Lesson-1: Rocks and Minerals

10 Periods (40 minutes each)

Learn Better (Main Coursebook), Stay Ahead (Workbook), CRM signs, Book of Holistic Teaching, Book of Project Ideas, CRM signs, Blackboard.

Apptive Teach Plus: Animation, Animated Activities, Concept Map, Dictionary, eBook, I Explain, Infographic, Quiz, Slideshow, Video.

Confirming better

I find happiness in little things.

Curricular Goals and Objectives (NCF-FS)

To enable the students:

- Explore and classify rocks.
- Engage in hands-on exploration.
- Connect rocks to Indian knowledge systems.
- Develop critical and creative thinking.
- Create and collaborate on scientific projects.

Methodology

Period 1

COULD DO

05 MIN.

Teacher: Good morning, students! How are you all today?

Teacher: Let us start today's lesson with an exciting activity called Nature Moves! We are going to act like parts of nature! Are you ready?

Teacher: Watch me and follow along! Stretch those arms wide, as if you are the biggest, brightest sun lighting up the whole world! Shine brightly, everyone!

(Show the movement and encourage students to copy with excitement.)

Teacher: Reach up high, as if you are the tallest tree in the forest, swaying gently in the breeze! Feel the wind on your leaves, everyone!

(Show the movement and encourage students to copy with excitement.)

Teacher: Let us give ourselves a big round of applause for all the energy you brought to the class.

MUST DO

15 MIN.

Teacher: Before we start the chapter, let us all say together, 'I find happiness in little things.' Repeat after me: 'I find happiness in little things.'

Teacher: Today, we will begin a new chapter on Rocks and Minerals. We are going to use a KWL chart to help us organize our thoughts and learning. I have made a KWL format on the blackboard. Please take out your notebooks and draw the same format.

K	W	L

Teacher: The KWL chart has three columns. The first column is labeled 'K,' the second column is labeled 'W,' and the third column is labeled 'L.'

Teacher: In the 'K' column, I want you to write down what you already know about the topic we are going to discuss today. This could be any facts, ideas, or information you already have.

Teacher: In the 'W' column, write down what you want to learn about the topic. Think about any questions you have or things you are curious about.

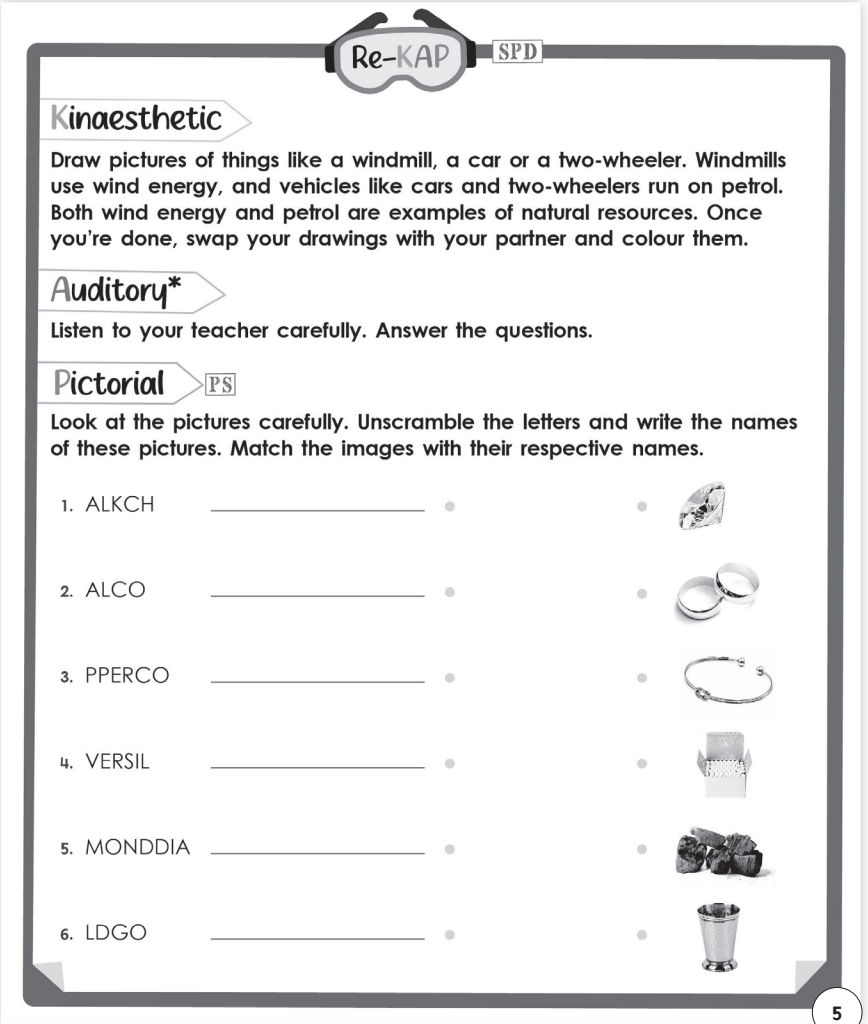
Teacher: Finally, in the 'L' column, you will write down what you have learned after we finish the lesson. This will help you reflect on the new information you have gained.

Teacher: Let's start by filling out the 'K' and 'L' column. Take a few minutes to think and write. If you have any questions, feel free to ask!

Kinaesthetic

Teacher: Before we dive the chapter, let us do a quick Re-KAP. Does anyone know what Re-KAP means?

Teacher: Yes, that is right! Re-KAP is where we revisit our previous knowledge through creative, multi-sensory activities. We will use Kinaesthetic, Auditory and Pictorial activities to make our learning engaging and interactive. Kinaesthetic is a hands-on activity to provide a physical, contextualised experience. Auditory is a listening activity for concept retention and recall.



Re-KAP SPD

Kinaesthetic

Draw pictures of things like a windmill, a car or a two-wheeler. Windmills use wind energy, and vehicles like cars and two-wheelers run on petrol. Both wind energy and petrol are examples of natural resources. Once you're done, swap your drawings with your partner and colour them.

Auditory*

Listen to your teacher carefully. Answer the questions.

Pictorial PS

Look at the pictures carefully. Unscramble the letters and write the names of these pictures. Match the images with their respective names.

1. ALKCH _____
2. ALCO _____
3. PPERCO _____
4. VERSIL _____
5. MONDDIA _____
6. LDGO _____

5

Pictorial is a picture-based activity for concept recall. Let us start with a kinaesthetic activity to get us warmed up and ready for the new topic.

Teacher: Let us start a fun kinaesthetic activity. I want you to draw pictures of things like a windmill, a car or a two-wheeler.

Windmills use wind energy and vehicles like cars and two-wheelers run on petrol. Both are examples of natural resources. Does everyone understand the activity? Great! Let us get started with your drawings.

Teacher: Fantastic work, everyone! I can see so many creative windmills, cars and two-wheelers. You did an amazing job showing how natural resources are used in these objects. Once you have drawn, swap your pictures with your partner and colour them.

Teacher: Great job, everyone! I am really impressed with how creatively you have shown the use of natural resources in your drawings. You did an amazing job colouring them too.

MUST DO
10 MIN.

Teacher: Let us move to auditory activity. I am going to talk about Rocks and Minerals. Listen carefully to me and answer the questions.

Teacher: Rocks and minerals are natural materials found on Earth. Rocks are made up of one or more minerals and they come in many shapes, sizes and colours. Minerals are solid substances that have a specific chemical structure, like quartz or diamond. Some rocks, like granite, are very hard, while others, like sandstone, are softer.

Teacher: Can anyone tell me, what kind of structure minerals have?

(Accept and appreciate all relevant responses)

Teacher: That is correct! Minerals have a specific chemical structure. Well done!

Teacher: Now, can someone name a rock that is soft in nature?

Teacher: Excellent! Sandstone is a soft rock. Great job, everyone. Let us continue exploring rocks and minerals.

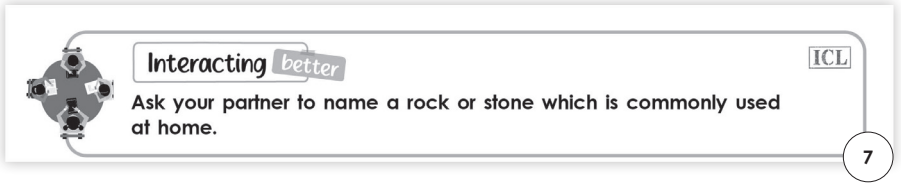
MUST DO
15 MIN.

Teacher: Let us do a fun pictorial activity! Ready?

Teacher: Look at the pictures given on page 5 under the Pictorial section. Unscramble the letters to form the correct names. Write the word and match it with the picture. Let us start with 'ALKCH'—what is the word?

Teacher: That is right, 'CHALK'! Now, let us try 'ALCO,' 'PPERCO,' 'VERSIL,' 'MONDDIA,' and 'LDGO.' Take your time and unscramble each one!

(Guide students as they work through the words: 'COAL,' 'COPPER,' 'SILVER,' 'DIAMOND,' and 'GOLD.')



Teacher: Once you have matched all the words with the pictures, swap your work with a partner to review each other's answers.

Teacher: Great teamwork, everyone! You all have done an amazing job with each activity. Before we wrap up, let us quickly recap what we learned:

We began with a kinaesthetic activity, drawing and colouring to understand natural resources like wind and petrol. Then, we explored rocks and minerals through an auditory activity and answered related questions. Finally, we unscrambled letters in a pictorial activity to identify objects like chalk, coal and gold.

Home task

Draw one object that uses natural resources for providing energy (e.g., windmill or thermal power-plant) and write five sentences about the natural resource that is used (e.g., windmill or coal).

Differentiated Activities

110 km/hr

Unscramble the letters "**BELARM**" to form a rock and write it down in the notebook. It is a soft rock used in sculptures and floors.

80 km/hr

Write the name of the stone that is used to make chalk for writing on the blackboard.

40 km/hr

How is gold used in our daily lives? Write two sentences.

Period 2

Interacting better

Teacher: Good morning students! How are you all today?

SHOULD DO

05 MIN.

(Use CRMs Signs to settle the class.)

Teacher: Today, we are going to learn about different types of rocks and stones that we use in our daily lives. Let us start with a fun activity. Ready?

Teacher: Great! Pair up with the person next to you.

Teacher: Once you are in pairs, take turns asking each other the question: "Can you name a rock or stone that is commonly used at home?"

(Encourage students to discuss with each other and invite some volunteers to share their answers)

Teacher: Great job, everyone! I loved hearing all the interesting answers about rocks and stones we commonly use at home. Give yourselves a round of applause for your wonderful participation and teamwork!

Teacher: It is story time! Let us start an interesting story from your book about rocks and minerals. Are you ready to learn something fascinating?

Teacher: Great! Turn to page number six of your textbooks. Take a few minutes to read the story silently on your own and try to understand it. As you read, imagine the characters and events in your mind. Pay close attention to the details—this will help you enjoy the story and answer questions later!

(Give time to the students to read the story)

Teacher: So, did you enjoy the story?

Teacher: Great! I am glad you liked it. Can anyone tell me the name of the rock that is used to make the tiles for the floor?

(Encourage the students to raise their hands to answer. You may use CRM signs to reinforce classroom rules.)

Teacher: That is right! Excellent job, everyone. Shale is the rock used to make floor tiles. You all did a fantastic job listening and participating. Well done!

WHAT ARE ROCKS MADE OF?

Teacher: Now, we are going to learn about rocks and what they are made of.

(The teacher will read the last paragraph of page 6 aloud and provide explanations to ensure that the students understand the content.)

KINDS OF ROCKS

Igneous rocks

(The teacher will read the first two paragraphs of page 7 aloud and provide explanations to ensure that the students understand the content.)

Teacher: Now we are going to learn about igneous rocks. To make it exciting, I will play the animation from the LMS. Please watch carefully because we will discuss it together afterwards. Let us begin.

KINDS OF ROCKS

Igneous rocks

Igneous rocks are formed by the cooling and hardening of hot liquid rock material, called magma. Magma is found in the underground pockets of the Earth. This magma is pushed upwards by the pressure of other rocks around it.

When magma comes up onto the Earth's surface, it is known as lava. Some of the magma cools and hardens below the Earth's surface, while some flows out on the Earth's surface and then hardens to form igneous rocks. Igneous rocks are found at the base of all landforms, such as plains, mountains, plateaus and ocean beds. Among all the landforms, rocks found in plateaus are usually rich in minerals (We will learn about minerals in the upcoming section).

The type of igneous rock formed depends on the type of mineral that is present in the magma and the size of the mineral particle.

Table 1.1: Examples of igneous rocks

rock	made up of	colour	usage	image
granite	cooled magma	grey or pink	for making buildings, statues and streets	
pumice	lava rock with gases	light-grey or cream	for foot care	
obsidian	lava rock	black glass	for making or cutting tools	
basalt	lava	dark grey	for construction and making cobblestones	

Sedimentary rocks

Sedimentary rocks cover the major portion of the Earth's surface. These rocks are formed from pebbles, sand, mud or clay, deposited in the ocean and brought to the shore by flowing water or floating ice.

Once on the shore, these materials pile up on each other and form different layers. The different layers are then cemented together by minerals.

Some sedimentary rocks are formed by the shells of tiny sea creatures and some are formed from dissolved minerals that settle on the sides of oceans.

Table 1.2: Examples of sedimentary rocks

rock	made up of	colour	usage	image
shale	mud and clay particles	black or grey	for making bricks and tiles	
sandstone	sand particles	yellow, brown, pink or red	for making buildings, statues or fountains	

Animation Play the animation from the LMS and encourage the students to watch attentively.

Teacher: Let us now discuss what we saw.

(Teacher will ask follow-up questions based on the video.)

Home task

Write a short paragraph explaining how igneous rocks are formed. Include the terms "magma" and "lava" in your explanation.

Differentiated Activities

110 km/hr

How are igneous rocks formed?

80 km/hr

What is magma called when it reaches the Earth's surface?

40 km/hr

What are rocks made of?

Period 3

Teacher: Good morning students! How are you all today?

COULD DO

05 MIN.

(Use CRM signs to settle the class.)

Teacher: Fantastic! Let us start today's lesson with a fun and exciting movement activity. I will call out numbers and based on the number, you will do a movement. If I say "1," jump up. If I say "2," raise your hand. If I say "3," move back three steps. If I say "4," touch the ground and stand up. If I say "5," spin around once. Ready?

(Use this movement activity to warm up the students for the lesson. Call out numbers in random order to keep the students focused and interested.)

Teacher: Let us give ourselves a huge round of applause for all the energy we brought into the class.

MUST DO

15 MIN.

Igneous rocks

Teacher: Today, we are diving into the fascinating world of igneous rocks. The type of igneous rock formed depends on the minerals present in the magma and the size of the mineral particles.

Teacher: Here is table 1.1 on page number 7 of your book showing examples of igneous rocks, what they are made of, their colours and their uses.

(The teacher will read table 1.1 of page 7 aloud and provide explanations to ensure that the students understand the content.)

Teacher: Let us hear some answers! Who can tell me what granite is made of and what is used for it?

Teacher: Excellent! Granite is made of cooled magma and it is used for making buildings and streets. Can someone else describe pumice and tell us its use?

Teacher: Great job! Pumice is a lava rock with gases and it is used for foot care. Now, who can describe obsidian and tell us one of its uses?

Teacher: Fantastic! Obsidian is indeed like nature's glass and it has been used for tools since ancient times. What about basalt? Can someone explain what basalt is made of and where it is used?

Teacher: Excellent! Basalt is strong and durable, making it perfect for these purposes. Great work, everyone! Now, we will learn about sedimentary rocks.

Sedimentary rocks

Teacher: Now, we are going to explore Sedimentary rock.

(The teacher will read the fourth, fifth and sixth paragraph and table 1.2 of page 7 aloud and provide explanations to ensure that the students understand the content.)

Infographic The teacher will show the Infographic from the LMS to make the explanation more interactive.)

Teacher: What kind of rock is formed when layers of materials like sand, mud or pebbles pile up and are pressed together over time?

Teacher: Right! These are called sedimentary rocks. Imagine standing on a beach and watching sand, pebbles and mud getting washed ashore by waves. Have you ever noticed how these materials gather in layers over time?

Teacher: These materials pile up, one on top of the other and over millions of years, they are pressed together. What do you think happens next?

Teacher: That is right! The layers get cemented together by minerals, forming sedimentary rocks. Some of these rocks are even made from the shells of tiny sea creatures. Can you think of any examples of such creatures?

Teacher: Exactly! These shells, along with dissolved minerals, settle on the ocean floor or sides of the ocean and harden into rock. How amazing is that?

Teacher: Can anyone tell me what shale is made of, its colour and its use?

Teacher: Great! shale is made of mud and clay particles, is black or grey in colour and is used for making bricks and tiles.

Teacher: Now, let us talk about sandstone. Who can describe what it is made of, its colour and where it is used?

Teacher: Excellent! Sandstone is made of sand particles, comes in yellow, brown, pink or red shades and is used for making buildings, statues and fountains.

Teacher: Moving on to conglomerate. Can someone share its composition, colour and use?

Teacher: Well done! Conglomerate is made of pebbles and gravels, is orange and grey in colour and is used for filling materials in roads and construction.

Teacher: Lastly, let us discuss limestone. Can anyone explain its composition, colour and use?

Teacher: Brilliant! Limestone is made of calcite, is grey or white and is used for making roads and buildings.

Teacher: That was a wonderful discussion. We will learn about metamorphic rocks in the next period.

Home task

Create a comparison chart for igneous and sedimentary rocks, listing their characteristics, formation processes and uses.

Differentiated Activities

110 km/hr

Explain how the mineral composition of magma affects the type of igneous rock that forms. Provide examples of rocks with different compositions.

80 km/hr

Look at the following list of rocks: granite, pumice, obsidian, basalt, shale, sandstone, conglomerate, limestone. Identify which are igneous and which are sedimentary. Write it down in two columns.

40 km/hr

What is the main difference between how igneous and sedimentary rocks are formed?

Period 4

Teacher: Good morning, my amazing learners! How are you all today?

SHOULD DO

05 MIN.

(Use CRM signs to settle the class.)

Teacher: Today, we are going to start our class with a quick revision quiz activity. Are you ready to test your knowledge about igneous and sedimentary rocks?

Teacher: Great! Let us begin. First question: What are igneous rocks formed from?

Teacher: Excellent! Igneous rocks are formed from the cooling and hardening of magma. Next question: What is granite made of and what is it used for?

Teacher: Correct! Granite is made of cooled magma and is used for making buildings and streets. Last question: How are sedimentary rocks formed?

Student 5: Sedimentary rocks are formed when layers of materials like sand, mud or pebbles pile up and are pressed together over time.

Teacher: Exactly! Great job, everyone! You all did an amazing job with the quiz. Now, let us move on to our lesson for today.

MUST DO

20 MIN.

Teacher: Today, we are going to explore the fascinating world of metamorphic rocks.

(The teacher will read the first and second paragraphs of page 7 aloud and provide explanations to ensure that the students understand the content.)

Teacher: Can anyone tell me what metamorphic rocks are?

Teacher: Excellent! Metamorphic rocks are formed by the transformation of already existing rocks through a process called metamorphism. Most metamorphic rocks were once either igneous or sedimentary rocks.

Discovering better

Teacher: We are going to discover something fascinating about rocks. Has anyone heard the word 'metamorphism' before?

Teacher: Great! 'Metamorphism' refers to the change in form that rocks undergo due to heat, pressure, or both. For example, a rock can transform into a completely different form because of these forces.

Teacher: Now, let us dive deeper into how this transformation happens. Imagine a rock buried deep within the Earth. What do you think happens to it under tons of pressure and heat?

Teacher: That is right! The rock undergoes metamorphosis. This means it changes form due to the intense pressure and heat.

Teacher: Here is an interesting fact: In some metamorphic rocks, the minerals are broken down into smaller particles, whereas in others, the minerals are stretched into flat particles.

Teacher: Now, we are going to learn about the examples of metamorphic rocks.

(The teacher will read table 1.3 of page 7 aloud and provide explanations to ensure that the students understand the content.)

Teacher: Let us discuss what we have learned. Let us begin with gneiss. It is made from granite and has black or light grey stripes. Can anyone suggest where it might be used?

Teacher: Correct! It is often used for flooring, ornamental stones and gravestones. Now, moving on to slate. Who can tell me what it is made of and its colour?

Teacher: Excellent! Slate is made from shale and is grey. Can you think of any uses for it?

Teacher: Well done! It is used for flooring, roofing and wall cladding. Next, let us talk about quartzite. What is quartzite made of?

Teacher: That is right! It is made from sandstone and comes in white and grey. Where do you think it is used?

Teacher: Fantastic! It is used for roofing, flooring and stair steps. Finally, let us discuss marble. Can anyone tell me what marble is made of and describe its colours?

Teacher: Exactly! It is made from limestone and can be white, yellow, grey, blue, beige or cream. Where do you think marble is commonly used?

Teacher: Brilliant answers! It is used for making buildings, monuments, tabletops and interior decorations. Excellent participation today, everyone!

Home Task

Look around your home and identify three different items made from metamorphic rocks. Write their names and describe where they are used

Differentiated Activities

110 km/hr

How can an igneous rock become a metamorphic rock? Describe the processes involved in this transformation.

80 km/hr

What are the main differences between igneous, sedimentary and metamorphic rocks in terms of their formation and characteristics? Provide examples to support your answer.

40 km/hr

Describe the appearance of gneiss and marble. What colours are they typically and what are they used for?

Period 5

COULD DO

10 MIN.

Teacher: Good morning students! How are you all doing today? (Use CRM signs to settle the class.)

Teacher: Fantastic! Before we dive into today's lesson, let us warm up with an engaging activity. This time, we will act like different machines powered by energy. If I say "Car," pretend to drive with your hands on an imaginary steering wheel. If I say "Aeroplane," spread your arms wide and mimic flying. If I say "Train," make a chugging motion with your arms and move in a straight line.

(Use this movement activity to warm up the students for the lesson. Call out machines in random order to keep the students focused and interested.)

MUST DO

10 MIN.

Teacher: Brilliant energy, everyone! Let us give ourselves a round of applause for getting into the spirit of learning.

Teacher: Today, we are going to explore the fascinating world of minerals.

(The teacher will read the third and fourth paragraphs of page 8 aloud and provide explanations to ensure that the students understand the content.)

Teacher: Can anyone tell me what minerals are?

Teacher: Excellent! Minerals are the building blocks of rocks. What do you think the minerals from which metals can be profitably extracted are called?

Teacher: That is correct! They are called ores. Can you think of items made from these metals?

Teacher: Wonderful! These metals are used for making furniture, coins, machines, utensils and even jewellery.

Teacher: Now, let us talk about non-metallic minerals. A very important category under this is fossil fuels.

(The teacher will read the first to the fourth paragraph of page 9 aloud and provide explanations to ensure that the students understand the content.)

Teacher: Can anyone name some fossil fuels?

Teacher: Perfect! Coal and petroleum are examples of fossil fuels. Let us focus on coal. Do you know how coal is extracted?

Teacher: That is right! Coal is extracted from coal mines.

Teacher: In India, which state produces the largest amount of coal and where is the oldest coal mine located?

Teacher: Fantastic! Raniganj in West Bengal is home to the oldest coal mine.

Teacher: Lastly, let us discuss the uses of coal. Today, where do you think coal is primarily used?

Teacher: Brilliant answers! Coal is used for producing electricity in power plants and in the steel industry for blast furnaces. Great participation today, everyone!

Teacher: Now, it is quiz time! You will have to answer based on the learning of this period in the quiz provided in the LMS portal. Let's start the quiz and you will answer along. Good luck!

(Start the quiz from the LMS portal. The students will participate along. Otherwise, write the questions on the blackboard and let the students answer the questions.)

Home Task

Write about two items at home made from metallic minerals and explain which metal they are made from.

Differentiated Activities

110 km/hr

Explain the process by which bauxite is converted into aluminium. Write a brief description of its steps and uses.

80 km/hr

Categorise the following into metallic and non-metallic minerals: haematite, coal, pyrite, bauxite, petroleum and calamine.

40 km/hr

Describe the difference between metallic and non-metallic minerals in two to three sentences. Provide one example of each.

Period 6

Teacher: Good morning, my enthusiastic learners! How are you all doing today? (Teacher will show CRM signs to maintain order and begin the class.)

COULD DO

05 MIN.

Teacher: Fantastic! Before we dive into today's lesson, let us warm up with an engaging activity. I will name a shape and you will use your body to create it. If I say "Circle," spin around in place. If I say "Triangle," make a triangle with your arms above your head. If I say "Square," step side to side in a square motion.

(Use this movement activity to warm up the students for the lesson. Call out shapes in random order to keep the students focused and interested.)

Teacher: Today, we are going to start the important topic of petroleum.

MUST DO

10 MIN.

(The teacher will read the fifth and sixth paragraphs of page 9 aloud and provide explanations to ensure that the students understand the content.)

Teacher: Can anyone tell why it is also called "black gold"?

Teacher: That is correct! It is called "black gold" because it is extremely valuable and has many uses. Now, can anyone tell how petroleum is formed?

Teacher: Great! It is formed from the remains of plants and sea creatures buried millions of years ago. These remains gradually changed into oil and gas over time. Can anyone name a place in India where we get petroleum?

Teacher: Assam is correct. Can anyone tell me what paraffin wax, obtained from petroleum, is used for?

Teacher: Great! Paraffin wax, obtained from petroleum, is used to make polish, candles and waterproof cartons.

MUST DO
10 MIN.

Conservation of Natural Resources

Teacher: Let us talk about conserving natural resources.

(The teacher will read the fifth and sixth paragraphs of page 9 aloud and provide explanations to ensure that the students understand the content.)

Teacher: Why do you think we need to conserve resources like petroleum and coal?

Teacher: That is right! These are non-renewable resources and if we use them carelessly, they will not be available for future generations. Can you think of ways we can reduce the use of petroleum?

Teacher: Excellent! Electric vehicles are a great alternative. What other renewable energy sources can we use instead of fossil fuels?

Teacher: That is right! Using solar energy, wind energy, etc., also helps in reducing pollution.

Teacher: Let us do an "Understanding better" activity mentioned at the bottom of page number nine in your main course book. We will answer two simple questions with just one word each. Let us begin!

MUST DO
25 MIN.

Teacher: Here is the first question: "Name one precious metal that is yellowish-brown in colour and is used to make jewellery." Can anyone guess the answer?

Teacher: Excellent! Gold is correct. It is a precious metal often used in making jewellery. Now, here is the second question: What do we call minerals from which metals can be obtained?

Teacher: That is right! Minerals from which metals can be obtained are called ores.

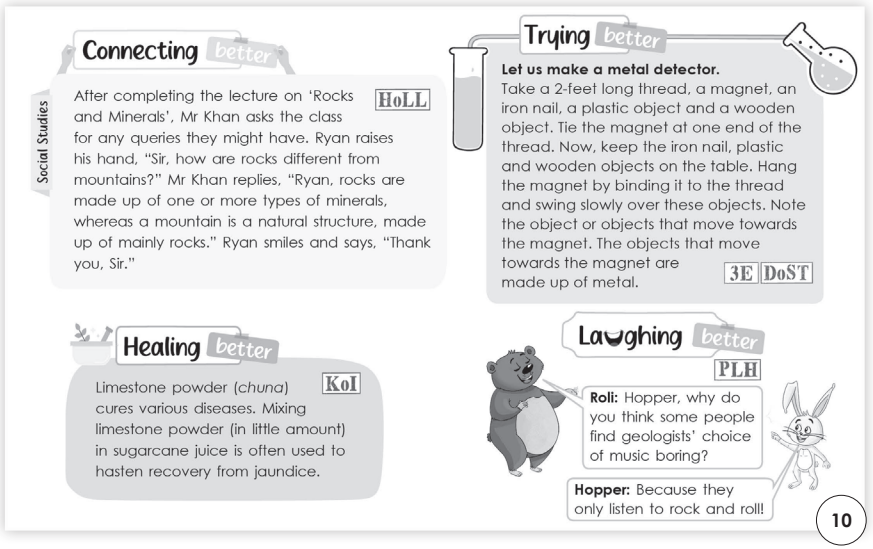
Slideshow Play the Slideshow from the LMS portal.)

Animated Activities Complete the Animated Activities on the LMS portal, then review the correct answers with the students. If not, write the question on the blackboard and finish the activity.)

(Instruct students to bring their workbooks in the next class.)

Home Task

Draw a poster showing one way to conserve natural resources like petroleum. Use colours to make it attractive and include a catchy slogan.



Differentiated Activities

110 km/hr

Why is petroleum called "black gold"?

80 km/hr

How is paraffin wax obtained from petroleum used in our daily lives? Write two examples.

40 km/hr

Name one renewable energy source we can use instead of petroleum.

Period 7

Teacher: Good morning, my enthusiastic learners! How are you all doing today? (Teacher will show CRM signs to maintain order and begin the class.)

COULD DO
10 MIN.

Teacher: Fantastic! Before we dive into today's lesson, let us warm up with an engaging activity. I will name an animal and you will mimic its sound and movement. If I say "Lion," roar and crawl on all fours. If I say "Monkey," jump and scratch your head. If I say "Snake," hiss and slither on the floor.

(Use this activity to warm up the students for the lesson. Call out animals in random order to keep the students focused and interested.)

Teacher: Great! Applaud yourselves!

Connecting better

Teacher: Let us start the connecting better activity. Ready?

MUST DO
15 MIN.

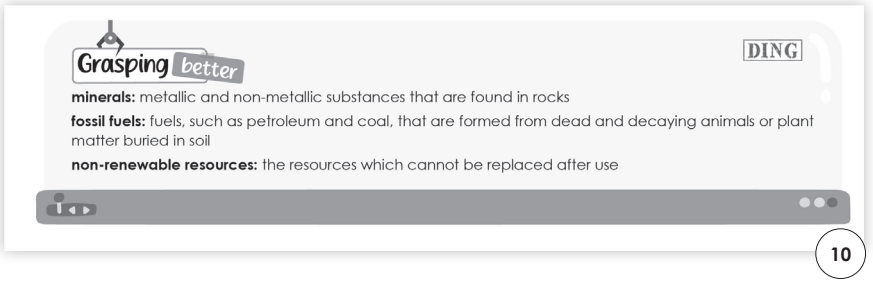
Teacher: Can anyone tell me how rocks are different from mountains?

Teacher: Yes, exactly! Rocks are made up of one or more types of minerals, whereas a mountain is a natural structure, made up of mainly rocks.

Trying better

Teacher: We are going to make a simple metal detector. Are you excited?

Teacher: Great! Let us start. First, we need a 2-foot-long thread, a magnet, an iron nail, a plastic object and a wooden object.



Teacher: Perfect! Now, take the magnet and tie it to one end of the thread.

Teacher: Yes, exactly! Well done. Now, place the iron nail, plastic object and wooden object on the table.

Teacher: Excellent! Next, hang the magnet by holding the other end of the thread. Make sure it can swing freely.

Teacher: Perfect! Now, slowly swing the magnet over the objects on the table. Watch carefully and note which objects move towards the magnet. What do you see?

Teacher: Great observation! The objects that move towards the magnet are made of metal. Well done, everyone! You have successfully made a simple metal detector. Give yourselves a round of applause!

Healing better

MUST DO
25 MIN.

Teacher: Did you know limestone powder or chuna, can cure various diseases?

Teacher: That is wonderful! Mixing a little limestone powder in sugar cane juice helps recover from jaundice. Has anyone heard of this remedy?

Teacher: Great!

Laughing better

Teacher: Now, it is joke time! Why do you think some people find geologists' choice of music boring?

Teacher: Because they only listen to rock and roll!

Grasping better

Teacher: Can anyone tell me what minerals are?

Teacher: Yes! Minerals are metallic and non-metallic substances found in rocks. What about fossil fuels?

Teacher: Correct! Fossil fuels are formed from dead and decaying animals or plant matter buried in soil. Now, who can explain non-renewable resources?

Teacher: Exactly! Great job, everyone!

Worksheet - 1

Teacher: Let us do some activities from the workbook. Everybody, please open page number 11 of your workbook and answer the questions given in worksheet - 1.

(Let the students answer the questions on their own. Then discuss the answer by writing the correct answer on the blackboard.)

Home Task

Write a short paragraph explaining how you made the metal detector in class. Include the materials you used and the steps you followed.

Differentiated Activities

110 km/hr

List the steps to make a simple metal detector.

80 km/hr

Describe two non-renewable resources and explain why they cannot be replaced after use.

40 km/hr

What are the main differences between rocks and mountains?

Additional Task

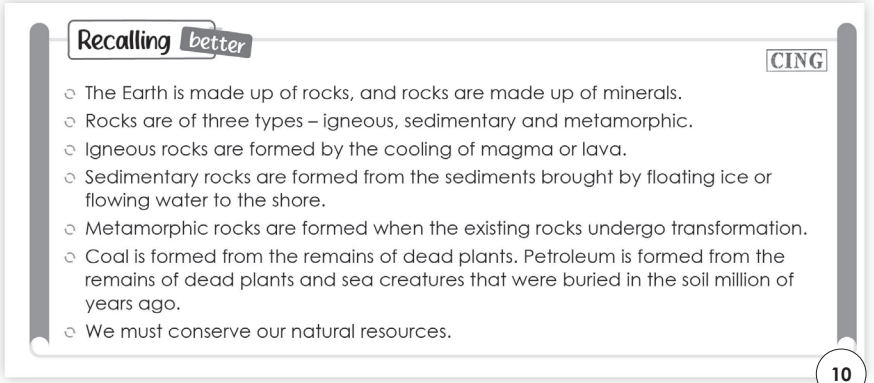
(For project Ideas, please refer to the book of Project Ideas, page number 13 under the title "Rocks and Minerals." This project should be assigned to the students to work on. Ensure that the students understand the project requirements and provide any necessary guidance or materials they might need. Encourage them to explore and learn about rocks and minerals through this engaging project.)

Period 8

Teacher: Good morning, my enthusiastic learners! How are you all doing today? (Teacher will show CRM signs to maintain order and begin the class.)

Teacher: Fantastic! Before we dive into today's lesson, let us warm up with an engaging activity. I will name an emoji and you will act it out. If I say "Happy Face," smile widely and wave. If I say "Sad Face," frown and pretend to cry. If I say "Surprised Face," open your mouth and raise your hands.

(Use this activity to warm up the students for the lesson. Call out emoji in random order to keep the students focused and interested.)

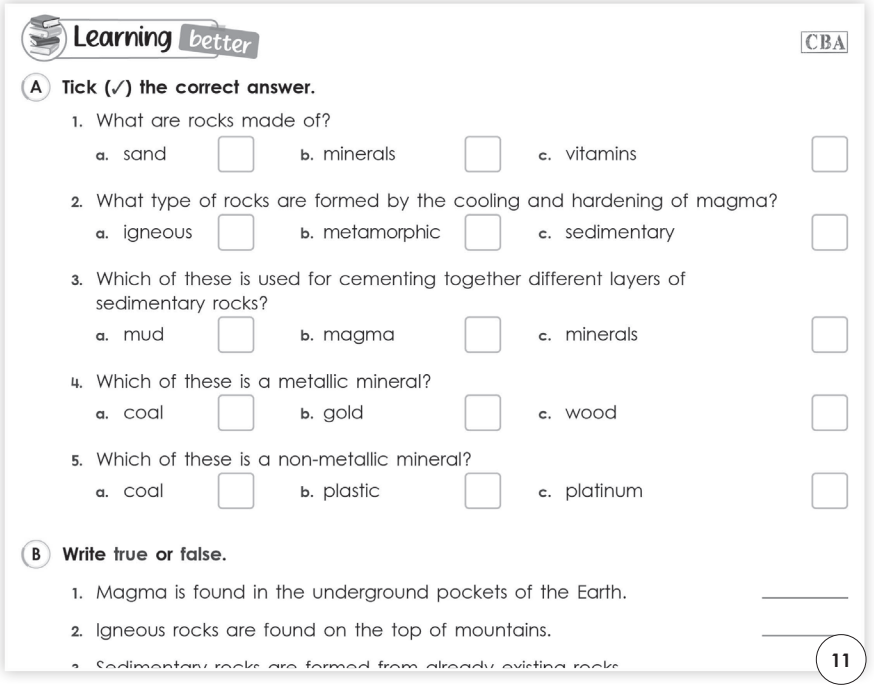


Recalling better

CING

- The Earth is made up of rocks, and rocks are made up of minerals.
- Rocks are of three types – igneous, sedimentary and metamorphic.
- Igneous rocks are formed by the cooling of magma or lava.
- Sedimentary rocks are formed from the sediments brought by floating ice or flowing water to the shore.
- Metamorphic rocks are formed when the existing rocks undergo transformation.
- Coal is formed from the remains of dead plants. Petroleum is formed from the remains of dead plants and sea creatures that were buried in the soil million of years ago.
- We must conserve our natural resources.

10



Learning better

CBA

A **Tick (✓) the correct answer.**

1. What are rocks made of?
   a. sand ☐ b. minerals ☐ c. vitamins ☐
2. What type of rocks are formed by the cooling and hardening of magma?
   a. igneous ☐ b. metamorphic ☐ c. sedimentary ☐
3. Which of these is used for cementing together different layers of sedimentary rocks?
   a. mud ☐ b. magma ☐ c. minerals ☐
4. Which of these is a metallic mineral?
   a. coal ☐ b. gold ☐ c. wood ☐
5. Which of these is a non-metallic mineral?
   a. coal ☐ b. plastic ☐ c. platinum ☐

B **Write true or false.**

1. Magma is found in the underground pockets of the Earth. _____
2. Igneous rocks are found on the top of mountains. _____
3. Sedimentary rocks are formed from already existing rocks

11

Teacher: Wonderful expressions! Let us clap for our emojis.

Recalling better

MUST DO
10 MIN.

Teacher: Today, we are going to recall our learnings about rocks and natural resources. Can anyone tell me what the Earth is made up of?

Teacher: Excellent! The Earth is made up of rocks, which are made of minerals. Rocks are of three types. Who can name them?

Teacher: Very good! Igneous, sedimentary and metamorphic rocks. Can someone explain how igneous rocks are formed?

Teacher: Right! They are formed by the cooling of magma or lava. What about sedimentary rocks?

Teacher: Exactly! They are formed from sediments brought by floating ice or flowing water. And what are metamorphic rocks?

Teacher: Brilliant! They are formed when existing rocks transform. Now, who can tell me how coal and petroleum are formed?

Teacher: Well said! Coal comes from dead plants and petroleum comes from the remains of dead plants and sea creatures buried millions of years ago. Finally, why is conserving natural resources important?

Teacher: Yes! To save them for future generations because they are limited. Excellent understanding! You all have done a fantastic job today.

Learning better

MUST DO
25 MIN.

Teacher: Everyone please open the page number eleven of your book. We have an exercise called 'Learning Better.' In part 'A' of 'Learning better' you have to tick the correct answer. Are you ready to get started?

Teacher: Great! Let us begin with the first question. What are rocks made of?

Teacher: The correct answer is minerals. Well done!

(Similarly complete all five questions)

Worksheet - 2

Teacher: Let us do some activities from the workbook. Everybody, please open page number 12 of your workbook and answer the questions given in worksheet - 2.

(Let the students answer the questions on their own. Then discuss the answer by writing the correct answer on the blackboard.)

Home Task:

Write a short paragraph explaining the difference between igneous, sedimentary and metamorphic rocks. Use examples to support your explanation.

Differentiated Activities

110 km/hr

What is the key difference between igneous and metamorphic rocks?

80 km/hr

Give two examples of sedimentary rocks.

40 km/hr

What are rocks made of?

Additional Task.

(Refer to the Book of Holistic Teaching, page number 20 under the title "Rocks and Minerals." Complete the activities mentioned in this section and ensure that the students complete them. These activities are designed to enhance their holistic understanding and engagement with the topic. Provide any necessary support and materials to help the students successfully finish the activities.)

Period 9

Teacher: Good morning, my enthusiastic learners! How are you all doing today? (Teacher will show CRM signs to maintain order and begin the class.)

Teacher: Fantastic! Before we dive into today's lesson, let us warm up with an engaging activity. This time, we will pretend to be different animals. I will call out an animal and you will mimic its movement. If I say "Kangaroo," jump up and down like a kangaroo. If I say "Elephant," stomp your feet and swing your arms like an elephant's trunk. If I say "Bird," flap your arms like wings and pretend to fly.

(Use this activity to warm up the students for the lesson. Call out animals in random order to keep the students focused and interested.)

Teacher: Great! Applaud yourselves!

Learning better

Teacher: Today, we will dive into some exciting questions about rocks and minerals. Everyone please open the page number eleven of your book. We have an exercise called 'Learning Better.' In part 'B' of 'Learning better' section, you have to write 'true' or 'false'. Are you ready to get started?

COULD DO
05 MIN.

Teacher: Great! Let us begin with the first question. Magma is found in underground pockets of the Earth. Think carefully and write true or false in the space given in front of the statement.

(Similarly complete all five questions)

Teacher: Great! Now, let us explore some short-answer questions. Let us begin with the first question. What are minerals?

MUST DO
10 MIN.

(Students have to write the answers for the given questions in about 40 to 50 words in their notebook. Wait for the students to write the answers.)

Teacher: Here is a fun question. Rahul found his mother's lost ring under the sofa. His mother was worried because it was made of a precious non-metal. Which non-metal do you think the ring was made up of?

(Wait for the students to write the answers.)

Teacher: Finally, the third question is, What are ores?

Teacher: After you finish writing your answers, please exchange them with a friend sitting beside you.

Teacher: Great! Let us explore some long-answer questions. Let us begin with the first question. Differentiate between igneous, sedimentary and metamorphic rocks. Give one example of each.

MUST DO
20 MIN.

(Students have to write the answers for the given questions in about 100 to 150 words in their notebook. Wait for the students to write the answers.)

Teacher: Great! Let us begin with the second question. Differentiate between metallic and non-metallic minerals.

(Wait for the students to write the answers.)

Teacher: After you finish writing your answers, please exchange them with a friend beside you.

Worksheet 3

A. Answer the following.

1. What are rocks?

2. What is magma?

3. What are minerals?

4. Name the three types of rocks.

5. How do metamorphic rocks form?

B. Match the columns.

Column A		Column B
1. slate	•	• a. granite
2. gneiss	•	• b. sandstone
3. marble	•	• c. shale
4. quartzite	•	• d. lava
5. basalt	•	• e. limestone

C. Write true or false.

1. The colour of gneiss rock is yellow. _____
2. Slate is used for flooring, roofing and wall cladding. _____
3. Metamorphic rocks are formed by transformation of existing rocks. _____
4. Marble is used for making buildings, interior decorations and monuments. _____
5. Metamorphic rocks were once either igneous or sedimentary rocks. _____

13

Worksheet - 3

Teacher: Let us do some activities from the workbook. Everybody, please open page number 13 of your workbook and answer the questions given in worksheet - 3.

(Let the students answer the questions on their own. Then discuss the answer by writing the correct answer on the blackboard.)

Home Task:

(Assign the 'Creating better' activity mentioned on page 12 as a home task)

Differentiated Activities

110 km/hr

What is the primary component of sedimentary rocks that cements different layers together in their formation?

80 km/hr

Name the type of rocks formed by the cooling of magma.

40 km/hr

What are minerals?

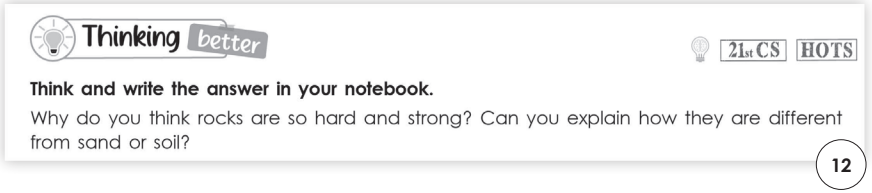
Period 10

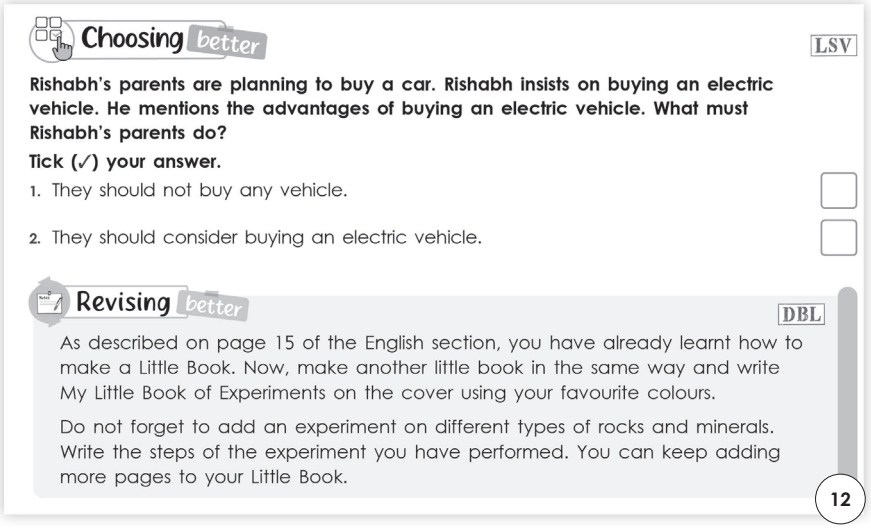
Teacher: Good morning, my enthusiastic learners! How are you all doing today? (Teacher will show CRM signs to maintain order and begin the class.)

Teacher: Fantastic! Before we dive into today's lesson, let us warm up with a creative activity. This time, we will pretend to be different machines. I will call out a machine, and you will mimic its movement. If I say "Washing Machine," spin around in place. If I say "Car," pretend to steer and make vroom sounds. If I say "Fan," rotate your hands in small circles like spinning fan blades.

(Use this activity to warm up the students for the lesson. Call out the machines in random order to keep the students focused and engaged.)

Teacher: Wonderful! Applaud yourselves!





Thinking better

MUST DO 05 MIN.

Teacher: Today, we have some interesting activities to work on. Let us start with a thinking activity. Why do you think rocks are so hard and strong? How are they different from sand or soil? Write your answers in your notebooks, and do not forget to explain your reasoning.

(Give students time to think and write their answers in their notebooks.)

Teacher: After you finish writing your answers, please exchange them with a friend beside you.

Choosing better

Teacher: Now, let us move on to a 'Choosing better' activity. Rishabh's parents are planning to buy a car. Rishabh insists on buying an electric vehicle. He mentions the advantages of buying an electric vehicle. What must Rishabh's parents do?

MUST DO 05 MIN.

Teacher: Great points! Tick your answers on the sheet provided and discuss your choice with a friend.

Revising better

Teacher: Finally, let us do a revising activity. You all learned how to make a Little Book in your English class. Now, I want you to create another Little Book, but this time, it is going to be called "My Little Book of Experiments." Decorate the cover with your favourite colours.

MUST DO 10 MIN.

Teacher: You could do an experiment to test the porosity of different rocks. First, weigh each rock and record its mass. Then, submerge the rocks in water for 10 minutes. After soaking, remove the rocks, shake off excess water, and weigh them again. Compare the weights before and after soaking to see which rocks absorbed water. This will help us understand the porosity of rocks and their ability to absorb water. Make sure to write down each step and your observations in your Book of Experiments. Happy experimenting!

Teacher: Fantastic ideas! Make sure to write down the steps of your experiment in your Little Book. You can keep adding more experiments as we learn about different topics.

Teacher: Let us do the activities in English, Maths and Social Studies mentioned in our Book of Holistic Learning. Let us start with English.

MUST DO 15 MIN.

(Use the smart board to show the questions or write down the questions on the blackboard.)

Teacher: Miners (cork/work) in mines to obtain coal and other minerals. What do you think the correct word is?

Teacher: Excellent! Work is the correct word. And for the next one, "Parihar uses a (silver fork/rock) to eat dessert." Which word fits best?

Teacher: Correct! Silver fork is the correct answer. Now let us move on to Maths. Mount Augustus is the largest single rock in the world. It rises to a height of 717 metres above the stony red sand plain. Can anyone write 717 in Roman numerals?

Teacher: Well done! Now, for our Social Studies question. Which landform is rich in mineral deposits: mountains, plains, plateaus, or rivers? Write your answer in your notebook.

Teacher: Mountains and plateaus can both be rich in mineral deposits. Great work, everyone!

Learning Outcomes

The students will:

Physical Development	• Engage in hands-on activities such as identifying and classifying different types of rocks and minerals.
Socio-Emotional and Ethical Development	• Cultivate an appreciation for the Earth's resources and the ethical responsibility to conserve them.
Cognitive Development	• Enhance understanding of geological concepts such as the rock cycle, types of rocks, and the formation of minerals.
Language and Literacy Development	• Improve vocabulary related to geology, such as "igneous," "metamorphic," "sedimentary," "mineral," and "erosion."
Aesthetic and Cultural Development	• Appreciate the beauty and diversity of natural rock formations and mineral specimens.

Positive Learning Habits	• Encourage curiosity and inquiry by asking questions about the natural world.

Starry Knights

How is the new group of learners?

_____

What will be your strategy to give the maximum learning experience to the learners?

_____

Give yourself a STAR. ☐

Answers

Theme 1: Why Do We Need Land?
Lesson-1: Rocks and Minerals

Main Coursebook

Re-KAP

Kinaesthetic:

Accept all relevant responses.

Auditory:

1. Minerals are solid substances that have a specific chemical structure, like quartz or diamond.
2. Sandstone is a rock which is soft in nature.

Pictorial:

1. ALKCH — CHALK
2. ALCO — COAL
3. PPERCO — COPPER
4. VERSIL — SILVER
5. MONDDIA — DIAMOND
6. LDGO — GOLD

Interacting better:

Pumice stone (Accept all relevant responses).

Understanding better (Page 9)

1. Sedimentary rocks
2. Metamorphic rocks

Understanding better (Page 9)

1. Gold
2. Ores

Learning better:

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.

Igneous rocks	Sedimentary rocks	Metamorphic rocks
Igneous rocks are formed by the cooling and hardening of hot liquid rock material, called magma.	Sedimentary rocks are formed from pebbles, sand, mud or clay, deposited in the ocean and brought to the shore by flowing water or floating ice.	Metamorphic rocks are formed by the transformation of already existing rocks through a process called metamor-phism.

Igneous rocks	Sedimentary rocks	Metamorphic rocks
These are found at the base of all landforms, such as plains, mountains, plateaus and ocean beds.	Sedimentary rocks cover the major portion of the Earth's surface.	Most metamorphic rocks were once either igneous or sedimentary rocks.
For example, granite, pumice, etc.	For example, sandstone, shale, etc.	For example, marble, quartzite, etc.

Creating better: Accept all relevant responses.

Thinking better:

Rocks are hard and strong because they are made up of minerals, which are solid materials that form deep inside the Earth.

On the other hand, sand and soil are different because they are made of tiny pieces of rocks and other materials. Sand is made of small grains of rock that are smooth and loose, while soil is made of even smaller particles and also has bits of dead plants and animals mixed in. Since these tiny pieces aren't packed together tightly like in rocks, they are soft and not as strong.

Choosing better:

2. They should consider buying an electric vehicle.

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. True 2. True 3. False
4. True 5. True

Worksheet 3

A. 1. Rocks are made up of minerals. These may be made up of one or more minerals.
2. Magma is a hot liquid rock material that hardens and cools to form igneous rocks.
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

Book of Holistic Teaching

Developing better

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

B. **Maths:** DCCXVII

C. **Social Studies:** Plateaus

Book of Project Ideas

Making better

Accept all relevant responses.

Lesson-2: Force and Energy

10 Periods (40 minutes each)

Learn Better (Main Coursebook), Stay Ahead (Workbook), CRM signs, Book of Holistic Teaching, Book of Project Ideas, CRM signs, Blackboard.

Apptive Teach Plus: Animation, Animated Activities, Concept Map, Dictionary, eBook, I Explain, Infographic, Quiz, Slideshow, Video.

I affirm
I am brave and strong.

Curricular Goals and Objectives (NCF-FS)

To enable the students:

- Understand force, energy and their types through exploration.
- Learn about energy conservation and forces on objects.
- Learn the benefits of sunlight for living creatures.
- Improve communication through creative journaling.
- Find logical solutions to real-life problems.

Methodology

Period 1

COULD DO
05 MIN.

Teacher: Good morning, students! How are you all today?

(Use CRM signs to settle the class.)

Teacher: Before we start the class, let us all say together, 'I am brave and strong.' Repeat after me: 'I am brave and strong.'

Teacher: Alright. Let us start today's lesson with an exciting activity called Stretch and Smile! Ready to feel relaxed?

Teacher: Reach your arms up to the sky, stretch as high as you can and then give a big smile! (Show the movement and encourage students to follow along.)

Teacher: Now, reach down to touch your toes and smile again! It feels good to stretch, does it not?

(Encourage students to follow along.)

Teacher: Excellent stretching! You all look so happy!

Teacher: Let us give ourselves a big round of applause for all the energy you brought to the class.

Teacher: Today, we are going to begin a new chapter on Force and Energy. We use a KWL chart to help us organize our thoughts and learning. I have made a KWL format on the blackboard. Please take out your notebooks and draw the same format.

Teacher: The KWL chart has three columns. The first column is labeled 'K,' the second column is labeled 'W,' and the third column is labeled 'L.'

Teacher: In the 'K' column, I want you to write down what you already know about the topic we are going to discuss today. This could be any facts, ideas, or information you already have.

Teacher: In the 'W' column, write down what you want to learn about the topic. Think about any questions you have or things you are curious about.

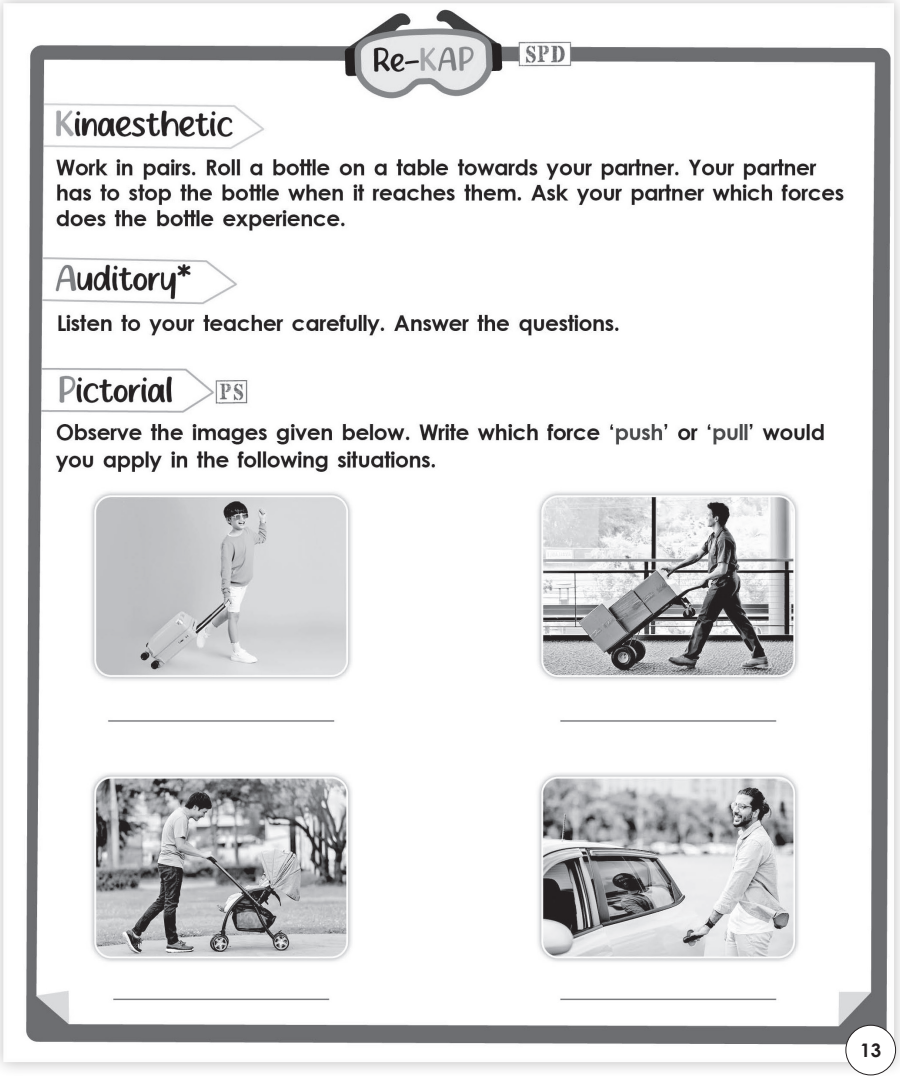
Teacher: Finally, in the 'L' column, you will write down what you have learned after we finish the lesson. This will help you reflect on the new information you've gained.

Teacher: Let us start by filling out the 'K' and 'L' column. Take a few minutes to think and write. If you have any questions, feel free to ask!

K	W	L

Teacher: Before we dive in the chapter, let us do a quick Re-KAP. Does anyone know what Re-KAP means?

Teacher: Yes, that is right! Re-KAP is where we revisit our previous knowledge through creative, multi-sensory activities. We will use Kinaesthetic, Auditory and Pictorial activities to make our learning engaging and interactive. Kinaesthetic is a hands-on activity to provide a physical, contextualised experience. Auditory is a listening activity for concept retention and recall. Pictorial is a picture-based activity for concept recall. Let us start with a kinaesthetic activity to get us ready for the new topic.



Kinaesthetic

Teacher: Let us start a fun kinaesthetic activity. I want you to work in pairs. One of you will roll a bottle on the table towards your partner. Your partner's task will be to stop the bottle when it reaches them.

Teacher: Once the bottle has stopped, ask your partner: Which forces do you think the bottle experienced? Ready to begin? Let us go!

(Give time to the students to perform the activity.)

MUST DO
10 MIN.

Teacher: Fantastic work, everyone!

Auditory

Teacher: Let us move into auditory activity. I am going to talk about Force and Energy. Listen to me carefully and answer the questions.

Teacher: A force is a push or pull that can make an object move, stop or change direction. Different types of forces are used to perform different types of work. Like muscular force is used by our muscles to push or pull an object. The buoyant force is exerted by a liquid on an object due to which the object floats.

Teacher: Can anyone name the force applied by our muscles when we push or pull an object?

(Accept and appreciate all relevant responses)

Teacher: Excellent! Now, can someone tell me the name of the force applied by liquids on an object?

(Accept and appreciate all relevant responses)

Teacher: Great job, everyone! These forces play a crucial role in our daily lives. Let us continue to learn more about them.

MUST DO
15 MIN.

Teacher: Let us do a fun pictorial activity! Ready?

Teacher: Look at the pictures given on page 13 under the Pictorial section. Observe the images and write which force 'push' or 'pull' would you apply in the given situations below the given images.

(Encourage students to write their answers.)

Teacher: Excellent observations! Let us discuss your answers and understand why you chose 'push' or 'pull' for each image.

(Discuss the correct answer with the class. And explain why you chose 'push' or 'pull' for each image.)

Teacher: Now, we will explore some new words that are important for this chapter. Let us go through the words given in the dictionary section on the LMS portal.

(Explain the words mentioned in the dictionary section on the LMS portal. Or Write it down on the blackboard and explain it to the students)

Home Tasks

Write down five examples from your daily life where you use a push or pull force. For each example, mention whether the force is a push or pull and describe its effect.

Differentiated Activities

110 km/hr

What will happen if there is no force acting on a moving object?

80 km/hr

Name one activity where you use a push and one where you use a pull force.

40 km/hr

When you open a door, do you push or pull?

Period 2

Interacting better

SHOULD DO
10 MIN.

Teacher: Good morning students! How are you all today?

(Use CRM signs to settle the class.)

Teacher: Today, we are going to learn about different types of force that we use in our daily lives. Let us start with a fun activity. Ready?

Teacher: Great! Pair up with the person next to you.

Teacher: Discuss what happens when no force is applied to an object.

Teacher: Take a few minutes to share your thoughts and observations with each other. Once you have finished, we will discuss your ideas as a class. Let us begin!

(Encourage students to discuss with each other and invite some volunteers to share their ideas)

Teacher: Great job, everyone! I loved hearing all the interesting ideas. Give yourselves a round of applause for your wonderful participation and teamwork!

MUST DO
15 MIN.

Teacher: It is time for a fun story-based discussion today! Open your books to page 14 with Ryan's story about land and force. Have a look at the pictures and try to understand what is happening. Take a minute to observe and think about it carefully.

(Give students time to study the infographic.)

Teacher: Alright! Now, let us talk about the first picture. Can you tell me why land is so important for us?

(Accept responses and encourage detailed answers from students.)

Teacher: Excellent thoughts! Land provides us with homes, gardens, and even places to play. Now, look at the second picture. Ryan is trying to move the sofa. What do you notice here?

(Encourage students to describe the action in the picture.)

Teacher: Yes, Ryan is pushing the sofa. What do you think is making it difficult for him to move the sofa?

(Listen to students' answers and steer the conversation towards the concept of force.)

Teacher: Absolutely! Ryan is using force to push the sofa, and it requires energy. Let us look at the third picture. What happens when you keep applying force for a long time?

(Allow students to share their ideas about feeling tired after physical activity.)

Teacher: That is correct! Using force takes energy from our muscles, and that is why we feel tired. This story teaches us how force and energy work in our daily lives. Well done, everyone!

SHOULD DO
10 MIN.

Teacher: Now, we will be doing a fun activity with Play-Doh.

Teacher: I would like each of you to take some play dough and make your favourite object.

Teacher: Once you have made your object, think about why you chose to make it out of Play-Doh.

(Give time to the students to make an object)

Teacher: Excellent! Have you all noticed that force is applied to change the shape and size of the Play-Doh?

Teacher: Great! This is because force is a push or a pull that changes the state, speed, direction, and shape of an object.

Teacher: Great job, everyone!

Home Tasks

Using a small object like a toy car, try pushing it on different surfaces (e.g., floor, carpet, table). Write a few sentences about which surface needed the most force and why.

Differentiated Activities

110 km/hr

Why do you think Ryan felt tired after pushing the sofa in the story?

80 km/hr

What kind of force is applied when you stretch a rubber band?

40 km/hr

Name one thing in your house that needs a lot of force to move.

Period 3

COULD DO

05 MIN.

Teacher: Good morning students! How are you all today?

(Use CRM signs to settle the class.)

Teacher: Fantastic! Before we dive into today's lesson, let us warm up with some animal sounds. I will name an animal and you will mimic its sound. If I say "Dog," bark like a dog. If I say "Cat," meow like a cat. If I say "Cow," moo like a cow.

(Use this activity to warm up the students for the lesson. Call out animals in random order to keep the students interested and enthusiastic.)

MUST DO

15 MIN.

Teacher: Let us give ourselves a huge round of applause for all the energy we brought into the class.

Force

Teacher: Today, we are going to learn about force and its types.

(The teacher will read the last two paragraphs of page 14 and the first of page 15 aloud and provide explanations to ensure that the students understand the content.)

walking and bending. To apply this force, our body needs to be in contact with the surface of the other object. Hence, muscular force is a type of contact force.

Gravitational force: Every object in this universe attracts other objects with a force known as gravitational force. When two bodies with some mass come close to each other, they pull or attract each other. The body that applies the gravitational force is the body that always attracts the other body towards itself. We are able to stand, walk, sit and be on the Earth's surface due to the gravitational force exerted by the Earth on our body.

Understanding better

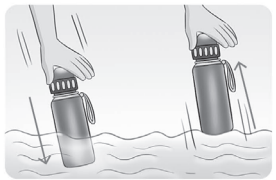
Answer in one word.

1. a force acting due to muscles of our body
2. another name for muscular force

ICL

15

Buoyant force or upthrust: When any object floating on water is pushed down, the water exerts an upward push on the object. This upward push is called the buoyant force or upthrust. Human beings experience this force while entering a swimming pool as the water we displace by entering the swimming pool creates an upward force on your body. This force counteracts the force of gravity which pulls us downward. Hence, this makes us feel lighter in the water.



buoyant force

15

Teacher: Who here can tell me what force is? (Encourage students to respond and share their ideas.)

Teacher: Fantastic! Can anyone think of an activity where you use your muscles to push or pull something? (Allow students to share examples, such as running, walking or bending.)

Teacher: Wonderful examples! Great thinking, everyone!

Understanding better

Teacher: Great job so far, everyone! Let us test our understanding of the concept of force with a quick activity. I will ask you two simple questions. You just need to answer them in one word. Ready?

(Ask the students to answer the question mentioned in Understanding better activity on page 15. Give explanation afterwards.)

MUST DO

10 MIN.

Gravitational force

Teacher: The next type of force is a gravitational force.

(The teacher will read aloud the second paragraph of page 15 and provide explanations to ensure that the students understand the content.)

Teacher: Can anyone tell me why objects fall to the ground when you drop them?

(Listen to student responses and encourage detailed answers.)

Teacher: Exactly! Gravitational force is the force that pulls objects towards each other. Now, can you tell me which force allows us to stand, walk and sit on the Earth's surface?

Teacher: Excellent responses! You are all doing a brilliant job understanding gravitational force.

MUST DO

10 MIN.

Buoyant force or upthrust

Teacher: Now, let us talk about buoyant force, also known as upthrust.

(The teacher will read aloud the third paragraph of page 15 and provide explanations to ensure that the students understand the content.)

Teacher: Why do you feel light when you are in a swimming pool?

(Encourage students to share their observations.)

Teacher: Excellent thinking! The water exerts an upward push on your body, called buoyant force.

Teacher: Let us summarise. Can anyone explain the difference between muscular force, gravitational force and buoyant force? (Encourage students to explain in their own words.)

Teacher: That is brilliant! Muscular force is a contact force that we apply using our muscles, gravitational force pulls objects towards each other without requiring contact while buoyant force is the upward push exerted by water or any liquid when something is placed in it. Fantastic work, everyone!

Teacher: You all did a great job today! Now, let us do a quick activity to test our understanding. Get ready! (Use I Explain video from the LMS portal to reinforce the learning)

Home Task:

Write the answers in your notebook.

Explain how gravitational force affects the motion of planets.

Differentiated Activities

110 km/hr

What happens when you push a ball underwater?

80 km/hr

Give two examples of gravity in daily life.

40 km/hr

What force do muscles apply?

Period 4

Teacher: Good morning students! How are you all today?

(Use CRM signs to settle the class.)

Teacher: Let us start with a virtual nature walk. I will name some natural things, and you will act it out. If I say "Tree," stand tall and stretch your arms like branches. If I say "Bird," flap your arms and pretend to fly. If I say "River," sway side to side like flowing water.

(Use this activity to warm up the students for the lesson. Call out natural things in random order to keep the students interested and enthusiastic.)

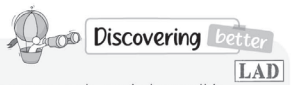
Frictional force: It is the force that opposes the motion of an object moving on a surface. When a body moves on any surface, the surface exerts a force in the direction opposite to the motion of the object. This eventually decreases the motion of object or stops the object. This is known as frictional force. Some examples of frictional force are skating and driving a vehicle on the road. In addition to this, frictional force makes walking on the plains easier than on rocky mountains.

a person doing skating

The friction between your shoes and the ground provides traction. Traction is the process in which friction appears between a surface and the object moving on it. It allows you to move with each step and maintain stability. On plains, where the ground is usually even and stable, traction is more consistent, making it easier to walk.

15

Mechanical force: It is a contact force that acts between two bodies. When direct interaction takes place between two different objects then it results in the change in the configuration of objects. Some examples of mechanical force include bending of a nail using pliers and drilling a hole into wood through a hand drill.



opposes: acts against something

configuration: arrangement of parts of something

15

Teacher: Let us give ourselves a huge round of applause for all the energy we brought into the class.

MUST DO

10 MIN.

Frictional Force

Teacher: Today, we will learn about frictional force.

(The teacher will read the fourth and fifth paragraphs of page 15 aloud and provide explanations to ensure that the students understand the content.)

Teacher: Now, what do you think causes the toy car to slow down and stop eventually?

Teacher: Exactly, that is frictional force. Can you think of any other examples where friction slows something down?

Teacher: Excellent examples! When you are skating or driving, friction between the wheels and the surface affects the motion. What do you think would happen if there was no friction when you are skating?

Teacher: Right, it would be very difficult to stop or control your movement. Now, think about walking. Why do you think it is easier to walk on flat ground compared to rocky mountains?

Teacher: That is correct! The friction between your shoes and the ground provides traction, which helps you move and stay stable. On flat plains, the ground is more even, so traction is more consistent.

MUST DO

05 MIN.

Mechanical Force

Teacher: Now, we are going to explore mechanical force. But before we dive into the topic of mechanical force let us do the 'Discovering better' activity mentioned on page number 15.

Discovering better

Teacher: We will discover a few new terms and their meanings. Let us start with the word "opposes." What do you think it means?

Teacher: Great! It means to act against something. Now, let us move on to the word "configuration." What do you think configuration means?

Teacher: Yes, it refers to the arrangement of parts of something. Now, let us start the topic of Mechanical force.

(The teacher will read the last paragraphs of page 15 aloud and provide explanations to ensure that the students understand the content.)

Teacher: Which force is applied when you bend a nail with pliers or drill a hole into wood?

Teacher: Exactly! That is an example of mechanical force. It is a contact force that acts between two bodies. What do you think happens when two objects interact directly with each other?

Teacher: Correct! It can result in a change in the shape or configuration of the objects. Can you think of any other examples where mechanical force is at work?

Teacher: Great examples! Using a hammer to drive a nail, or using a wrench to tighten a bolt, are both uses of mechanical force.

Teacher: We will do Activity 1 mentioned on page 20 of our book. Everybody, please open page 20 of your book.

Teacher: Now, we are going to build a simple rubber band car. This activity is mentioned on page 20 of our book. Everybody, please open page 20 of your book.

Teacher: We will need bottle caps, straws, a small piece of cardboard or plastic, a rubber band, a thin wooden stick, tape or glue, scissors and an empty can. Now, who can tell me why we might use bottle caps as wheels?

Teacher: Great thinking! They are small and lightweight, perfect for our car. Let us start with step one.

(Make small holes in the centre of each cap, just big enough for the straws to fit through.)

Teacher: Now, what do you think we will do next with the straws?

Teacher: Yes! We will cut the straws into two equal lengths to use as axles. After that, we insert one end of each straw into the bottle caps and secure them with tape or glue. What do you think the next step is?

Teacher: Brilliant! We will cut a small notch at the front of the car body to hold one end of the rubber band. What do you think we use the wooden stick for?

Teacher: Exactly! We place it through the rear axle straw to wind the rubber band. Finally, we stretch the rubber band around the stick and attach the empty can, which acts as the rear wheels. Now, who can explain how this rubber band car works?

Teacher: Fantastic! By winding the rubber band around the stick, we store energy. When released, this energy helps the car move forward. Great job, everyone!

Home Task

Look up two examples of how friction is useful in everyday life. Write a brief explanation for each.

Differentiated Activities

110 km/hr

What kind of surface provides more traction for walking?

80 km/hr

What type of force causes a car to slow down when it stops?

40 km/hr

Name a surface where it is harder to walk due to less friction.

Period 5

COULD DO

05 MIN.

Teacher: Good morning students! How are you all today?

(Use CRM signs to settle the class.)

Teacher: Let us start with a warm-up activity. I will name some weather conditions, and you will act it out. When I say 'Sunny,' raise your arms and smile as if you're basking in the sun. When I say 'Rainy,' pretend to hold an umbrella and tiptoe around. When I say 'Windy,' sway and twirl as if you're being blown by the wind.

(Use this activity to warm up the students for the lesson. Call out natural things in random order to keep the students interested and enthusiastic.)

MUST DO

25 MIN.

Teacher: Let us give ourselves a huge round of applause for all the energy we brought into the class.

Teacher: Today, we are going to explore the topic of energy.

(The teacher will read the first to fifth paragraphs of page 16 aloud and provide explanations to ensure that the students understand the content.)

(Include the 'Discovering better' activity to introduce the terms renewable and transformed)

Teacher: Now, can anyone tell me what energy is?

Teacher: Great! It is the ability to do work. Now, can you think of an example where work is done?

(Let the students think and answer. Appreciate the correct responses.)

Teacher: Excellent! Now, let us talk about the different forms of energy. First up, we have mechanical energy. What are the two types of mechanical energy?

Teacher: Correct! Kinetic energy is when something is moving, and potential energy is when it is stationary but has the potential to move. Can anyone give me an example of each?

Teacher: Very good! Moving on to solar energy. This energy comes from a very familiar source. Can anyone guess what it is?

Teacher: Exactly, the Sun! Solar energy is renewable and does not pollute the environment. Can anyone think of a way we use solar energy in our daily lives?

Teacher: Wonderful examples! Next, we have geothermal energy. It comes from within the Earth. Can anyone explain how geothermal energy is used?

Teacher: Right! The heat from beneath the Earth's surface can be harnessed to produce electricity. Now, what about wind energy? How is wind energy transformed into electricity?

Teacher: You got it! Wind energy involves converting the wind's kinetic energy into mechanical energy using windmills. From there, we generate electricity. Have any of you seen a windmill before?

Teacher: Brilliant observations! Each form of energy we discussed today has its unique applications and benefits. Does anyone have any questions or thoughts about these forms of energy?

Teacher: Fantastic! You all have done a great job exploring the world of energy today. Keep observing the different ways we use energy around us.

Understanding better

Teacher: Let us do the Understanding better activity mentioned in our page number 16.

Teacher: All right, class! Let us check your understanding of kinetic and potential energy with a quick activity. I will say a statement and you tell me whether it is true or false. Ready? Here we go!

Teacher: First statement: Kinetic energy is due to the motion of objects. True or false?

Teacher: Good! Now, the second statement: Potential energy is due to the position of objects. True or false?

Teacher: Excellent! You all are doing a fantastic job. These two forms of energy are crucial in understanding how things move and stay still.

Teacher: Brilliant! Keep up the great work, and we will explore more about energy in our next session. See you all then!

Teacher: Now, I will play an animation about Energy to recapitulate your understanding. Please watch carefully because we will discuss it together afterwards. Let us begin.

(Play the Animation video from the LMS. And discuss with the class.)

Home Task

Briefly describe in your notebook why is solar energy considered renewable.

Differentiated Activities

110 km/hr

What are two benefits of using renewable energy sources?

80 km/hr

Name two forms of mechanical energy.

40 km/hr

What kind of energy do windmills use to generate electricity?

Period 6

Teacher: Good morning students! How are you all today?

COULD DO

(Use CRM signs to settle the class.)

Teacher: Let us start with a warm-up activity. I will name some weather conditions, and you will act it out. When I say 'Thunder,' clap your hands loudly. When I say 'Rain,' tap your fingers gently on your desk. When I say 'Wind,' make a soft whooshing sound.

(Use this activity to warm up the students for the lesson. Call out natural things in random order to keep the students interested and enthusiastic.)

Teacher: Let us give ourselves a huge round of applause for all the energy we brought into the class.

MUST DO
15 MIN.

Chemical energy

Teacher: Today, we are going to dive into the world of chemical and electrochemical energy.

(The teacher will read the sixth and seventh paragraphs of page 16 aloud and provide explanations to ensure that the students understand the content.)

Teacher: Now, tell me what chemical energy is?

Teacher: Correct! Chemical energy is stored in materials like food, fuel, and batteries. When these materials react chemically, what happens?

Teacher: Exactly, it releases energy, producing heat or powering devices.

Electrochemical energy

Now, let us move on to electrochemical energy. Does anyone know what happens when chemical energy changes into electrical energy?

Teacher: Right! That is electrochemical energy. It is stored in batteries. Can you name some devices that use this type of energy?

Teacher: Fantastic! Devices like toys, flashlights and phones rely on this energy.

MUST DO
15 MIN.

Heat

(The teacher will read the seventh and eighth paragraphs of page 16 and the first paragraph of page 17 aloud and provide explanations to ensure that the students understand the content.)

Teacher: Can someone explain how heat flows?

Teacher: Yes, heat flows from a region of higher temperature to a region of lower temperature. When we heat a substance, what happens to its particles?

Teacher: Correct, the particles gain kinetic energy and move more rapidly, increasing the temperature. Now, can anyone tell me the three main mechanisms of heat transfer?

Teacher: Correct, Conduction is one of them. It happens through direct contact between particles. Can anyone give me an example of conduction?

Teacher: Brilliant! You all are doing an excellent job understanding these concepts. Keep observing how energy is used around you and we will explore more in our next lesson. See you then!

Home Task

Answer the following questions in your notebook.

Define chemical energy. What happens when chemical energy is released?

Differentiated Activities

110 km/hr

Name two devices that use electrochemical energy.

80 km/hr

Give one example of conduction in daily life.

40 km/hr

What kind of energy do batteries store?

Period 7

Teacher: Good morning, everyone! How are you all?

COULD DO

05 MIN.

Teacher: Let us start our science lesson with a quick game called "What Am I?". I will describe a type of energy, and you will guess what it is. Raise your hand if you know the answer. Let us begin!

I make you feel warm when you stand near a fire. What am I?

(Answer: Heat energy)

I help you see things even in the dark. What am I?

(Answer: Light energy)

I am the reason you can hear music and voices. What am I?

(Answer: Sound energy)

I power your fan, fridge, and lights. What am I?

(Answer: Electrical energy)

Teacher: Excellent guesses, everyone! These are the different forms of energy we will discuss today. Let us begin.

MUST DO

05 MIN.

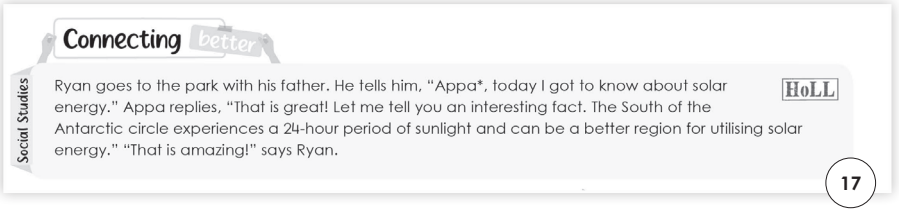
(Discuss the remaining forms of energy.)

MUST DO

10 MIN.

Law of conservation of energy.

Teacher: Observe this. I have an ice cube here. I'll leave it on the table. What happens when it melts?



Teacher: The ice doesn't disappear; it simply changes form. This proves the Law of Conservation of Energy: energy cannot be created or destroyed; it only changes forms. Another example—when you switch on a fan, electrical energy turns into mechanical energy.

Teacher: Let's take a moment to think about the transformations of energy we see daily.

(Show the concept map given in LMS to reinforce the concepts.)

SHOULD DO 05 MIN.

Connecting Better

Teacher: Let us listen to a short dialogue from our book about Ryan and his Appa discussing solar energy.

(Read aloud, emphasizing key points like solar energy potential in Antarctica.)

Teacher: Solar energy is clean and renewable. It powers lights, heaters, and more. Think about how we can use it in our daily lives.

(Encourage students to discuss it.)

SHOULD DO 05 MIN.

Healing Better

Teacher: Let us do something special. We will go outside to a spot where sunlight is shining and spend a few minutes together.

(Use CRM signs to maintain decorum of the class.)

Teacher: Do you know that spending just 10 to 15 minutes in sunlight can be good for your health? Can anyone guess how?

Teacher: Sunlight helps our body make Vitamin D, which strengthens our bones. It also improves our mood and helps us sleep better. Who likes playing outdoors in the sun?

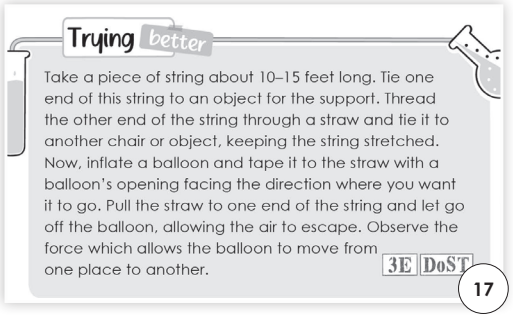
Teacher: But remember, too much sunlight can harm our skin. What can we do to protect ourselves while enjoying sunlight?

(Students might say "wear sunscreen," "use a hat," or "stay in sunlight for a short time.")

Teacher: Very good! Let us try to spend a few minutes in sunlight every day, especially in the morning. It is good for your body and mind.

(After the discussion, the teacher takes the students back to the classroom.)

SHOULD DO 05 MIN.



Trying Better

Materials Needed: A piece of string (10–15 feet long), straw, a balloon, tape, two objects for support

Teacher: Let us set up the experiment.

Tie one end of the string to a chair or object for support.

Thread the straw through the other end of the string.

Tie the second end of the string to another chair, keeping the string tight.

Teacher: Now, let us prepare the balloon rocket.

Inflate the balloon but do not tie it. Hold the opening tightly.

Tape the balloon to the straw, with the balloon's opening facing the direction opposite to where it will move.

Teacher: Pull the straw with the balloon to one end of the string. Are you all ready to see what happens?

Giving Better

Teacher: Before we end today's session, I want to talk to you about something very important: kindness and helping others. Imagine it is a very hot day and you are tired and thirsty, but there is no water nearby. How would you feel?

(Pause for responses. Students might say "tired," "thirsty" or "uncomfortable.")

Teacher: Exactly! Many people, like hawkers, delivery workers or helpers are outside all day in the heat. How can we make their day a little better?

(Encourage responses such as "offer water," "give shade" or "help them.")

Home task

Explain the Law of Conservation of Energy in five sentences.

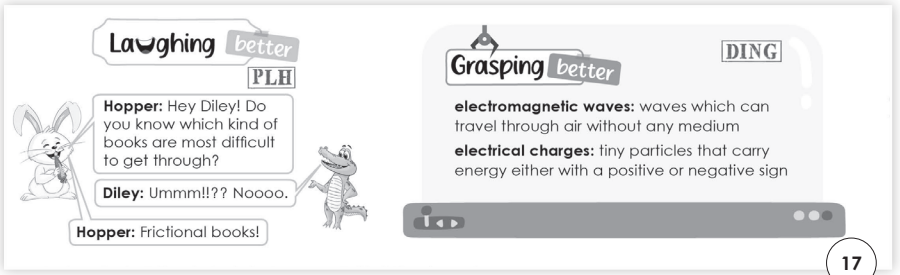
Differentiated Activities

110 km/hr

Name a device that uses electrical energy and transforms it into another form.

80 km/hr

What helps our body make Vitamin D?



40 km/hr

True or False: Energy can be created.

What kind of energy do batteries store?

Period 8

COULD DO
05 MIN.

Teacher: Good morning, everyone! How are you all?

(Use CRM signs to settle the class.)

Teacher: Good morning, everyone! Let's start with a fun game called 'Guess the Animal.' I'll describe an animal, and you will guess what it is. Raise your hand if you know the answer. Let's begin!

I have a long neck and eat leaves from tall trees. What am I? (Answer: Giraffe)

I am known for my black and white stripes. What am I? (Answer: Zebra)

I am the king of the jungle. What am I? (Answer: Lion)

I can swim and have a blowhole on top of my head. What am I? (Answer: Dolphin)

MUST DO
05 MIN.

Teacher: Great guesses, everyone! These are some of the animals we'll learn about today. Let's begin.

Laughing bettter

Teacher: Alright, class, let's start with a little joke. I have a question for you today! Do you know which kind of books are most difficult to get through?

Pause for student responses.

MUST DO
05 MIN.

Teacher: Those are some good guesses! The answer is... frictional books!

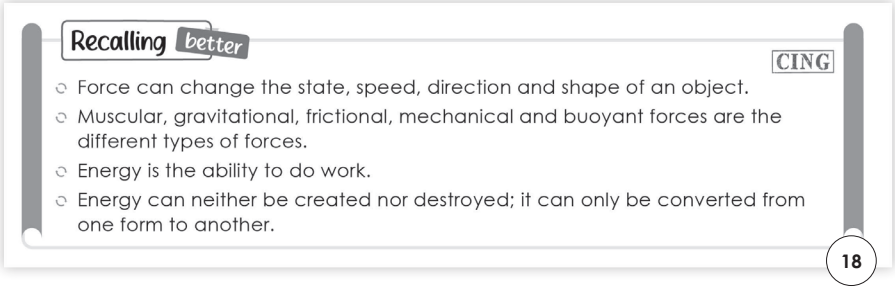
(Let the students laugh)

Grasping bettter

Teacher: Well, that was a fun start! Now, let us move on to our 'Grasping better' section. Today, we are going to talk about electromagnetic waves and electrical charges. Does anyone know what electromagnetic waves are?

(Pause for student responses.)

Teacher: Electromagnetic waves are waves that can travel through air without any medium. Pretty fascinating, right? And what about electrical



charges? What do you think they are?

(Pause for student responses.)

Teacher: Electrical charges are tiny particles that carry energy, either with a positive or a negative sign. Quite an interesting topic, isn't it?

MUST DO
10 MIN.

Recalling bettter

Teacher: Now, for our 'Recalling Better' section. We will revise some important concepts about force and energy. Can anyone tell me how force can affect an object?

Teacher: Exactly! Force can change an object's state, speed, direction and shape. Can you name some different types of forces?

Teacher: Right! Muscular, gravitational, frictional, mechanical and buoyant forces are all different types. And what is energy?

Teacher: Yes, energy is the ability to do work. One last question—can energy be created or destroyed?

Teacher: That's correct! Energy can neither be created nor destroyed; it can only be converted from one form to another. Great job, everyone! Check the 'Grasping Better' section to understand these terms thoroughly.

MUST DO
10 MIN.

(Use the Quiz from the LMS portal to reinforce student learning.)

Teacher: Now, it is quiz time! You will have to answer based on the learning of this period in the quiz provided in the LMS portal. Let's start the quiz and you will answer along. Good luck!

(Start the quiz from the LMS portal. The students will participate along. Otherwise, write the questions on the blackboard and let the students answer the questions.)

Worksheet - 1

Teacher: Let us do some activities from the workbook. Everybody, please open page number 14 of your workbook and answer the questions given in worksheet - 1.

(Let the students answer the questions on their own. Then discuss the answer by writing the correct answer on the blackboard.)

Learning better

CBA

A **Tick (✓) the correct answer.**

1. Which of these can change the speed, state, shape and direction of an object?
   a. work ☐ b. force ☐ c. rest ☐
2. Which force is applied using the muscles of our body?
   a. muscular ☐ b. frictional ☐ c. mechanical ☐
3. Which force helps us drive a vehicle on the road?
   a. buoyant ☐ b. frictional ☐ c. gravitational ☐
4. Which of these is a contact force that acts between two bodies?
   a. muscular ☐ b. frictional ☐ c. mechanical ☐
5. Which force is experienced by human beings when they step in water?
   a. buoyant ☐ b. mechanical ☐ c. gravitational ☐

B **Write true or false.**

1. Running, walking and bending are examples of muscular force. _____
2. Muscular force is a non-contact force. _____
3. We remain on the Earth's surface due to gravitational force. _____
4. Frictional force opposes the motion of a moving object. _____
5. We can drill a hole into wood due to mechanical force. _____

C **Write short answers in your notebook.**

18

Home Task

Observe any object around you and describe how different forces (muscular, gravitational, frictional, etc.) act on it. Write your observations in a few sentences.

Differentiated Activities

110 km/hr

Which force acts on a parachute when it descends?

80 km/hr

Name the type of energy that powers a battery.

40 km/hr

Which force helps us when we walk?

Period 9

COULD DO 05 MIN. ☐

Teacher: Good morning, everyone! How are you all?

(Use CRM signs to settle the class.)

Teacher: Good morning, everyone! Let's play a game called 'Mystery Object.' I'll describe an object, and you will guess what it is. Raise your hand if you know the answer. Let's start!

I keep your food cold and fresh. What am I? (Answer: Refrigerator)

I help you see things that are far away. What am I? (Answer: Telescope)

I am a device you use to talk to someone far away. What am I? (Answer: Telephone)

Teacher: Excellent guesses, everyone! These are some of the objects we'll discuss today. Let's begin.

MUST DO 10 MIN. ☐

Learning better

Teacher: Everyone please open the page number 18 of your book. We have an exercise called 'Learning Better.' In part 'A' of 'Learning better' you have to tick the correct answer. Are you ready to get started?

Teacher: Great! Let us begin with the first question. Which of these can change the speed, state, shape and direction of an object?

Teacher: The correct answer is Force. Well done!

MUST DO 10 MIN.

(Similarly complete all five questions)

Teacher: Now let us start part 'B' of 'Learning better' section, you have to write 'true' or 'false'. Are you ready to get started?

Teacher: Great! Let us begin with the first question. Running, walking and bending are examples of muscular force. Think carefully and write true or false in the space given in front of the statement.

MUST DO 15 MIN.

(Similarly complete all five questions)

Teacher: Great! Now, let us explore some short-answer questions. Let us begin with the first question. What is force?

(Students have to write the answers for the given questions in about 40 to 50 words in their notebook. Wait for the students to write the answers.)

(Similarly complete all three questions)

Worksheet - 2

Teacher: Let us do some activities from the workbook. Everybody, please open page number 15 of your workbook and answer the questions given in worksheet - 1.

(Let the students answer the questions on their own. Then discuss the answer by writing the correct answer on the blackboard.)

Home Task

Imagine a day without friction. Write a short paragraph explaining what activities would be difficult to do and why.

Differentiated Activities

110 km/hr

Name a force that acts against the motion of an object.

80 km/hr

Name a type of energy found in a battery.

40 km/hr

What kind of force acts on a falling apple?

Worksheet 2

A. Fill in the blanks.

1. _____ force opposes the motion of a body moving on a surface.
2. In _____ force, a body applying force on another tends to change the state of another one.
3. Human beings experience _____ force while entering a swimming pool.
4. _____ is the ability to do work.
5. _____ is done when a force is able to move an object.

B. Rearrange the letters to make meaningful words related to force.

1. CULARMUS _____
2. TATIONALGRAVI _____
3. TIONALFRIC _____
4. ANICALMECH _____
5. THRUSTUP _____

C. Match the columns.

Column A		Column B
1. energy	•	• a. is done when force induces movement in a body
2. work	•	• b. temperature difference
3. heat	•	• c. travels in straight lines from source to viewer
4. light	•	• d. vibrations of different bodies
5. sound	•	• e. ability to do work

15

a tape and a pair of scissors

Steps:

1. Cut the cardboard into a rectangular shape to make the car's body, with the help of an adult.
2. Make two holes on each side of the cardboard and slide the straws through the holes to make the wheel holders.
3. Put a toothpick or pencil through each straw to make the wheel shafts.
4. Attach a bottle cap to each end of the toothpick or pencil to act as the car's wheels.
5. You can make a small hole in the centre of each bottle cap to fit the toothpick or pencil.
6. Blow up the balloon but don't tie it. Instead, tape the mouth of the balloon to the back of the car.
7. Let go of the balloon, and watch the air from the balloon push the car forward.
8. Discuss how the air provides force and how the balloon stores energy with your partner.

Thinking better

21st CS HOTS

Think and answer in your notebook.

If you were designing a roller coaster, how would you use forces and energy to make it exciting and safe? What factors would you need to consider to keep the riders safe while maximising the thrill?

Choosing better

LSV

While walking on a footpath, Ashish sees a banana peel lying on the road. He knows if someone steps on it, they will fall down and hurt themselves. What should Ashish do?

Tick (✓) the correct answer.

1. He should make a 'danger' or 'be careful mark' near the banana peel. ☐
2. He should pick up the banana peel and throw it in a nearby dustbin. ☐

Revising better

DBL

Revise and write about the different forms of energy along with an example for each in your Little Book.

Pledging better

In my own little way, I pledge to share food and water with others in need.

SDG 15: LIFE ON LAND

L (What I have Learnt)* ICL

Teacher's Note: *Guide the students to recall and answer this in their notebooks.

18

Period 10

COULD DO — 05 MIN. ☐

Teacher: Good morning, everyone! How are you all?

(Use CRM signs to settle the class.)

Good morning, everyone! Let's play a game called 'Job Descriptions.' I'll describe a job, and you will guess what it is. Raise your hand if you know the answer. Let's start!

- I help people when they are sick. What am I? (Answer: Doctor)
- I teach students in a school. What am I? (Answer: Teacher)
- I build houses and buildings. What am I? (Answer: Architect)

Teacher: Great job, everyone! These are some of the professions we'll discuss today. Let's begin.

Learning better

MUST DO — 10 MIN. ☐

Teacher: Everyone please open the page number 19 of your book. We have an exercise called 'Learning Better.' In part 'C' of 'Learning better' you have to some long-answer questions. Are you ready to get started?

Teacher: Great! Let us begin with the first question. Differentiate between gravitational force and buoyant force.

(Students have to write the answers for the given questions in about 100 to 150 words in their notebook. Wait for the students to write the answers.)

Teacher: Great! Let us begin with the second question. Explain mechanical, solar and geothermal energies with examples.

(Wait for the students to write the answers.)

Teacher: After you finish writing your answers, please exchange them with a friend beside you.

Thinking better

MUST DO — 05 MIN. ☐

Teacher: Let us start with a thinking activity. We have a very exciting challenge for you! Imagine you are designing a roller coaster. How would you use forces and energy to make it both thrilling and safe?

Teacher: Think about the different forces we have learned—gravitational, frictional and mechanical. How could these forces make the roller coaster exciting?

(Pause for student responses.)

Teacher: Now, safety is very important. What factors do you think you would need to consider to keep the riders safe while still maximising the thrill?

(Pause for student responses.)

Teacher: Excellent ideas! Be sure to write your thoughts in your notebook. Use what we have learned about forces and energy to explain your design choices. I am eager to see how you balance excitement with safety!

Revising better

Teacher: Finally, let us do a revising activity. We are going to focus on revising what we have learned about the different forms of energy. Who can start by naming one form of energy and giving an example?

MUST DO
05 MIN.

(Pause for student responses.)

Teacher: Great! Keep going, let us see how many forms of energy we can recall together. For each one, think of an example and write it in your Little Book.

Pledging better

Teacher: Excellent work! Now, let's talk about something very important—sharing and caring for others. Who can explain what it means to share food and water with those in need?

MUST DO
05 MIN.

Pause for student responses.

Teacher: Wonderful! Now, let us all make a pledge. In your own little way, how can you help others?

Pause for student responses.

Teacher: Fantastic! Remember, our pledge is connected to SDG 15: Life on Land. By helping others, we contribute to making our planet a better place. Well done, everyone!

Worksheet - 3

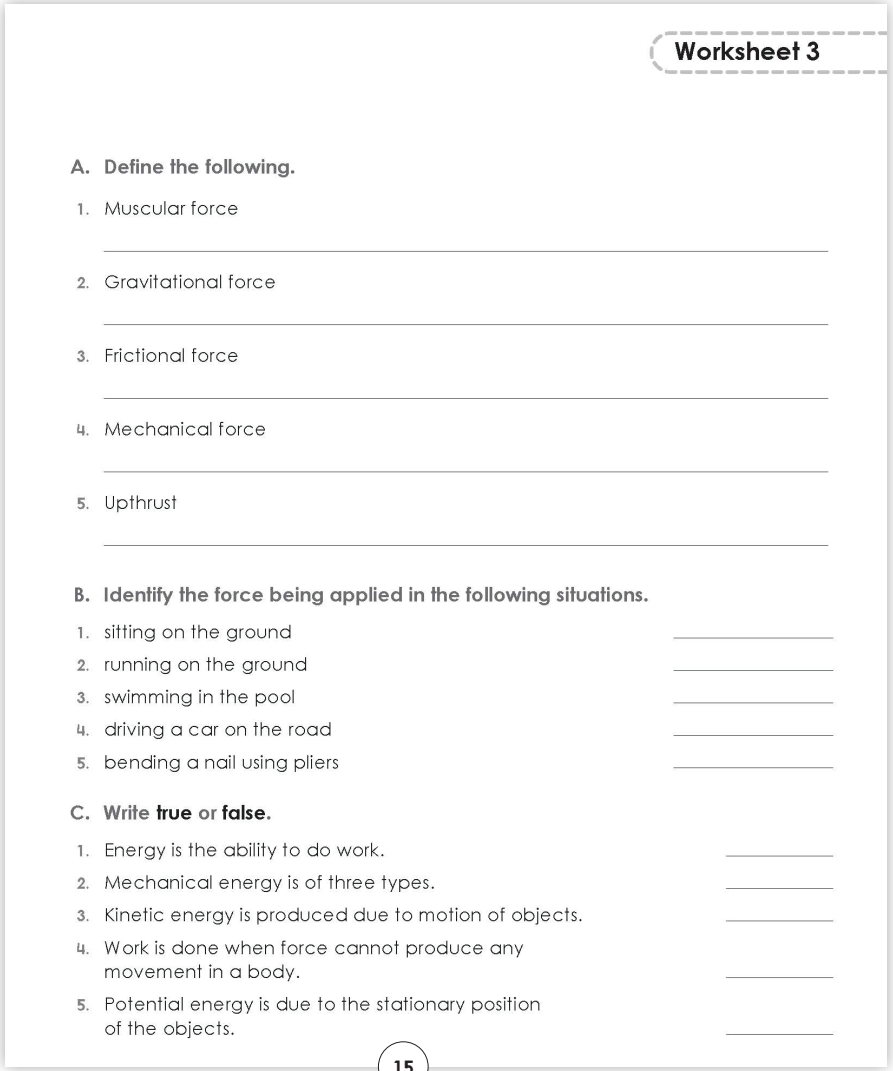
Teacher: Let us do some activities from the workbook. Everybody, please open page number 16 of your workbook and answer the questions given in worksheet - 3.

MUST DO
10 MIN.

(Let the students answer the questions on their own. Then discuss the answer by writing the correct answer on the blackboard.)

Animated Activities

(Start the 'Animated Activities' from the LMS portal. Other digital resources such as distionary, i explain and other resource are not used at all. add



Worksheet 3

A. Define the following.

1. Muscular force _____
2. Gravitational force _____
3. Frictional force _____
4. Mechanical force _____
5. Upthrust _____

B. Identify the force being applied in the following situations.

1. sitting on the ground _____
2. running on the ground _____
3. swimming in the pool _____
4. driving a car on the road _____
5. bending a nail using pliers _____

C. Write true or false.

1. Energy is the ability to do work. _____
2. Mechanical energy is of three types. _____
3. Kinetic energy is produced due to motion of objects. _____
4. Work is done when force cannot produce any movement in a body. _____
5. Potential energy is due to the stationary position of the objects. _____

15

the global feedback as mentioned. The students will participate along. Otherwise, write the questions on the blackboard and let the students answer the questions.)

Home Task

Creating better activity mentioned on page 19.

Learning Outcomes

The students will:

Physical Development	• Understand the application of physical forces in daily life activities such as pushing, pulling, and handling objects.
Socio-Emotional and Ethical Development	• Recognize the importance of kindness and helping others through scenarios like picking up a banana peel to ensure safety.
Cognitive Development	• Develop critical thinking and problem-solving abilities by exploring concepts like energy conservation, the effects of forces, and real-world applications of energy transformations.
Language and Literacy Development	• Strengthen communication skills by sharing observations, writing short answers, and explaining learned concepts in their own words.
Aesthetic and Cultural Development	• Appreciate the significance of natural forces and renewable energy in improving quality of life.
Positive Learning Habits	• Cultivate curiosity and a growth mindset by engaging in inquiry-based learning activities.

Starry Knights

Are your learners efficient in saving energy for future? Which activities did you enjoy the most with them?

Give yourself a STAR.