UTKARSH

SCIENCE ACTIVITY TREASURE

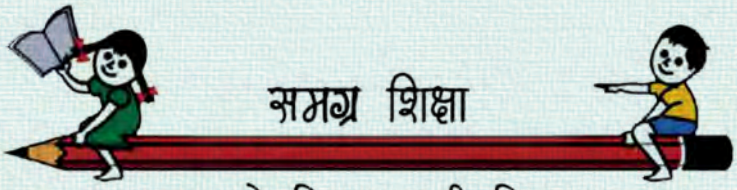
Class-VIII

राष्ट्रीय शैक्षिक अनुसंधान एवं प्रशिक्षण परिषद् दिल्ली
DELHI
SCERT

स्वाध्यायान्मा प्रमदः

समग्र शिक्षा
सबको शिक्षा, अच्छी शिक्षा

स्वाध्यायान्मा प्रमदः



सबको शिक्षा, अच्छी शिक्षा

UTKARSH

Science Activity Book for Class VIII

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सत्यमेव जयते

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MESSAGE

The Government of Delhi has been putting up various efforts to provide universal access to quality education to the children studying in the schools of the Directorate of Education, Delhi. We have implemented many programs to ensure equitable and inclusive education in our schools.

The corona virus pandemic has affected the school education immensely in the last two years. Due to the closure of the schools, the students were confined to their homes. We introduced and managed online learning successfully. The teachers were constantly connected with the students through online classes and kept assessing their progress. But during this time, children who had continuously been in difficult circumstances could not join online classes, lagged behind and a great need was felt to connect them to the mainstream school education.

Taking these aspects into account, to encourage children for learning and to ensure their active participation in learning, **'Utkarsh'** book series has been created with the joint effort of State Council of Educational Research and Training, New Delhi and Samagra Shiksha to bridge the gap in education.

This series contains activities based on practical learning which will enable the students to read, write, and perform basic numerical operations and to develop basic competencies in school subjects. The books in this series will also act as an effective medium for their physical, cognitive, social, emotional, moral and cultural development.

The books are based on the concept of play-based, multi-dimensional and discovery-based learning for Hindi, English, Social Science, Science, Urdu, Punjabi, and Mathematics books of activities have been designed for Classes 6 to 8 (Middle Level). Social Science, Science and Mathematics books have been created in both Hindi and English language for achievement of better learning outcomes. Students will learn about human sensitivities, group work, mutual cooperation, courtesy through play and activities and will be able to imbibe these qualities in them to become ideal citizens. It is hoped that a new educational revolution will be ushered in through these books. Students will develop conceptual understanding and the tendencies of creative and logical thinking. Based on empirical pedagogy, these books incorporate diversity of local contexts, multilingualism and respect for the local environment.

I am sure that these books will provide a strong foundation to the students for equitable and inclusive education, and will prove to be a milestone in the world of education.

(MANISH SISODIA)

H. RAJESH PRASAD
IAS

सत्यमेव जयते

प्रधान सचिव (शिक्षा/प्रशिक्षण व तकनीकी शिक्षा/ उच्च शिक्षा)
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MESSAGE

Recent times have been extremely challenging for people all over the world. Now, after two formidable years of corona times, we are again moving towards normal life.

In the field of education in Delhi, though various successful efforts were made to keep students engaged in learning through online teaching, worksheets and online assessment for the last two years, but due to the lack of face-to-face mode of teaching- learning process or a direct contact and communication with students or due to some family and financial reasons there was a gap in the process of learning.

Keeping this new scenario in mind, **'Utkarsh'** book series has been prepared under the Learning Enrichment Program to rise up from the challenge of this learning gap. There are many activity sheets in these books which have been developed on the basis of context specific learning outcomes. Activities have been designed around the social context of learning, taking into account the culture, multilingualism, and environment of the students. These activities are designed according to the emotional and intellectual level of the students so as to ensure active participation of the students in the learning process.

We aim to initiate the all-round development of the students through our efforts.

We hope that the students will become active participants in the process of knowledge creation through these activities.

With best wishes,

(H. Rajesh Prasad)

HIMANSHU GUPTA, IAS
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MESSAGE

"It is said that when the going gets tough, the tough get going."

COVID Pandemic was one such trying time. Although as country, India, tried to deal with this time in a multipronged manner, we are still trying to rise above its negative effects in various aspects of life.

Education sector also saw its negative impact especially in school education. So it has become extremely important to bridge the gap of expected learning outcomes and the current status of learning outcomes. To achieve the goal of providing high quality education to all students we have developed **'Utkarsh'** series. These books have been created for students of classes 6 to 8 and have interesting activities which will develop curiosity, zeal to search, experience and create various opportunities for dialogue, which in turn will provide them a strong foundation for all aspects of life.

In the changing situations it is really important for students to master 21st century skills along with ethics, rationality, empathy and sensitivity so that in future they move towards an enriched life ahead. The 'Utkarsh' series books written on subjects of Mathematics, Science, Hindi, English, Social Science, Urdu and Punjabi will develop the creative abilities of the students and they will be able to connect to their environment and establish coordination.

These books have been designed keeping in view the goal of multidisciplinary and holistic education, in which ample opportunities for learning have been provided. Self-instructional activities like colourful pictures, songs, poems, puzzles, stories, cartoons, posters, games, puppets will attract the attention of the students and motivate them for self-assessment and will further pave the way for effective learning.

I firmly believe that learning difficulties of the students will be catered to and desired learning outcomes will be achieved through the 'Utkarsh' series. These books will prove to be an effective medium in the attainment of desired goals and will contribute directly to build an inclusive, egalitarian and just society.

With best wishes.

(HIMANSHU GUPTA)

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MESSAGE

Dear students,

The last two years have been challenging due to the COVID pandemic for all of us. This pandemic impacted nearly every dimension of life, be it health, employment, economy or livelihood of human life. Even the education sector has not been left untouched by it because of the closure of schools. It not only affected the teaching-learning process, it also had a formidable impact on the possibilities of learning for students, limiting the opportunities of peer learning and directs guidance of teachers. Although online classes helped to maintain the continuity of the teaching-learning process but there were numerous challenges related to the accessibility of online education for students studying in the government schools of Delhi.

This context led to the development of the **'Utkarsh'** series to cater to the new learning needs of the students. This series is a compendium of the worksheets which aim to provide opportunities to the students for self-learning. These worksheets are child-centered and activity-based and they reflect regional, social and cultural domains of the students. These worksheets help the students to explore their environment as a learning resource, as they have many activities that require them to interact with and learn from family members, neighbours, community members, locality and nature.

I am hopeful that this initiative of State Council of Educational Research and Training would play a significant role in inspiring the students of classes 6 to 8 to take ownership of their learning process and to provide the opportunity of accessing quality education.

With best wishes.

(Rajanish Singh)

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Message

It is said that the trying times test out mettle the best. The corona period brought many challenges for us, but these challenges also changed our perspective and inspired us to adopt patience, indomitable courage and self-reliance. During the lockdown for some time, school education could not be done smoothly, due to which the learning process of the children was hampered. In this context, it is important to ask whether children studying online at home are able to acquire knowledge, skills and competencies according to their prescribed class and development level? In the present context, it is relevant that meaningful efforts should be made in the direction of reducing this gap of learning.

To bridge this gap in the level of learning, special course material, in the form of **Utkarsh** series, has been created for students with the combined effort of State Council of Educational Research and Training, New Delhi and Samagra Shiksha. This text material is interesting, responsive, informative and engaging for students. I am hopeful that it will be effective for self-development and will provide students the required competencies. These activities are designed to engage students in observation, critical thinking, creative thinking, questioning, problem- solving, effective communication, decision making, empathy and contemporary problems using play- based, story-based, art integrated and child- centered learning methods.

With best wishes for the bright future of our students.

(Dr. Nahar Singh)

For Teachers...

Respected teacher fellows,

Every book that is meant to provide learning experiences has some unique features which determine its usage. This book has been developed as a learning enrichment material for students with a purpose of ensuring the achievement of learning outcomes. The theme under which the book interacts with learners is activity-based learning, followed by 'assessment as learning'. This means that each chapter has some activity sheets which begin with some activity and then some questions follow, through which learners enrich their learning in science. Each question has some cues/clues in the form of pictures, examples and hints so that the learners are tempted to find answers through the available resources. The learners may take help from their teachers, NCERT textbook, internet or family members to quench the quest. The answers of the questions have not been provided in the book deliberately, to maximize the opportunity to think critically.

Another important feature of this book is the integration of social life of learners with science. Utmost care has been taken that the context of the book relates with the real-life experiences of learners so that the application of conceptual understanding becomes easier. For this purpose, the commonly available material has been used/suggested for doing science activities. Also, the examples and illustrations that have been used are from the surroundings of learners. Some of the tools that are generally considered subject specific like, maps, graphs, stories etc. have been used to make the content interesting as well as integrated.

Each activity sheet entertains one to two learning outcomes only to easily monitor their fulfillment. Efforts have been made for the gamification of the process of assessment. These efforts include riddles, crossword puzzles, word-grids, tail the donkey, odd one out, snake and ladder, picture identification etc. It is hoped that these unique characteristics of the book would make the learning process joyful and interesting even for the low achieving group of students. This would also be helpful in developing interest among learners towards science and its applications.

The language that has been used in the book is contextual and in common usage. This makes the content easy to grasp and comprehend. Besides making the learning process interesting, this book will also help in fulfilling the goals envisaged in 'Mission Buniyad'.

For Students...

Dear students,

This book has been developed to enrich your learning after getting learning experiences from regular classroom interactions. Efforts have been made to align the chapters with the list of class-wise learning outcomes (developed by SCERT, Delhi) as-well-as the chapters of NCERT textbook. You are expected to perform the activities suggested in these activity sheets and then try to answer the questions. This process has been designed in such a way that it would prompt you to learn actively and find answers. The illustrations, exemplar answers and clues would help you to understand the concept and think critically. At certain times, you may need help in doing some activity, to respond to a particular statement or in obtaining an answer. In such situations you must approach your teachers, family members or NCERT textbook as guides and instead of asking for the answers, you must ask them to direct you so that you may find the answers yourself.

It is hoped that this book will help you all to inculcate a habit of self-learning.

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Learning Outcomes

After learning the different chapters, the students will develop certain skills, which are being shown here in the form of learning outcomes. By reading these students themselves or their parents/teacher can monitor their learning process.

Chapter 1: CROP PRODUCTION AND MANAGEMENT

1. Classifies crops into Kharif and Rabi crops, based upon their characteristics.
2. Applies learning of basic crop practices for increasing crop production.
3. Shows awareness to protect the environment by making controlled use of fertilisers and pesticides.
4. Applies learning of scientific concepts regarding cultivation by vegetative propagation in day-to-day life.

Chapter 2: MICROORGANISMS: FRIEND AND FOE

1. Classifies microorganisms as useful and harmful, based on their characteristics.
2. Conducts simple investigations to seek answers to why do we add salt and sugar in pickles and murabbas?
3. Prepares slides of microorganisms and describes their microscopic features.

Chapter 3: SYNTHETIC FIBRES AND PLASTICS

1. Differentiates between natural and human made fibres on the basis of their properties and uses.
2. Classifies thermoplastics and thermosetting plastics on the basis of their properties.
3. Applies learning of scientific concepts in day-to-day life i.e., segregates biodegradable and non-biodegradable materials/wastes.
4. Shows awareness to protect the environment by using non-biodegradable resources judiciously.
5. Suggests ways to cope up with the environmental hazards of plastics - 5 R principle.

Chapter 4: MATERIALS: METALS AND NON-METALS

1. Classifies the given materials into metals and non-metals on the basis of their properties.
2. Applies learning from the properties of metals and non-metals for various purposes.

Chapter 5: COAL AND PETROLEUM

1. Classifies exhaustible and inexhaustible natural resources.
2. Shows awareness to protect the environment by using the exhaustible resources.

Chapter 6: COMBUSTION AND FLAME

1. Conducts simple investigations to find out the conditions required for combustion.
2. Explains the structure of flame.
3. Constructs model of fire extinguisher and explains its working.

CHAPTER 7: CONSERVATION OF PLANTS AND ANIMALS

1. Differentiates between sanctuary, national parks and biosphere reserves.
2. Shows awareness to conserve Biodiversity.
3. Relates the different causes of deforestation and its effects on the environment.
4. Explains the hazards caused due to deforestation and suggests ways for reforestation.

CHAPTER 8: CELL: STRUCTURE AND FUNCTIONS

1. Differentiates between plant cells and animal cells on the basis of their structure and function.
2. Classifies organisms on the basis of cell number, shape and size.
3. Prepares slides of onion peel, human cheek cells and describes their microscopic features.
4. Explain the structure of a cell with the help of a labelled diagram.
5. Explain different parts of a cell.

CHAPTER 9: REPRODUCTION IN ANIMALS

1. Differentiates organisms into viviparous and oviparous animals on the basis of their properties.
2. Classifies organisms on the basis of their mode of reproduction.
3. Explains reproduction in Humans and Animals.
4. Explains Human Reproductive Organs with the help of a Labelled Diagram.
5. Differentiates between types of Fertilization.

CHAPTER 10: REACHING THE AGE OF ADOLESCENCE

1. Explains about the changes at Puberty.
2. Applies learning of scientific concepts in day-to-day life to overcome the challenging myths and taboos regarding adolescence.
3. Explains the role of hormones in initiating reproductive functions.
4. Conducts simple investigation to seek answer to queries like how the sex of a child is determined about determining the sex of the child.

Chapter 11: FORCE AND PRESSURE

1. Differentiates between contact and non-contact forces on the basis of their properties.
2. Conducts simple investigations to seek answer queries like whether liquids exert equal pressure at the same depth.

Chapter 12: FRICTION

1. Applies learning of scientific concept for increasing /reducing friction in day-to-day life.

Chapter 13: SOUND

1. Explains processes and phenomena of production and propagation of sound and its properties.

Chapter 14: CHEMICAL EFFECTS OF ELECTRIC CURRENT

1. Differentiates liquids as electrical conductors and insulators on the basis of their properties.
2. Explains processes and phenomenon of chemical effects of electric current.
3. Explains the scientific principle of electroplating through self-drawn labelled diagrams of electric circuits.
4. Constructs a model of electroscope using materials from surroundings and explains its working.

Chapter 15: SOME NATURAL PHENOMENA

1. Shows awareness by suggesting ways to cope up with environmental hazards.

Chapter 16: LIGHT

1. Conducts simple investigation to seek answer if angle of incidence is equal to angle of reflection
2. Explains the process and phenomenon of formation of multiple images.
3. Explains with the help of a self-drawn labelled diagram the structure of human eye.

Chapter 17: STARS AND THE SOLAR SYSTEM

1. Classifies celestial objects, based on their properties.

Chapter 18: POLLUTION OF AIR AND WATER

1. Relates processes and phenomena with causes, e.g., smog formation with the presence of pollutants in air; deterioration of monuments by acid rain, etc.
2. Applies learning of scientific concepts in day-to-day life, e.g., purifying water; segregating biodegradable and non-biodegradable wastes.
3. Shows awareness to protect the environment by using resources judiciously.

Content

Date _____

CHAPTER-1: CROP PRODUCTION AND MANAGEMENT

Classification of Crops

ACTIVITY SHEET-1

Learn with fun:

Make a list of all the cereals, pulses, fruits and vegetables kept in your kitchen and write in the box.

NAME OF CROPS
eg. Maize

Q.1 The crops which are sown in the rainy season are called Kharif crops and the crops which are sown in the winter season are called Rabi crops. Interact with your family and find out which crops are sown in which season. Write them in the table given below.

Rabi Crops	Kharif Crops

Q.2 Fill in the blanks with appropriate words:

Millet, lady finger, april, june, crops, summer, monsoon, rabi, kharif

(a) Plants that are grown in large quantities in a particular area are called_____.

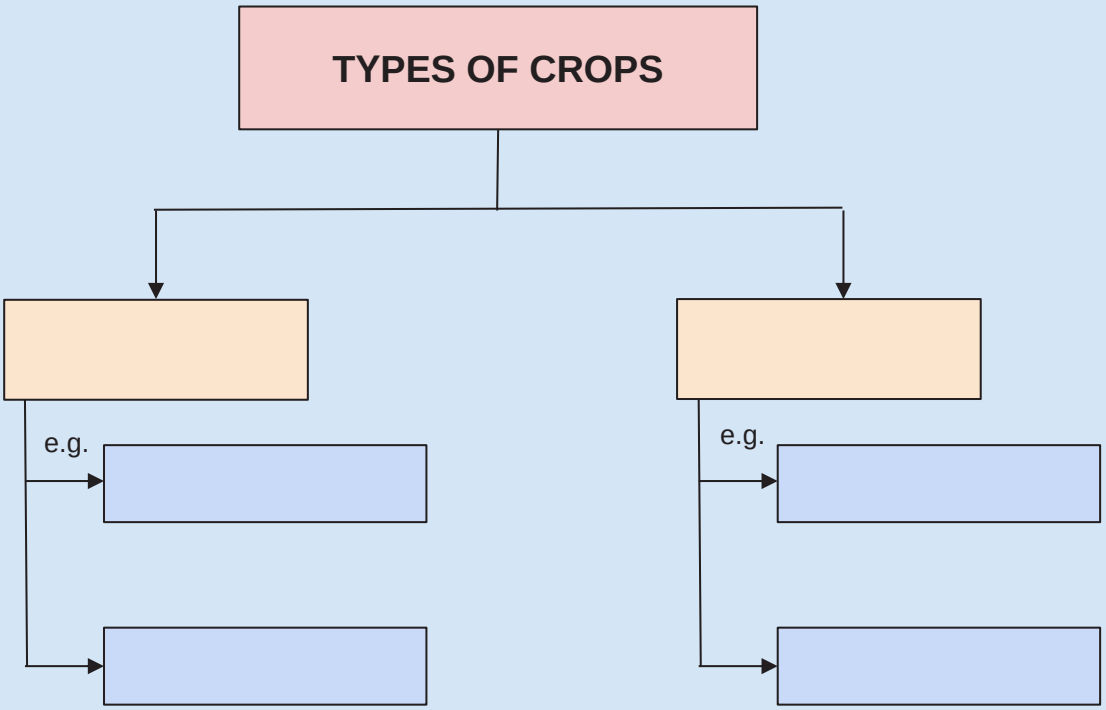
(b) Crops, like wheat, that are grown from November to _____are called Rabi crops.

(c) _____ and _____ are the examples of Kharif crops.

(d) Muskmelon and peach are examples of _____crops.

(e) Kharif crops, like maize, are harvested at the end of _____ season.

Q.3 Complete the Flow chart:



Date _____

ACTIVITY SHEET- 2

Learn with fun:

Sow some seeds of wheat or gram in two flower pots (A & B) and sprinkle some water on them. In one flower pot keep the soil loosened and in the other make the soil hard by repeatedly tapping on it. Sprinkle water on them regularly for some days. Observe after how many days the seedlings come out from each pot. Record your observations in the space given below.

Number of days after which the seedlings came from Pot A – _____

Number of days after which the seedlings came from Pot B – _____

Why do you think this happened?

_____

_____

Draw diagrams of your pots with seedlings in the space given below.

POT- A	POT- B

Q.1 Match the following:

Column A	Column B
Undesirable plants growing with crops	Chain Pump
A traditional method of irrigation	Weeds
A modern method of irrigation	Ploughing
Process of loosening of soil	Harvesting
Cutting of mature crops	Drip system

Q.2 Identify the given agricultural tools and write their names and uses:

 Name _____ Use _____	 Name _____ Use _____
 Name _____ Use _____	 Name _____ Use _____

Q.3 Ravi wants good crop yield in his field. Suggest him ways to select healthy seeds.

_____

_____

_____

Q.4 By looking at the pictures, explain the practices that are used to save water in farming.

_____

_____

Q.5 Fill in the blanks with correct words from the box given below:

Preparation, nutrients, harvesting, light, irrigation, storage, threshing

(a) _____ is supply of water to the crops in regular time intervals.

(b) The first step before growing crops is _____of soil.

(c) In_____, mature crops are pulled out or cut close to the ground.

(d) The process of separating chaff from the grain is called_____.

(e) The weeds compete with the crops for water,_____, space and_____.

Date _____

ACTIVITY SHEET- 3

Learn with fun:

Take two pots with some soil in them, put some dry leaves in one and banana peel in another and after this spread some soil on the top. Keep the pots aside for one week. Remove the top layer of soil. Write your observations about the leaves and banana peels in the space given below:

_____

_____

_____

Q.1 Write 3 differences between Manure and Fertilizers.

Manure	Fertilizers

Q.2 Fill in the blanks with appropriate words:

Rhizobium, urea, dried, neemleaves, weedicide

(a) _____is an example of a fertilizer.

(b) In the root nodules of leguminous plants_____bacteria is present.

(c) The chemicals that are used to control the weeds are known as _____.

(d) Before storing the grains they should be properly_____.

(e) Dried _____are used for storing food grains at home.

Q.3 Complete the following table about food obtained from animals

S. No.	Food	Source
1	Milk	
2		
3		
4		

Q.4 Arrange the following boxes in the proper order to make a flow chart of crop production.

Storage	Irrigation	Harvesting
Sowing	Preparation of soil	Ploughing of field
	Manuring	

Date _____

CHAPTER- 2: MICROORGANISMS: FRIENDS AND FOE

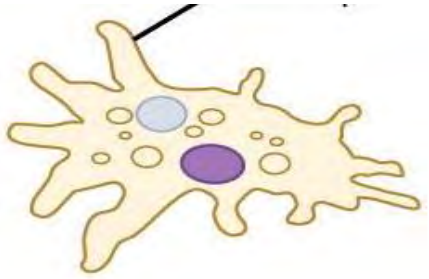
Classification of Micro-organisms

ACTIVITY SHEET: 1

Learn with fun:

Take some water from a pond. With the help of a dropper put one drop of it on a glass slide. Cover it with a cover slip. Observe it under a microscope. Do you observe any micro-organisms? Draw what you saw in the space given below:

Q.1 Pictures of some micro-organisms are given below. Identify and name them.



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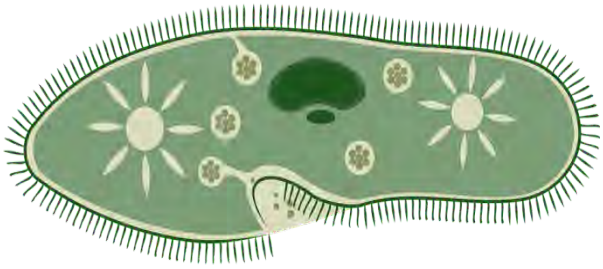


_____

_____

_____

Q.2 Fill in the blanks:

Air, water, body of organisms, bacteria, fungi, protozoa, some algae, viruses, microscope, micro-organisms

(a) _____are too small to be seen with naked eyes.

(b) Micro-organisms are found in _____,_____and _____.

(c) Micro-organisms can be seen with the help of a _____.

(d) Micro-organisms include _____,_____, _____and_____.

(e) _____are microscopic but different from micro-organisms.

Q.3 Micro-organisms play an important role in our life. These are classified into bacteria, fungi, protozoa, algae. Some of them are beneficial whereas some other are harmful. Put a tick mark (✓) in the columns given below if the micro-organism is beneficial or harmful (some micro-organism can be both harmful as well as beneficial).

S. No	Micro-organisms	Beneficial	Harmful
1)	Bacteria		
2)	Fungi		
3)	Protozoa		
4)	Algae		
5)	Virus		

Q.4 Write the names of the Diseases caused by Viruses in the given spaces.

_____

Date _____

ACTIVITY SHEET- 2

Learn with fun:

Take some flour, add some sugar to it and mix with warm water. Add a small amount of yeast powder and knead to make a soft dough. Keep it for 2 hours. What do you observe? Did you find the dough rising? Why do you think the dough rise?

_____

_____

_____

_____

Draw pictures of your dough in the space given below:

In the beginning	After two hours

Q.1 Complete the table:

S. No	Micro-organism	Functions/Role
1	Rhizobium	
2	Lactobacillus	
3	Yeast	
4	Penicillium	

Q.2 Match the following:

Column 1	Column 2
Medicines that kill microbes.	Penicillin
Conversion of sugar into alcohol	Antibiotics
Alexander Fleming	Fermentation
Edward Jenner	Nitrogen fixation
Blue green algae	Smallpox vaccine

Q.3 True or false:

(a) Soil fertility increases by nitrogen fixation. ( )

(b) Lactobacillus does not promote the formation of curd. ( )

(c) When a disease causing microbe enters our body, the body produces antibiotics. ( )

(d) Antibiotics taken unnecessarily kill beneficial bacteria. ( )

(e) Micro-organisms decompose dead organic waste. ( )

Date _____

ACTIVITY SHEET- 3

Learn with fun:

Take a slice of bread/roti. Moisten it. Keep it on a plate for 3 to 4 days and observe it. (Caution: Do not eat such bread/roti)

Based upon your observations answer the following questions:

(a) **What is the change in colour ?** _____

(b) **Is there any change in smell ?** _____

(c) **Is there any growth on it?** _____

(d) **Observe it with the help of a hand lens and draw a diagram.**

(e) **Observe it under a microscope and draw a diagram.**

Q.1 Fill in the blanks:

Fungi, toxic, communicable, Female Anopheles, pathogens, aedes mosquito.

(a) Micro-organisms that grow on our food produce_____substances.

(b) Disease causing micro-organisms are called _____.

(c) Diseases that spread from an infected person to a healthy person are called _____diseases.

(d) _____is carrier of malaria.

(e) Rust of wheat disease is caused by _____.

Q.2 Complete the following table:

S.No	Human Diseases	Causative Micro-organism	Mode of transmission	Preventive measures
(a)	Cholera			
(b)	Malaria			
(c)	Typhoid			
(d)	Polio			
(e)	T.B.			

Date _____

ACTIVITY SHEET- 4

Learn with fun:

Collect the labels from the bottles of jams, pickles, jellies etc. Read the contents printed on the labels. Identify the preservatives and make a list of them in the space given below.

NAME OF FOOD PRODUCT	NAME OF PRESERVATIVE PRESENT

Q.1 Match the following:

Column 1	Column 2
Sodium benzoate	Pasteurization
Louis pasteur	Sugar
Preservatives used in jams	Salt
Preservatives used in pickles	Meat and fish
Salting is used for	Preservative

Q.2 True or false:

(a) Refrigeration kills microbes. ( )

(b) Bacteria cannot live in vinegar. ( )

(c) Salts check the growth of bacteria in food items. ( )

(d) Atmosphere has 21% Nitrogen gas. ( )

(e) Lightning fixes atmospheric nitrogen. ( )

Date _____

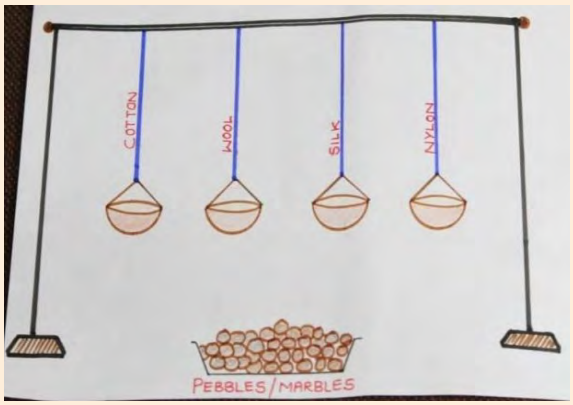
CHAPTER–3: SYNTHETIC FIBRES AND PLASTICS

Natural and synthetic fibres

ACTIVITY SHEET- 1

Learn with fun:

Take 4 threads (of equal size and thickness) one each of cotton, wool, silk and nylon. Tie them on the rope used for drying clothes each at least 50 cm apart. At the free ends of these attach equal size bowls/pans. Now add small pieces of marbles/pebbles (similar in size) one-by-one, on the pan attached to the cotton thread, till the thread breaks. Count the total number of marbles/ pebbles required to break the thread. Repeat the same activity with threads of wool, silk and nylon.



Note down your observations in the table given below:

S.No.	Type of thread/fibre	Total number of marbles/ pebbles required to break the thread
1.	**Cotton**	
2.	**Wool**	
3.	**Silk**	
4.	**Nylon**	

Inference: _____ thread/ fibre is the strongest and _____ thread/ fibre is the weakest of all the given four types.

Q.1 Match the following:

Column A	Column B
Natural fibres	• many repeating units
Synthetic fibres	• fibres obtained from nature
Polymer	• fibres made by human beings

Q.2 Put a tick (✓) in front of the natural polymer:

(a) Polythene ( ) (b) Cellulose ( ) (c) Nylon ( ) (d) Polyester ( )

Q.3 Choose the synthetic fibres and write in the blanks given below:

acrylic, wool, silk, polyester, nylon, cotton, rayon

(1) _____ (2) _____ (3) _____ (4) _____

Q.4 The word 'polymer' comes from two Greek words; 'poly' meaning many and 'mer' meaning part/unit. If ' # ' is a unit, its polymer can be drawn as " -#-#-#-#-#-#-#-#-#-#-#-#-#-"

Now draw a polymer using the given unit ☆

Q.5 Encircle (◯) the materials made from natural fibres from the following:

Pet jar

Tent

Plastic chair

Silk saree

Lamp wick

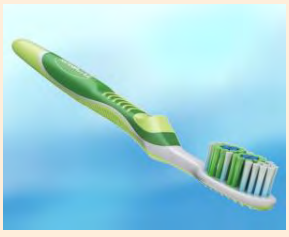
Parachute

Pashmina shawl

Jute bag

Rope for rock climbing

Nylon socks



Toothbrush

Date _____

ACTIVITY SHEET- 2

Learn with fun:

Take five equal sized cloth pieces, one each of nylon, cotton, polyester, silk and wool. Dip all in a bowl filled with water for some time then dry them under the sun. Put a tick (✓) in the appropriate column.

Observations :

S.No.	Type of Cloth	Time taken by the cloth to dry completely			
		15 min	30 min	45 min	60 min or more
1.	Nylon				
2.	Cotton				
3.	Polyester				
4.	Wool				
5.	Silk				

Inference:

_____ cloth takes maximum time and _____ cloth takes minimum time to dry completely.

Q.1 Fill in the blanks from the words given :

Acrylic, polyester, cotton, nylon, rayon

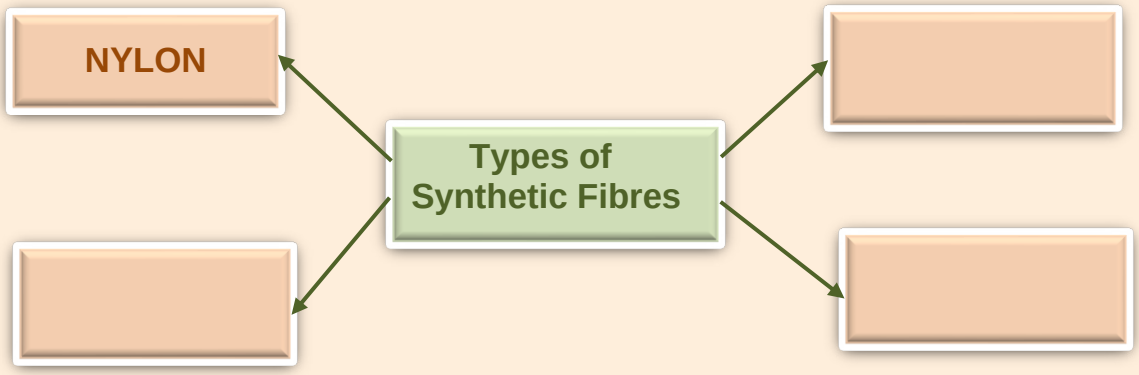
1) Fabric made from _____ fibre does not wrinkle easily.

2) _____ fibre is obtained from wood pulp.

3) _____ fibre is prepared from coal, water and air.

4) Sweaters, shawls and blankets are made either from wool or _____.

Q.2 Fill in the spaces provided with appropriate words:



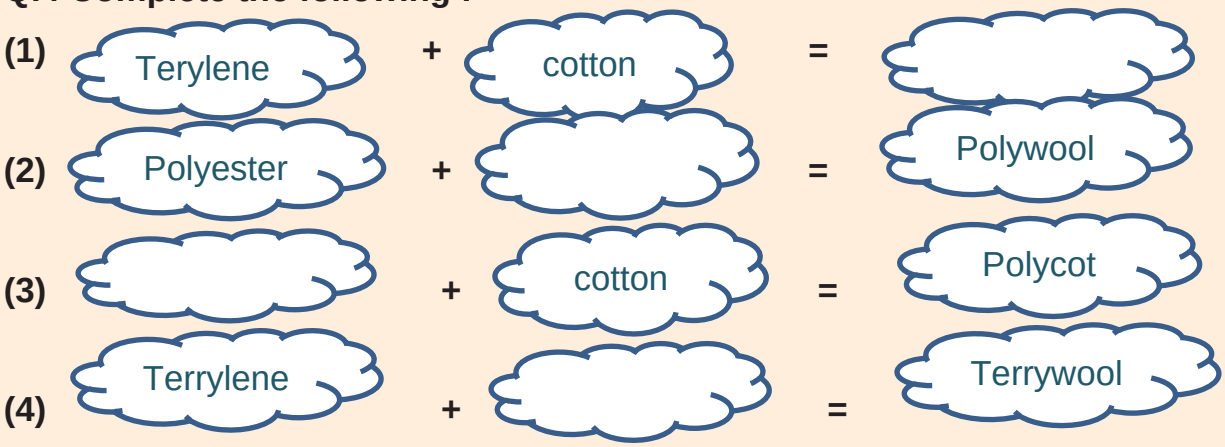
Q.3 Choose the odd one out:

(a) PET, rayon, silk, acrylic, polyester

(b) Wool, jute, nylon, silk, cotton

(c) Polycot, polywool, terrycot, polyester, terrywool

Q.4 Complete the following :-



Q.5 True or False:

(1) Natural fibres are more durable than synthetic fibres. ( )

(2) PET is polyethylene terephthalate. ( )

(3) Clothes made from acrylic are quite expensive. ( )

(4) Rayon fibre has properties similar to that of silk. ( )

(5) We should not wear synthetic clothes while working in a kitchen or in a laboratory. ( )

Date _____

ACTIVITY SHEET- 3

Learn with fun: Word Puzzle

Colour the words hidden in the given word puzzle, using the hints given below:

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

Hints:

1. plastic used for non stick coating on cookwares.
2. uniforms of firemen have coating of this plastic.
3. plastic which bend easily on heating.
4. handles of frying pans are made of this plastic.

5. a polymer like synthetic fibre.

6. a type of arrangement in plastics.

7. another name for artificial wool.

8. its thread is actually stronger than a steel wire.

Q.1 Draw 5 articles/objects made up of plastics which you see in your house.

Q.2 List any 5 characteristics of plastics:

(a) _____ (b) _____ (c) _____

(d) _____ (e) _____

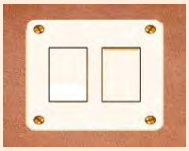
Q.3 Choose the correct terms to fill the blanks:

(a) Plastics which get deformed easily on heating and can be bent easily are known as _____(thermoplastics/thermosetting plastics).

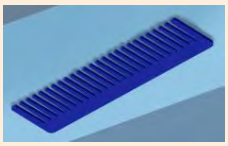
(b) Plastics which when moulded once cannot be softened by heating are known as _____ (thermoplastics/thermosetting plastics).

Q.4 From the given plastic articles, put the thermosetting plastics in the box provided below:

PVC pipes



Electrical switches



Comb

Floor tiles

Utensil handles

Plastic toy

PET jar

Polythene

Date _____

ACTIVITY SHEET– 4

Learn with fun:

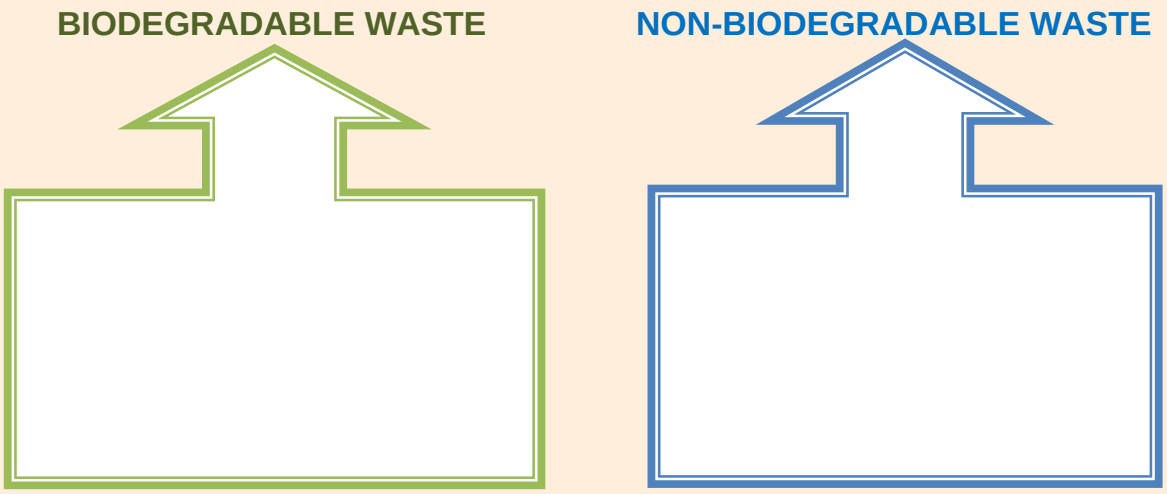
Collect a few waste materials from your house like fruits/vegetable peels, leftover food, waste/used paper, polythene bags, broken plastic articles, empty metal cans, waste pieces of cotton/woollen cloth & few pieces of wood. Now dig a small pit in your garden/empty ground and bury all these materials under the soil.

After 15-20 days, dig the same pit again and note down your observations in the given table:

S. No.	Type of waste	Status of material (Rotting or not)	Nature of material (Biodegradable/ Non-biodegradable)
1.	Fruit/vegetable peels		
2.	Left-over food		
3.	waste/ used paper		
4.	Polythene bags		
5.	Broken plastic pieces		
6.	Empty metal cans		
7.	Cotton/ woollen cloth		
8.	Piece of wood		

Q.1 Pick each type of waste and add it in the respective box:

Plastic bags, Cotton cloth, Paper, Vegetable peels, Metal cans

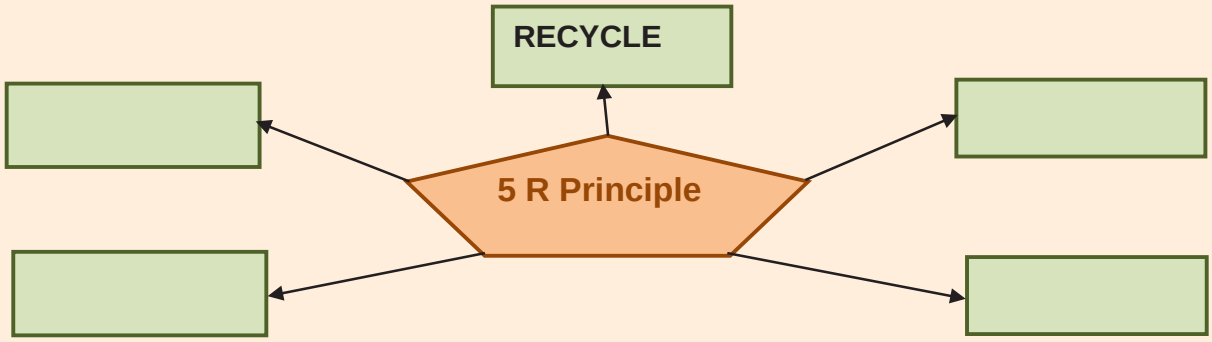


Q.2 Ashish throws plastic bags in the water bodies and also on the road. He does not carry a cotton/jute bag while going for shopping and always brings his lunch in a plastic box. On the other hand, Ravi does not throw plastic bags in the water bodies or on the road. He always carries a cotton/jute bag while going for shopping and uses a steel box for bringing his lunch. Who do you think is environment friendly, Ashish or Ravi? Why?

_____

_____

Q.3 Explain the 5 R principle.



Date _____

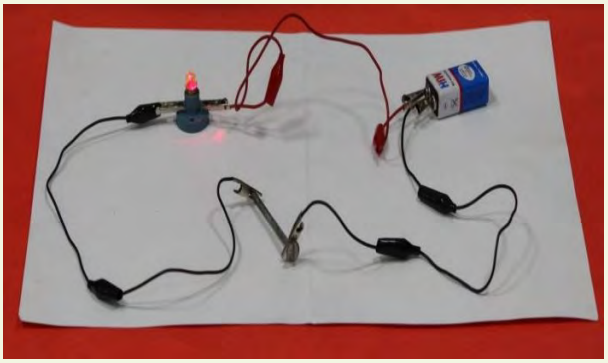
CHAPTER-4: MATERIALS: METALS AND NON-METALS

Physical Properties

ACTIVITY SHEET- 1

Learn with fun:

Materials required: A dry cell, LED bulb, connecting wires and few objects like an eraser, a wooden piece, an iron nail/pin, steel spoon etc..



Method: Make an electric circuit using dry cell, LED bulb and connecting wires as shown in the diagram. Now check whether the objects givenare good conductors of electricity or not by keeping them between A and B.

Note your observations in the table given.

S.No.	Object	Bulb glows (Yes/No)	Good conductor of Electricity (Yes/No)
(a)	Eraser		
(b)	Wooden piece		
(c)	Iron nail/pin		
(d)	Steel spoon		
(e)	Plastic sharpner		
(f)	Aluminium foil		

Q.1 Read the following paragraph carefully and classify the underlined materials as metals and non-metals:

Sulphur is non-lustrous while Magnesium has a shiny appearance. Aluminium can be beaten into thin sheets (malleable) while a piece of Graphite (carbon) cannot be. Iron plate produces sound on hitting hard but Phosphorus does not. Gold can be drawn into wires (Ductile) while Iodine cannot be. Silver produces sound on hitting (Sonorous) while Boron does not. Copper is a good conductor of heat and electricity while Arsenic is a bad conductor of heat and electricity.

S.No	Metals	Non-Metals
1.		
2.		
3.		
4.		
5.		

Q.2 Fill in the blanks choosing the correct word from the following:

Copper, Aluminium, Sodium, Calcium, Mercury, Potassium

(a) Metals like _____ and _____ are soft and can be cut with a knife.

(b) _____ is the only metal found in liquid state at room temperature.

Q.3 Tick (√) the correct option:

(a) Metals are-

(i) soft and brittle ( ) (ii) hard and solid ( ) (iii) liquids ( ) (iv) gases ( )

(b) Which of the following is a good conductor of electricity?

(i) Phosphorous ( ) (ii) Aluminium ( ) (iii) Boron ( ) (iv) Sulphur ( )

(c) Which of the following cannot be drawn into thin sheets (non-malleable)?

(i) Aluminium ( ) (ii) Graphite ( ) (iii) Gold ( ) (iv) Silver ( )

(d) Which of the following produces sound on hitting (sonorous)?

(i) Phosphorous ( ) (ii) Copper ( ) (iii) Carbon( ) (iv) Sulphur ( )

Date _____

ACTIVITY SHEET- 2

Learn with fun:

See the given picture carefully:

Before **After sometime**

[Copper sulphate ($CuSO_4$) + Iron nails (Fe)]

Before **After sometime**

[Iron sulphate ($FeSO_4$) + Copper turnings(Cu)]

Now answer the following questions:

(a) Which is a more reactive metal, Iron (Fe) or Copper(Cu)?

_____

(b) What change is observed after sometime in the iron nails kept in the copper sulphate solution?

_____

_____

(c) A _____ (more/less) reactive metal displaces a _____ (more/less) reactive metal from its salt solution.

Q.1 Complete the following reactions with the words given in the box :

Magnesium oxide (MgO),	**Rust ($Fe_2O_3.xH2O$),**
Sulphur dioxide (SO_2),	**Carbon dioxide (CO_2),**
Sulphurous acid (H_2SO_3),	**Sulphuric acid (H_2SO_4)**

(a) Iron(Fe) + Oxygen(O_2) + Water(H_2O) --→ _____

(b) Magnesium(Mg) + Oxygen(O_2) --→_____

(c) Sulphur(S) + Oxygen (O_2) ---→ _____

(d) Sulphur dioxide(SO_2) + Water (H_2O) --→_____

Q.2 Fill in the blanks with correct option:

Non-metal oxides

Moist blue litmus paper turns red

Metal oxides

Moist red litmus paper turns blue

(a) Metal oxides like Magnesium oxide turn moist red litmus paper blue, so they are ____ (acidic/basic) in nature.

(b) Non-metal oxides like Sulphur dioxide turn moist blue litmus paper red, so they are ___ (acidic/basic) in nature.

Q.3 Explain why Phosphorus is stored in water while Sodium is stored in kerosene oil?

_____

_____

Q.4 True or False:

(a) Generally, non-metals do not react with acids. ( )

(b) Metals react with acids and produce metal salts and carbon dioxide gas. ( )

(c) Some metals react with bases to produce hydrogen gas. ( )

(d) More reactive metals displace less reactive metals from their compounds in aqueous solutions. ( )

Date _____

Physical Properties | Chemical Properties | **Uses**

ACTIVITY SHEET- 3

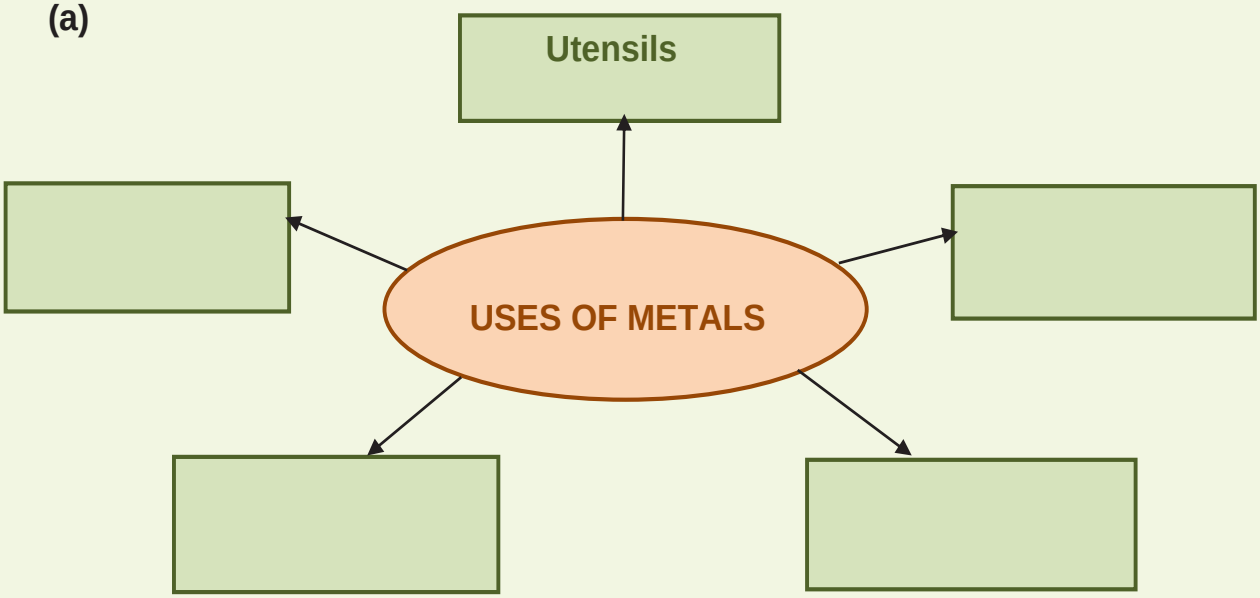
Learn with fun:

Look around your home and make a list of all the plastic articles that you can see. Write down what are these used for and suggest any material other than plastic by which it can be replaced. One example is given for you.

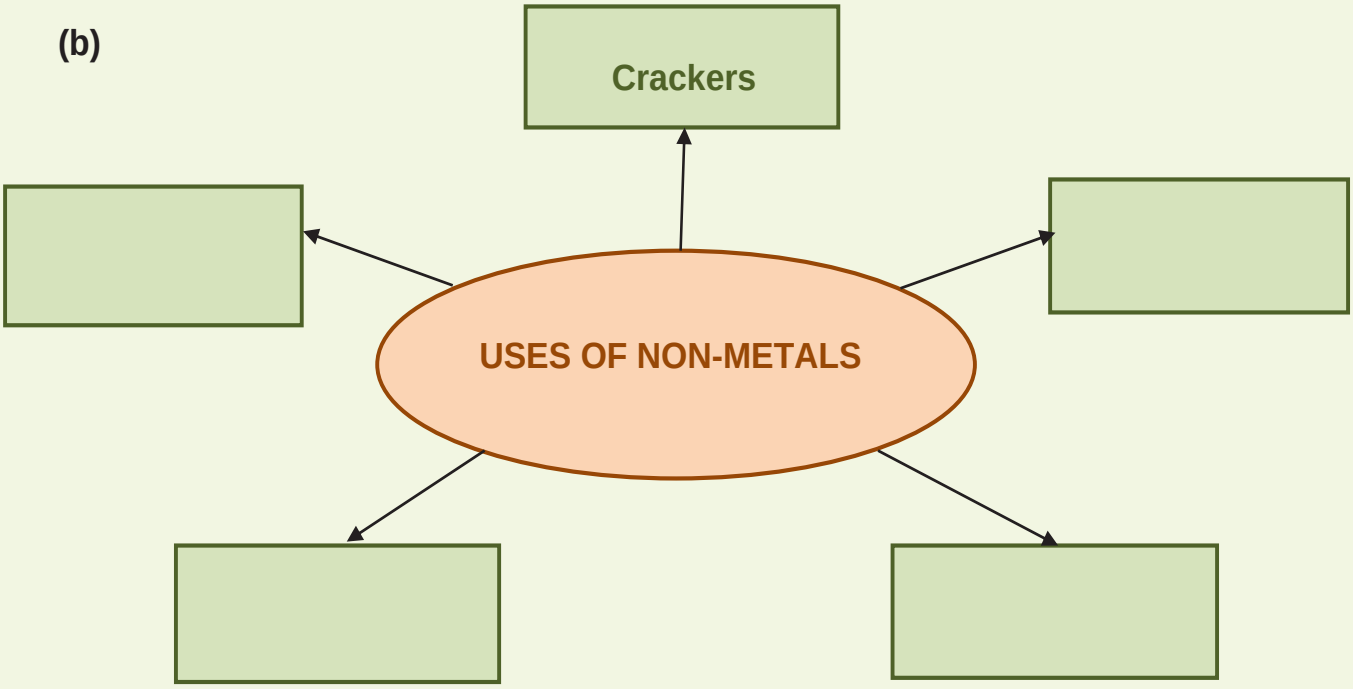
S.No.	Plastic article	Plastic article used for	Can be replaced with
1.	Plate	Eating	Stainless steel or glass
2.			
3.			
4.			
5.			
6.			
…			
…			
…			
…			
…			

Q.1 Write the uses of metals and non-metals in the boxes given :

(a)



(b)



Date _____

CHAPTER–5: COAL AND PETROLEUM

Coal and Petroleum

ACTIVITY SHEET– 1

Learn with fun:

Enlist few industries/ small set-ups which use coal/ petroleum products as fuels.

S.No.	Coal	Petroleum products
1.		
2.		
3.		
4.		
5.		

Q.1 Observe the given picture. Name the process, write down the products used during the process and identify the petroleum products among them.

Name of the process _____

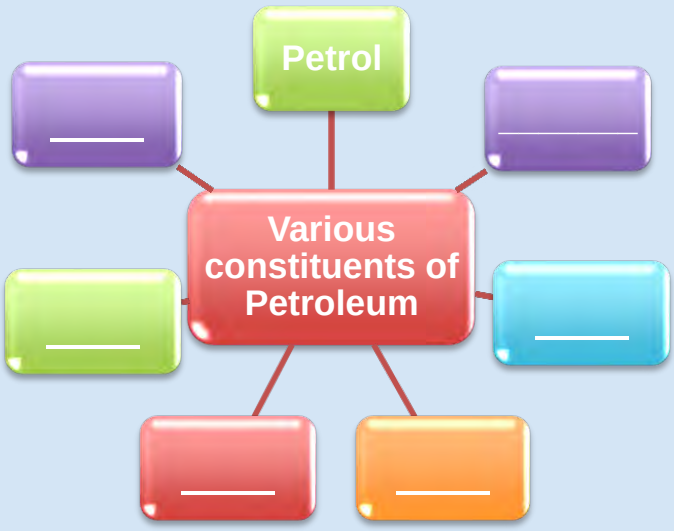
Products used _____

_____

Petroleum product _____

https://www.devdiscourse.com/article/science-environment/1849826-private-sector-invests-rs-1516425-cr-in-road-construction-till-nov-this-fiscal

Q.2 Complete the following:



Q.3 Give full forms of-

(a) CNG - _____

(b) PNG - _____

(c) PCRA - _____

Q.4 Match the following:

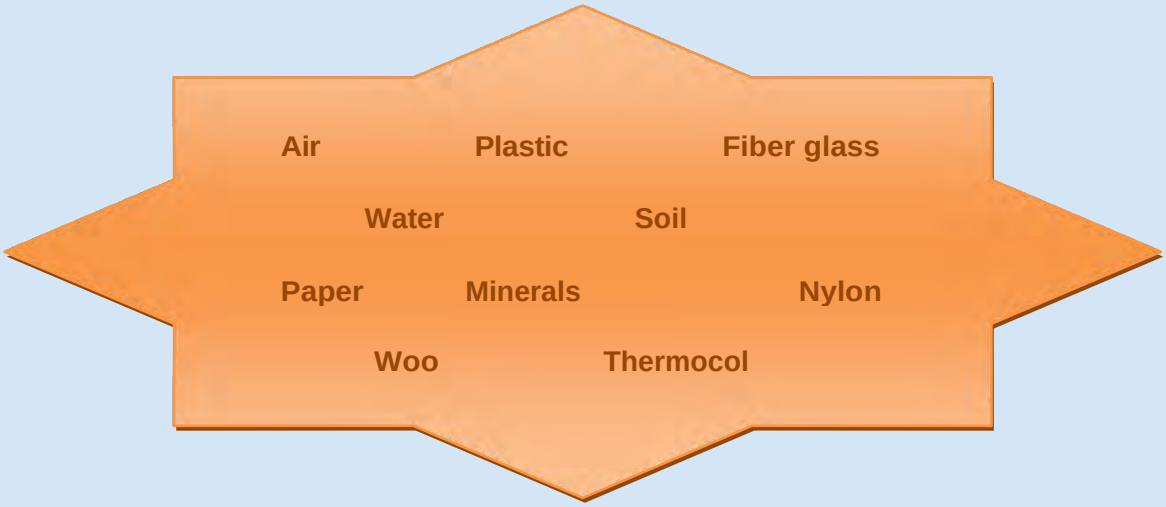
Petrol	• Fuel for heavy motor vehicles, electric generators
Diesel	• Fuel for stoves, lamps and for jet aircrafts
LPG	• Motor fuel, aviation fuel, solvent for dry cleaning
Kerosene oil	• Paints, road surfacing
Bitumen	• Ointments, candles, vaseline etc.
Paraffin wax	• Fuel for home and industry

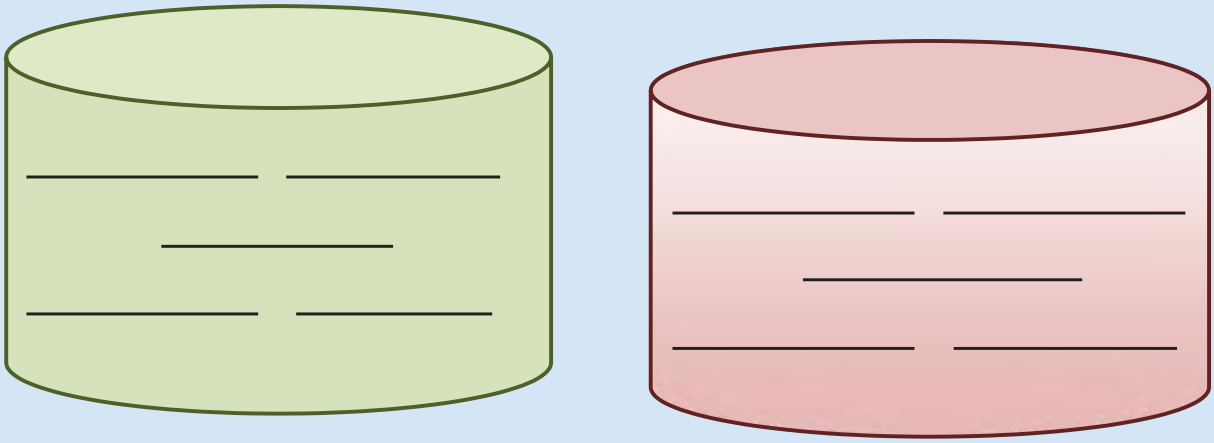
Date _____

ACTIVITY SHEET– 2

Learn with fun:

Classify the following materials as “Natural” and “Man-made”:





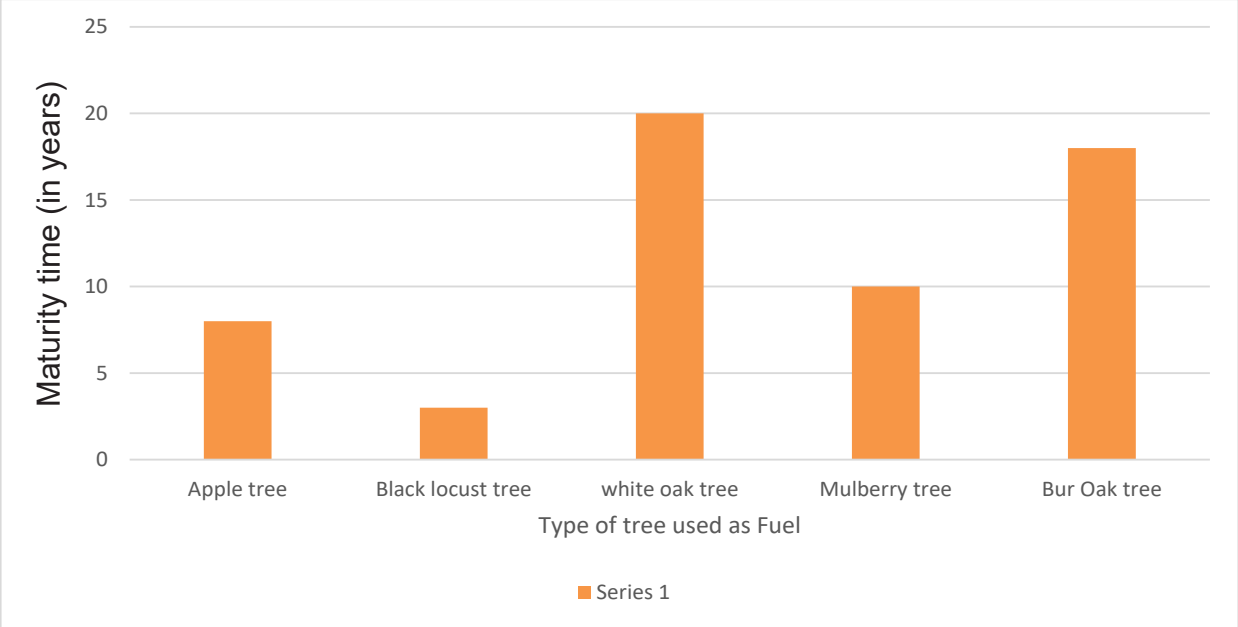
NATURAL MATERIALS **MAN-MADE MATERIALS**

Q.1 Complete the following sentences:

(a) Resources like wind, sunlight and water, which are present in unlimited quantity in nature and are not likely to be exhausted by human activities are known as_____(inexhaustible/ exhaustible) natural resources.

(b) Fossil fuels such as oil, coal and natural gas, which are present in limited quantity in nature and can be exhausted by human activities are known as _____ (inexhaustible/ exhaustible) natural resources.

Q.2 Study the following bar graph and answer the questions given below:



(a) Which type of fuel has the longest timeline?

_____

(b) Which type of fuel has the shortest timeline?

_____

(c) Arrange the above given fuels in increasing order of their given timelines.

_____

Q.3 From among the following, tick (√) the correct ways to save petrol/ diesel while driving:

(a) Ensure correct tyre pressure. ( )

(b) Drive at 80-100 km/hr. ( )

(c) Switch off the engines at traffic lights. ( )

(d) Ensure regular maintenance of your vehicle. ( )

(e) Always drive your vehicle in 3rd gear. ( )

Date _____

CHAPTER–6: COMBUSTION AND FLAME

Coombustion

ACTIVITY SHEET– 1

Learn with fun: Air is necessary for combustion

Materials required: candle, matchbox, gas jar/ glass

Procedure: Fix a candle on the table and light it. Observe it for sometime. It continues to burn. After sometime, cover the burning candle by putting an inverted jar over it.

What do you observe?

_____

_____

Conclusion:

_____

_____

Q.1 Choose the correct option from the following to complete the given sentences:

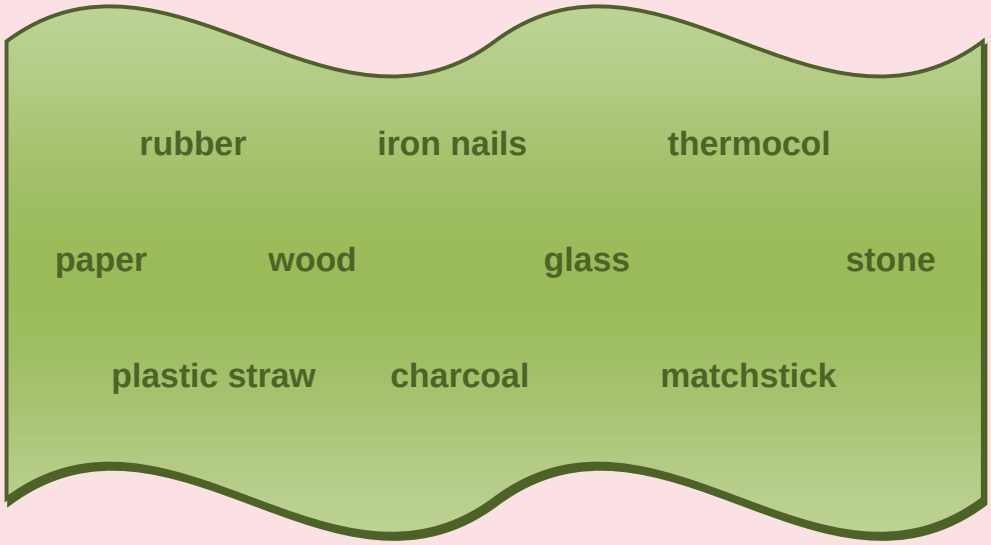
rapid combustion, explosion, spontaneous combustion

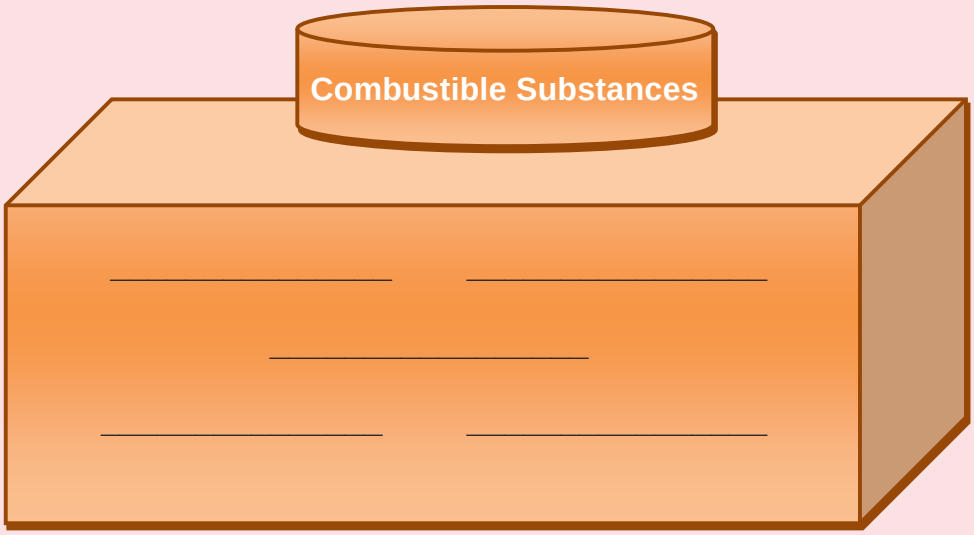
(a) When you bring a burning matchstick near a gas stove, the gas burns rapidly and produces heat and light. Such type of combustion is known as _____ .

(b) Phosphorus burns in air at room temperature. This type of combustion in which a material suddenly burst into flames without the application of any apparent cause is called_____ .

(c) When a cracker is ignited, a sudden reaction takes place with the evolution of heat, light and sound. This type of combustion is known as _____ .

Q.2 Choose the combustible substances from the following and add to the box given below :





Q.3 Give reasons:

(a) When the clothes of a person catch fire, the person is covered with a blanket to extinguish fire.

_____

_____

(b) We use paper or kerosene oil to start fire in wood or coal.

_____

_____

Q.4 Forest fires are very common during extreme heat of summer. Explain.

(Hint: List three conditions essential for combustion)

(a) _____

(b) _____

(c) _____

Date _____

ACTIVITY SHEET– 2

Learn with fun:

Light a candle and observe its flame.

Draw a coloured diagram of the flame in the box provided and also label its three zones.

Q.1 Tick the correct option:

(a) The blue zone of flame is

(i) least hot ( ) (ii) moderately hot ( )

(iii) hottest zone ( ) (iv)cold zone ( )

(b) Goldsmiths use

(i) innermost zone ( ) (ii) outermost zone ( )

(iii) blue zone ( ) (iv) either ii or iii ( )

(c) Which zone represents the partial combustion in candle flame?

(i) outer zone ( ) (ii) middle zone ( )

(iii) inner zone ( ) (iv) lower zone ( )

(d) Which of the following is the best extinguisher for fires involving electrical equipment and inflammable substances?

(i) carbon dioxide ( ) (ii) water ( )

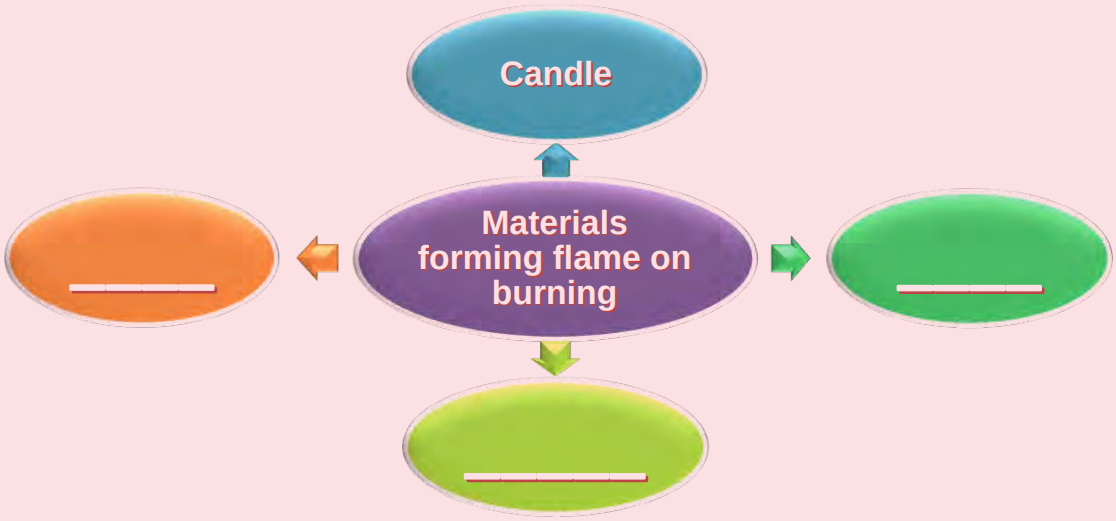
(iii) sand ( ) (iv) none of these ( )

(e) Substances which vaporise during burning give

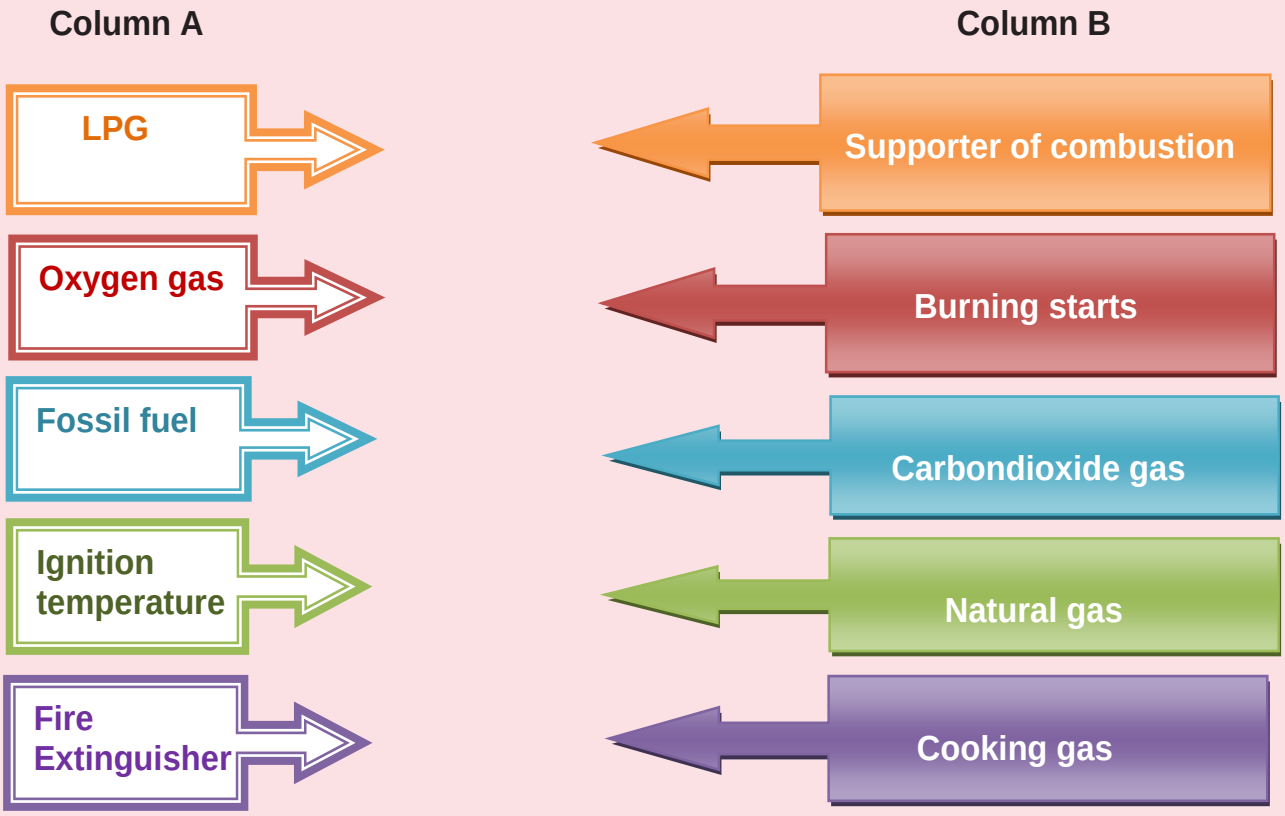
(i) sound ( ) (ii) flame ( )

(iii) heat ( ) (iv) none of these ( )

Q.2 Complete the following:



Q.3 Match the following:



Q.4 Visit your local blacksmith and explore about the types of welding processes used by him. Also try to find answers to the following questions:

(a) What are the three main types of weldings?

_____

(b) Which type of welding is the strongest?

_____

(c) Which gas is used for the gas welding and why?

_____

(d) What is the temperature of the flame used for welding?

_____

(e) What are the basic steps followed in the welding process?

_____

_____

_____

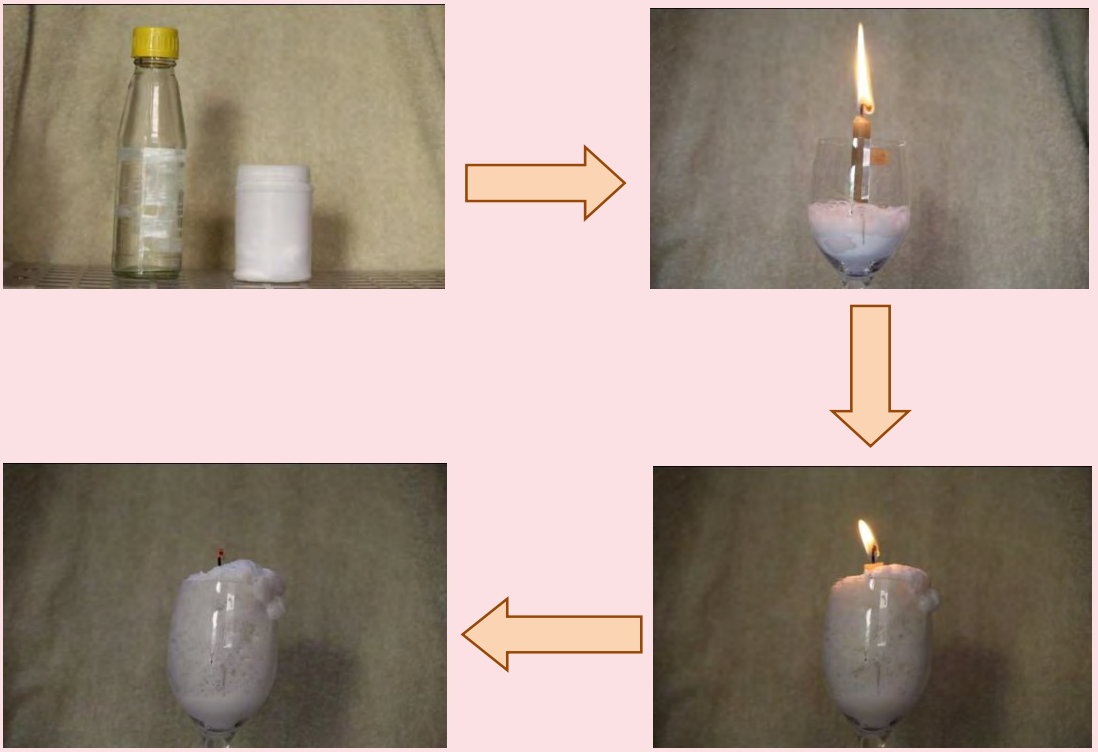
Date _____

ACTIVITY SHEET– 3

Learn with fun: Understanding the working of a Fire extinguisher

Materials required: candle, matchbox, baking powder, vinegar, glass.

Procedure: Fix a candle in a glass. Add approx. 2 tbsp of baking powder in the glass. Light the candle and then add approx. 1 tbsp of vinegar to the baking powder in the glass.



What do you observe?

_____

Conclusion:

_____

Q.1 Given below is the list of few combustible materials.

Combustible material	Ignition temp (degree Celsius)
Butane	405
Diesel	210
Ethanol	365
Petrol	247-280
Hydrogen	535
Paper	218-246

(a) What do you understand by ignition temperature of any substance?

_____

_____

(b) Arrange them in the increasing order of their ignition temperatures.

_____

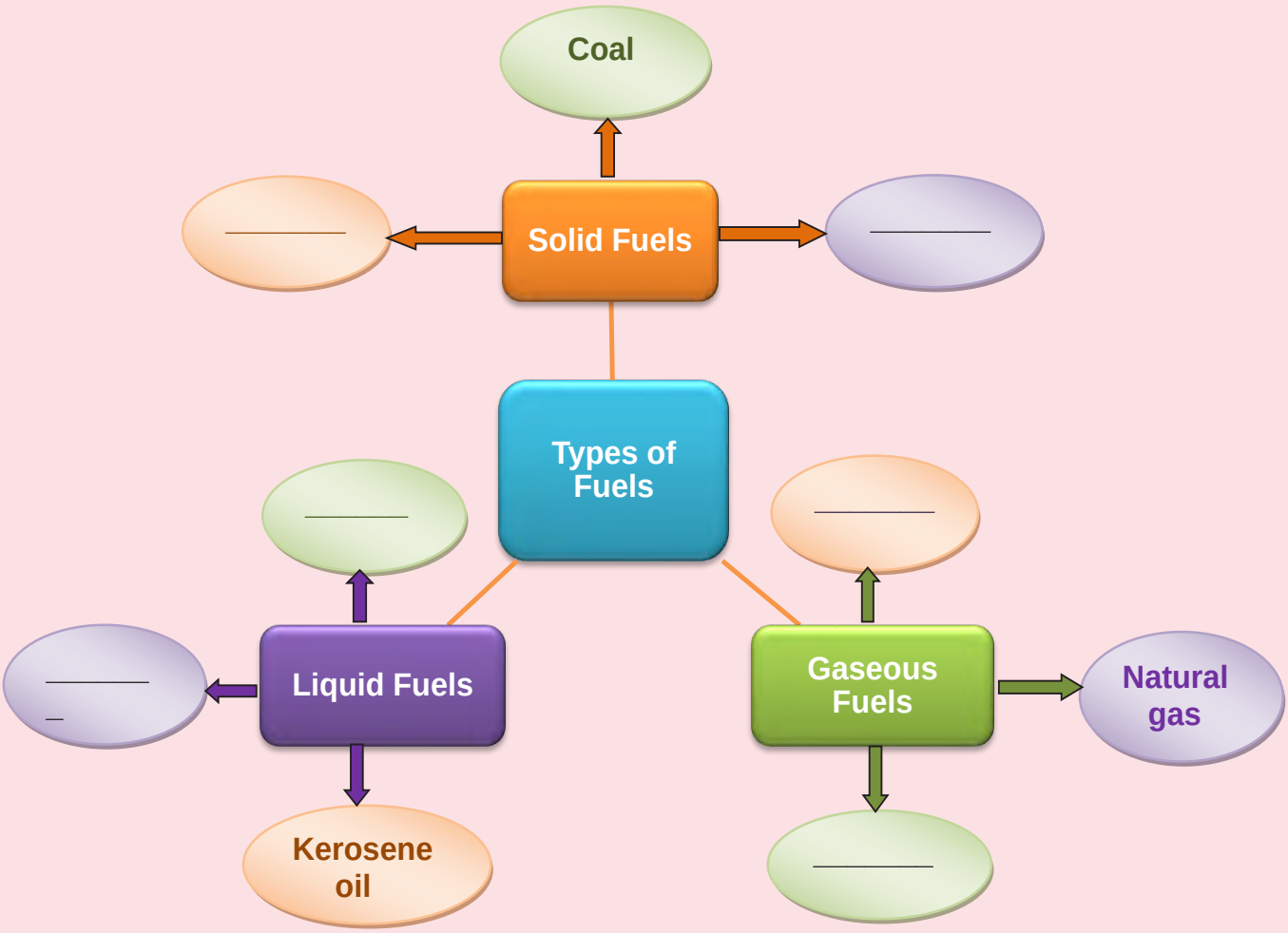
_____

Q.2 Complete the following statements:

(a) The most common fire extinguisher is water. But water works only when things like _____ and _____ are on fire.

(b) For fires involving electrical equipment and inflammable materials like petrol, _____ is the best extinguisher.

Q.3 Fill in the following empty spaces with appropriate words:



Q.4 Reeta and Himanshu were playing a Ludo game. Suddenly the switch-board in their room caught fire. Himanshu ran to the kitchen to get water to put off the fire while Reeta got some sand from the garden.

Who took the right decision and why?

_____

_____

Date _____

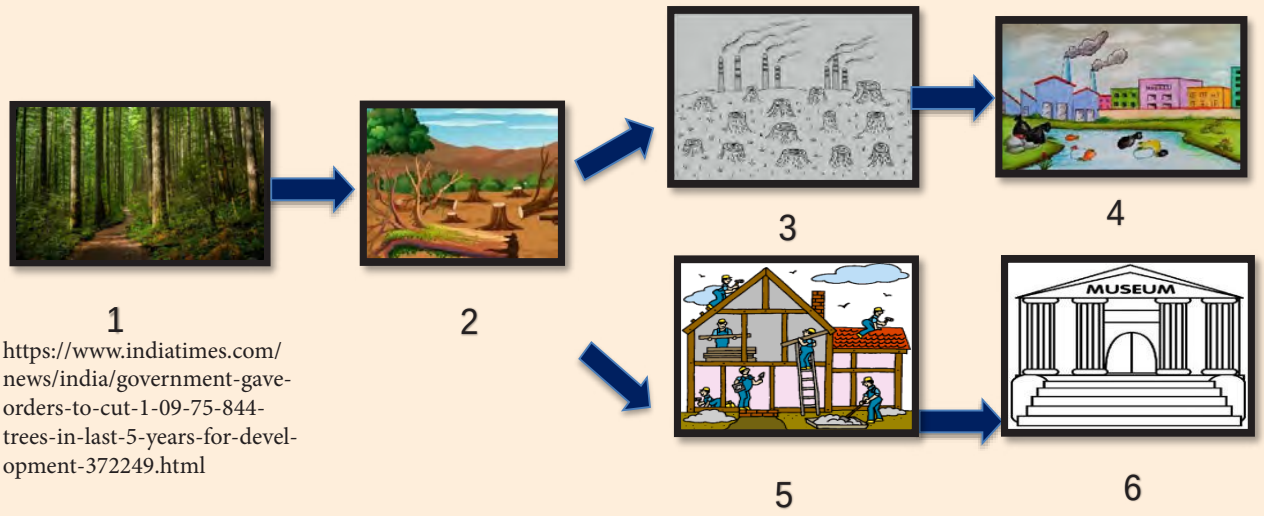
CHAPTER–7: CONSERVATION OF PLANTS AND ANIMALS

Deforestation

ACTIVITY SHEET- 1

Learn with fun:

1. **Look at the pictures given below, imagine a story as what has happened. Write down the story in the given box.**



1

2

3

4

5

6

https://www.indiatimes.com/news/india/government-gave-orders-to-cut-1-09-75-844-trees-in-last-5-years-for-development-372249.html

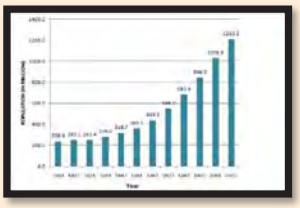
Q.1 Based on the pictures given on the previous page, answer the following questions:

(a) The action occurring in picture-1: _____

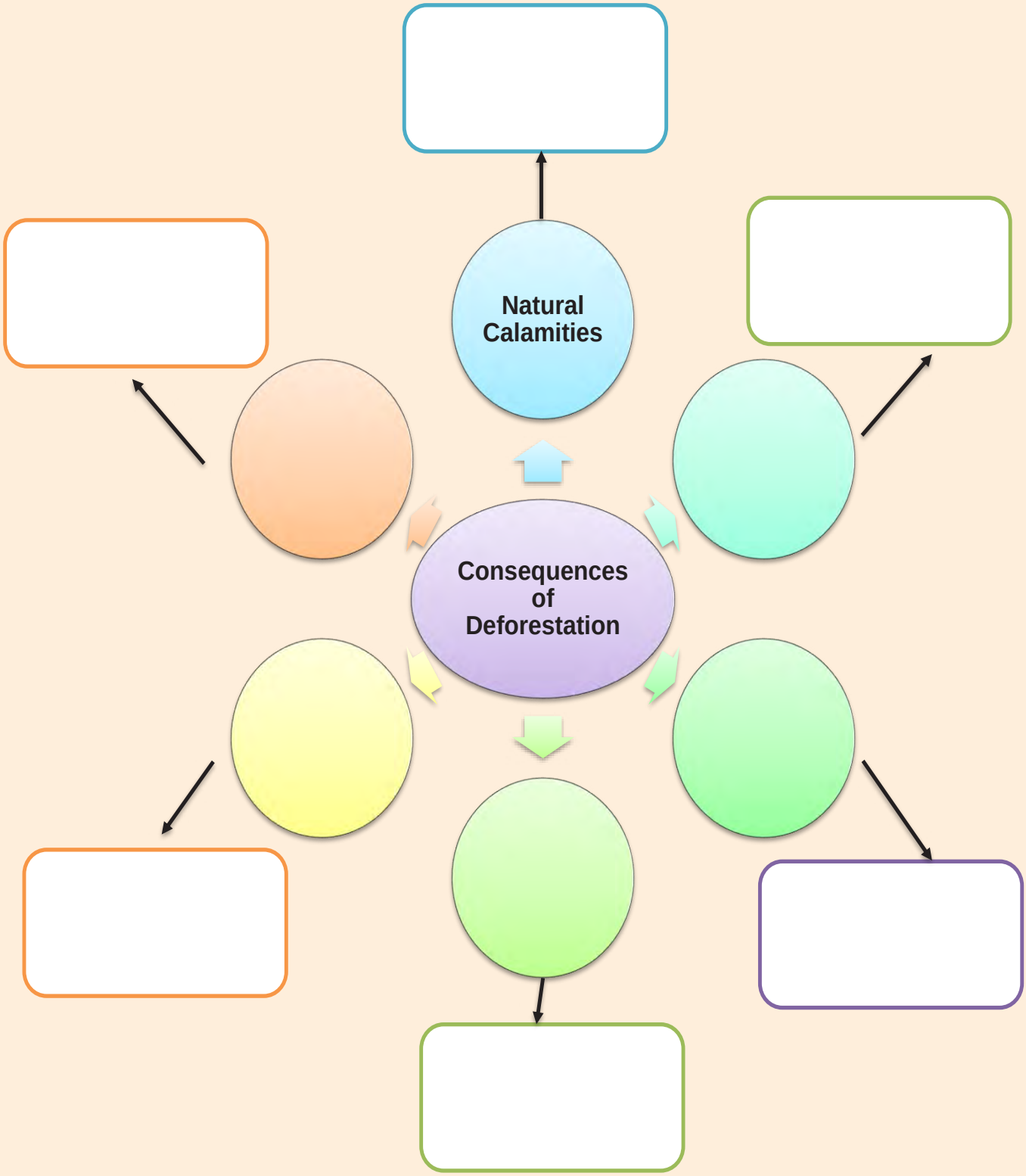
(b) The action occurring in picture-2: _____

(c) The natural calamity resulting from
the action occurring in picture-2 : _____

Q.2 Identify that whether the following is a natural or man-made cause of deforestation and put a tick (✓) in the appropriate box:

		Natural Cause	Man-made Cause
1.		☐	☐
2.		☐	☐
3.		☐	☐
4.		☐	☐

Q.3 Fill in the boxes with appropriate answers and also give examples of any recent consequence at National or Global Level which you came to know.



Date _____

ACTIVITY SHEET- 2

Learn with fun:

Observe the given organisms, name them and place them as flora or fauna and tell the ways to conserve them. You can also add few more examples on your own or ask about different flora and fauna from your parents and fill in the details below:

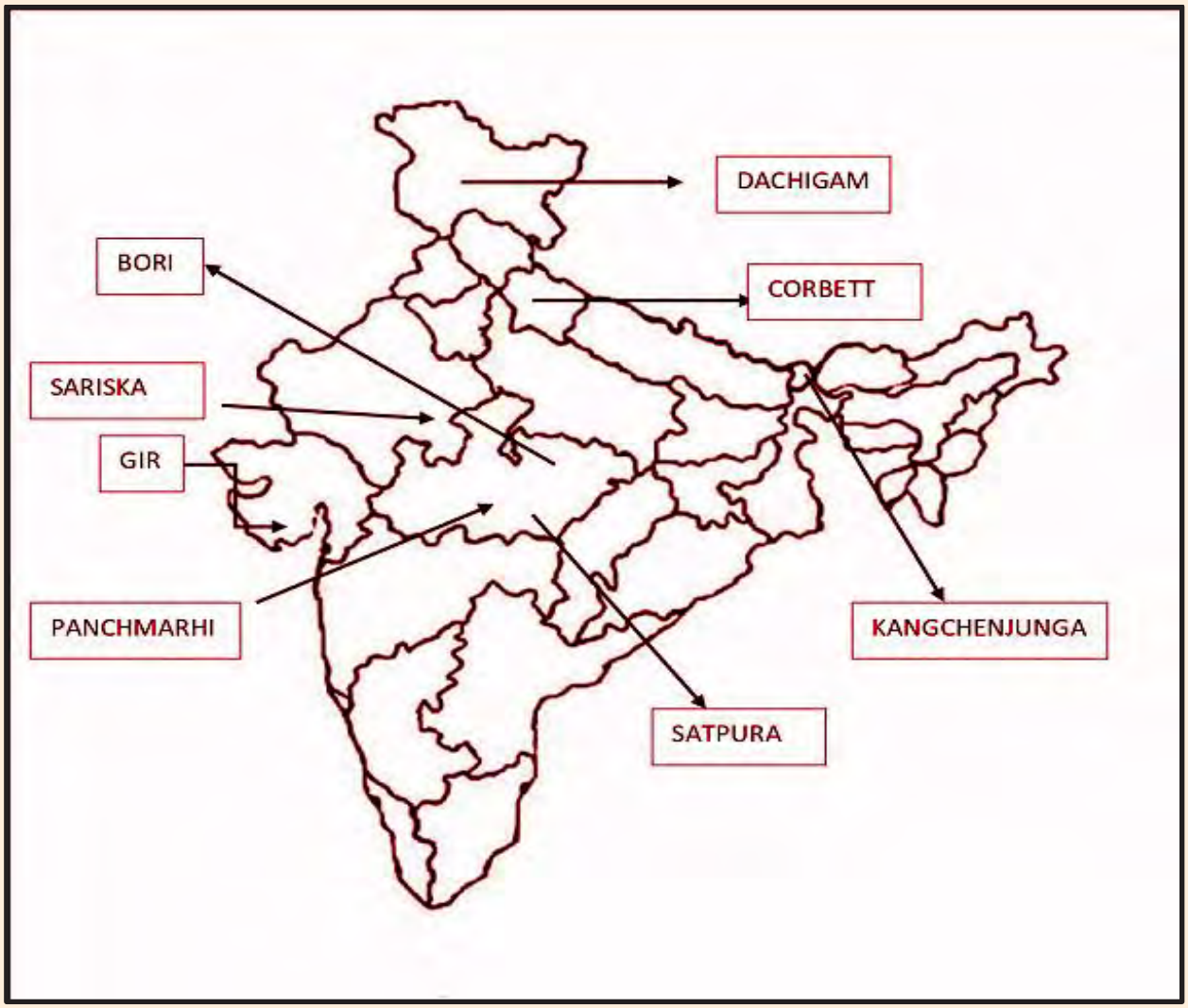







Name	Flora/Fauna	Ways of conservation

Q.1 In the given map identify the National Park, Wildlife Sanctuary and Biosphere Reserve present in India among the following and write down in the box given below and mention at least one basic difference between the three.



NATIONAL PARK	WILDLIFE SANCTUARY	BIOSPHERE RESERVE

Q.2 Read the passage below and answer the following questions:

Habitat loss poses the greatest threat to species. The world's forests, swamps, plains, lakes, and other habitats continue to disappear as they are harvested for human consumption and cleared to make way for agriculture, housing, roads, pipelines and the other hallmarks of industrial development. Forest loss and degradation is mostly caused by the expansion of agricultural land, intensive harvesting of timber, wood for fuel and other forest products, as well as overgrazing. Human impact on terrestrial and marine natural resources results in marine and coastal degradation. Population growth, urbanization, industrialization and tourism are all factors responsible for habitat loss for animals.

(a) List down the factors disturbing the natural habitats of animals.

_____

_____

_____

(b) What do you think will affect the endemic species if such practices continue?

_____

_____

_____

(c) How can we address these factors?

_____

_____

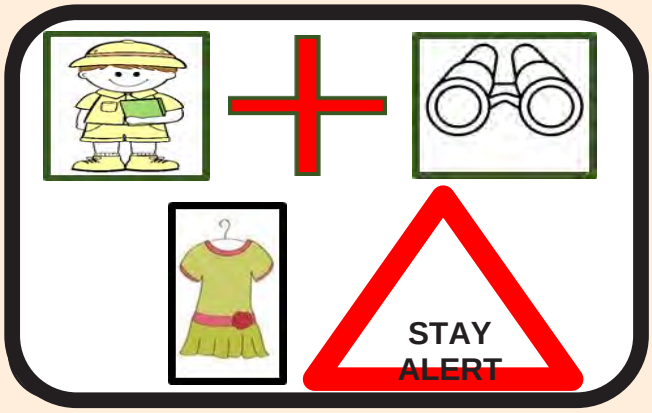
_____

Date _____

ACTIVITY SHEET- 3

Learn with fun:

Observe the given pictures and prepare a list of Do's and Don'ts while visiting a National Park or Sanctuary or Biosphere Reserve.



DO'S	DONT'S

Q.1 (a) Read the following statements and classify the given animals into endemic and endangered:

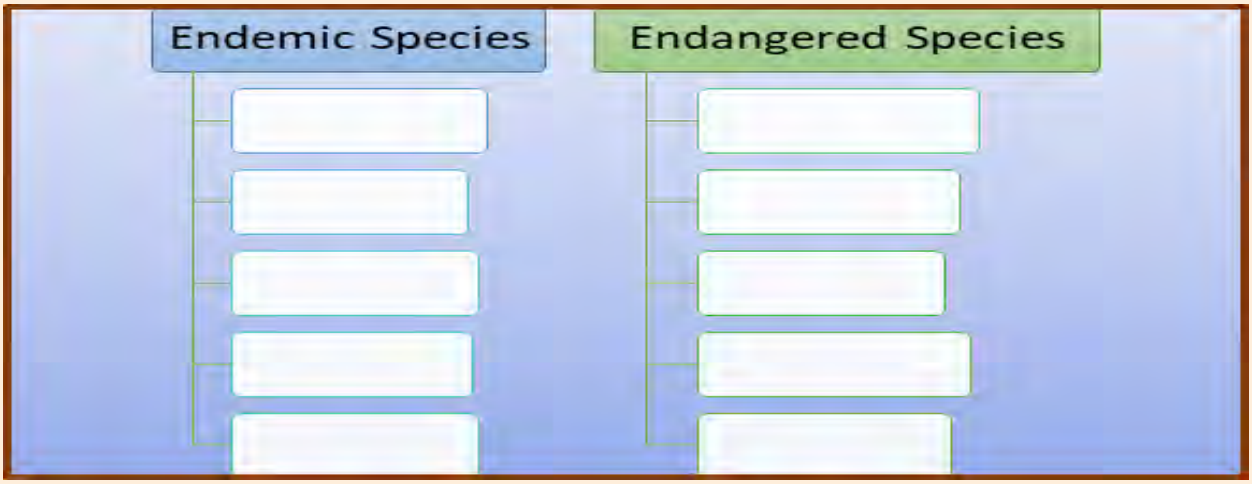
Statement 1: Recently in Uttarakhand, movements by the leopards in the Human Settlement areas were increased.

Statement 2: The no. of sparrows in Delhi has decreased dramatically in the past two decades.

Statement 3: Lions in the Gir Wildlife Sanctuary have increased marginally in the last one decade.

Statement 4: Hard ground swamp deer (Bara Singha or Rucervus duvaucelii), the state animal of Madhya Pradesh, is seeing a revival in the Kanha National Park and Tiger Reserve (KNPTR) after having been perilously close to the decreased number for a long time.

Statement 5: The lion-tailed macaque lives in the rainforests of the Western Ghats and spreads over three States — Tamil Nadu, Karnataka and Kerala because they only eat fruit and insects, they are restricted to rainforests where these resources are available throughout the year.



(b) Differentiate by explaining the reason of categorization:

Endemic Species	Endangered Species

Q.2 Identify and name the places in the pictures and write down the differences between the two.

(Source: Alarmy Stock Photo)

(A) _____

(B)_____

Date _____

ACTIVITY SHEET- 4

Learn with fun:

Given below are the steps of planting trees.

1. Get the flower pot and put soil in it

2. Putting seeds into the pot

3. Watering the seeds daily

4. Providing ample sunlight to the growing plant

5. Plant starts growing

Plant a tree in an empty pot/bottle and record your observations in the following table with respect to the growth pattern:

15 Days	30 Days	45 Days	60 Days	120 Days

Q.1 Ravi and Reena used to visit the village each year and one day they wanted to explore the biodiversity present around their village. While walking they observed many new birds near the pond and asked their grandparents about those birds. He said that every year these birds come to visit this place in this season.

(a) What are such birds called?

_____

(b) Why do such birds visit this place every year?

_____

_____

_____

Q.2 Ravi and Ashish are best friends and participate actively in the class. One day the teacher informed the whole class about the organisation of science exhibition. She explained that the students need to build something useful, interesting and attractive with minimal cost. So, Ravi decided to make something from the old newspapers while Ashish built a modern model using plastic material. Ravi's model was very much appreciated, and he got the first prize.

(a) In your view, who followed the best practice and why?

_____

_____

_____

(b) Which practice is being depicted by Ravi?

_____

(c) State the values you got to learn from this example.

_____

_____

_____

Date _____

CHAPTER–8: CELL: STRUCTURE AND FUNCTION

Cell

ACTIVITY SHEET- 1

Learn with fun:

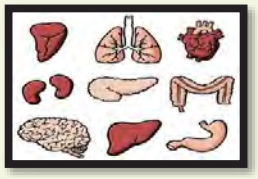
1. Match the analogy of the cell and rearrange them in the correct order of their complexity:

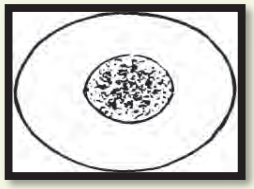
(a) 

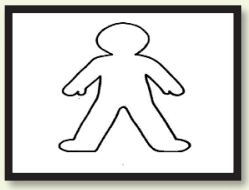
(b) 

(c) 

(d) 

(i) 

(ii) 

(iii 

(iv) 

Correct Sequence:

a._____ **b.** _____

c._____ **d.**_____

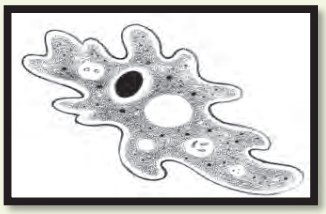
Q.1 Prepare a quiz for your peer/family asking about:

(a) Instrument used to observe the microscopic organisms

(b) History/discovery of cells & cell structure

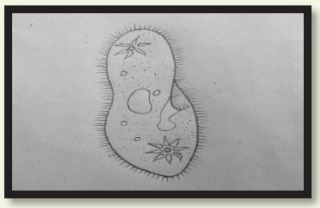
Frame at least 5 questions with responses.

Q.2 (a) Observe the given pictures and categorise them as unicellular or multicellular organisms.



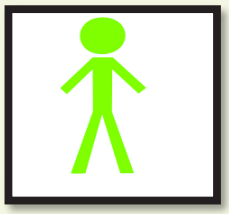
_____

_____



_____

_____



_____

(b) Differentiate by explaining the reason of categorization:

Unicellular Organism	Multicellular Organism

Q.3 Rearrange the following letters to make meaningful words:

(a) LCLE : __ __ __ __

(b) OAMAEB : __ __ __ __ __ __

(c) RGONAMSI : __ __ __ __ __ __ __ __

Date _____

ACTIVITY SHEET- 2

Learn with fun:

Identify whether the following cells are visible through microscope or can be seen with naked eyes and also add some more examples:

Bacterial cell

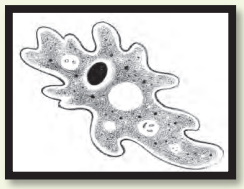
Blood cell

Ostrich egg

Green algae

Nerve cell

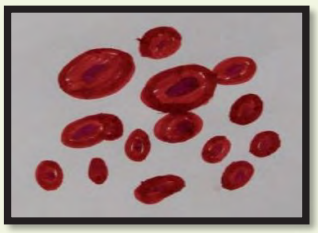
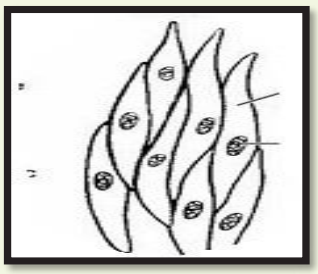
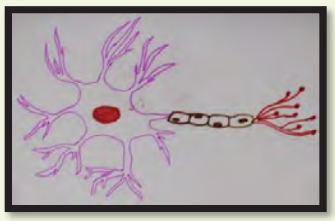
Hen egg



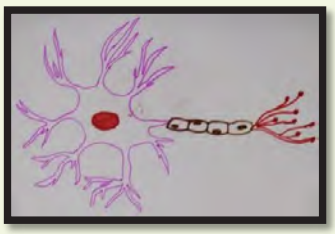
Amoeba

Seen through microscope	Seen with naked eye

Q.1 Identify the following Cells and describe their shapes:

Diagram	Shape	Name
		
		
		

Q.2 Observe the pictures given below and write down their characteristic features:

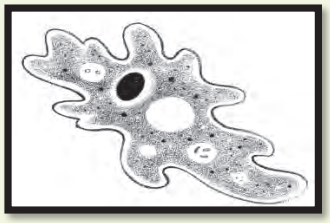
(a) 

_____

_____

_____

_____

(b) 

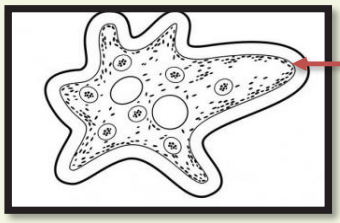
_____

_____

_____

_____

(c)



PSEUDOPODIA

_____

_____

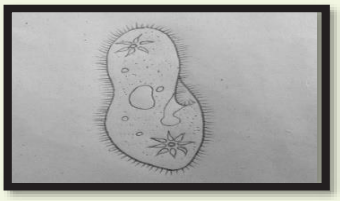
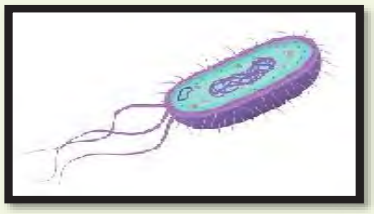
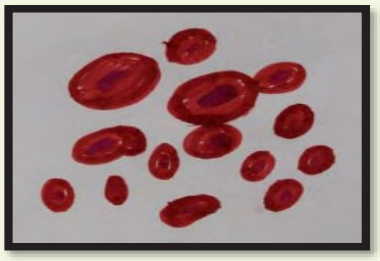
(d)

CELL WALL

_____

_____

Q.3 Match the following:

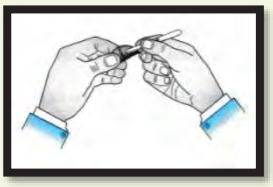
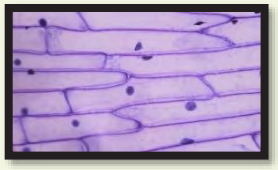
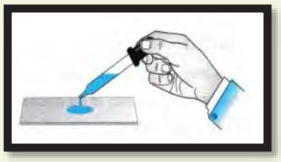
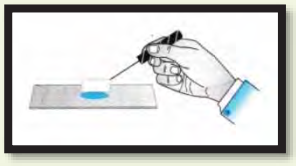
Column A	Column B
	RBC
	Largest Cell
	Bacterium
	Paramecium

Date _____

ACTIVITY SHEET- 3

Learn with fun:

Rearrange the following steps in correct sequence:

 Take piece of onion bulb	 Take out the transparent film of onion peel
 Observe under the microscope	 Place the onion peel on slide and avoid overstaining
 Put a drop of glycerine	 Scrap the scale backwards
 Stain the peel taken	 Place the coverslip with the help of needle

Q.1 Complete the following flow chart:

Q.2 Classify the following terms into cells, tissues and organs and write in the table given below and add some more examples in the three categories:

RBC, WBC, Nerve Cell, Blood, Muscle, Blood Vessels, Brain, Heart

Cell	Tissue	Organ

Q.3 Give the functions of the following:

Organelle	Function
Cell Wall	
Cell Membrane	
Nucleus	
Cytoplasm	

Date _____

ACTIVITY SHEET- 4

Learn with fun:

One day the teacher asked students to prepare the slide of human cheek cell. Rohan took the scrapping of the inside cheek and place it on the slide. He then put a drop of water on the glass slide and after that 2-3 drops of iodine solutione. He then placed the coverslip on it and start observing the slide under the microscope. But he was unable to see the cells properly.

(a) What do you think why he is not able to see the cells of human cheek properly?

_____

_____

_____

(b) Why did he put iodine on the scrapping/sample?

_____

_____

(c) What would happen if he didn't put a drop of water?

_____

_____

(d) What are the precautions that need to be taken while doing this experiment?

_____

_____

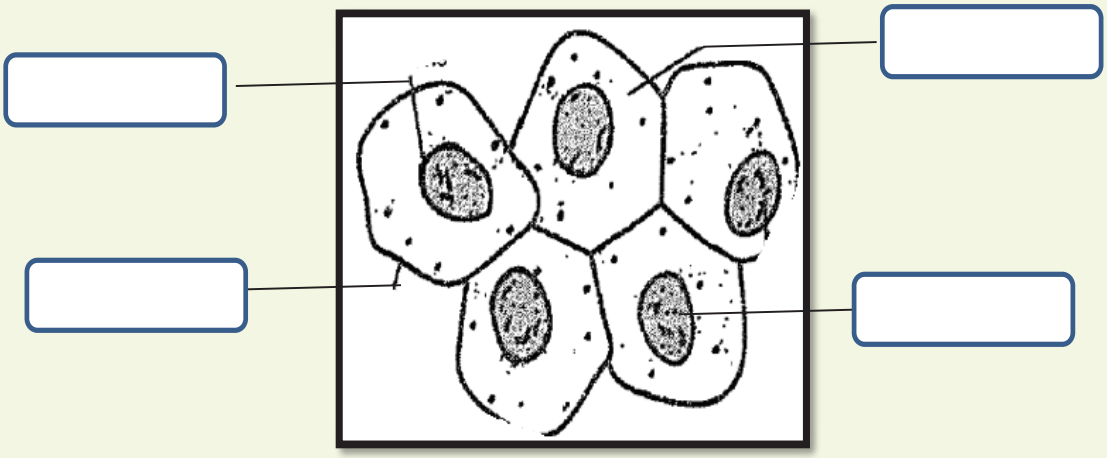
_____

Q.1 Given below are some characteristic features of a cell. Identify them based on the characteristics and put them in the table given below:

Boundary of Cell	Inheritance	Colored Bodies
Blank Structures	Scattered in Cytoplasm	Keeps Toxic Substances Away
Could be single or Big	Control Centre of the Cell	Provides Colour to the leaves

Cell membrane	Nucleus	Vacuole	Plastids

Q.2 Label the following parts of the human cheek cell:



Q.3 Complete the following table:

S.No.	Part	Plant Cell	Animal Cell
1	Cell membrane		Present
2	Cell wall	Present	
3	Nucleus	Present	
4	Nuclear membrane		
5	Cytoplasm		Present
6	Plastids		
7	Vacuoles		

Date _____

CHAPTER–9: REPRODUCTION IN ANIMALS

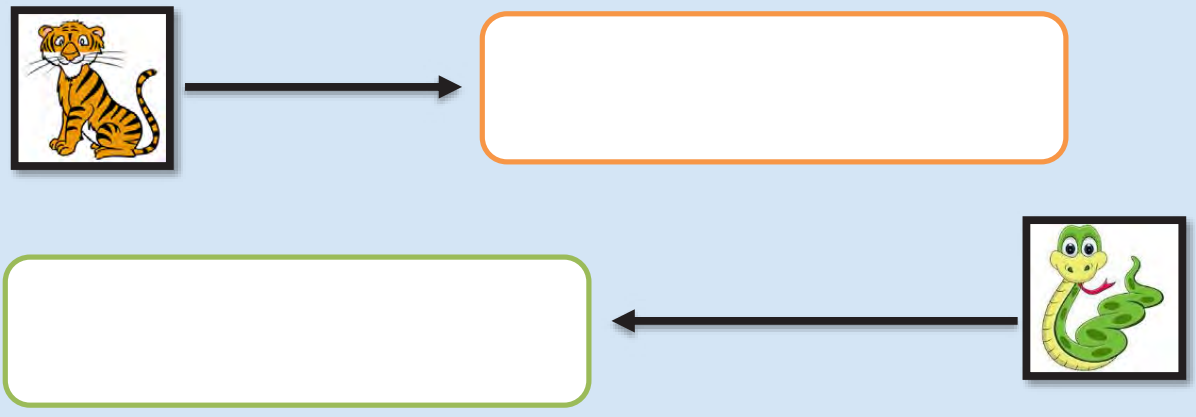
Sexual Reproduction

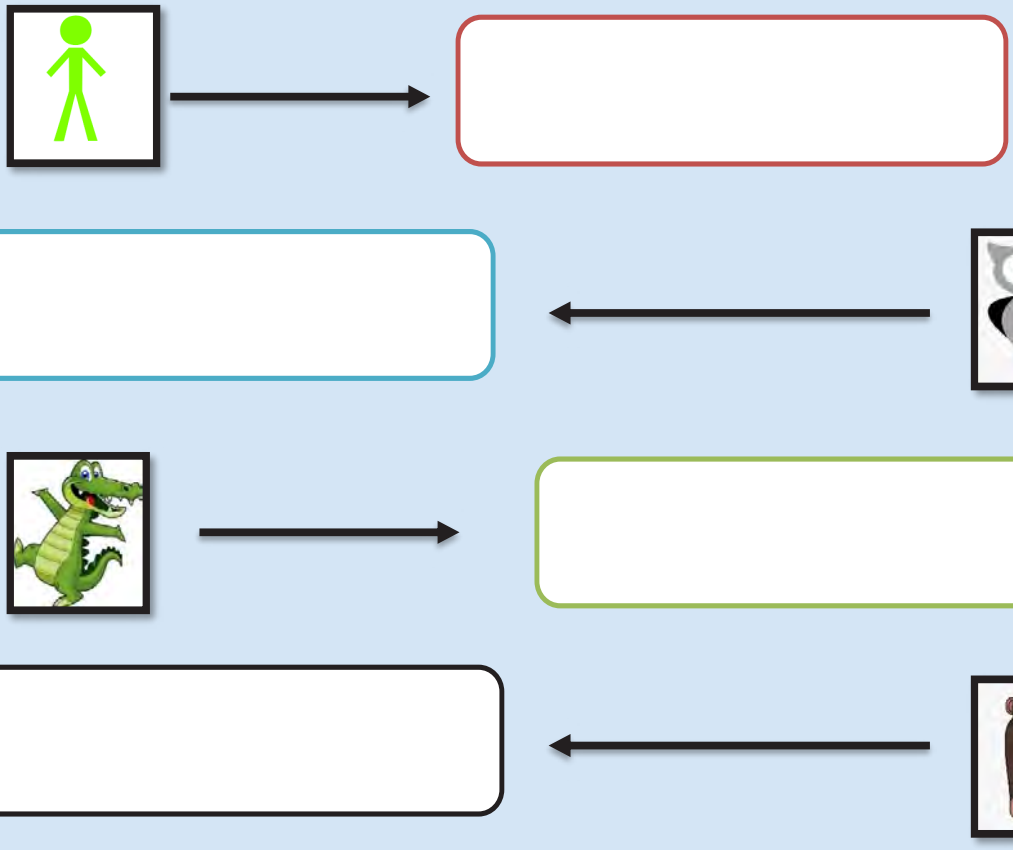
ACTIVITY SHEET- 1

Learn with fun:

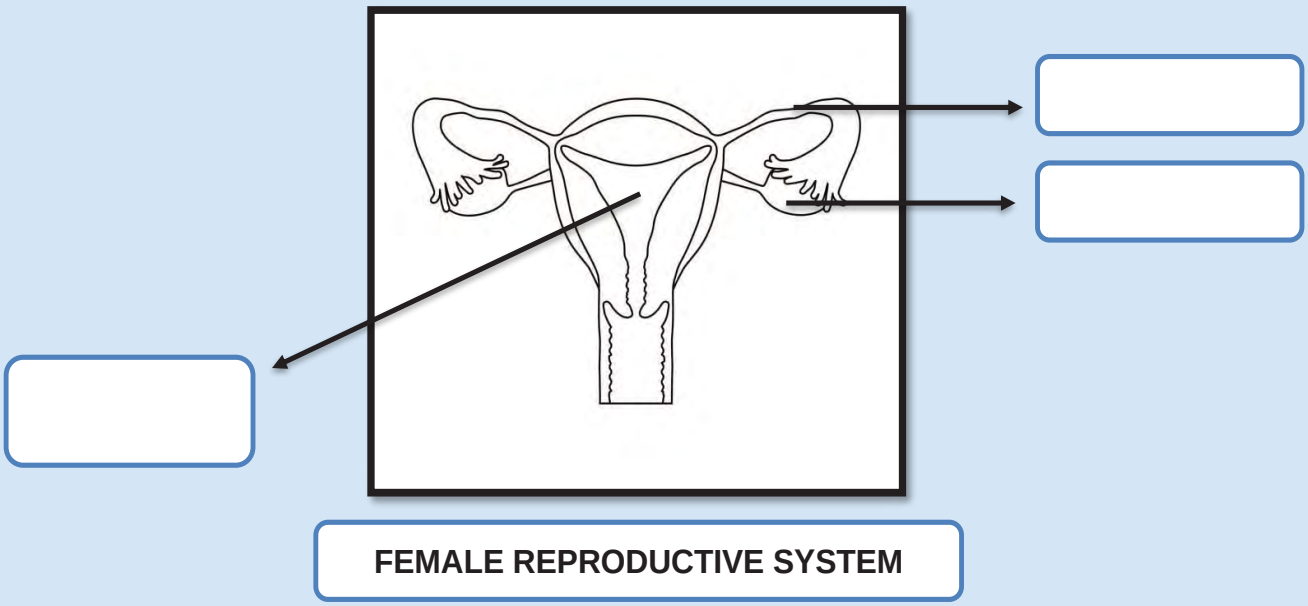
1. **Given below are different features present in organisms in order to survive. Match the correct features with the correct organisms so that they may survive and increase their population:**

Special Body Part	Sensory Abilities	Movement	Miscellaneous
-Large claws -Long flexible neck -Fur -Sharp teeth -Tough leathery skin -Re-grows lost teeth	-Monocular vision -Good sense of smell -Good hearing -Good eyesight -Binocular vision	-Climb -Fly -Jump -Fast moving, long distances -Fast moving, short distances -Moves quietly	-Nocturnal -Swims -Venomous -Ambushes prey -Hunts in packs

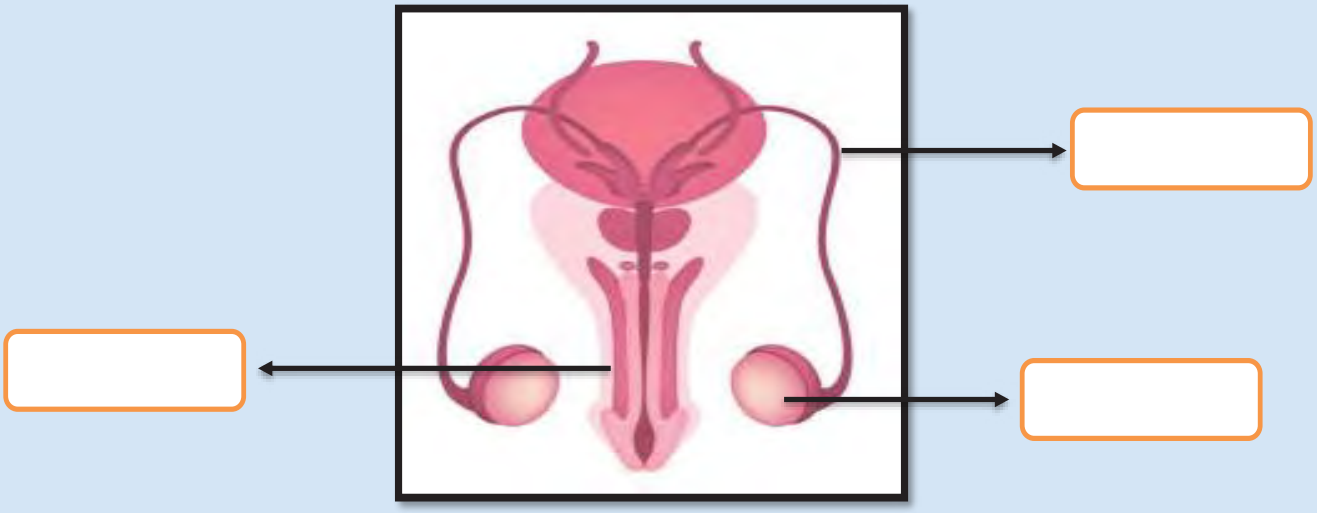




Q.1 Label the different parts of the Female and Male Reproductive System:



FEMALE REPRODUCTIVE SYSTEM



MALE REPRODUCTIVE SYSTEM

Q.2 Fill in the blanks with appropriate answers:

S.No.	Name of the Organ	Male/ Female Reproductive System	Function
1	Testes		
2		Male	Through which the sperm travels
3			Produces Ova
4	Uterus		
5		Female	Through which ova travels

Date _____

ACTIVITY SHEET- 2

Learn with fun:

When a new individual/organism is formed, then the individual has some characteristics inherited either from the father or mother. Observe different features your parents, grandparents or siblings have write them down in the table given below. Also identify the features which show resemblance with them:

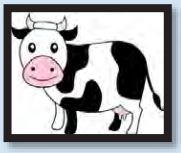
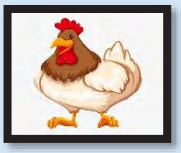
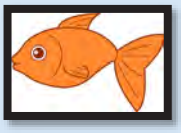
Characteristics/ Features	You	Grandparents	Mother	Father	Siblings

To whom do you resemble the most out of the above?

_____

_____

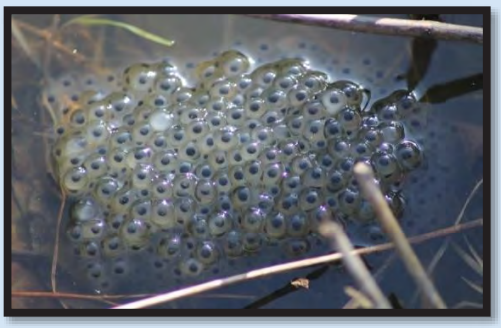
Q.1 (a) Given below is a list of organisms. Classify them on the basis of the mode of fertilization that takes place in them:

Organism	Internal Fertilization	External Fertilization
		
		
		
		
		
		

(b) Differentiate by giving at least 3-4 points including examples for the explanation of the classification:

Internal fertilization	External fertilization

Q.2 One day Ravi and Reena were going to their school and while walking they passed by a pond. It was a rainy season, so the pond was full of water. They observed some organisms in the pond. Apart from this, they also observed a jelly like structure floating on the surface of the pond which is shown below:



(a) Name the jelly like structure as observed by Ravi and Reena.

_____

(b) What is the function of this jelly?

_____

_____

(c) How does the process of fertilization occur in such organisms?

_____

_____

_____

Date _____

ACTIVITY SHEET- 3

Learn with fun:

Find the words from the table given below by following the clues given, first one is done for you:

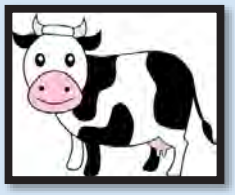
1. Process of fusion of the male and female gamete
2. Female gamete of the human
3. Part of the female reproductive system where development of baby takes place
4. Structure formed by the fusion of the gametes
5. Stage of the embryo where all body parts can be identified

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

Q.1 (a) Given below is a list of organisms. Categorize them as oviparous and viviparous organisms. You can also add some more examples from your observation:





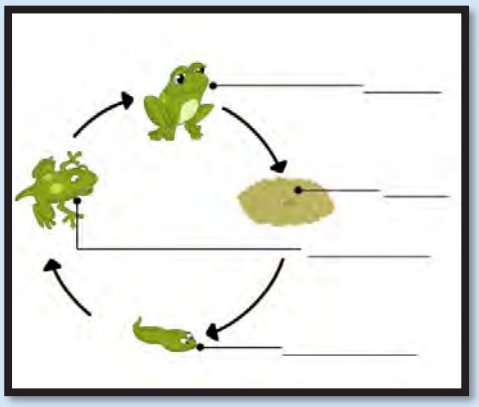



Oviparous	Viviparous

(b) Differentiate by giving at least 4-5 points including examples for the explanation of the categorization:

Oviparous	Viviparous

Q.2 (a) Complete the following figure with the correct answers:



(b) Name the process being observed in the above figure.

_____

(c) Give one more example which exhibit the same process as in the figure above.

_____

Date _____

ACTIVITY SHEET- 4

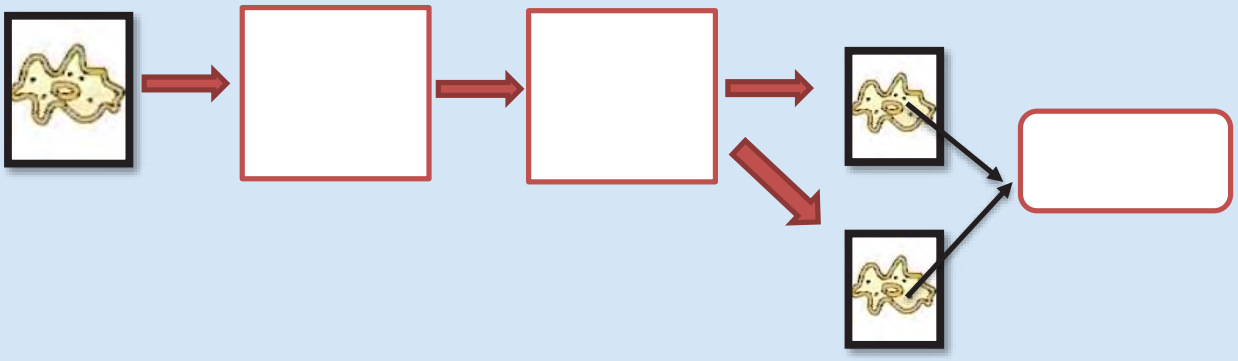
Learn with fun:

Complete the following table with appropriate answers and also draw diagrams showing different forms of reproduction involved:

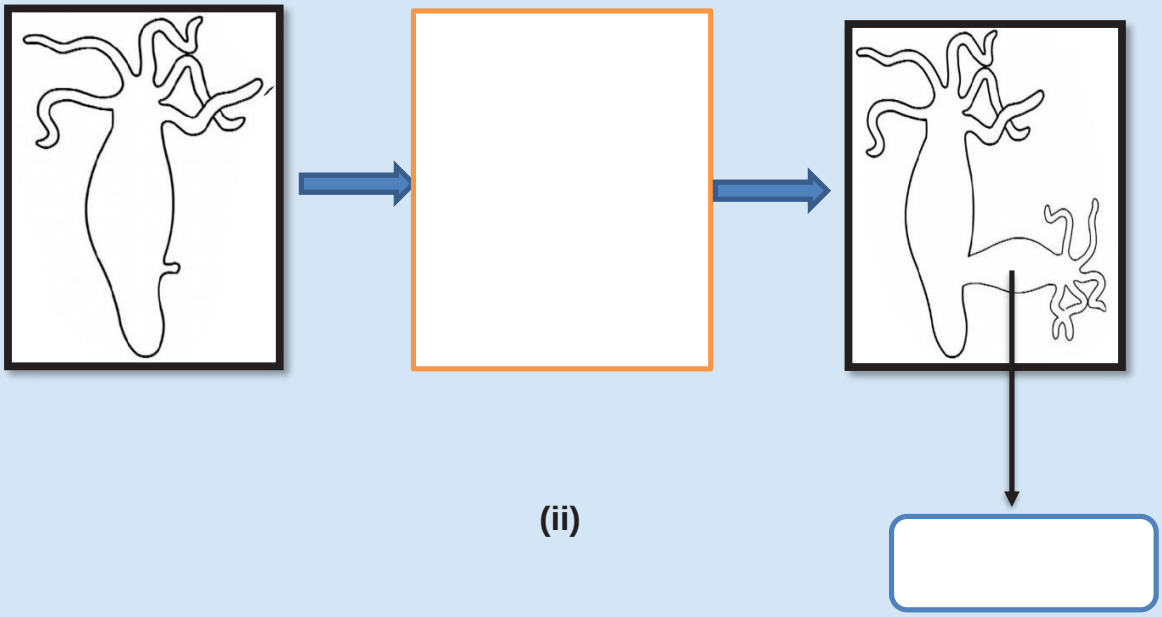
S. No.	Mode of reproduction	Sexual/Asexual	Single Parent/ Different Parents	Characteristic Feature	Examples
1	Budding				
2					Human being
3	Binary Fission				Amoeba
4	Fragmentation	Asexual			
5				Vegetative part carries out the reproduction	
6					Rhizopus

DIAGRAM

Q.1 (a) Complete, draw and label different modes of asexual reproduction:



(i)



(ii)

(b) How does figure (I) differ from figure (II)?

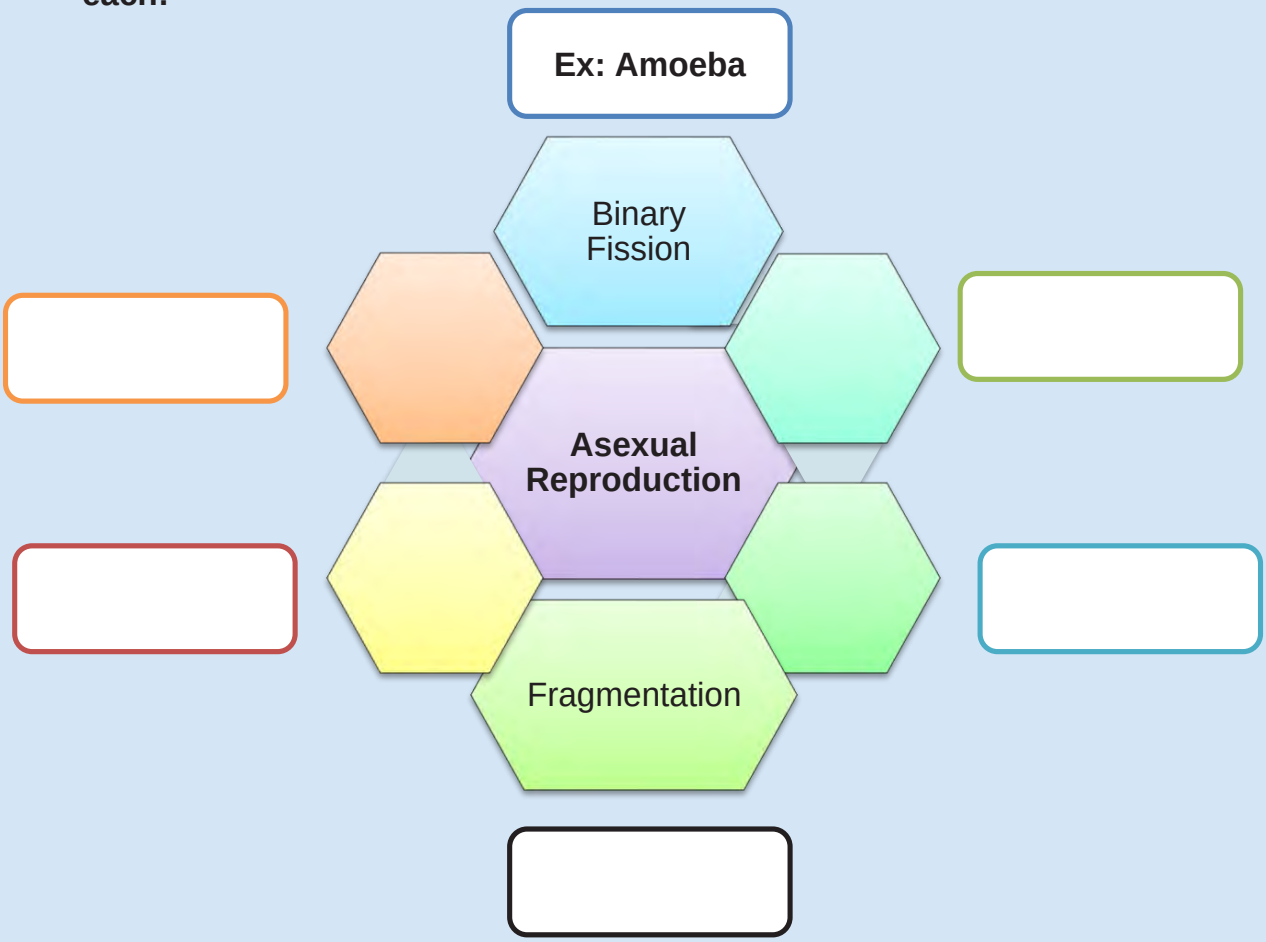
Figure (I)	Figure (II)

(c) Give some more examples other than those mentioned above:

_____

_____

Q.2 Fill the blank spaces with appropriate answers and give one example of each:



Date _____

CHAPTER–10: REACHING THE AGE OF ADOLESCENTS

ACTIVITY SHEET- 1

Learn with fun:

'X' and 'Y' are two friends who have entered the adolescent age. They were walking towards their home. 'X' started teasing 'Y' for his 'girlish' voice and started showcasing his hair that he got on his upper lip and addressed himself as 'real man' with a strong and bold voice. After listening to this, 'Y' felt embarrassed. He decided to go home and ask his mother why he is so different from 'X' and if something is wrong with him?

1. **Although X and Y are of same age group, still they are different why?**

_____

_____

_____

2. **Do you think there is something wrong with Y? Justify your answer.**

_____

_____

_____

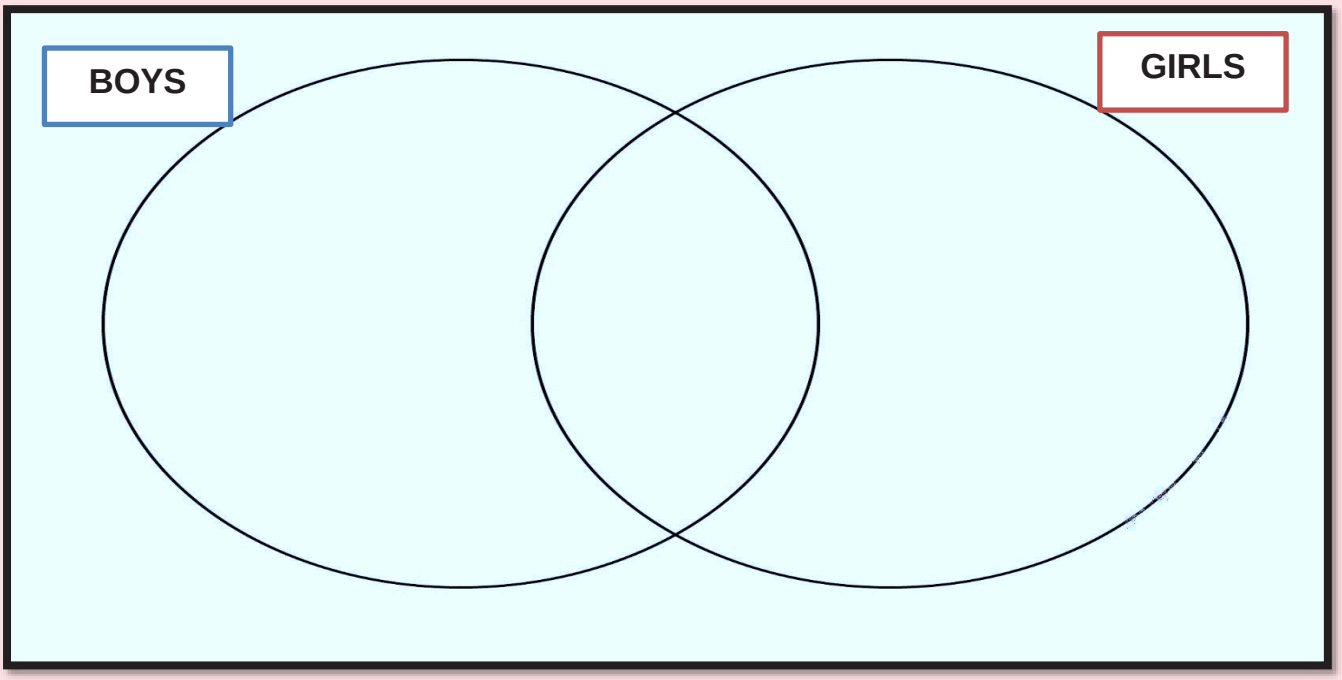
3. **What behaviour X displays here?**

_____

_____

_____

Q.1 Complete the Venn diagram with the appropriate changes that occur in boys and girls at puberty.



Q.2 One Day 13 yrs old Ravi and Reena who were twins were helping their mother in completing the house chores and their mother asked Ravi to pick up the basket from a certain height. But Ravi was not able to reach the place and so Reena helped her mother and picked the basket and gave it to her. Ravi felt embarrassed on the fact that he being male is not of that much height as his sister Reena was. Although his father is a tall man in the family.

(a) Why do you think there is variation in height of Ravi and Reena though they belong to the same age?

_____

_____

_____

(b) Do you think that the height of Reena has any relation with that of her father?

_____

_____

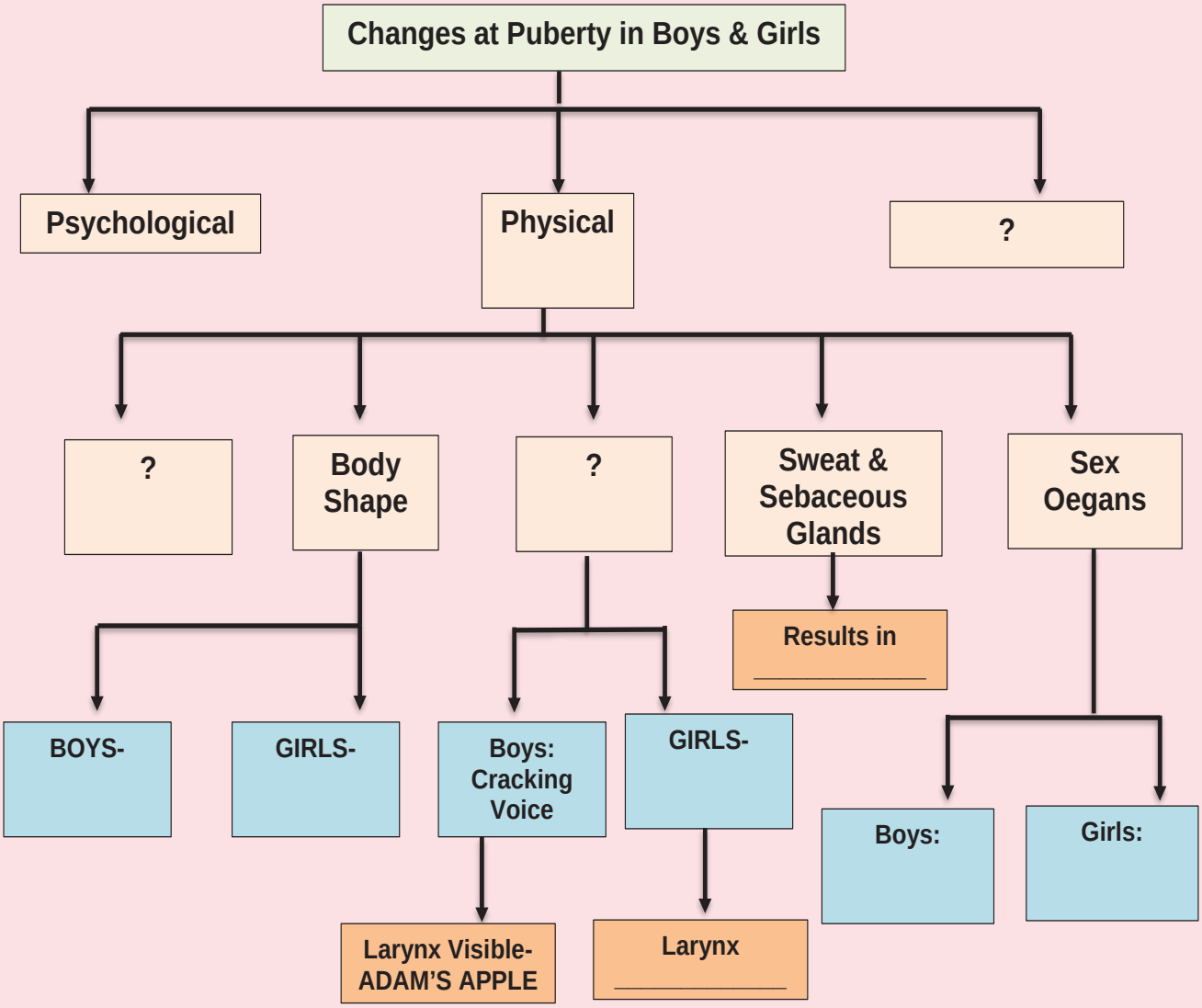
_____

Date _____

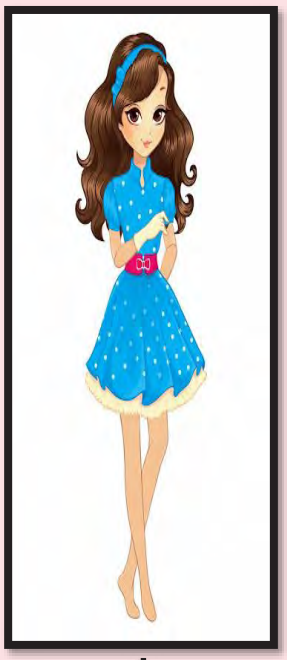
ACTIVITY SHEET- 2

Learn with fun:

Complete the following flowchart with suitable answers:



Male and Female Body. You can add more changes that take place at puberty.



Voice Breaks
Beard Grows
Underarm Hair Growth
Body hair grows
Breast development
Chest & shoulder broaden
Hips broaden
Menstruation starts
Sweat glands become active
Penis grows
Pubic hair grows

Q.2 Explain the role of Hormones in initiating the reproductive function:

_____

_____

_____

_____

_____

Q.3 Match the correct order of the Menstrual cycle in the life of the human females:

1st	Blood and the Lining of the uterus also comes out of the body
2nd	Stoppage of the Menstrual Cycle- Menopause
3rd	Ova Released by one of the Ovary
4th	Unfertilized Ova leaves the body through Vagina
5th	Beginning of the 1st Menstrual Flow- Menarche
6th	Thickening of the Uterus Wall

Date _____

ACTIVITY SHEET- 3

Learn with fun:

One day Reena visited her village with her mother. She found that her aunt is pregnant and all were happy to see that. Then one day she heard her uncle talking to her grandparents about the determination of gender of the child as her aunt was already having two daughters before and they were planning to get it tested. When Reena heard this she went to her mother saying “My Teacher told me in the class that determining the sex/gender of the child is a punishable offence and this practice is banned in India”. Her mother asked her to stay quiet and let this happen but Reena was not at all happy to see such malpractice. So she called the Police and informed about the incident to them to which everyone was unhappy with Reena. When she narrated the whole incident in the class, she got a lot of appreciation from all her peers and teachers.

1. **What do you think about the practice of Sex/Gender determination, is it good or bad? Justify your answer with reasons.**

_____

_____

_____

_____

2. **What values did Reena display here in this incident?**

_____

_____

_____

_____

3. **Do you think the action of Reena’s mother on the incident is justified or not?**

_____

_____

_____

_____

4. **Ask your parents/elders that whether such incidents have ever happened in their family or with friends and write down the same in brief.**

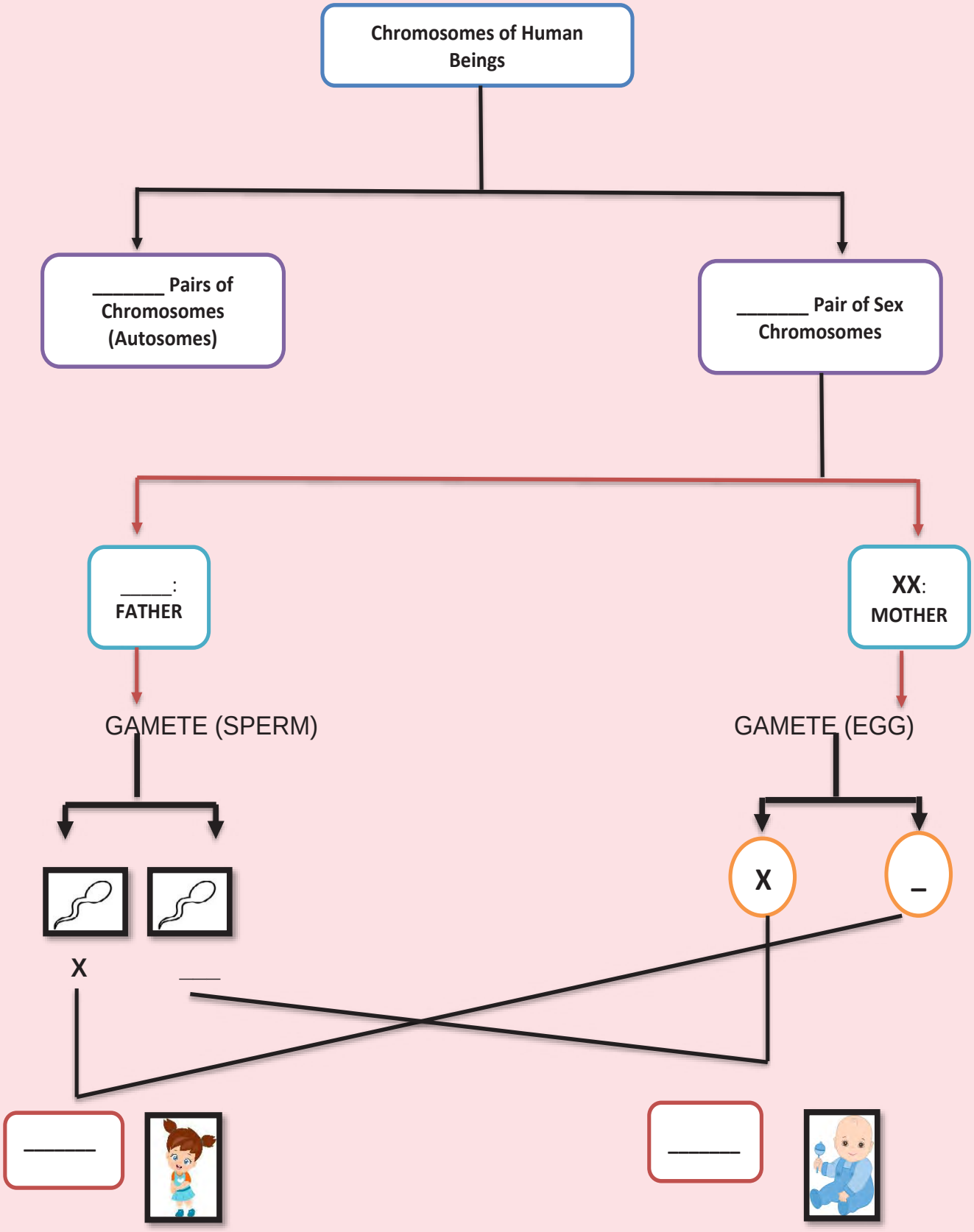
_____

_____

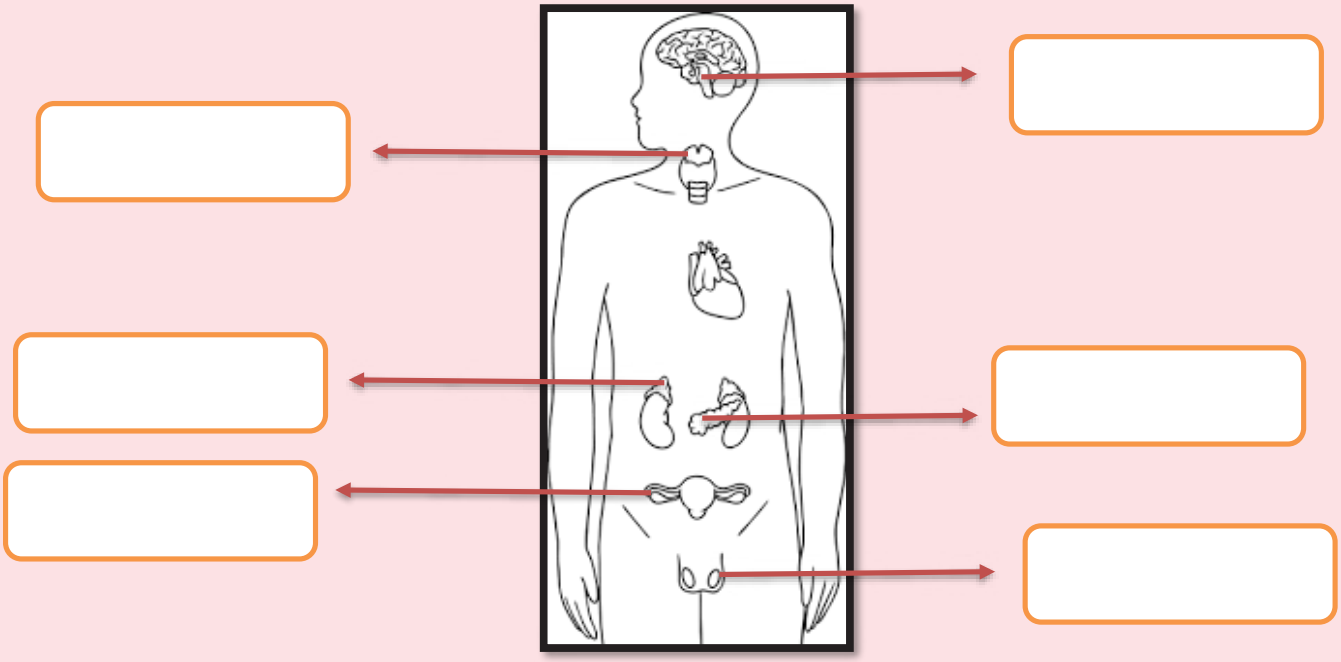
_____

_____

Q.1 Complete the following:



Q.2 Label the following diagram and complete the table given below:



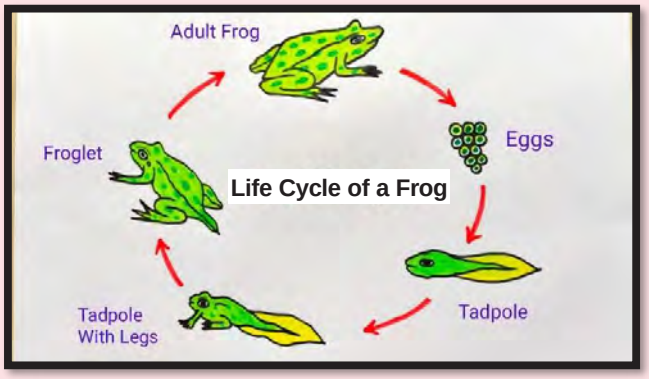
Name of the Gland	Hormone secreted	Function
Pituitary		
	Estrogen	
	Thyroxine	
Testes		
		Maintains salt balance in the body
		Controls Blood Sugar Level

Date _____

ACTIVITY SHEET- 4

Learn with fun:

Observe the given diagram carefully and answer the following questions:



1. **Name the larva form of frog.**

   _____

2. **Name the process of transformation of larva into adult.**

   _____

3. **Which hormone is responsible for the transformation of larva into adult?**

   _____

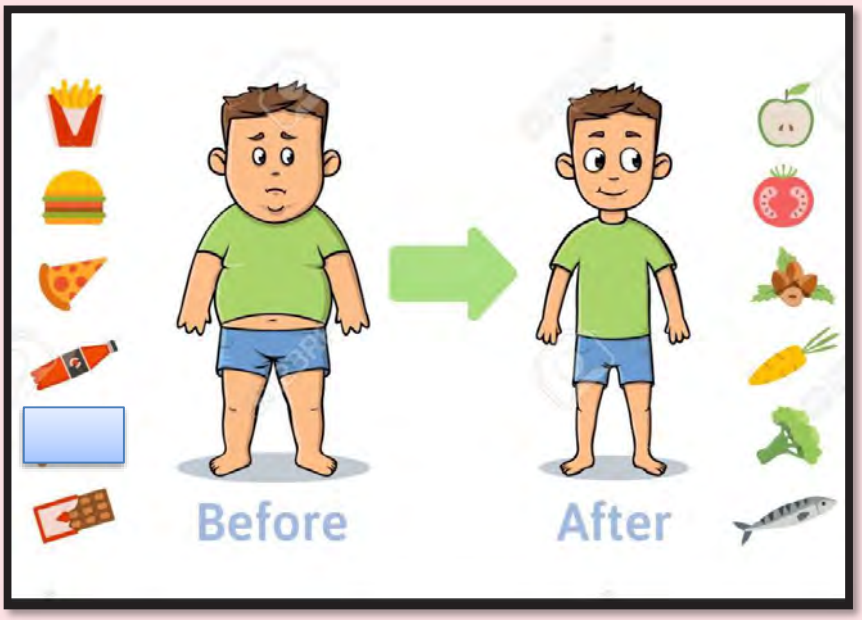
4. **What will happen if the water in which the larva of the frog is growing doesn't contain sufficient iodine?**

   _____

   _____

   _____

Q.1 Observe the given picture and answer the questions:



(Source: 123rf.com)

(a) What do you observe in the above picture?

_____

_____

_____

_____

(b) What are the reasons of the condition of the Boy in the earlier situation?

_____

_____

_____

_____

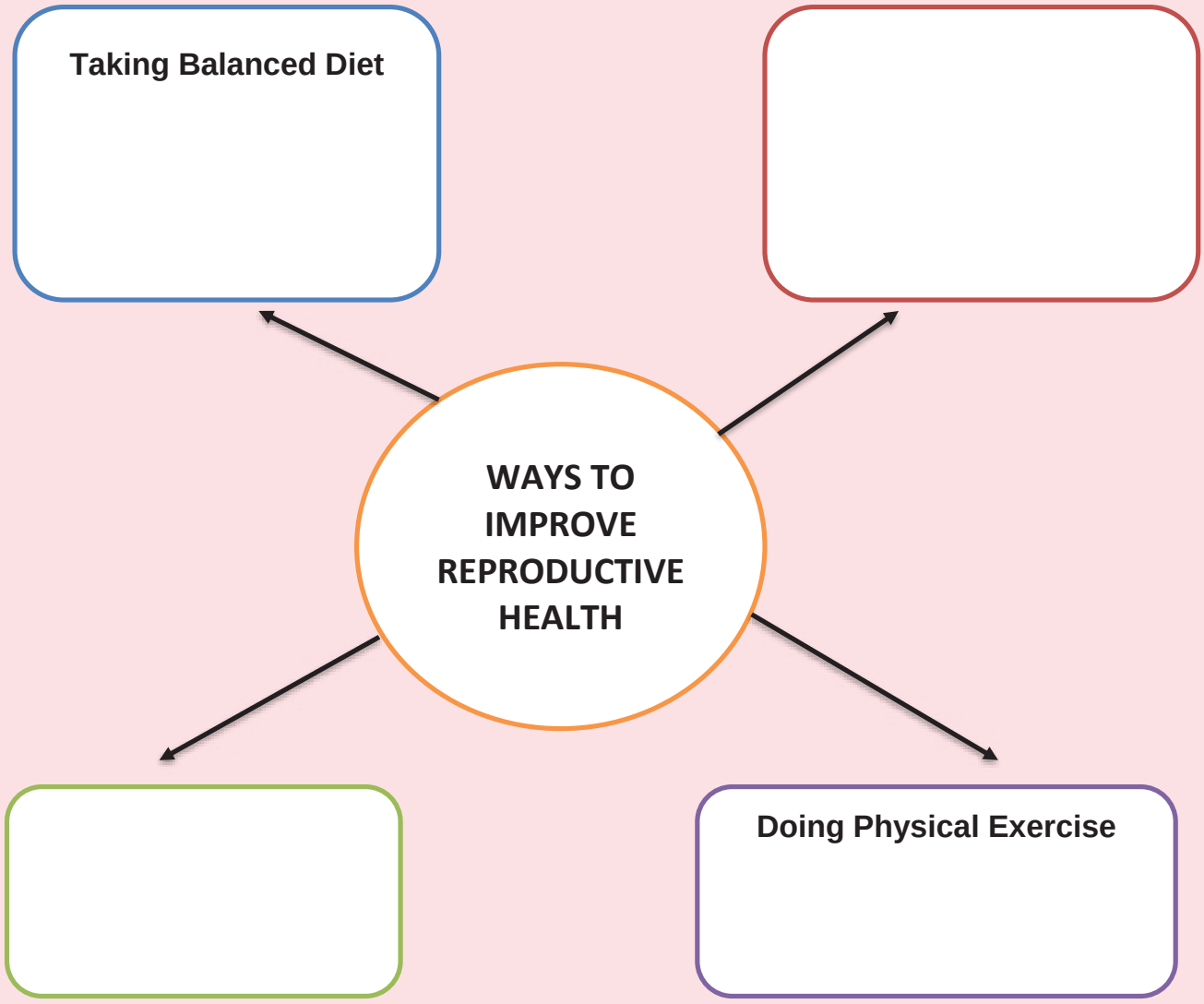
(c) How was Ravi able to cope up and improve the condition afterwards?

_____

_____

_____

Q.2 Complete the following with appropriate answers and write one use of each:



Q.3 One day when Reena was returning home from the school, she saw Ravi going somewhere with his friends. Ravi used to come to home with his friends but that day Reena felt that Ravi is up to something. So she started following him and found that Ravi's friends were smelling something in the handkerchief. Then another friend of Ravi took a syringe and

was about to insert the same in Ravi's body. Ravi initially stopped them but later on he agreed as his friends started teasing him a lot. When they saw Reena approaching towards them, all ran away. Then Reena scolded Ravi and said that she shall complain about the incident to their parents to which Ravi apologized and promised Reena not to repeat the same action ever in his life.

(a) What do you think Ravi and his friends were smelling?

_____

_____

(b) What effect does it might have on the kids?

_____

_____

_____

(c) What might have happened if the same syringe was used by all the boys?

_____

_____

_____

(d) What values did Reena display here?

_____

_____

_____

(e) What will you do if you are at Reena's place?

_____

_____

Date _____

CHAPTER – 11: FORCE & PRESSURE

Force-Push or Pull

ACTIVITY SHEET– 1

Learn with fun:

You must have played tug of war or have seen it in your school

Consider two teams,Team A and Team B playing tug of war. Both the teams pull the rope towards them to win. At the end of the game, there could be 3 possibilities:-

Case I - TEAM A wins.

Case II - TEAM B wins.

Case III - Game draws and no team wins.

In case I,

Team A applied more force and pulled the rope towards them.

Now write the statement for rest 2 cases-

In case II,

_____

In case III,

_____

Also show/mark the direction where the winning team has applied the force in the circle with an arrow.

TEAM A

TEAM B

Q.1 Whether push or pull:

The batsman hits the ball.

It is a _____

The cyclist paddles the bicycle.

It is a _____

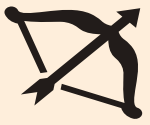
A crane is lifting an object. It is a _____

The foot baller kicks the football.

It is a _____

The driver strikes the car into a lamp post.

It is a _____

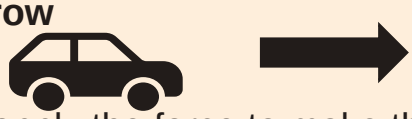


The arrow is stretched on bow. It is a _____

Find out more actions from your surrounding where some force is applied and enlist them. Write down whether it is a pull or push.

1. Opening the lid of a box. _____
2. Closing the door. _____
3. _____
4. _____
5. _____

Q.2 Take a toy car and put it on the table. Now move the car in the direction shown with the arrow



(a) In which direction will you apply the force to make the car move forward direction (Put the arrow in the Circle).

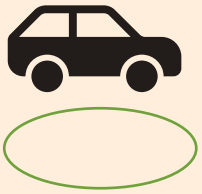
(b) Mark the direction of the force and the direction of the motion in the circle with the help of the arrow.

Direction of Force

Direction of Motion

(c) If you have to stop the car moving in the direction shown, in which direction you will apply the force to stop it? Show with the help of an arrow.

(d) If you have to increase the speed of the car moving in the direction shown, in which direction will you apply the force?



Q.3 Read the statements below and mark them (✓) or (X).
Also write down the correct statement if incorrect.

a) Force is required to start or stop a motion. ( )

_____

b) To stop a moving Car, we apply the force in the same direction as of motion. ( )

_____

c) To move a car, we apply the force in the same direction in which the motion is required. ( )

_____

d) We can increase the speed of the moving object by applying force in the opposite direction of the motion. ( )

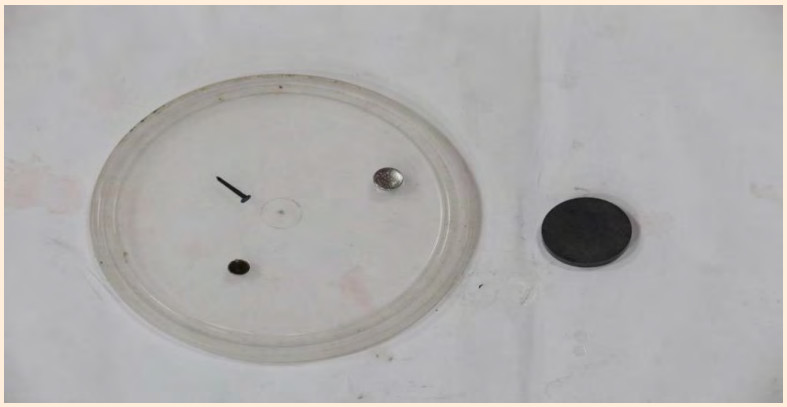
_____

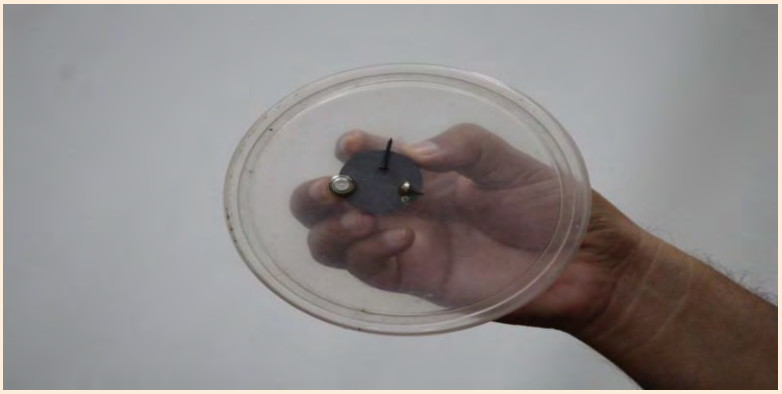
Date _____

ACTIVITY SHEET- 2

Learn with fun:

Take a piece of paper or any transparent plastic lid as shown in picture and sprinkle some iron filings/iron scrap on it. From the bottom of the paper/transparent plastic lid, move the magnet in different directions: -





1. **What do you observe?**

   _____

2. **The movement of the iron filings is due to _____ (magnetic/muscular) force.**

   Repeat the activity at various surfaces like glass, cardboard etc. and record your observations.

Material Used	Observation	Conclusion

Q.1 Find out the practical applications of the magnetic force in daily life.

(a) Compass – Needle moving & orienting in a magnetic field.

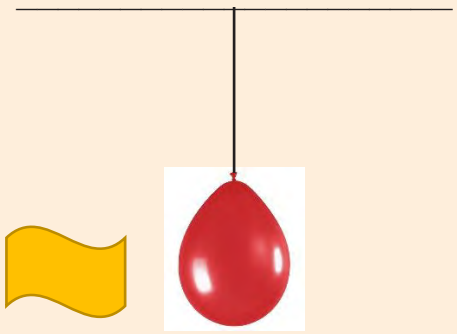
(b) _____

(c) _____

(d) _____

Learn with fun:

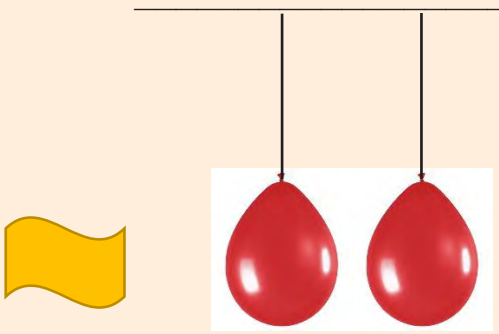
Take a balloon, inflate the balloon and tie it with a string. Hang it on a stick. Now rub the balloon with a Synthetic or woollen cloth and bring the cloth near the balloon.



1. What do you observe?

_____

Inflate one more balloon and hang it in the same way close to the first balloon. Rub both the balloons with the same synthetic cloth and bring both the balloons close to each other.



2. What do you observe?

_____

3. **Which force is responsible for the movement of balloons?**

4. **Now repeat the process with different types of materials like woollen cloth, newspaper etc. and record your observation.**

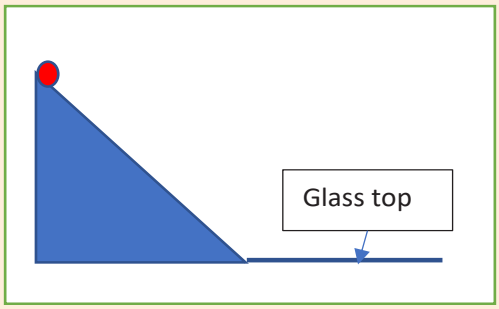
Q.2 Fill in the blanks:

(a) During dry weather while combing the hair,they move away from each other. The force responsible for this phenomenon is _____ (gravity/electrostatic) force.

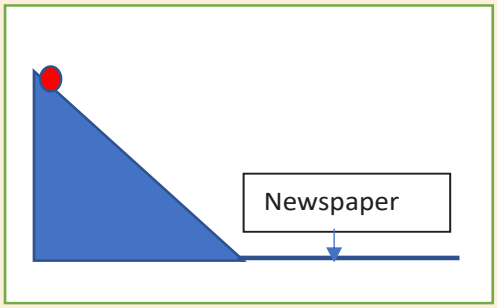
(b) The hair move away from each other as they get _____ (charged/discharged) due to combing.

(c) As all the strands of the hair gets the same charge therefore they _____ (attract/repel) each other.

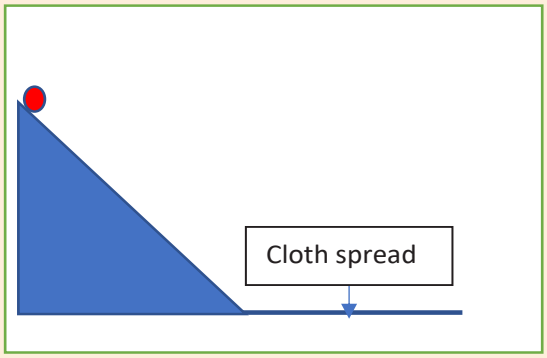
Learn with fun:



Make an inclined surface with the help of a cardboard/book on the table with glass top. Now gently roll a marble from the top of inclined surface. Mark the point where the marble stops.



Now place a sheet of newspaper at the bottom of the inclined surface. Again gently roll the marble from the top of the inclined surface and mark the point on the newspaper where the marble stops.



Stretch a piece of cloth at the bottom of the inclined surface. Ensure the cloth does not have creases. Again gently roll the marble from the top of the inclined surface and mark the point on the cloth where the marble stops.

1. **Rank the nature of surface on a scale of 1 to 10, 10 being the smoothest and 1 being the roughest.**

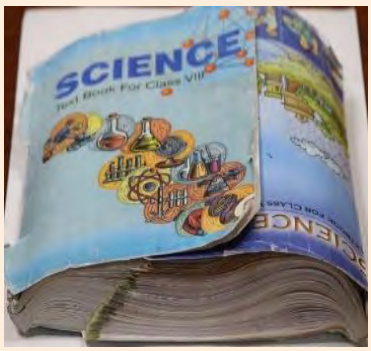
Nature of Surface	Rank
Glass	
Newspaper	
Cloth	

2. **In which case the marble travels the minimum distance?**
3. **In which case the marble travels the maximum distance?**
4. **The force which acted between the two surfaces in all cases is _____ (magnetic/friction) force.**

Learn with fun:-

Take two notebooks/text books with soft cover of same size.

Now open the books in half and cling them together by inserting in each other. Now try to pull them apart. What do you observe?



Then interlace the pages of the books by placing one page from each book alternatively. Ensure that the pages overlap for at least 3-4 inches. Repeat the process for all the pages till the cover of the books is reached. Now pull the books apart. What do you observe?

1. **In which case you applied more force to pull the books apart?**

2. **The more the area of contact, the greater is the force of _____ (friction/electrostatic)**

Q. 3 Give reasons for the following observations:

(a) Holding the things with oily hands is difficult.

(b) Driving a vehicle with flat tyres is dangerous.

(c) Footwear soles have grooves in it.

(d) Oiling of parts of machines should be done regularly.

Q.4 Take one plastic ball, one rubber ball and one football or any other object having different masses and densities. Drop them simultaneously from the same height.

(a) Do all the balls/objects fall at same time?

(b) The free fall of the balls/objects is due to _____ force.

Q.5 Accept the challenge:

Take a metal scale and fix a magnet on it. Hold the scale between two surfaces. Now start bringing the metal paper clip very slowly towards the magnet longitudinally from the bottom of the set up. Now try to find out the position where the paperclip suspends in air freely.

(a) Which forces acted on the metal clip?

(b) How did the metal clip suspend in air?

Date _____

ACTIVITY SHEET – 3

Learn with fun:

Take a water bottle and make 3 holes of same size at the same level on the bottle. Fill it with water and watch for the streams of water coming out of the 3 holes.

Now take another bottle and make 3 holes of same size at different levels. Fill the bottle with water and watch for the streams coming out of the holes

On the basis of above two activities, answer the following questions:

1. Do all the streams coming out of the three holes in the first bottle fall at equal distance on floor? (Yes/No)

   _____

2. Do all the streams coming out of the three holes in the second bottle fall at equal distance on floor? Yes/No

   _____

3. Which hole of the second bottle threw the water stream farthest from the bottle on floor?

   _____

4. Which hole of the second bottle threw the water stream closest to the bottle on floor?

   _____

5. What happens to the water streams when the water column reduces?

_____

6. Do the water column above the holes play any role in creating pressure? Yes/No

_____

7. Why does the water coming out of holes slow down when air column increases?

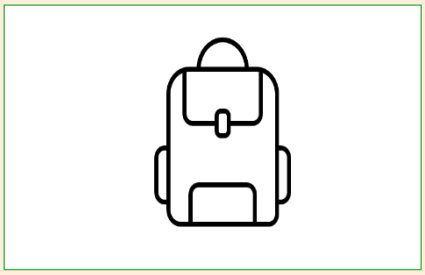
_____

8. The air pressure inside the bottle starts _____ (increasing/decreasing) and pressure exerted by the water column starts_____(increasing/ decreasing)

_____

9. The air pressure inside and outside the bottle controls the flow of water. Yes/No

Q.1 Observe the following two bags and answer the questions:



(a) Which bag will be more comfortable if carried on shoulder the bag with thick strasp or the bag with thin straps?

_____

(b) Give reason for your choice? {Hint:-Compare area of contact between strap of bag and shoulder

_____

Date _____

CHAPTER–12: FRICTION

Friction-Factors affecting Friction

ACTIVITY SHEET– 1

Learn with fun:

Make an inclined surface with the help of a cardboard/ wooden plank. Now roll a plastic ball and a plastic box simultaneously from the top of the inclined surface.

Which one falls first?

_____

1. On the basis of your observation state which one of the following statements is correct? If incorrect, correct the statement.

(a) The plastic ball and plastic box reach the floor at different time due to the difference in area in contact with the inclined surface. ( )

_____

(b) The force acting between the two surfaces is gravitational force. ( )

_____

(c) The more the area of contact between surfaces, the less in the force of friction. ( )

_____

(d) The friction force is directly proportional to the area of contact between the two surfaces. ( )

_____

(e) Draw the areas touching each other (area of contact) in both cases. ( )

Area of contact of ball and inclined surface	Area of contact of the box and inclined surface

Learn with fun:

Fix a table mat or door mat or sand paper on a cardboard with help of glue and put it on a surface. Now gently roll a small ball on it and mark the point where it stops. Now press a very thin plastic sheet on it and again roll the plastic ball and mark the point where it stops.

Distance covered in situation 'A'

(A)

Distance covered in situation 'B'

(B)

When the plastic sheet was placed on the surface, what was the impact on the friction between the ball and the surface on which it was rolling? Tick the correct answer:

i. Increased

ii. Decreased

iii. No change

Q.1 In the above activities we noted that smooth surfaces have less friction while rough surfaces have more. On the basis of your observations. Tick the correct answer:

(a) If we apply oil on the door hinges, the friction will

i. Increase
ii. Decrease
iii. Disappear
iv. Will remain unchanged

(b) The following is used to sharpen the blade of knife

i. stone
ii. plastic
iii. glass
iv. wood

(c) If it is raining and you have the following options to walk, which one will you choose:

i. marble floor
ii. bricked floor
iii. mud
iv. cemented floor

Date _____

ACTIVITY SHEET– 2

Learn with Fun:

Take your geometry box and fix a thread with the help of a tape at the bottom of the box. On the other end of the string, tie a paper cup as the pan of the beam balance as shown in the picture. Now arrange the set up on a table so that the geometry box is on the one end of the table and the paper cup suspends on the other end.

Now take coins/pebbles and start adding one by one in the pan till the box reaches the other end of the table surface. Count the number of pebbles used to do so.

Now put 5 pencils/ pens at the bottom of the geometry box and repeat the process. Count the number of pebbles used to do so.

1. In which case less pebbles were required to move the box from one end of the table to the other end of the table and why?

_____

2. Which frictional force played in (static/sliding/rolling)?

(a) First case _____

(b) Second case _____

Q. 1 Which friction force provides the easy movement of the objects?

_____

Q. 2 Now look at the pictures below and answer:

(a) Which one is easier to pull-trolley bag or bori?_____

(b) Which friction acts between the trolley bag and the floor?

_____ (Sliding/Rolling) friction.

(c) Which Friction acts between bori and the floor? _____(Sliding/Rolling) friction.

(d) Which friction provides more resistance? _____(Sliding/Rolling) friction.

(e) The _____ (rolling/sliding) friction is stronger than the _____(rolling/sliding) friction, it increases as the area of contact between the two surfaces is_____ (more/less).

(f) We sprinkle the powder on the carrom board.

The sprinkling of the powder makes the surface of the carrom board _____ (smooth/rough).

The smooth surface makes the movement easy, as the friction is _____ (increased/decreased.)

Q.3 Suggest few other ways to reduce friction in the processes you have observed or seen around you.

_____

_____

_____

Date _____

ACTIVITY SHEET– 3

Learn with fun:

Take a paper and just throw it in the air and mark the point where it falls. Now make an aeroplane with the same paper and throw it in the air by standing at the same point. Mark the point where it falls.

1. Did the paper in both cases travelled the same distance in air? Yes/No
2. Does the air apply any friction on the paper? Yes/No
3. The air applied the friction in both cases, then why did the paper in both cases travelled different distance?

   The _____ of the paper on which the air applied friction is different in both cases.

Learn with Fun:

Take two glasses, one filled with plain water, and one filled with sugar solution (chashni). Simultaneously drop two coins in both the glasses.

Which coin touches the bottom of the glass first? _____

Why is the speed of coin slow in sugar solution?

Thicker solution offers _____ friction.

Q.1 Compare the structure of an Aeroplane and a Bird on the following parameters: -

S.no.	Parameter	Aeroplane	Bird
1.	Body Shape		
2.	Weight		
3.	Wings		
4.	Tail		

Q.2 Draw/paste the pictures of a Primitive Aircraft and a Modern Aircraft.

Primitive Aeroplane

Modern Aeroplane

Now explore the evolution of the Aircraft and find out which things

(a) are consistent: -

_____

(b) have been modified: -

_____

(c) have been omitted: -

_____

Q.3 An aeroplane has a pointed or tapering front head to (choose the correct option):

(a) increase the fluid friction

(b) decrease the fluid friction

(c) to look good

(d) for no reason

Q.4 Rub your hands for 30 sec and feel the palms heated. Why do you think it happened?

The two surfaces of palms repeatedly move over each other and _____sliding/static friction is _____ increased/decreased.

Q5. Who am I?

My other name is fluid friction. I apply resistance to the movement of objects in the air and water.I am more in thicker liquids. I increase with increase in the speed of air.

_____

Q. 6 Think of the examples from daily life and draw/paste pictures where friction acts as:

Friend	foe (enemy)

Date _____

CHAPTER–13: SOUND

Sound and vibration

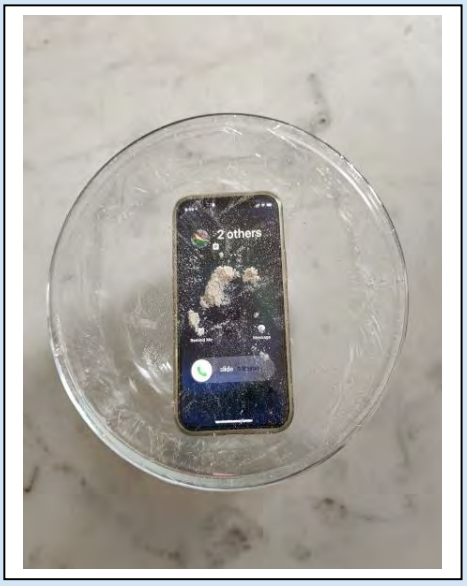
ACTIVITY SHEET– 1

Learn with fun:

Strike a metal surface with rod and try to listen to the sound. Strike it again and feel the vibrations by touching the surface of metal.

Take a metal dish and pour water in it. Strike the edge of the dish with a spoon. Hear the sound produced, strike it again and watch the ripples produced due to vibrations.

Put a mobile phone in an empty glass container. Stretch a thin polythene on the surface of the container and fix it with help of a rubber band if required. Put some flour on the stretched polythene surface as shown in the figure. Now give a ring on the mobile in the container and observe the flour particles dancing.



1. **Prepare your own musical instruments from the things around you. (eg. drum made by tin can, straw panpipes)**

2. **Compare the musical instruments made by you and your friends. Write the different vibrating parts of the instruments made by you and your friends.**

_____

_____

_____

3. **Your instrument resembles with which of the following:**

Musical Instrument

4. **Vibrating parts of the instruments made by you and your friends:**

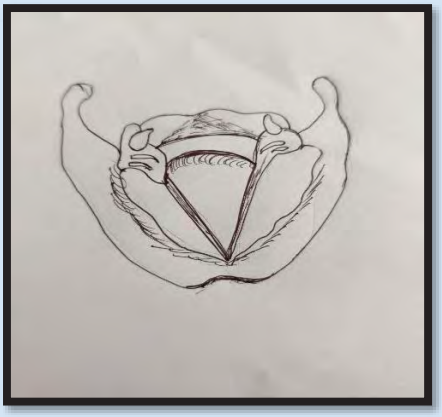
S. No.	Name of Instrument made	Vibrating parts	Resembles with
1.			
2.			
3.			
4.			
5.			
6.			

Q.1 Based on your observations, complete the following:

wire, membrane, oscillation, vibrating, voice box

(a) Sound is produced by _____ objects.
(b) The vibrating part of table which produces sound is _____.
(c) The vibrating part of guitar is _____.
(d) The sound is produced by _____ in human beings.
(e) To and fro motion of an object around its mean position is called _____.

Q.2 Given below is a diagram of human voice box. Put a circle ( ) around the part that produces sound.



Q.3 (a) Given below is the picture of Human Ear model, label the Eardrum, where vibrations are produced.

(b) Number the boxes to trace the path of the sound from the surrounding to the brain.

Brain	Ear Canal	Ear Pinna
Ear Drum	Internal Ear	

Date _____

ACTIVITY SHEET– 2

Learn with fun:

1. Ask your friend to stand outside the room and clap loudly. (sound in air)

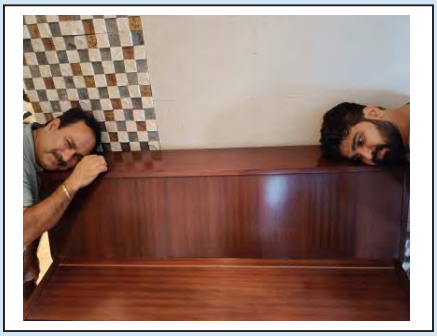
   Do you hear the sound of clap? Yes/ No (encircle your answer).

2. Strike 2 spoons on the inner wall of a jar filled with water and listen the sound produced. (sound in water)

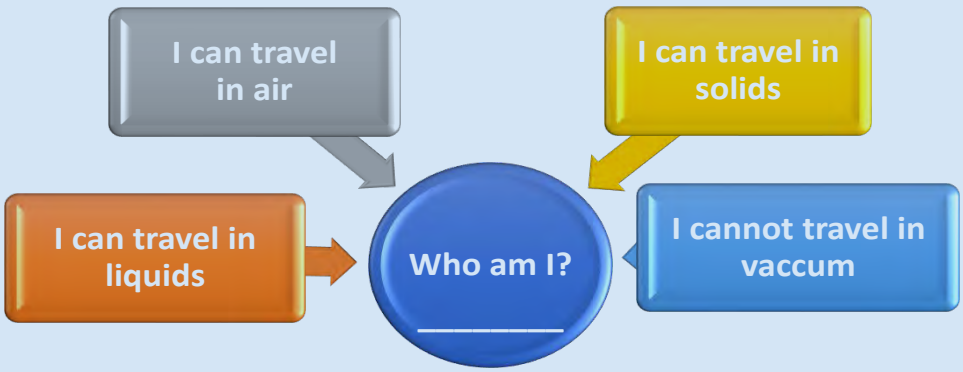
   Do you hear sound of spoons? Yes/No (encircle your answer).

3. Ask your friend to scratch the table at one end and listen to sound at the other end by placing your ear on the table. (sound in solid)

   Do you hear any sound? (Yes/No) (encircle your answer).



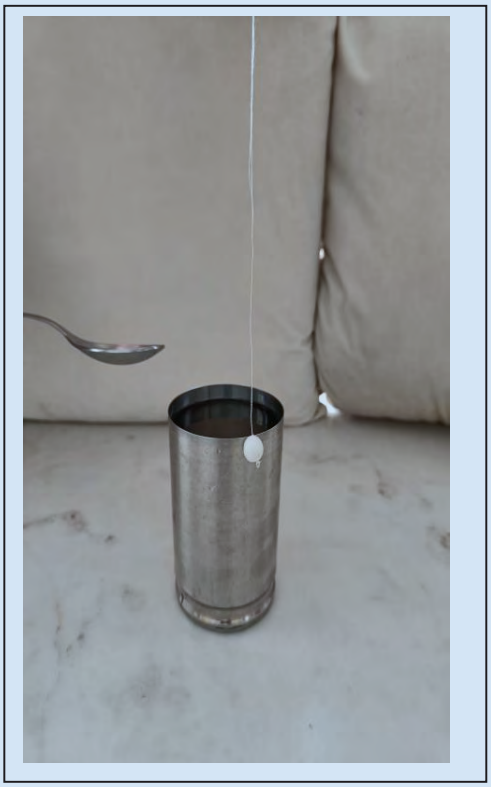
Q.1 Answer the following:



Date _____

ACTIVITY SHEET– 3

Learn with fun :



Take a steel glass, suspend a light thermocol ball with help of a thread such that it touches the rim of the glass.

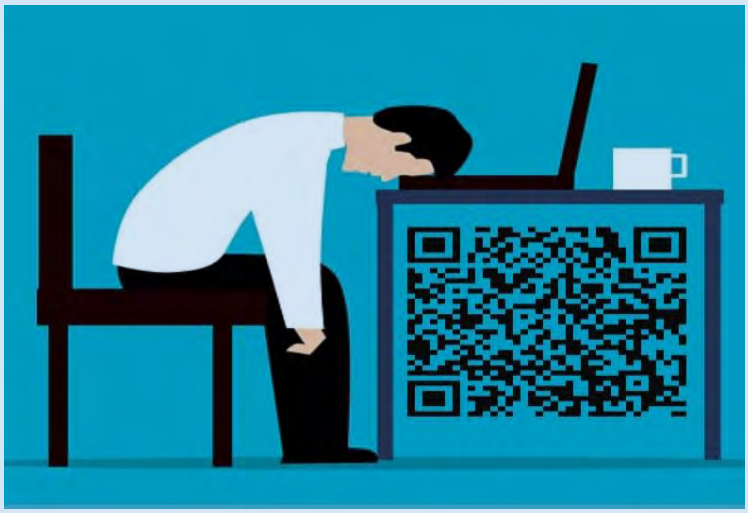
Now strike the glass with a spoon and observe.

1. **Do you hear a sound? (Yes/No).**
2. **Do you see the ball displaced? (Yes/No).**

Now strike the glass of the rim harder and observe

1. **Do you hear the sound louder than before? (Yes/No)**
2. **Do you see more displacement in the ball? (Yes/No)**
3. **Louder the sound produced, more the displacement. (Yes/No)**
4. **The displacement of the thermocol ball is an indicator of the amplitude of the sound. (Yes/No)**

Download QR code scanner from playstore on your mobile.



Scan the QR code given in above picture and watch the activity how the sound is produced, and answer the following questions:

1. **Do all the vibrating objects produce sound? (Yes/No)**

2. **Cite examples where vibrations are visible but no sound is heard.**

   _____

3. **Do you see vibrations every time when a sound is produced? (Yes/No)**

4. **Cite examples where vibrations are visible along with sound.**

   _____

Q.1 Few sounds are enlisted here. Categorise and write them in respective boxes depending upon the quality of the sound.

voice of a woman, voice of a man, chirping of birds, roaring of a lion, sound of a tabla, sound of a sitar, meow of a cat, barking of a dog.

Shrill Sound/High Pitched (Thin Sound)	Grave Sound/Low pitched (Thick Sound)

Q. 2 Take a pendulum and suspend it with the help of a pencil. Now fix it on a stand. Set the timer on mobile phone for 10 seconds. Now start the timer and simultaneously release the pendulum from one side gently. Count the no. of oscillation made in 10 sec.

Now calculate Frequency-

Frequency=Oscillation/Time

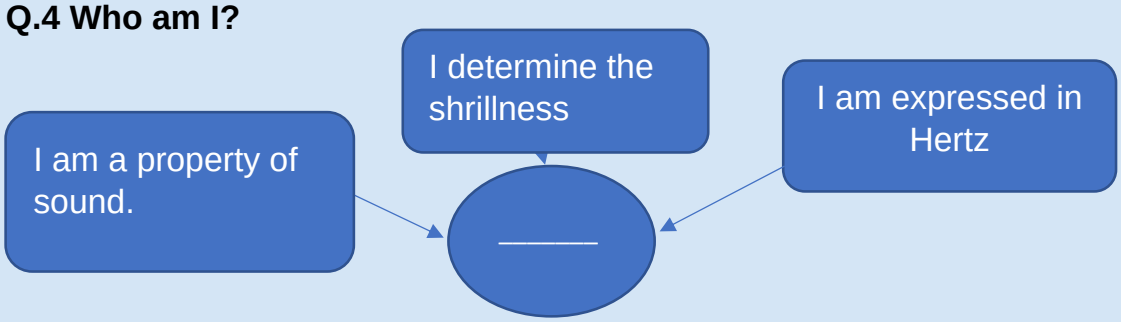
= _____/ 10

=_____ Hertz

Q.3 The table below contains oscillations made by an object and time for the same. Oscillations made by an object in 1 sec. (frequency) is given. Complete the table.

S.No.	Time	Oscillations	Frequency=Oscillation/Time
1.	1 sec	1	1/1= 1 Hertz
2.	2 sec	8	8/2= 4 Hertz
3.	3 sec	15	15/3= ___ Hertz
4.	5 sec	25	_____=____ Hertz
5.	5sec	40	_____= 8 Hertz
6.	4 sec	40	_____= _____ Hertz

Q.4 Who am I?



Q. 5 Here are few rules and regulations enlisted by Central Pollution Control Board.

(a) No Loudspeaker usage in public areas without permission
(b) No public address between 10 p.m. to 6 a.m.

Find out few more on internet and write-

(a) _____
(b) _____
(c) _____

Q.6 Discuss and write with your friends and write why these rules were framed.

_____

_____

_____

Q.7 Write down some of your suggestions to decrease the noise pollution in your locality.

(a) _____
(b) _____
(c) _____

Date _____

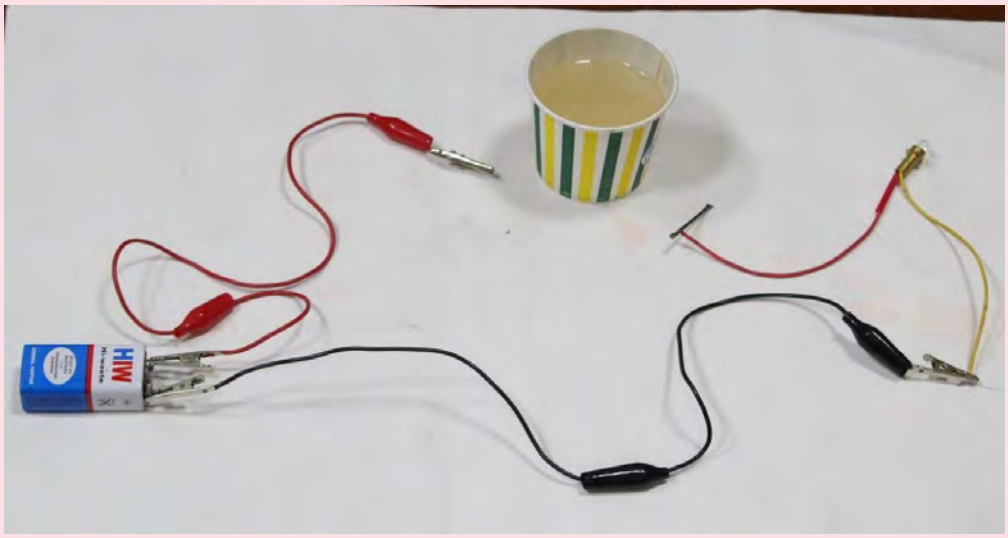
CHAPTER–14: CHEMICAL EFFECTS OF ELECTRIC CURRENT

Chemical effects of electric Current

ACTIVITY SHEET- 1

Learn with fun:

Take a tester, as used in class 7 to test whether a given substance is a good conductor of electricity or not. Take a beaker or a cup and put some salt solution in it. Test with the tester whether it is a good conductor or not. Try with different solutions and write your findings in the given table.



S.No.	Solution	Good conductor or not
1.	Salt solution	
2.	Sugar solution	
3.	Lemon juice	
4.	Vinegar	
5.		

Q.1 Fill in the blanks:

Rubber, cell, acids, bases, salts, chemical, heating effect of current

(a) Most liquids that conduct electricity are solutions of _____ ,_____ and _____.

(b) The passage of an electric current through a solution causes _____reaction.

(c) An electric lamp glows due to _____.

(d) _____is an example of an insulator.

(e) A source of electricity is called a _____.

Q.2 State true or false:

(a) Adding lemon juice to water makes it a good conductor of electricity. ( )

(b) Electrolysis is a chemical change. ( )

(c) Copper sulphate solution is yellow in colour. ( )

(d) Distilled water is good conductor of electricity. ( )

(e) If electrodes are immersed in water and a current passed, bubbles of oxygen and carbon dioxide are produced. ( )

Date _____

ACTIVITY SHEET- 2

Learn with fun:

Observe the given circuit diagram for electroplating of copper. A copper plate or wire is attached to the positive terminal of the battery and an iron safety pin to the negative terminal. These are dipped in copper sulphate solution in a beaker, as shown in the figure.

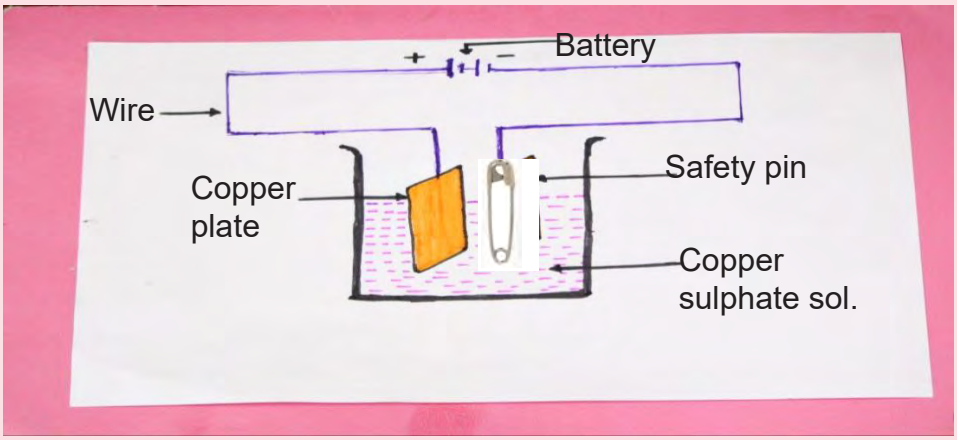
1. What do you think will happen to the colour of the copper wire and to that of the safety pin?

_____

_____

2. Why do you think that happens?

_____



Q.1 Give reason for the following:

(a) Chromium plating is done on car parts, bath taps, etc.

_____

_____

_____

(b) Gold and silver is electroplated on less expensive jewellery.

(c) Zinc is electroplated on iron objects.

Q.2 Draw a labelled circuit diagram showing electroplating of copper on iron object:

Date _____

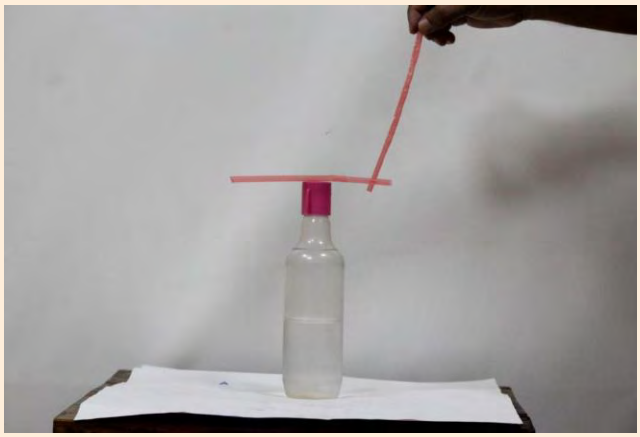
CHAPTER-15: SOME NATURAL PHENOMENA

Charge, Lightning and electroscope

ACTIVITY SHEET- 1

Learn with fun:

Take two plastic straws and rub them against a piece of newspaper. Keep one straw on the top of the bottle as shown in the figure and bring the other straw close to one end of the straw kept on the bottle.



1. What do you observe? Write in the space given below.

_____

2. Why do you think this happened? Write in the space given below.

_____

_____

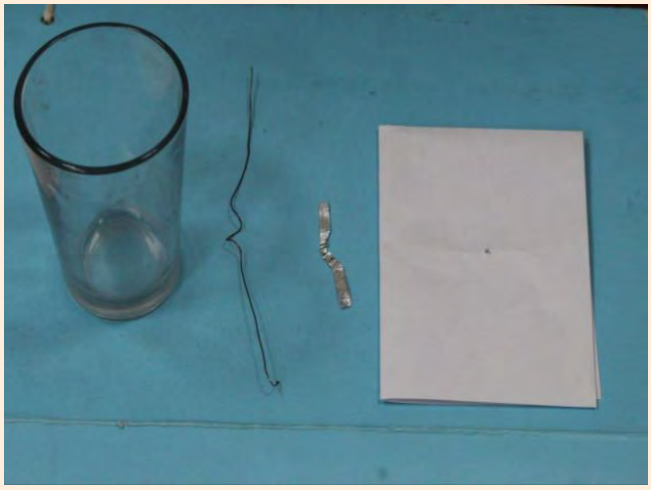
Will such straws stick on the wall? Try it.

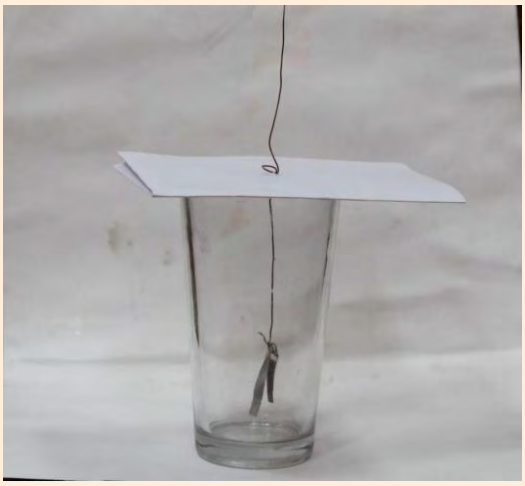
Try the same activity with some other types of materials and observe the difference.

Make your own electroscope:

For this we require an empty glass, cardboard, insulated copper wire, straw and aluminium foil .

Take on insulated copper wire of around 10 cm. Rub its end with sandpaper to remove the insulation coating from it. Insert the wire in the cardboard. Place a small folded aluminum strip on one end of the wire and place it on the bottle glass as shown in the figure. Rub the straw against a newspaper and touch it on the upper end of the wire.





What do you observe? Write in the space given below.

_____

Why do you think this happened? Write in the space given below.

_____

Q.1 Fill in the blanks:

attract, repel, earthing, electroscope, electrogram, attracts

(a) A charged balloon_____ another charged balloon when they are brought closer to each other.

(b) Like charges_____each other.

(c) Unlike charges_____ each other

(d) A device that is used to test whether an object is carrying charge or not is called _____

(e) The process of transferring charge from a charged object to the earth is called _____.

Q.2 Complete the following table regarding safety measures during lightning:

Place	What to do	What not to do
In park 		
In house 		
In school 		

Q.3 Who am I?

(a) I attract negative charge but repel positive charge._____

(b) I strike during thunderstorms and can destroy life and property. _____.

(c) I detect whether a body is charged or not._____

(d) I protect buildings from the effects of lightning._____

Date _____

ACTIVITY SHEET- 2

Learn with fun:

Take a cardboard and put it on a table. Now place 6 bottle caps. One above the other as shown. Tap the table from beneath.

1. What do you observe about the arrangement of bottle caps after hitting the table?

_____

2. Why do you think this happened ?

_____

3. Can you relate this with any natural hazard ? Write its name.

_____

Q.1 Complete the following table regarding safety measures during earthquake:

Place	What to do	What not to do
In park 		

In house 		
In school 		

Q. 2 Draw and label the diagram of the structure of earth:

Q3. Fill in the blanks:

Richter scale, earthquake, seismic waves, fault zones, plates

(a) An_____ is a sudden shaking or trembling of the earth.

(b) Boundaries of Earth's plates are known as _____.

(c) _____is used to measure destructive energy of earthquakes.

(d) Seismograph is an instrument that is used to record _____.

(e) The fragments of the outermost layer of the earth are called _____.

Date _____

CHAPTER–16: LIGHT

Angle of Incidence= Angle of Reflection

ACTIVITY SHEET– 1

Learn with fun:

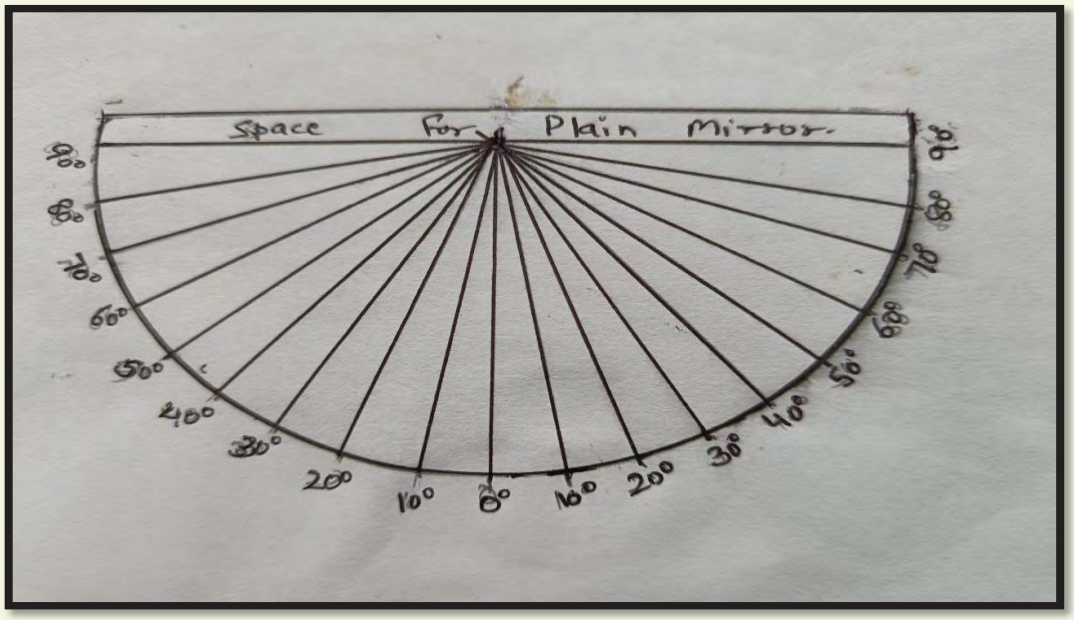


Figure- 1

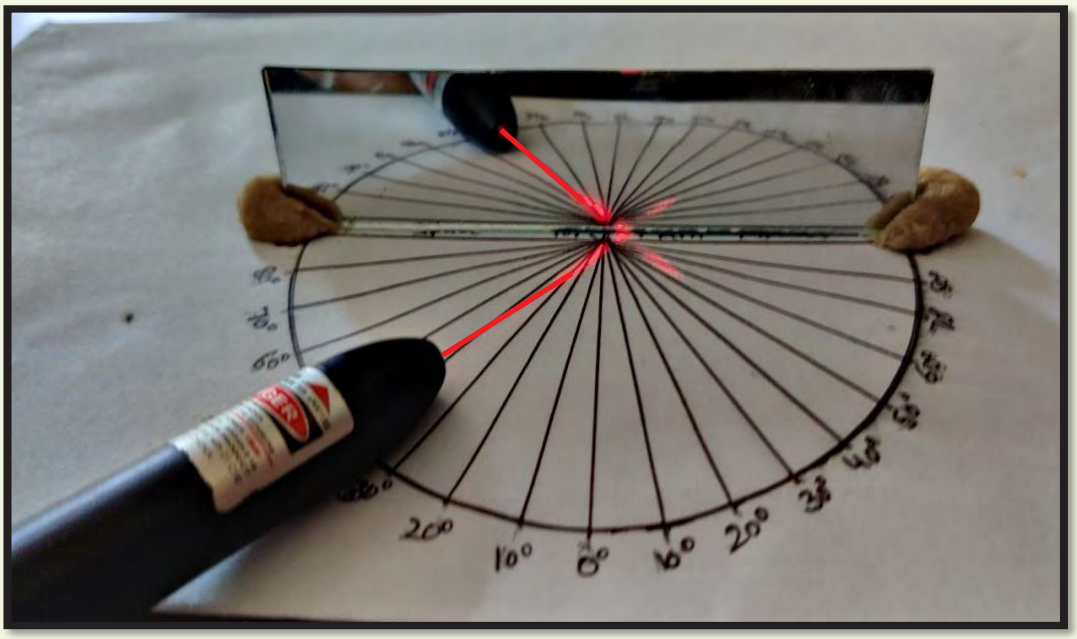


Figure- 2

Make your own protractor on a paper as shown in figure-1. Arrange the plane mirror strip in the place assigned in the figure with the help of kneaded dough or clay. Put the arrangement on a flat smooth surface. Now by placing the laser torch at the edge of the surface, produce a beam of light at an angle of 30^0 pointer line and mark it as incident ray. The angle of incidence (angle between normal and incident ray) shall be 30^0 as shown in figure-2.

Now observe the path of the reflected ray. Note the angle of reflection (angle between normal and reflected ray). Repeat same process by changing angles of incidence and complete the table.

Angle of Incidence (i)	Angle of Reflection (r)
30^0	30^0
45^0	
60^0	
75^0	

Compare the angle of incidence and angle of reflection. What do you conclude from your comparison put correct symbol in the box

$\angle$ i ☐ $\angle$ r (=, <, >)

Q.1 Draw the mirror images of alphabets A, L, X, B, R, N, P in bold with the help of a marker pen. Look these alphabets one by one in plain mirror and write them as they appear in the mirror due to LATERAL INVERSION. One is done for you.

Alphabet	Alphabets after Lateral inversion
A	A
L	
X	
B	
R	
N	
P	

Q.2 Why do you think 'Ambulance' is written laterally inverted on vehicles?

_____

_____

Date _____

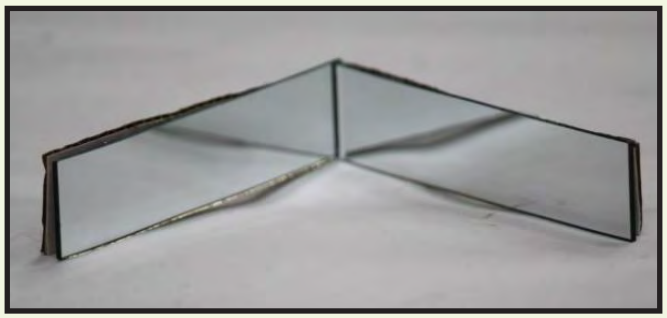
ACTIVITY SHEET- 2

Learn with fun:

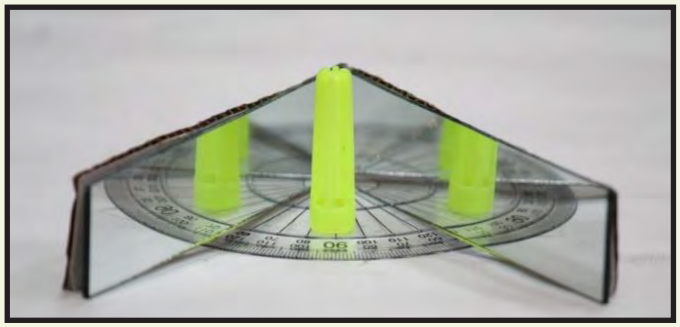
Pic-1

Take two mirror strips and join them with the help of a Cello Pape. So that they can be moved easily at angles as shown in the picture.

Pic-2



Pic-3



Place the set up on the Protractor so that the angle between the two strips is 90^0 . Put a cap of pen or any other object of your choice in front of the set-up and observe the number of images formed.

Q.1 Repeat the process making angles of 60^0, 45^0, 30^o with mirror strips and record your observations in the given table:

S. No.	Angle between the mirror strips	No. of images seen
(a)	60^0	
(b)	45^0	
(c)	30^0	
(d)		
(e)		
(f)		

Q.2 Based on your observations, complete the sentence:

(a) As the angle between the mirrors _____(increases/decreases), the number of images formed also_____(increases/decreases).

(b) When we go for haircut, the barber shows the final hair setting with the help of _____(two/three) mirrors. We see _____(one/two/many) images due to _____(irregular reflection/multiple reflection).

Explore:

Periscope is a device which is used to see the objects which are not in direct line of sight. It is used to see over the heads of the crowd, soldiers to observe the enemy's activities from the trenches and is also used in submarines to see the ships on surface.

Q.3 What is the underlying principle for the device and phenomenon involved in its working?

_____

_____

Date _____

ACTIVITY SHEET– 3

Learn with fun:

Draw the structure of human eye in the box and label the following:

(a) Cornea (b) Lens (c) Iris as

(d) Ciliary muscles (e) Retina

Q.1 Find out the difference between 'Visually Impaired' and 'Blind'. Which parts of eye become dysfunctional in various vision impairments? Explore from internet or an ophthalmologist (Doctor dealing with eye disorders).

_____

_____

_____

(a) I am the outermost transparent layer of Human eye.
I act as a window to control the entry of light.

(b) I am the coloured part of the Human eye.
I control the size of the pupil.

(c) I am thicker at the centre.
I focus the light to make images.

(d) I have many nerve cells.
Image is formed on me

(e) I am bundle of nerve fibers.
I transmit the signal to the brain.

(f) I am present at the junction of optic nerve and the retina. No vision is possible at me.

Q.3 NETRADAAN – MAHADAAN

What are the various stereotypes/myths related to this campaign that serve as road-blocks in increasing the number of eye donors? Write your views also.

_____

_____

Date _____

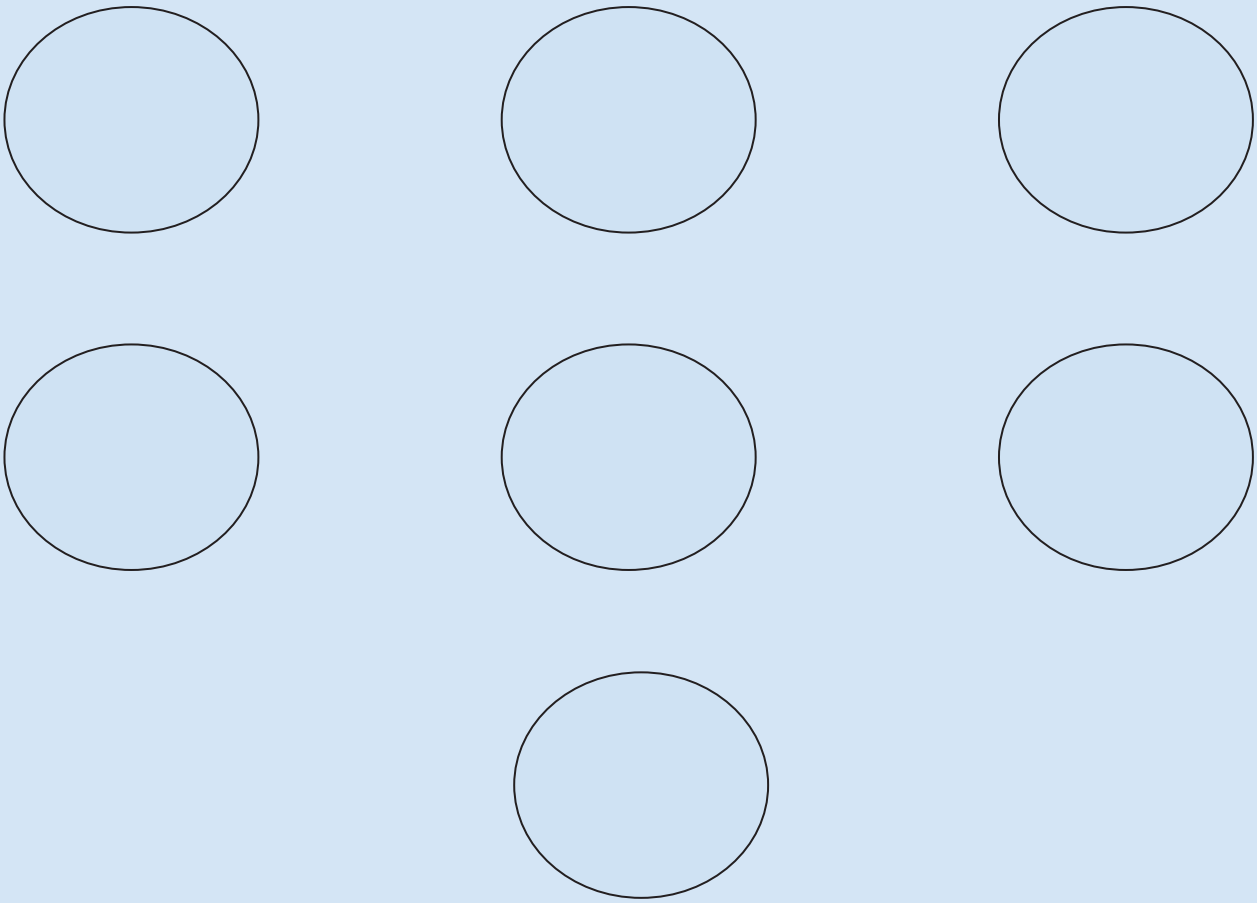
CHAPTER–17: STARS AND THE SOLAR SYSTEM

Moon, Stars and Constellations

ACTIVITY SHEET- 1

Learn with fun:

Observe the moon for seven days and colour the given circles as per the bright part of the moon.



1. Do you observe any change in the bright part of the moon?

_____

2. Why do you think this happened?

_____

Q1. Fill in the blanks:

East, north, west, southern, constellation, sunlight, planet, stars

(a) A group of stars that appear to form a pattern in the sky is known as _____

(b) Moon is visible due to reflected _____

(c) _____ are celestial bodies that emit light of their own.

(d) Stars appear to move from _____ to _____.

(e) Pole star is not visible from _____ hemisphere.

Q2. Identify the following constellations and draw these in the boxes given.

Date _____

ACTIVITY SHEET- 2

Learn with fun:

Draw labelled diagram of Solar System:

Q.1 Who am I, encircle my name (one has been done on or example):

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

(a) I am the biggest planet.

(b) Now I am not considered a planet.

(c) I am the only planet with life.

(d) I am the brightest planet in the sky.

(e) I am the smallest planet.

(f) I am called the Red planet.

(g) I rotate from east to west ,just like Venus.

Q.2 Who am I?

Planet, comet, sun, meteor, meteorite, satellite

(a) I am commonly known as shooting star and when I enter Earth's atmosphere I burn because of the heat generated by friction.

_____

(b) I revolve around the sun in a highly elliptical orbit and complete one revolution in many years.

_____

(c) I revolve around a planet and some planets have many like me.

_____

(d) I come from space with high speed and sometimes fall on earth causing serious damage.

_____

Date _____

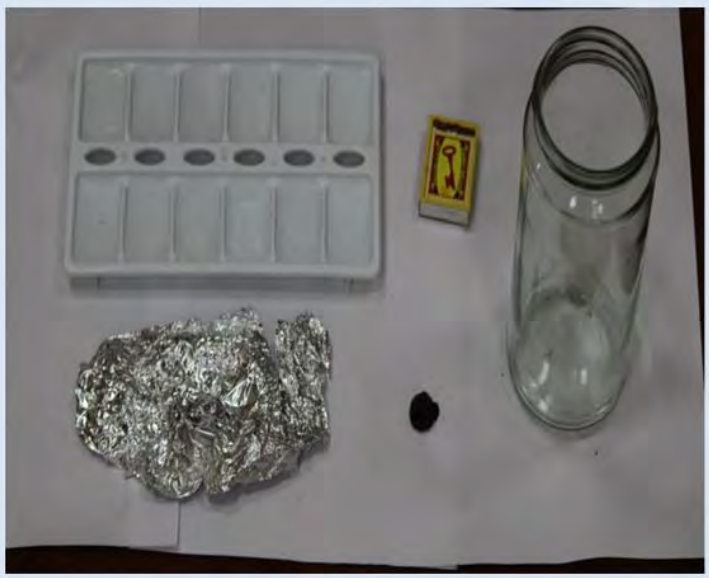
CHAPTER–18: POLLUTION OF AIR AND WATER

Air Pollution

ACTIVITY SHEET- 1

Learn with fun:

Take an empty glass bottle, ice cubes, agarbatti/dhoop, matchbox and aluminum foil piece to cover mouth of the bottle. Take the bottle and swirl with water and throw the water. The bottle should be wet. Place the burning agarbatti /dhoop inside the bottle. Cover the bottle with the aluminum foil and place 4 or 5 ice cubes on the foil. Observe the smoke in the bottle. Does the smoke rise up? Are you able to see the things behind the glass bottle clearly?

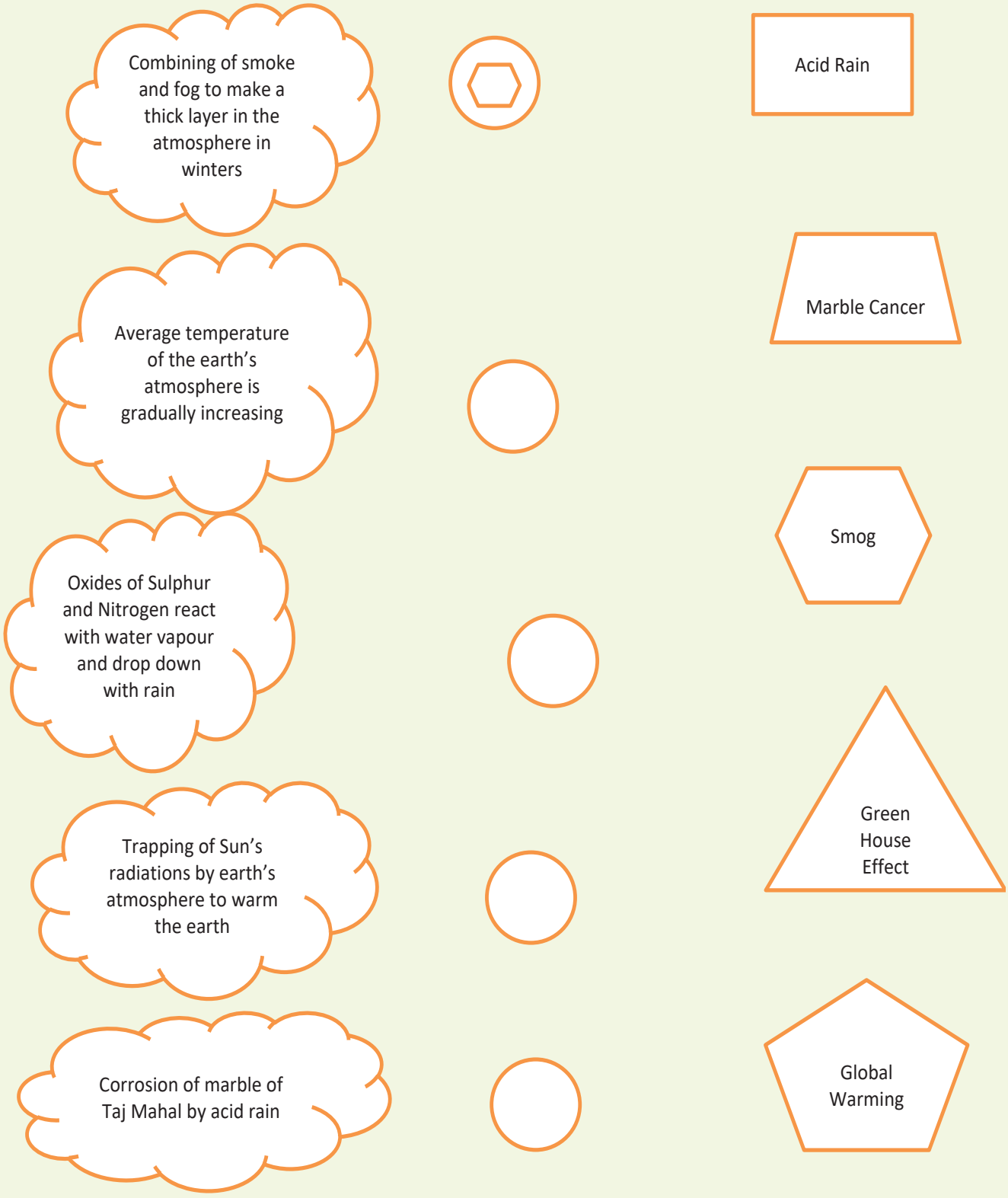


What did you learn from this activity? Think and write.

_____

_____

Q.1 Selecting from words given in the right in the box of different shapes draw the same shape inside the circle in front of the short description given on left. One example is shown below.



Date _____

ACTIVITY SHEET- 2

Learn with fun:

Write the appropriate number in the circle given below the box to sequence the events correctly. Example is shown for you in A.

A.

Respiratory Problems	Atmospheric air consists of mixture of gases	Smoke from factories, forest fires , burning, vehicles are added to the atmosphere
3	1	2

B.

Oxygen –carrying capacity of the blood is reduced	Carbon Monoxide is produced from incomplete burning of fuels like petrol and diesel	People love to buy cars and number of cars increase	Vehicles produce high levels of pollutants like carbon monoxide, nitrogen oxide and smoke.

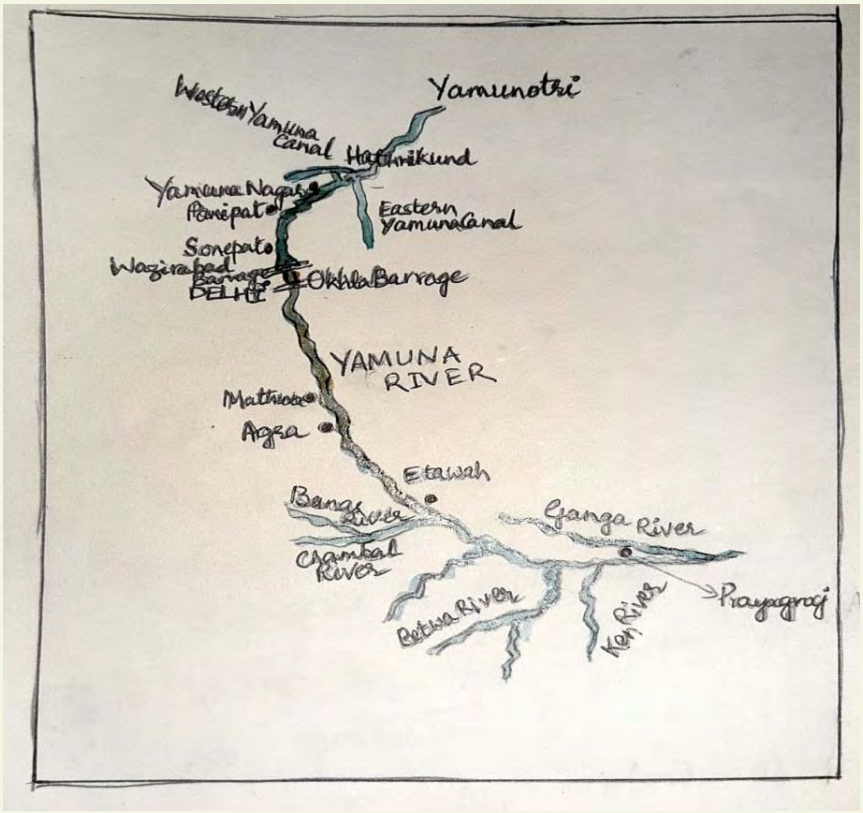
C

Refrigerators, Air-conditioners and aerosols are used more and more	C.F.C's react with the Ozone layer of the atmosphere	C.F.C's are released in the atmosphere	Harmful ultraviolet rays enter the atmosphere and may cause skin diseases

D

Excess of toxic chemicals are released in river	Aquatic life cannot survive in the river	Smell, acidity and colour of the river water is affected	River becomes dead

Q.1 LET US KNOW OUR RIVER YAMUNA:



Look at the course of river Yamuna from the above figure and answer the following questions.

(a) Where does the river Yamuna originate from?

_____

(b) Identify the place from where the colour of water changes to brownish (dirty).

_____

(c) Why is the 22 kilometer stretch of river Yamuna from_____ to _____ is so polluted according to you?

_____

_____

(d) Name the two rivers which join Yamuna?

_____

(e) What is the colour of water after river Chambal and Betwa join Yamuna?

_____

Q.2 Yamuna Action Plan (YAP) is a project of the Govt. of India and three phases of YAP started in 1993,2003 and 2018.The 22 kilometers stretch of Delhi is responsible for 80% of pollution of the river. The YAP works on cleaning of river water by laying of sewerage lines, sewage treatment plants, afforestation etc. Still the water is not fit for our use. What can you do as a responsible citizen to keep the river clean?

_____

_____

_____

_____

Date _____

ACTIVITY SHEET– 3

Learn with fun: My Water Filter

You have to prepare your own water filter from things easily available around you. Select the things you will use to prepare the filter by encircling around the words in blue pen/pencil:

Cotton, Sand, Small stones, Tissue paper, Fine Gauge, Coal. Alum, Salt, Now arrange various components in your water filter from top to bottom and make your own water filter.

Is the water filtered by you here is potable Justify your answer:

_____

_____

If not what you can do to make it potable.

(a) _____
(b) _____
(c) _____

Q.1 Fill in the following blanks with any of these words: RECYCLE, REDUCE, REUSE

(a) All of us have to buy less clothes, less furniture, less mobile phones, less computers and discard less to protect our environment. This is called-

_____

(b) Sunil uses empty water bottles to store water, oil, paints etc. He also plants beautiful plants in used bottles to decorate his walls. Sunil is practicing-

_____

(c) In Delhi, a lot of old iron scrap is molten to make new iron articles such as kadahi, knife, tawa etc. This process is called-

_____

Q.2 The graph shows air quality of Delhi between June 2017 and May 2018. You can see that air quality is satisfactory in Monsoons (June, July and August 2017). On basis of the observation of graph answer the following questions:

(a) Which months have a very poor air quality?

i. June and July
ii. November and December
iii. February and March
iv. April and May

(b) What is the reason for increased pollution in those months?

i. Smoke from vehicles
ii. Dust from Rajasthan
iii. Smoke from burning of *parali*
iv. Smoke from factories

(c) What are the initiatives taken in Delhi to reduce pollution?

(Hint: Smog towers, chemical treatment of Parali (crop residue) etc.)

_____

(d) What can you do as a responsible citizen to reduce air pollution in Delhi?

_____

_____

_____

Notes

Notes