Vardhman's

CANVAS

a PREMIER SERIES designed as per the NEP 2020

Science

A Closer LOOK

animated videos

mobile application

Hybrid Learning through

test paper generator

web support

Preparatory Stage

3

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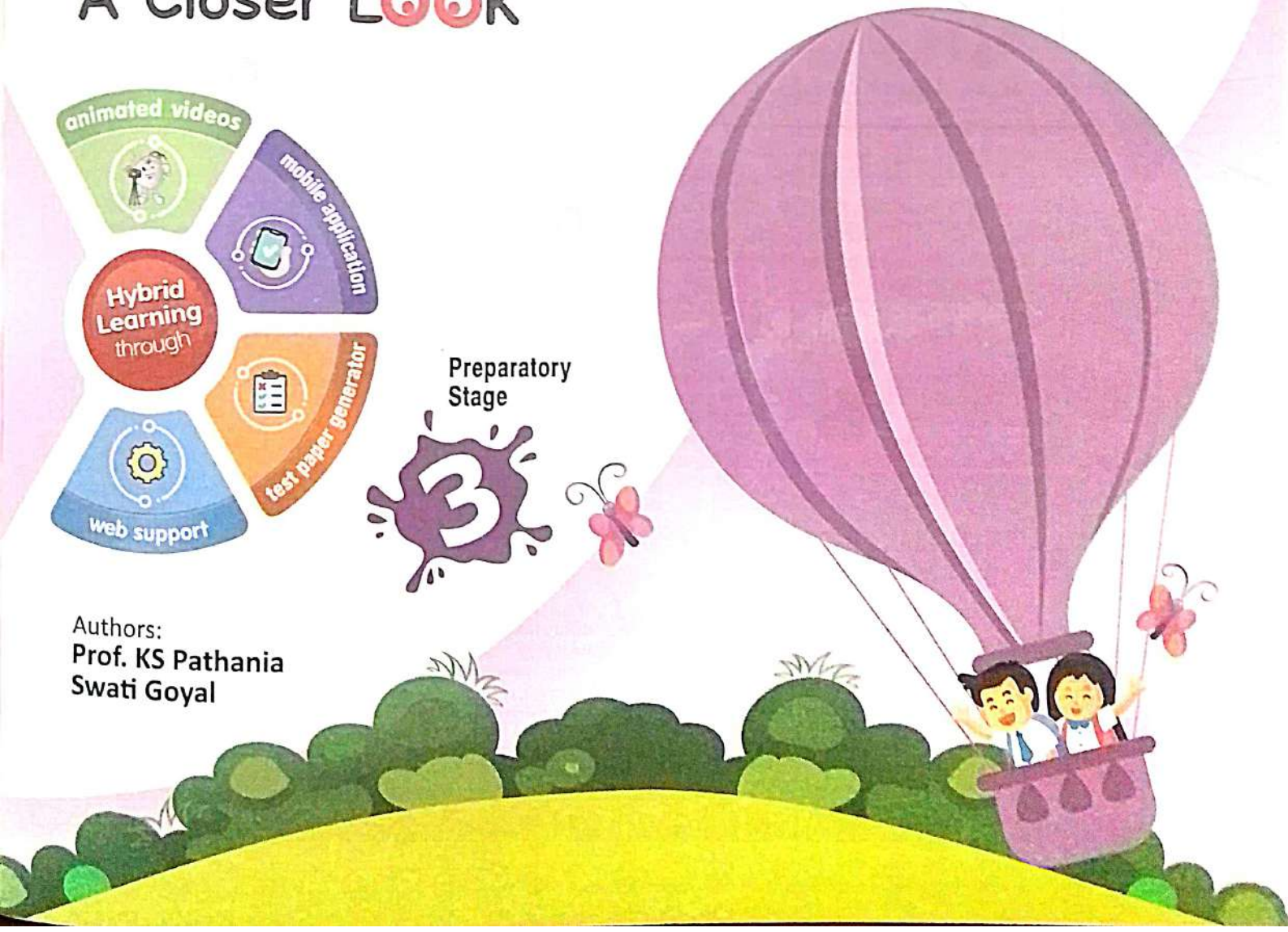


CONTENTS

1. Living and Non-living Things

There are many things around us. Some of them are living while others are non-living.

Living things are those which have life and can do things on their own. They can feel, breathe, take food, grow and reproduce. Human beings, animals, birds and plants are living things.

Non-living things are those which do not have life in them and cannot do things on their own. They do not feel, breathe, take food, grow and reproduce. Rocks, mountains, toys, clothes, etc are non-living things.

LIVING THINGS NEED FOOD

All living things need food to grow. Food also gives them energy to do work. Humans and animals get their food from plants or smaller animals.

Green plants make their own food with the help of water, air and sunlight.

Non-living things do not need food.

A child eating food

LIVING THINGS BREATHE

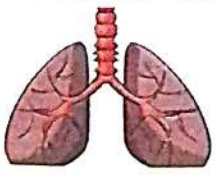
Living things breathe in oxygen and breathe out carbon dioxide.

Human beings breathe through lungs.

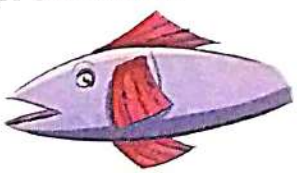
Fish breathe through gills.

Animals like earthworm and leech breathe through their skin.

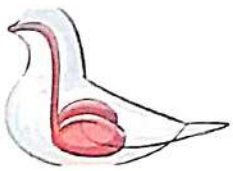
Plants breathe through stomata.



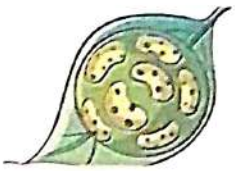
Lungs



Gills



Air tubes



Stomata

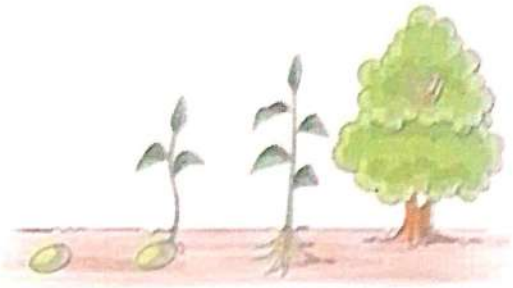
Non-living things do not breathe.

LIVING THINGS GROW

All living things grow using the nutrients they get from food.

A baby grows into a child. A child grows into an adult. A puppy grows into a dog. A chick grows into a hen. A caterpillar grows into a butterfly. A seedling (baby plant) grows into a big plant.

A baby growing into a man



A seed growing into a tree

Non-living things do not grow.

LIVING THINGS MOVE

All living things show movements. Human beings and animals move from one place to another in search of food while plants show movement in some of their parts only.

Human beings and some land animals walk with their feet. Some animals like snakes and snails crawl. Birds and some insects fly in the air with their wings. Fish swim in water with their fins.

Legs of dog

Wings of bird

Fins of fish

Mimosa plant

Plants like mimosa (touch-me-not) show movement upon touching and sunflower turns towards the sun.

Non-living things do not move as they are lifeless.

LIVING THINGS FEEL

All living things feel the changes around them through their sense organs. Human beings and animals have five sense organs : eyes, ears, nose, tongue and skin.

A cat can smell a mouse.

Cold winds make us shiver. The mimosa plant folds its leaves when someone touches it.

A child shivering

A man touching mimosa plant

Non-living things are feelingless.

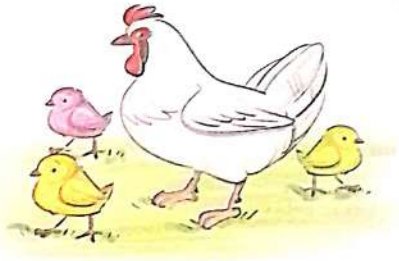
LIVING THINGS REPRODUCE

All living things reproduce. Human beings and animals like cows, buffaloes, dogs, etc give birth to their young ones. Birds, snakes and frogs lay eggs and the young ones hatch out of the eggs. Plants produce seeds from which new plants arise.

Did You Know?

All reptiles lay eggs but the female garter snake gives birth to young baby snakes.

Mother and baby



Hen and chicks

Cat and kittens

Non-living things cannot reproduce.

KNOWLEDGE QUEST

Learning Based

Unscramble the words in the clouds and write them in the correct places.

dsirb gab nep uns lapsnt oobks

Natural things : _____ _____ _____

Man-made things : _____ _____ _____

In a Nutshell

- Living things are those which have life and can do things on their own.
- Green plants make their own food with the help of water, air and sunlight.
- Living things breathe in oxygen and breathe out carbon dioxide.
- All living things grow using the nutrients they get from food.
- All living things feel the changes around them through their sense organs.
- Human beings and animals like cows, buffaloes, dogs, etc give birth to their young ones.

Let's Answer

Based on NEP 2020

A. Tick (✓) the correct option :

1. Living things get energy from _____ .
   (i) water ( ) (ii) plants ( ) (iii) food ( )
2. Which of the following needs food to grow?
   (i) Stone ( ) (ii) Bird ( ) (iii) Boat ( )
3. Which of the following is not a natural thing?
   (i) Soils ( ) (ii) Car ( ) (iii) Sun ( )
4. Cold winds make us :
   (i) laugh ( ) (ii) shiver ( ) (iii) cry ( )
5. A cat can smell a :
   (i) mouse ( ) (ii) chair ( ) (iii) table ( )

B. Fill in the blanks :

breathe eggs gills stomata folds

1. All living things need air to _____.
2. Plants breathe through _____.
3. Fish breathe through their _____.
4. Mimosa plant _____ its leaves when someone touches it.
5. Birds, snakes and frog lay _____.

C. Match column (A) with column (B) :

Column (A)	Column (B)
1. Living things	(i) use wings to fly
2. Green plants	(ii) folds its leaves when touched
3. Birds	(iii) grow into plants
4. Mimosa plant	(iv) those which have life
5. Seeds	(v) make their own food

D. Name the following : Learning Based

1. A natural non-living thing that shines at night. _____
2. A man-made non-living thing with two hands. _____
3. A living being that gives life to all by giving oxygen. _____
4. A non-living thing with four legs. _____

E. Answer the following questions : Understanding Based

1. How will you find out whether a thing is living or non-living?
2. Why do living things need food?
3. How are plants different from animals in term of eating?
4. Write the different ways by which human beings and animals breathe.
5. How do birds and snakes reproduce?

F. Think and Answer : Analysis Based

1. Apple jam is a non-living but it is made from the fruits of apple plant. What is the difference between apple plant and apple jam?
2. When you feel cold, you wear a sweater, but a cat cannot do this. Is cat not a living thing?

LEARN BY DOING

Take soil in two glass bowls. Put a pebble in one bowl and a bean seed in the other. Sprinkle water over both of them. Keep bowls in the sun. Observe both of them for six days. What do you see?

Skill Check-in

21st Century Skills

A. ..... *Initiative*

Look at the pictures of the complete chapter you have studied. Now answer the following questions that follows :

1. Write the names of the animals that live in water.
2. Write the names of the animals that live in air.
3. Name the smallest land animal.

B. ..... *Technology literacy, Social skills*

World Post Day is celebrated each year on October 9 to commemorate the establishment of the Universe Postal Union. But in India, the day is celebrated on October 10 as an extension of World Post Day. The postal department of India issued stamps on birds, animals and famous Indians which are given alongside.

Answer the questions that follows :

1. What is the height of world's tallest man-made statue of Iron man of India?
2. Which is India's national bird?

C. ..... *Critical thinking*

Write two characteristics of living things using the first letter of each picture shown in the set.

1.    

   _____

2.    

   _____

2. Animals and Plants

Animals and plants both are living things but they differ from each other in many ways. Plants differ from animals in the following ways.

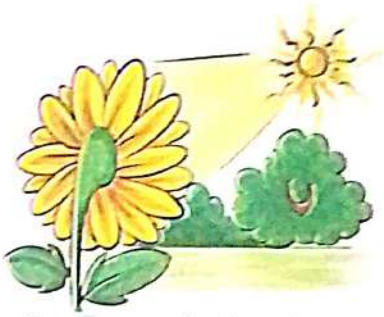
MOVEMENT

Animals can freely move from one place to another. They crawl, walk, run, swim or fly. They move in search of food or to escape from enemies.

The plants remain fixed to the ground. They need not move in search of food. They can make their own food.

A lion running

Birds flying



Sunflower facing the sun

FOOD

Animals cannot make their own food. They depend on plants and other animals for food. Plants have the ability to prepare their own food with the help of air, water and sunlight.

Cow eating grass

Green plant

Did You Know?

Venus flytrap and pitcher plant are carnivores and trap insects.

KNOWLEDGE QUEST

Learning Quest

Write the movements of animals given below :

swims flies jumps gallops

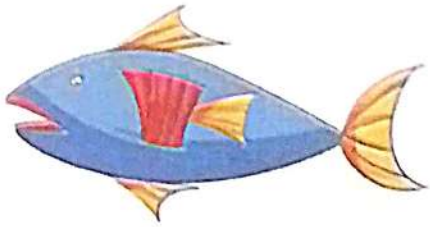
1. A monkey _____
2. A duck _____
3. A horse _____
4. A bird _____

BREATHING

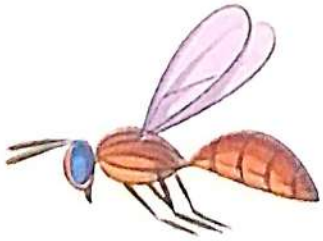
Animals such as tigers, lions, etc breathe through their lungs. Fish breath through their gills and insects like houseflies, cockroaches, etc have tin openings on their bodies to breathe. These openings are called spiracles.

Plants breathe through small openings called stomata on the surface of th leaves.

Lungs



Gills in fish



Air holes in insect

Stomata in leaf

SENSE ORGANS

Animals have sense organs like eyes, ears, nose, tongue and skin. These organs help them to feel and respond to changes in their surroundings.

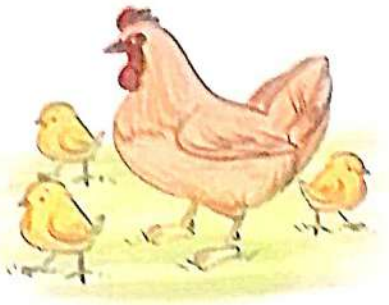
Plants do not have sense organs. Some plants like mimosa (touch-me-not) plant closes its leaves, when someone touches it.

Mimosa plant

REPRODUCTION

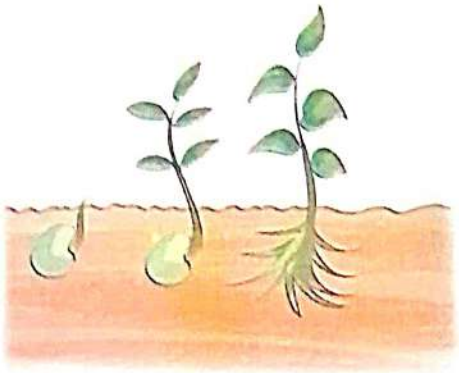
Animals lay eggs or give birth to young ones of their own kind.

Most plants reproduce from seeds. Some plants reproduce new plants from their body parts, like stems, roots and leaves.



Hen and chicks

Cat and kittens



Seeds and new plants

INTERDEPENDENCE

Animals differ from plants but they both depend on each other. Animals give carbon dioxide to plants for making food. Plants take in carbon dioxide and give out oxygen during the process of photosynthesis. In this way, they maintain the balance of oxygen and carbon dioxide in the atmosphere. Some animals also depend on plants for food and shelter.

In a Nutshell

- Animals and plants both are living things but they differ from each other in many ways.
- Plants remain fixed to the ground.
- Animals can freely move from one place to another.
- Plants have the ability to prepare their own food with the help of air, water and sunlight.
- Fish breathe through gills.
- Plants breathe through small openings called stomata on the surface of the leaves.
- Animals have sense organs like eyes, ears, nose, tongue and skin.
- Animals lay eggs or give birth to young ones of their own kind.
- Animals differ from plants but they both depend on each other.

Let's Answer

Based on NEP 2020

A. Tick (✓) the correct option :

1. The plants remain fixed to the _____.
   (i) ground (ii) roof (iii) terrace
2. Fish breathe through their :
   (i) gills (ii) lungs (iii) air holes
3. Plants do not have :
   (i) stems (ii) leaves (iii) sense organs
4. The leaves of this plant close when touched :
   (i) mimosa (ii) money plant (iii) sunflower
5. Animals breathe in :
   (i) oxygen (ii) nitrogen (iii) carbon dioxide

B. Fill in the blanks :

Lions Animals oxygen seeds sense organs

1. _____ move in search of food or to escape from enemies.
2. Most plants reproduce from _____.
3. _____ breathe through their lungs.
4. Plants do not have _____.
5. Plants give out _____.

C. Match column (A) with column (B) :

Column (A)	Column (B)
1. Fish	(i) tiny openings
2. Housefly	(ii) gills
3. Leaves	(iii) lungs
4. Animals	(iv) stomata

D. Name the following : Learning Based

1. They can freely move from one place to another. _____
2. They have the ability to prepare their own food. _____
3. It breathes through gills. _____
4. When someone touch, it folds its leaves. _____
5. Small opening on the underside of the leaves that help the plant take in and give out air. _____

E. Answer the following questions : Understanding Based

1. How do green plants make their food?
2. What are stomata?
3. How do sense organs help animals?
4. How do plants reproduce?
5. How do plants and animals depend on each other?

F. Think and Answer : Analysis Based

1. Who am I?

   (a) I live in the trees and like to climb. I like bananas to eat. _____

   (b) I am a plant. I come in many colours.
   I have a beautiful smell. I start with the letter f. _____

2. What happens to the plants and animals in an area when one type of animals leaves or dies out?

LEARN BY DOING

Ask your mother to cut a piece from a potato. The piece must have an eye (dark mark on it). Plant this piece in soil. Water it regularly. After few days, a small potato plant will start growing.

Skill Check-in

21st Century Skills

A. ..... *Information literacy*

What can an animal do that a plant cannot do? Choose from the options given below. Write the features of plants, animals and the features common to both in the given columns.

freely move from one place to another

make their own food

breathe through reproduce

Stomata

have roots

have sense organs

Plants	Animals	Both

B. ..... *Creativity*

Create a scrapbook with pictures of living beings that are useful to us. Write short slogans on a chart paper about *'how to protect the useful living beings'*.

C. ..... *Critical thinking*

Celebrate an animal day in your school to remember the importance of showing kindness, respect and compassion to all animals. Make a list of two ways in which you can be kind to animals all around.

D. ..... *Productivity*

Collect pictures of wild animals. Make a scrapbook by pasting these pictures and write the names and eating habits of these animals. Also, write the kind of places they live in.

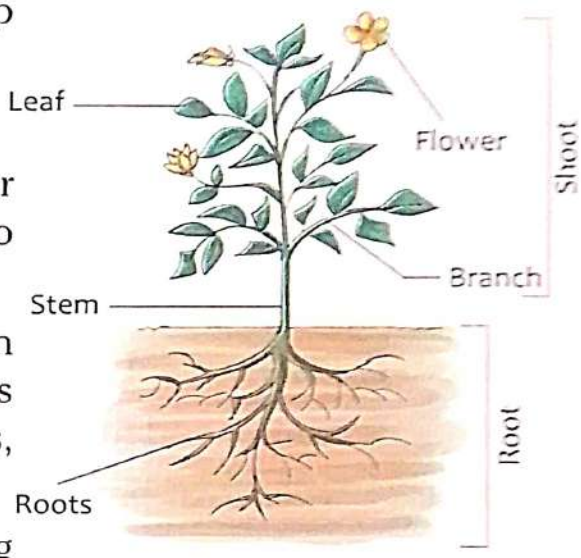
3. Parts of a Plant

All living things have different body parts for different functions. In the same way, plants also have different parts to perform different functions.

All these parts work together as a team to keep the plant healthy.

A plant has two main parts : Root and Shoot.

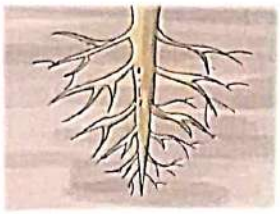
Root : The part of a plant which remains under the ground is known as root. Roots are of two types :

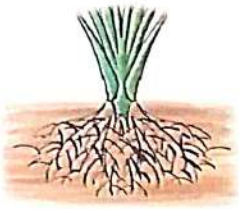


Parts of a plant

Tap root : The single main root that grows from the end of the stem is called tap root. It bears many small roots. Plants such as carrot, hibiscus, bean, etc have tap roots.

Fibrous root : A number of tiny roots growing from the end of the stem are called fibrous roots. Plants such as wheat, rice, onion, etc have fibrous roots.


Tap root


Fibrous root

Functions of the Root :

- ☑ Roots hold the plant firmly in the soil.
- ☑ They provide water and mineral salts to the plants.
- ☑ The roots of some plants such as beetroot, carrot, radish, etc store the food prepared by the plant.

Shoot : The part of the plant above the soil is called shoot. Stem, leaves, fruits, flower, buds, etc together form the shoot system.

Stem : Stem is the main part of the plant. It gives support to the branches and keeps the plant upright.

The stems of some plants like coriander, banana, etc are soft and green. Some plants like mango, banyan, etc have hard, thick and woody stem.

Stem of a plant

Climber

Did You Know?

In Malihabad (Uttar Pradesh) there is a huge mango tree. Over 300 varieties of mangoes grow on this single tree.

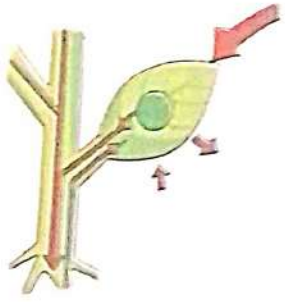
The stems of money plant, grapevine, etc are weak. They cannot hold the plant upright and need a support to climb. These are called climbers.

Functions of the Stem :

- ☑ Stem holds the plant upright.
- ☑ It carries water and minerals from the roots to other parts of the plant.
- ☑ It also carries food prepared by the leaves to different parts of the plant.

Leaf : Leaf is an essential part of a plant. Leaves are of different shapes and sizes. They are also called food factories of the plant because they prepare food for the plant. A leaf has the following parts :

- ☑ The flat and broad part of the leaf is called lamina.
- ☑ There is a thin tube in the middle of the leaf running from the stem called main vein. Veins carry water and minerals to the leaves.
- ☑ A number of small openings present on the surface of the leaf are called stomata. They help in the exchange of gases.



Internal structure of the leaf

Functions of the Leaf :

- Leaves prepare food for the plant with the help of green pigment, called chlorophyll, in the presence of air, water and sunlight. This process is known as photosynthesis.

- It gives out oxygen which is used by human beings and animals for breathing.
- Some plants like spinach, broccoli, cabbage, etc store food in their leaves.

Process of photosynthesis

Flower : Flower is the most beautiful part of the plant. Flowers are of different shapes, sizes and colours. They grow from small buds present on the stem.

Flowers

Functions of the Flower :

- ☑ Flowers turn into fruits in most of the plants.
- ☑ Flowers look beautiful and colourful. So, they attract insects which help in pollination.

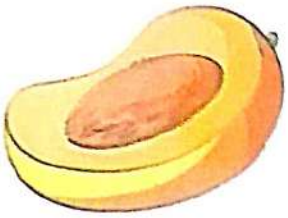
KNOWLEDGE QUEST

Learning Based

Choose the correct word and underline it :

1. A wheat plant has tap root/ fibrous root.
2. Food is stored in the stem of sugarcane/ money plant.
3. The green pigment in a leaf is called stomata/ chlorophyll.
4. Leaves/ Flowers change into fruits.

Fruits and seeds : A flower turns into a fruit. Fruit contains seeds. Some fruits have only one seed inside them such as peach, mango, etc while some fruits have many seeds inside them like orange, pomegranate, guava etc.



Seed in a mango

Seeds in a pomegranate

Seeds are contained mostly in the fruit. They are of different shapes and sizes.

In a Nutshell

- The part of a plant which remains under the ground is known as root.
- The part of the plant above the soil is called shoot.
- Stem carries water and minerals from the roots to other parts of the plant.
- Leaves are also called food factories of the plant.
- Flowers turn into fruits in most of the plants.
- Seeds are contained mostly in the fruit.

Let's Answer

Based on NEP 2020

A. Tick (✓) the correct option :

1. Seeds of which plant are not eaten?
   (i) Wheat ( ) (ii) Rice ( ) (iii) Cumin ( )
2. In which of the following plants do we eat the leaves?
   (i) Spinach ( ) (ii) Cauliflower ( ) (iii) Carrot ( )
3. Which of the following has thick, hard and woody stem?
   (i) Mango tree ( ) (ii) Banana plant ( ) (iii) Coriander plant ( )
4. Plants take in _____ for photosynthesis.
   (i) nitrogen ( ) (ii) oxygen ( ) (iii) carbon dioxide ( )
5. Which part of the plant is beautiful and colourful?
   (i) Stem ( ) (ii) Foot ( ) (iii) Flower ( )

B. Fill in the blanks :

Seeds Stomata tap fruit Stem

1. Plants such as carrot, bean have _____ roots.
2. _____ holds the plant upright.
3. _____ help in the exchange of gas.
4. A flower turns into a _____.
5. _____ are contained mostly in the fruit.

C. Match column (A) with column (B) :

Column (A)	Column (B)
1. Root	(i) grow into new plants
2. Stem	(ii) prepare food for the plant
3. Seeds	(iii) provide water and minerals
4. Leaves	(iv) holds the plant upright

D. Name the following : Learning Based

1. It absorbs water from the soil. _____
2. An edible leave. _____
3. A fruit with only one seed. _____
4. A cereal with fibrous root. _____
5. An edible stem. _____

E. Answer the following questions : Understanding Based

1. What are the different types of plants?
2. What is photosynthesis?
3. How do roots help the plant?
4. What are the different kinds of seeds?
5. Why is the leaf called food factory of the plant?

F. Think and Answer : Analysis Based

1. Animal eats fruits with seeds. Why don't these seeds grow into plants inside their stomach?
2. We have bones to support our body and make us stand without falling. What helps the trees stand without falling?

Skill Check-in

21st Century Skills

A. Critical thinking, Information literacy

Read the clues and write the names of the trees found in India.

Banyan

Tulsi

Eucalyptus

Sal

Peepal

Neem

Keekar

Teak

1. National Tree of India _____
2. It is called the Bodhi Tree _____
3. The Miracle Tree _____
4. Grown in the courtyard of many houses in India _____
5. A tall evergreen tree _____
6. A small thorny tree _____
7. Found in almost all parts of India _____
8. Mainly used in the making of furniture _____

B. Information literacy

Mughal garden is the historic garden located in Rashtrapati Bhawan, New Delhi. Go for a nature walk in a garden. Observe the different plants, leaves and flowers also. Find out their names. Find out if they are herbs, shrubs or trees. How many different kinds of plants did you find?

4. Feeding Habits of Animals

Animals need food to grow and to stay healthy. Plants can make their own food but animals cannot. They depend on plants or the flesh of other animals for their food.

Animals show a variety in their food and feeding habits.

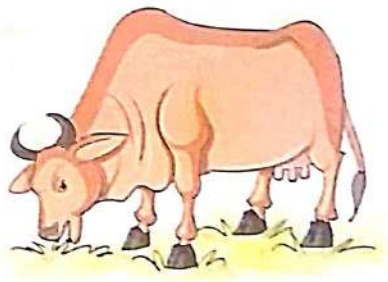
Animals are classified as herbivores, carnivores and omnivores, based on the food they eat.

HERBIVORES

Animals that depend on plants for their food are known as herbivores. Cow, buffalo, goat, sheep, etc are herbivores.

Herbivores have sharp teeth, both in the upper jaw and lower jaw to cut grass and leaves. The animals like cow and buffalo swallow the food before chewing.

Afterwards, they bring the food back to the mouth and chew it properly. It is called chewing the cud or masticating.



Cow

Buffalo

Rabbits and squirrels eat plant parts that is hard. They have a pair of long and flat front teeth.

These teeth help them to bite fruits and seeds. This is called gnawing the food.

Rabbit and squirrel eating seeds

KNOWLEDGE QUEST

Learning Based

Write down the favourite food of the following animals :

1. Horse : _____
2. Pigeon : _____
3. Rabbit : _____
4. Parrot : _____
5. Elephant : _____
6. Cow : _____

CARNIVORES

Animals that eat the flesh of other animals are known as carnivores. Lion, tiger, fox, etc are carnivores.

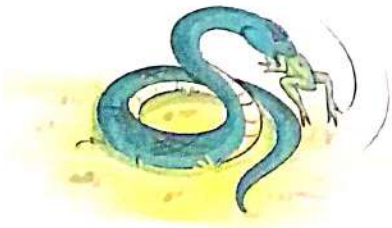
They have very sharp, pointed and curved front teeth to tear the flesh.

Lion eating flesh

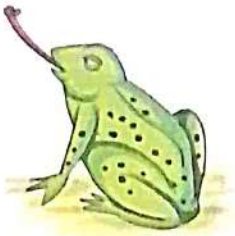
Tiger eating flesh

Fox eating flesh

Animals like snakes and frogs do not have chewing teeth at all, so they swallow their food whole.



Snake swallowing frog



Frog swallowing insect

Owl eating flesh

Owl either swallows an animal or tears it down into chunks before swallowing.

Frogs and lizards have long sticky tongue to catch insects. They also swallow their food without chewing it.

Frog and lizard with their tongue out

OMNIVORES

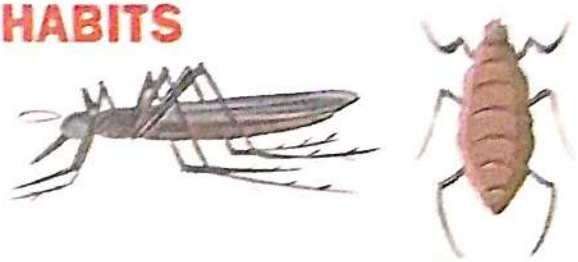
Animals that depend both on plants and animals for their food are known as omnivores. Bear, crow, cat, etc are omnivores. They have sharp and flat teeth.

Bear Crow Cat

OTHER FEEDING HABITS

A mosquito has a long tube. It sucks the blood with its tube.

Leech sucks the blood of animals. It sticks to the animal's body with the help of suckers and then sucks blood with its mouth.



Mosquito and leech

Earthworm swallows soil which has parts of dead plants and animals in it.

CARE OF DOMESTIC ANIMALS

Animals like cow, buffalo, oxen, etc help us by doing our work. Therefore, it is our duty to take care of them. We should give them healthy and nutritious food. We should provide them clean shelters. Proper treatment should be given to sick animals. We should always be kind to domestic animals.

In a Nutshell

- Animals depend on plants or flesh of other animals for their food.
- Herbivores have sharp teeth, both in the upper jaw and lower jaw to cut grass and leaves.
- Animals that eat the flesh of other animals are known as carnivores.
- Frogs and lizards have long sticky tongue to catch insects.
- Healthy and nutritious food should be given to the domestic animals.

Let's Answer

Based on NEP 2020

A. Tick (✓) the correct option :

1. Which one of these is a carnivore?

(i) Horse (ii) Deer (iii) Tiger

2. Which of the following animals sucks blood?

(i) Dog (ii) Snake (iii) Mosquito

3. Mosquitoes have :

(i) hollow tubes

(ii) long sucking tubes

(iii) none of the above

4. Which one is not a feature of carnivores?

(i) Claws (ii) Chewing (iii) Canines

5. _____ swallows soil which has parts of dead plants and animals in it.

(i) Tiger (ii) Leech (iii) Earthworm

B. Fill in the blanks :

Squirrels carnivores domestic Animals Buffalo

1. _____ show a variety in their food and feeding habits.
2. _____ swallows the food before chewing.
3. _____ eat plant parts that is hard.
4. Tiger and fox are _____.
5. We should always be kind to _____ animals.

C. Match column (A) with column (B) :

Column (A)	Column (B)
1. Rabbits	(i) chew the cud
2. Lions	(ii) swallow their food
3. Snakes	(iii) tear and chew the food
4. Buffaloes	(iv) have a long sucking tube
5. Mosquitoes	(v) gnaw their food

D. Name the following :

Learning Based

1. An animal that lives both in water and on land. _____
2. An animal that eats remains of dead animals. _____
3. A flesh-eating animal. _____
4. A grass-eating animal. _____

E. Answer the following questions :

Understanding Based

1. What kind of teeth do herbivores have?
2. What do you mean by chewing the cud?

3. How do lizards feed themselves?
4. How do frogs feed themselves?
5. What helps a carnivore to tear the flesh and chew the food?

F. Think and Answer :

Analysis Based

1. What do you think will happen if all plants die one day?
2. We often see cows feeding on the garbage thrown outside the house. What does it tell about the owner of the house?

Skill Check-in

21 Century Skills

A. ..... Critical thinking

Which animal in the sea can detect one part of animal blood in 100 million parts of water? To get the answer, solve this puzzle and read the first letter of each row downwards.





Read this way ↓

1. ◯
2. ◯
3. ◯
4. ◯
5. ◯

B. ..... Social skills

Different types of food are eaten in different parts of India. Name the main dishes which are eaten in states of

1. Tamil Nadu 2. Punjab 3. Rajasthan 4. West Bengal 5. Kerala

_____ _____ _____ _____ _____

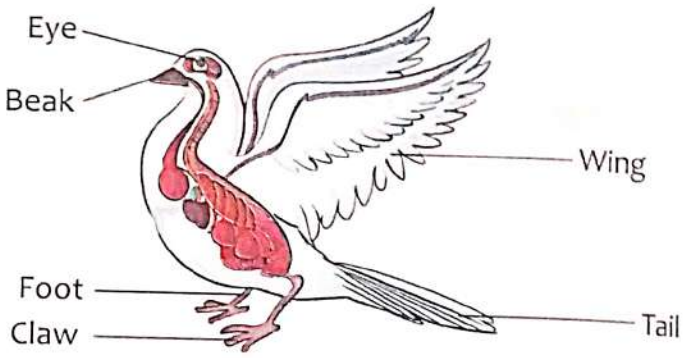
C. ..... Creativity

Choose an animal that lives in water and think of the food it likes. Make a picture of the animal eating the food. Display your 'Animal food poster' in the class.

5. Birds

Birds are one of the most beautiful and colourful creatures on our planet.

They possess various features that help them to fly, get their food and build their nests. Birds have two legs and a pair of wings.



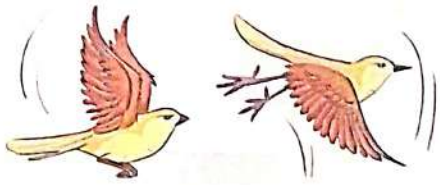
Body parts of a bird

HOW DOES A BIRD FLY?

During flight, the wings perform two types of movements :

Upstroke : When the wings move upwards and backwards, the movement of the wings is called upstroke movement.

Downstroke : When the wings move downwards and forwards, the movement of wings is called downstroke movement.


Upstroke Downstroke

Feathers

Feathers are the most beautiful feature of a bird. Feathers are of three types :

Body feathers : They cover the body, wings and tail. They are strong but light in weight.

Down feathers : They are located close to the body, underneath the body feathers. They are fluffy and soft. They help to keep the bird warm.

Flight feathers : They are located on the wings and tail of a bird. They are long and flat. The wing feathers are used in flapping and the tail feathers help in changing the direction during a flight.

Did You Know?

The bird with the largest wing span is the Albatross.

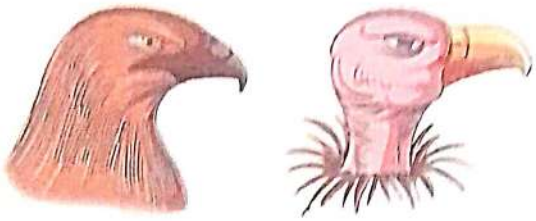
Types of feathers

BEAKS

A bird uses its beak to catch and eat food and to feed its young ones. Different birds have different shapes of beaks depending upon the food they eat.

Strong, sharp and pointed beak : Birds like wood-pecker make holes in hard tree trunks to pull out insects to eat.

Beak of woodpecker



Beaks of eagle and vulture

Strong, sharp and hooked beak : Flesh eating birds like eagles, vultures and hawks have strong, sharp and hooked beaks. Their beaks help them to catch and kill the prey and tear its body into small pieces.

Long and pointed beak : Birds like humming bird have long and pointed beak to suck nectar from flowers.

Beak of humming bird

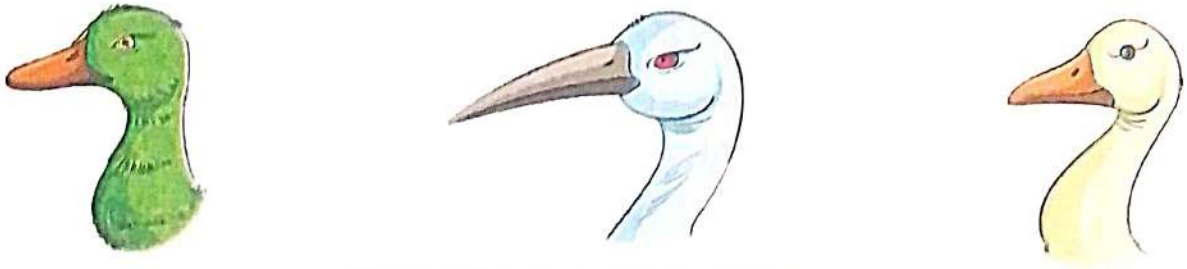
Beak of parrot

Curved beaks : Birds like parrot have curved beaks. Their beaks scoop out the fruit and crack open hard nuts.

Strong, short and hard beaks : Birds like sparrows, pigeons, peacocks, etc have strong, short and hard beaks. Their beaks help them to crack nuts and seeds they eat.

Beaks of sparrow, pigeon and peacock

Broad and flat beaks : Birds like ducks, cranes and geese have broad and flat beaks. They have holes on the sides of the beak. When these birds take in muddy water with insects, worms and small plants, their beaks act as a sieve. The dirty water flows out through these holes and insects and worms remain behind in the beak.



Beaks of duck, crane and goose

FEET AND CLAWS

The claws of a bird help it to walk, swim, climb and perch. They also help the bird to catch, hold, eat food and provide protection from its enemies.

Different birds have different types of claws :

Perching birds : Birds like sparrow, crow have three toes in front and one at the back.

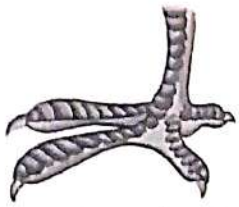
They sit on the trees by gripping the branches of trees. This act is called perching.

Claw of sparrow

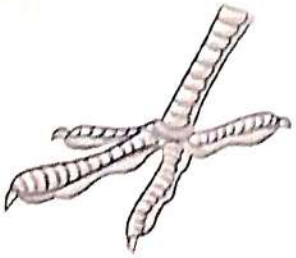
Claw of hen

Scratching birds : Birds like hen, cock have strong legs with three toes in front and one at the back. They have sharp and hard claws for scratching the ground for seeds and worms.

Climbing birds : Climbing birds like woodpecker, parrot have two legs sticking out backward and two toes in the front. Their toes help them to hold on to the tree while climbing.

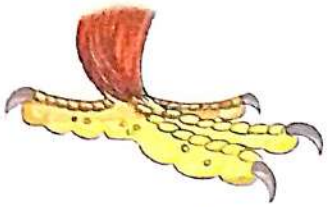


Claw of woodpecker



Claw of crane

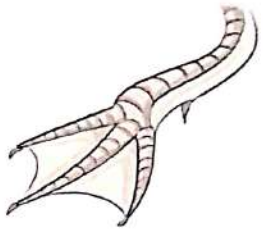
Wading birds : Birds like heron, crane and flamingo have long legs with spread out toes. These birds walk on the mud in the shallow water of ponds to catch their prey such as crabs. The spread out toes prevent birds from sinking into the mud in a pond.



Claw of vulture

Flesh-eating birds : Birds like vulture, hawk and eagle have strong, sharp and curved claws called talons. Their claws help them to catch and hold their prey like toads, rats, etc.

Water birds : Birds like duck and goose have webbed feet with three toes in front and one at the back. The front toes are joined by skin forming a web. The webbed feet help the bird while swimming.



Claw of duck

KNOWLEDGE QUEST

Learning Based

Write the names of two :

1. Wading birds : (i) _____ (ii) _____
2. Scratching birds : (i) _____ (ii) _____
3. Perching birds : (i) _____ (ii) _____
4. Climbing birds : (i) _____ (ii) _____

In a Nutshell

- Birds are one of the most beautiful and colourful animals on our planet.
- During flight, the wings of the bird perform two types of movements : Upstroke and Downstroke.
- Down feathers are fluffy and soft and help to keep the bird warm.
- A bird uses its beak to catch and eat food and to feed its young ones.
- Birds like humming bird have long and pointed beak to suck nectar from flowers.
- Birds like sparrow, crow, etc have three toes in front and one at the back.

Let's Answer

Based on NEP 2020

A. Tick (✓) the correct option :

1. The upward movement of the wings is called:

(i) upstroke (ii) downstroke (iii) none of these

2. Down feathers help the bird to keep:

(i) cold (ii) warm (iii) both (i) and (ii)

3. Which of the following birds has strong, sharp and hooked beaks?

(i) Sparrow (ii) Hawk (iii) Humming bird

4. Which of the following birds has talons?

(i) Duck (ii) Crane (iii) Vulture

5. This bird uses its beak to peck into the tree trunk:

(i) eagle (ii) weaver bird (iii) woodpecker

B. Fill in the blanks :

Webbed Flight Birds Humming bird Woodpecker

1. _____ are one of the most beautiful and colourful creatures.
2. _____ feathers are long and flat.
3. _____ makes holes in hard tree trunks to pull out insects to eat.
4. _____ has long and pointed beak to suck nector from flowers.
5. Duck and goose have _____ feet.

C. Match column (A) with column (B) :

Column (A)	Column (B)
1. Perching bird	(iv) crow
2. Wading bird	(iii) goose
3. Scratching bird	(i) hen
4. Water bird	(v) crane
5. Climbing bird	(ii) parrot

D. Name the following :

Learning Based

1. The smallest bird with long pointed beak. _____
2. It uses its beak to drill wood to find insects. _____
3. A water bird with webbed claws. _____
4. It never builds its nest. _____
5. It makes its nest by sewing large leaves. _____

E. Answer the following questions : Understanding Based

1. What features in a bird help it to fly? How are they helpful to them?
2. Name the three types of feathers.
3. What type of beak does a parrot have? Why?
4. How are perching birds different from scratching birds?
5. How do the feet of perching birds help them?

F. Think and Answer : Analysis Based

1. When the duck swims in water, its feathers do not get wet? Why?
2. What would happen if all the toes of a woodpecker pointed in the same direction?

LEARN BY DOING

Observe the birds from a distance with the help of a pair of binoculars. Write down the activities about any five birds in your science notebook.

Skill Check-in

21st Century Skills

A. ..... Creativity

Like human beings, birds also need more water in the hot summer months. They need a safe place to hide and to build their nests. Help the birds by growing lots of plants in your garden or terrace and balcony.

B. ..... Collaboration

Discuss how you feel about the hardships, the bird face. If you were a tiny sparrow what message would you have for the human? Write it on paper and paste it on the display board in your class.

C. ..... Information literacy

List few bird sanctuaries in India. Which of these sanctuaries are near to your home? Visit one of them and make a list of the birds that you spot there.

6. Nesting Habits of Birds

Birds build nests to lay their eggs. They build their nests in safe and hidden places.

Birds use twigs, leaves, grass, wool, rags, mud, etc to build their nests. The nests keep the eggs and the young ones safe and warm. Different birds build different types of nests. The nests differ in size, shape and the material used to build them.

DIFFERENT TYPES OF BIRDS AND THEIR NESTS

Sparrows and pigeons : Sparrows and pigeons look for a hole in the wall of an old building.

They build nests from grass, leaves, feathers and pieces of cotton.

Sparrow and pigeon in their nests

Tailor bird in its nest

Tailor bird : A tailor bird stitches big leaves together with wool, thread with the help of sharp curved beak. Therefore, it is called tailor bird.

Woodpecker : A woodpecker drills a hole in the tree trunk and fills it with chips of wood to make it cozy and warm.

Woodpecker in its nest

Weaver bird in its nest

Weaver bird : Weaver bird weaves a bottle shaped nest from fine strips of leaves, twigs and grass. The nest hangs from a branch of a tree and has a tunnel like opening at the bottom through which the bird enters its nest.

Bulbul : A bulbul builds its nest in bushes and hedges. The nest looks like a deep cup which protects eggs and baby birds from falling down.

Bulbul in its nest

Owl and parrot : Owl and parrot build nests in the hollow of a tree trunk.

Owl and parrot in their nests

Cuckoo bird : A cuckoo bird is a lazy bird but has a clever mind. It doesn't build its own nest. The mother cuckoo bird lays its eggs in the nests of other birds and other birds take care of its babies.

Cuckoo bird in its nest

Kingfisher in its nest

Kingfisher : Kingfisher makes a tunnel into the bank of a pond.

CARE OF THE BABY BIRDS

The parent bird sits on the eggs to provide them warmth. After a few days, young birds come out of eggs. This is called hatching.

The baby birds are weak and without feathers. Their eyes are closed. The parents feed and look after them. The babies grow very fast and develop strength and feathers. They learn to fly and look for food either from their parents or on their own.

Parent bird giving food to its babies

In a Nutshell

- Birds use twigs, leaves, grass, wool, rags, mud, etc to build their nests.
- A woodpecker drills a hole in the tree trunk.
- Weaver bird weaves a bottle shaped nest from fine strips of leaves, twigs, and grass.
- A bulbul builds its nest in bushes and hedges.
- Cuckoo bird doesn't build its own nest.
- The baby birds are weak and without feathers.

Let's Answer

Based on NEP 2020

A. Tick (✓) the correct option :

1. Which of the following birds makes hole in the trunk to build its nest?
   (i) Eagle ( ) (ii) Mynah ( ) (iii) Woodpecker ( )
2. Parrot builds nest in the hollow of a :
   (i) house ( ) (ii) tree trunk ( ) (iii) bushes ( )
3. Which bird makes a tunnel into the bank of a pond?
   (i) Tailor bird ( ) (ii) Woodpecker ( ) (iii) Kingfisher ( )
4. Which bird is lazy?
   (i) Parrot ( ) (ii) Cuckoo ( ) (iii) Pigeon ( )
5. The baby birds are weak and without :
   (i) feathers ( ) (ii) eyes ( ) (iii) both (i) and (ii) ( )

B. Fill in the blanks :

bottle Cuckoo Birds tailor Kingfisher

1. _____ build their nest in safe and hidden places.
2. A _____ bird stitches big leaves together.
3. Weaver bird weaves a _____ shaped nest.
4. _____ makes a tunnel into the bank of a pond.
5. A _____ bird is a lazy bird.

C. Match column (A) with column (B) :

Column (A)	Column (B)
1. Tailor bird	(i) builds its nest in bushes and hedges
2. Woodpecker	(ii) doesn't build its own nest
3. Bulbul	(iii) drills a hole in the tree trunk
4. Cuckoo bird	(iv) stitches big leaves together with wool and thread

D. Name the following : Learning Based

1. It drills a hole in the tree trunk. _____
2. It weaves a bottled shaped nest. _____
3. It builds its nest in bushes and hedges. _____
4. It doesn't build its own nest. _____
5. It makes a tunnel into the bank of a pond. _____

E. Answer the following questions : Understanding Based

1. Why do birds make nests?
2. Describe various types of nests.
3. What kind of a nest does a weaver bird make?
4. What happens during hatching?
5. Explain how a tailor bird's nest is different from a weaver bird's nest?

F. Think and Answer : Analysis Based

1. If you see that a bird's nest has been destroyed by someone, what will you do?
2. Mohit and his friends climb up a tree to look at a nest. They started touching the nest. The gardner got upset with them. Do you know the reason?

LEARN BY DOING

Paste the feathers of the birds that you see around your nearby places. Name the birds to which they belong.

Skill Check-in

21st Century Skills

A. *Creativity*

Take two or three eggshells or white tennis balls. Use twigs, straws and cotton to make a nest. Line it with soft materials such as grass, dry leaves and wool. Place the eggshells or tennis balls in it and your bird's nest is ready!

B. *Flexibility*

Birds can fly, sing, build nests to raise a family, find food for themselves and for their young ones, take care of their young ones and teach them to fly. In which of these ways can they be compared to human beings?

C. *Leadership*

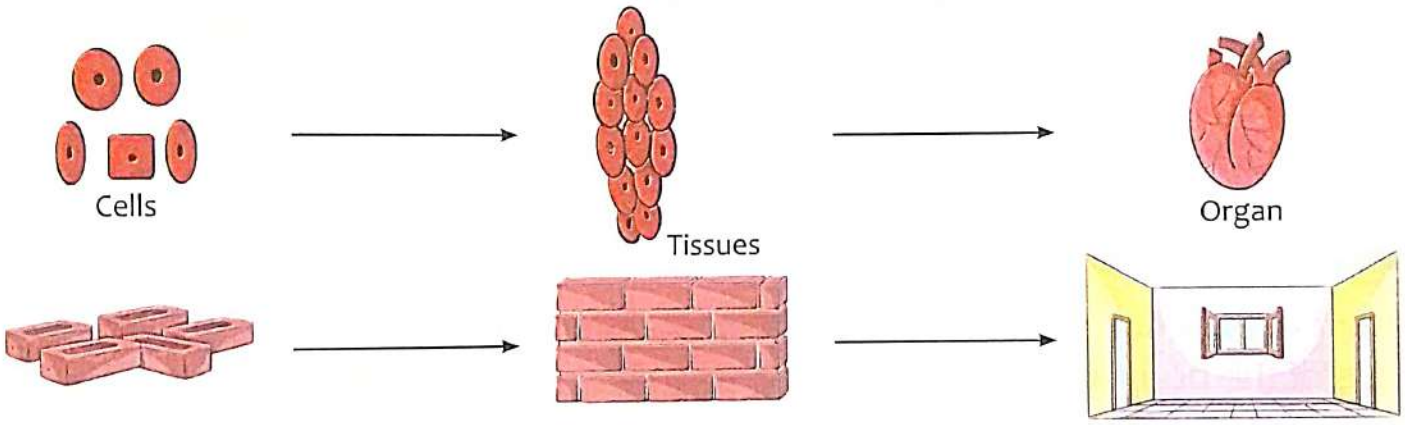
Dr Salim Ali was an Indian ornithologist and naturalist who studied many birds and wrote various books on them. He was the first Indian to conduct systematic birds surveys across India. He is called 'the Birdman of India'. Write some more about Dr Salim Ali. Mention some books written by him.

7. Human Body

Our body is a living machine. It has different parts that work in co-ordination to help us carry out various daily activities.

Every living being is made up of cells. Cells are the building blocks of the body. Cells are of different types.

Group of cells join together to make a tissue. A group of different tissues form an organ. There are various organs in our body.



A group of organs working together to carry out one major function of the body is known as a system. Human body comprises the skeletal system, muscular system, nervous system, respiratory system, digestive system, circulatory system, excretory system and reproductive system.

SKELETAL SYSTEM

Our body is made up of 206 bones. All these bones make a framework. The bony framework of our body is called the skeletal system. It gives shape and support to the body. It also protects the internal organs of the body. The skull protects the brain, the ribs protect the heart and the lungs. The spine or the backbone holds up the neck and the head.

MUSCULAR SYSTEM

There are around 600 muscles in the human body. All our muscles together form the muscular system. The main function of the muscular system is to help in the movement of the body.

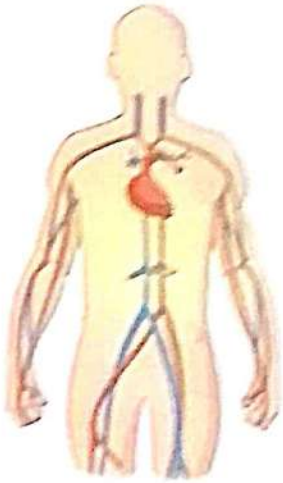
Skeletal system

Muscular system

CIRCULATORY SYSTEM

The circulatory system consists of the heart, blood and blood vessels. The function of the circulatory system is to transport oxygen and nutrients to different parts of the body and also to carry away wastes from the body.

Blood vessels carry blood from the heart to different parts of the body and then back to the heart.



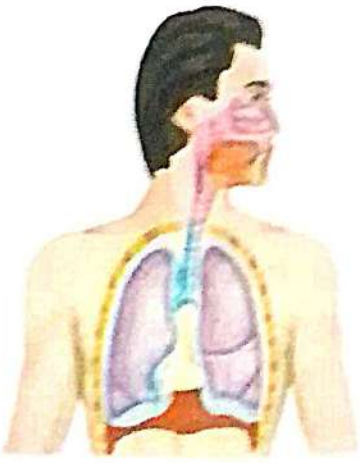
Circulatory system

RESPIRATORY SYSTEM

The system that deals with breathing is called respiratory system. It consists of nose, windpipe and lungs.

When we breathe in, air enters through our nose. It goes into the windpipe and then finally into the lungs. The lungs absorb oxygen from the air we breathe in.

This oxygen burns the food, purifies the blood and gives energy and carbon dioxide. When we breathe out, carbon dioxide goes out from the lungs.



Respiratory system

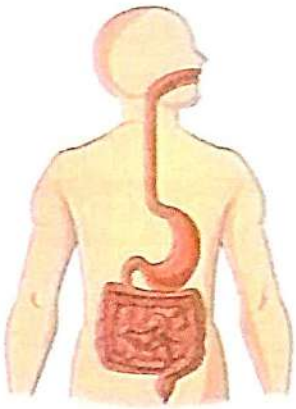
DIGESTIVE SYSTEM

Digestion is the process of changing the food into simpler form so that it can be easily absorbed by the body. Digestive system deals with the digestion of food. It consists of mouth, food pipe, stomach, large and small intestines and anus.

The process of digestion begins in the mouth. Here the food is mixed with the saliva. It then goes to the stomach through the food pipe.

The digestive juices of the stomach mix with the food and then it goes into the small intestine where the food is further digested. The useful part of the food is absorbed by the blood.

The rest food that cannot be digested by our body goes into the large intestine and finally thrown out of the body through anus.

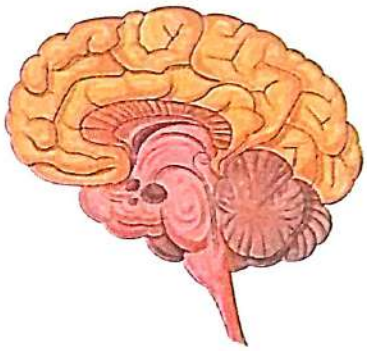


Digestive system

NERVOUS SYSTEM

Nervous system consists of brain, spinal cord and nerves. It controls all other systems of the body. The brain is the main organ of the nervous system.

The brain is linked to every part of the body through the spinal cord and nerves. If you want to pick up a glass of water, immediately the nerves send a message to the brain and simultaneously, the brain orders the hand to pick up the glass.



Nervous system

Did You Know?

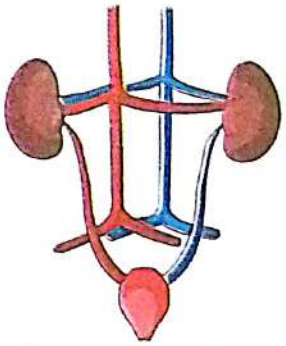
The left brain controls the right side of our body and the right brain controls the left side of our body.

EXCRETORY SYSTEM

Excretion is the process of removal of all wastes from the body. Excretory system consists of the lungs, kidneys and skin.

Kidneys are the main excretory organs. They help to throw out urine.

Our skin helps to eliminate sweat and lungs give out carbon dioxide.



Excretory system

REPRODUCTIVE SYSTEM

The reproductive system helps to produce young ones. In the process of reproduction, a living organism creates a likeness of itself. The process may be either asexual that an organism reproduces by itself alone or sexual, which requires both male and female sex cells. Genes are the basic units that transmit a species characteristics to the next generation. Genes are composed of DNA (Deoxyribonucleic Acid). Most DNA is located in the cell nucleus but a small amount of DNA can also be found in the mitochondria.

KNOWLEDGE QUEST

Learning Based

Name any two organs of the following organ systems.

1. Respiratory system _____ _____
2. Digestive system _____ _____
3. Circulatory system _____ _____
4. Nervous system _____ _____
5. Reproductive system _____ _____

In a Nutshell

- Cells are the building blocks of the body.
- The bony framework of our body is called the skeletal system.
- The circulatory system consists of the heart, blood and blood vessels.
- The lungs absorb oxygen from the air we breathe in.
- Digestive system consists of mouth, food pipe, stomach, large and small intestine and anus.
- The brain is linked to every part of the body through the spinal cord and the nerves.
- Excretion is the process of removal of all wastes from the body.
- The reproductive system helps to produce young ones.

Let's Answer

Based on NEP 2020

A. Tick (✓) the correct option :

1. A group of different tissues form an
   (i) body (ii) organ (iii) cell

2. Our body is made up of _____ bones.
   (i) 204 (ii) 205 (iii) 206
3. The part of the body that gives shape and support to the body, is :
   (i) bone (ii) nerve (iii) liver
4. The process of removal of wastes from the body is called :
   (i) digestion (ii) excretion (iii) circulation
5. Blood is carried to every part of the body by :
   (i) lungs (ii) blood vessels (iii) heart

B. Fill in the blanks :

Kidneys body Blood vessels Group mouth

1. Our _____ is a living machine.
2. _____ of cells join together to make a tissue.
3. _____ carry blood from the heart to different parts of the body.
4. The process of digestion begins in the _____.
5. _____ are the main excretory system.

C. Match column (A) with column (B) :

Column (A)	Column (B)
1. Digestive System	(i) kidneys
2. Nervous System	(ii) heart
3. Excretory System	(iii) lungs
4. Respiratory System	(iv) stomach
5. Circulatory System	(v) brain

Learning Based

D. Name the following :

1. It beats all the time. _____
2. Oxygen is given to the blood and carbon dioxide is taken. _____
3. It decides to take proper action. _____
4. It protects lungs and heart. _____

Understanding Based

E. Answer the following questions :

1. What is the function of the skeletal system?
2. How do muscles help us?
3. Why are lungs considered to be a part of the excretory system?

4. How does digestion of food take place?
5. List the organs of the nervous system and write their functions.

F. Think and Answer : Analysis Based

1. Why do doctors advice not to take spoil food? Which system gets affected?
2. Why do you feel pain when somebody pulls your hair?

LEARN BY DOING

Write the number of breaths taken by you per minute. Count with the help of a clock.

After walking for 5 minutes _____
After sitting for 5 minutes _____
After running for 5 minutes _____

Skill Check-in

21st Century Skills

A. ..... Flexibility

The number of heartbeats per minute can change from time to time. Using a stethoscope, check your heartbeats after different activities.

Activities	Number of Heartbeats per minute
Running very fast for 1 minute	
Jumping in a garden	
Climbing stairs	
Sitting still	

Does any of these activities increase your heartbeats?

B. ..... Critical thinking

Find out the body organ by using first letter of the name of each picture:

C. ..... Creativity

Visit a gym with your parents and observe the various exercises people do there. Identify various tools they use there. Collect pictures of some of them and make a collage.

8. Safety and First Aid

Accidents are any unforeseen mishappenings caused due to carelessness. Accidents can be avoided if we follow safety rules at home, at school, on the road, in the playground.

SAFETY AT HOME

- Be careful while using sharp things like knives, blades, needles, pins, etc.
- Stay away from hot pans, steaming kettles, heaters, gas stoves, candles, etc.
- Do not take any medicine without the parents' or doctor's advice.

Did You Know?

The first safety matches were made in Sweden in 19th century.

- Be careful while walking on wet floors. Never run on them.
- Do not play or fly kites on the terrace. You may fall down and hurt yourself.
- Do not touch any chemical like phenyl and mosquito repellant without your parents' permission.

SAFETY ON THE ROAD

- Always walk on the footpath.
- Cross the road at the zebra crossing.
- Before crossing, first look to your right, then to your left and then again to your right. If there is no vehicle coming, then cross the road.
- Follow the traffic lights.
- Always keep to your left while riding a bicycle.
- Do not run across the road or play on the road. You might be hit by a passing vehicle.



KNOWLEDGE QUEST

Learning Level

What will you suggest to these children to keep safe? Discuss in class.



SAFETY IN THE SCHOOL

- Do not climb on desks.
- Do not throw things at each other.
- Do not use a blade to sharpen your pencil.
- Do not run down the staircase or push others while standing on the staircase. You or others may fall and get injured.



SAFETY IN PARKS AND PLAYGROUNDS

- Do not run on an uneven ground.
- Be careful while playing in a playground having barbed wire fencing.
- Do not run on wet fields.
- Do not play games like hide and seek in dark lonely places.
- Be careful on swings.



FIRST AID

First aid is the immediate help given to an injured person before the doctor arrives. Correct and immediate first aid can save the life of a person. Given below are some first aid tips that you can follow in such a situation :

- Make the person sit or lie down in a comfortable situation.
- Do not let people crowd around the person.
- In case of small cuts, clean the wound with an antiseptic lotion and then apply an antiseptic cream.
- If the person has burnt his hand or any part of his body, put cold water over it till the burning sensation stops.
- Call a doctor or an adult immediately.

In a Nutshell

- Accidents are any unforeseen mishappenings caused due to carelessness.
- Do not play or fly kites on the terrace. You may fall down and hurt yourself.
- Do not run across the road or play on the road. You might be hit by a passing vehicle.
- Do not use a blade to sharpen your pencil.
- Be careful while playing in a playground having barbed wire fencing.
- Correct and immediate first aid can save the life of a person.

Let's Answer

Based on NEP 2020

A. Tick (✓) the correct option :

1. We should not jump on :
   (i) chairs ( ) (ii) desk ( ) (iii) both (i) and (ii) ( )
2. We should cross the road at the _____ crossing.
   (i) tiger ( ) (ii) lion ( ) (iii) zebra ( )
3. A burnt wound should be washed with :
   (i) hot water ( ) (ii) cold water ( ) (iii) dirty water ( )
4. In the kitchen, we should not wear :
   (i) synthetic clothes ( )
   (ii) cotton clothes ( )
   (iii) none of the above ( )
5. Which of the following should not be there in a first aid box?
   (i) Bandage ( ) (ii) Toys ( ) (iii) Cotton ( )

B. Fill in the blanks :

uneven rules footpath blade desks

1. Accidents can be avoided if we follow safety _____.
2. We should walk on the _____.
3. We should not run on an _____ ground.

4. We should not climb on _____.
5. We should not use a _____ to sharpen our pencil.

C. Match column (A) with column (B) :

Column (A)	Column (B)
1. Subway	(i) caused due to carelessness
2. Zebra crossing	(ii) rules to be followed to prevent accidents
3. Knives and forks	(iii) white broad strips on the road
4. Accidents	(iv) underground passage to cross the road
5. Safety rules	(v) cause of injury in the kitchen

Learning Based

D. Name the following :

1. A path for people to walk on. _____
2. A place where the road is marked with black and chite lines. _____
3. A substance that kills germ. _____
4. An immediate help to an injured person. _____

Understanding Based

E. Answer the following questions :

1. Why do accidents take place?
2. Write any three things that we should not do at home.
3. Write three safety rules that should be followed on road.
4. What is first aid?
5. What can we do to keep ourselves safe when we are outside home?

Analysis Based

F. Think and Answer :

1. Why is it advised not to crowd around the injured person?
2. Why is it important for a person to wash his hands before touching the wound of a victim?

LEARN BY DOING

Take help of an adult to cut three coloured circles from red, yellow and green paper. Make a model of a traffic signal, pasting them on an empty toothpaste box.

Skill Check-in

21st Century Skills

A. ..... *Information literacy*

While playing at home, Tarun fell down and injured himself. His friend Arun immediately asked Tarun for a first aid box which Tarun did not have. If you were at Arun's place, how would have you explained the benefits of keeping a first aid box readily available at home?

B. ..... *Collaboration*

Do you have a first aid box in your class? If not, make one each student will bring one item that should be kept in the first aid box. Attach a label with each item bearing the following details.

When to use? _____ How to use? _____ Expiry date? _____

On a sheet, write down the steps to be followed while giving first aid to a person. Paste the sheet on the inner side of the lid of the first aid box.

C. ..... *Social skills*

The Red Cross Society consists of volunteer members who provide timely and immediate help to victims of accidents. They arrange for blood for injured people. In fact, they run special blood banks all over the country. The symbol of the Red cross is + .

In a similar manner, the Blue Cross Society looks after sick and injured animals. Do you know that there are special doctors who treat animals? They are called veterinary doctors.

All human beings have one of the four types of blood groups A, B, A B or O. Ask your mother what is your blood group?

9. Housing and Clothing

A house is a place where we live. It protects us from heat, cold, rain, wild animals and thieves.

We see different types of houses around us. They differ in size, shape, location and construction material.

TYPES OF HOUSES

Houses can be classified into two types : permanent and temporary houses.

Permanent houses : The houses made of bricks, cement, iron, etc are known as permanent houses. They are also known as pucca houses. They cannot be shifted from one place to another. These types of houses are mostly found in towns and cities.

Did You Know?

Kings and queens used to live in very big, spacious permanent houses called forts and palaces.

Permanent houses are of different types like single-storeyed house, bungalow, multi-storeyed buildings.

Single-storeyed house

Bungalow

Multi-storeyed building

Temporary houses : The houses, made of materials like mud, bamboo, wood, straw, grass, etc are called temporary houses.

They are also known as kutcha houses. The construction materials of these types of houses are cheap and easily available.

A hut

Temporary houses are of different kinds :

Caravan : A caravan is a house on wheels. It can be taken from one place to another. Gypsies and people who work in the circus usually live in these houses.

Houseboat : A house made on a boat is called houseboat. It is made of wood. Houseboats are commonly found in Kashmir and Kerala.

Tent house : A tent house is made of canvas. It can be folded and taken from one place to another. Refugees, nomads, etc use this type of houses for camping.

Caravan

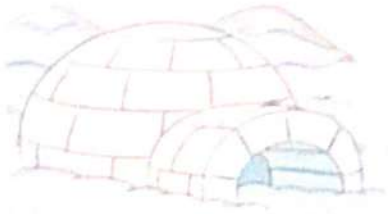
Houseboat

Tent house

SPECIAL HOUSES

Igloos : Igloos are made of snow. They have dome-shaped roofs. Eskimos live in igloos. These are found in cold countries.

Stilt house : Stilt houses are made of long pieces of wood. They are raised high above the ground on poles or posts. These houses are built where flood is common.



Igloo

Stilt house

KNOWLEDGE QUEST

Learning Based

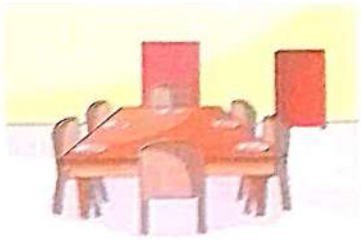
Who lives in the following buildings?

1. The White House _____
2. The Rashtrapati Bhawan _____
3. The Buckingham Palace _____

CHARACTERISTICS OF A GOOD HOUSE

- A good house should be clean, safe, airy and comfortable.
- It should have sufficient supply of air.
- It should have a good drainage system.
- Its doors and windows should have a wire mesh to keep mosquitoes and flies out of the house.
- There should be proper ventilation in it to let the smoke out of the kitchen.
- Its floor of kitchen and bathroom should be sloping so that water can flow out easily.
- A good house should have separate rooms for eating, sleeping, studying, cooking and taking bath.

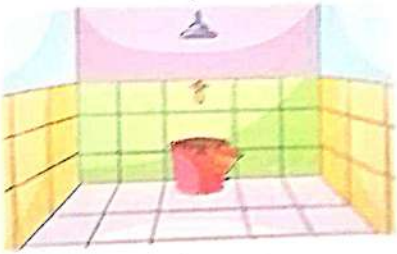
Drawing-room



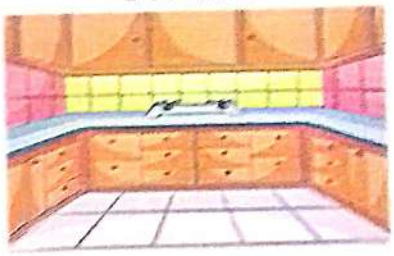
Dining-room

Bedroom

Study room



Bathroom



Kitchen

CLOTHING

Clothing is our basic need. Clothes protect us from heat, cold, rain, dust and insect bites.

We wear different types of clothes according to seasons :

In winters, we wear woollen clothes. They keep our body warm. Dark coloured clothes made of wool, silk and fur are worn in winters.

Clothes worn in winter season

Clothes worn in summer season

In summers, we wear light coloured clothes. They keep our body cool and absorb our body sweat. Khaadi, cambric and poplin are best clothes for summers.

In rainy season, we wear raincoats and gumboots to protect us from rain. We also use an umbrella to save us from getting wet.

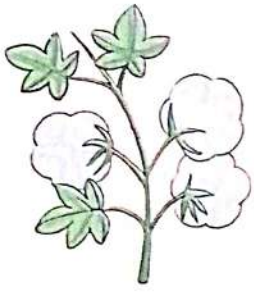
Clothes worn in rainy season

FIBRES

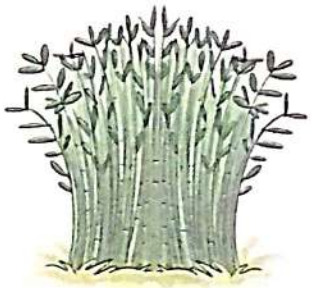
Clothes are made from fibres. Many fibres when twisted together make yarn. These yarns are used to make fabric. One or more fabrics are then stitched together to make a dress.

Fibres are of two types :

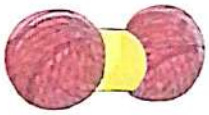
1. **Natural fibres :** Natural fibres are obtained from plants and animals. Some fibres that come from plants are cotton, jute, flax, etc while the fibres that come from animals are wool, silk, etc.



Cotton



Jute

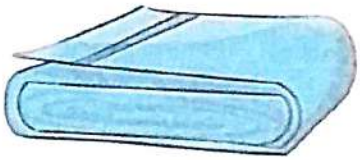


Wool

Silk

2. **Man-made fibres :** These are the fibres that are made by man. These are also known as synthetic fibres. Nylon, terylene and polyester are synthetic fibres.

Nylon



Terylene

Polyester

In a Nutshell

- The houses made of bricks, cement, iron, etc are known as permanent houses.
- Temporary houses are also known as kutcha houses.
- A caravan is a house on wheels.
- Stilt houses are made on stilts and raised above the ground.
- Doors and windows should have a wire mesh to keep mosquitoes and flies out of the house.
- Clothes protect us from heat, cold, rain, dust and insect bites.
- Khaadi, cambric and poplin are best clothes for summers.
- Natural fibres are obtained from plants and animals.
- Nylon, terylene and polyester are synthetic fibres.

Let's Answer

Based on NEP 2020

A. Tick (✓) the correct option :

1. Which of these are made of bricks and cement?
   (i) Temporary houses
   (ii) Permanent houses
   (iii) Caravan

2. A good house has :
   (i) proper ventilation
   (ii) enough doors and windows
   (iii) both (i) and (ii)

3. Igloos are made of :
   (i) cement
   (ii) brick
   (iii) snow

4. In which season do we wear cotton clothes?

(i) Summer season (ii) Winter season

(iii) Rainy season

5. Clothes are made from :

(i) fabric (ii) fibres

(iii) both (i) and (ii)

B. Fill in the blanks :

caravan need Stilt house synthetic

1. A _____ is a place where we live.
2. A _____ is a house on wheels.
3. _____ houses are high above the ground.
4. Clothing is our basic _____.
5. Terylene is _____ fibre.

C. Match column (A) with column (B) :

Column (A)	Column (B)
1. Plant fibre	(i) raincoats and gum boots
2. Animal fibre	(ii) sheep
3. Umbrella	(iii) snow
4. Igloo	(iv) cotton
5. Wool	(v) during rains

D. Name the following : Learning Based

1. Fibre use to make winter clothes. _____
2. Fibre use to make rainy season clothes. _____
3. Fibre use to make summer clothes. _____

E. Answer the following questions : Understanding Based

1. Why do we need a house to live in?
2. Why is it necessary for doors and windows to be netted?
3. What are the characteristics of a good house?
4. What do clothes protect us from?
5. Name two natural fibres. Why are they called natural fibres?

F. Think and Answer :

Analysis based

1. Why is it better to have closed dustbins in the house?
2. Umbrellas are most commonly made of nylon. Why?

LEARN BY DOING

Collect information and make a report on the following :
(a) Some popular brands of cement
(b) Some popular brands of paint
(c) Different types of wood used in making houses

Skill Check-in

21st Century Skills

A. ..... Critical thinking

If you lived on the tenth floor of an apartment complex and an earthquake struck, would you use the lift to reach ground level or the stairs? Give reason for your answer.

B. ..... Social skills

India is a secular country, It has many states. Many of its states have some traditional clothing. For example, *Bakhu* is a traditional dress of Sikkim. Find out the traditional clothes of some other states.

C. ..... Collaboration

Sometimes people kill animals such as Crocodiles and Elephants to make things such as handbags, jewellery and coats. Is it fair to do this? Discuss the importance of taking care of animals by using non-animals materials for clothing.

D. ..... Creativity

Collect some strips of cloth. Dress up Amit and Amita for a picnic. Many children in some parts of the world do not have enough clothes to wear. How can you help them?

10.

Matter

Matter is anything that has mass and occupies space.

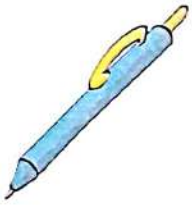
Everything around us like air, water, etc is matter. Matter includes both living and non-living things.

STATES OF MATTER

Matter exists in three different forms : solid, liquid and gas.

Solid

- Anything that has a definite shape and size is known as solid.
- It retains its shape, wherever it is placed.
- It can neither change its shape nor can flow.
- Pen, pencil, book, toys, etc are solids.


Pen


Book


Toys

Liquid

- Anything that does not have definite shape and size is known as liquid.
- It can flow easily.
- It takes the shape of the container in which it is kept.
- Water, milk, oil, fruit juice, etc are liquids.


Water

Milk


Juice

Gas

- Anything that has no shape or size of its own is known as gas.
- It cannot be seen.
- It fills all available space.
- Our atmosphere consists of different types of gases.


Gas cylinder


Air filled balloon


Tyre filled with air

KNOWLEDGE QUEST

Learning Goal

Classify the following into solid, liquid and gas :

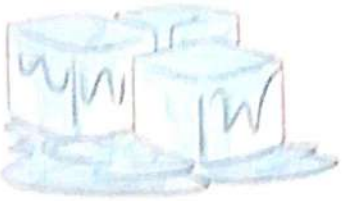
1. Juice _____
2. Mango _____
3. Steam _____
4. Oxygen _____
5. Milk _____
6. Book _____
7. Apple _____
8. Oil _____

CHANGE OF STATE OF MATTER

The change of matter from one form to another is known as *change of state of matter*.

Ice, snow and frost are the solid states of water. Water is the liquid state of water. Steam is the gaseous state of water.

- The process of changing a solid *(ice)* into liquid *(water)* is called *melting*.
- The process of changing a liquid *(water)* into solid *(ice)* is called *freezing*.
- The process of changing a liquid *(water)* into gas *(steam)* is called evaporation.
- The process of changing a gas *(steam)* into liquid *(water)* is called condensation.



Ice

Water

Steam

In a Nutshell

- Matter is anything that has mass and occupies space.
- Matter exists in three different forms : solid, liquid and gas.
- Liquids take the shape of the container in which they are kept.
- Our atmosphere consists of different types of gases.
- Ice, snow and frost are the solid states of water.

Let's Answer

Based on NEP 2020

A. Tick (✓) the correct option :

1. Which of the following is not a state of matter?
   (i) Solid ( ) (ii) Liquid ( ) (iii) Light ( )
2. Our atmosphere consists of different types of :
   (i) liquids ( ) (ii) gases ( ) (iii) solids ( )
3. This is the solid state of water :
   (i) steam ( ) (ii) ice ( ) (iii) vapour ( )
4. The process of changing a gas into liquid is called :
   (i) melting ( ) (ii) condensation ( ) (iii) evaporation ( )
5. When water changes into steam, it is known as :
   (i) melting ( ) (ii) condensation ( ) (iii) evaporation ( )

B. Fill in the blanks :

solids Air Gas liquids Matter

1. _____ includes both living and non-living things.
2. _____ is an example of gas.
3. Water, milk, etc are _____.
4. _____ fills all available space.
5. Ice is the _____ form of water.

C. Match column (A) with column (B) :

Column (A)	Column (B)
1. Mass	(i) gas form of water
2. Melting	(ii) change of water into gas
3. Volume	(iii) change of ice into water
4. Vapour	(iv) indicates lightness or heaviness
5. Evaporation	(v) space occupied by an object

D. Name the following :

Learning Based

1. Anything that has mass and occupies space. _____
2. The process by which a solid change into liquid. _____

3. It is the solid form of water. _____

4. The process by which a gas change into liquid. _____

5. Answer the following questions : **Understanding Based**

1. Define matter?
2. What is the difference between solid and liquid?
3. What are the three states of matter? Give one example of each.
4. What are gases?
5. What is evaporation?

6. Think and Answer : **Analysis Based**

1. Why does a balloon inflate when we blow it?
2. Can you hold liquids in your hands? Why/Why not?

LEARN BY DOING

Prepare your own chocolate ice cream. Put two spoonfuls of milk in a bowl. Add one spoonful of cream and chocolate powder each. Add two spoonfuls of sugar. Mix well. Put the bowl in the freezer. After a few hours, the mixture becomes solid ice cream.

Skill Check-in

21st Century Skills

A. ..... **Productivity**

The requirement of water is increasing due to an increase in population. So, there is a shortage of water. It is very necessary to avoid misuse of water. List out some ways to stop wasting water.

B. ..... **Creativity**

Collect pictures of any five things found in your kitchen from old newspapers and magazines. Paste them in your scrapbook. For each picture, mention whether it is solid, liquid or gas and write its properties.

C. ..... **Critical thinking**

Your mom has packed hot idlis for lunch. When you open your lunch box at school, you see droplets of water on the inner side of the lid sometimes. Can you explain why?

11. Measurement

In our everyday life, we need to measure length and weight of objects and quantity of liquids, temperature, etc.

MEASURING LENGTH

In early days, people used their body parts to measure different objects :

Cubit : The distance from the elbow to the tip of middle finger.

Hand span : The distance between the tip of the thumb and the little finger.

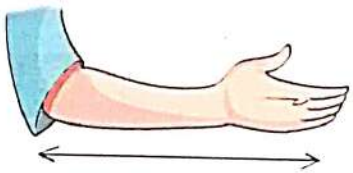
Armlength : The length between the shoulder and the middle finger.

Foot span : The distance covered by the length of a grown man's foot.

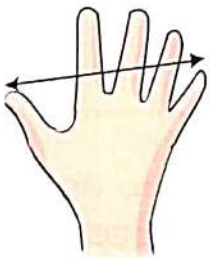
Did You Know?

In some countries weight is measured in pounds.

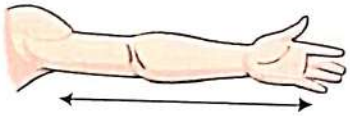
1 pound = 1/2 kg (approx.)



Cubit



Hand span



Armlength

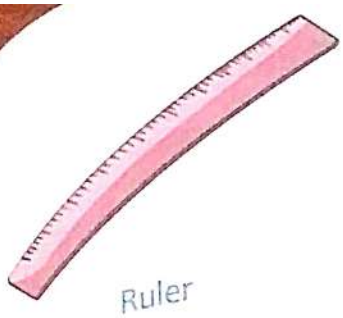
Foot span

However, the length measured by body parts is not accurate because the lengths of body parts differ from person to person.

Therefore, we need to have standard unit of measurement.

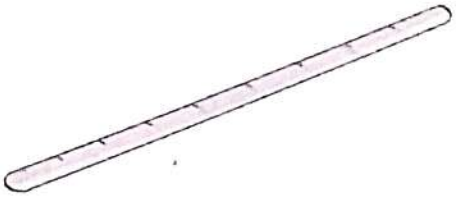
Metre (m) is the standard unit of measurement of length.

The other units of measurement are centimetre (cm), millimetre (mm) and kilometre (km).



Ruler

Measuring tape



Metre rod

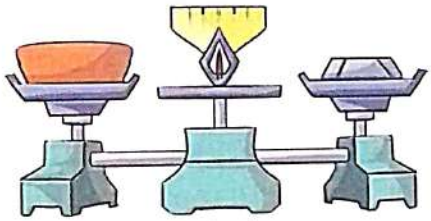
A ruler, measuring tape and metre rod are used to measure length.

MEASURING MASS

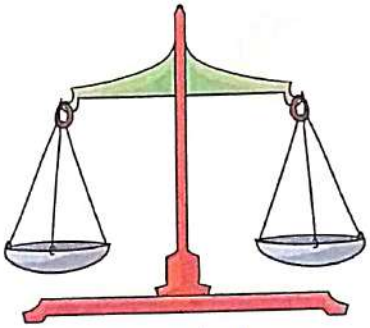
Mass of an object tells us how heavy or light an object is. Kilogram (kg) is the standard unit of measurement of mass. The other commonly used unit is gram (g).

Spring balance, beam balance, weighing balance and weighing machine are used to measure mass.

Spring balance



Beam balance



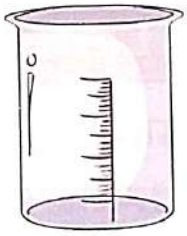
Weighing balance

MEASURING CAPACITY

Capacity is the amount of liquid, a container can hold. The commonly used unit for measuring capacity is litre (l) and millilitre (ml).

Measuring cylinder or measuring beaker is used to measure capacity.

Measuring cylinder



Measuring beaker

KNOWLEDGE QUEST Learning Based

Measure and write the capacity of :

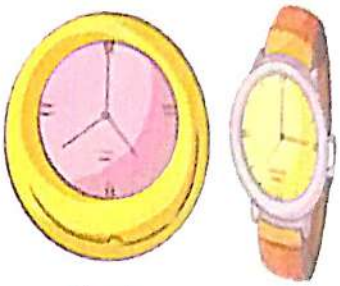
1. The glass in which you drink milk. _____
2. Your water bottle. _____

MEASURING TIME

Second (s) is the standard unit of measurement of time.

The other commonly used units are minute (m) and hour (h).

We use a watch or a clock to measure time.



Clock Watch

MEASURING TEMPERATURE

Temperature is the measure of how hot or cold an object is.

We measure it by an instrument called thermometer.

It measures the temperature in degree Celcius (°C) or Fahrenheit (°F).

Thermometer

In a Nutshell

- The distance between the tip of the thumb and the little finger is called handspan.
- Metre (m) is the standard unit of measurement of length.
- Spring balance, beam balance and weighing balance are used to measure mass.
- Capacity is the amount of liquid, a container can hold.
- We use a watch or a clock to measure time.
- Temperature is the measure of how hot or cold an object is.

Let's Answer

Based on NEP 2020

A. Tick (✓) the correct option :

1. The measurement obtained using a body part is :
   (i) accurate (ii) inaccurate (iii) none of these
2. Which of these is the standard unit of measurement of length?
   (i) Metre (ii) Litre (iii) Kilogram
3. _____ is the amount of liquid a container can hold.
   (i) Mass (ii) Length (iii) Capacity
4. Which of these is the standard unit of measurement of time?
   (i) Second (ii) Hour (iii) Minute

5. We use a watch or clock to measure :

(i) length (ii) mass (iii) time

B. Fill in the blanks :

accurate capacity Temperature Cubit Second

1. _____ is the distance from the elbow to the tip of middle finger.
2. The length measured by body part is not _____.
3. _____ is the standard unit of measurement of time.
4. Measuring cylinder or measuring beaker is used to measure _____.
5. _____ is the measure of how hot or cold an object is.

C. Match column (A) with column (B) :

Column (A)	Column (B)
1. Cloth	(i) litre
2. Fruits	(ii) hours
3. Milk	(iii) kilogram
4. Time	(iv) metre

D. Name the following : Learning Based

1. Two things whose length is measured. _____
2. Two things whose weight is measured. _____
3. Two things whose capacity is measured. _____

E. Answer the following questions : Understanding Based

1. How did people in earlier times measure mass?
2. Why was there a need to have a standard unit for measuring length?
3. What do you mean by mass? Name two objects which are used to measure mass.
4. Which objects do we use to measure capacity?
5. What is temperature? How is it measured?

F. Think and Answer : Analysis Based

1. If you see a shopkeeper not weighing the things properly, what will you do?
2. What is our normal body temperature? Will it change if you are on a vacation to a hill station with your parents?

LEARN BY DOING

Collect the pictures of metre rod, spring balance, measuring beaker and thermometer. Paste them in your scrapbook.

Skill Check-in

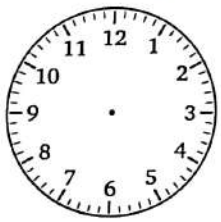
21st Century Skills

A. ..... *Technology literacy*

Visit the science laboratory in your school and look at some apparatuses used to measure weight, length and volumes for experiments. Take help from your elders and find more about them from the internet.

B. ..... *Creativity*

Draw a clock on a sheet and label 1 to 12 in it. Also draw minute and hour hands on this clock. Observe which one is longer?
Also show the morning time in clock.



C. ..... *Productivity*

With the help of an elder, learn the recipe for making tea. Write the steps for making tea. Write the measurements of each ingredient used. How much time did it take prepare tea?

D. ..... *Social skills*

Rahul visited Rohan's house. Rohan's mother was scolding the milkman. Rahul asked Rohan why his mother scolding the milkman. Rohan replied that his mother bought two litres of milk everyday. She thought that she must check whether or not the milkman was supplying the right amount of milk. So, she checked the amount of milk. She found that he was giving 250 ml milk less everyday. Was the milkman doing right thing? Why?

E. ..... *Technology literacy*

Stand against a wall. Ask your friend to make a mark above the top of your head on the wall with a pencil. Measure the distance of the mark from the floor with the help of a metre scale or measuring tape. Write it down here.

My height = _____ centimetres.

Now, measure the height of your friend. Find who is taller.

12. Light, Sound and Force

LIGHT

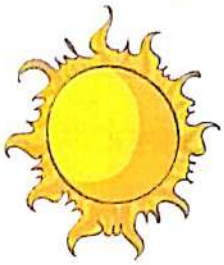
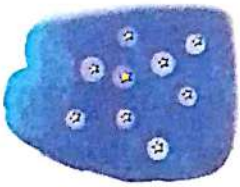
Light is a form of energy. The Sun is the main source of light on the Earth. To get artificial light, we use electric bulbs and tubelights.

When electricity supply is not there, we use a candle, kerosene lamp or battery operated torch.

The objects that emit light of their own are known as luminous objects.

Some of these objects like the Sun, stars, etc are natural, while other objects like a candle, torch, etc are man-made sources of light.

Objects that do not emit light are known as non-luminous objects. These objects become visible only when light falls on them.

Sun Stars

Natural luminous objects


Candle Torch

Man-made luminous objects

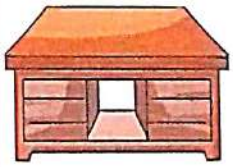



Table Chair

Non-luminous objects

SHADOWS

Shadows are formed when an object blocks the path of light. Shadows always appear to be black or dark, irrespective of the colour of the object. They are always formed on the side opposite to the source of light. They can be bigger or smaller than the object.

Did You Know?

The shade of a tree is actually the shadow of a tree.

Shadows of a boy

KNOWLEDGE QUEST

Learning Based

Give one word for the following :

1. It is a man-made luminous object. _____
2. They are always formed on the side opposite to the source of light. _____
3. This is the main source of light on the Earth. _____

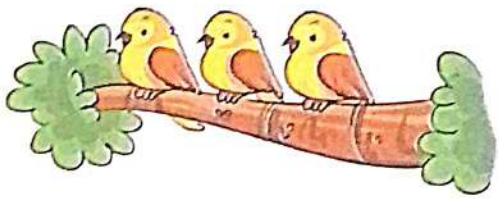
SOUND

Sound is a form of energy. Both living and non-living things can produce sound. We hear different sounds like those of the dogs barking, the birds chirping, the clocks tickling, etc.

Some sounds are loud, while others are soft. Some sounds are pleasant, while others are unpleasant. The loud and unpleasant sound is called noise.

A truck honking

A girl playing piano



Birds chirping

FORCE

Pushing or pulling is called force. Force is applied to do work. Force can stop a moving object. Force can also change the shape of an object. Thus, force moves or stops things or changes the shape of an object.

The force that slows down or stops a moving object is called friction. It develops between two bodies when they touch each other. It is because of friction that we are able to walk. If there is no friction, we would keep slipping off the floor.

A boy pushing the door

A boy pulling a trolley

A boy kicking a ball

In a Nutshell

- The Sun is the main source of light on the Earth.
- The objects that emit light of their own are known as luminous objects.
- The objects that do not emit light are known as non-luminous objects.
- Shadows are always formed on the side opposite to the source of light.
- The loud and unpleasant sound is called noise.
- The force that slows down or stops a moving object is called friction.

Let's Answer

Based on NEP 2020

A. **Tick (✓) the correct option :**

1. Which of the following is a luminous object?

   (i) Paper (ii) Glass (iii) Candle flame

2. The objects that emit light of their own are known as :

   (i) luminous objects

   (ii) non-luminous objects

   (iii) none of the above

3. _____ are formed when an object blocks the path of light.

   (i) Light (ii) Shadows (iii) Force

4. The force that slows down or stops a moving object is called :

   (i) sound (ii) friction (iii) light

5. Which of these is a pleasant sound?

   (i) Breaking of a glass

   (ii) Playing of a guitar

   (iii) Honking of car horn

B. Fill in the blanks :

friction energy Pushing Light Shadow

1. _____ is a form of energy.
2. _____ always appears to be black or dark.
3. Sound is a form of _____.
4. _____ or pulling is called force.
5. The force that slows down or stop a moving object is called _____.

C. Match column (A) with column (B) :

Column (A)	Column (B)
1. Force	(i) table
2. Pleasant sound	(ii) always appears to be dark or black
3. Friction	(iii) playing a guitar
4. Non-luminous object	(iv) walking on a road without slipping
5. Shadow	(v) hitting a ball with a bat

D. Name the following : Learning Based

1. A dark shape formed when the path of the light is blocked. _____
2. Loud and unpleasant sound. _____
3. A kind of force produced due to rubbing or touching of two objects. _____
4. A luminous object. _____

E. Answer the following questions : Understanding Based

1. Differentiate luminous and non-luminous objects.
2. How is a shadow formed?
3. What is sound?
4. How do we hear the sounds around us?
5. What is friction?

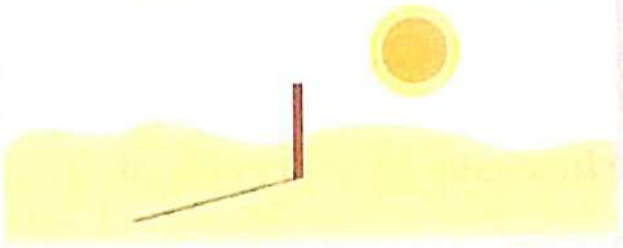
Think and Answer :

Analysis Based

1. If we shout on the moon, can the other person hear us? Why?
2. You ever heard of a sound being unpleasant and loud but still liked by the public? Give an example.

LEARN BY DOING

We can use shadows to find time. Cut a disc (circle) from a cardboard. Fix a long stick or nail at the centre of the disc. Keep the disc out in the Sun at 8 a.m. Mark the position of the shadow of the stick or nail on the disc. After every hour, mark the position of the shadow. Write 8, 9, 10..... hours at different positions of the shadow.



Skill Check-in

21st Century Skills

A. ..... *Collaboration*

Draw a rough sketch of your study room in a group with all the objects that may help you to study. Consider the following :

1. Less noise,
2. Sufficient light.

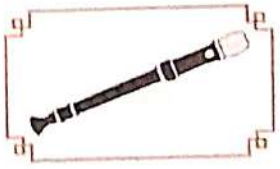
B. ..... *Social skills*

Meenal listens to music at a very high volume everyday. If you are Meenal's best friend, what would you like to suggest to her?

C. ..... *Information literacy*

Visit your music room and play all the instruments you see there! Discuss the vibrations each one makes and how it sounds.



D. ..... *Creativity*

Noise is a loud and an unpleasant sound. Draw the traffic sign inside the box that indicates 'No Honking'. In which public places are these signs used and why?

13. Rocks, Soil and Minerals

Earth is made up of rocks and minerals.

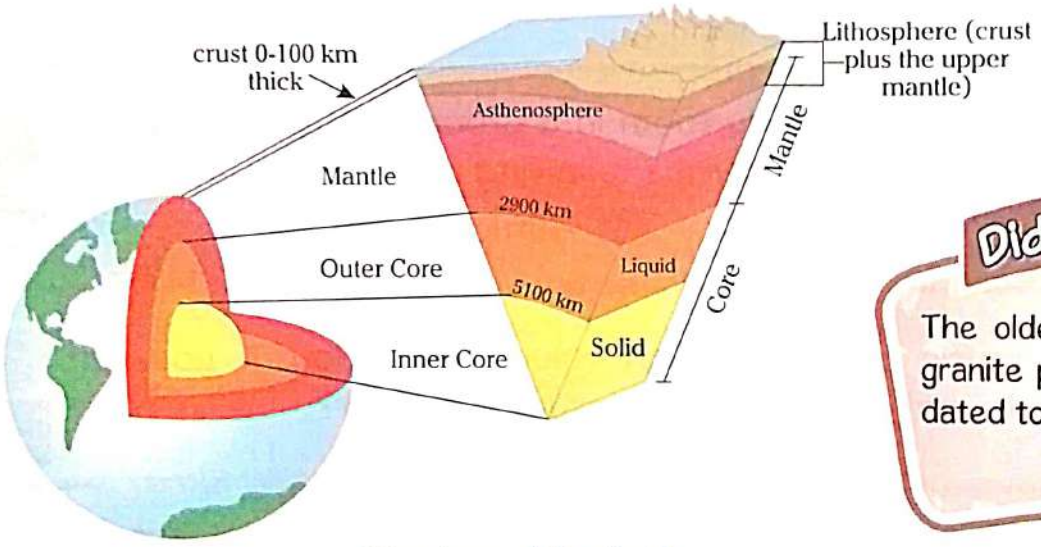
The innermost part of the Earth is called core.

It is made of molten rocks and is therefore liquid.

The outermost layer of the Earth is hard and is called crust. It is made of solid rocks.

The mantle is a layer between the crust and the outer core.

Rocks are of different sizes, shapes and colours.



Structure of the Earth

Did You Know?

The oldest rock on Earth is a granite protolith that has been dated to 4.03 Ga (billion years).

TYPES OF ROCKS

Rocks can be classified into three types :

- **Rocks under water :** Some rocks are formed with small pieces of pebble, gravel, clay and sand.

  These are mostly found under water.

Sandstone

Limestone

- **Rocks deep inside the Earth :** Some rocks change their forms to make new rocks.

Marble

Slate

Granite

Basalt

- **Rocks near the Earth's surface :** Some rocks are formed when liquid minerals change into solid.

  These are found near the Earth's surface.

KNOWLEDGE QUEST

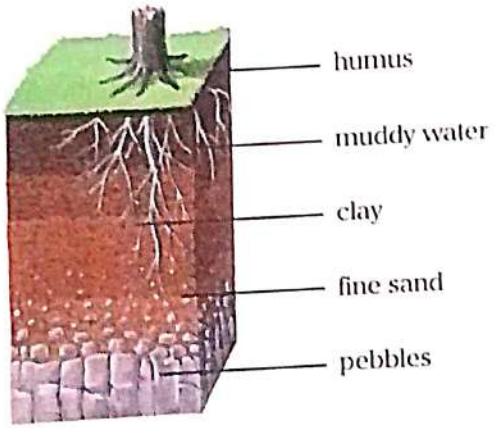
Learning Based

Following are the names of some famous buildings. Write the names of the rocks they are made of :

1. Taj Mahal : _____
2. Red Fort : _____
3. Buland Darwaza : _____

FORMATION OF SOIL

The process of soil formation takes hundreds of years. The heat of the Sun causes cracks in the rocks and when it rains heavily, the rain strikes rocks with great force which breaks the rocks into small pieces till a powdery mass is formed.
In this way, the soil is formed.



Layers of soil

TYPES OF SOIL

Soil varies in colour and composition. Soils are of three types :

- **Sandy soil :** The particles of sandy soil are loosely packed and cannot hold much water. It is grey or brown in colour. Very few plants grow in sandy soil.

- **Clayey soil :** Clayey soil is sticky and made up of fine particles. It can hold a lot of water. It is soft and smooth to touch. Plants like wheat and rice grow well in clayey soil.
- **Loamy soil :** It is a mixture of sand and clay. It can hold water and contains humus. It is ideal soil for growth of plants.

USES OF SOIL

- Soil provides water and minerals to plants for growth.
- Soil is the habitat of many tiny creatures like snails, earthworms, etc.
- Soil prevents floods by absorbing rainwater.

In a Nutshell

- The innermost part of the Earth is called core.
- Some rocks are formed with small pieces of pebble, gravel, clay and sand.
- The heat of the Sun causes cracks in the rocks.
- Clayey soil is sticky and made up of fine particles.
- Soil prevents floods by absorbing rainwater.

Let's Answer

Based on NEP 2020

A. Tick (✓) the correct option :

1. Which of the following is made up of rocks and minerals?
   (i) Sun (ii) Moon (iii) Earth
2. Which is the outermost layer of the Earth?
   (i) Core (ii) Crust (iii) Mantle
3. Which of the following fixes the soil with the help of their roots?
   (i) Plants (ii) Fossils (iii) Animals
4. Which soil contains humus?
   (i) Clayey soil (ii) Sandy soil (iii) Loamy soil

B. Fill in the blanks :

mantle Clayey floods core Loamy

1. The innermost part of the Earth is called _____.

2. The _____ is a layer between the crust and the outer core.
3. _____ soil can hold a lot of water.
4. _____ soil is a mixture of sand and clay.
5. Soil prevents _____ by absorbing rainwater.

C. **Match column (A) with column (B) :**

Column (A)	Column (B)
1. Loamy soil	(i) grey or brown in colour
2. Clayey soil	(ii) are present in Earth
3. Humus	(iii) can hold a lot of water
4. Minerals	(iv) is good for plant growth
5. Sandy soil	(v) is good for soil

D. **Name the following :** Learning Based

1. Substances in rocks which we can use. _____
2. Soil that cannot hold water. _____
3. Sticky soil. _____
4. It makes the soil fertile. _____

E. **Answer the following questions :** Understanding Based

1. What is the Earth made of?
2. What is soil? Explain the process of soil formation on what basis are they divided?
3. What are the different types of rocks?
4. What is the difference between sandy soil and loamy soil?
5. Write some uses of soil.

F. **Think and Answer :** Analysis Based

1. Imagine if Earth did not provide us with such great variety of rocks and minerals, how different would our lives be?
2. If you see someone throwing polybags in water or soil, what will you do?

LEARN BY DOING

Collect different types of rocks such as chalk, marble and granite. Heat them and see which one breaks upon heating.

Skill Check-in

21st Century Skills

A. ..... *Information literacy*

Different types of soil are found in different regions. Find out one state in India each where the following types of soil are found:

i. Sandy soil _____ ii. Clayey soil _____ iii. Loamy soil _____

B. ..... *Social skills*

Many small insects and micro-organisms live in the soil. These days, farmers use harmful chemicals to increase their crop production. These chemicals also kill the small organisms living in soil. Is it okay to kill these organisms? Write your views.

C. ..... *Critical thinking*

Write the first letter of the name of the given pictures and find out who am I?

i.     _ _ _ _

ii.     _ _ _ _

D. ..... *Productivity*

Soil is a valuable natural resource. It is our duty to protect it from the industrial waste sewage into the soil, excessive usage; dumping of polybags, etc.

You are worried about and want to do something. Suggest some ways to protect the most important resource for the plants and animals.

14. Air and Water

Air is present everywhere. It is an essential part of our existence. We cannot see it but it can be felt.

The Earth is surrounded by a blanket of air called atmosphere.

Moving air is called wind.

Gently moving air is called breeze.

Fast moving air is called storm.

CONSTITUENTS OF AIR

Air is a mixture of gases. It contains gases like oxygen which we breathe in and carbon dioxide which we breathe out. It also contains nitrogen and water vapour. Apart from these, dust and germs also enter into air.

USES OF AIR

- Air provides the gas that living things need for breathing.
- Air dries our clothes faster.
- Wind helps to move sailboats and windmills.
- Air helps birds to fly in the sky and also in flying kites.

Did You Know?

Nitrogen gas is present in the maximum amount in the atmosphere.

Sailboat

Windmill

Kite flying

WATER

Water is essential for all living beings. About seventy per cent of the Earth's surface is covered with water. We use it for various purposes like drinking, bathing, cooking, washing, etc. Plants need water to prepare their food.

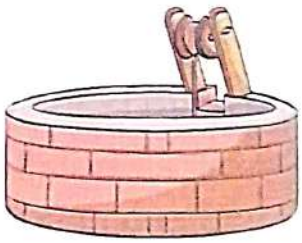
Sources of Water

Rain is the main source of water. We get water from rivers, seas, lakes, wells, tubewells, etc. Sea water is salty and therefore it is not used for drinking.

River

Sea

Lake



Well

KNOWLEDGE QUEST

Learning Based

Take help from elders at your home and answer the following :

How much water do you use for?

1. **Brushing your teeth _____ mugs of water.**
2. **Washing your car _____ buckets of water.**
3. **Taking a bath _____ buckets of water.**
4. **Cleaning the utensils _____ buckets of water.**

States of Water

There are three states of water :

- Ice (solid state)
- Water (liquid state)
- Water vapour (gaseous state)

Ice

Water

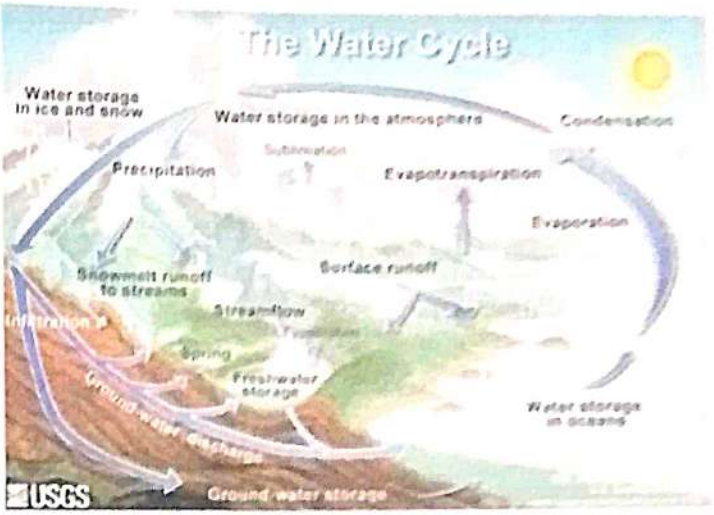
Water vapour

The changing of water into water vapour is called evaporation.

The changing of water vapour into water by cooling is called condensation.

WATER CYCLE

In nature, water keeps on changing its form continuously through evaporation, condensation and precipitation. The heat of the Sun changes water in the seas, lakes, etc into water vapour. As the water vapour rises up, it cools and become tiny droplets of water. These droplets collect to form clouds. When clouds become full and heavy, these droplets fall on the ground as rain. The rainwater runs back into the seas, rivers, oceans, etc. This process goes on continuously and is called the water cycle.



Water cycle

In a Nutshell

- The Earth is surrounded by a blanket of air called atmosphere.
- Air is a mixture of gases.
- Wind helps to move sailboats and windmills.
- Sea water is salty and therefore it is not used for drinking.
- The changing of water vapour into water by cooling is called condensation.
- Water cycle is a continuous process.

Let's Answer

Based on NEP 2020

A. Tick (✓) the correct option :

1. Gently moving air is called :
   (i) wind ( ) (ii) storm ( ) (iii) breeze ( )
2. The gas we breathe in is :
   (i) nitrogen ( ) (ii) oxygen ( ) (iii) carbon dioxide ( )
3. Water changes to water vapour :
   (i) on heating ( ) (ii) on cooling ( )
   (iii) keeping in a shallow dish ( )

4. Which is the main source of water?

(i) River (ii) Rain (iii) Sea

5. The changing of water into water vapour is called :

(i) evaporation (ii) condensation (iii) heating

B. Fill in the blanks :

Water Ice atmosphere everywhere Wind

1. Air is present _____.
2. The Earth is surrounded by a blanket of air called _____.
3. _____ helps to move sailboats and windmills.
4. _____ is the solid state of water.
5. _____ cycle is a continuous process.

C. Match column (A) with column (B) :

Column (A)	Column (B)
1. Air	(i) continuous process
2. Ice	(ii) gaseous form of water
3. Water	(iii) mixture of gases
4. Water cycle	(iv) solid form of water
5. Water vapour	(v) liquid form of ice

D. Name the following : Learning Based

1. A gentle wind. _____
2. A gaseous form of water. _____
3. A moving air. _____
4. The process in which water vapour changes into water. _____

E. Answer the following questions : Understanding Based

1. Why do we need air? Write its constituents.
2. Write the various ways in which air is useful to us.
3. Write the various sources of water.

4. How are cloud formed?

5. Explain the water cycle.

f. Think and Answer :

Analysis Based

1. Where does the water from the wet clothes go, when they dry up in the clothes line?

2. During rainy seasons or just before the rains, we sweat a lot and feel very uncomfortable. Why do you think this happens?

LEARN BY DOING

Water Cycle Activity

Take a jar. Fill it with small rocks, soil, sand, plants and bottle cap as shown in the picture.
Put the lid on it and put the jar in a sunny place.
See how the water cycle works.

Skill Check-in

21st Century Skills

A. ..... *Critical thinking*

Observe the pictures and fill in the blanks. Discuss what water is being used for. Answer the questions that follow.

W _ _ H _ _ G

BR _ _ H _ _ G

D _ _ _ K _ _ G

W _ _ _ R _ _ G

1. Which one uses the most amount of water?
2. Which one uses the least amount of water?
3. How can we reduce the usage of water in all these activities?
4. Why do we need to reduce usage of water?

B. ..... *Information literacy*

Many people around the world do not have safe drinking water. How would you feel if you were one of these people? What would you do to help these people?

C. ..... *Social skills*

We know water is important for us and there is very less amount of water available for our use. Still, water pollution is increasing day by day. Find out how we are polluting water. What are the measures that we should take to prevent water pollution?

D. ..... *Creativity*

We should breathe in clean air to stay healthy. Make a poster to show different things you can do keep the air clean. Display your poster in the class.

E. ..... *Initiative*

If you circle the first letter of the first state, second letter of the second state and so on, you will get the name of a state which is famous for 'peat soil'.

1.	K	A	R	N	A	T	A	K	A
2.	M	E	G	H	A	L	A	Y	A
3.	H	A	R	Y	A	N	A		
4.	G	U	J	A	R	A	T		
5.	T	A	M	I	L	N	A	D	U
6.	O	D	I	S	H	A			

Which state's name did you get?

_____

15. Weather and Seasons

Weather is the condition of the atmosphere in a place at a particular time. It keeps on changing everyday.

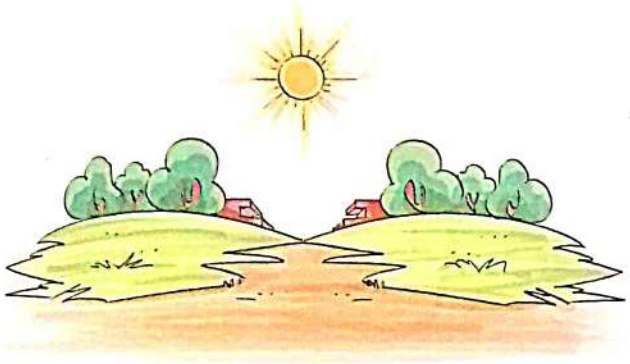
Weather also changes from place to place. Weather may be sunny, windy, cloudy or rainy.

FACTORS AFFECTING WEATHER

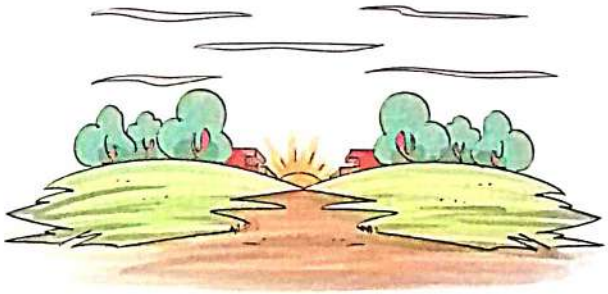
The factors that affect weather are :

Sunny Days

The heat and light of the Sun make the days warm and bright. At noon, the day is very hot because the rays of the sun fall straight. However, it is cooler in the mornings and evenings.



Noon



Evening

Windy Days

Gently moving wind is called breeze. Breeze makes weather pleasant.

Hot winds make the weather very uncomfortable during summers.

Breeze

Cloudy Days

A cloudy day is cooler than a sunny day as clouds hide the Sun and do not allow the sunrays to reach the Earth. Clouds bring rain.

Clouds

Rain

Rainy Days

Summer rains bring comfort and relief from heat whereas winter rains make the day colder.

KNOWLEDGE QUEST

Learning Based

On which day can a rainbow be formed in the sky?

1. Sunny and windy
2. Cloudy and windy
3. Rainy and sunny

SEASONS

When any one type of weather condition continues for many days, we call it a season. The change in seasons is the result of Earth's movement around the Sun and the tilt of the Earth's rotational axis.

Did You Know?

The place that receives the maximum rainfall in the world is Mawsynram in Meghalaya, India.

A year is divided into three main seasons : summer, winter and monsoon. Spring and autumn come in between the three main seasons.

Summer

It is the hottest time of the year. The Sun shines brightly throughout the day and warm winds called 'loo' blow during day time. We wear cotton clothes to keep us cool as they absorb the sweat. We like to have cold drinks, juice and ice creams.

Summer season

Winter

In winters, the weather becomes very cold. We wear woollen clothes to keep ourselves warm. Sometimes, when it becomes extremely cold, we also light fire or use room heaters. We like to have hot drinks like tea, coffee, etc.

Winter season

Monsoon season

Monsoon

In monsoon, it rains almost everyday. Sometimes, rains are also accompanied by thunder and lightning. We wear raincoats and gumboots. We use umbrellas to protect ourselves from rain.

Autumn

In autumn, the weather is neither too hot nor too cold. Dry leaves fall from trees.

Autumn

. Spring

Spring

In spring, the weather is pleasant. Trees have new leaves and flowers. We can see beautiful butterflies and colourful birds everywhere.

In a Nutshell

- Weather may be sunny, windy, cloudy or rainy.
- The heat and light of the Sun make the days warm and bright.
- Gently moving wind is called breeze.
- The change in seasons is the result of Earth's movement around the Sun and the tilt of the Earth's rotational axis.
- During summer season, we wear cotton clothes to keep us cool as they absorb the sweat.
- We like to have hot drinks like tea, coffee, etc in winter season.
- In autumn, the weather is neither too hot nor too cold.

Let's Answer

Based on NEP 2020

A. Tick (✓) the correct option :

1. Which of these changes everyday?
   (i) Season ( ) (ii) Weather ( ) (iii) Both of these ( )
2. Air containing water vapour is :
   (i) cold ( ) (ii) humid ( ) (iii) strong ( )
3. We use room heaters during :
   (i) summer season ( )
   (ii) winter season ( )
   (iii) rainy season ( )
4. We use umbrellas during :
   (i) rainy season ( )
   (ii) summer season ( )
   (iii) spring season ( )
5. The weather is neither too hot nor too cold in :
   (i) summer ( ) (ii) spring ( ) (iii) rain ( )

B. Fill in the blanks :

raincoats summer spring cloudy Weather gumboots

1. _____ keeps on changing everyday.
2. A _____ days is cooler than a sunny day.
3. We wear _____ and _____ in rainy season.
4. The Sun shines brightly throughout the day during _____ season.
5. The weather is pleasant in _____.

C. Match column (A) with column (B) :

Column (A)	Column (B)
1. Monsoon season	(i) dry leaves fall off
2. Autumn season	(ii) cotton clothes

3. Winter season
4. Summer season
5. Spring season

(iii) raincoats and gumboots
(iv) new leaves and flowers
(v) woollen clothes

D. Name the following :

Learning Based

1. Clouds are found due to this. _____
2. An important gas. _____
3. It describes how hot or cold is. _____
4. There are 5 of them. _____
5. Coldest season. _____

E. Answer the following questions :

Understanding Based

1. What is weather? Does it remain constant?
2. How does changing weather affect us?
3. What do you mean by season?
4. What type of clothes do we wear in summer and winter seasons?
5. How does weather affect our daily life? Explain.

F. Think and Answer :

Analysis Based

1. Why diseases are more common during the monsoons?
2. Raj lives in Goa. He wears cotton clothes in the month of December. Mohit lives in Manali. He wears woollens clothes in the month of December. Why do you think Raj and Mohit wear different types of clothes in the month of December.

LEARN BY DOING

Make your rain gauge :

Take a jar and a funnel which fits in the mouth of the jar. Use a ruler to make a scale on the side of the jar. Put your rain gauge in an open place (not under trees or terraces) where the rain water directly falls into the funnel.
Check the height of rainwater in the jar in millimetres.

Skill Check-in

21st Century Skills

A. ..... *Flexibility*

Collect newspaper clippings and pictures of monsoon. Discuss with your teacher the effects of too much rain (floods) or too little rain (drought) on human lives.

B. ..... *Social skills*

On a rainy day, Ravina went out to the market for some work. On her way back, she saw a wet puppy. She picked it up and put it under her umbrella and carried it home. She took came of it at home. Now answer the following questions:

1. How do animals protect themselves from rain?
2. Suggest a way to keep stray dogs safe in your neighbourhood on rainy days.
3. What do you think about Ravina? Did she do the right thing in bringing the puppy to her home?

C. ..... *Collaboration*

Ask the students to name four places in India that have

1. very heavy rainfall
2. moderate rainfall
3. very less rainfall
4. very cold winter season

The students should locate and mark the places on the physical map of India.

D. ..... *Creativity*

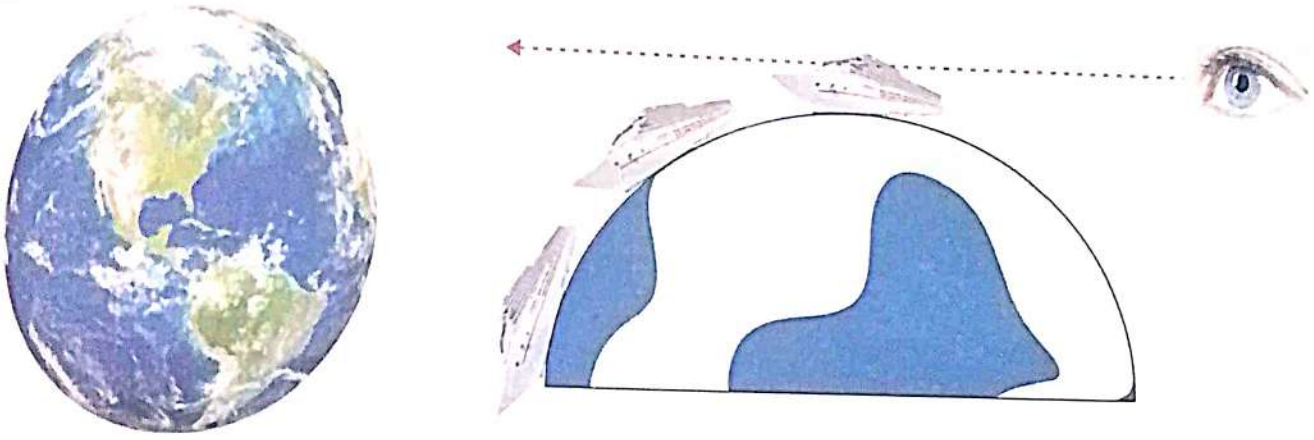
Draw a picture of your favourite season and write a note about the season in your notebook. In the note, mention what special things happen during the season in India. (Note : You can describe any special festival or events that occur in this season.) Have you also seen any disaster such as floods, tsunamis and cyclones happening during a season? Collect newspaper clippings about such news and paste in your scrapbook.

16. Earth and the Heavenly Bodies

Life exists only on the Earth. About three-fourths of the Earth's surface is covered with water and one-fourth is land.

Our Earth seems to be flat but actually it is round and slightly flat at the poles.

The Sun and its eight planets belong to the solar system. The eight planets of the solar system are Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune.



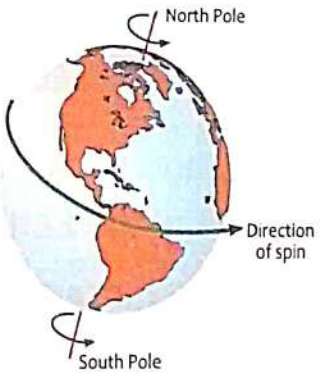
Earth

MOVEMENTS OF THE EARTH

The Earth is moving all the time. It shows two kinds of movements : rotation and revolution. Let us learn more about them.

Rotation

The spinning of the Earth on its own axis is called rotation. It spins like a top on its axis. The imaginary line from the North pole and the South pole passing through the centre of the Earth is known as axis. The Earth spins from west to east.



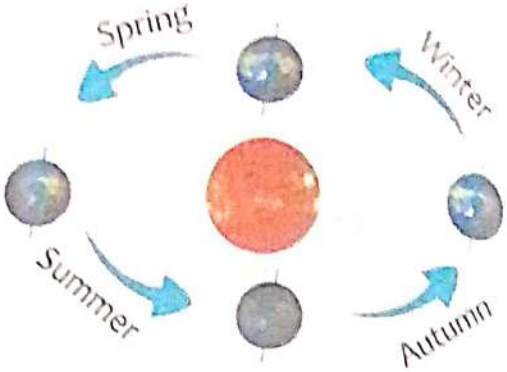
Rotation of Earth

Revolution

The movement of the Earth around the Sun is called revolution.

While rotating on its axis, the Earth also goes around the Sun. Earth takes 365¼ days to complete one revolution.

The revolution of the Earth causes seasons.



Revolution of Earth

THE SUN

The Sun is our nearest star.

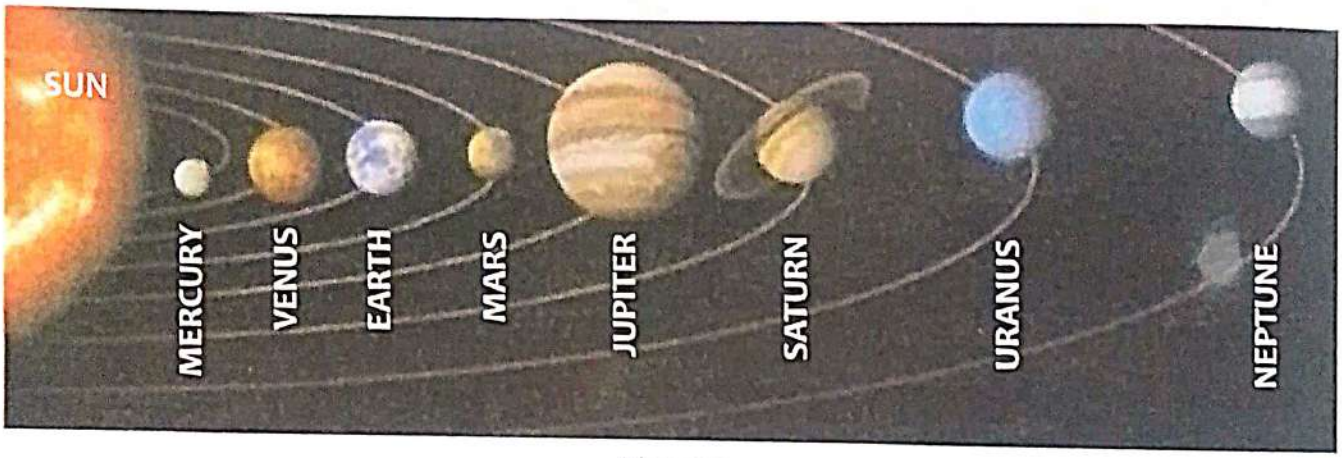
It is a huge ball of burning gases.

It gives heat and light.


Sun

THE PLANETS

Planets are the heavenly bodies which move around the Sun. They do not twinkle as they do not have light of their own. But they bounce back the light of the Sun.



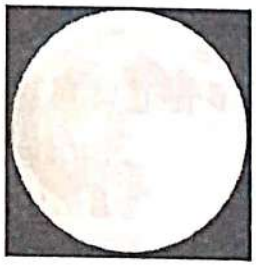
Planets

THE MOON

The moon is the natural satellite of the Earth.

It revolves around the Earth. It has no light of its own.

Moon reflects the light of the Sun.


Moon

Did You Know?

As you know that there is no air and water on the moon, so the footprints of moon walkers will stay there forever.

There is no air or water on the moon so nothing can live on its surface.

PHASES OF THE MOON

When the moon goes around the Earth, different parts of it are lighted up by the Sun. We can only see the part that is lighted up. So, it looks as if the moon changes its shape every day.

New moon : When the moon is between the Earth and the Sun, we cannot see it at all. It is called the new moon.

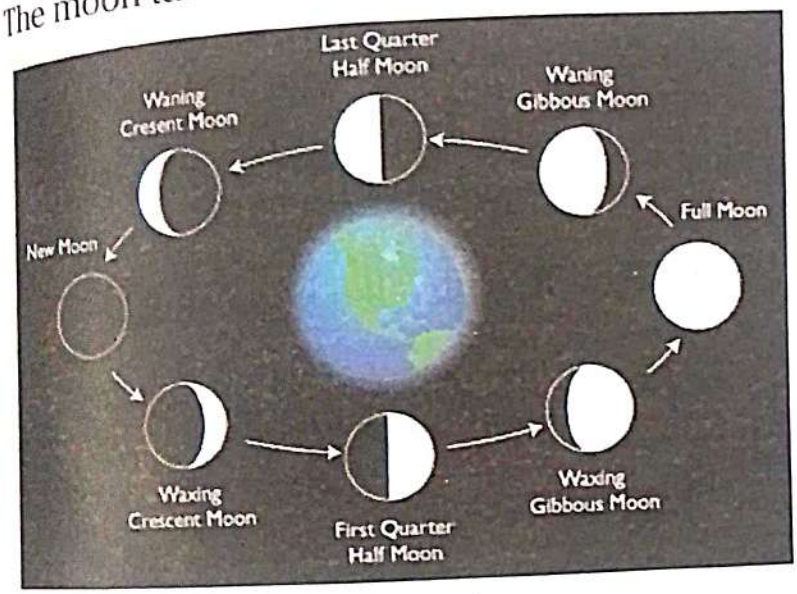
Crescent Moon : It can be seen after 2-3 days.

Half Moon : After a week, we can see this moon.

Gibbous Moon : We see this moon after 10 days.

Full Moon : After two weeks, when the Earth comes between the Sun and the moon, we can see the full moon.

The moon takes 28 days to revolve around the Earth.



Different phases of the moon

Did You Know?

You can jump six times higher on the moon than on the earth because the gravitational force of moon is six times lesser than that of the Earth.

In a Nutshell

- About three-fourths of the Earth's surface is covered with water and one-fourth is land.
- The Earth spins from west to east.
- The movement of the Earth around the Sun is called revolution.
- Planets are the heavenly bodies which move around the Sun.
- The moon is the natural satellite of the Earth.
- The moon takes 28 days to revolve around the Earth.

Let's Answer

Based on NEP 2020

A. Tick (✓) the correct option :

1. The Earth is moving all the :
   (i) day (ii) night (iii) time
2. The spinning of the Earth on its own axis is called :
   (i) revolution (ii) rotation (iii) none of these
3. The Earth moves around the Sun in a fixed path called its :
   (i) orbit (ii) axis (iii) crust
4. Which planet is closest to the Sun?
   (i) Mercury (ii) Earth (iii) Uranus
5. Which is not true of a star?
   (i) Gas (ii) Light (iii) Rocks

B. Fill in the blanks :

eight satellite ball Moon Sun flat

1. Our Earth seems to be _____
2. The _____ and its _____ planets belong to the sol system.
3. The sun is a huge _____ of burning gases.
4. _____ reflects the light of the Sun.
5. The moon is the natural _____ of the Earth.

C. Match column (A) with column (B) :

Column (A)	Column (B)
1. Earth	(i) an imaginary line
2. Rotation	(ii) 365 ¼ days
3. Axis	(iii) path of the Earth
4. Revolution	(iv) round
5. Orbit	(v) 24 hours

D. Name the following :

Learning Based

1. The nearest planet to the Sun.
2. It is the hottest planet of the solar system.
3. The natural satellite of the Earth.
4. A constellation.
5. A big star of hot gases.

E. Answer the following questions :

Understanding Based

1. What does the solar system consist of?
2. What are rotation and revolution?
3. What are planets? Name all the planets of the solar system.
4. How many days does the moon take to go around the Earth?
5. Explain different phases of the moon.

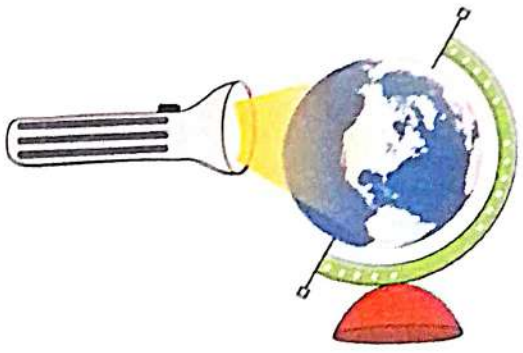
F. Think and Answer :

Analysis Based

1. What may happen if the Earth stops spinning? How would it affect our lives?
2. It is beloved that stars and planets have good or bad effect on our life. Do you believe in it or not? Explain.

LEARN BY DOING

Take a globe. Globe is a model of the Earth. The globe is round like a ball though the Earth is round like an orange.
Locations of various oceans, mountains and countries are drawn on its surface. It can be rotated on its axis. We can see formation of days and nights on a globe by placing it near a light source.
Rotate it and see days and nights appear on it.



Skill Check-in

21st Century Skills

A. ..... *Information literacy*

While going through the child Encyclopedia, Arjun read about space shuttle, spacecrafts, shuttle launching pad and space centres. Help Arjun to collect information about INDIANS' SPACE MISSION. How will this information help Arjun? Write the two points.

B. ..... *Technology literacy*

Polar star is also called Dhruv Tara in Hindi. There is a famous story about it. Read this story on the internet and write in your notebook. Narrate the story to your friends and classmates. Do you live in a city or a village? Can you see the stars clearly at night? Can you identify the Pole star? In some cities, the stars cannot be seen. Why do you think it is so? Find out.

C. ..... *Communication*

In your neighbourhood, there are some children younger than you. They do not know about the movements of the Earth. Design an activity to demonstrate this concept to the children. You can take help from the internet.

D. ..... *Flexibility*

The Earth takes light and heat from the Sun to make it suitable for life. Plants and animals use it for their survival. The Earth is a textbook example of generosity. Do you agree with this and why?

MODEL TEST PAPER-1

Based on Chapters – 1 to 8

Tick (✓) the correct option :

1. A cat can smell a :
   (i) mouse (ii) chair (iii) table
2. The plants remain fixed to the :
   (i) ground (ii) roof (iii) terrace
3. Which one is not a feature of carnivores?
   (i) claws (ii) speed (iii) chewing

Fill in the blanks :

1. Plants breathe through _____.
2. _____ depend on plants and other animals for their food.
3. _____ are contained mostly in the fruit.
4. The process of digestion begins in the _____.

Match the column A with column B.

Column (A)	Column (B)
1. Tailor bird	(i) builds its nest in bushes and hedges
2. Wood pecker	(ii) doesn't build its own nest
3. Bulbul	(iii) drills a hole in the tree trunk
4. Cuckoo bird	(iv) stitches big leaves together with wool and thread

Name the following :

1. It beats all the time. _____
2. Oxygen is given to the blood and carbon dioxide is taken. _____
3. It decides to take proper action. _____
4. It protects lungs and heart. _____

Answer the following questions :

1. Why do living things need food?
2. What features in a bird help it to fly?
3. What happening during hatching?
4. Why do doctors advice not to take spoil food? Which system gets affected?

MODEL TEST PAPER-2

Based on Chapters – 9 to 16

A. Tick (✓) the correct option :

1. Clothes are made from :
   (i) fabric (ii) fibres (iii) both (i) and (ii)
2. Our atmosphere consists of different types of :
   (i) liquids (ii) gases (iii) solids
3. _____ are formed when an object blocks the path of light.
   (i) Light (ii) Shadows (iii) Force

B. Fill in the blanks :

1. _____ houses are high above the ground.
2. _____ fills all available space.
3. Measuring cylinder or measuring beaker is used to measure _____.
4. _____ soil is a mixture of sand and clay.

C. Match the column A with column B.

Column (A)	Column (B)
1. Air	(i) continuous process
2. Water	(ii) gaseous form of water
3. Water vapour	(iii) mixture of gases
4. Water cycle	(iv) solid form of ice

D. Name the following :

1. Clouds are found due to this. _____
2. An important gas. _____
3. It describes how hot or cold it is. _____
4. A big star of hot gases. _____

E. Answer the following questions :

1. What are the characteristics of a good house?
2. How did people in earlier times measure mass?
3. How is shadow formed?
4. What is the Earth made of?