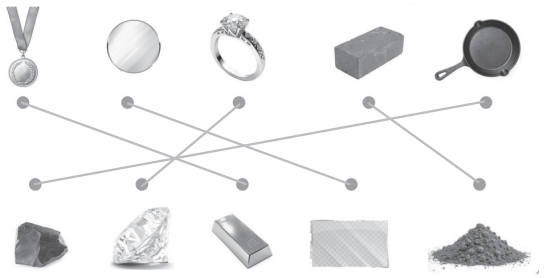
Answers

Theme 1: What Makes Our Land
Lesson-1: Understanding Rocks and Minerals

Main Coursebook

I am ready



Catch Up (Page 6)

1. Sedimentary rocks
2. Metamorphic rocks

Catch Up (Page 7)

1. Gold 2. Coal

I am a learner

A. 1. b 2. a 3. c 4. b 5. a

B. 1. True 2. False 3. False 4. True 5. False

C. 1. Minerals are natural non-living substances present in different quantities, qualities and arrangements within rocks.

2. Diamond

3. The minerals from which metals can be profitably obtained are called ores.

D. 1. The differences between igneous, sedimentary and metamorphic rocks are as follows:

Igneous rocks: These rocks are formed by the cooling and hardening of hot liquid rock material, called magma.

Example: granite

Sedimentary rocks: These rocks are formed from pebbles, sand, mud, rocks or clay, carried by rivers, wind or ice and deposited in layers.

Example: shale

Metamorphic rocks: These rocks are formed by transformation of already existing rocks through a process called metamorphism.

Example: marble

2. The differences between metallic and non-metallic minerals are as follows:

Metallic minerals	Non-metallic minerals
These are used to obtain metals. Examples include gold, platinum, iron and zinc.	These include fossil fuels or other valuable resources that are found underground. Examples include coal and petroleum.

I am a thinker

Accept all relevant responses.

I am an all-rounder

A. **English:**
1. work 2. silver fork

B. **Maths:** DCCXVII

C. **Social Studies:** Mountains and Plateaus

Students' Worksheets

Worksheet 1

A. 1. minerals 2. non-living 3. landforms 4. Igneous 5. magma

B. 1. →b 2. →c 3. →d 4. →a 5. →e

C. 1. False 2. False 3. True 4. True 5. True

Worksheet 2

A. 1. Limestone 2. Sedimentary 3. Conglomerate 4. shells 5. pile up

B. 1. GRANITE 2. IGNEOUS 3. OBSIDIAN 4. SEDIMENTARY 5. METAMORPHIC

C. 1. False 2. True 3. False 4. True 5. True

Worksheet 3

A. 1. Rocks are natural substances made up of one or more minerals.

2. Magma is hot, molten rock material found beneath the Earth's surface.

3. Minerals are natural non-living substances present in different quantities, qualities and arrangements within rocks.

4. Igneous rocks, sedimentary rocks and metamorphic rocks.

5. Metamorphic rocks form by transformation of already existing rocks through a process called metamorphism.

B. 1. →c 2. →a 3. →e 4. →b 5. →d

C. 1. False 2. True 3. True 4. True 5. True

Worksheet 4

A. 1. mines 2. black gold 3. metals 4. precious 5. Fossil fuels

B. 1. COAL 2. METALLIC 3. PETROLEUM 4. HAEMATITE 5. NON-METALLIC

C. 1. No 2. Yes 3. No 4. Yes 5. No

Teacher's Worksheets

Worksheet 1

1. Igneous rocks are formed by the cooling and hardening of hot liquid rock material, called magma. This magma is pushed upwards by the pressure of other rocks around it.
2. We should use coal, oil and petrol wisely. We can substitute them with inexhaustible natural resources, such as water, air and the Sun.
3. Slate is commonly used for flooring, roofing and wall cladding.
4. Sedimentary rocks are formed from pebbles, sand, mud, rocks or clay, deposited in the ocean and brought to the shore by flowing water or floating ice.
5. Metamorphic rocks form by transformation of already existing rocks through a process called metamorphism.

Worksheet 2

A. 1. →b 2. →d 3. →e 4. →c 5. →a

B. 1. It is used for making bricks and tiles.
2. It is used for flooring, ornamental stones or gravestones.
3. It is used for making cutting tools.
4. It is used for filling materials in roads and construction.
5. It is used for teeth polishing by dentists.

Theme 1: What Makes Our Land
Lesson-2: How Things Move and Work

Main Coursebook

I am ready

1. Heat and light energy
2. Solar energy
3. Light energy

Catch Up (Page 13)

1. Muscular force 2. Gravitational force

Catch Up

1. True 2. True

I am a learner

A. 1. b 2. a 3. c 4. a 5. c

B. 1. True 2. False 3. False 4. True 5. True

C. 1. Force is a push or a pull that, when applied to an object can change its state, speed, direction or shape.
2. Pull
3. Mechanical energy is the energy a body has when work is being done on it. It is of two types — kinetic energy and potential energy.

D. 1. **Gravitational force:** Every object in this universe attracts other objects with a force known as gravitational force. Any two bodies with mass attract each other with a force, no matter how far apart they are. Gravitational force is always attractive force and keeps us on the Earth's surface.

Buoyant force: When an object is placed in water, the water pushes it upward. This upward push is called upthrust. Human beings experience this force when entering a swimming pool, as the water displaced by our bodies creates an upward force. This force counteracts gravity, which pulls us downward, making us feel lighter in water.

2. **Mechanical energy:** Energy possessed by moving or working objects.
Example: A moving car, a spinning wheel.

Solar energy: Energy obtained from the Sun. It is a renewable source of energy and does not cause any pollution to the environment.
Example: Solar panels converting sunlight into electricity.

Geothermal energy: Energy obtained from heat inside the Earth.
Example: Hot springs.

Wind energy: Energy produced by moving air or wind, converted into electricity using turbines.
Example: Windmills.

Chemical energy: Energy produced when different substances react with each other to form new substances.
Example: Burning fuel or digesting food.

Heat energy: Energy transferred due to temperature difference.
Example: Heating water on a stove.

Light energy: Energy that allows us to see and travels in straight lines.
Example: Light from a bulb or the Sun.

Sound energy: Energy produced by vibrations.
Example: Ringing bell.

Electrical energy: Energy produced by moving electric charges.
Example: Powering a fan or television.

I am a doer

Accept all relevant responses.

I am an all-rounder

A. **English:**

1. **Subject:** A hammer

   Predicate: bends a nail when you hit it.

2. **Subject:** A boat

   Predicate: floats because water pushes it upward.

B. **Maths:** ₹1,36,103

C. **Social Studies:** The Earth's rotation creates day and night, which helps us measure hours in a day. By understanding this, we can calculate time differences between countries since different places experience day and night at different times.

Students' Worksheets

Worksheet 1

A. 1. force 2. Muscular 3. contact 4. gravitational 5. attractive

B. 1. False 2. False 3. True 4. False 5. True

C. 1. →b 2. →e 3. →c 4. →d 5. →a

Worksheet 2

A. 1. Frictional 2. mechanical 3. buoyant 4. Energy 5. Work

B. 1. MUSCULAR 2. GRAVITATIONAL 3. FRICTIONAL 4. MECHANICAL 5. UPTHRUST

C. 1. →e 2. →a 3. →b 4. →c 5. →d

Worksheet 3

A. 1. The force exerted by the muscles of our body is called muscular force.

2. The force with which the Earth attracts all objects towards its centre is called gravitational force.

3. The force that opposes the motion of a body moving on a surface is called frictional force.

4. The force applied by a machine or when work is done using tools or mechanical devices is called mechanical force.

5. The upward force exerted by a liquid on an object immersed in it is called upthrust or buoyant force.

B. 1. gravitational force 2. muscular force 3. buoyant force 4. frictional force 5. mechanical force

C. 1. Yes 2. No 3. Yes 4. No 5. Yes

Worksheet 4

A. two; Kinetic; stationary position; solar; renewable

B. 1. SOLAR 2. GEOTHERMAL 3. CHEMICAL 4. CONDUCTION 5. ELECTRICAL

C. 1. kinetic energy 2. potential energy 3. wind energy 4. geothermal energy 5. chemical energy

Teacher's Worksheets

Worksheet 1

A.

Pushing ☑ Pulling ☐

Pushing ☐ Pulling ☑

Pushing ☑ Pulling ☐

B. 1. movement 2. kinetic 3. stationary 4. Chemical

Worksheet 2

A. 1. T 2. T 3. F 4. T 5. F

B. 1. When any object floating on water is pushed down, the water exerts an upward push on the object. This upward push is called upthrust.

2. Wind energy is the energy produced by moving air or wind. The kinetic energy of wind is converted into mechanical energy using wind turbines. The mechanical energy can further be transformed into electricity with the help of generators.

3. Every object in this universe attracts other objects with a force known as gravitational force. When two bodies with some mass come closer to each other, they pull and attract each other. Gravitational force is always an attractive force.

Theme 2: What Helps Us Survive
Lesson-3: Houses Around Us

Main Coursebook

I am ready

pucca house

concrete, bricks, iron

kachcha house

mud, straw, bamboo

Catch Up (Page 19)

1. No
2. No

Catch Up

1. False
2. True

I am a learner

A. 1. b 2. b 3. b 4. c 5. b

B. 1. True 2. True 3. False 4. True 5. False

C. 1. Houses in hot climate areas have flat roofs and thick walls to keep the inside cool.
2. Concrete, glass and iron.

D. 1. Houses in areas with heavy rainfall have sloping roofs to allow rainwater to flow off easily and are often built on stilts to prevent flooding.

In contrast, houses in hot climate areas have flat roofs and thick walls to keep the inside of the house cool.

2. The design and type of houses depend on the materials that are easily available in a region.

Houses in areas with hot climates are built with bricks and stones to keep them cool.

In hilly areas like Manipur and Assam, houses are made of bamboo and wood as these materials are easily available there.

Places that are prone to earthquakes, such as Manipur, Nagaland and Arunachal Pradesh, have wooden houses to prevent much damage and loss of life.

I am a thinker

If houses in hilly areas were made of glass, they could easily break due to strong winds and heavy rain. They would also be very cold in winter because glass cannot keep the warmth inside.

I am an all-rounder

A. **English**
1. love, happiness; abstract nouns
2. a troop of monkeys: collective noun

B. **Maths:** 1, 2

C. **Social Studies:** Floods occur frequently in these regions because they receive heavy rainfall, are often near rivers or the sea and have low-lying land where water collects easily. When rivers overflow or rainwater cannot drain away quickly, flooding occurs.

Students' Worksheets

Worksheet 1

A. 1. hot 2. thick 3. mud 4. stilts 5. ground

B. 1. False 2. True 3. False 4. True 5. True

C. 1. →b 2. →a 3. →d 4. →c 5. →e

Worksheet 2

A. 1. stones 2. bamboo ; wood 3. earthquakes 4. Kachcha 5. Huts

B. 1. FLAT ROOFS 2. THICK WALLS 3. SLOPING ROOF 4. RAINFALL 5. FIREPLACE

C. 1. C 2. I 3. C 4. C 5. I

Worksheet 3

A. 1. bricks ; cement 2. strong 3. pucca 4. huts 5. village

B. 1. BRICKS 2. STONES 3. BAMBOO 4. WOOD 5. PALM LEAVES

C. 1. True 2. False 3. True 4. True 5. True

Worksheet 4

A. 1. Flat roofs 2. Thick walls 3. Stilt houses 4. Fireplace 5. Brick

B. hot, flat roofs, thick, inside, rainfall, damp, stilts, sloping, floods

C. 1. STILT 2. THATCH 3. FIREPLACE 4. CONCRETE 5. MUD

Teacher's Worksheets

Worksheet 1

A. 1. FIREPLACE 2. SLOPING 3. EARTHQUAKE 4. TEMPORARY 5. ARCHITECT

B. 1. Climate, building material and budget.
2. Houses in hilly areas are made up of bamboo and wood as these materials are easily available there.
3. Regular cleaning, periodic painting and maintenance.

Worksheet 2

A. 1. hot 2. earthquake 3. palm 4. well-plastered 5. periodic

B. 1. F 2. F 3. F 4. T 5. F
6. F 7. T 8. F

Theme 2: What Helps Us Survive
Lesson-4: Communicable and Non-communicable Diseases

Main Coursebook

I am ready

1. P 2. S 3. P 4. S 5. S

Catch Up (Page 24)

1. True 2. True

Catch Up (Page 26)

1. Yes 2. No

I am a learner

A. 1. b 2. a 3. a 4. a 5. a

B. 1. False 2. True 3. False 4. False 5. True

C. 1. Disease is a condition in which our body does not function properly.
2. Communicable disease.
3. Diabetes and asthma

D.

Communicable diseases	Non-communicable Diseases
• These diseases spread from one person to another.	• These diseases do not spread from one person to another.
• They are also called infectious or transmissible diseases.	• They are also called chronic or deficiency diseases.
• Examples: Cold, polio, measles	• Examples: Cancer, goitre, rickets

2. We can keep ourselves safe from communicable diseases by:
   - Keeping our surroundings clean.
   - Eating fresh and well-cooked food.
   - Drinking clean and safe water.
   - Washing hands before and after meals.
   - Taking vaccines on time.
   - Avoiding contact with sick persons.
   - Surroundings should be kept clean and free from mosquitoes and germs.

I am a doer

Accept all relevant responses.

I am an all-rounder

A. **English:**
1. hatch 2. patch

B. **Maths**
Factors of 15: 1, 3, 5, 15
Factors of 16: 1, 2, 4, 8, 16

C. **Social Studies:** Two natural disasters during which it is especially important to ensure clean food and water are:
Floods – Floodwater can contaminate drinking water with dirt and germs, causing diseases like cholera and diarrhoea.
Earthquakes – Water pipelines and sanitation systems may break, making food and water unsafe to consume.

Students' Worksheets

Worksheet 1

A. 1. function 2. Deficiency
3. non-communicable
4. Non-communicable 5. Communicable

B. 1. False 2. False 3. True 4. False 5. True

C. 1. →b 2. →c 3. →d 4. →e 5. →a

Worksheet 2

A. 1. Communicable 2. goitre
3. iron 4. Vitamin C
5. Vitamin D

B. 1. COMMUNICABLE
2. NON-COMMUNICABLE
3. DEFICIENCY
4. GERMS
5. INFECTIOUS

C. 3

Worksheet 3

A. 1. Accept all relevant responses.
2. Accept all relevant responses.
3. Accept all relevant responses.
4. Aedes
5. HIV

B. 1. Non-communicable diseases are also called chronic diseases.
2. Scurvy is caused by deficiency of vitamin C.
3. Common cold spreads through direct contact.
4. Dengue is caused by a virus.
5. AIDS is an immunity disorder caused by HIV virus.

C. 1. No 2. Yes 3. No 4. No 5. No

Worksheet 4

A. infected; water; cockroaches; contaminate

B. 1. POLIO 2. TYPHOID
3. INFLUENZA 4. MALARIA
5. CHICKEN POX

C. 1. papaya, tomatoes 2. meat, cereals
3. egg yolk, mushrooms
4. seafood, yogurt
5. dates, spinach
(Accept all relevant responses)

Teacher's Worksheets

Worksheet 1

A. 1. Scurvy 2. Vitamin B
3. Anaemia 4. Iodine
5. Rickets 6. Scarlet fever

B. 1. b iii 2. e iv 3. d i 4. c v 5. a ii

Worksheet 2

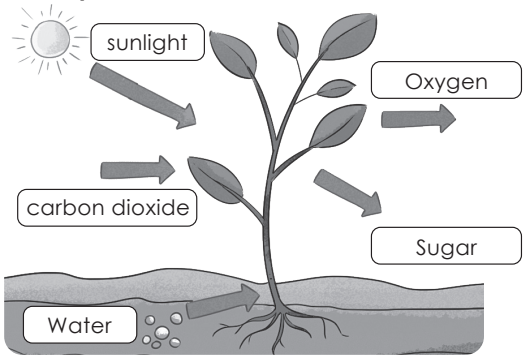
A. 1. A deficiency disease is caused due to deficiency of nutrients, such as vitamins and minerals.
2. Chronic diseases are diseases that last for a long time and develop slowly.
3. Infectious diseases are transmitted from one person to another.
4. Cholera, typhoid, jaundice and diarrhoea are caused by consuming infected food and water.
5. Malaria, dengue and plague spread through insects.

B. 1. i. All the items used frequently by a patient, such as clothes, towel should be regularly disinfected by washing in boiling water.
ii. Children suffering from any communicable disease should refrain from going to school until they recover fully.
2. Vaccination is a method to protect our body by providing immunity against diseases. Vaccines are available for typhoid, tetanus and cholera.
3. Pasteurisation is a process by which the bacteria present in milk are killed by heating it at a high temperature and then cooled down rapi dly.

Theme 3: Different Yet Alike
Lesson-5: How Plants Reproduce

Main Coursebook

I am ready



This process is called Photosynthesis.

Catch Up (Page 34)

1. Yes 2. No

I am a learner

A. 1. c 2. c 3. b 4. c 5. a

B. 1. germination 2. water, sunlight
3. dispersal 4. agents of dispersal
5. wind

C. 1. Embryo is an immature plant that further grows into a new plant under desired conditions.
2. Vegetative propagation
3. The growth of a seed into a young plant or a seedling is called germination.

D. 1. There are five stages of seed germination.
Stage 1: Seed takes in water – The dry seed soaks up water from the soil and swells up.
Stage 2: Seed uses stored food – After taking in water, the seed starts using stored food for energy.
Stage 3: Growth begins – The baby plant (embryo) inside the seed starts to grow. The first sign of germination is the small root coming out.
Stage 4: Root and shoot grow – The root grows down into the soil to take in water. The shoot grows upward towards sunlight.
Stage 5: Seedling grows – When leaves appear, it means the young plant (seedling) is growing and will soon become an adult plant.
2. Seed dispersal can take place through following factors:
i. **Dispersal by wind:** Seeds of plants, such as cotton, hiptage and dandelions, have hair or wings and are lightweight. Thus, these seeds are dispersed with the help of wind.
ii. **Dispersal by water:** Plants with spongy parts or fibrous outer covering can float on water, and hence, their seeds get dispersed through water. The seeds of lotus, water lily, coconut and palm are dispersed by water.
iii. **Dispersal by animals:** Humans and animals consume fruits, such as dates, cherries and mangoes, and throw away their seeds. Some of these seeds have spines, hooks and stiff hair. This way animals contribute in seed dispersal.
iv. **Dispersal by explosion:** Seeds of some plants, such as peas, burst open when mature. This explosion helps in seed dispersal which means that the seeds get thrown in different directions. In the availability of favourable conditions, the seeds germinate.

I am a thinker

If all the seeds grow in the same spot, they will compete for sunlight, water and space. Many seedlings may become weak or die, and only a few will grow into healthy trees.

I am an all-rounder

A. **English:**

1. A seed is made up of three parts: the embryo, the endosperm and the seed coat.
2. Seeds like grams, peas and kidney beans can be soaked in water to see their parts.

B. **Maths:** $3\frac{3}{4}$

C. **Social Studies:** Pine and spruce.

Picture Talk

1. c 2. c 3. b 4. b
5. Accept all relevant responses.

Students' Worksheets

Worksheet 1

A. 1. reproduction 2. outermost
3. immature 4. endosperm
5. cotyledon

B. 1. False 2. True 3. False 4. True 5. True

C. 1. →b 2. →c 3. →e 4. →d 5. →a

Worksheet 2

A. 1. young plant or seedling
2. Water
3. oxygen, warmth and moisture.
4. Air 5. roots

B. 1. EMBRYO 2. ENDOSPERM
3. SEED COAT 4. COTYLEDON
5. SEEDLING

C. 1. True 2. False 3. True 4. False 5. True

Worksheet 3

A. 1. Seed coat is the outermost covering of the seed.
2. The endosperm is the soft part inside the seed that gives food to the young plant when it starts growing.
3. During the first stage of seed germination, the dry seed absorbs water, causing it to swell and soften its seed coat.
4. Air, water and sunlight.
5. The first sign of germination is the small root coming out.

B. 1. PEA 2. HIPTAGE
3. COCONUT 4. TAMARIND
5. DANDELION

C. 1. True 2. True 3. False 4. True 5. False

Worksheet 4

A. 1. Seed coat 2. Embryo
3. Endosperm 4. Cotyledon
5. Sunlight

B. 1. AGENT 2. WIND
3. WATER 4. ANIMAL
5. EXPLOSION

C. 1. No 2. Yes 3. No 4. Yes 5. No

Teacher's Worksheets

Worksheet 1

A. 1. T 2. T 3. F 4. T
5. T 6. T 7. F 8. F

B. 1. b 2. d 3. a 4. c

Worksheet 2

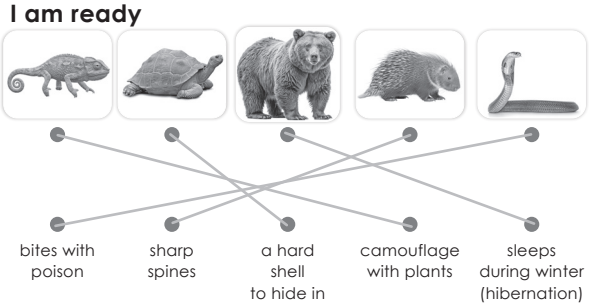
A. 1. Seed coat 2. Endosperm
3. Cotyledon 4. Germination
5. Leaves

B. 1. The seeds require oxygen from air, water, sunlight or warmth to germinate.
2. Plants are stationary and unable to move on their own. As a result, all the seeds produced by the plant fall near the parent plant and cannot find sufficient space and other conditions to grow.
3. Coconut has fibrous outer covering that can float on water. Lotus has spongy parts and hence, their seeds get dispersed through water.

Theme 3: Different Yet Alike
Lesson-6: The Animal World

Main Coursebook

I am ready



Catch Up (Page 41)

1. False 2. True

Catch Up (Page 42)

1. Yes 2. No

I am a learner

A. 1. c 2. c 3. b 4. a 5. b

B. 1. False 2. True 3. False 4. False

C. 1. Insects breathe through small openings present on their bodies known as spiracles.
2. Hindlimbs
3. Emu, penguin and ostrich.

D. 1. Microscopic organisms, such as *Paramecium* and *Amoeba* breathe though their body surface. Insects breathe through air holes, known as spiracles, present on their bodies. Animals, such as earthworms, breathe through their thin and moist skin. Some aquatic animals, such as fish, prawns and oysters, breathe through their gills. Amphibians, such as frogs, breathe through both their gills and lungs. A tadpole breathes through gills, whereas an adult frog breathes through lungs on land and through its moist skin in water.

2. The seasonal movement of animals from one place to another is called migration. Eels migrate from river to sea and lay eggs there. After laying eggs, the parent eels die. The baby eels then travel back to the rivers, where they grow into adults.

I am a doer:

Accept all relevant responses.

I am an all-rounder:

A. **English:**

1. The forelimbs of birds are present in the form of wings that help them fly.
2. Every third animal in India lives in water.

B. **Maths:** Fifty-two rupees and fifty paise

C. **Social Studies:** Polar bears and Arctic fox.

Students' Worksheets

Worksheet 1

A. 1. breathing 2. water 3. *paramecium* 4. Insects 5. gills

B. 1. False 2. False 3. True 4. False 5. True

C. 1. →e 2. →d 3. →c 4. →a 5. →b

Worksheet 2

A. 1. four 2. forelimbs 3. hindlimbs 4. paddle-like 5. webbed

B. 1. Almost all mammals have four limbs.
2. Birds have wings to fly.
3. Emu is a flightless bird.
4. Snakes have plates for movement.
5. Animals migrate due to food, weather, shelter and water.

C. 1. I 2. I 3. C 4. I 5. C

Worksheet 3

A. 1. wings 2. feathers 3. hindlimbs 4. flightless 5. plates

B. 1. AQUATIC 2. INSECTS 3. BIRDS 4. REPTILES 5. HUMANS

C. 1. True 2. True 3. False 4. True 5. False

Worksheet 4

A. 1. Fish 2. Turtle 3. Cockroach 4. Tortoise /Turtle 5. Snake

B. 1. LIMBS 2. FINS 3. WINGS 4. PLATES 5. SCALES

C. 1. Yes 2. No 3. Yes 4. Yes 5. Yes

Teacher's Worksheets

Worksheet 1

A. 1. Amoeba 2. gills 3. Insects 4. Amphibians 5. Fishes

B. 1. Microscopic organisms breathe through body surface.
2. Turtles have paddle-like limbs that help push water in the backward direction.
3. The forelimbs of birds are present in the form of wings that help them fly.
4. Earthworms breathe through their thin and moist skin.
5. Almost all mammals have four limbs.

Worksheet 2

A. 1. Microscopic animals breathe to obtain oxygen needed for life processes.
2. Aquatic animals are the animals that live in water. Fishes and turtles are examples of aquatic animals.
3. A tadpole breathes through gills and an adult frog breathes through lungs on land and through its moist skin in water.
4. The hindlimbs of birds are used for walking, hoping, perching and running.

B. 1. Fishes–Fishes have fins that enable them to swim.

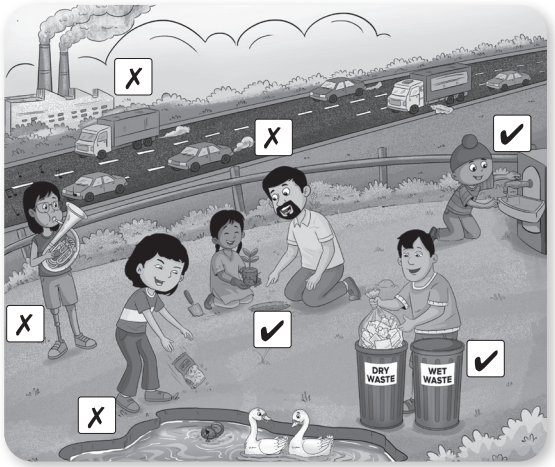
Birds–The forelimbs of birds are present in the form of wings that help them fly. The hindlimbs of birds are used for walking, hoping, perching and running.

2. An insect breathes through air holes, known as spiracles, present on their bodies. A fish breathes through their gills.
3. The seasonal movement of animals from one place to another is termed as migration. Migratory fish, such as eels, migrate from river to sea and lay eggs there. After hatching of the eggs, the parent eels die and the baby eels travel back to the rivers.

Theme 4: Living With Changes
Lesson-7: Changes in Our Environment

Main Coursebook

I am ready



Catch Up (Page 47)

1. Yes
2. Yes

Catch Up (Page 48)

1. No
2. Yes

I am a learner

A. 1. c 2. b 3. b 4. b 5. c

B. 1. True 2. False 3. True 4. False 5. True

C. 1. Greenhouse gases are gases that trap heat in the Earth's atmosphere and keep the planet warm.

2. Global warming.

D. 1. The contribution of different greenhouse gases to the greenhouse effect is as follows:

i. **Carbon dioxide:** Carbon dioxide is released by burning fuels and cutting trees. It traps a large amount of heat.

ii. **Methane:** It is produced by the decay of organic material and released in to the atmosphere. It is also given out by animals after they digest their food.

iii. **Water vapour:** This acts as the Earth's most abundant greenhouse gas. Water vapour contributes about 35–75 per cent to the greenhouse effect.

iv. **Ozone:** Unlike other greenhouse gases, ozone does not act as a typical greenhouse gas. In the upper regions of the stratosphere, ozone helps absorb the ultraviolet rays from the Sun. But in the regions near the ground, it acts as a greenhouse gas and a pollutant.

v. **CFCs:** These are non-toxic chemicals, consisting of chlorine, fluorine and carbon. CFCs destroy the ozone layer and trap heat in the lower parts of the atmosphere, thereby causing warming of the Earth's surface.

2. The gradual rise in the temperature of the Earth is known as global warming. Following are some steps to control global warming:

i. Use electricity carefully and avoid wastage.

ii. Reduce the use of fossil fuels.

iii. Plant more trees and stop deforestation.

iv. Use public transport instead of private vehicles.

I am a thinker

If the amount of CFCs (chlorofluorocarbons) in the atmosphere keeps increasing at the present rate, it would cause serious environmental harm.

CFCs destroy the ozone layer, which protects us from the Sun's harmful ultraviolet (UV) rays.

The thinning of the ozone layer would allow more UV rays to reach the Earth's surface, leading to skin cancer, eye damage and harm to plants and animals.

CFCs also act as powerful greenhouse gases, trapping heat in the lower atmosphere and causing global warming.

Accept all relevant responses.

I am an all-rounder

A. **English:**

1. Aloe vera is good for human skin and prevent wrinkles.

2. Reshma threw the empty shoe box in the dustbin.

B. **Maths:** C: O, U
S: E, N, V, I, M, T
B: R

C. **Social Studies:** The crops that farmers were forced to grow by the British were indigo and cotton.

Students' Worksheets

Worksheet 1

A. 1. glasshouse 2. heat
3. greenhouse 4. greenhouse effect
5. carbon dioxide

B. 1. False 2. False 3. True 4. True 5. False

C. 1. →c 2. →d 3. →e 4. →b 5. → a

Worksheet 2

A. 1. global warming 2. rising
3. reduce 4. plantation
5. public

B. 1. TEMPERATURE 2. DROUGHT
3. FLOODS 4. ICE CAPS
5. ENVIRONMENT

C. 1. False 2. True 3. True 4. False 5. False

Worksheet 3

A. 1. Carbon dioxide 2. Methane
3. Water vapour 4. Ozone
5. Chlorofluorocarbons

B. 1. Y 2. Y 3. Y 4. Y 5. N

C. 1. ATMOSPHERE 2. DEFORESTATION
3. GREENHOUSE EFFECT
4. OZONE LAYER 5. GLOBAL WARMING

Teacher's Worksheets

Worksheet 1

A. 1. Burning of fossil fuels and deforestation.
2. Methane is produced by the decay of organic material and released in the atmosphere.
3. Global warming results in elevated temperatures, increased droughts, rising ocean levels, loss of animal species, flooding of areas and melting of polar ice caps.
4. Water vapour acts as the Earth's most abundant greenhouse gas. This contributes about 35–75 per cent to the greenhouse effect. Unlike other greenhouse gases, water vapour remains in the atmosphere for a shorter period of time.
5. Careful use of electricity, reduce the use of fossil fuels, plant more and more trees and use public transport in place of private ones.
6. The Kyoto Protocol is one such agreement that focuses on decreasing the emission of greenhouse gases in the environment. This protocol is an international agreement signed by 41 countries of the world.

Worksheet 2

A. winters, Sun, warm, walls, greenhouse

B. 1. Deforestation leads to an increase in the amount of carbon dioxide in the atmosphere.
2. A greenhouse is a glass house where we grow plants.
3. Ozone absorbs the ultraviolet rays from the Sun.
4. The Kyoto Protocol is an agreement that is signed by 41 countries of the world.

Theme 4: Living With Changes
Lesson-8: Soil Erosion and Conservation

Main Coursebook

I am ready

v	s	k	i	t	t	h	e	n	o	l	q
g	l	l	f	b	a	s	e	m	e	n	t
d	o	i	u	m	d	g	s	b	l	s	w
l	i	c	v	i	n	g	h	h	b	l	i
o	s	s	a	n	d	g	a	u	a	g	e
a	c	h	i	e	n	e	y	m	t	l	m
m	c	a	e	r	y	g	l	u	h	b	l
y	c	t	e	a	g	i	r	s	r	o	n
r	o	o	c	l	a	y	f	o	a	m	g
d	a	t	t	s	c	u	o	g	o	f	f
e	f	d	c	e	t	s	i	l	t	m	d
n	f	i	b	e	d	r	o	o	m	h	t

Catch Up (Page 54)

1. False 2. True

Catch Up (Page 55)

1. False 2. True

I am a learner

A. 1. b 2. a 3. a 4. a 5. c

B. 1. True 2. True 3. False 4. True 5. True

C. 1. The removal of the top layer of the soil is called soil erosion.
2. Afforestation
3. Organic layer, topsoil, subsoil, parent material and bedrock.

D. 1. The factors of soil erosion are as follows:
i. **Running water:** Heavy rains often result in flooding. Floods wash away the top soil from hill slopes, making the slopes unfit for cultivation.
ii. **Wind:** In dry and arid regions, such as deserts, strong winds carry the topsoil away with them.
iii. **Human beings:** Cutting down of trees causes soil to become loose and makes it possible for the soil to be easily carried away. Also, ploughing of hill slopes and overgrazing causes soil erosion.

2. The following methods help conserve soil:
i. **On flat, open grounds:** Winds blow off the soil from the bare land easily. To protect this, farmers grow some cover crops, such as creepers and grasses. These crops hold the soil and prevent them from being blown away.
ii. **On hill slopes:** Cutting down the hill slopes into steps or terraces prevent

soil erosion. This is because steps slow down the water flow, causing soil from one step to be left on the next step.

iii. **On fields near rivers:** During monsoon, many rivers overflow and flood the fields. To prevent this, embankments are built along the rivers. The embankment holds the water between the river banks and prevents soil erosion.

I am a doer

Accept all relevant responses.

I am an all-rounder

A. **English:**
1. I grew apple trees in my garden.
2. Ben watered the plants on Saturday.

B. **Maths:** 6 sides

C. **Social Studies:** Farmers had to pay very high taxes even when crops failed due to floods or droughts under the Permanent Settlement system (also known as the Zamindari system) introduced by the British.

Students' Worksheets

Worksheet 1

A. 1. uppermost 2. weathering 3. erosion
4. human activities; natural forces
5. fertility

B. 1. SOIL 2. ROCK
3. EROSION 4. VEGETATION
5. WEATHERING

C. 1. False 2. True 3. False 4. True 5. False

Worksheet 2

A. 1. erosion 2. soil 3. erosion
4. top soil 5. soil

B. 1. DESERT 2. FLOOD
3. HILL SLOPES 4. CULTIVATION
5. SOIL EROSION

C. 1. False 2. True 3. True 4. False 5. True

Worksheet 3

A. 1. Covered land prevents soil erosion.
2. We cannot hinder the natural forces.
3. It is our responsibility to prevent soil erosion.
4. Soil conservation is the protection of soil against erosion.
5. Growing trees and afforestation are effective methods of soil conservation.

B. 1. CREEPERS 2. PRESERVE
3. TERRACE 4. HARVESTING
5. AFFORESTATION

C. 1. Steps slow down the flow of water.
2. Many rivers overflow during monsoon.
3. Embankments are built along the rivers.
4. Winds blow off the soil easily from the bare land.
5. The farmers grow some cover crops such as creepers and grasses.

Worksheet 4

A. 1. afforestation 2. slopes
3. erosion 4. reduce
5. rivers

B. 1. GRASSES 2. PLOUGHING
3. DEFORESTATION 4. OVERGRAZING
5. HUMAN ACTIVITIES

C. 1. False 2. True 3. False 4. True 5. True

Teacher's Worksheets

Worksheet 1

A. 1. soil 2. flood
3. Bihar 4. deforestation

B. 1. formation 2. Flood
3. Chambal Valley 4. arid
5. Protection 6. afforestation
7. creepers 8. embankments

Worksheet 2

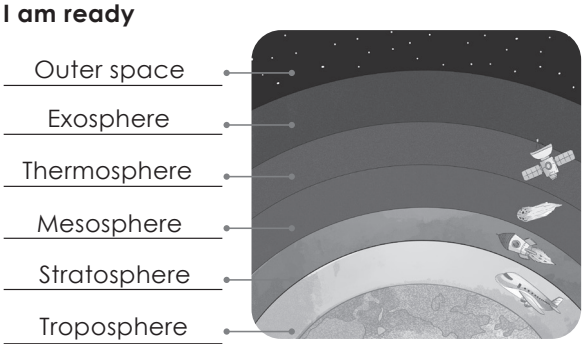
A. 1. Natural 2. hold
3. erosion 4. embankments

B. 1. To hold the soil and prevent it from being blown away.
2. The steps slow down the water flow, causing soil from one step to be left on the next step.
3. To hold the water between the river banks and to prevent soil erosion.

Theme 5: Living Across Ages
Lesson-9: Our Life Supports

Main Coursebook

I am ready



Catch Up (Page 62)

1. False 2. True

Catch Up

1. True 2. False

I am a learner

A. 1. a 2. a 3. a 4. b 5. b

B. 1. True 2. False 3. True 4. False 5. True

C. 1. Troposphere, stratosphere, mesosphere, thermosphere and exosphere.

2. Nitrogen

3. In sedimentation, we allow the impurities to settle down at the bottom of container.

D. 1. The four properties of air are as follows:

i. Air has weight

Air has some weight, although this weight is much less than that of liquids and solids.

ii. Air takes up space

Air occupies space. An inflated balloon appears larger in size in comparison to a deflated balloon.

iii. Air exerts pressure

Since air has weight, it exerts pressure on everything around it. The air pressure at the mountains is comparatively less than the air pressure at sea level.

iv. Air exerts pressure in all directions.

2. Insoluble impurities are the impurities that do not dissolve in water and can be seen with the naked eye. They can be removed by the methods of sedimentation, and decantation and filtration.

Soluble impurities are impurities that dissolve in water and cannot be seen. They can be removed by methods of evaporation and distillation.

I am a thinker

Hot air is lighter than cold air because when air is heated, it spreads out and becomes less dense. This means the warm air takes up more space and becomes lighter, so it rises up, while the cold air, which is heavier, moves down to take its place.

I am an all-rounder

A. **English:**

1. Rihan will wake up early every day and will drink a glass of lukewarm water.
2. Rohan will go to a toy shop to fill air in his basketball.

B. **Maths:**

A: 1 turn (360°)

W: 1 turn (360°)

C. **Social Studies:** The leader of the political party or coalition that has the majority in the State Legislative Assembly becomes the Chief Minister. This is because the majority party has the support of most elected members and can form the government.

Students' Worksheets

Worksheet 1

A. 1. different 2. oxygen 3. outermost 4. troposphere 5. ultraviolet (UV)

B. 1. False 2. True 3. True 4. False 5. False

C. 1. →e 2. →c 3. →a 4. →b 5. →d

Worksheet 2

A. 1. pressure 2. inflated 3. 78 per cent 4. oxygen 5. Humidity

B. 1. EXOSPHERE 2. MESOSPHERE 3. TROPOSPHERE 4. STRATOSPHERE 5. THERMOSPHERE

C. 1. True 2. False 3. False 4. False 5. True

Worksheet 3

A. 1. The process of separating insoluble impurities from water using a filter paper or fine cloth.

2. Decantation is the process of gently pouring clear water from the top into another container, after the heavier impurities have settled down during sedimentation.

3. The process in which heavier, insoluble impurities settle down at the bottom of the container.

4. Soluble impurities are impurities that dissolve in water and cannot be seen.

5. Insoluble impurities are the impurities that do not dissolve in water and can be seen.

B. water; photosynthesis; clean; rainwater; impure; purified

C. 1. No 2. Yes 3. Yes 4. Yes 5. Yes

Worksheet 4

A. Impure; clean; filtered; purified; chlorination

B. 1. FILTRATION 2. DISTILLATION 3. CHLORINATION 4. DECANTATION 5. SEDIMENTATION

C. 1. Yes 2. Yes 3. Yes 4. Yes 5. No

Teacher's Worksheets

Worksheet 1

1. a 2. b 3. d 4. b 5. b 6. d

Worksheet 2

1. Drinking water should be purified to remove dirt, impurities and germs so that it is safe for drinking and does not cause diseases.
2. We need water for drinking, cooking, bathing, washing and various other activities. Plants also need water for survival.

3. In distillation, water (or any other liquid), mixed with impurities, is heated till it starts boiling. On boiling, the water evaporates and water vapours enter a condenser. In the condenser, water vapour changes into liquid again and collect in a flask (receiving flask) as distillate.
4. Air is a mixture of different gases. Clean air consists of nearly 78 per cent nitrogen, 21 per cent oxygen and less than 1 per cent of argon, carbon dioxide and other gases. Air also contains dust, smoke and water vapour.
5. i. Nitrogen: Plants get nitrogen from the soil with the help of bacteria.
   ii. Oxygen: It is used for breathing and burning.
   iii. Carbon dioxide: Plants use this gas to make their own food.
   iv. Water vapour: It forms clouds and then condenses to fall as snow.

Revision Worksheet

A. 1. c 2. c 3. a 4. a 5. c

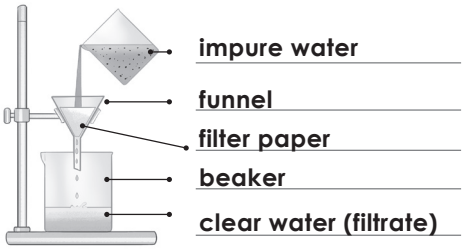
B. 1. metals 2. public
3. vegetative propagation
4. ultraviolet 5. Soilconservation

C. 1. True 2. False 3. True 4. False 5. False

D. 1. Igneous rocks 2. Metallic minerals
3. Rickets 4. Soil erosion
5. Exhaled air

E. 1. Electrical energy is generated due to the movement of electrical charges.
2. An architect plans the house according to the space and needs of people.
3. The process of transfer of seeds away from the parent plant is called seed dispersal.
4. Reptiles, such as tortoise and lizards crawl, though they do have limbs. But some reptiles such as snakes have plates that are attached to their ribs. While moving, these plates or scales act as feet and the ribs act as legs.
5. Greenhouse gases prevent the escape of heat from our atmosphere, back into the space, thereby making the surface of the Earth warmer.

F.



Case studies

Theme 1: What Makes Our Land

1. b
2. Intense heat and pressure.
3. Wrong — graphite is natural, not made from wood

Theme 2: What Helps Us Survive

1. c
2. Open containers collecting rainwater became breeding grounds for Aedes mosquitoes, which spread Chikungunya.
3. Remove stagnant water, cover containers, keep surroundings clean

Theme 3: Different Yet Alike

1. a
2. Sparrow numbers will decrease
3. One way to help sparrows: plant trees or keep small water bowls for birds.

Theme 4: Living With Changes

1. c
2. Trees help clean the air by absorbing carbon dioxide and dust and releasing oxygen.
3. Stop burning trash

Theme 5: Living Across Ages

1. a
2. Water shortage
3. One way to save water at home: turn off taps when not in use or reuse water.

Theme 6: Living Together
Lesson-10: Safety and First Aid

Main Coursebook

I am ready

Catch Up (Page 76)

1. True 2. False

Catch Up

1. Yes 2. Yes

I am a learner

A. 1. a 2. b 3. c 4. b 5. c

B. 1. True 2. True 3. False 4. True 5. True

C. 1.
- Make Ravi sit upright with his head slightly tilted forward and ask him to breathe through his mouth.
- Press the soft part of the nose firmly for a few minutes (an ice pack or cold cloth may be placed on the nose).

2. A fracture is a crack or break in a bone.
3. A splint is a long piece of wood, metal or newspaper tied to support and keep a broken bone still.

D. 1. A sprain is a torn tissue around a joint. A fracture is a crack or breaks in a bone. For a sprain, one should apply an ice pack or ice cube till the swelling subsides. For fracture, one should avoid unnecessary movement at the affected region.
2. In case of minor burns, apply an antiseptic lotion or cream to avoid infection. In case of severe burns, cover the burnt area with a clean cloth and do not prick any blisters. In case of chemical burns, use plenty of water to rinse off the chemical.

I am a doer

Accept all relevant responses.

I am an all-rounder

A. **English**
1. an 2. the

B. **Maths:** To find the actual distance, measure the line on the map.
Then multiply the measured distance (in cm) by 100 km (the scale).
Actual Distance = Measured Distance × 100 km

C. **Social Studies:** The event is the atomic bombings of Hiroshima and Nagasaki during World War II.

Students' Worksheets

Worksheet 1

A. 1. everyone 2. safety rules
3. stay calm 4. germs
5. first aid

B. 1. CUTS 2. INJURED
3. ANTISEPTIC 4. SCRATCHES
5. EMERGENCIES

C. 1. True 2. False 3. True 4. False 5. True

Worksheet 2

A. 1. upright 2. doctor 3. breathe
4. sprain 5. ice pack

B. 1. PATIENT 2. TETANUS 3. COTTON
4. INJECTION 5. BANDAGE

C. 1. False 2. False 3. False 4. True 5. True

Worksheet 3

A. 1. Apply ice cubes to the sprained region.
2. A sling can be made from a piece of cloth.
3. Minor burns are painful and need urgent treatment.
4. Serious burns leads to formation of blisters.
5. One can suffer from burns from hot objects, such as boiling water, fire and so on.

B. 1. FLARE 2. VICTIM 3. POISON
4. BLISTERS 5. COMPRESS

C. 1. Consult the doctor.
2. Minor burns are painful.
3. Do not prick any blisters.
4. One can suffer from hot objects.
5. Avoid using water for fire caused by petrol.

Worksheet 4

A. **Minor burns:** Cool the burned area under clean, running water for a few minutes. Apply an antiseptic cream or lotion to prevent infection.
Severe burns: Wash gently with cool water, cover with a clean, dry cloth and seek medical help.
Chemical burns: Remove clothing from the affected area. Use plenty of water to rinse off the chemical. Cover the area with sterile cotton or cloth and consult the doctor.

B. 4, 5

C. 1. should 2. should not 3. should not
4. should 5. should not

Teacher's Worksheets

Worksheet 1

A. 1. c 2. c 3. b

B. 1. F 2. F 3. T 4. F 5. T

Worksheet 2

A. 1. Minor burns are painful, yet can be treated at home. One should keep the burned area under running and cold water till pain subsides. Apply an antiseptic lotion or cream to avoid infection. One can also apply baking soda and water instead of antiseptic lotion.
2. A splint is a rigid support used to keep a broken bone or injured body part in position and prevent movement.
We can make splints from newspaper folds, cardboard or pillows to support the fractured region.
3. Avoid using water if the petrol caught fire, as petrol will float on water which will increase the flare.
4. Remove clothing from the affected area. Use plenty of water to rinse off the chemical. Cover the area with sterile cotton or cloth and consult the doctor.
5. A fracture is a crack or break in a bone. For this, one can use a splint and

avoid unnecessary movement at the affected region.

We can make splints from newspaper folds, cardboard or pillows to support the fractured region. A sling, made from a piece of cloth, can also be used.

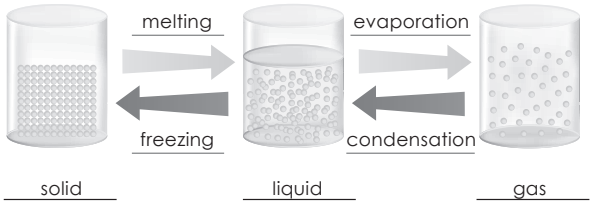
6. Snake bite injects poison into the body of the victim. This causes a lot of pain and swelling. One should treat the victim immediately otherwise the poison can kill the victim. Apply a tourniquet just above the bite to stop the blood flow to the heart and slow down the spreading of poison. Immediately take the victim to the nearby hospital or a doctor.

Theme 6: Living Together

Lesson-11: All About Matter

Main Coursebook

I am ready



Catch Up (Page 83)

1. Yes 2. No

Catch Up (Page 84)

1. Yes 2. No

I am a learner

A. 1. a 2. c 3. c 4. b 5. b

B. 1. True 2. True 3. True 4. False 5. True

C. 1. Molecules are small units of matter, which can be broken down into smaller units called atoms.

2. Chemical change

3. A solution is formed when two or more substances are mixed together.

D. 1. **Miscible liquids:** Liquids that can dissolve in each other are called miscible liquids, such as milk and water.

Immiscible liquids: Liquids that cannot dissolve in each other are called immiscible liquids, such as kerosene and water.

2. **Physical changes:** A physical change is a change in the state of matter. It is reversible and temporary. For example, melting of ice.

Chemical changes: A chemical change forms a completely new substance. It is irreversible and permanent. For example, burning of wood.

I am a thinker

Gases can be compressed easily because the molecules in gases are far apart, leaving a lot of empty space between them. On compression, the molecules of gases come close together.

However, molecules of solids are tightly packed and in liquids, the molecules are close to each other but not as far apart as in gases. As a result, solids cannot be compressed, while liquids can be compressed upto a certain limit.

I am an all-rounder

A. **English**

1. fizz 2. puzzle

B. **Maths**: Loss, ₹100

C. **Social Studies:** World War I

Picture talk

1. Chemical change 2. Physical change
3. Chemical change 4. Physical change
5. Physical change

Students' Worksheets

Worksheet 1

A. 1. matter 2. atoms 3. compounds 4. molecules 5. matter

B. 1. ATOMS 2. MATTER 3. SOLIDS 4. SOLUTIONS 5. MOLECULES

C. 1. False 2. True 3. True 4. True 5. False

Worksheet 2

A. 1. three 2. solution 3. solvent 4. naked eye 5. dissolved

B. 1. SOLUTE 2. SOLVENT 3. SUBSTANCE 4. CHEMICAL 5. COMPOUNDS

C. 1. False 2. False 3. False 4. True 5. False

Worksheet 3

A. 1. Anything that occupies space and has weight is called matter.

2. A solution is formed when two or more substances mix evenly with each other.

3. Molecules are small units of matter, which can be broken down into smaller units called atoms.

4. Solid, liquid and gas.

5. Sugar molecules find space among molecules of water.

B. chemical; substance; new; burning; ash

C. 1. No 2. Yes 3. Yes 4. Yes 5. Yes

Worksheet 4

A. 1. reversible 2. heating
3. ash 4. temporary
5. dissolve

B. 4, 5

C. 2, 3, 4

Teacher's Worksheets

Worksheet 1

A. 1. matter 2. permanent
3. miscible liquids 4. insoluble impurities
5. state of matter

B. 1. F 2. F 3. T 4. F 5. F

C. **chemical changes**

Chemical change indicates a permanent change in a substance.

In a chemical change, a completely new substance forms

We cannot get back the old substance.

For example, heating the wood over fire changes it into ash. The molecules of wood are different from molecules of ash.

physical changes

Physical change is the change that indicates the change in the state of matter.

These changes are reversible and temporary.

We can get back the original state.

For example, on heating, solid wax turns into liquid wax. However, on cooling, the liquid wax turns into solid wax.

Worksheet 2

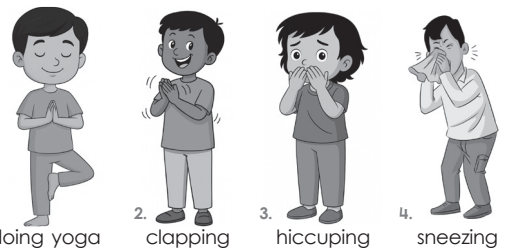
1. Accept all relevant answers.
2. A solute is a substance that dissolves, whereas a solvent is a substance in which the solute dissolves. For example, mixing salt in water forms a solution. In this mixture, salt is the solute and water is the solvent.
3. A solution forms when two or more substances mix together. A solution consists of a solute and a solvent.
4. A chemical change indicates a <u>permanent</u> change in a substance. In a chemical change, a completely new substance forms, and we cannot get back the old substance.

   For example, heating the wood over fire changes it into ash. The molecules of wood are different from molecules of ash. This change is irreversible.

Theme 7: Keeping Us Strong
Lesson-12: Skeletal and Muscular Systems

Main Coursebook

I am ready



1. doing yoga ☐
2. clapping ☐
3. hiccuping ✓
4. sneezing ✓

Catch Up (Page 93)

1. No 2. Yes

Catch Up (Page 94)

1. Gliding joint 2. Hinge joint

Catch Up (Page 95)

1. No 2. Yes

I am a learner

A. 1. a 2. b 3. c 4. a 5. a

B. 1. False 2. True 3. False 4. False 5. True

C. 1. Our body is made up of different organs. When these organs work together and perform a specific function, it is called an organ system.
2. Floating ribs.
3. A joint is the meeting point of two bones, held together by strong tissue.

D. 1. Movable joints are joints that allow movement of different body parts. There are four types of movable joints:
   - Ball and socket joints: A bone ending in a ball gets fitted into the socket of the other one. For example, hip and shoulder joints.
   - Gliding joints: In this type of joint, one bone can slide over another. For example, joints present in the wrist.
   - Hinge joint: This type of joint helps us to move our body only in a single direction like the opening and closing of a door. For example, joints present in the knee.
   - Pivot joint: This joint helps in side-to-side movement of the head. For example, joint present at the neck.

2. Muscles are divided into three categories – skeletal, smooth and cardiac muscles.
   - Skeletal muscles are voluntary in nature and help us move our

different body parts. For example, the muscles of the arms.

- Smooth muscles are involuntary in nature and are present in our internal organs. For example, the muscles of the stomach.
- Cardiac muscles are involuntary muscles present in the heart.

I am a doer

Accept all relevant responses.

I am an all-rounder

A. **English:**
1. quickly 2. carelessly

B. **Maths:** 6 hours or 360 minutes

C. **Social Studies:** Chipko movement

Students' Worksheets

Worksheet 1

A. 1. heart 2. heart 3. tongue
4. respiratory 5. different

B. 1. HEART 2. BRAIN 3. LUNGS
4. KIDNEYS 5. TONGUE

C. 1. True 2. True 3. True 4. True 5. False

Worksheet 2

A. 1. 22
2. skeleton
3. 206 4. 12 5. vertebrae

B. 1. SKULL 2. LIMB 3. GIRDLE
4. RIBCAGE 5. BACKBONE

C. 1. True 2. False 3. True 4. True 5. False

Worksheet 3

A. 1. Our body has multiple joints.
2. A joint provides flexibility to the body.
3. The joints of the skull are immovable.
4. A joint is the meeting point of two bones.
5. The ball and socket joint is a movable joint.

B. 1. BALL 2. PIVOT 3. HINGE
4. SOCKET 5. GLIDING

C. 1. Movable joints can move.
2. A joint is the meeting point of two bones.
3. Joints provide stability and flexibility to the body.
4. Hinge joint is present at the knee and elbow.
5. The ball and socket joint is present at the hip and shoulder.

Worksheet 4

A. 1. Muscles work by contracting and relaxing, which helps the bones move.
2. The muscular system is made up of all the muscles in our body that help in movement and give shape to the body.
3. Voluntary movements are those that we can control, like moving our arms or legs.
4. Involuntary movements are those that happen automatically, like the beating of the heart or digestion.
5. Skeletal, smooth and cardiac muscles.

B. 1. voluntary 2. muscles
3. skeletal 4. smooth
5. muscular

C. 1. False 2. True 3. True 4. False 5. False

Teacher's Worksheets

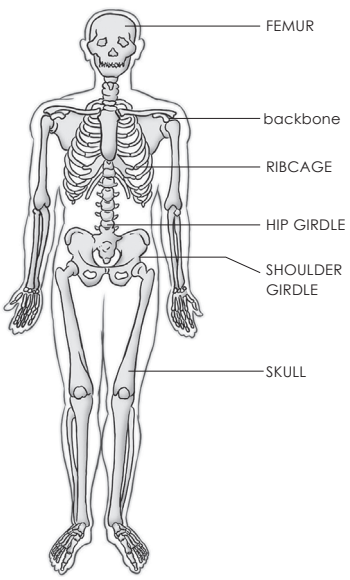
Worksheet 1

A. 1. an organ system 2. 22
3. vertebrae 4. 12

B. 1. Skull 2. Backbone
3. Rib Cage 4. Rib Cage

C. 1. It is always advised to wear a helmet while driving a motorcycle. In case of accident, the helmet will protect the brain, as brain is the most important organ of the body.
2. If the backbone were made of one long bone, our body would be stiff and we would not be able to bend or move easily.

Worksheet 2



Skull

Shoulder Girdle

Rib Cage

Backbone

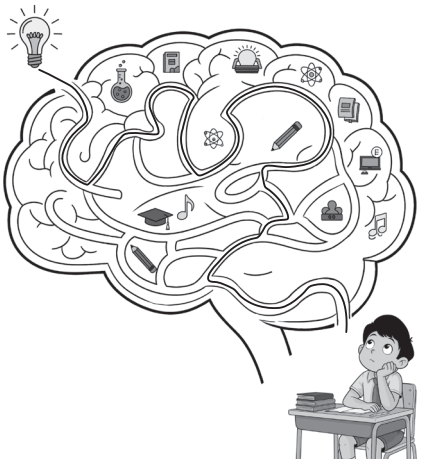
Hip Girdle

Femur

Theme 7: Keeping Us Strong
Lesson-13: Our Nervous System

Main Coursebook

I am ready



Catch Up (Page 101)

1. True 2. False

Catch Up (Page 103)

1. No 2. No

I am a learner

A. 1. a 2. a 3. b 4. b 5. c

B. 1. Cerebrum 2. Medulla 3. spinal cord 4. optic nerves 5. skin

C. 1. Nerves are thread-like structures that act as messengers between the brain and the body.

2. Cerebrum is responsible for the working of the nose, eyes, tongue and ears. The cerebrum also helps us think, learn, remember, recall, speak and emote. In the absence of cerebrum thinking, learning, remembering, recalling and speaking will be affected.

3. Reflex action is the quick response controlled by the spinal cord as protection against injuries.

D. 1. The brain is the control centre of our body. Its main function is to collect information from all body parts with the help of nerves. It consists of three main parts – the cerebrum, cerebellum and medulla oblongata. The cerebrum controls our sense organs like the nose, eyes, tongue and ears. The cerebellum helps in coordinating muscle movements and balancing the body in proper posture. The medulla oblongata connects the brain to the spinal cord and controls involuntary activities of the body.

2. **Eyes:** Eyes help us see. Light enters through the eye and forms an image on the retina. The optic nerve carries this message to the brain, which helps us recognise objects.

Ears: Ears help us hear sounds and maintain balance. Sound waves enter the ear and are converted into signals. These signals are sent to the brain through nerves, allowing us to hear.

I am a thinker

If a person lacks reflex action, the body would be unable to respond quickly to injury or shock, which can lead to serious harm.

I am an all-rounder

A. **English:**
1. smells 2. smoke

B. **Maths:** 33.5 degrees Celsius; 36.9 degrees Celsius

C. **Social Studies:** Sunderlal Bahuguna

Students' Worksheets

Worksheet 1

A. 1. control 2. information 3. three 4. largest 5. 80%

B. 1. True 2. True 3. False 4. False 5. True

C. 1 →c 2. →d 3. →b 4. →a 5. →e

Worksheet 2

A. 1. skull 2. Cerebrum 3. jerky 4. Medulla 5. Spinal cord

B. 1. INFORMATION 2. SKULL 3. CEREBRUM 4. CEREBELLUM 5. MEDULLA

C. 1. C 2. I 3. C 4. C 5. C

Worksheet 3

A. 1. medulla 2. messengers 3. Nerves 4. three 5. sensory

B. 1. MESSENGER 2. NETWORK 3. SENSORY 4. MOTOR 5. MIXED

C. 1. True 2. True 3. False 4. False 5. False

Worksheet 4

A. 1. Brain 2. Skull 3. Cerebrum 4. Cerebellum 5. Medulla

B. spinal cord, medulla, thread-like, Sensory, Motor

C. 1. CORNEA 2. IRIS 3. PUPIL 4. RETINA 5. OPTIC NERVES

Teacher's Worksheets

Worksheet 1

A. 1. F 2. F 3. F 4. T 5. F

B. 1. cerebrum 2. mixed nerves

3. sounds 4. thread-like
5. Reflex action

C. 1. signal 2. heart 3. think

Worksheet 2

A. 1. To protect ourselves from shocks and injuries, the body needs to respond rapidly. Such types of quick responses are processed by the spinal cord. These actions are called reflex actions. The brain is not usually involved in reflex actions.

2. The brain is protected by the skull and a fluid that acts as a cushion against injuries.

3. The nervous system consists of:
   a. Brain
   b. Spinal cord
   c. Nerves and
   d. Sense organs

4. Nerves are thread-like structures that act as a messenger between the brain and the body. They form a wide network that extends throughout the body. Some of them are directly connected to the brain and others are connected to the spinal cord.

5. The three types of nerves are sensory nerves, motor nerves and mixed nerves.

6. The brain is made up of three parts — the cerebrum, the cerebellum and the medulla oblongata.

   Cerebrum: It is the largest part of our brain and constitutes around 80 percent of the weight of the brain. It is responsible for the working of our nose, eyes, tongue and ears. The cerebrum also helps us think, learn, remember, recall, speak and emote.

   Cerebellum: This part of the brain lies below the cerebrum. It helps in coordinating the muscle actions and balancing the body in proper posture. If the cerebellum does not work properly, our body makes jerky movements.

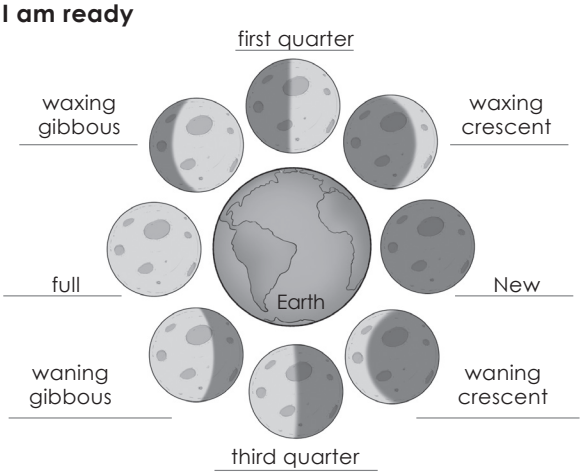
   Medulla Oblongata: Below the cerebellum, lies the medulla oblongata or medulla. It forms a connection between the brain and the spinal cord.

   It regulates the involuntary activities of the body, such as respiration and heartbeat. The medulla remains active even when we are sleeping.

Theme 8: From Satellite to Satellite
Lesson-14: The Earth's Satellite

Main Coursebook

I am ready



Catch Up (Page 111)

1. True 2. False

Catch Up (Page 113)

1. False 2. False

I am a learner

A. 1. b 2. a 3. b 4. a 5. c

B. 1. False 2. True 3. True 4. False 5. False

C. 1. The surface of the Moon is rough due to huge mountains, and some round and hollow structures called craters.

2. There is no air and water on the Moon. So, no life exists there.

3. Rakesh Sharma

D. 1. **Lunar eclipse:** In lunar eclipse, the Earth casts a shadow on the Moon, as the Earth comes in between the Sun and the Moon.

   In a partial lunar eclipse, the Moon is only partly hidden by the dark shadow of the Earth.

   In total lunar eclipse, the Moon is completely in the dark shadow of the Earth.

   A lunar eclipse occurs at night.

   Solar eclipse: In a solar eclipse, the Moon casts a shadow on the Earth as the Moon comes between the Sun and the Earth.

   In a partial solar eclipse, the Sun is only partly hidden by the dark shadow of the Moon.

   In a total solar eclipse, the Sun is completely in the dark shadow of the Moon.

   A solar eclipse occurs during the day.

2. Artificial satellites are human-made satellites. The names of some satellites are APPLE, INSAT-1B, INSAT-2A, INSAT-2B, Oceansat and IRNSS-1A.
Uses of artificial satellites:
Artificial satellites were designed for scientific research. They are also used for sending messages from one country to another. Satellites are also used for communication (communication satellites), weather forecasts (weather satellites) and so on.

I am a doer

Accept all relevant responses.

I am an all-rounder

A.
- in – The book is in my bag.
- under – The cat is sleeping under the table.
- at – I will meet you at the gate.
- by – She sat by the window.

B. **Maths:** 3,84,400 x 1000 = 38,44,00,000 m.

C. **Social Studies:** The climatic factor responsible is altitude (height above sea level). As altitude increases, temperature decreases. That is why hill stations remain cool even in summer

Students' Worksheets

Worksheet 1

A. 1. Moon 2. 3,84,400 3. Earth's 4. satellite 5. closer

B. 1. False 2. True 3. True 4. False 5. False

C. 1. SUN 2. MOON 3. EARTH 4. PLANET 5. SATELLITE

Worksheet 2

A. 1. water 2. Moon 3. gravity 4. Sun 5. cold

B. 1. NEW MOON 2. FULL MOON 3. WAXING GIBBOUS 4. WANING GIBBOUS 5. WAXING CRESCENT

C. 1. False 2. True 3. False 4. True 5. True

Worksheet 3

A. 1. The surface of the Moon is rough due to huge mountains, and some round and hollow structures called craters.

2. When the sunlight falls on the surface of the Earth and the Moon, their shadows form. These shadows are called eclipses.

3. A satellite is an object that revolves around a planet.

4. 4,500 million years old

5. 3,84,400 km

B. one-sixth; heavy; atmosphere; Sun; sound

C. 1. yes 2. yes 3. yes 4. yes 5. no

Worksheet 4

A. Rakesh Sharma; space; spacecraft; spacesuits; atmosphere

B. 1. LUNAR 2. SOLAR 3. ECLIPSE 4. APOLLO 5. CRATERS

C. 1. no 2. yes 3. yes 4. no 5. yes

Teacher's Worksheets

Worksheet 1

A. 1. F 2. F 3. T 4. F 5. F

B. 1. Sputnik 2. communication 3. 1975 4. Major Yuri Gagarin

C. Accept all relevant answers.

Worksheet 2

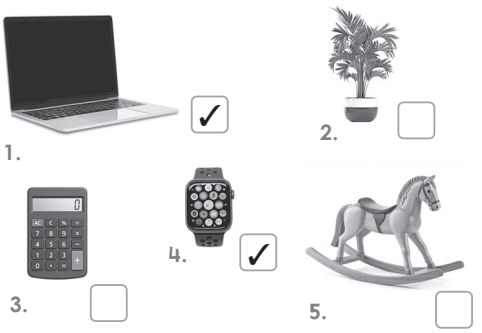
A. 1. b 2. b 3. c 4. c

B. Accept all relevant answers.

Theme 9: From/Signs to Signals
Lesson-15: Artificial Intelligence

Main Coursebook

I am ready



Catch Up (Page 121)

1. False 2. True

I am a learner

A. 1. c 2. a 3. b 4. a 5. c

B. 1. True 2. True 3. True 4. False 5. False

C. 1. Self-driving cars are vehicles that uses AI to sense their surroundings and move safely with little or no human input.

2. Humanoids are robots that look and act like humans. However, these robots cannot feel, eat, move on its own or grow like human beings.

3. Smart-speaker is a voice-activated speaker that uses AI to do everyday tasks.

D. 1.
- Chatbots are computer programs that use AI to simulate conversation with humans. They help people in daily life by answering questions, providing customer support or giving information quickly.
- Three uses of chatbots:
- Assisting customers on e-commerce websites.

- Providing information in banking apps.
- Helping with online learning or homework queries.

2. Some of the technologies that use AI are as follows:
   - **Self-driving cars:** A self-driving car is a vehicle that uses AI to sense its surroundings and move safely with little or no human input.
   - **Smart speakers:** A smart speaker is a voice-activated device that uses AI to perform everyday tasks. For example, Alexa (a virtual-assistant system developed by an e-commerce company).
   - **Chatbots:** AI-powered chatbots, like ChatGPT, help people search for information, answer questions, and even create messages, images or videos. They make tasks faster and easier.

I am a thinker

Accept all relevant responses.

I am an all-rounder

A. **English**

1. while 2. when

B. **Maths:** Accept all relevant responses.

C. **Social Studies**

The modern means of communication that uses computer networks and data processing to connect people instantly across the world is the Internet.

Students' Worksheets

Worksheet 1

A. 1. Artificial intelligence 2. robots 3. space 4. humanoids 5. cheaper

B. 1. False 2. True 3. False 4. True 5. True

C. 1. →d 2. →a 3. →e 4. →c 5. →b

Worksheet 2

A. 1. humanoid
2. Futuristic space travel
3. self-driving car
4. voice-activated
5. Smart speaker

B. 1. DATA
2. SCIENTIFIC RESEARCH
3. SPACE EXPLORATION
4. GAMING
5. TECHNOLOGY

C. 1. C 2. C 3. I 4. C 5. I

Worksheet 3

A. understand, repetitive, rest, doctors, gaming

B. 1. ROBOT 2. ATLAS 3. ASIMO 4. RASHMI 5. PEPPER

C. 1. False 2. False 3. True 4. False 5. False

Teacher's Worksheets

Worksheet 1

A. **Humanoids**

They dont have family
They look and act like humans
They don't have muscles and nervous system
They cannot reproduce
They are made in laboratories
They cannot feel

Humans

They have family
Humans think and act naturally.
They have muscles and nervous system
They can reproduce
A human child grows in a mother's womb
They feel through their sense organs

B. 1. v 2. iii 3. iv 4. ii 5. i

C. Artificial intelligence is used in our day to day life. It is used in giving on-line shopping recommendations, playing music and also giving the routes having less traffic.

Worksheet 2

A. 1. The ability to think and learn is called intelligence. When machines think, learn and act as humans, it is called Artificial Intelligence (AI).
2. Humanoids are robots that look and act like humans. They are the most exciting innovation of AI. Countries from all over the world have come up with different humanoid models. Some of the popular humanoids are Atlas, Asimo, Rashmi and Pepper.
3. Futuristic space travel involves physical exploration of the space by human spaceflights or by robotic spacecrafts. There are also attempts to find new planets which can be used for human settlement.
4. A self-driving car is a vehicle that uses AI to sense its surroundings and move safely with little or no human input
5. A smart speaker is a voice-activated speaker that uses AI to perform everyday tasks. For example, Alexa (a virtual-assistant system developed by an e-commerce company) and Siri (a voice-assistant powered by an multinational corporation that specialises in gadgets).

Revision Worksheet

A. 1. c 2. a 3. b 4. a 5. a

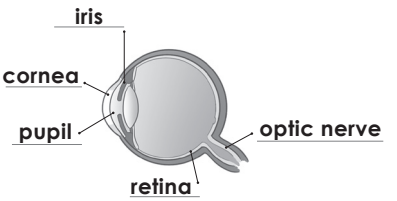
B. 1. Moon 2. Pinna or outer ear
3. cartilage 4. blisters
5. Aerated

C. 1. False 2. True 3. False 4. True 5. False

D. 1. Major Yuri Gagarin
2. Optic nerves
3. Skeletal muscles
4. Sprain
5. Physical change

E. 1. A solute is a substance that dissolves whereas a solvent is a substance in which the solute dissolves.
2. Keep the patient upright in such a case with their head held back. Press the bleeding side firmly and keep an ice pack or wet cloth on the nose and head of the patient. In case of heavy bleeding, consult the doctor.
3. Our backbone is made up of 33 small vertebrae. These 33 vertebrae together form our backbone.
4. The light that enters in our eyes travels from the pupil to the retina.
5. The different phases of the Moon are – full moon, waxing gibbous, first quarter, waxing crescent, new moon, waning crescent, third quarter and waning gibbous.

F.



Case studies

Theme 6: Living Together

1. a
2. Heavy rainfall caused rivers to overflow, leading to floods.
3. Help affected families by rescuing them using boats and providing food, clean water and medical care

Theme 7: Keeping Us Strong

1. b
2. Muscular system
3. Confidence and coordination

Theme 8: From Satellite to Satellite

1. b
2. Lunar eclipse is safe to watch directly.
3. Partial lunar eclipse

Theme 9: From Signs to Signals

1. c
2. AI tools allow targeted watering and fertilising, which reduces water usage and effort.
3. If many farmers use AI tools, food production can increase, making farming more efficient and sustainable.