Red chilly powder	Brick dust	Take a spoonful of chilly powder in a beaker, add water up to half of the beaker, stir it and leave it undisturbed for a few minutes.	If a red layer is seen settled at the bottom of the beaker, it must have been adulterated with brick dust.
Turmeric powder	Metanyl yellow	Take a pinch of turmeric powder in a test tube, add a small quantity of water to it, shake the mixture and add a few drops of conc. HCl.	The mixture becomes red on addition of conc. HCl and the red colour does not disappear if metanyl yellow is present.
Rava	Fine iron filings	Pass a magnet through the *rava*.	Iron filings adhere to the magnet.

Let's do :

1. Take a transparent glass with some water and add some drops of honey. Pure honey is settling down at the bottom of the glass while impure honey is mixed with water.
2. Take a transparent glass with some water and add black pepper. Black pepper settles down at the bottom of the glass and papaya seeds float on water.




Visit the website for more testing for adulteration of food. https://fssai.gov.in/dart/

Effects of food adulteration -

1. Some adulterants cause abdominal discomfort or poisoning .
2. Some may affect the functioning of some organs if consumed over a long period of time.
3. Some adulterants cause cancer.

Let's Practice :

1) Look at the given picture- Why is milk spoiled?



.....

.....

2) What ways can you suggest to prevent food wastage?

_____

_____

_____

3) Make a list of the things around you which cause food spoilage.

_____

_____

_____

4) Complete the following activity.

Sr. No.	Foodstuff	Adulterant
1	.....	Metanyl yellow
2	Milk	.....
3	.....	Carbonated soda
4	Yellow bananas	.....

5) Give reason - More oil is used while making pickles.

_____

_____

_____

6) Decide whether the action in the following picture is right or wrong? Justify it.

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Links for more study :

Factors responsible for food spoilage-
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Methods of Food Protection-
https://diksha.gov.in/play/collection/do_31252658185931161624051O?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_3130186947202416641280

Food adulteration-
https://diksha.gov.in/play/collection/do_31252658185931161624051O?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_313018694731841536186

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Activity Sheet : 08

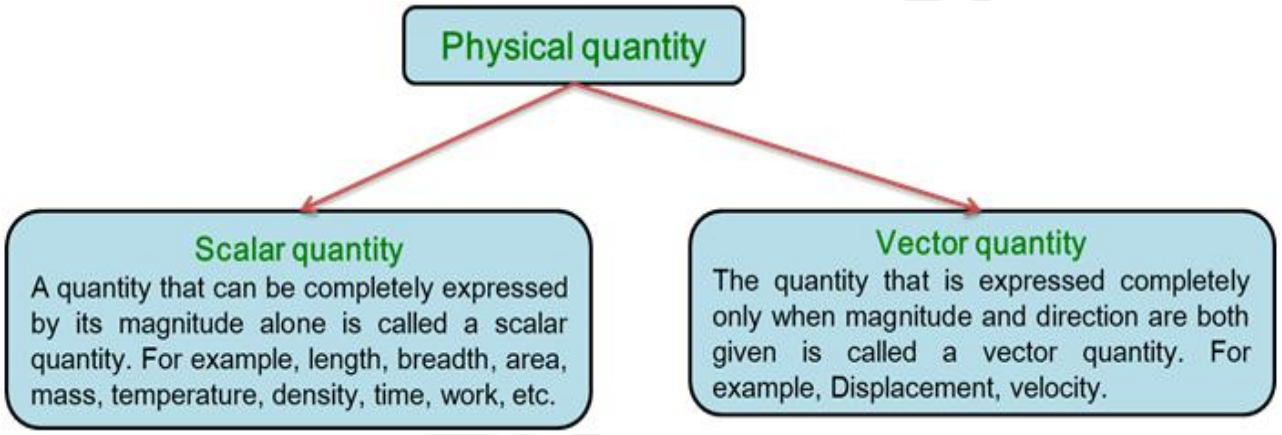
Let's Understand: Physical quantity, measurement, Standardized measurement.

Reference : Std VII, Chapter 06 Measurement of Physical Quantities

Learning Outcomes: Explain the correlation between the measures of various physical quantities.

Let's take a look :

Physical quantities- Quantities such as mass, weight, distance, speed, temperature, volume are called physical quantities. A value and a unit are used to express the magnitude of a physical quantity.



Mass- The amount of matter present in a substance is called mass. Matter has a natural tendency to resist a change in its state, which is called inertia. Mass is the qualitative measure of the inertia of an object. The larger the mass, the greater is the inertia. Mass is a scalar quantity.

Weight- The gravitational force that acts on this mass is called its weight. The gravitational force by which the earth attracts an object towards its centre is called the weight of the object. Therefore, weight is a vector quantity.

Standardized measurement- Standardized measures are required for measuring things. Such measures are called standard units. For example- the metre (m) is the specified unit for measuring length.

Fundamental quantities: It is enough to select a few out of the many quantities and standardize their units. Units of the quantities length, mass and time need to be standardized. Such quantities are called fundamental quantities and their units are called standard units.

International system of units: An international system of units based on seven fundamental units, called the System International (SI), is currently used all over the world. It is also called the metric system.

Importance of accurate measurement - An appropriate device has to be used for the measurement. For example, distance and time in connection with very important sports competitions, mass of gold, body temperature, etc.

Let's Practice :

1) Write the measurements in the frame by action - Measure the length and width of your notebook.

Length of notebook	_____
Width of notebook	_____

2) I bought 4 meters of cloth from a shop, but when I actually counted the cloth at home, it got less. Why ?

_____

_____

_____

3) Give reason - A person weighs 50 kg on earth but the same person weighs 8.3 kg on the moon.

_____

_____

_____

4) What precautions should you take while buying vegetables from the vegetable market?

_____

_____

_____

5) Look at the instruments in the picture given below. What are they used to measure?









Links for more study :

1. Physical quantity-
https://diksha.gov.in/play/collection/do_31252658185931161624051O?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_31301869572687462416 45

2. Mass and weight -
https://diksha.gov.in/play/collection/do_31252658185931161624051O?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_31301869601053900819 1

3.Standardized measurement-
https://diksha.gov.in/play/collection/do_31252658185931161624051O?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_31301869602168832017 56

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State Council of Educational Research and Training, Maharashtra, Pune 30

Preparatory Bridge CourseTest : 01

Class: VIII **Sub.: General Science** **Marks: 15**

Activity Sheets: 01 to 08 **Time: 30 Minutes**

Instructions:

1. All questions are Compulsory
2. Marks are mentioned at the right corner of the question.
3. Draw the diagrams if necessary.
4. Write only the correct number of right answers in front of the objective questions respectively.

Q.1) Write the answers of the following questions. **3 Marks**

1) Complete the following reaction.

$6\ CO_2$ + ☐ ⟶ ☐ + $6\ O_2$

2) Write two names of chemical preservatives.

3) Guess me Who am I ? Write my mode of nutrition.
I live on your head with hair and obtain food by sucking the blood.

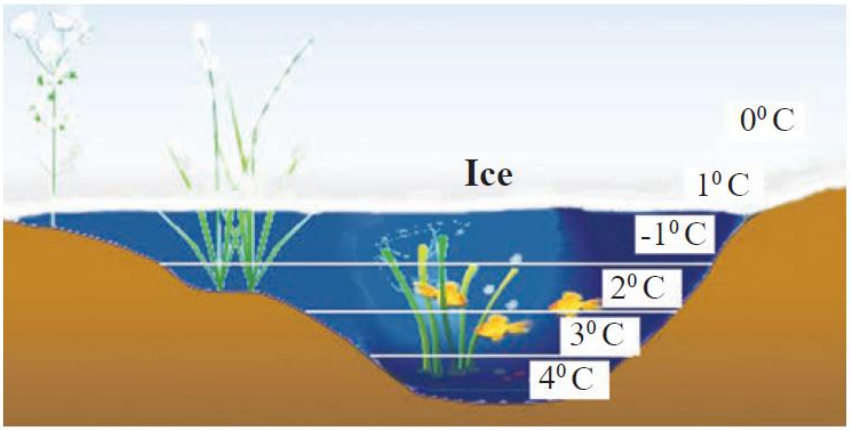
Q.2 Write the answers of the following questions. (Any 3) **6 Marks**

1) What kind of precautions will you take while purchasing Air tight /packed food? Why?

2) Classify the following into scalar and vector quantities.
(Area, velocity, weight, displacement, distance, mass)

3) Why does it happen?– Water droplets appear on the surface of a water bottle containing cold water after taking it out from the fridge.

4) Observe the given figure carefully and identify the property of water. How does it help aquatic animals to survive ?



Q.3 Write the answers of the following questions. **6 Marks**

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1) Identify the name of the plant given in the picture. Explain the adaptations which have taken place in the root, stem and leaves of the plant to survive in desert areas?

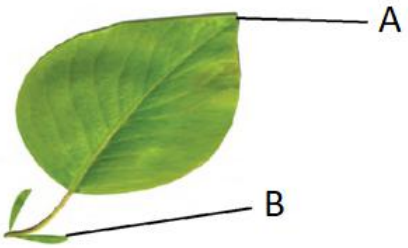


2) Observe the following picture and write the answers appropriately.

i) Label the parts marked as A and B.

ii) What is the type of the leaf ?

iii) Name the type of venation in the leaves.



* * *

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Activity Sheet : 09

Let's Understand : Distance, displacement, speed, velocity, acceleration, work.

Reference : Std VII, Chapter 07 Motion, Force and Work

Learning outcomes: Measure and calculate eg. temperature, pulse rate, speed of moving objects, time period of a simple pendulum, etc.

Let's take a look :



Distance : The length of the route actually traversed by a moving body, irrespective of the direction, is called distance. Distance is a scalar quantity.

Displacement : The minimum distance traversed by a moving body in one direction from the original point to reach the final point, is called displacement.

The unit of measurement of distance and displacement is the metre, in the SI as well as in the MKS system of measurement.

Speed- Speed is the rate of change of distance with time.

Speed = Distance / Time

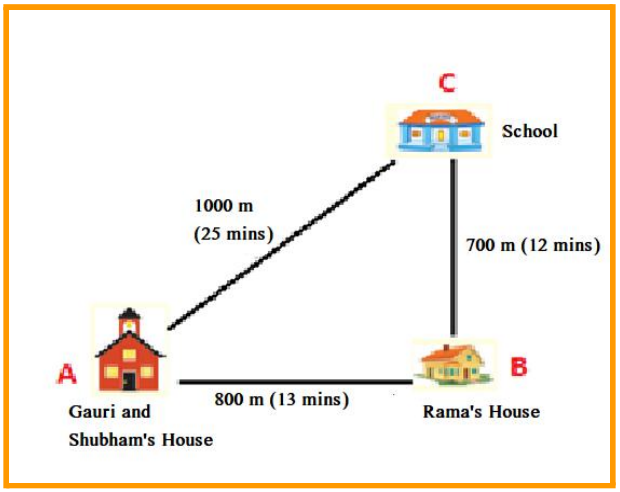
The unit of speed is written as metres/second (m/s) in the SI system .

Velocity : Velocity is the distance traversed by a body in a specific direction in unit time.

Velocity = Displacement / Time

The unit of velocity is written as metres/second (m/s) in the SI system.

Activity- Observe the given figure carefully. Gauri first went to her friend Rama's house on her way to school. While Gauri's brother Shubham went straight from home to school. Find Gauri's speed and Shubham's velocity.



Total distance covered by Gauri =AB + BC

= 800 m + 700 m = 1500 metres

Total time from home to school = 13 + 12 min.

= 25 min.= 25 x 60 sec.

Shubham's displacement from home to school = AC = 1000 metres

For shubham total time from home to school = 25 min. = 25 x 60 se

Gauri's speed while going to school = Distance / Time = 1500 / 25 = 1500 / 25 x 60

= 1 m/s

Shubham's velocity when going from home to school = Displacement / Time

= 1000 / 25 = 1000/40 x 60 = 0.66 m/s

Acceleration –



Example –1) All of you will have played slide. While you are sliding down, the initial velocity decreases, in the middle it increases, at the end it decreases to zero. In this example , there are changes in velocity from star to end . This rate of change of speed is called acceleration.

2) On a football ground, how does the direction of the ball moving in a straight line change ? We see some player changing its direction by kicking it. When its direction changes, the velocity of the ball changes, that is to say, an acceleration takes place.

The rate of change of speed with time is called acceleration.The unit of acceleration is m/s^2 .

Acceleration = Change in velocity / time

Try this ..



On a carrom board, the carrom coin, pushed by a striker, will move forward some distance, and then come to a stop. If the coin is pushed after applying talcum powder to the carrom board, it will keep moving for a longer time and then come to a stop.What can we infer from this ?

Force and acceleration - The velocity of the coin decreases due to the force of friction, and the coin stops. If the friction between the carrom board and the coin is reduced, the coin keeps moving for a longer time. It would mean that, if no force of friction is acting on a moving body, it will keep on moving with a constant velocity.

Newton's First Law of Motion : If no force is acting on a body, its velocity does not change, i.e. the body does not accelerate. In other words, if a body is stationary, it will remain stationary. If it is in motion, it will continue moving with the same velocity and in the same direction.

Force, displacement and work–

We know that work done depends on the force and the displacement.

The following formula expresses this relationship :

Work (W) done by the force = force (F) applied to the body x displacement (s) of the body that takes place in the direction of the force, W = F x S

In the SI system, the unit of work is Joule (J), while the unit of force is Newton (N) and the unit of displacement is metre (m). In the CGS system the unit of work is erg.

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Let's Practise :

1) From the groups B and C, choose the proper words for each of the words in group A.

Group A	Group B	Group C
Acceleration	meter / second ^{2}	cm. / second ^{2}
Force	erg	dyne
Displacement	meter	cm
work	Newton	Joule

2) Suppose a car moves from point 'P' to point 'Q' and returns to point P, as shown in the figure, what is the distance it has traveled and its displacement?



3) If an object goes 18 meters in the first 3 seconds and 22 meters in the next 3 seconds and goes 14 meters in the last 3 seconds, find an average speed ?

4) When a player runs on a circular path, he goes 400 meters in 25 seconds and returns to the starting position. What will be its average speed and average velocity?

5) If a student exerts a force of 25N on a table, the table is displaced by 3 meters, how much work was done by the student?

_____

_____

_____

_____

_____

_____

6) Explain Newton's first law of motion with examples from everyday life.

_____

_____

_____

_____

_____

Links for more study :

Distance and displacement-
https://diksha.gov.in/play/collection/do_31252658185931161624051O?contentId=do_31301869606960332817 33

Speed and Velocity -
https://diksha.gov.in/play/collection/do_31252658185931161624051O?contentId=do_31301869608110489611 70

Acceleration -
https://diksha.gov.in/play/collection/do_31252658185931161624051O?contentId=do_31301869610858905612 83

Newton's First Law of Motion ,Force, displacement and work–
https://diksha.gov.in/play/collection/do_31252658185931161624051O?contentId=do_31301869612027084816 48

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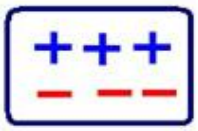
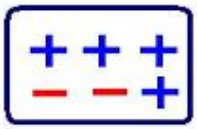
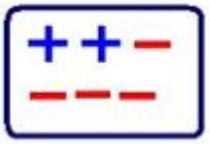
Activity Sheet : 10

Let's Understand : Electric charge, origin of an electric charge and frictional electricity, repulsion test

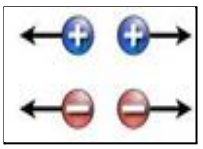
Reference : Std VII, Chapter 08 Static Electricity

Learning outcomes : Measure and calculate, for example, temperature, pulse rate, speed of moving objects, time period of a simple pendulum, etc.

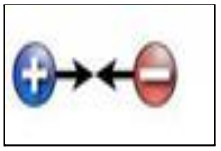
Let's take a look : All substances are made up of very tiny particles. Electric charge is an intrinsic property of these particles. Two opposite types of charges(+ and -) are present in equal numbers in all substances.

		
neutral object	Positively charged object	Negatively charged object
(Charges are balanced)	(Charges are not balanced)	

Repulsion: -Two objects carrying similar charges push each other away.



Attraction: -Two objects carrying opposite charges get pulled towards each other.



Origin of an electric charge: -All objects are made up of atoms. They are electrically neutral. Positive and negative charges being perfectly balanced. When certain objects are rubbed against each other, then the negatively charged particles on one object, go on the other object. The object to which they go becomes negatively charged due to an excess of negatively charged particles.The object from which the negatively charged particles go away becomes positively charged due to a deficiency of negatively charged particles. When two objects are being rubbed, one becomes positively charged and the other negatively charged.



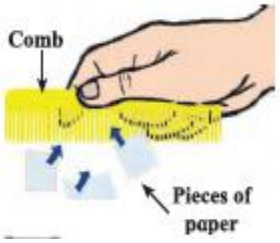




Frictional electricity: -The electric charge generated by friction is called frictional electricity. This charge is produced at the place of friction therefore it is called static electricity. It remains on the object for a short duration. Repulsion is used as a test for identifying an electrically charged object.

Generation of electric charge: -

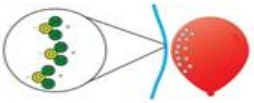
The electric charge generated by induction(while nearby)stays only as the charged object is near to it.





Example: - Bring a balloon (or a comb) near a trickle of water from a tap after rubbing it on hairs.

At first the flow of water is not charged. When a negatively charged balloon comes near the flowing water, the negative particles in its nearest balloon are pushed away. As the balloon approaches towards the stream of water, the balloon has negative and the water has positive charge. Due to the attraction between these opposite charges, the flowing water is attracted towards the balloon. When the balloon is taken away, the negative (-) particles in the flowing water come back to their original position. As a result, the water becomes uncharged again, and stops getting attracted to the balloon as it is away from it.

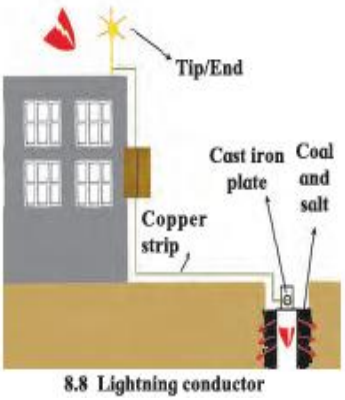


Lightning: - Where air and clouds rub against each other in the sky, the upper part of some clouds on the upper side becomes positively charged and the lover side becomes negatively charged. When this negative charge on the bottom of the cloud becomes much larger than the charge on the ground, it starts flowing towards the ground in stages. Heat, light and sound energy are produced along with the electric current.



A Lightning strike: - Due to the attraction between the opposite charges on the cloud, building and tree, the charge on the cloud flows towards the building, tree. This is called a lightning strike.

Lightning conductor:- The lightning conductor is a device used for protection from a lightning strike. Because of the lightning conductor damage to the tall buildings, the surrounding area is protected. It consists of a long copper strip with one end forked. This end is at the highest part of the building. The other end of the strip is connected to a plate of cast iron. A pit is dug in the ground, coal and salt are filled into the pit and the iron plate is placed upright in the pit. There is also a provision for pouring water into it. This helps to spread the electric charge quickly into the ground and prevent damage.

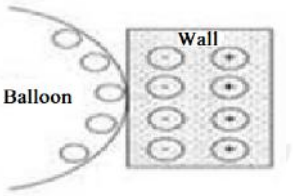


8.8 Lightning conductor

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Let's Practice :

1) The Picture below shows a balloon sticking to a wall.
Indicate what kind of charges (+ or -) will be on the balloon.



2) No matter how much you rub the mirror with a dry cloth, why does dust settle on it immediately ?

_____

_____

3) Make a list of all the objects in your daily life on which electric charges can be generated.

_____

_____

4) Explain in your own words, whether it is right or wrong to stand under a tree during a thunderstorm.

_____

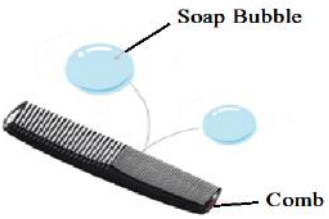
_____

5) What precautions should you take during a thunderstorm?

_____

_____

6) Dilip rubbed a large comb on a woollen cloth. He made a soap bubble and released it on the comb. The balloon leaned on the comb and then stopped on the comb, then jumped up and sat on the comb again. It continues this process like a jumping action. Write in your own words why this is happening.



_____

_____

Links for more study :

Electric charge
https://diksha.gov.in/play/collection/do_31252804685149798424679 6?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_3129181942427811841 1860

Static Electricity
https://diksha.gov.in/play/collection/do_31252804685149798424679 6?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_3126784627194019841 2828

Static Electricity- Lightning
https://diksha.gov.in/play/collection/do_31252804685149798424679 6?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_3129514640643358721 314

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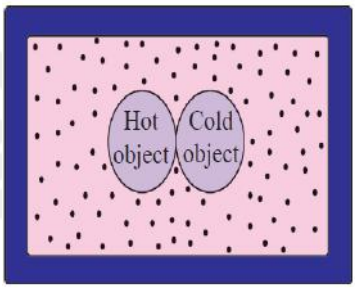
Activity Sheet : 11

Let's Understand : Properties of Heat energy, Transfer of Heat, Modes of heat transfer, Heating effect- expansion and contraction.

Reference : Std VII, Chapter 09 Heat

Learning outcomes : To understand scientific concepts by using the instruments like microscope, thermo flask, centrifuge.

Let's take a look :



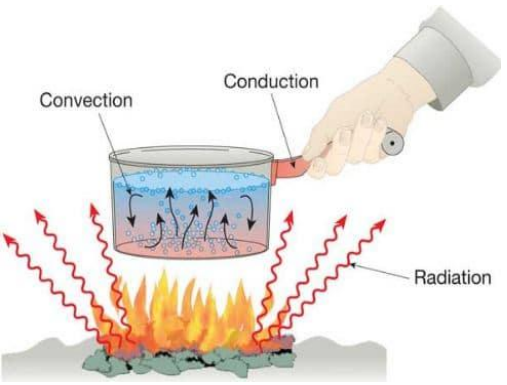
Heat is a form of energy. The sun is the biggest natural source of heat. A thermometer is used to measure the temperature of a substance. A clinical thermometer is used to measure human body temperature.

Transfer of Heat : Transfer of heat means the flow of heat from one place to another. Heat is transferred from a hot body to a cold body.

Mode of Heat Transfer : 1) Conduction: Transfer of heat from the hot part of an object to the cold part is called conduction of heat. In conduction, the particles of material medium do not actually migrate (move). They only transfer the heat from one particle to the next particle. Medium is required for the conduction of heat.

Try This - Take an iron nail, hold one end of the nail with your hand and hold other end of nail on the flame of burning candle for some time. Record your observations.

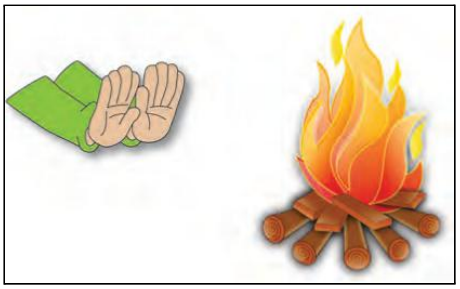
2) Convection: Heat is transferred by means of currents called convection currents. This process is called convection of heat. In convection molecules of materials absorb heat and move to another place. Particles when they gain heat from a source, they move to a cold place. Convection can occur in liquid and gaseous substances. Convection needs a medium.



Think about it: For ventilation in the home, windows are fitted in opposite walls. Here the hot air goes out from one window and the cold air enters the room from another window.

Click here to study – Fun with Heat
https://www.youtube.com/watch?v=C3K34BVWtQU

3) Radiation : The transfer of heat that takes place without a medium is called radiation. There is no air between the sun and the earth and we still receive heat energy from the sun. The ability of a substance to absorb heat radiation depends on its colour and also its intrinsic properties.



Try this: During the afternoon, wear light colored clothes and stand under the sun for some time. Then wear dark colored clothes and stand under the sun for some time. When do you feel hotter?

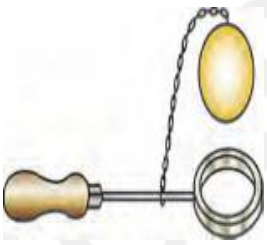
Good conductors of heat : The substances (materials) that allow heat to pass through them easily.

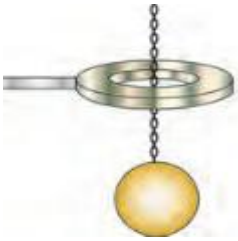
Bad conductors of heat : The substances (materials) through which heat is not passed easily.

Try this: Place a steel spoon, a copper strip or rod, a divider from your compass box, a pencil and a plastic ruler in a glass. Pour hot water into the glass. Wait for a while. Then touch the outer end of each of the objects. Record your observations in the table below.

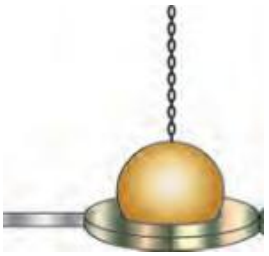
Object	How hot is the outer end? (very hot, hot, warm, as cool as the atmosphere)	Good conductor / Bad conductor

Expansion and contraction of a solid substance due to heat : Metals expand on heating and contract on cooling. Solids expand due to heat and come back to the original state if heat is removed.





Before Heating



After Heating

Expansion and contraction of liquids due to heat: When a liquid is heated the distances between its particles increase and its volume too increases. This is called the expansion of liquids. When its temperature falls, the liquid contracts.

Expansion and contraction of gases due to heat: The volume of a gas increases on heating. This is called expansion of the gas. On the other hand, on removing heat, the volume of the gas decreases. This is called contraction of the gas.

Try This: Fix a balloon on the mouth of a glass bottle. Hold this bottle in hot water. What happens?

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Let's Practice:

1) Select the proper alternative and complete the sentence.

i) _____ energy is used for roasting, boiling, steaming, frying.

A) Sound B) Light C) Heat D) Magnetism

ii) Most of the heat is absorbed by _____ coloured body.

A) Blue B) White C) Green D) Black

2) Write the name of the instrument in the given picture.

_____



3) Why are the pots in the solar cooker coated with black colour?

_____

_____

4) The runners in a marathon race are wrapped with warm clothes when the race is over. Give a reason.

_____

_____

5) In the room, the heater is fixed on the lower side of the wall and the air conditioner is fixed at some height. Why?

_____

_____

6) Classify the following substances as good conductors and bad conductors.

(Copper, wood, mercury, rubber, gold, glass, silver, plastic)

Good conductor: _____

Bad conductor: _____

7) Write the types of transmission of heat shown in the picture.

A) _____

B) _____



A B

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Links for more study :

1) Heat introduction
https://diksha.gov.in/play/collection/do_31252804685149798424679 6?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_3128771338819 0924812623

2) Convection
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3) Heat
https://diksha.gov.in/play/collection/do_31252804685149798424679 6?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_3126784555000 1356812547

4) Expansion
https://diksha.gov.in/play/collection/do_31252804685149798424679 6?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_3128948203611 4227214752

5) Modes of transfer- conduction
https://diksha.gov.in/play/collection/do_31252804685149798424679 6?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_3128771508628 6028812627

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Activity Sheet : 12

Let's Understand : Famine, Cloudburst, Flood, Lightning, Volcano, Tsunami

Reference : Std VII, Chapter 10 Disaster Management

Learning Outcomes: Remains awakened about famine, flood, cloudburst, lightning strikes, storms, etc. in the circumstance to prevent them, uses the circumventions in day-to-day life.

Let's take a look :

Famine: The condition that arises due to long term and severe scarcity of food grains and water is called famine.





Types of Famine : 1) Mild Famine 2) Severe Famine

Causes of famine:

Natural causes	Man Made causes
Drought, heavy rains and flood, crops getting washed away or damaged in the flood, environmental changes such as temperature change, storms, cold waves or fog, damage of crops by animals like mice and rats, attack of pests, locusts or diseases of crops, earthquakes.	War, internal unrest, absence of transport routes, uncontrolled population growth, etc.

Can you tell– What can we do to ease severity of famine?



Cloudburst: Due to rapid condensation, it rains suddenly over a specific and small region at a rate of 100 mm per hour or more. This is known as a cloudburst.

Do you know ? A cloudburst occurred at Leh (Ladakh) on 6th August 2010. The cloudburst that occurred in Mumbai on 26th August 2005 was extraordinary and unforgettable. On that day it rained about 950 mm, that is, 37 inches, in 8 to 10 hours, and the entire city of Mumbai was waterlogged and flooded.

Flood: Can you tell? What measures would you suggest to protect yourself from floods?

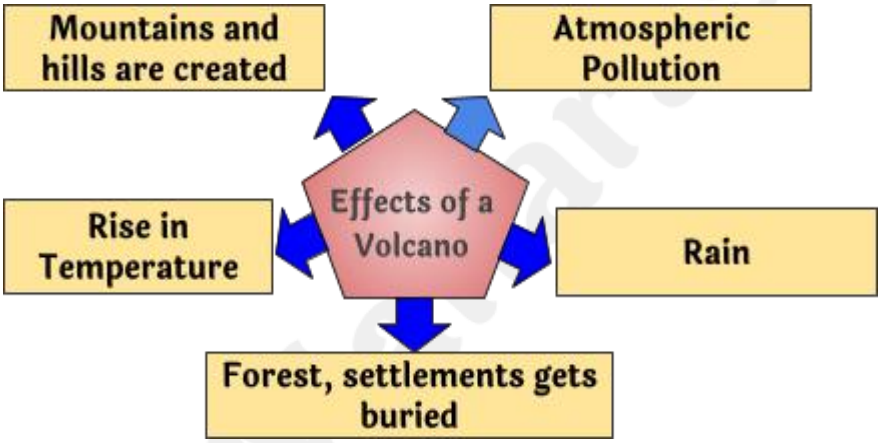


Lightning: Not all lightning strikes the ground. In fact, about 95% of the lightning flashes are limited to the sky. Only 5% of lightning reaches the ground. Lightning can be generated within one cloud, between two clouds or between a cloud and the ground. About forty lightning flashes occur per second in the atmosphere. The temperature generated by lightning is higher than that of the sun.

Can you tell: What precautions will you take during thunderstorms?

Volcano: A volcano is a natural event or phenomenon. The interior of the earth is very hot. Movement of hot substances continuously occurs from the interior towards the surface of the earth. As a result, sometimes the solid, liquid and gaseous substances below the earth's crust are pushed towards the crust. When these substances come out of the earth's crust in an eruption and start flowing, it is called a volcano.





Tsunami: A wave, generated by an earthquake or volcano occurring on the ocean floor, is called a 'tsunami'. 'Tsunami' is a Japanese word which means 'harbour wave'.

Destructive effects of tsunami-

1) Buildings and other constructions are destroyed.

2) Loss of life and financial loss. 3) Boats and ships near the coast get damaged. 4) Landslides take place on a large scale. 5) Traffic obstructions arises. 6) Large scale damage is caused to harbours. 7) The business/industry related to sea are adversely affected.

Storms:

Can you tell: What measures will you suggest to protect yourself and others from the storm?



Let's Practice:

1) Choose the right option and complete the following statement.

(i) _____ is a natural disaster.

(A)War (B) Population growth (C) Internal conflicts (D) Earthquake

(ii) Volcanoes erupt in the _____ as they do on _____.

(A)Air (B) Land (C) Sea (D) the moon

2) Compose and write 5 slogans based on famine.

_____

_____

3) Suggest remedial measures for famine.

_____

_____

_____

_____

4) Identify the disaster in the picture and suggest protective measures.

_____

_____

_____

_____



5) What will you do if you get caught in a storm?

_____

_____

_____

_____

6)Identify the disaster in the picture and suggest protective measures.

_____

_____

_____

_____



7) What is a tsunami? Write about the two effects of the tsunami.

_____

_____

_____

Links for more study :

Disaster Management:
https://diksha.gov.in/play/collection/do_31252804685149798424679 6?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_312678462729379840128 30

Disaster Management:
https://diksha.gov.in/play/collection/do_31252804685149798424679 6?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_312678455504707584126 77

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Activity Sheet: 13

Let's Understand: Organisation in living organisms, measurement and observation of cells, main types of cells.

Reference: Std VII, Chapter 11 Cell Structure and microorganisms.

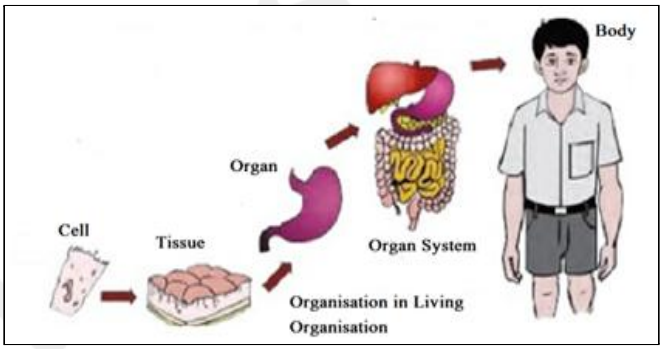
Learning Outcomes: To observe the basic components inside the living organisms with the help of a microscope. To compare various cells in organisms through observation. To draw the structure of cells and explain them.

Let's take a look:

Cell: Cellular organization is the primary characteristic of all living organisms and that the cell is the fundamental structural and functional unit of living organisms.

Organisation in living organisms:

Can you tell? Make a list of organisational levels in humans from the adjoining diagram.



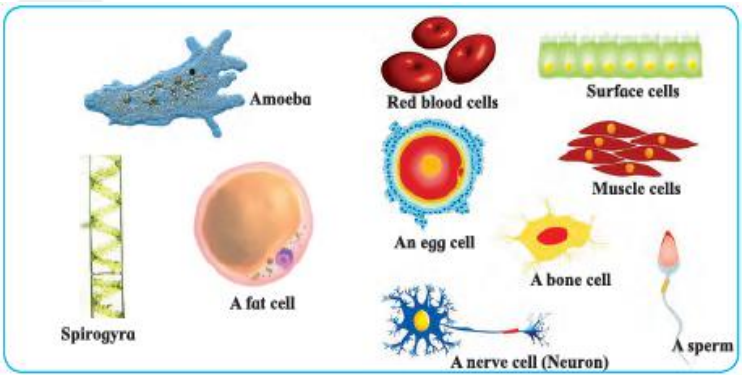
Measurement and observation of cells :

Cells are extremely minute in size. We cannot see cells with the naked eye. The compound microscope is used for observing cells. Micrometre and nanometre are the units used for measuring their sizes.

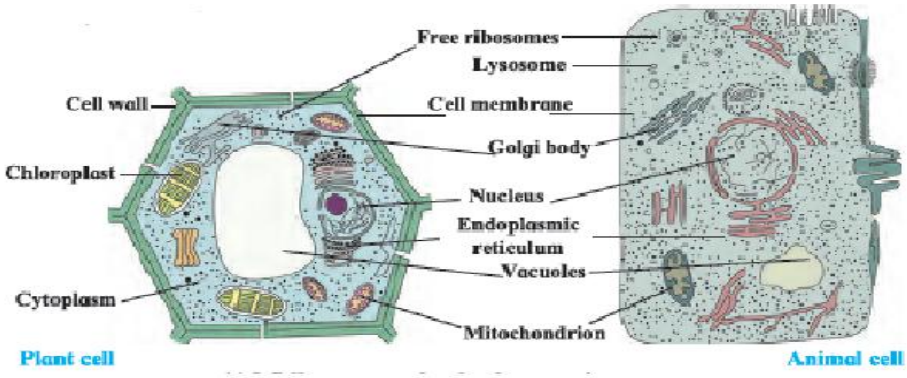
1 centimetre = 10 millimetres, 1 millimetre = 1000 micrometres,

1 micrometre (or micron) = 1000 nanometres

Cell shapes -



Types of Cell-



There are two main types of cells – Animal cells and plant cells. Plant cells have a definite shape due to the presence of the cell wall around them. Plasma membrane is the outermost covering of an animal cell.The liquid part in the cell, present around the nucleus is called cytoplasm.

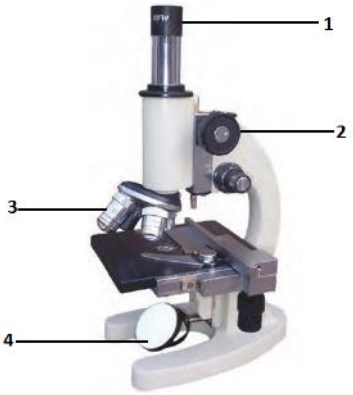
Cell organelles	Function	Cell organelles	Function
Nucleus	Controls all functions of the cell.	Vacuoles	Helps to throw out waste product of the cell
Mitochondria	Produces energy	Golgi Bodies	Proper distribution of proteins
Chloroplasts	Performs photosynthesis	Endoplasmic reticulum	To make changes in the proteins produced by ribosomes and send them to the Golgi bodies.

Let's Practice:

1) Complete the following statement by choosing the correct option: _____ organelle is present only in the plant cell.

A) Mitochondria B) Cytoplasm C) Chloroplasts D) Nucleus

2) Write the names of the parts in the given diagram.



_____

_____

_____

_____

3) Identify and write our shapes.

Cell	**Shape**
Amoeba	Irregular
	Spiral
Red blood cells	
Spirogyra	

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4. Identify the cell organelles A, B, C in the given diagram and write their functions.

_____

_____

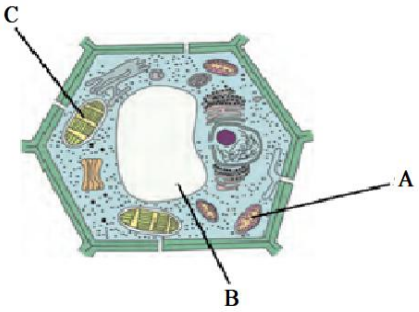
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_____



5. From household items like a bundle of wool, orange candy, any pulses (daal), peas, rubber, ball, etc. make cell models from other available items. (See the given picture for details)



Links for more study :

Concept of a cell
https://diksha.gov.in/play/collection/do_31252804685149798424679 6?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_313056231649828864142 55

Cell as a basic unit of life
https://diksha.gov.in/play/collection/do_31252804685149798424679 6?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_313056204140552192143 55

Types of cells part-I
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Types of cells part-II
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Activity Sheet : 14

Let's Understand : Useful microorganisms, harmful organisms, disease producing microorganisms.

Reference : Std VII, Chapter 11 Cell Structure and microorganisms.

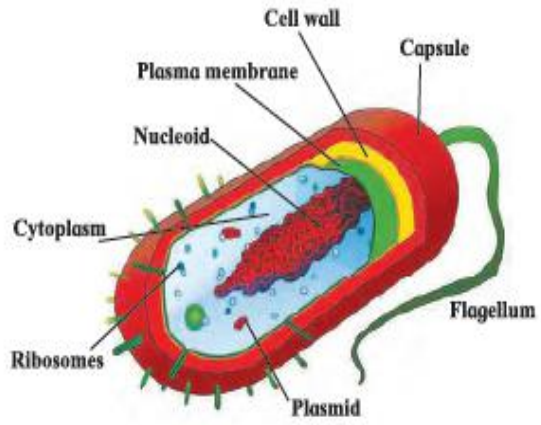
Learning Outcomes : To observe the basic components inside the living organisms with the help of a microscope. To compare various cells in organisms through observation. To draw the structure of cells and explain them.

Let's take a look : The organisms which cannot be seen with our eyes but can only be observed under a microscope are called microorganisms.

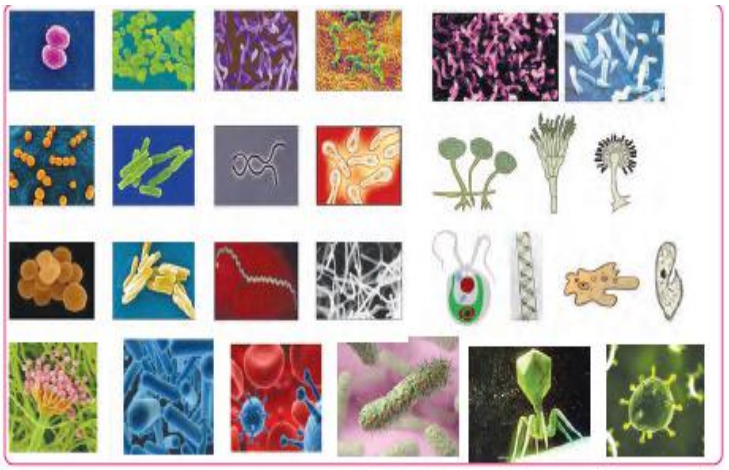
Occurrence of microorganisms : Microorganisms are present all around us in the air, water, soil, food, sewage, garbage as well as in the bodies of plants and animals, including humans.

Try This: Keep a moistened piece of bread or bhakari in a closed box. Observe it after 3-4 days using a magnifying lens. In your notebook, draw sketches of the microbes you observed.

Nature of microorganisms : Some micro-organisms like the fungus that grows on bread or strands of algae in ponds are multicellular. However, most microorganisms such as bacteria and viruses are unicellular. They have a somewhat different cellular structure.The plasma membrane, cytoplasm and nucleoid are their only components. Such cells are called prokaryotic cells.



11.6 Prokaryotic cell


11.7 A variety of microbes

Useful microorganisms : Microbes present in soil, dung, etc. decompose the garbage to obtain food material. For proper sewage disposal too, microbes are released into the sewage so as to help in the quick decomposition of the organic compounds in it.

Can You Tell: Observe the roots of the fenugreek plants. What could be the functions of the nodules on their roots?



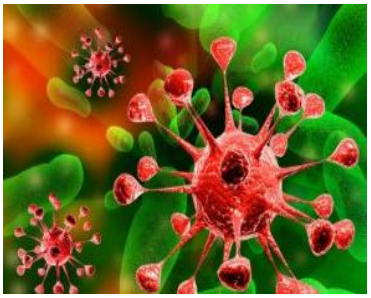
Fermentation-The chemical process of conversion of one type of carbon compound into another type of carbon compound by the action of microorganisms is called fermentation.e.g., bread dough and idli batter are seen to 'rise'. Making yoghurt from milk. Producing alcohol from grains and fruits, bread from flour as well as in the production of acetic acid, citric acid, lactic acid, vitamins, antibiotics, etc.

Antibiotics: Types of medicines destroy the pathogens and retard their growth. They are called antibiotics. A vaccine is produced in a laboratory with the help of microbes that gives immunity against a particular disease.



Harmful microorganisms: The air contains microscopic spores of fungi. When moisture is received, the spores germinate on cotton, jute(gunny)bags, leather goods, and other organic substances. Fungal fibres penetrate deep into these substances and reproduce their own nutrients. So, fabrics, jute(gunny)bags, leather articles, wallets, and belts do not last long.

Just think: When our mother opens the jar of pickle or murabba, sometimes black particles and sometimes white scum appear inside. What exactly is this? Why are such foods unsuitable for eating?



Disease producing microorganisms: Pathogens are the microorganisms that cause various diseases. For example- Pathogens are released in the air when a person having an infection of the respiratory tract sneezes or coughs. A healthy person may get infected with such pathogens on breathing in the same air and contract diseases like common cold, cough, pneumonia, tuberculosis, COVID -19 etc.

Always remember: 1) Always eat fresh and covered food. (2) Drink boiled water. 3) Cover your mouth and nose with a handkerchief when you cough or sneeze. 4) Don't allow garbage and water to accumulate around your house.

Let's Practice:

1) Complete the following statement by choosing the correct option.

An electron microscope is necessary for the study of ----------

A) Fungus B) Algae C) Bacteria D) Coronavirus

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2) Identify the object in the given picture. Where is it used?



_____
_____
_____
_____
_____

3) Why is yoghurt mixed in the batter or dough for making rava-idli, bhature, naan?

_____
_____

4) Give scientific reasons - Food is always kept covered.

_____
_____

5) Write about the importance of vaccination.

_____
_____

Links for more study :

1) Wake up Yeast
https://diksha.gov.in/play/collection/do_3125280468514979842467 96?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_3129514547146915841238

2) Introduction to microorganisms and their types.
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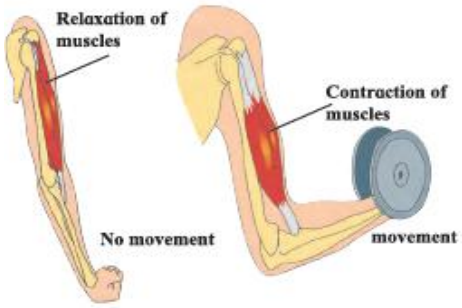
Activity Sheet : 15

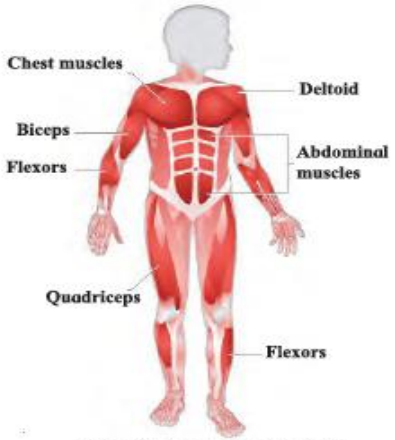
Let's Understand: Muscular system and digestive system

Reference: Std VII, Chapter 12 Muscular system and digestive system in human beings

Learning Outcomes : Draws labelled diagrams/flow charts for example, organ systems in humans and plants; life cycles of silk moth etc.

Let's take a look : Muscles are bundles of fibres that can contract and relax as required.





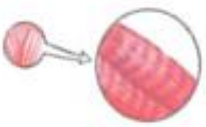
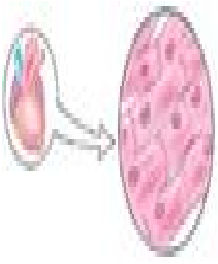
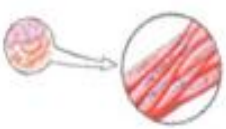
12.3 Muscles in different parts of the body

We use muscles for various movements like talking, laughing, walking, jumping, throwing, etc.

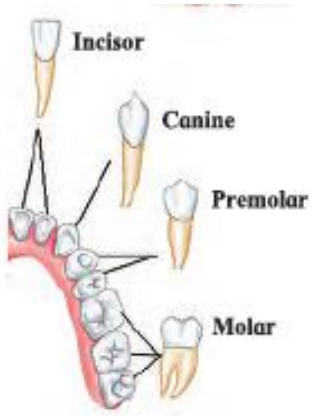
1) Voluntary muscles: -These muscles are used to perform functions that depend on our will.

2) Involuntary muscles:- These muscles are used to perform functions that do not depend on our will.

Types of muscles: -

1.	Skeletal muscles (voluntary)		1)The two ends of each of these muscles are attached to two different bones. 2) Function-Responsible for holding the bones of the skeleton together and giving shape to our body.3) Example: muscles of the arms and legs.
2.	Heart /Cardiac muscles (Involuntary)		1) These muscles bring about the contraction and relaxation (beating) of the heart. 2) Function- Cause our heart to relax and contract continuously at a rate of about 70 times per minute. 3) Example: muscles of heart
3.	Smooth muscles Involuntary		1)These muscles are present in the internal organs other than the heart. 2) Function- various vital functions of our body 3) Example: muscles of stomach, intestine, blood vessels, uterus.

Digestion: Conversion of food into a soluble form and its absorption into the blood is called digestion.

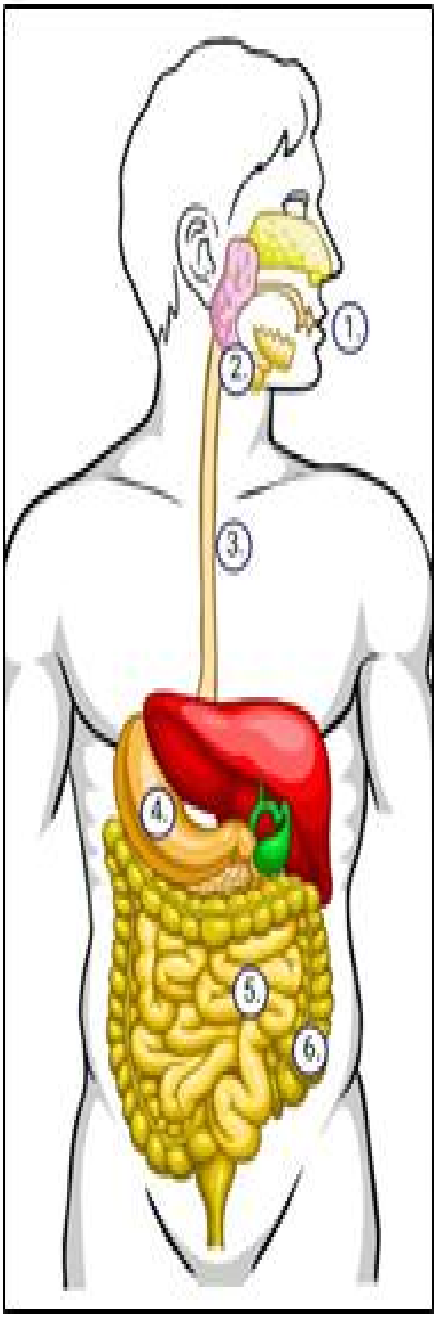


The process of digestion begins with the function of the teeth in the mouth. There are four types of teeth namely incisors, canines, premolars and molars. Each tooth is covered by a hard substance called enamel. Enamel is made of calcium salt.

Digestive System : The digestive system consists of the alimentary canal (length about 9 meters) and digestive glands. Digestive glands are connected to the alimentary canal.

Structure and working of digestive system:

1	Mouth	Digestion of food begins in the mouth. Food is chewed with the help of teeth.
2	Pharynx	The oesophagus and trachea open into pharynx
3	Oesophagus	It is a tube leading from the pharynx to the stomach. It pushes the food towards the stomach
4	Stomach	It secretes gastric juices. Food that has entered is churned in the stomach. Mainly proteins are digested in the stomach.
5	Small Intestine	The small intestine is about 6m long. Most of the digestion and absorption of food takes place here. Absorption into the blood, of nutrients obtained by the digestion of food, also occurs in the small intestine
6	Large Intestine	The large intestine is about 1.5m long. Only water is absorbed here. Undigested remains of the food digested in the small intestine enter the large intestine. Undigested material is thrown out of the body through the anus.



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Important glands of the digestive system, their secretions and function :

Organ	Gland	Secretion	Functions
Mouth	Salivary gland	Saliva: Ptyalin	Conversion of starch into maltose
Stomach	Gastric wall	Gastric juice Hydrochloric Acid, Mucous, Pepsin	To make the food acidic. Breakdown of proteins To protect the inner lining of the stomach from hydrochloric acid
	Liver	Bile	To make food alkaline.To convert large fat particles into small ones (emulsification of fats)
	Pancreas	Pancreatic juice- Trypsin, Lipase, Amylase	To convert proteins into amino acids. To convert fats into fatty acids and glycerol. To convert complex carbohydrates into simple sugars.
Small intestine		Intestinal juice	To convert proteins into amino acids. To convert complex carbohydrates into glucose. To convert fats into fatty acids and glycerol.

Let's Practice :

1) Tell what will happen if the heart muscles in our body do not contract and relax.

_____

_____

2) Classify the following actions- cycling, digestion of food, respiration, flying kite

voluntary action: _____

involuntary action: _____

3) If elderly people in your house have muscle pain problems, what measures will you suggest to strengthen them?

_____

_____

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4) When muscles contract and relax while jumping rope, write it from your own experience.

_____

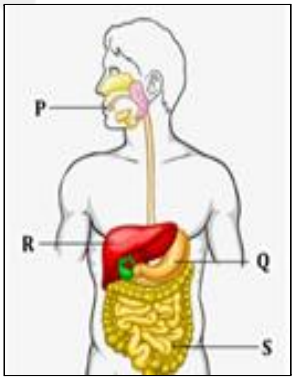
_____

5) Write names only.

i) Which organ carries the waste products out of the body after digestion?_____

ii) Gland which stores glucose _____

6) The figure shows different parts of the human digestive system.In which part P, Q, R, S of the system food is mainly digested and absorbed?



_____

7) Rahul drank a glass of milk in the morning. Explain in your own words what action takes place on the milk protein during digestion.

_____

_____

Links for more study :

The muscular system and digestive system in human beings
https://diksha.gov.in/play/collection/do_31252804685149798424679 6?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_3126980193736130561213 5

The muscular system and digestive system in human beings
https://diksha.gov.in/play/collection/do_31252804685149798424679 6?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_3126980193963 84556815843

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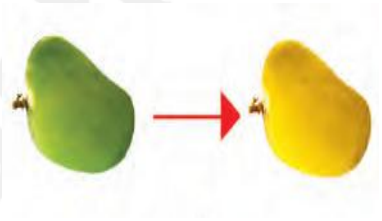
Activity Sheet : 16

Let's Understand: Natural changes, useful changes and harmful changes, fast and quick changes and slow changes, non-reversible changes, reversible changes, periodic changes and non-periodic changes, physical change and chemical change.

Reference: Std. VII, Chapter 13 Changes: Physical and Chemical.

Learning Outcomes: Apply different criteria for classification of living things and matter. e.g. Plants and animals, Physical and chemical changes etc.

Let's take a look:



Natural changes: The changes that occur naturally are called natural changes. E.g. Ripening of fruit, spoiling of milk, corrosion.



Useful changes: The changes that are useful to us are called useful changes.e.g.Cooking food, milk turning into curds.

Harmful changes:The changes that are not useful or changes that do us harm are called harmful changes. e.g.Rusting of Iron, a tree falls during a storm.



Quick changes: The changes that take place in a short period of time are called fast/quick changes. e.g.bursting of balloons, melting of ice.

Slow changes: The changes that take place over a long period of time are called slow changes. e.g.Ripening of fruit, rusting of iron.



Reversible changes: The changes that occur in a forward and reverse direction again and again are called reversible changes. e.g. Melting of wax, melting of ice.

Non-reversible changes: The changes that cannot be transformed back are called non-reversible changes. e.g.Milk turns into curds, Burning of wood.(Ash cannot turn into wood)



Periodic changes: The changes that occur again and again after a definite interval of time, are called periodic changes. e.g. Change of season, tides of sea, day and night.

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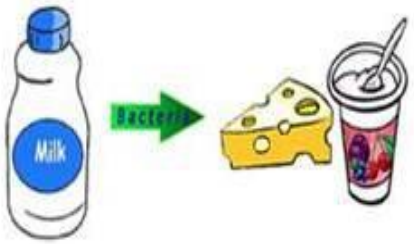
Non-periodic changes: The changes that cannot be said for sure when certain changes will recur after one occurrence. Even if they recur, the time interval is not fixed. such changes are called non-periodic changes. e.g. flood, birds flying on trees.



Physical changes: The properties of the original substances remain unchanged. No new substance is formed. Such a change is called a physical change. e.g.Melting of ice, Table made from wood, broken glass.



Chemical changes: The change due to which a substance is transformed into another substance having new and different properties is called chemical change. e.g. ripening of tomato, rusting of iron.

Slow, harmful and chemical change.	Chemical, slow, useful, natural, permanent change.	Physical, quick, reversible change.
		

Corrosion: Gases in the air - oxygen, carbon dioxide, vapours of chemicals react with metals in presence of moisture to form metal compounds. The metal gets affected by this process and undergoes what is called corrosion. e.g. Reddish coloured deposit is formed on iron, Greenish coloured layer deposits on the surface of copper.

Black silver article	Rusting of iron	Greenish copper coin
		

Prevention of corrosion:

1) Iron articles are applied oil, greased,varnished and painted.

2)Galvanization: Iron articles are given a thick layer of zinc coat.

3)Tinning: Copper and brass articles are coated with tin.

Let's Practice:

1) Give answers to the following.

i) Complete the correlation.

Galvanization : Zinc coat : : Tinning : _____

ii) Find the odd one out.

Revolution of earth around the sun, flood, tide in sea, season change.

2) Find out the types of changes.

Change	Types of change
Earthquake	Natural, harmful, non-periodic
Potato piece turn black on keeping long time	
Boiling of water	
Silver chain turns black	
Salts dissolved in water	

3) Why should iron windows at your home be given a coat of paint?

_____

_____

_____

_____

4) Differentiate between physical change and chemical change.

Physical change	Chemical change

Link for more study :

Physical change and chemical change:
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Reversible and irreversible change:
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State Council of Educational Research and Training, Maharashtra, Pune 30

Preparatory Bridge Course Test : 02

Class: VIII **Sub.: General Science** **Marks: 15**

Activity Sheet: 08 to16 **Time: 30 mins**

Instructions:

1. All questions are Compulsory
2. Marks are mentioned at the right corner of the question.
3. Draw the diagrams if necessary.
4. Write only the correct number of right answers in front of the objective questions respectively.

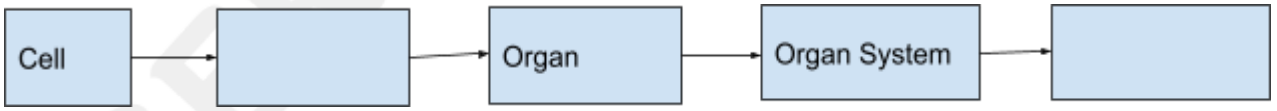
Q.1 Write the answers of the following questions. **3 Marks**

1) Observe the given picture carefully. How would you avoid this?



2) What type of change is the change of seasons from summer to rain to winter?

3) Complete the following chart.



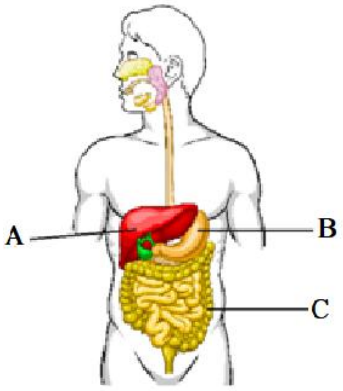
Q.2 Write the answers of following questions(any3) **6 Marks**

1) Distinguish between - Conduction and Convection.
2) A Force of 800 N was applied to stop a car that was moving with a constant velocity. The car stopped after moving 12 meters. How much work is the work done ?
3) Why does this happen? - There is a crackling sound produced while wearing a sweater.
4) Draw a neat diagram of a plant cell and show the cell organelles given in the bracket. (Nucleus, vacuole, chloroplast, Mitochondria)

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Q.3) Write the answers of the following questions. **6 Marks**

1. Identify the parts shown in the figure and write their functions.



2. What precautions will you take during thunderstorms?

* * *

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Activity Sheet : 17

Let's Understand : Matter, Elements, Symbols of elements.

Reference : Std VII, Chapter 14 Elements, Compounds and Mixtures.

Learning Outcome : Understand and explain daily uses of matter, elements and their properties, states of matter and their effects.

Let's take a look:

Matter: An object made of a certain substance is called matter. The term matter is also used as a synonym of substance. A chemical substance is a form of matter that has constant chemical composition and characteristics.

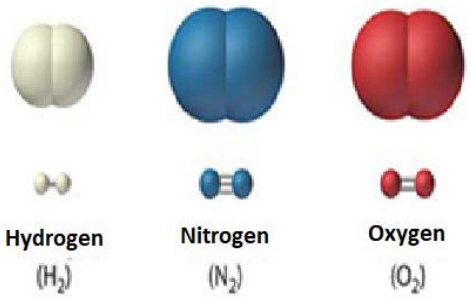
Activity: 1) Fill a glass of water upto the brim. Drop a small stone in it. What happens?
2) Take a balance, place a small stone in one pan and a big stone in the other. Which pan goes down? Why ?

Mass and volume are the two important properties of matter. Many kinds of matter found in nature are in pure form, that is they contain only one constituent. In scientific language matter is made up of only one constituent is called substance.e.g.Gold, Diamond, Water, chalk. Other kinds of matter made up of two or more substances are called mixtures.

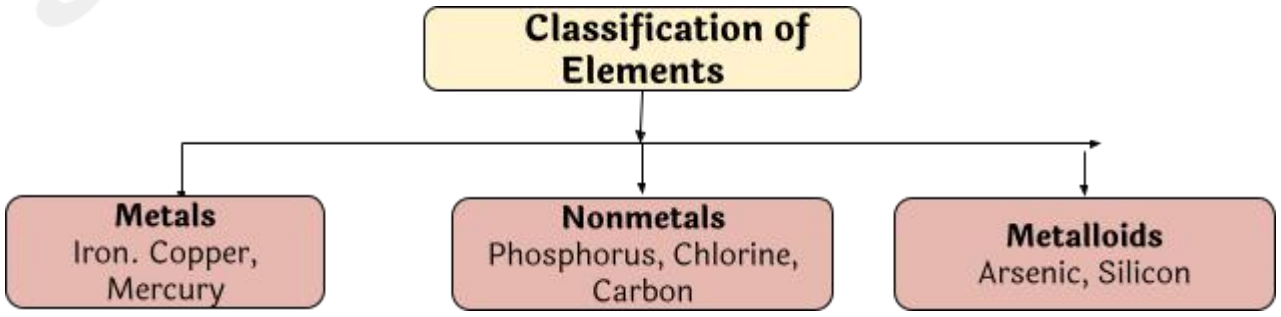
Element: All substances are made up of extremely tiny particles. The smallest particles of a substance are molecules. A substance whose molecules are made of one or more atoms which are exactly alike, is called an element.

Properties of elements:

1) We do not get different substances by the decomposition of an element.2)The smallest particles of an element are made of only one type of atom. 3)The mass and volume of atoms of different elements are different.



In nature oxygen is found in gaseous state. Two atoms of oxygen combine to form a molecule of oxygen. In air, oxygen is always found in molecular form.



Symbol of elements: Symbol of elements is a short form of it's name.

The scientist- Berzelius was the first to use the present method using symbols for elements.The symbol of element is written in English script. First letter is always capital.For example- Hydrogen(H).

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When the initial letter in the names of two or more elements is the same, a pair of letters is used to write a symbol. Example- Nitrogen(N), Nickel(Ni). Every element symbol shows one atom.

English name	Symbol	English name	Symbol		English name	Latin name	Symbol
Hydrogen	H	Sodium	Na		Silver	Argentum	Ag
Helium	He	Magnesium	Mg		Gold	Aurum	Au
Lithium	Li	Aluminium	Al		Copper	Cuprum	Cu
Beryllium	Be	Phosphorus	P		Iron	Ferrum	Fe
Boron	B	Sulphur	S		Mercury	Hydrargyrum	Hg
Neon	Ne	Chlorine	Cl		Tungsten	Wolfram	W

Alloys : A homogenous mixture of two or metals or metals and non-metals is called Alloy. Example- Stainless steel is an alloy of iron, chromium, carbon and nickel. Brass, Bronze are other examples of alloy.

Let's Practice :

Q.1) Answer the following questions.

i) Find the odd one out. Carbon, sulphur, silicon, chlorine _____

ii) Find out mixtures from the given substances - Water, lemon juice, iron, steel, coal, air, salt, bronze, copper

_____

_____

2) Write down the name of the elements starting with the letter C.

_____

_____

3) Which elements are present in the air? Write their symbols.

_____

_____

4) Lead and tin elements have their symbols taken from latin words. Write their symbols.

_____

_____

5) Complete the table.

Alloy	Constituent elements
Stainless steel	Iron, carbon, chromium, nickel
Brass	
Bronze	

Links for more study :

Elements:
https://diksha.gov.in/play/collection/do_31252658185931161624051O?contentId=do_31301869504055705617 30

Symbol:
https://diksha.gov.in/play/collection/do_31252658185931161624051O?contentId=do_31301869505143603217 31

Substance:
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Activity Sheet : 18

Let's Understand : Compounds, Molecular formula of compound and mixtures.

Reference : Std VII, Chapter 14 Elements,Compounds and mixtures.

Learning Outcomes : To understand and explain daily uses of compounds,their chemical properties, state and their effect.

Let's take a look :

Activity - 1) Take sugar in a spoon and heat it carefully.

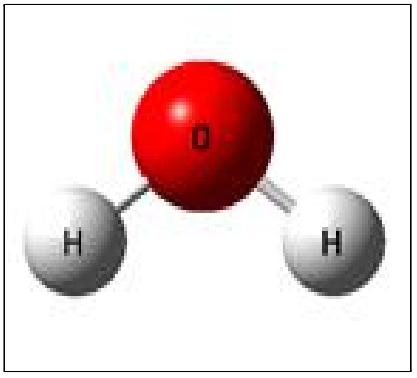


Observe what happens? What remains behind?

Sugar is a compound. Sugar is formed by combining carbon, hydrogen and oxygen.

The substance formed by a chemical combination of two or more elements is a compound.The smallest particle of a compound is a molecule.

Properties of compounds.



1) Properties of compounds are different from their constituent elements.e.g.Hydrogen is a combustible element that is, it burns. Oxygen helps combustion. But water, which is formed by a combination of hydrogen and oxygen, is used to extinguish fire.

2)The proportion of constituent elements in a compound is constant. e.g. In any sample of water collected from different sources - two hydrogen atoms and one oxygen atom forms a water molecule.

3) A molecule of a compound is formed by a chemical combination of two or more elements.

Molecular Formula of a compound :

Molecular formula is used to represent a compound. Molecular formula of a compound is a short form of its name written with the help of symbols of constituents elements and number of their respective atoms.

For example - In a molecule of sodium chloride, there is one atom of sodium and one atom of chlorine, hence its molecular formula is NaCl.

In a sugar molecule there are 12 atoms of carbon, 22 atoms of hydrogen and 11 atoms of oxygen thus molecular formula of sugar is $C_{12}H_{22}O_{11}$

Activity - 1) Prepare a lemon juice 2)Prepare a Bhel

1) Did the test of original ingredients change due to the above process?

2) Is the proportion of ingredients fixed?

Mixtures: A mixture is formed by mixing different elements or compounds. The proportion of various components in a mixture is not fixed. No chemical change takes place during the formation of mixture and no new substance is formed.

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For example- 1) Milk is a mixture of water, lactose sugar, fat, protein and other natural substances. 2) Air is a mixture of many gases.

Let's Practice:

Q.1) Answer the following questions.

i) Complete correlation. Washing soda : Na_2CO_3 : : Methane : _____

ii) Find the odd one out. Chalk, wood, milk, bhel _____

2) Explain the statement - Air is a mixture.

_____

_____

_____

3) Distinguish between compound and mixture.

Compound	Mixture
Proportion of constituent elements are fixed.	
Properties of compounds are different from their constituent elements.	
	No chemical change takes place.
	Physical method is used to separate components of the mixture.

4) In cow milk the proportion of fats is 3-5%, In buffalo's milk proportion of fats is 6-9%. Naturally milk contains water in large proportions. So milk is found in liquid state. Due to lactose sugar present in milk, milk is sweet in taste. From this information write two characters of mixtures.

_____

_____

_____

5) Complete the table.

Compound	Constituent element	Element symbol Number of atom	Molecular formula
Potassium Hydroxide	Potassium, Oxygen and Hydrogen	K:1, O:1, H:1.	KOH
Glucose			$C_6H_{12}O_6$
Sulphuric acid		H:2.S:1,O:4.	
Baking soda		Na:1, H:1,C:1,O:3	___HCO_3

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6) Name the compound used in your house and write their molecular formula.

_____

_____

_____

Links for more study :

1) Compounds:
https://diksha.gov.in/play/collection/do_31252804685149798424679 6?contentId=do_312930219697627136152 3

2) Mixtures:
https://diksha.gov.in/play/collection/do_31252658185

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Activity Sheet : 19

Let's Understand : Toothpaste, Detergents, Cement

Reference : Std VII, Chapter 15 Material we use

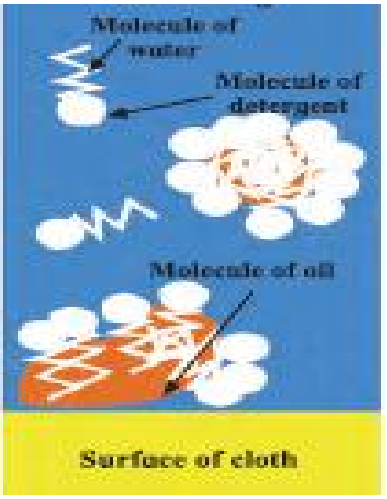
Learning Outcomes: Apply scientific concepts in day-today life, for example, suggesting methods for treatment of polluted water for reuse; preparation of soap and their uses; separating components from mixture, etc.

Let's take a look :

Toothpaste : The principal ingredients of a toothpaste, calcium carbonate and calcium hydrogen phosphate, remove the dirt on teeth. These ingredients also polish the teeth. A certain proportion of fluoride in the toothpaste helps prevent tooth decay. Fluoride is essential for the strengthening of bones and the enamel covering of teeth.



Detergent : The word 'detergent' is derived from the Latin word 'detergere' which means 'to wipe away'. A detergent is 'a substance that cleans or wipes away dirt.' Soap nut (ritha), soap pod (shikakai), soap, washing soda, washing powder, liquid soap, shampoo are all detergents.



Process of detergent : The molecules of a detergent are long and the properties of its two ends are different. A molecule of a detergent holds on to a water molecule at one end and an oil molecule at the other. As a result, the molecules of oil mix with the water. This is how soap acts when we wash ourselves or our soiled clothes. Our body and clothes become oily for various reasons such as applying gels or creams, oiling our hair, etc. The oily layer sticks fast to the criss-crossing threads of the material of our clothes. Soap is used for removing it. Due to the property of holding on to both oil and water, soap water spreads easily on many types of surfaces. The property of a substance spreading on a surface is called surface activity and the substance is said to be a surfactant. Detergents are surface active. One effect of surface activity is lather formation.

Soap nut	Soap pod	Hard soap	Soft soap
			

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Natural detergents - Soap nut (Ritha), Soap Pod (Shikekai) are the natural detergents in common use. They contain a chemical named Saponin. Soap nuts and soap pods do not have any harmful effect on human skin or on silk and woolen threads and cloth.

Man-made detergents-

Soft Soap- It is used for bathing. It is a potassium salt of fatty acids.

Hard Soap- It is used for washing clothes. It is sodium salt of fatty acids.

Synthetic Detergent- Synthetic detergents can be used in hard water as well. Synthetic detergents are used in many types of cosmetics. Different perfumes, dyes, germicides, alcohol, moisturizers etc are mixed with detergents to give certain useful properties.

Cement :

Cement is an important material in construction. Sheets, blocks, pillars and pipes are made from concrete produced from cement. Cement is a dry, greenish grey powder with fine particles. It is made from silica (sand), alumina (aluminium oxide), lime, iron oxide and magnesia (magnesium oxide). Portland cement is the most commonly used cement for construction work. It is made from raw material which consists of 60% lime (calcium oxide), 25% silica (silicon dioxide), 5% alumina. The rest is iron oxide and gypsum (calcium sulphate).

Let's Practice :

1. Make a list of the detergents you use.

_____

_____

2. Make a note of the information on the toothpaste wrappers you use at home and find out their importance.

_____

_____

3. Explain the difference: Bath soap and Cloth washing soap

Bath soap	Soap for washing cloths

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4. Why is soap not used in hard water?

_____

_____

_____

_____

5. How dirty clothes are cleaned by using detergents?

_____

_____

_____

_____

Links for more study :

Toothpaste and detergent :-
https://diksha.gov.in/play/content/do_31296564293920358411 7?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content

Cement :-
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Activity Sheet : 20

Let's Understand : Minerals and ores, Fuel, Forest resources

Reference : Std VII, Chapter 16 Natural resources

Learning Outcomes : Explain the uses of natural resources by classifying them.

Let's take a look :

Natural resources in the earth's crust : Resources in the earth's crust include minerals, ores, mineral oil and other fuels, rocks, water, elements, etc.

Minerals and ores : The rocks on the earth are mainly made of minerals. These minerals can be obtained by mining. A majority of the metals occur in the form of compounds. Minerals that contain a high proportion of metal are called ores. It is economical to obtain metals from ores.

How are minerals formed? : Minerals are formed from the magma in the earth's crust and the lava from the eruption of volcanoes, when they cool and get transformed into crystals. Minerals are formed when solid crystals remain behind after the process of evaporation.

Non-metal	minerals	Metal
Mica, sulphur, gypsum, potash, graphite, diamond, feldspar.	Iron, gold, silver, tin, bauxite, manganese, platinum, tungsten.	Coal, mineral oil, natural gas.

Magnetite	Mica	Gypsum	Diamond
			

Fuel : Various substances are used in day-to-day life for generating energy. These substances are called fuels. Fuels are found in the solid, liquid or gaseous state.

Coal : Millions of years ago, forests got buried underground as a result of certain natural events. Layers of soil kept getting deposited over them. The very high pressure from above and the heat from the earth's interior, slowly transformed the buried plants into fuel. Coal was thus formed from the remains of those plants. That is why coal is said to be a fossil fuel. Coal is found in mines. Peat, lignite (brown coal), bituminous

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coal and anthracite are the various types of coal. Anthracite is the coal of the highest grade.

Mineral oil :

Mineral oil is the liquid fuel formed by the decomposition of organic substances buried underground. Millions of years ago, bodies of dead sea organisms sank to the bottom of the sea. Layers of soil and sand collected on them. Due to high pressure and temperature the remains of the dead organisms were transformed into mineral oil.

Petroleum is a mixture of many compounds mainly of the hydrocarbon type. It also contains compounds of oxygen, nitrogen and sulphur. Petroleum is extracted through oil wells and refined by fractional distillation to separate other components. Aviation petrol, gasoline, diesel, kerosene, naphtha, lubricating oil, tar are all obtained from petroleum.

Natural gas :

Natural gas is an important fossil fuel. It is found associated with petroleum in underground oil wells and in some places as natural gas alone. The main component of natural gas is methane (CH_4) while ethane (C_2H_6), propane (C_3H_8) and butane (C_4H_{10}) are present in small proportions. It is transformed under high pressure into compressed natural gas (CNG) and liquefied natural gas (LNG). This makes it possible to transport the gas.

Forest resources - Medicinal plants

Plant	Medicinal use
Adulsa	Cough and cold
Neem	Fever and cold
Periwinkle	Cancer
Cinnamon	Diarrhea, nausea
Cinchona	Maleria

1) Forest wealth includes fiber, paper, rubber, gum and aromatic substances.

2) We get fragrant essential oils from lemon grass, kewada, eucalyptus.

3) Sandalwood oil and eucalyptus oil are used for making soaps, cosmetics, incense sticks.

4) We get strong and durable wood from teak, mahagony, neem, subabhul that are used for making furniture.

Get the information : Find the information of medicinal plants by discussing it with the elders in the house or from a book and write in your notebook.

Mineral and bio-resources from oceans :-

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There are reserves of a variety of natural resources in seawater, at the bottom of the sea and beneath the seabed, too. These resources available from seas and oceans are called marine resources.There are large scale reserves of mineral oil and natural gas at the bottom of sea.

Mineral resources from oceans	Bio resources in ocean
Thorium – used in the production of atomic energy.	Fishes like pomfret, seer fish as also shrimps and prawns – they are sources of proteins and vitamins, therefore, mainly used as seafood.
Magnesium – used in the flash bulb of a camera.	Shells – used for preparation of medicines, ornaments and decorative articles.
Potassium – used as an ingredient in production of soap, glass, fertilizer.	Fungi – used for the production of antibiotics.
Sodium – used in the production of cloth and paper.	Shark and cod fish – used for producing edible oil rich in Vitamins A, D and E.
Sulphate – used in making artificial silk.	Sea cucumbers – used as medicine for treating cancer and tumours.

Let's Practice :

1. Who am I ?

a) I am a main component of natural gas. _____

b) I am the main ore of aluminum. _____

c) We are minerals used as gems. _____, _____, _____, _____

d) I am called Liquid Gold. _____

2. Suggest alternative fuels for fossil fuels.

_____

_____

3. How to do forest conservation? Write down your role in this.

_____

_____

_____

_____

4. Find and write down the uses of medicinal plants like Ashwagandha, Amla, Hirda, Behada, Asparagus, Basil.

_____

_____

_____

5. Explain that mineral oil and natural gas are produced with the help of following picture.

_____

_____

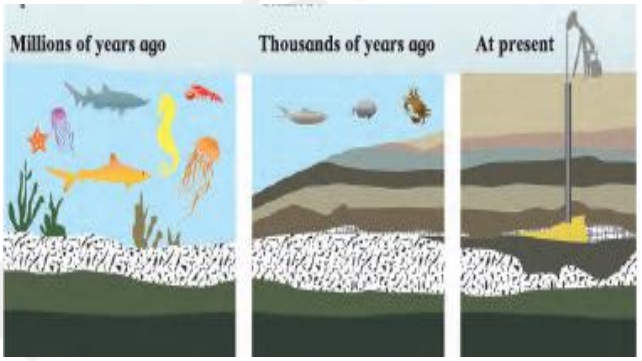
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6) Write the names of :-

i) High quality coal - _____

ii) Energy minerals - _____

iii) Marine mineral wealth - _____

iv) Ingredients from petroleum - _____

Links for more study :

Natural resources

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Fuel

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Minerals and ores

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Activity Sheet : 21

Let's Understand : Scattering of light

References : Std VII, Chapter 17 The effects of light

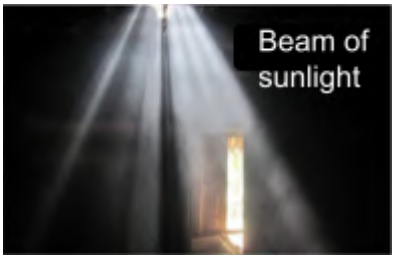
Learning Outcomes : To be able to correlate the events of daily life and the scattering of light.

Let's take a look : Light is composed of several colors.

1) You may have seen dust particles in a beam of sunlight entering the house through a small window.

2) When we switch on headlamps of a car while travelling through a thick fog, you might have seen the beam of light. We see the tiny dust particles floating in the beam.

3) We see a variety of shades of colour in the early morning and evening sky.






When a ray of light falls on any object, part of it is absorbed and part of it is reflected. This is called scattering of light.

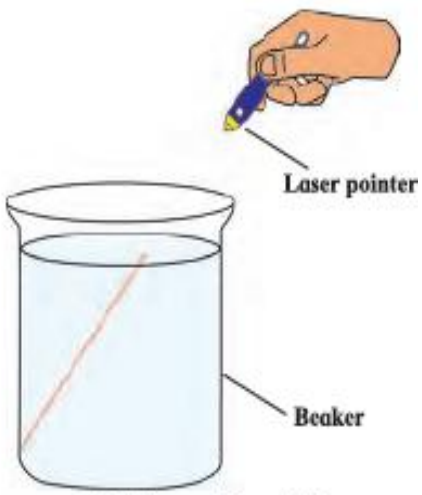
Scattering of light-

Apparatus: Glass beaker, laser pointer (diode laser), water, milk or milk powder, spoon, dropper etc.

Procedure: Take clear water in a glass beaker. Pass a beam of light of laser rays through it. Check whether the beam is seen in the water.

Now add a few drops of milk to the water and stir. The water becomes slightly turbid. Pass the laser beam into it again. A light beam will show the existence of light rays.

A light beam is not seen in plain clear water. But it is clearly seen in slightly turbid water. The light rays hit the tiny particles of milk and get scattered. If these scattered rays enter our eyes, we perceive colour.



17.1 A beam of laser light

When the sun rises, our surroundings appear illuminated. The entire sky appears bright. This happens because of dust and other tiny particles in the air. This is the scattering of light by the tiny particles of the various constituents of air. Had there been no atmosphere, the sky would have appeared dark during the day.



Sunlight is scattered by the molecules of gases like nitrogen, oxygen in the atmosphere. The blue colour in the sunlight is scattered the most and therefore the sky appears blue.



Sunlight reaches us through the layer of atmosphere. At sunset, the light reaching us travels a greater distance through the atmosphere. Due to greater distance there is more scattering of blue colour. As a result the red- yellow light reaches us directly and the sun appears red. Red light is scattered less than the blue light.

Let's Practice :

1) Give some examples of scattering of light that we come across in day - to- day life.

_____

_____

2) Why does space beyond the earth's atmosphere appear dark?

_____

_____

3) Write the name of the scientist in the figure and describe the discovery he made.



_____

_____

_____

4) Why does the sky appear blue?

_____

_____

Links for more study :

Scattering of Light
https://diksha.gov.in/play/collection/do_31252804685149798424679 6?contentId=do_31292250523509555211 54

Effects of Light - Shadows
https://diksha.gov.in/play/collection/do_31252804685149798424679 6?contentId=do_31292527765048524817 60

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Activity Sheet: 22

Let's Understand : Production of sound, oscillation and oscillatory motion, frequency, Sound level.

Reference : Std VII, Chapter 18 Production of sound.

Learning Outcome : Frequency of sound, knowledge of intensity of sound, loudness and softness of sound and their application.

Let's take a look :

Sound and production of sound.

Some events are given below which you may have experienced.








1) Clapping your hands together.

2) Playing a musical instrument.

3) Bursting a firecracker.

4) Keep your palm on a mobile that is ringing.

5) Swing the clapper of the bell and the bell rang.

Sound is generated due to a variety of events. Sound was generated due to the vibrations

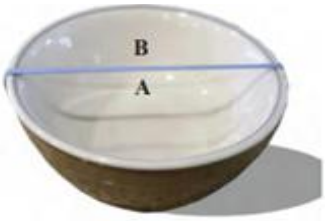
of an object.

When the string of a musical instrument like "tanpura" is plucked , the string can be seen to vibrate but the two ends of the vibrating string are still. The string moves to one side of the central position and comes back to the central position. This motion of string iis repeated at fixed intervals of time is called periodic motion.

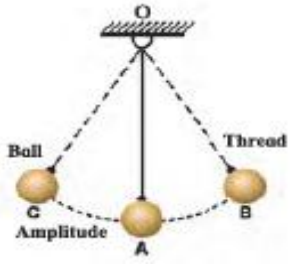
Oscillator,oscillation and oscillatory motion.



1) A swing that moves back and forth like this is an oscillator. When the swing from one end to another comes in and returns to its starting point.It is said to have completed one oscillation. The back and forth motion of an oscillator on either side of the central position is called oscillatory motion.



2) When rubber is stretched. Compare the vibration with the figure alongside. When rubber is stretched from the original position A and comes to position B it is seen to be curved.The maximum distance between original position A and B on stretching the rubber is called amplitude of vibration.



3)Take a strong thread, about a half a metre long. Tie a small iron or wooden ball to it and suspend it from support. As shown in the figure, such an oscillator is called a pendulum.

Give an oscillatory motion to the pendulum. The maximum distance between the original position A of the pendulum and the extreme position B or C is called the amplitude of oscillation. In the figure AB or AC is the amplitude of oscillation.

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Time period of oscillation and frequency.

The time required by an oscillator to complete one oscillation is called the time period of the oscillator. The oscillator traverses the distance from the extreme position B to central position A and from to the position C then back again A and from A to B. The time required by the oscillator to traverse these distances B-A-C-A-B is the time period of oscillation (T) of the oscillator. The number of oscillations completed by an oscillator in one second is called the frequency of the oscillation.

Frequency(n)=1/Time period of oscillation(T)= 1/T

Frequency is the number of oscillations occurring in one second. The unit of frequency is hertz(Hz). 1 Hz means there is one oscillation in one second. 100 Hz means 100 oscillation in one second.

Intensity of sound- Sound level

Sound level is the intensity of sound as perceived by our ears.For ex.If amplitude is doubled the intensity of sound becomes four times.

The decibel (db) is the unit for measuring sound level.

Audible sound	Infrasonic sound	Ultrasonic sound
Frequency of the sound is 20 Hz to 20000Hz.	Frequency of the sound is less than 20 Hz.	Frequency of the sound is higher than 20000 Hz.
Human being	Whales, elephants, rhinoceros, fishes produce infrasonic sound.	Dog, bat hear this sound.

Uses of Ultrasonic sound :

1)To clean delicate ornaments and the tiny part of the watch. 2)To observe internal organs of the body. 3)To detect tumours in the brain. 4)To detect faults in the metal. 5)In the radar system. 6)SONAR(Sound Navigation And Ranging) is used to locate the seabed or the position of the ship.

Let's Practice :

1. Match the pairs.

Group 'A'	Group 'B'
(a) Flute	(1) Frequency less than 20 Hz
(b) Frequency	(2) Frequency more than 20000 Hz
(c) Sound level	(3) Vibrations in the air
(d) Ultrasonic sound	(4) Measured in Hz
(e) Infrasonic sound	(5) Decibel

2. Give scientific reasons.

1) We can hear the movement of a mosquito's wings but we cannot hear the movement of our hands.

_____

_____

_____

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3) Try this.



Take a plastic ruler and hold one of its ends pressed down on the table, as shown in the picture, so that a large portion of the ruler is off the table. Now ask your friend to press the free end of the ruler down and release it. Observe.

(1) When you press the ruler what happens?

(2) Which type of motion is it?

(3) Observe what happens?

_____

_____

_____

4) Try this :



(1)Take four glasses of similar height.

(2) Fill water in glass at different levels.

(3) Struck with a steel spoon on the glass and listen.

(4) Again struck and listen carefully to the sound.

Question: Why do you listen to different sounds on different glasses?

_____

_____

_____

Links for more study :

How can we hear sound?

https://diksha.gov.in/play/collection/do_31252658185931161624051O?contentId=do_31301869751152640017 39

Oscillation,Oscillator and oscillatory motion:

https://diksha.gov.in/play/collection/do_31252658185931161624051O?contentId=do_31301869752909004816 60

Frequency and Length of oscillator:

https://diksha.gov.in/play/collection/do_31252658185931161624051O?contentId=do_31301869756678144018 15

Intensity of sound and sound level:

https://diksha.gov.in/play/collection/do_31252658185931161624051O?contentId=do_31301869759059558411 79

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Activity Sheet : 23

Let's Understand ! Magnetism, magnetic lines of force, Properties of magnetic lines of force.

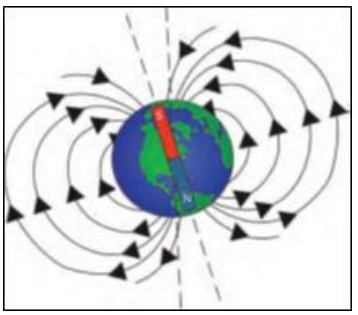
Reference : Std VII, Chapter 19 Properties of a Magnetic Field

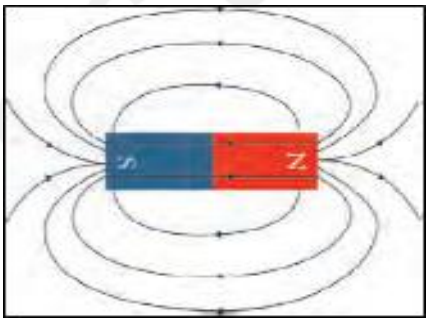
Learning Outcomes: Applies learning of scientific concepts in day-today life, for example, uses of magnet, magnetic needle, The difference between a magnet and a magnetic substance can be identified, and various activities related to magnetism can be performed.

Let's take a look :

Magnets are made from alloys of iron, cobalt and nickel. Nipermag, an alloy of iron, nickel, aluminium and titanium is used to make magnets. We have also learnt that alnico is a magnetic alloy of aluminium, nickel and cobalt. Single touch methods and double-touch methods are used to create magnetism in steel bars.

The scientist William Gilbert gave a scientific explanation, based on experiment, of the observation that a freely suspended magnet always settles in the north-south direction only. The north pole of a freely suspended magnet settles in the direction of the geographic north of the earth. Gilbert inferred from this that earth itself is a gigantic magnet. South pole of this magnet must be near the geographic north pole of the earth while the magnetic north pole is near the geographic south pole.



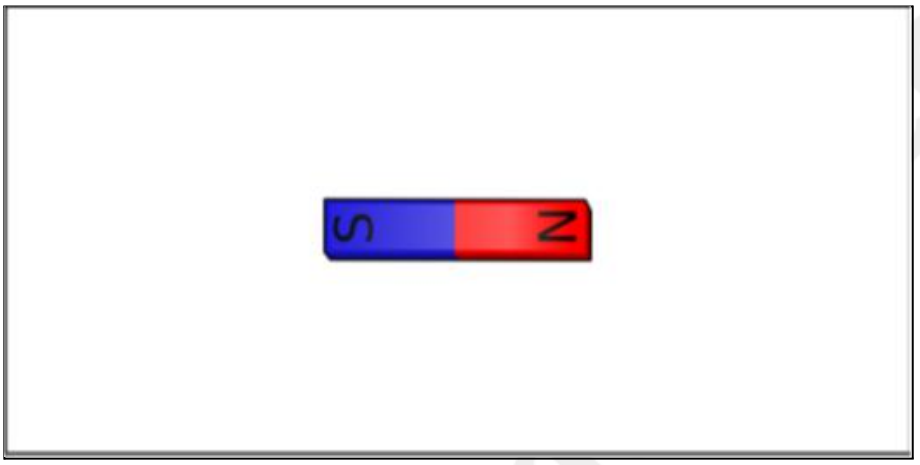


Michael Faraday proposed the concept of magnetic lines of force. The intensity of the magnetic field can be obtained from the number of lines of force. Magnetic lines of force do not intersect each other. Magnetic lines of force always run from the north pole to the south pole. Magnetic field can pass through cardboard, a bottle, and water. However in each case intensity of the magnetic field is found to decrease.

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Let's Practice :

1. Take a small cardboard. Place a bar magnet at its centre. Sprinkle some iron filings on the cardboard around the magnet. Tap the card gently. Observe arrangement of the iron filings. Show this specific arrangement of iron filings with the help of a diagram.



2. You are given a piece of metal. How will you identify whether this piece is a magnet or not?

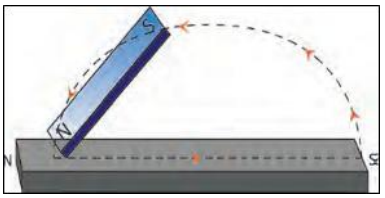
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3. Identify the method of generating magnetism by observing the figure given below.



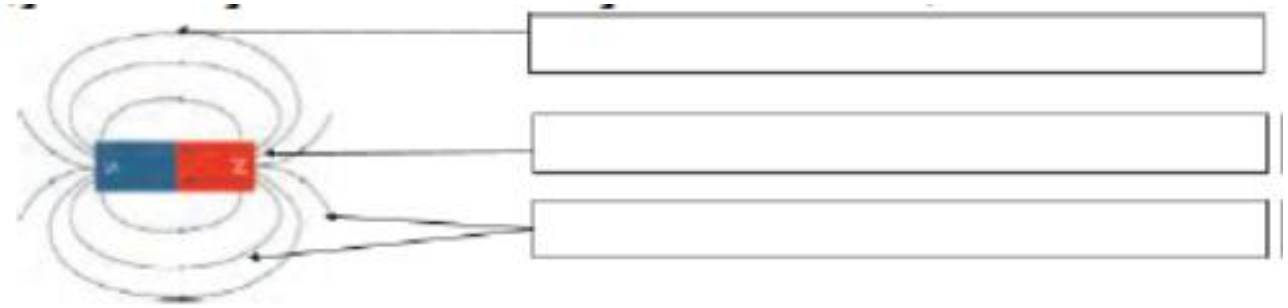


4. Write the names of the four devices that work on magnetism.

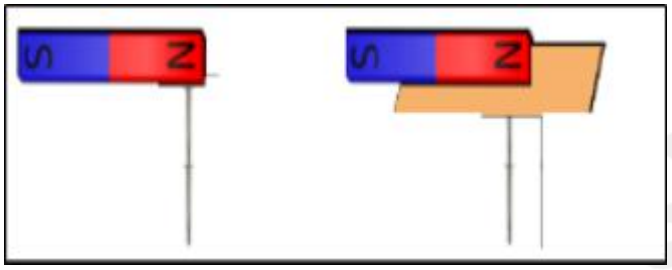
_____

_____

5. Observe the following figure and write the correct names from the given options. (Magnetic field line, higher magnetic field intensity, lower magnetic field intensity)



6. Activity : Take a bar magnet and stick a pin to it. Stick another pin to that pin. See how many pins can be attached in this way. Then place the magnet on the cardboard and see how many pins stick to the magnet as above. Try repeating the above action by increasing the number of cardboards.



Links for more study :

Properties of a Magnetic Field
https://diksha.gov.in/play/content/do_31269802041900236815847?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content

Properties of a Magnetic Field
https://diksha.gov.in/play/content/do_31269802041900236815847?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content

Behaviour of magnet
https://diksha.gov.in/play/content/do_31287146162653593611831?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_contet

Electromagnet
https://diksha.gov.in/play/content/do_31295145389048627212 40?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content

Properties of magnetic field
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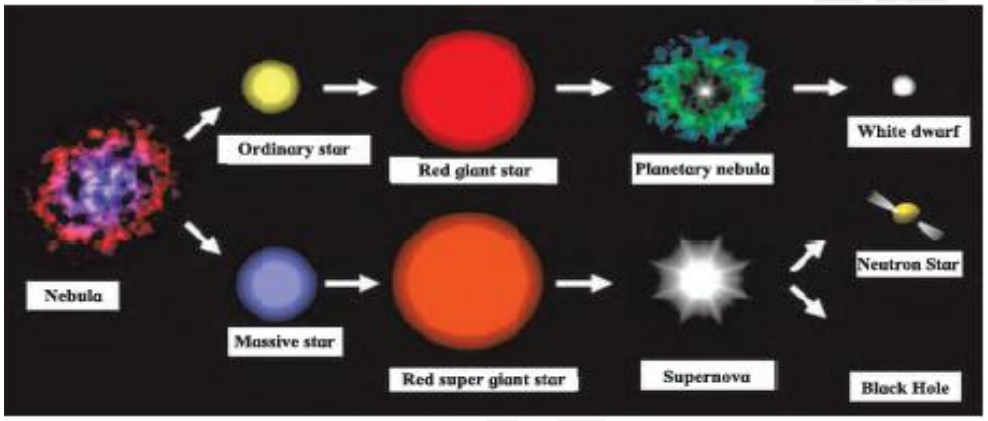
Activity Sheet : 24

Let's Understand : Formation of stars, sky watching, constellations

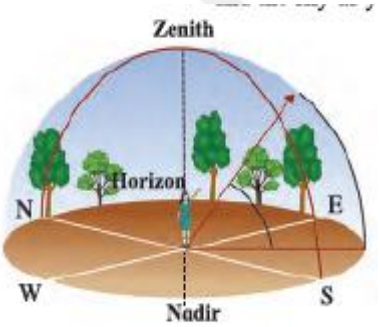
Reference : Std VII, Chapter 20 In the world of stars

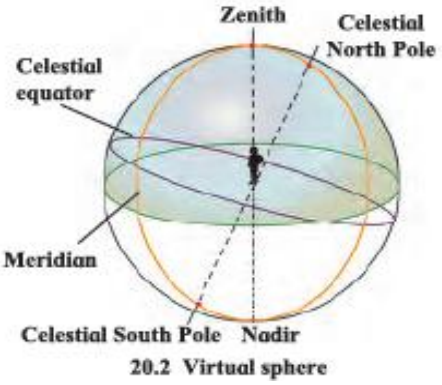
Learning Outcomes : Makes efforts to remove misconceptions related to zodiac signs and Nakshatra by observing the sky.

Let's take a look : Stars are born out of nebulae. Nebulae are clouds made up mainly of hydrogen gas and dust particles.



Sky watching: The sky seems to be touching the ground. The line at which they meet is called the horizon. While turning around oneself, the horizon will be seen to form a circle. The stars and planets moving in the sky appear to be moving on this sphere. This virtual sphere is called the celestial sphere.





20.2 Virtual sphere

Zenith : While standing on the ground, the point on the celestial sphere exactly above our head is called the zenith.

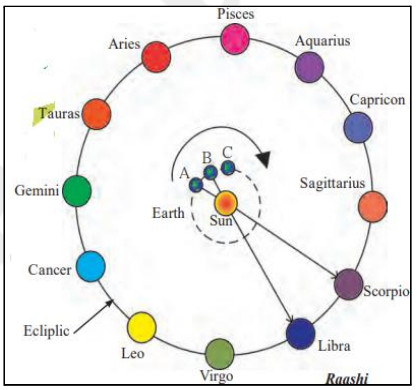
Nadir : While standing on the ground, the point on the celestial sphere exactly below our feet is called the nadir.

Celestial poles : If we extend the axis of rotation of the earth in the north and south directions it will penetrate the celestial sphere at points called the celestial North Pole and the Celestial South Pole, respectively.

Constellations: - A group of stars occupying a small portion of the celestial sphere is called a constellation. Western observers have divided the celestial sphere into 88

constellations. Ancient western astronomers put forward the idea of 12 zodiac signs, whereas Indian astronomers suggested the 27 nakshatras.

Zodiac sign: The ecliptic has been imagined to be divided into 12 equal parts. Thus, each part subtends 30° at the centre of the celestial sphere. Each of these parts is called rashi or zodiac sign.



Nakshatra: The moon completes one revolution around the earth in approximately 27.3 days. The portion traversed by the moon in one day is called a nakshatra. So, if we divide 360° into 27 equal parts, each part is about 13° and 20minutes. A nakshatra is known from the brightest star that it contains. This brightest star is called yogatara.

Getting to know some constellations:

1. Saptarshi: It is a group of 7 bright stars. It is in the shape of a quadrangle with a tail made up of 3 stars. It thus resembles a kite and can be easily recognized. If we extend one side of the quadrangle, it reaches the Pole Stars or Polaris.
2. Sharmishtha: It is made up of 5 bright stars which are distributed along the figure of the letter M. The perpendicular bisector of the line joining the third and fourth stars in Sharmishtha goes towards the Pole Star.
3. Mrug nakshatra/Orion: It has 7-8 stars of which 4 are at the corners of a quadrangle. The line passing through the three middle stars of the constellations, when extended, meets a very bright star. This is Vyadh or Sirius.
4. Vrushchik /Scorpio: It is a constellation with 10-12 stars. Jyeshtha or Antares is the brightest among them.









As the earth changes its position, a different constellation of zodiac sign or rashi appears behind the sun. for example: on Makar Sankranti we say that the sun enters Makar raashi (Capricorn Zodiac sign)

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Let's Practice :

(1) Complete the table

Galaxy	Constellation
(1) It is a collection of billions of stars.	(1)
(2)	(2) It forms the shape of an animal or an object.
(3)	(3) There are only 88 constellations known so far.

(2) Complete the following -

(a) Number of stars in Saptarshi constellation-

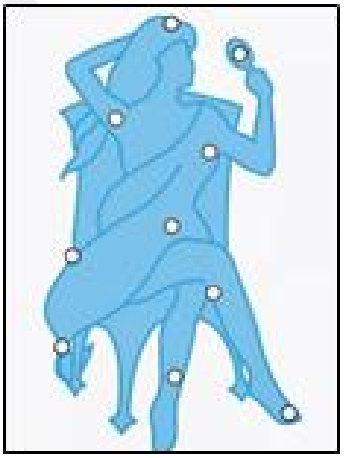
(b) Total Nakshatras-

(c) Number of stars in Mrug Nakshatra/Orion(d)Total Zodiac signs-

(e) Number of stars Vrishchik constellation-

(f) Number of stars in Sharmishtha constellation-

(3) Draw a line joining the bright stars in the Sharmishtha constellation.



Links for more study :

In the world of stars

https://diksha.gov.in/play/collection/do_31252804685149798424679 6?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_313055379067 78931213129

In the world of stars

https://diksha.gov.in/play/collection/do_31252804685149798424679 6?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_312698020444 20915215849

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State Council of Educational Research and Training, Maharashtra, Pune 30

Preparatory Bridge Course Test : 03

Class: VIII **Subject: General Science** **Marks: 30**

Activity Sheet : 01 to 24 **Time: 1 hour**

Instructions :

1. All questions must be answered.
2. The numbers in parentheses on the right indicate points.
3. Draw neat labelled diagrams wherever necessary.
4. Write only the option number of the correct answer for each multiple choice question.

Q.1. A) Complete the statements by choosing the right option. **3 Marks**

i) The frequency of audible sound is _____.

A) 20 Hz to 2000 Hz B) Less than 20 Hz

C) Less than 200 Hz D) More than 20000 Hz

ii) To avoid sprouting, potatoes are exposed to _____.

A) Polarization B) Preservative C) Radiation D) Pasteurization

iii) The chemical symbol for calcium is _____.

A) Ca B) Cu C) Cl D) Cm

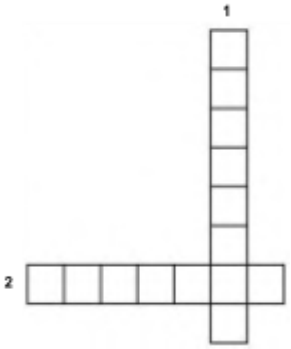
Q.1 B) Write the answers of the following questions. **3 Marks**

i) Identify the constellations shown in the accompanying figure.



ii) Solve the puzzle.

1. An ingredient derived from petroleum.
2. The main component of natural gases.



iii) Write examples of natural disinfectants.

Q.2 Write the answers of the following questions. (Any 6) **12 Marks**

1) Why does this happen – The sun appears red at sunrise or sunset?

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2) Draw a vertical intersection of the Hibiscus flower and label its parts

3) Write the scientific name of the animal shown in the picture using binomial nomenclature.



Genus _____ Species: _____

4) How many constellations does a one season have, if classified according to the seasons? It is said that in the rainy season the sun enters the Mrug nakshatra. What does it mean?

5) What are the important components of toothpaste? What are their functions?

6)Under which different types can the following changes be classified?

i) Dissolving ii) A meteor streaking across the sky.

7) Which muscles contract and relax, while lifting a heavy object from the ground?

8) If a person swims 100 meters in the first 40 seconds, crosses 80 meters in the next 40 seconds, and crosses 45 meters in the last 20 seconds. Find the average speed.

Q.3 Write the answers of the following questions. (Any four) 12 Marks

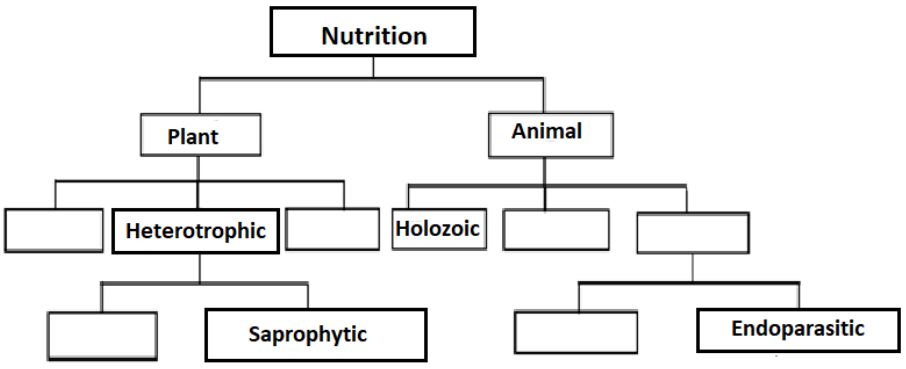
1) Explain the properties of magnetic force lines with the help of a suitable diagram.

2) Complete the following table.

Compound	Molecular formula	The names of the constituent elements
Sulfuric acid		
Washing soda (Sodium carbonate)		
Sugar		

3) Write the medicinal uses of basil, amla, neem.

4) Complete the following table.



5) What is fermentation? What changes occur in the substance during this action? Name the substances produced by fermentation in our daily life?

* * *

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