1. Exploring the Wonders of Science

YOUR ASSIGNMENT

I. Multiple Choice Questions

1. (b) A flexible approach to solving problems and making discoveries

Hint: The scientific method is adaptable and encourages new ways to explore and solve problems.

2. (c) Asking a question

Hint: Science starts with curiosity, leading to a question about the world around us.

3. (b) Wanting to know or learn more

Hint: Curiosity drives scientific inquiry and exploration.

4. (c) Hypothesis

Hint: A hypothesis is an educated guess that guides the experiment.

5. (c) To understand the world around us

Hint: The main purpose of science is to gain knowledge about nature and the universe.

II. Fill in the Blanks

1. question
2. Curiosity
3. myths or superstitions
4. experiment
5. problems

III. True/False

1. False

Hint: Science involves understanding concepts, not just memorizing facts.

2. True

Hint: Scientific thinking can help solve daily problems logically.

3. False

Hint: Curiosity is essential for scientific discoveries.

4. False

Hint: Scientific theories can change with new evidence.

5. True

Hint: Observation and questioning are core parts of the scientific method.

IV. Match the Columns

Column A		Column B	
(a)	Hypothesis	3.	An educated guess
(b)	Experiment	4.	Testing the hypothesis
(c)	Observation	1.	Gathering information
(d)	Conclusion	5.	The final explanation based on data
(e)	Research	2.	Analyzing the results

V. Very Short Answer Type Questions

1. Curiosity
2. Science is the systematic study of the natural world through observation and experiments.
3. Discovery is finding something new that already exists in nature..
4. The scientific method is a step-by-step approach to solving problems using observations, hypotheses, experiments, and conclusions.
5. Forming a hypothesis.

VI. Assertion and Reason Based Questions

1. (a) Both Assertion (A) and Reason (R) are true, and Reason (R) is the correct explanation of Assertion (A).

Hint: Curiosity truly drives the process of scientific discovery and critical thinking.

2. (a) Both Assertion (A) and Reason (R) are true, and Reason (R) is the correct explanation of Assertion (A).

Hint: Indian food diversity is a result of many regional and cultural factors that influence diet and cuisin

VII. Picture-Based Question

(b) Coastal region

2. Diversity in the Living World Exploring Biodiversity

NCERT TEXT-BOOK QUESTIONS

Answer 1:

Wheat Seeds	Kidney Bean Seeds
Single cotyledon-monocot seed	Two cotyledons-dicot seed
Fibrous root	Tap root
Parallel venation	Reticulate venation

Answer 2:

- A (Aquatic): Whale, Dolphin,
- B (Terrestrial): Horse, Sheep, Squirrel, Earthworm, Pigeon, Tortoise
- C (Both- Amphibian): Frog, Crocodile

Answer 3:

Radish is a taproot as it has a thick main root. It's leaves show reticulate venation.

Answer 4:

Similarities: They both are herbivorous and live in herds.

Differences:

Mountain Goat	Plain area Goat
They are characterized by their thick, white fur, short legs, and specialized hooves that provide excellent traction on rocky surfaces. They also have long, curved horns.	They can vary widely in colour and size, depending on the breed. They have shorter hair and more varied body shapes, with horns that can be straight or curved.
Native to rugged, mountainous areas, particularly in North America.	Typically found in lowland areas, grasslands, and farms
They are well-adapted to steep, rocky terrains.	They are domesticated goats that thrive in more accessible environments.

Answer 5:

These animals can be grouped on the basis of their habitat.

Land animals: Cow, cockroach, pigeon, bat, tortoise, grasshopper, lizard

Aquatic animals: Whale, fish

Answer 6:

Cutting down trees is called deforestation. Its major impact on our surroundings are:

Loss of Biodiversity: Deforestation destroys habitats, leading to the extinction of many species and reduced genetic diversity

Climate Change: Trees absorb carbon dioxide; their removal

increases greenhouse gases, contributing to global warming.

Soil Erosion: Without trees, soil is prone to erosion, resulting in loss of fertile land and sediment build up in waterways.

Altered Water Cycles: Deforestation disrupts rainfall patterns and groundwater levels, causing floods and droughts.

Poor Air Quality: Trees filter pollutants and produce oxygen; their removal worsens air quality and increases health risks.

Displacement of Indigenous Communities: Many indigenous people rely on forests for their livelihoods, and deforestation can remove them from their homes and territories.

Increased Human-Wildlife Conflicts: Habitat loss forces wildlife into human areas, leading to conflicts and risks of disease spread.

Climate Regulation Disruption: Forests help to regulate local climates; deforestation can cause temperature rises and altered humidity levels.

We can address these challenges in the following ways:

Reforestation and Afforestation: Plant trees in deforested and non-forested areas to restore ecosystems.

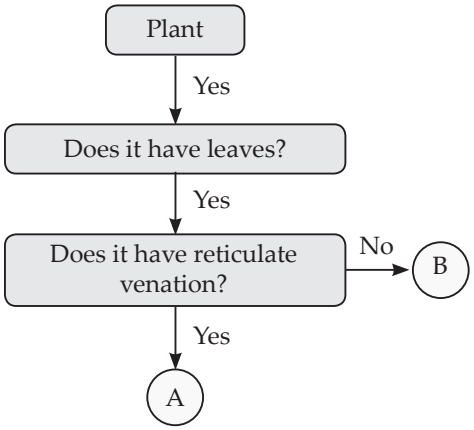
Strengthen Policies: Enforce laws that protect forests and regulate land use.

Support Conservation Programs: Fund initiatives that protect endangered species and their habitats.

Community Engagement: Involve local communities in forest management and conservation.

Education and Awareness: Raise awareness about the importance of forests and the impact of deforestation.

Answer 7:



A: Mango, Hibiscus, Rose, Tulsi, etc.

B: Banana, Wheat, Lemongrass, etc.

Answer 8:

a. Why is it a shrub?

b. How is it different from coriander plant?

c. What kind of root system does it has?

d. Which type of leaf venation does it show?

Answer 9:

Examples of group A: Kidney beans and Gram seeds.

Examples of group B: Wheat and maize seeds.

a. Group A plants show reticulate type leaf venation.

b. Group B plants show parallel type leaf venation.

Answer 10:

Ducks have webbed feet, which means the toes are connected by flaps of skin.

This adaptation helps them swim efficiently in water.

Pigeons have non-webbed feet with three forward-facing toes and one backward-facing toe, suited for perching and walking on various surfaces.

YOUR ASSIGNMENT

I. Multiple Choice Questions

1. (c) Roots

Hint: Roots anchor the plant in the soil and absorb water and minerals essential for the plant's growth and development.

2. (b) Monocots

Hint: Monocots like grasses and wheat typically have fibrous roots that spread out in the soil to provide support and absorb nutrients.

3. (c) By their color

Hint: Animal classification is based on features like habitat, diet, and movement—not color, which is not a reliable biological trait.

4. (a) Venation

Hint: Venation refers to the pattern in which veins are arranged in a leaf, such as parallel in monocots or reticulate in dicots.

5. (c) Camel

Hint: Camels are adapted for desert life, not aquatic habitats, whereas the other listed animals live partly or entirely in water.

II. Fill in the Blanks

1. biodiversity
2. dicots
3. omnivores
4. photosynthesis
5. habitat

III. True/False

1. False

Hint: Not all plants have flowers; non-flowering plants like ferns and mosses reproduce through spores.

2. True

Hint: Amphibians like frogs can live on land and in water, using lungs and moist skin or gills for respiration.

3. False

Hint: Different animals move differently; for example, birds fly, fish swim, and humans walk.

4. True

Hint: Adaptations help organisms survive environmental challenges such as temperature, predators, and food scarcity.

5. True

Hint: Endangered species are at risk of extinction due to habitat loss, poaching, climate change, and other threats.

IV. Match the Columns

Column A		Column B	
(a)	Herbs	2.	Non-woody stem, short
(b)	Shrubs	3.	Partly woody stem, medium height
(c)	Trees	1.	Woody stem, very tall
(d)	Climbers	4.	Weak stem, needs support

V. Very Short Answer Type Questions

1. Reticulate venation and parallel venation
2. Herbs are small plants with soft stems, while trees are tall with woody stems.
3. Hops: Kangaroo, Rabbit; Crawls: Snake, Earthworm

4. Cotyledons are seed leaves that store food for the growing plant embryo.
5. Bengal Tiger (or any endangered species from your country)

VI. Assertion-Reason Questions

1. (a) Both Assertion (A) and Reason (R) are true, and Reason (R) is the correct explanation of Assertion (A).

Hint: Camels live in deserts due to their ability to survive with little water, thanks to adaptations like fat storage in their humps.

2. (a) Both Assertion (A) and Reason (R) are true, and Reason (R) is the correct explanation of Assertion (A).

Hint: Pine trees are found in cold mountainous regions, and their needle-like leaves help reduce water loss and withstand the cold.

VII. Picture-Based Question

(b) Shrub

3. Balanced Eating: A Road to Health

NCERT TEXT-BOOK QUESTIONS

Answer 1:

i. Chana because other three are millets.

ii. Rice because other are rich sources of protein while rice is a source of starch (a type of carbohydrate)

Answer 2:

Traditional Culinary Practices	Modern Culinary Practices
Cooking – on chulhas	Cooking- gas stoves
Grinding- on sil-batta	Grinding- electrical grinder
Blending- manually	Blending- electrical blenders

Answer 3:

i. How can food act as medicine?

ii. Which type of food can act as medicine?

Answer 4: Yes, it is rightly said.

Examples of Delicious but Less Healthy Foods

Pizza - With its cheese, savoury toppings, and crispy crust, pizza is a comfort food for many. However, it's often high in calories, refined carbs, and saturated fats, especially when loaded with cheese and processed meats like pepperoni.

Ice Cream - This sweet treat is rich and creamy, and it comes in so many appealing flavours. Unfortunately, most ice creams are high in sugar, fat, and calories, which makes them unhealthly. A dessert is the best enjoyed in moderation.

Examples of Nutritious but Sometimes Less Enjoyable Foods
Quinoa - High in protein, fibre, and essential amino acids. Quinoa is a powerhouse of nutrition. But on its own, it has a mild, nutty flavour that some people find bland or even unappealing.

Sprouts - Packed with fibre, vitamins, and minerals, sprouts are fantastic for heart health and immunity. However, their strong, somewhat sulfurous taste when overcooked isn't everyone's favourite.

Answer 5:

He should add fruits, vegetables and other fibre rich food items in his meal. Roughage or fibre helps in digestion and prevent constipation.

Answer 6:

i. Vitamin A deficiency disease causing night blindness.

ii. **Vitamin A** - rich food items.

iii. Carrot, leafy vegetables, sweet potato, animal liver

Answer 7:

(iii) Fresh fruits as they contain fibre, vitamins, and minerals in their natural, unaltered state.

While fresh fruit juice is still nutritious (especially if it's homemade and retains some pulp for fibre) but it lacks the complete benefits of whole fruit.

Canned juice, although convenient, is usually the least nutritious due to processing.

Answer 8:

i. Calcium keeps bones and teeth healthy.

ii. Vitamin D helps body absorb calcium for bone and teeth health.

iii. Why the doctor has not prescribed Vitamin D supplement in first visit?

Answer 9:

The reason sugar does not turn blue-black with iodine solution is that iodine specifically reacts with complex carbohydrate not with simple carbohydrates. Starch is a complex carbohydrates while sugars are simple carbohydrates.

Answer 10:

Activity: Materials Needed: Iodine solution, various food samples (potatoes, rice, bread, fruits, vegetables, and sugar), test tubes, and a dropper.

Steps:

Label the test tubes with the names of each food sample.

Place small pieces of each food item into separate test tubes.

Add a few drops of iodine solution to each sample.

Observe colour changes: a blue-black colour indicates the presence of starch, while no change indicates the absence of starch.

Observation: Record which foods contain starch (e.g., potatoes, rice) and which do not (e.g., fruits, sugar). This activity demonstrates that while starches are carbohydrates, other carbohydrates exist that are not starches, supporting Raman's statement.

Answer 11:

The iodine drops on the saree turned blue-black, indicating that the saree material contains starch. Fabrics made from natural fibers, like cotton or linen, are sometimes treated with starch to give them a smoother, crisper appearance.

The iodine drops on the socks did not change colour, suggesting that the socks either contain no starch or are made from synthetic fibers (like polyester or nylon) that don't typically contain starch.

Answer 12:

Millets are considered a healthy choice of food due to their impressive nutritional profile. Millets are high in fiber, protein and essential minerals like magnesium, phosphorus, iron, and zinc. They

also contain vitamins-B which is important for energy metabolism and brain health.

While millets are nutrient-dense, relying solely on them for all nutritional requirements is not sufficient. Including fruits, vegetables, proteins, and healthy fats along with millets ensures a well-rounded, nutritionally complete diet.

Answer 13:

Take a potato mash, add few drops of the given solution over it. If its colour changes to blue-black, it is an iodine solution.

YOUR ASSIGNMENT

I. Multiple Choice Questions

1. (d) Soil

Hint: Soil is not a component of food. The major components of food are carbohydrates, proteins, fats, vitamins, and minerals.

2. (b) Providing energy

Hint: Carbohydrates are the body's main source of energy, especially needed for physical activity and brain function.

3. (a) The distance food travels from farm to plate

Hint: Food miles refer to how far food is transported from the place of production to the consumer, impacting environmental footprint.

4. (a) Vitamin A

Hint: A deficiency of Vitamin A can lead to night blindness, as it plays a crucial role in maintaining healthy vision.

5. (c) They are fresher and have fewer food miles

Hint: Locally grown crops are typically fresher and require less transportation, making them more eco-friendly.

6. (c) Eating all nutrients in proper proportions

Hint: A balanced diet includes carbohydrates, proteins, fats, vitamins, and minerals in correct amounts for healthy functioning.

II. Fill in the Blanks

1. Water
2. anemia
3. Pulses
4. aware
5. Processed

III. True/False Type

1. False

Hint: Not all packaged foods are unhealthy; some are nutritious and fortified, but it's important to check labels for added sugar, salt, or preservatives.

2. False

Hint: Vitamins and minerals are needed in small amounts, but they are essential for various body functions.

3. False

Hint: Traditional methods are not always healthier; it depends on the ingredients and preparation methods used.

4. False

Hint: Junk food lacks essential nutrients and cannot replace a balanced diet needed for good health.

5. True

Hint: Eating local produce reduces transportation emissions, thus

helping to lower one's carbon footprint.

IV. Match the Columns

	Column A		Column B
(a)	Vitamin A	3.	Night blindness
(b)	Vitamin B1	4.	Beri-beri
(c)	Vitamin C	1.	Scurvy
(d)	Vitamin D	2.	Rickets

V. Very Short Answer Type Questions

1. Orange, Lemon
2. Helps in digestion & prevents constipation
3. Nutrients are substances in food that provide energy and are necessary for growth and health.
4. Millets are rich in fiber and nutrients; they require less water to grow.
5. North India – Chole Bhature; South India – Dosa

VI. Assertion-Reason Based Questions

1. (a) Both Assertion (A) and Reason (R) are true, and Reason (R) is the correct explanation of Assertion (A).

Hint: Millets are gaining popularity due to their high fiber content, nutritional value, and sustainability as they require less water to grow.

2. (a) Both Assertion (A) and Reason (R) are true, and Reason (R) is the correct explanation of Assertion (A).

Hint: Food miles refer to the travel distance of food; reducing them benefits the environment and supports the local economy.

VII. Picture-Based Question

(b) A nutrition scientist

4. Fun with Magnets

NCERT TEXT-BOOK QUESTIONS

Answer 1:

i. attract, repel ii. magnetic materials

iii. north-south iv. two

Answer 2:

i. False ii. True

iii. False iv. True

Answer 3:

Column I	Column II
N–N	Repulsion
N–S	Attraction
S–N	Attraction
S-S	Repulsion

Answer 4:

Option (i). It is because position A and C are the poles of the magnets and poles of a magnet have more strength as compared to the centre of the bar magnet. So, more number of clips will be attracted at the poles

Answer 5:

Reshma can bring one metal bar close to the other two bars one by one. If it repels either of the two, then it is a magnet and the bar that it repels is also a magnet. The one which does not repel but only attracts is the piece of iron.

Answer 6:

To identify the poles of an unmarked magnet, bring a marked magnet close to it. The north pole of the marked magnet will attract the south pole of the unmarked magnet and repel its north pole, helping you determine which end is which.

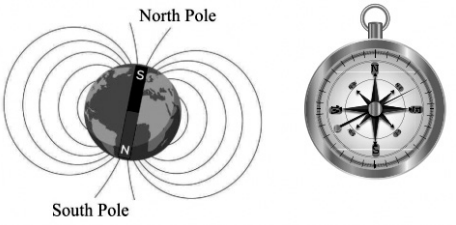
Answer 7:

To find the north pole of an

unmarked bar magnet without using another magnet, suspend it freely using a string. Allow the magnet to settle and come to rest. The end that points towards the geographic north is the north pole of the magnet, and the opposite end is the south pole. This works because the Earth acts as a giant magnet, and the suspended magnet aligns itself with the Earth's magnetic field.

Answer 8:

Yes, by observing a magnetic compass, we can find the Earth's magnetic poles.



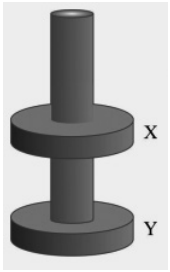
The compass needle's N-pole points towards the Earth's geographic north, which means the Earth's magnetic S-pole is near the geographic north. Conversely, the Earth's magnetic north pole is near the geographic south.

Answer 9:

To help the mechanic prevent the steel screws from falling, the screwdriver can be magnetized. By rubbing a magnet along the length of the steel screwdriver in one direction several times, the screwdriver will temporarily become magnetized. This will allow it to attract and hold the steel screws, making the repair work easier.

Answer 10:

Magnet X does not move down because both magnets X and Y are facing to each other with same poles, either north-north or south-south poles. So, they repel each other.



By changing the direction of magnet X we can bring both magnets closer.

Answer 11:

Referring point 5 as North pole of the magnet, we can say that point 4 and 6 must be South poles. If point 4 is S-pole, point 3 should be N-pole. Thus, points 2 will be S-pole and so the point 1 will be N-pole

YOUR ASSIGNMENT

I. Multiple Choice Questions

1. (c) Copper

Hint: Copper is not a magnetic material. Magnetic materials like iron, nickel, and cobalt can be attracted by magnets.

2. (b) Geographic North Pole

Hint: The north pole of a freely suspended magnet points towards the Earth's geographic North Pole, which is actually near the magnetic south.

3. (c) Compass

Hint: A compass is a device that uses the Earth's magnetic field to point north, helping in navigation and direction finding.

4. (b) Repel each other

Hint: Like poles (north-north or south-south) repel each other, while opposite poles attract in magnetism.

5. (b) New poles are formed at the broken ends

Hint: When a magnet is broken, each piece becomes a new magnet with its own north and south poles.

II. Fill in the Blanks

1. magnet
2. non-magnetic
3. magnetic
4. north-south
5. magnetization

III. True/False

1. False

Hint: Not all metals are magnetic. Only iron, nickel, and cobalt are strongly magnetic, while others like aluminum and copper are not.

2. True

Hint: A magnet can attract another magnet through thin, non-magnetic materials like paper or plastic.

3. False

Hint: The magnetic force is strongest at the poles of a bar magnet, not at the center.

4. True

Hint: High temperatures can disrupt the alignment of magnetic domains, causing a magnet to lose its magnetism.

5. True

Hint: A magnetic compass works by detecting Earth's magnetic field and is not affected by weather, so it works even on cloudy days.

IV. Match the Columns

	Column A		Column B
(a)	Magnet attracts	4.	Iron filings
(b)	Magnet can be repelled	3.	By another magnet
(c)	Magnet if suspended freely	1.	Rests along a particular direction
(d)	A bar magnet has	2.	Two poles

V. Very Short Answer Type Questions

1. Lodestone
2. Wood, Plastic
3. Compass
4. Matsya Yantra
5. At the poles of the magnet

VI. Assertion-Reason Type Questions

1. (c) Assertion is true, but Reason is false.

Hint: Magnets do attract materials like iron, but the reason is incorrect because iron is actually a magnetic material, not non-magnetic.

2. (d) Assertion is false, but Reason is true.

Hint: Like poles repel, not attract whereas like poles repel each other.

VII. Picture-Based Question

(c) A bar magnet

5. Measurement of Length and Motion

NCERT TEXT-BOOK QUESTIONS

Answer 1:

Column I	Column II
Distance between Delhi and Lucknow	kilometre
Thickness of a coin	millimetre
Length of an eraser	centimetre
Length of school ground	metre

Answer 2:

i. True ii. True ii. False

Answer 3:

iv. handspan

Answer 4:

Type of Scale, Tape, Device	Smallest Value of Measurement
Distance between Delhi and Lucknow	1 mm
Flexible Tape	1 mm, 1 inch
Long Tape Roll	1 cm, 1 inch
Vernier Calliper (from School Lab)	0.1 mm
Screw Gauge (from School Lab)	0.01 mm

Answer 5:

Since 1 km = 1000 metres

So, 1.5 km = 1.5 × 1000

= 1500 metres

Answer 6:

Answer may vary. You can use a thread to measure the curved part. Later straighten the thread and measure its length using any ruler or metal tape.

Answer 7:

If the height of your friend is 3.10 Feet approx. (i) Metres: 1.6 m (ii) Centimetres: 160 cm (iii) Millimetres: 1600 mm

Answer 8:

Measure the diametre of the coin and the length of the notebook. Divide the length of the notebook by the diametre of the coin to estimate the number of coins required. Say the diametre of the coin is 2 cm and the length of the notebook is 18 cm. Then 18/2 = 9 coins can be placed side to side along the length of the notebook. Verify by placing the coins end-to-end and measuring again.

Answer 9:

Linear motion: A car moving on a straight road, an eraser dropping straight down.

Circular motion: A merry-go-round, the motion of a whirling stone tied to a thread.

Oscillatory motion: A swinging pendulum, the motion of a metal strip pressed and released.

Answer 10:

Classify objects by the convenience of measuring in mm, cm, and m:

Size	Objects
mm	The thickness of a coin, the thickness of a cardboard, and the diametre of a small screw.
cm	The length of a pencil, the width of a book, and the height of a water bottle.
m	The height of a room, the width of a playground, and the height of a lamppost

Answer 11:

Portions of the track and corresponding types of motion:
A to B: Linear motion
B to C: Circular motion (loop)
C to D to E: Circular motion
E to F: Linear motion

Answer 12:

Tasneem should not use stretchable rubber because it can change length when stretched, leading to inaccurate measurements. Plywood, cloth, paper, and steel are more suitable as they maintain consistent lengths.

Answer 13:

Create cards with different lengths and corresponding units (mm, cm, m, km). Each card can have a length in one unit and players must match it to its equivalent in another unit. For example, a card with "100 cm" would match with "1 m".

YOUR ASSIGNMENT

I. Multiple Choice Questions

1. (c) Cubit

Hint: Cubit is an ancient and non-standard unit based on body parts. Meter, kilometer, and centimeter are standard SI units of length.

2. (c) Oscillatory

Hint: A swing moves back and forth repeatedly, which is characteristic of oscillatory motion.

3. (a) Millimeter

Hint: In the metric system, millimeter (mm) is the smallest standard unit of length, where 1000 mm = 1 meter.

4. (b) Cubit

Hint: A cubit is the length from the elbow to the fingertips, used in ancient times for measurement.

5. (b) Circular

Hint: The hour hand of a clock moves in a circular path, making it an example of circular motion.

II. Fill in the Blanks

1. meter
2. 1000
3. oscillatory
4. string
5. pace

III. True/False

1. False

Hint: A handspan is not accurate or standard; it's different for each person. A meter is a precise and standardized unit.

2. False

Hint: A reference point is necessary to describe the position of any object accurately.

3. False

Hint: Circular motion doesn't always follow a perfect circle; it can be approximately circular or elliptical.

4. True

Hint: The metric system is based on powers of 10, making conversions simple and consistent.

5. True

Hint: Linear motion means movement in a straight line, unlike curvilinear or circular motion.

IV. Match the Columns

	Column A		Column B
(a)	Meter	2.	Standard unit
(b)	Oscillatory	3.	Back and forth
(c)	Circular motion	4.	Curved path
(d)	Cubit	1.	Ancient measure

V. Very Short Answer Type Questions

1. To ensure consistency and avoid confusion in measurement.
2. Handspan, Cubit
3. Linear motion
4. 10 millimeters
5. Oscillatory motion

VI. Assertion-Reason Based Questions

1. (a) Both Assertion and Reason are true, and Reason is the correct explanation of Assertion.

Hint: The metre is indeed the SI unit, and standard units help in maintaining uniformity in global measurements.

2. (a) Both Assertion and Reason are true, and Reason is the correct explanation of Assertion.

Hint: A measuring tape is flexible and ideal for measuring curved lines, making the assertion and reason both true and linked.

VII. Picture-Based Question

(d) Curvilinear motion

6. Materials Around Us

NCERT TEXT-BOOK QUESTIONS

Answer 1: (Answers may vary)

Visit your kitchen and see how foods are organized. Think of ways to improve it! Here are some ideas:

Group Similar Items: Keep all pulses, spices, oils, and snacks together in separate sections.

Label Containers: Use labels to identify each item easily.

Arrange by Use: Place frequently used items (like salt and oil) within easy reach.

Organize by Expiry: Put items with closer expiry dates in the front.

Answer 2:

Unscramble the letters (Column I) and match with their properties (Column II).

Column I	Column II
(i) MATTER	(a) Occupies space and has mass
(ii) SOLUBLE	(b) Mixes completely in water
(iii) TRANSPARENT	(c) Objects can be seen clearly through it
(iv) LUSTRE	(d) Shiny surface

Answer 3:

The containers which are used to store materials in shops and at home are usually transparent so that the materials stored in them can be seen through them and can be found easily.

Answer 4:

(i). False. (ii). True (iii). True (iv). False.

Answer 5:

i. Iron, cement and stones

ii. Plastic and bamboo

iii. Wood and bamboo

iv. Plastic, iron, cement and stones

Answer 6:

We can use plastic containers for collection of (i) food waste (ii) broken glass and (iii) waste paper. These containers may have different colours because food waste is biodegradable, broken glass is hazardous and waste paper is recyclable. In case of food waste, the material of the container should not react with food and should be leak proof. For broken glass the material of the container should be hard so that glass should not cut it. For storing waste paper the material of the container should be light and strong.

Answer 7:

(i) transparent, opaque

Answer 8:

X can be sugar crystal and Y can be

rubber block. It is because material X is soluble in water while material Y is insoluble.

The material X is hard. It is because it feels rigid, and does not change its shape.

The material Y is soft. It is because material Y easily changes its shape on applying pressure on it.

Answer 9:

i. (a) steel (b) rubber (c) sugar (d) cardboard or plywood (e) air

ii. a. You can see clearly through me.

b. I am soft.

c. I am non-lustrous.

d. I am liquid and insoluble in water.

e. I cannot be compressed easily.

Answer 10:

Soluble pairs	Insoluble pairs
(i) Water and glucose	(i) Water and mustard oil
(ii) Water and vinegar	**(ii) Water and** wheat flour

YOUR ASSIGNMENT

I. Multiple Choice Questions

1. (c) Texture

Hint: Texture describes how a material feels to the touch—like smooth, rough, soft, or hard.

2. (c) Solubility

Hint: Solubility is the property that tells whether a substance will dissolve in water or not.

3. (b) Sugar

Hint: Sugar dissolves easily in water, making it a good example of a soluble substance.

4. (c) Transparency

Hint: Transparency refers to how clearly light can pass through a material, allowing us to see through it.

5. (b) Insoluble

Hint: Materials that do not dissolve in water, like sand or oil, are called insoluble.

II. Fill in the Blanks

1. transparent
2. diffusion
3. float
4. combustibility
5. Density

III. True/False

1. False

Hint: Not all metals are magnetic. Only metals like iron, nickel, and cobalt show strong magnetic properties.

2. True

Hint: Transparent materials like glass allow light to pass through clearly, so we can see through them.

3. False

Hint: Soluble materials do dissolve in water; it's insoluble materials that don't.

4. True

Hint: Density affects floating and sinking. Objects with higher density than water sink, others float.

5. False

Hint: Softness does not determine if a material is combustible. Combustibility depends on chemical composition.

IV. Match the Columns

1.

Column A		Column B	
(a)	Rubber	3.	Elastic
(b)	Iron	4.	Magnetic
(c)	Glass	1.	Transparent

(d)	Wood	2.	Combustible

2.

Column A		Column B	
(a)	Sugar	3.	Soluble
(b)	Oil	4.	Floats on water
(c)	Stone	1.	Sinks in water
(d)	Salt	2.	Soluble

V. Very Short Answer Type Questions

1. Texture refers to how a material feels when touched, such as rough, smooth, soft, or hard.
2. **Soluble substances:** Sugar, Salt

   Insoluble substances: Sand, Oil
3. The amount of light a material allows to pass through determines if it is transparent, translucent, or opaque.
4. Hardness refers to the ability of a material to resist being scratched or deformed, while softness means it can be easily deformed or compressed.

VI. Assertion-Reason Type Questions

1. (a) Both Assertion and Reason are true, and Reason is the correct explanation of Assertion.

Hint: Transparent materials do allow light to pass through clearly, which is why we can see through them.

2. (a) Both Assertion and Reason are true, and Reason is the correct explanation of Assertion.

Hint: Sand is denser than sugar, so in equal volume, sand is heavier—explaining the assertion.

VII. Picture-Based Question

(d) Opaque Materials

7. Temperature and Its Measurement

NCERT TEXT-BOOK QUESTIONS

Answer 1:

(ii) 37.0 °C

Answer 2:

(iv) 98.6°F

Answer 3:

(i). temperature (ii). Clinical (iii) Celsius

Answer 4:

(ii) -10°C to 110°C

Answer 5:

(ii) Student 2

Answer 6:

In thermometer 1- colour 2 lines above mark 10 as each line indicates 2 degree Celsius.

In thermometer 2- colour 7 lines above mark 10 as each small line indicates 1 degree Celsius.

In thermometer 3 - colour upto 15 lines above mark 0 as each line indicates 0.5 degree Celsius.

Answer 7:

i. It is a laboratory thermometer as its lowest temperature value is -10°C.

ii. The reading is 26°C.

iii. The smallest value that a laboratory thermometer measure is -10°C.

Answer 8:

A laboratory thermometer can't be used to measure body temperature as it does not have a kink. The kink, in a clinical thermometer, prevents mercury levels from falling on its own so that the temperature can be read even when the thermometer is no longer in contact with our body.

Answer 9:

(i) 40.0 °C (ii) Day one 7 pm (iii) Day three

Answer 10:

We will use thermometer (b).

Thermometer (a) can measure the smallest value of 1°C and thermometer (c) can measure the smallest value of 2°C as per the small line markings on these. Only thermometer (b) has the markings on it to measure the smallest value of 0.5°C which is necessary for measuring a temperature of 22.5°C.

Answer 11:

(ii) 27.5°C

Answer 12:

A laboratory thermometer with 50 divisions between 0°C and 100°C means each division represents a specific temperature increament. To determine the value of each division, divide the total temperature range by the number of divisions. Here, the range of the values of each division is 100°C/50 = 2°C Thus, each division on this laboratory thermometer represents 2°C. This allows for measurements to be read with an accuracy of 20°C increaments.

Answer 13:

Answer 14:

She means the temperature on the Fahrenheit scale. Human body temperature does not normally go below 35°C or above 42°C on celsius scale. In the Fahrenheit scale this range is between 95 degrees to 107.8 degrees.

YOUR ASSIGNMENT

I. Multiple Choice Questions

1. (b) Clinical thermometer

Hint: Clinical thermometers are specially designed to measure human body temperature accurately.

2. (b) 98.6°F

Hint: Normal human body temperature is approximately 98.6°F, which equals 37°C.

3. (c) Kelvin

Hint: Kelvin is the absolute temperature scale where 0 K represents absolute zero, the lowest possible temperature.

4. (c) 100°C

Hint: Water boils at 100°C at sea level, which is a standard reference point in the Celsius scale.

5. (b) 32°F

Hint: The freezing point of water on the Fahrenheit scale is 32°F.

II. Fill in the Blanks

1. Kelvin (K)
2. clinical
3. 373
4. mercury
5. temperature

III. True/False Type

1. True

Hint: Both Celsius and Kelvin scales have equal-sized units; 1°C = 1 K in size.

2. False

Hint: Clinical thermometers generally cannot measure below 35°C as they are designed for human body temperatures.

3. True

Hint: Infrared thermometers can detect temperature from a distance by sensing infrared radiation.

4. False

Hint: The boiling point of water varies across scales (100°C, 212°F, 373 K), though it refers to the same physical temperature.

5. False

Hint: Digital thermometers are generally more accurate and safer than mercury ones.

IV. Match the Columns

	Column A		Column B
(a)	Clinical thermometer	2.	Measuring body temperature
(b)	Laboratory thermometer	3.	Measuring chemical reactions
(c)	Room thermometer	4.	Measuring air temperature
(d)	Infrared thermometer	1.	Measuring surface temperature from a distance

V. Very Short Answer Type Questions

1. The freezing point of water on the Celsius scale is 0°C.
2. The three commonly used temperature scales are Celsius, Fahrenheit, and Kelvin.
3. The main advantage of a digital thermometer over a mercury thermometer is it is safer and gives quicker readings.
4. The normal room temperature in Celsius is 25°C.
5. The value of 50°C on the Kelvin scale is 323 K (K = °C + 273).

VI. Assertion-Reason Type Questions

1. (a) Both Assertion and Reason are true, and Reason is the correct explanation of Assertion.

Hint: Laboratory thermometers are used in experiments and can measure a wider range, including higher temperatures.

2. (a) Both Assertion and Reason are true, and Reason is the correct explanation of Assertion.

Hint: While boiling, water stays at 100°C at sea level as heat is used for phase change (liquid to steam), not raising the temperature.

VII. Picture-Based Question

(c) A mercury clinical thermometer

8. The Changing Forms of Water

NCERT TEXT-BOOK QUESTIONS

Answer 1:

(iv) The conversion of water vapour into its liquid state describes condensation.

Answer 2:

(i) a. water colours (ii) b. ink pen

Answer 3:

Natural grass cools the surrounding area through a process called evaporation and transpiration. In transpiration, plants release water vapour from their leaves, which cools the air around them. Additionally, when water evaporates from the surface of the grass, it absorbs heat from the surroundings, leading to a cooling effect.

Answer 4:

Alcohol, nail paint removal, petrol, diesel, etc.

Answer 5:

Fans increase the air movement around the wet clothes, which helps to disperse the water vapour away

from the surface of the clothes.

Answer 6:

Water (moisture) from the sludge evaporates with time making it handling and transportation easier.

When sludge is left in heaps for 3–4 days, the moisture content in the sludge decreases as water evaporates over time. The reduced water content makes the sludge lighter and less bulky. This makes transportation easier.

Answer 7:

We perform various activities where process of evaporation help us.

i. We dry our clothes on a sunny and windy environment.

ii. We can smell the food being cooked even without entering the kitchen.

iii. Washed utensils dry up after some time.

iv. After mopping the floor, the water left on the surface evaporates over time, drying the floor.

v. When you water plants, some of the water evaporates from the soil into the air, especially on hot days.

Answer 8:

Ice, snow and frost are the solid state of water present in nature.

Answer 9:

Only a small fraction of the water on Earth is suitable for use by plants, animals, and humans. The majority of water is found in the oceans, which cannot be used directly. Water is essential not only for drinking but also for various other activities. As the global population increases, the availability of safe and clean water is declining. While it is our right to have access to water for survival, it is equally our responsibility to protect and preserve water bodies from pollution to ensure their continued availability for future generations.

Answer 10:

To cool down the hot seat of a two-wheeler parked in the sun, you can try the following methods:

1. Cover it with a damp cloth: Place a wet cloth or towel over the seat. As the water evaporates, it absorbs heat, helping to cool the seat down.
2. Sprinkle water on the seat: Lightly spray water on the seat. The evaporation process will draw heat away from the seat, reducing its temperature.
3. Use a sunshade or seat cover: If available, use a sunshade or seat cover to shield the seat from direct sunlight, helping to keep it cooler.
4. Move to a shaded area: If possible, relocate the two-wheeler to a shaded spot. This will minimize the seat's exposure to the sun and prevent it from getting too hot.

YOUR ASSIGNMENT

I. Multiple Choice Questions

1. (d) Plasma

Hint: Plasma is not a natural state of water. Water commonly exists in solid (ice), liquid, and gas (steam) forms.

2. (b) Evaporation

Hint: Evaporation is the process where liquid water turns into vapor, usually at temperatures below boiling point.

3. (c) Water changing from gas to liquid

Hint: Condensation is when water vapor cools and turns into liquid, like dew forming on grass.

4. (d) Photosynthesis

Hint: Photosynthesis is a biological process, not a part of the water cycle, which includes evaporation, condensation, and precipitation.

5. (b) Evaporation of water from the pot's surface

Hint: The cooling effect in earthen pots happens due to evaporation, which removes heat from the water inside.

II. Fill in the Blanks

1. freezing
2. gaseous
3. amount
4. condenses
5. 100

III. True/False

1. True

Hint: While rare, water can exist as plasma in high-energy environments, along with solid, liquid, and gas.

2. False

Hint: Evaporation can occur at any temperature when surface molecules gain enough energy to escape into the air.

3. True

Hint: Condensation is the reverse of evaporation, turning vapor back into liquid.

4. False

Hint: The water cycle is continuous, with processes repeating in a cycle, not in a one-way direction.

5. True

Hint: Pot-in-pot coolers use evaporative cooling, where water evaporates from the outer pot, cooling the inner one.

IV. Match the Columns

1.

Column A		Column B	
(a)	Evaporation	2.	Changing from liquid to gas
(b)	Conden-sa-tion	1.	Changing from gas to liquid
(c)	Melting	3.	Changing from solid to liquid
(d)	Freezing	4.	Changing from liquid to solid

2.

Column A		Column B	
(a)	Solid water	3.	Ice
(b)	Liquid water	4.	River
(c)	Water vapor	1.	Steam
(d)	Condensed water vapor	2.	Clouds

V. Very Short Answer Type Questions

1. The three states of water are solid, liquid, and gas.
2. The process when ice changes into water is called melting.
3. Evaporation is the process in which liquid water turns into water vapor due to heat.
4. Rain falls from clouds due to condensation, which leads to precipitation.
5. An earthen pot keeps water cool through evaporative cooling, as water evaporates from the surface and absorbs heat.

VI. Assertion-Reason Type

1. (a) Both Assertion and Reason are true, and Reason is the correct explanation of Assertion.

Hint: Evaporation happens as water molecules at the surface gain energy and escape into the air as gas.

2. (a) Both Assertion and Reason are true, and Reason is the correct explanation of Assertion.

Hint: Condensation happens when water vapor cools, loses energy, and forms liquid droplets.

VII. Picture-Based Question

(b) Melting

9. Methods of Separation in Everyday Life

NCERT TEXT-BOOK QUESTIONS

Answer 1:

(ii) Sorting

Answer 2:

(iii) Cream from milk

Answer 3:

(iii) Pore size

Answer 4:

(i). True

(ii). True

(iii). False. It can be done by winnowing as puffed rice is lighter than rice and can easily be blown away.

(iv). True

(v) False. It can be separated by sedimentation followed by decantation. If required, filtration can also be done.

Answer 5:

Column I	Column II
(i) Gram flour mixed with black gram	(d) Sieving
(ii) Chalk powder mixed with water	(e) Filtration
(iii) Corn mixed with potatoes	(a) Handpicking
(iv) Iron powder mixed with sawdust	(b) Magnetic separation
(v) Oil mixed with water.	(c) Decantation

Answer 6:

Decantation is used when the solid particles are heavy and settle down at the bottom of the container, allowing the clear liquid to be poured off without disturbing the solid sediment. For example separating sand from water.

Answer 7:

Nasal hair acts like a natural filter, trapping dust, pollen, and other particles from the air we breathe, similar to how a filtration process works to remove solid impurities from a liquid.

Answer 8:

Masks are generally made of materials like cotton, synthetic fibers or polypropylene.

Their role is to filter out airborne particles, including viruses and bacteria, to prevent their inhalation and spread.

Answer 9:

Step-1 : Handpick the potatoes

Step-2 : Add water to the remaining mixture to dissolve the salt

Step-3 : Filter the mixture to separate the sawdust from the salt solution.

Step-4 : Evaporate the water from the salt solution to obtain the salt.

Answer 10:

1.Thirsty;2.Water;3.Unfit;4.Filtered; 5. Muslin; 6. Boiled; 7. Cooling; 8. Filtered 9. Fit.

YOUR ASSIGNMENT

I. Multiple Choice Questions

1. (b) Magnetic separation

Hint: Iron filings are magnetic, so a magnet can be used to separate them from non-magnetic sand.

2. (b) Winnowing

Hint: Winnowing uses wind or air flow to separate lighter chaff from heavier grains or seeds.

3. (b) Condensation

Hint: Condensation is when water vapor cools down and changes back into liquid water.

4. (b) Centrifugation

Hint: Centrifugation is used to separate cream from milk by spinning the mixture at high speed.

5. (b) Threshing

Hint: Threshing separates grains from stalks by beating or mechanical means to remove the seeds.

II. Fill in the blanks

1. Different sized
2. Solvent extraction
3. Sublimation
4. Upper
5. Distillation

III. True/False

1. True

Hint: Filtration can separate sand (insoluble solid) from water as sand does not pass through the filter.

2. True

Hint: Winnowing is used to separate lighter chaff from heavier seeds or grains using wind.

3. False

Hint: Magnetic separation does not work on sugar and salt, as neither is magnetic.

4. False

Hint: Sedimentation simply allows heavier particles to settle down; a centrifuge is only used to speed up this process.

5. True

Hint: Evaporation helps obtain the solid solute (like salt) by removing the liquid solvent.

IV. Match the Column Type

Column A		Column B	
(a)	Centrifugation	4.	Separating cream from milk
(b)	Winnowing	1.	Separating wheat from chaff
(c)	Crystallization	3.	Obtaining pure copper sulphate
(d)	Distillation	2.	Purifying sea water

V. Very Short Answer Type Questions

1. The principle behind magnetic separation is that magnetic substances can be attracted by

a magnet while non-magnetic substances cannot.

2. Sublimation is the process in which a solid directly changes into a gas without passing through the liquid state.
3. Sieving is used for separating solid particles based on size, while filtration is used to separate a solid from a liquid or gas using a filter.
4. Decantation is the process of pouring off a liquid from a solid without using any filter, while filtration uses a filter to separate the components.
5. Condensation is the process where water vapor is cooled and changes into liquid water, which is collected in the distillation process.

VI. Assertion-Reason Type

1. (a) Both Assertion and Reason are true, and Reason is the correct explanation of Assertion.

Hint: Distillation works by boiling and then condensing; since alcohol boils at a lower temperature than water, it evaporates first.

2. (c) Assertion is true, but Reason is false.

Hint: While sedimentation and decantation can separate oil and water to some extent, they do not completely separate the two. Also, oil floats not just due to lower density but because it is immiscible in water.

VII. Picture-Based Question

(c) Winnowing

10. Living Things

NCERT TEXT-BOOK QUESTIONS

Answer 1:

Similarities in Life Cycles of Plants and Animals	Differences in Life Cycles of Plants and Animals
(i) Development Stage: Both have distinct stages of development (e.g., germination, flowering in plants; egg, larva, adult in animals).	(i) Respiration: While both respire, the mechanisms differ; animals use lungs or gills, plants use stomata and lenticels.
(ii) Growth: Both plants and animals grow from a small initial stage (seed or embryo) into a mature form.	ii) Growth Patterns: Plants exhibit indeter-minate growth (can grow throughout their life), while animals have determinate growth (stop growing after reaching maturity).
(iii) Reproduction: Both undergo process to produce offspring (seeds for plants and young ones for animals).	(iii) Reproductive Structures: Animals have specialized organs for reproduction, while plants uses flowers, cones or spores.

Answer 2:

S. No.	Does it grow?	Does it respire?	Example	Remarks
(i)	No	No	Rock	Non-living. No growth or respiration
(ii)	No	Yes	Virus	Viruses are non-living outside host cells but respire in host
(iii)	Yes	No	Crystals (Salt)	Non-living can perform tasks but does not respire
(iv)	Yes	Yes	Humans, Plants	Living beings

Answer 3:

To ensure proper storage of grains and pulses and prevent germination:

Keep Dry

Cool Storage

Airtight Containers

Answer 4:

The tail in the tadpole stage of a frog provides

i. Swimming Ability: It helps the tadpole swim efficiently in water to find food and escape predators.

ii. Balance and Stability: Assist in maintaining balance while moving in water.

Answer 5:

Against Charan: The wooden log was once part of a living tree, which was alive and exhibited characteristics of living beings.

Against Charu: Once the wood is separated from the tree, it no longer exhibits growth, reproduction, or other life processes, making it non-living.

Answer 6: Similarities

- Both begin life as eggs.
- Both have a larval stage (tadpole in frogs, larvae in mosquitoes) that is aquatic.

Distinguishing Features: Mosquitoes have four stages

Egg → Larva → Pupa → Adult

Respiration: Larvae and pupae breathe through siphons.

Frog has four stages

Egg → Tadpole → Froglet → Adult

Respiration: Tadpoles have gills, adults have lungs and can respire through their skin.

Answer 7: Expected observations

Shoot: Growth upwards, towards the light source.

Root: Growth downwards, into the soil for stability and nutrient absorption.

Reasons

- Shoots grow towards light (phototropism) for photosynthesis.
- Roots grow downwards (gravitropism) for – nutrient absorption.

Answer 8:

Tara and Vijay are likely trying to understand how the orientation of a seed affects the growth direction of the shoot (the green part above ground) and the root (the part below ground).

Observation: The shoot always grows upwards (towards the light) and the root always grows downwards (into the soil), regardless of how the seed is placed, this shows that plants have natural mechanisms (like phototropism and gravitropism) that guide their growth direction.

Answer 9:

Aim: Experiment to Check the Effect of Temperature on Seed Germination

Materials: Identical pots, soil, seeds, thermometers, and different temperature-controlled environments (e.g., refrigerator, room temperature, heated environment).

Procedure

i. Fill each pot with the same type of soil.

ii. Plant seeds in each pot.

iii. Place each pot in a different environment with controlled temperatures (e.g., cold, room temperature, warm). For example, keep one pot outside in balcony to get sunlight. Put another in shade in the room. Keep the third one in basement or at coldest part of the house.

iv. Water each pot equally.

v. Record the number of seeds germinated in each environment daily for two weeks.

Observation: Measure and compare the rate of germination and growth in different temperatures.

Conclusion: Determine the optimal temperature for seed germination based on observations

YOUR ASSIGNMENT

I. Multiple Choice Questions

1. (c) Rusting

Hint: Rusting is a chemical process that occurs in metals, not a biological process; it is not a characteristic of living beings.

2. (b) Excretion

Hint: Excretion is the process by which living organisms remove waste products produced inside their bodies.

3. (a) Egg, larva, pupa, adult

Hint: A mosquito's life cycle goes through complete metamorphosis: egg ● larva ● pupa ● adult.

4. (b) Tadpole

Hint: Tadpoles, the early stage in a frog's life cycle, breathe through gills like fish.

5. (d) Nitrogen

Hint: Photosynthesis requires carbon dioxide, water, and chlorophyll in the presence of sunlight — nitrogen is not directly involved in this process.

II. Fill in the Blanks

1. Sensitivity
2. Reproduction
3. Water
4. Stomata
5. Cotyledons

III. True or False

1. True

Hint: All living things, including plants and animals, need food or nutrients to survive and grow.

2. True

Hint: Plants are fixed in one place and cannot move, although they can show movements like bending toward light.

3. False

Hint: Reproduction is essential for continuing the species; without it, the species would become extinct.

4. True

Hint: A tadpole is the larval stage of a frog and is an important part of its life cycle.

5. False

Hint: Seeds can germinate in darkness if they have water, proper temperature, and oxygen — light is not essential for germination.

IV. Match the Columns

Column A		Column B	
(a)	Nutrition	2.	Intake of food and its utilization
(b)	Excretion	1.	Removal of waste products
(c)	Respiration	4.	Exchange of gases
(d)	Reproduction	3.	Production of offspring

V. Very Short Answer Type Questions

1. Growth and Reproduction
2. Chlorophyll helps in photosynthesis by absorbing sunlight.
3. Germination is the process by which a seed develops into a new plant.
4. Spawn refers to the eggs of amphibians, especially frogs.
5. Egg, larva, pupa, adult

VI. Assertion-Reason Type

1. (a) Both Assertion and Reason are true, and Reason is the correct explanation of Assertion.

Hint: All living things respond to stimuli to survive and adapt; it's a key trait for survival in changing environments.

2. (a) Both Assertion and Reason are true, and Reason is the correct explanation of Assertion.

Hint: Seeds do not need light to germinate; they need moisture, warmth, and oxygen, which is why germination can occur in darkness.

VII. Picture-Based Question

(c) An insectivorous plant

11. Nature's Treasures

NCERT TEXT-BOOK QUESTIONS

Answer 1:

Item	Jumbled up name	Resources	Renewable or Non-renewable Resources
	Water	River, Pond	Renewable
	Wind	Atmosphere	Renewable
	Forest	Forest	Renewable
	Rock	Minerals	Non-Renewable

Answer 2:

(i) True (ii) False (iii) True (iv) True

Answer 3:

(i) (b) Petrol (ii) (b) Water

Answer 4:

Renewable: Forest / Non-renewable: Coal, natural gas and minerals

Answer 5: It is because:

a) it gets over once used.

b) it takes millions of years to make petroleum

Answer 6:

It is a slow process. It takes many years to grow plants into trees, and so to regrow forest. Human activities like urbanisation also hinder regrowing trees and so the forest.

Answer 7:

Daily Activity	Natural Resource Used	Ways to Reduce use
1. Cooking	Natural gas	Use solar cookers
2. Drinking water	Water	Use a water-efficient faucet
3. Using paper	Trees (forests)	Use digital documents
4. Using electricity	Coal, natural gas	Use energy-efficient appliance
5. Driving a car	Petroleum	Use public transport

Answer 8:

Four activities that are possible due to presence of air

(i) Breathing

(ii) Generating electricity through wind turbines

(iii) Transportation through aeroplanes.

(iv) Flying kites

Answer 9:

List of actions to be taken

i. Encourage neighbours to grow plants in their gardens.
ii. Collaborate with local schools to create green initiatives.
iii. Advocate for the protection of existing trees and green spaces.
iv. Participate in community tree planting drives.
v. Plant trees in local parks and open spaces.

Answer 10:

(i) Solar Energy

(ii) Benefit: Solar energy is a renewable and clean source of energy. Hence it is environment friendly.

Drawback: Dependence on Weather: Solar energy cannot be used during cloudy days or at night, which limits its reliability and convenience.

Answer 11:

a) It will cause soil erosion due to heavy rainfall or storm.

b) Fallen leaves from trees decompose and add organic matter to the soil, enhancing its fertility and structure.

c) In absence of trees, it won't happen so fertility of the soil will be vanished.

Answer 12:

(i) Deforestation reduces the number of trees that can absorb carbon dioxide, increasing the concentration of greenhouse gases.

(ii) Burning fossil fuels in vehicles and factories releases harmful pollutants like carbon monoxide and sulphur dioxide into the air.

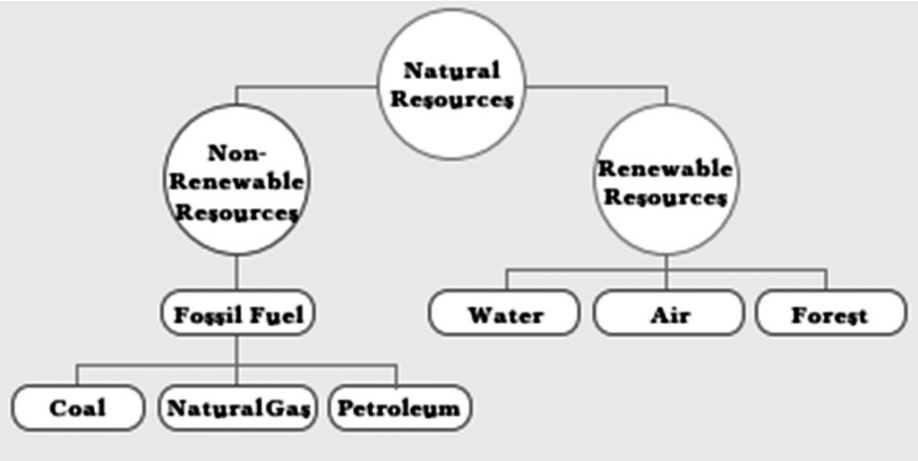
Action to reduce air pollution: Promote the use of public transport and electric vehicles to decrease

the number of fossil fuel-powered vehicles on the road.

Answer 13:

If there were no sunlight for a week, the solar panels would not be able to generate electricity, leading the family to rely on alternative sources of power. Additionally, the growth of plants would be affected due to the lack of sunlight for photosynthesis. They can use gas stove effectively and windmill too.

Answer 14:



Answer 15:

Trees play a crucial role in maintaining ecological balance by providing oxygen, supporting wildlife and preventing soil erosion. Large scale deforestation can lead to loss of biodiversity, leads to climate change and disruption of water cycles. Sustainable practices such as using alternative materials, implementing stricter regulations on tree felling, and promoting reforestation can help balance economic development with environmental conservation.

Answer 16:

A. Plan to Use Less Water

i. Use grey water for gardening purposes.

ii. Implement a rainwater harvesting system.

iii. Install water-efficient faucets and toilets.

B. Steps to Implement the Plan

i. Monitor water usage regularly and set reduction targets.

ii. Encourage student-led initiatives for water conservation.

iii. Collaborate with local authorities and experts to install water saving devices.

C. Environmental Benefits

i. Promotes sustainability and responsible water usage within the community.

ii. Decreases the energy used in water treatment and distribution.

YOUR ASSIGNMENT

I. Multiple Choice Questions

1. (c) Coal

Hint: Coal is a non-renewable resource because it takes millions of years to form and cannot be replenished quickly once used.

2. (b) Sun

Hint: The Sun is the primary source of energy for Earth. It drives weather, climate, and photosynthesis in plants.

3. (b) Rain water harvesting

Hint: Rainwater harvesting is the process of collecting and storing rainwater for future use, especially during dry seasons.

4. (c) Natural gas

Hint: Natural gas is a fossil fuel, formed from decayed plants and animals over millions of years under high pressure.

5. (c) Accessing groundwater

Hint: Stepwells were traditionally built to access and store groundwater, especially in arid regions of India.

II. Fill in the Blanks

1. Photosynthesis 2. Gas
3. Diamond 4. Weathering
5. Fossil

III. True or False

1. False

Hint: Not all natural resources are renewable. Fossil fuels like coal and petroleum are non-renewable.

2. True

Hint: Trees help prevent soil erosion by holding the soil together with their roots.

3. False

Hint: Petroleum is a non-renewable resource that takes millions of years to form.

4. True

Hint: Wind energy is indirectly derived from the Sun, as solar heating of the Earth creates wind.

5. True

Hint: Recycling reduces the need for raw materials and helps in conserving natural resources.

IV. Match the Columns

Column A		Column B	
(a)	Wind energy	2.	Renewable resource
(b)	Coal	4.	Non-renewable resource
(c)	Forests	3.	Soil erosion prevention
(d)	Step-wells	1.	Traditional water conservation

V. Very Short Answer Type Questions

1. Coal, petroleum
2. Air, water, soil, sunlight, minerals
3. 21%
4. Sunlight, wind
5. Turning off taps when not in use

VI. Assertion-Reason Type Questions

1. (a) Both Assertion and Reason are true, and Reason is the correct explanation of Assertion.

Hint: Stepwells are becoming less common because modern piped water systems have reduced reliance on traditional methods.

2. (d) Assertion is false, but Reason is true.

Hint: Soil erosion is harmful, not beneficial, for agriculture. However, nutrient recycling can occur naturally in ecosystems.

VII. Picture-Based Question

(b) A wind energy plant

12. Beyond Earth

NCERT TEXT-BOOK QUESTIONS

Answer 1:

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

Answer 2:

(i) MARS

(ii)

i. My first alphabet is in VAN but not in PAN

My second alphabet is in EARTH and also in HEAVEN

My third alphabet is in ONE and not in TWO

My fourth alphabet is in SUN and also in FUN

My last alphabet is in STAR but not in RADAR

I am a planet that moves around the Sun.

Answer: VENUS

ii. My first alphabet is in EAT but not in BAT

My second alphabet is in FAT and also in SAT

My third alphabet is in RAT and not in MAT

My fourth alphabet is in TEN and also in NET

My fifth alphabet is in HAT but not in PAT.

I am a planet that moves round the Sun.

Answer 3:

(i). Sirius

Answer 4:

(ii). Pluto

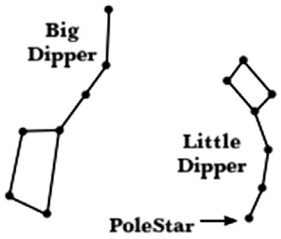
Answer 5:

Sirius

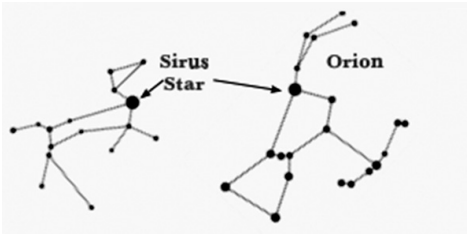
Answer 6:

The order of the planets in the figure is not correct. The correct order from the Sun is: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune.

Answer 7:



Answer 8:



Answer 9:

It happens due to the rotation of the Earth. During the day, the Sun's light scatters in Earth's atmosphere, making the sky bright and obscuring the light from other stars. As the Sun sets, the sky darkens, allowing the light from the stars to become visible again

Answer 10:

The Big Dipper appears to move around the Pole Star due to the rotation of the Earth.

Over a few hours, its position changes, making it seem as if it is rotating around the Pole Star.

Answer 11:

Do it yourself

YOUR ASSIGNMENT

I. Multiple Choice Questions

1. (b) Milky Way

Hint: Our galaxy is called the Milky Way, and it contains billions of stars, including our Sun.

2. (c) Mars

Hint: Mars is called the Red Planet due to the presence of iron oxide (rust) on its surface, giving it a reddish appearance.

3. (c) Pluto

Hint: Pluto is no longer classified as a major planet; it is now categorized as a dwarf planet.

4. (b) Chandrayaan

Hint: Chandrayaan is the name of India's lunar mission, launched by ISRO to explore the Moon.

5. (b) 8

Hint: There are 8 planets in our solar system since Pluto was reclassified as a dwarf planet in 2006.

II. Fill in the Blanks

1. Sun
2. Moon
3. Constellation
4. Milky Way
5. Asteroids

III. True or False

1. True

Hint: Stars twinkle due to atmospheric disturbances, but planets shine steadily as they reflect sunlight.

2. False

Hint: The Big Dipper is a group of stars (part of the Ursa Major constellation), not a planet.

3. True

Hint: Pluto is now considered a dwarf planet because it does not meet all the criteria to be classified as a full planet.

4. True

Hint: The Sun is a star at the center of our solar system and is the primary source of energy for Earth.

5. False

Hint: Not all planets have moons. For example, Mercury and Venus do not have any moons.

IV. Match the Columns

Column A		Column B	
(a)	Star	2.	A massive ball of gas that produces its own light
(b)	Planet	3.	A large body orbiting the Sun
(c)	Moon	1.	A rocky, airless world orbiting a planet
(d)	Asteroid	4.	A small, rocky object orbiting the Sun

V. Very Short Answer Type Questions

1. Mercury
2. A planet is a large celestial body that orbits a star and does not emit its own light.
3. Jupiter 4. Astronomy 5. Orion

VI. Assertion-Reason Type Questions

1. (a) Both Assertion and Reason are true, and Reason is the correct explanation of Assertion.

Hint: The Sun appears to move across the sky because Earth rotates on its axis from west to east.

2. (c) Assertion is true, but Reason is false.

Hint: Pluto is no longer considered a planet, but not just because it's small — it's due to not clearing its orbital path, as per IAU's definition.

VII. Picture-Based Question

(b) Milky Way

❑❑