Lesson-13: Light, Sound and Force

Theme 9: What Is Being Safe?

11 Periods (40 minutes each)

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

Animation, Animated Activities, Concept Map, Dictionary, eBook, Experiment, Infographic, Quiz, Slideshow, Test Generator

Affirming better: I shine with happiness.

Curricular Goals and Objectives (NCF)

To enable the students:

- to understand the basic concepts of light, sound and force through real-life examples.
- to observe and explore natural events like shadows and eclipses.
- to communicate scientific ideas clearly through speaking, listening and writing.
- to show responsible behaviour by using light and sound safely.
- to develop curiosity and creativity through hands-on and group activities.

Methodology

Period 1

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

SHOULD DO — 5 MIN.

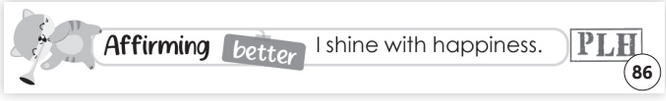
Teacher: Great. Before we dive into our lesson, let us take a moment to relax and focus our minds with a short meditation. Ready?

Teacher: Sit comfortably in your chair, with your back straight and feet flat on the ground. Close your eyes gently and take a deep breath through your nose. Hold it for a moment, then slowly breathe out through your mouth.

Let us do these three more times. Breathe in... and breathe out. As you breathe, imagine your mind becoming clear and ready to learn.

Open your eyes and smile at your friends. Let us start our lesson with positive energy.

Affirming better



Teacher: Before we start the class, let us all say something positive together: 'I shine with happiness.' Repeat after me: 'I shine with happiness.'

Teacher: Alright. Today, we are going to begin a new chapter, 'Light, Sound and Force.' 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.

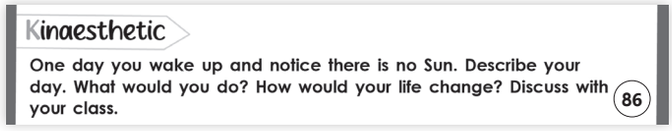
K	W	L

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

MUST DO — 5 MIN.

Teacher: Before we start the chapter, we will do a quick Re-KAP, which involves revisiting our previous knowledge through creative activities using Kinaesthetic, Auditory and Pictorial methods to make our learning interactive and engaging.

Kinaesthetic



Teacher: Let us begin with a curious question. Suppose one morning you wake up and find that there is no Sun. What would happen then? How would your day be different?

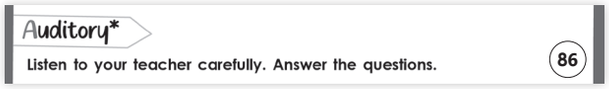
MUST DO — 10 MIN.

Teacher: Now, close your eyes for a few seconds and imagine how your day would go on without the Sun. Share your ideas with your group. Speak about how life would change and what you would do throughout the day.

(Let the students discuss.)

Teacher: That was a wonderful discussion. You came up with some really thoughtful answers. Well done, everyone.

Auditory



Teacher: Let us start the auditory activity. Now, it is time to listen carefully. I will read something aloud to you. After that, you will answer a few questions. I want you to pay attention to every detail before answering. Are you ready?

MUST DO
10 MIN.

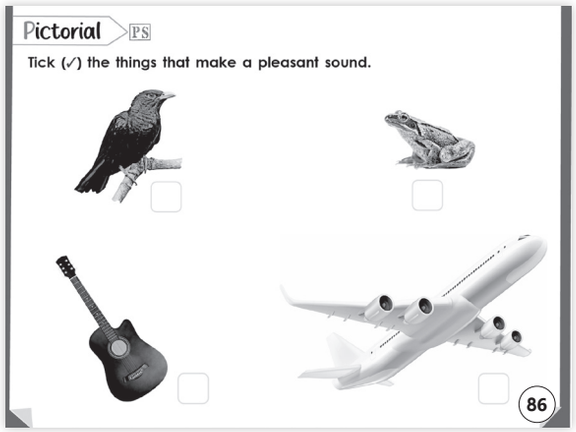
Teacher: While watching the sky, Priya and Aman noticed that the Sun looked like it was being covered. Riya asked, "Why does the Sun look different today?" Aman explained, "The Moon is in front of the Sun and making a shadow on Earth. This is called a solar eclipse."

1. What makes the Sun look covered during a solar eclipse?
2. What is the name for the event when the Moon casts a shadow on the Earth?

(Waits for student responses.)

Teacher: Fantastic answers. You were all listening carefully. Now, let us try a pictorial activity.

Pictorial



Teacher: Let us now do a simple activity. Open the page 86 of your Main Coursebook and look at the four pictures – a bird, a frog, a guitar and an aeroplane.

MUST DO
10 MIN.

Teacher: Now, tick the ones that make a pleasant sound. Take a minute and think before you tick. Think about which sound you would enjoy listening to.

(Let the students think and tick. Discuss the correct answer.)

Teacher: Very good. Your choices are interesting and thoughtful.

Differentiated Activities

110 km/hr

Why is the Sun called the main source of light on the Earth?

80 km/hr

Name one sound that is pleasant and one that is unpleasant.

40 km/hr

What do we need to see things around us?

Home Task

Draw the Sun shining on the Earth. Write one reason why sunlight is important.

Period 2

Interacting better

Teacher: Now, let us move to the 'Interacting better' section. I want each of you to sit with a partner. Take an empty bottle. Ask your partner to blow air across the mouth of the bottle and make a sound.

MUST DO
10 MIN.

Teacher: Listen carefully. How does the voice or sound feel to your ears?

Teacher: Now switch roles. You try making the sound while your partner listens. Discuss with your partner. Was the sound high or low? Did it feel smooth or rough?

(Let the students discuss.)

(Use CRM signs to settle the class.)

Teacher: Wonderful. You all observed the sound carefully and shared your ideas very well.

Teacher: Everyone, open your books and look at the picture story given on page 87 of your Main Coursebook.

MUST DO
30 MIN.

Read it silently. Observe the expressions of the characters, the setting and what they are saying.
(Let the students read the story.)
Teacher: Now that you have finished reading, let us discuss.
Teacher: What did Sam see near the tree?
Teacher: Yes, Sam noticed a shadow and thought it might be a dog.
Teacher: What do you think made that shadow?
Teacher: Yes. The shadow was created because something blocked the sunlight.
Teacher: Why did Daarji stop Sam from going towards the shadow?
Teacher: Very good. Daarji stopped Sam because it was not safe to go near something you cannot see clearly. Shadows can sometimes hide things that are not safe.
Teacher: What advice did Daarji give to the children about being careful?
Teacher: Well done. Daarji reminded Sam to stay safe and to be more careful from now on. It is important to observe your surroundings before making a decision.
Teacher: What did Sam ask Daarji about shadows?
Teacher: Great observation. Sam asked how shadows appear. It shows Sam was curious and wanted to understand the reason behind what she saw.
Teacher: According to Daarji, when is a shadow formed?
Teacher: Excellent. Daarji explained that a shadow is formed when something blocks light from reaching a surface like the ground or a wall. Light helps us see things, and when it is blocked, a shadow is created.
Teacher: Very good, everyone. You have read and understood the story very well.
Teacher: Now, can you think of any place in your home or school where you have seen your shadow?
Teacher: That is right. We often see our shadows in the sunlight when we are outdoors.
Teacher: Why do you think we do not see shadows clearly at night?
Teacher: Good answer. There is no sunlight at night, and most artificial lights are not strong enough to make clear shadows.
Teacher: So, what do we understand about the role of the Sun in forming shadows?
Teacher: Exactly. The Sun is a major source of light during the day. Without light, shadows cannot form.
Teacher: Well done, everyone. I am proud of how you observed and shared your answers thoughtfully.
You may show the **Dictionary** and **eBook** on the digital platform.

Differentiated Activities

110 km/hr
Why do shadows form only when there is light?

80 km/hr
What do you need to see a shadow?

40 km/hr
Name one thing that makes a shadow.

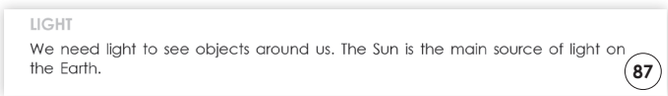
Home Task

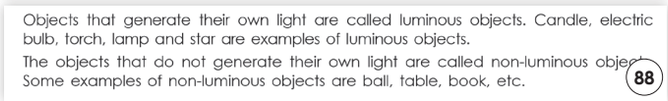
Draw a shadow of any object in your home during sunlight. Label the object and its shadow.

Period 3

SHOULD DO
5 MIN.

Teacher: Good morning, students. How are you all today?
Teacher: Great. Let us begin today's lesson with a quick game. I will ask some questions, and you have to answer them. Ready?
Teacher: Which sense organ helps us hear different sounds? (Ears)
Teacher: Which sound do we enjoy listening to – pleasant or unpleasant? (Pleasant)
Teacher: What do we call a sound that is too loud or harsh? (Noise)
Teacher: What do we need during the day to see clearly? (Sunlight)
Teacher: What happens when something blocks sunlight? (A shadow is formed)
Teacher: Wonderful answers, everyone. You have remembered the earlier lessons very well. Let us now begin our new class.
(The teacher will read the last paragraph of page 87 and the first two paragraphs of page 88 aloud and provide explanations to ensure that the students understand the content.)


LIGHT
We need light to see objects around us. The Sun is the main source of light on the Earth.
87


Objects that generate their own light are called luminous objects. Candle, electric bulb, torch, lamp and star are examples of luminous objects.
The objects that do not generate their own light are called non-luminous objects. Some examples of non-luminous objects are ball, table, book, etc.
88

MUST DO
20 MIN.

Teacher: Why do we need light during the day?
Teacher: Yes, we need light to see the objects around us.
Teacher: What is the main source of light on the Earth?
Teacher: That is correct. The Sun is the main source of light for our planet.
Teacher: Now, move to the next part. What do we call objects that can produce their own light?
Teacher: Excellent. They are called luminous objects.
Teacher: Can you name some examples of luminous objects?
Teacher: Very good. Candle, bulb, torch, lamp and stars

are luminous because they shine on their own.

Teacher: What about the objects that do not make their own light?

Teacher: Yes, those are called non-luminous objects.

Teacher: Can you name two non-luminous objects?

Teacher: Perfect. A table, a book or a ball does not glow on its own.

Teacher: What do you think happens when we switch off the lights in a dark room? Can we see non-luminous objects?

Teacher: Correct, we cannot see them unless light falls on them.

Teacher: So, if the Sun or a bulb is not there, would we be able to see a book clearly?

Teacher: No, we need light. That is why luminous objects are important.

Teacher: Excellent participation. You have all understood the difference very clearly.

You may show the **Infographic** on the digital platform.

SHADOW

Sometimes, the path of light is blocked by an object, which forms a dark patch. This dark patch or area is called a shadow. 88

MUST DO 5 MIN.

Teacher: What happens when something blocks the path of light?

Teacher: Good. When light is blocked by an object, it forms a dark patch.

Teacher: What do we call this dark patch?

Teacher: Yes, it is called a shadow. Well done.

Teacher: Is the shadow the object itself or something caused by light?

Teacher: Exactly. It is not the object. It is formed when light cannot pass through the object.

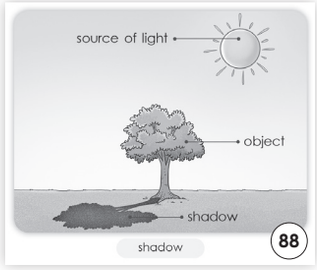
Teacher: Can shadows be formed in complete darkness?

Teacher: No, that is right. We need light for a shadow to appear.

Teacher: Wonderful answers. You all understood the meaning of shadow very clearly.

MUST DO 10 MIN.

Teacher: Now, look at the image of the tree given on page 88 of the Main Coursebook. What do you see in the picture?



Teacher: Good. You can see the Sun, the tree and the shadow on the ground.

Teacher: In this image, which part is the source of light?

Teacher: Correct, it is the Sun. Now, which part is the object that blocks the light?

Teacher: Yes, the tree is the object.

Teacher: And what do we call the dark shape on the ground?

Teacher: That is right, the shadow. Well done. You observed the image very carefully.

Differentiated Activities

110 km/hr

Name one difference between a luminous and a non-luminous object.

80 km/hr

What is formed when light is blocked by an object?

40 km/hr

What is the main source of light on Earth?

Home Task

Draw a picture showing one luminous object and one non-luminous object. Label both clearly.

Period 4

SHOULD DO 5 MIN.

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

Teacher: Great. Let us begin today's lesson with a quick game. I will ask some questions, and you have to answer them. Ready?

Teacher: What do we need to see the objects around us? (Light)

Teacher: Which is the main source of light on the Earth? (Sun)

Teacher: What forms when an object blocks light? (Shadow)

Teacher: What do we call objects that produce their own light? (Luminous)

Teacher: What do we call objects that do not produce their own light? (Non-luminous)

Teacher: Very good. Let us now begin our new lesson.

(The teacher will read the third to fifth paragraphs of page 88 aloud and provide explanations to ensure that the students understand the content.)

Eclipse

We know that the Moon, the Earth and the other planets revolve around the Sun in an orbit. When the Earth revolves around the Sun, the light from the Sun falls on it. When a heavenly body comes in between the Earth and the Sun, such that it blocks light, an eclipse occurs. 88

MUST DO 15 MIN.

Teacher: What do the Moon, the Earth and the other planets do around the Sun?

Teacher: Yes, they revolve around the Sun in an orbit.

Teacher: What happens when the Earth revolves around the Sun?

Teacher: Good. The light from the Sun falls on the Earth. That is how we receive sunlight.

Teacher: Now think about this. If something comes between the Earth and the Sun, what will happen?

Teacher: Excellent. If something blocks the light, sunlight will not reach the Earth.

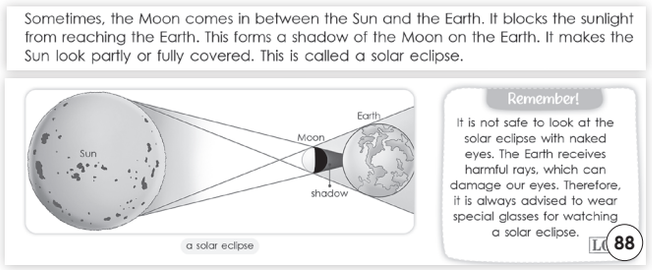
Teacher: What do we call it when a heavenly body blocks the light from the Sun?

Teacher: Yes, when that happens, it is called an eclipse.

Teacher: Can you now explain what causes an eclipse?

Teacher: Wonderful. An eclipse happens when a heavenly body comes between the Earth and the Sun and blocks the sunlight.

Teacher: You all understood this concept beautifully. Let us now explore the types of eclipses.



Teacher: Can anyone explain what causes a solar eclipse?

MUST DO
10 MIN.

Teacher: Well explained. A solar eclipse occurs when the Moon comes in between the Sun and the Earth. It blocks the light of the Sun from reaching the Earth.

Teacher: What do we observe on the Earth when the Moon blocks the Sun's light?

Teacher: Correct. The shadow of the Moon falls on the Earth. This is why, during a solar eclipse, the Sun looks as if it is partly or fully covered.

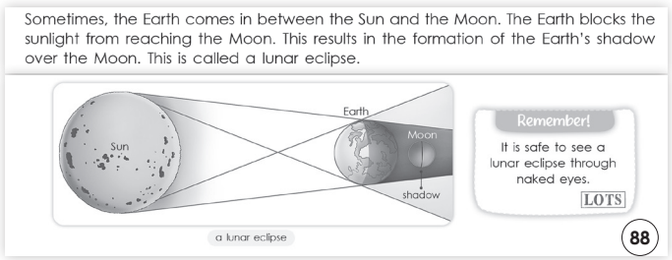
Teacher: Let us now look at the diagram of a solar eclipse together. Which object do you see positioned between the Sun and the Earth?

Teacher: Yes, the Moon is in the centre. That is why the sunlight cannot reach the Earth directly.

Teacher: Why do you think we are advised not to look at a solar eclipse with our naked eyes?

Teacher: Very good answer. The Sun's rays are very strong and during an eclipse, harmful rays can reach our eyes directly and cause damage. That is why it is important to wear special glasses while observing a solar eclipse.

Teacher: Excellent responses, everyone. You have understood how and why a solar eclipse happens, and also how to stay safe while observing it.



Teacher: Let us now understand lunar eclipse. When does a lunar eclipse take place?

MUST DO
10 MIN.

Teacher: That is correct. A lunar eclipse happens when the Earth comes between the Sun and the Moon. Well done.

Teacher: What do you think happens to the Moon when the Earth comes between the Sun and the Moon?

Teacher: Yes, very good. The Earth blocks the sunlight, and its shadow falls on the Moon. This makes the Moon look darker from the Earth.

Teacher: Now, look carefully at the diagram of a lunar eclipse. Which body do you see in the middle of the Sun and the Moon?

Teacher: Excellent observation. The Earth is at the centre in this case.

Teacher: Now, think about this. Is it safe to look at a lunar eclipse with our eyes?

Teacher: Yes, absolutely. It is safe to view a lunar eclipse with the naked eye because the Moon does not emit harmful rays. You are all learning this very well.

Teacher: Wonderful. You have clearly understood how a lunar eclipse occurs and how it differs from a solar eclipse. Great work, everyone. Let us continue exploring more in the next Period.

Differentiated Activities

110 km/hr

What is the main difference between a solar eclipse and a lunar eclipse?

80 km/hr

What comes between the Earth and the Sun during a solar eclipse?

40 km/hr

Which body gives light in both types of eclipse?

Home Task

Draw the diagram of a solar eclipse and label all three heavenly bodies.

Period 5

SHOULD DO
5 MIN.

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

Teacher: Great. Let us begin today's lesson with a quick game. I will ask some questions, and you have to answer them. Ready?

Teacher: What is an eclipse? (Blocking of sunlight)

Teacher: What comes between the Sun and the Earth during a solar eclipse? (Moon)

Teacher: What comes between the Sun and the Moon during a lunar eclipse? (Earth)

Teacher: Is it safe to look at a solar eclipse with the naked eye? (No)

Teacher: Is it safe to see a lunar eclipse without glasses? (Yes)

Teacher: Excellent answers. Let us begin our new lesson.

(The teacher will read the first two paragraphs of page 89 aloud and provide explanations to ensure that the students understand the content.)

Teacher: Can someone tell me, in simple words, what is sound?

> **SOUND**
> Sound is anything that we can hear. Different things produce different kinds of sounds. Humans and animals also make sounds. For example, honking of horns, a man playing a flute. 89

Teacher: Well said. Sound is anything that we can hear with our ears.

MUST DO 15 MIN.

Teacher: What kinds of things produce sound?

Teacher: Excellent. Yes, many things around us produce sound, including people and animals.

Teacher: Can you name a few examples that produce sound?

Teacher: Very good. The honking of horns and a man playing the flute are great examples of sound.

Teacher: Before we move to the next part, let us quickly look around us. Can you name something in this classroom that is making a sound right now?

Teacher: Good observation. Some of you mentioned footsteps, fans or voices – all of these are correct.

Teacher: Sound is all around us. It helps us to stay alert, enjoy music, talk to others and even be safe.

Teacher: Very well done, everyone. You understood the concept of sound beautifully. Let us continue learning about the types of sound next.

> Types of sound
> A sound can be pleasant or unpleasant. Unpleasant sound is also called noise. Some examples of pleasant sounds are chirping of birds, a song or a sound from a musical instrument. The sound of a horn or loud music are examples of unpleasant sounds. 89

Teacher: What are the two types of sound?

MUST DO 20 MIN.

Teacher: That is correct. Sounds can be pleasant or unpleasant. Well done.

Teacher: What is another name for an unpleasant sound?

Teacher: Yes, unpleasant sound is also called noise. Good work .

Teacher: Can you name a few pleasant sounds?

Teacher: Wonderful. The chirping of birds, a song and the sound of a musical instrument are all pleasant sounds.

Teacher: What about unpleasant sounds? Which examples are given in the paragraph?

Teacher: Correct. The sound of a horn and loud music are examples of unpleasant sounds.

Teacher: Why do you think some sounds are pleasant and some are not?

Teacher: Excellent. Sounds that are soft, soothing or musical feel good to our ears. Sounds that are too loud or harsh make us uncomfortable.

Teacher: Can anyone tell me where you have heard an unpleasant sound recently?

Teacher: Yes, loud traffic and shouting are common examples of noise in daily life.

Teacher: And what pleasant sound have you heard today?

Teacher: Lovely. Sounds like birds chirping outside your window or soft music playing in the background are pleasant to our ears.

Teacher: These examples show that you understand the difference between pleasant and unpleasant sounds very well.

Teacher: Keep this in mind – sound is all around us. Some sounds help us relax and focus, while others disturb us. Learning to tell the difference is important.

Teacher: Excellent discussion, everyone.

Differentiated Activities

110 km/hr

What is the difference between pleasant and unpleasant sounds?

80 km/hr

Name one example of a pleasant sound.

40 km/hr

What is another word for an unpleasant sound?

Home Task

Draw two objects that make sound – one that is pleasant and one that is unpleasant. Label both.

Period 6

SHOULD DO 5 MIN.

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

Teacher: Great. Let us begin today's lesson with a quick game. I will ask some questions, and you have to answer them. Ready?

Teacher: What is sound? (Something we can hear)

Teacher: What do we call a sound that hurts our ears? (Noise)

Teacher: Give one example of a pleasant sound. (Chirping of birds)

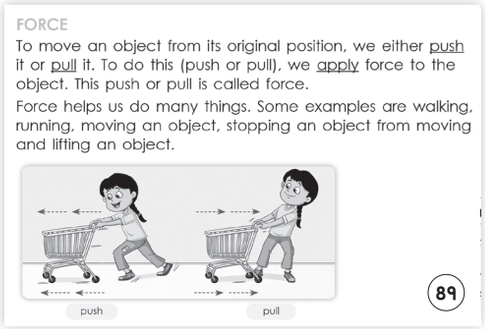
Teacher: Who can make sounds – only objects or humans and animals too? (Humans and animals both)

Teacher: What do we call the sound made by musical instruments? (Pleasant sound)

Teacher: Well done. Let us now begin our next class.

(The teacher will read the third and fourth paragraphs of

page 89 aloud and provide explanations to ensure that the students understand the content.)


FORCE

To move an object from its original position, we either push it or pull it. To do this (push or pull), we apply force to the object. This push or pull is called force.

Force helps us do many things. Some examples are walking, running, moving an object, stopping an object from moving and lifting an object.

push pull

89

Teacher: Let us begin today's lesson with a question. Think about when you want to move a chair or open a door. What do you usually do?

MUST DO 20 MIN.

Teacher: Yes, you either push it or pull it. That is absolutely right.

Teacher: When we push or pull something, what are we using to make it move?

Teacher: Correct. We apply force to the object to make it change its position.

Discovering better

(Explain the words mentioned in the 'Discovering better' section given on page 89 of the Main Coursebook.)


Discovering better

LAD

push: to move something away from you

pull: to move something towards you

apply: here, to press something hard

89

Teacher: So, what do we call this action of push or pull?

Teacher: Well done. This action is called force.

Teacher: Can you think of any situations in daily life where you use force?

Teacher: Excellent. Walking, running, lifting a bag or even stopping a moving bicycle—all these actions involve force.

Teacher: Now, look at the two images on page 89 in your Main Coursebook. Focus on the girl and what she is doing with the trolley.

Teacher: In the first image, in what direction is the girl moving the trolley?

Teacher: Yes, she is pushing the trolley away from her body.

Teacher: And in the second image, what is happening?

Teacher: Correct. She is pulling the trolley towards herself.

Teacher: Very good. You can see that both pushing and pulling involve applying force.

Teacher: Now, think a little more. When we open a drawer, are we using push or pull?

Teacher: Right. We pull the drawer towards us.

Teacher: What about when we shut a door?

Teacher: Yes, that is a push.

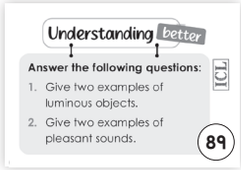
Teacher: Fantastic. You are identifying these actions very clearly. Force is used everywhere around us.

You may show the **Animation** and **Experiment** on the digital platform.

Understanding better

MUST DO 15 MIN.

Teacher: Now, let us move to the 'Understanding better' section. You will answer two simple questions based on what we have learnt earlier.


Understanding better

ICL

Answer the following questions:

1. Give two examples of luminous objects.
2. Give two examples of pleasant sounds.

89

Teacher: First question. Can you give two examples of luminous objects?

Teacher: Well done. Candle and electric bulb are good examples. Some of you also mentioned torch and star. Excellent thinking.

Teacher: Let us try the second question. Give two examples of pleasant sounds.

Teacher: Very good. The chirping of birds and the sound of a flute are both pleasant. Some of you also said a soft song or the sound of a musical instrument. Great work. Keep it up.

You may show the **Concept Map** and **Slideshow** on the digital platform.

Differentiated Activities

110 km/hr

Name one action that uses push and one that uses pull.

80 km/hr

What do we call the action of moving something away from you?

40 km/hr

What do we use to move or stop an object?

Home Task

Draw a picture of an object being pushed and another being pulled. Label both clearly.

Period 7

SHOULD DO 5 MIN.

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

Teacher: Great. Let us begin today's lesson with a quick game. I will ask some questions, and you have to answer them. Ready?

Teacher: What do we call the action of moving something using strength? (Force)

Teacher: What do we do when we move an object away from us? (Push)

Teacher: What do we do when we move an object towards us? (Pull)

Teacher: What is used in both pushing and pulling? (Force)

Teacher: Is lifting a bag a push or a pull? (Pull)

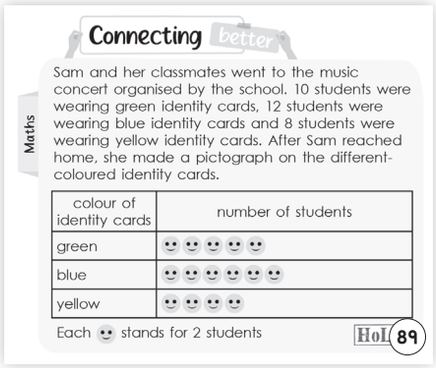
Teacher: Great work. Let us begin our next class now.

Connecting better

Teacher: Let us look at the 'Connecting better' section. Read the paragraph about Sam and her classmates going to a music concert.

MUST DO
10 MIN.

(Give the students a few minutes to read silently.)



Connecting better

Maths

Sam and her classmates went to the music concert organised by the school. 10 students were wearing green identity cards, 12 students were wearing blue identity cards and 8 students were wearing yellow identity cards. After Sam reached home, she made a pictograph on the different-coloured identity cards.

colour of identity cards	number of students
green	☺☺☺☺☺
blue	☺☺☺☺☺☺
yellow	☺☺☺☺

Each ☺ stands for 2 students

HoI 89

Teacher: What did Sam use to record the number of students wearing different coloured identity cards?

Teacher: Yes, she made a pictograph. Very good.

Teacher: Look at the key at the bottom. What does each smiley face stand for?

Teacher: Correct. Each smiley face stands for 2 students.

Teacher: Now look at the row for green identity cards. How many smiley faces are there?

Teacher: Five smiley faces. So, how many students were wearing green identity cards?

Teacher: Excellent. 5 times 2 is 10. So, 10 students wore green cards.

Teacher: What about the blue identity cards? Count the smiley faces.

Teacher: Yes, there are six smiley faces. That means 12 students had blue cards.

Teacher: And for yellow?

Teacher: Right. Four students means 8 students had yellow cards.

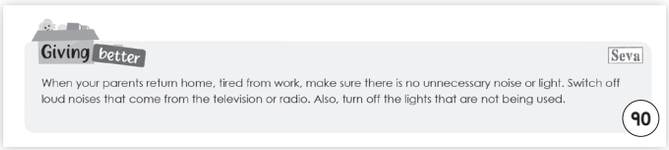
Teacher: Well done. You all read the pictograph correctly. Keep practising with more examples like this.

Giving better

Teacher: Now, let us read the 'Giving better' section quietly. Think about what this message is trying to tell us.

MUST DO
10 MIN.

(Give the students a minute to read silently.)



Giving better

Seva

When your parents return home, tired from work, make sure there is no unnecessary noise or light. Switch off loud noises that come from the television or radio. Also, turn off the lights that are not being used.

90

Teacher: What should you do when your parents come home tired from work?

Teacher: Yes, we should make sure that the house is calm and peaceful. Loud noises and bright lights should be avoided.

Teacher: What kind of sounds are mentioned here that we should turn off?

Teacher: Correct. We should switch off loud sounds from the television or radio.

Teacher: What about lights?

Teacher: That is right. We should turn off the lights that are not needed.

Teacher: Now, why do you think this is important?

Teacher: Very good. Keeping the environment quiet and calm helps our parents relax. Also, saving electricity is a responsible habit.

Teacher: This is one way of showing care and respect for our family members. Small actions like these show that we understand their needs.

MUST DO
10 MIN.

Healing better

Healing better

KoI

Regular exposure to sunlight is good for removing toxins from our body. Toxins are harmful substances that cause diseases in our body.

90

Teacher: Let us look at the 'Healing better' box. Please read the sentence silently and carefully.

(Give students a minute for silent reading.)

Teacher: What is the benefit of regular exposure to sunlight?

Teacher: Yes, it helps remove toxins from our body. Very good.

Teacher: What are toxins?

Teacher: Correct. Toxins are harmful substances that can cause diseases.

Teacher: Why do you think sunlight is helpful?

Teacher: Good answer. Sunlight gives us Vitamin D and also helps in removing toxins by boosting our health.

Teacher: Now, think about this – when during the day is it best to get sunlight?

Teacher: Yes, early morning sunlight is best. It is gentle and safe for our skin.

Teacher: Well done, everyone. You now understand why sunlight is important for healing and staying healthy. Keep spending time outdoors safely.

MUST DO
5 MIN.

Laughing better

Teacher: Let us look at the 'Laughing better' box. Read what Hopper the rabbit says.

(Give students a moment to read.)

Teacher: Hopper says, "I have a friend everywhere I go. It is called Mr Shadow." Why do you think that is funny?

Laughing better

PLH

Hopper: I have a friend everywhere I go. It is called Mr Shadow!

90

Teacher: Yes, it is funny because shadows always follow us. Wherever we go, our shadow is always there.

Teacher: Hopper is pretending that the shadow is his friend, just like a person who never leaves his side.

Teacher: Well done. You understood the joke and also remembered the science behind it. Smiling while learning is a great way to remember things better.

You may show the **Animated Activities** and **Quiz** on the digital platform.

Differentiated Activities

110 km/hr

What is the difference between a solar eclipse and a shadow?

80 km/hr

What force is used when you pull a chair towards you?

40 km/hr

What is formed when an object blocks light?

Home Task

Complete the 'Trying better' activity given on page 89 of your Main Coursebook.

Period 8

SHOULD DO

5 MIN.

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

Teacher: Great. Let us begin today's lesson with a quick game. I will ask some questions, and you have to answer them. Ready?

Teacher: What is the main source of light on Earth? (Sun)

Teacher: What happens when light is blocked by an object? (Shadow is formed)

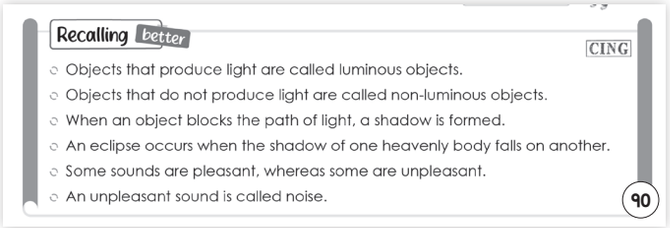
Teacher: What do we call the push or pull on an object? (Force)

Teacher: What kind of sound is called noise? (Unpleasant sound)

Teacher: What should we do at home when someone is resting? (Switch off loud noises and extra lights)

Teacher: Excellent answers, everyone. Let us now start today's class.

Recalling better


Recalling better

CING

- Objects that produce light are called luminous objects.
- Objects that do not produce light are called non-luminous objects.
- When an object blocks the path of light, a shadow is formed.
- An eclipse occurs when the shadow of one heavenly body falls on another.
- Some sounds are pleasant, whereas some are unpleasant.
- An unpleasant sound is called noise.

90

MUST DO

15 MIN.

Teacher: Let us begin our recalling activity today. We will go over the concepts we have learnt so far. I will ask some quick questions. Think carefully before you answer.

Teacher: What do we call objects that give out their own light?

Teacher: Yes, they are called luminous objects. Well done.

Teacher: Can you name any two luminous objects?

Teacher: Great. Bulb and candle are good examples.

Teacher: What do we call objects that do not give out light on their own?

Teacher: Correct. They are called non-luminous objects.

Teacher: Can you give examples of non-luminous objects?

Teacher: Excellent. A table or a ball does not shine on its own.

Teacher: Now think about shadows. When is a shadow formed?

Teacher: Yes, when an object blocks the path of light, a shadow is formed. Very good.

Teacher: Can anyone tell me what an eclipse is?

Teacher: That is right. An eclipse happens when one heavenly body blocks the light and its shadow falls on another.

Teacher: You are remembering everything so well. Now let us revise sound.

Teacher: Some sounds feel good to our ears, and some do not. What do we call the sounds that are pleasant?

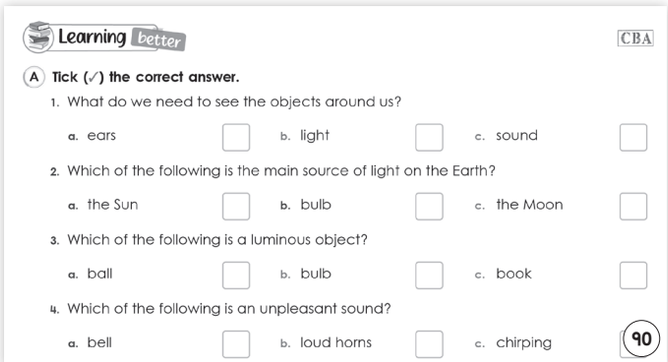
Teacher: Yes, those are pleasant sounds, like birds chirping or soft music.

Teacher: And what about unpleasant sounds? What do we call them?

Teacher: Correct. Unpleasant sounds are called noise. Loud traffic, horns and shouting are examples.

Teacher: You have done brilliant work recalling all the important points. Keep it up.

Learning better

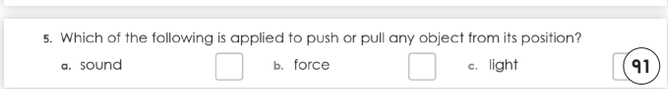

Learning better

CBA

A Tick (✓) the correct answer.

1. What do we need to see the objects around us?
   a. ears ☐ b. light ☐ c. sound ☐
2. Which of the following is the main source of light on the Earth?
   a. the Sun ☐ b. bulb ☐ c. the Moon ☐
3. Which of the following is a luminous object?
   a. ball ☐ b. bulb ☐ c. book ☐
4. Which of the following is an unpleasant sound?
   a. bell ☐ b. loud horns ☐ c. chirping ☐

90


5. Which of the following is applied to push or pull any object from its position?
   a. sound ☐ b. force ☐ c. light ☐

91

Teacher: Everyone, please open page 90 of your Main Coursebook. In Exercise 'A' of 'Learning better' you have to tick the correct answer.

MUST DO
10 MIN.

Are you ready to get started?

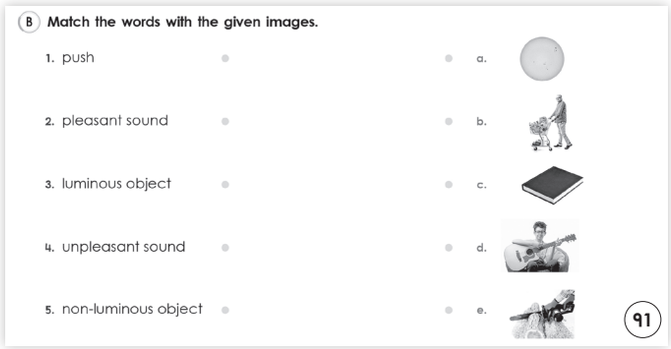
Teacher: Great. Let us begin with the first question. What do we need to see the objects around us?

Teacher: The correct answer is light. Well done.

(Similarly, complete all five questions. And discuss the correct answers.)

Teacher: In Exercise 'B' of 'Learning better', you have to match the words with the give images. Are you ready to get started?

MUST DO
10 MIN.


B Match the words with the given images.

1. push
2. pleasant sound
3. luminous object
4. unpleasant sound
5. non-luminous object

a. b. c. d. e.

91

Teacher: Great. Let us begin with the first word – push. Which of the given images is the correct match?

Teacher: The correct answer is image 'b'. Well done.

(Similarly, complete all five words. And discuss the correct answers.)

Differentiated Activities

110 km/hr

Why do we need light to see objects, and what happens when light is blocked?

80 km/hr

What is the difference between a shadow and an eclipse?

40 km/hr

What do we call a sound that is loud and unpleasant?

Home Task

Draw the diagram of a lunar eclipse and label all three heavenly bodies.

Period 9

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

SHOULD DO
5 MIN.

Teacher: Great. Let us begin today's lesson with a quick game. I will ask some questions, and you have to answer them. Ready?

Teacher: What do we call the object that blocks light and forms a shadow? (Opaque object)

Teacher: Which part of the body helps us hear different sounds? (Ears)

Teacher: During which eclipse does the Moon block sunlight from reaching the Earth? (Solar eclipse)

Teacher: What do we call the action of stopping a moving object using force? (Applying force)

Teacher: What should you do when the sunlight is very strong in the afternoon? (Stay indoors or wear protection)

Teacher: Excellent answers. Let us begin today's class.

Learning better

Teacher: Everyone, please open page 91 of your Main Coursebook. Let us explore some short-answer questions.

MUST DO
15 MIN.

In Exercise 'C' of the 'Learning better' section, you have to write a short answer. Are you ready to get started?


C Write short answers in your notebook.

1. Give any two examples of luminous objects.
2. Rishika and her father are watching the news. A newsreader is talking about an eclipse, which takes place due to the light of the Sun being blocked by the Moon. Which type of eclipse is the newsreader talking about?
3. What is force?

91

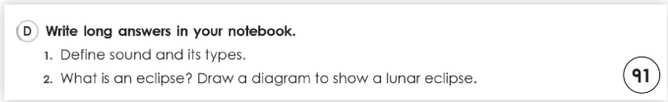
Teacher: Great. Let us begin with the first question. Give any two examples of luminous objects.

(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 and discuss the correct answer with the class.)

Teacher: Let us explore some long-answer questions. In Exercise 'D' of the 'Learning better', you have to write a long answer.

MUST DO
20 MIN.


D Write long answers in your notebook.

1. Define sound and its types.
2. What is an eclipse? Draw a diagram to show a lunar eclipse.

91

Teacher: Let us begin with the first question. Define sound and its types.

(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.)

(Similarly, complete the second question and discuss the correct answer with the class.)

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

Differentiated Activities

110 km/hr

Why does a shadow change its position during the day?

80 km/hr

What do we call the force used to bring something closer to us?

40 km/hr

What gives us light and warmth during the day?

Home Task

Complete the 'Creating better' (Rubber band guitar) given on page 91 of the Main Coursebook.

Period 10

SHOULD DO 5 MIN.

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

Teacher: Great. Let us begin today's lesson with a quick game. I will ask some questions, and you have to answer them. Ready?

Teacher: What do you call objects like the Moon and a book that do not produce their own light? (Non-luminous objects)

Teacher: What force do you apply when you close a door gently? (Push)

Teacher: What can we see on the wall when we block the light using our hand? (Shadow)

Teacher: Why is early morning sunlight good for our health? (Removes toxins or gives energy)

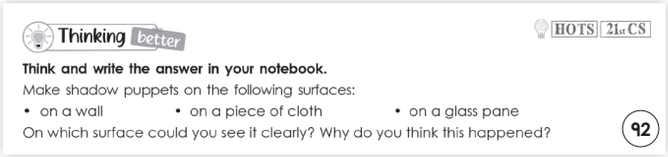
Teacher: What do we use when we want to show information using pictures in Maths? (Pictograph)

Teacher: Excellent answers. Let us move forward with today's lesson.

Thinking better

MUST DO 5 MIN.

Teacher: Let us begin with the 'Thinking better' section. I will ask you a question, and I want you to think deeply before writing your answer in your notebook.


Thinking better

HOTS 21st CS

Think and write the answer in your notebook.

Make shadow puppets on the following surfaces:

- on a wall
- on a piece of cloth
- on a glass pane

On which surface could you see it clearly? Why do you think this happened?

92

Teacher: If you make a shadow puppet on a wall, a piece of cloth and a glass pane, which one do you think will show the shadow most clearly?

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

Teacher: Excellent. Shadows are clearer on a wall because it is a solid and opaque surface. The light does not pass through it. The glass lets most of the light pass through, so the shadow appears faint or unclear. Cloth allows some light through, depending on its thickness, so the shadow is not as sharp as on the wall. Thus, Shadows on glass and cloth are not as clear because light passes through them.

Teacher: Very good. This shows how the type of surface affects the sharpness of a shadow.

Choosing better

MUST DO 5 MIN.

Teacher: Let us move to the next section: 'Choosing better'.


Choosing better

LSV

Sam sees a few kids ringing the doorbell of some houses and running away. What should she do? Tick (✓) the correct option.

1. Tell the kids not to do it. ☐
2. Ignore the kids. ☐

92

Teacher: Sam sees some kids ringing doorbells and running away. What do you think she should do?

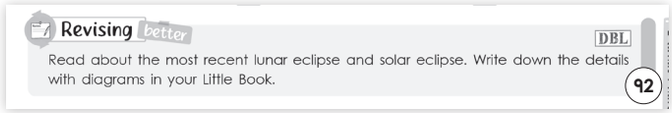
Teacher: Should she tell the kids not to do it, or should she ignore them? Think carefully.

(Let the students choose from the options.)

Teacher: Teacher: Yes, the better choice is to tell the kids not to do it. Speaking kindly and doing the right thing shows responsibility. Ringing doorbells and running away may seem like fun, but it disturbs people and is not respectful.

Teacher: Well done. Making good choices helps us grow into thoughtful and respectful individuals.

Revising better


Revising better

DBL

Read about the most recent lunar eclipse and solar eclipse. Write down the details with diagrams in your Little Book.

92

MUST DO 10 MIN.

Teacher: Let us move to the 'Revising better' section. Read about the most recent solar eclipse and lunar eclipse. Use your Little Book to write a short description and draw neat diagrams for each eclipse.

Teacher: Remember, in a solar eclipse, the Moon comes between the Earth and the Sun. In a lunar eclipse, the Earth comes between the Sun and the Moon. Use your notes and diagrams to revise what you have learnt.

Teacher: You are doing wonderful work.

Pledging better

MUST DO 5 MIN.

Teacher: Let us now take a pledge together. Please repeat after me: 'With my whole heart, I pledge to be kind to everyone.'


Pledging better

SDGs

With my whole heart, I pledge to be kind to everyone.

SDG 10: REDUCED INEQUALITIES

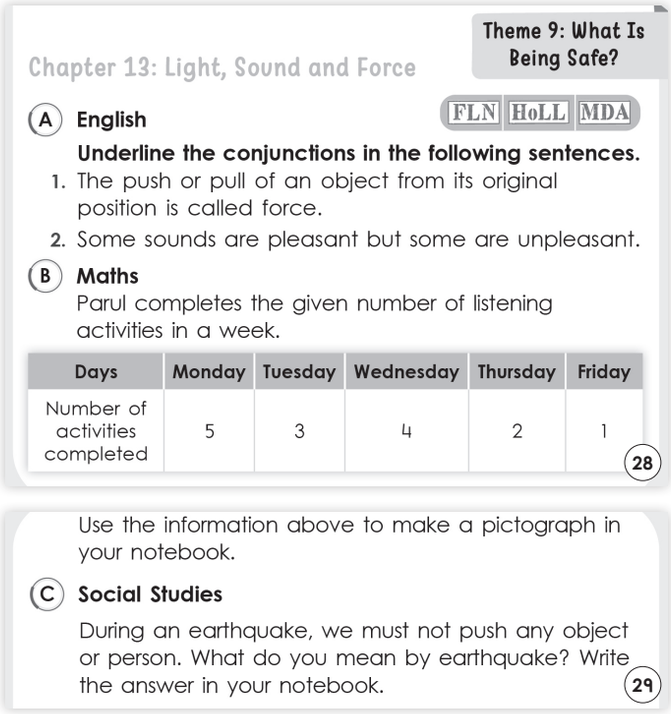
92

Teacher: This pledge is a reminder that kindness is not just about being nice—it helps us create a peaceful and fair world. By showing kindness to all, we are also supporting SDG 10 – Reduced Inequalities, which aims to ensure that no one is treated unfairly because of who they are. When

we treat everyone with respect, we reduce inequality and make others feel valued.

Teacher: Let us carry this thought with us in school, at home and wherever we go.

Book of Holistic Teaching



Theme 9: What Is Being Safe?

Chapter 13: Light, Sound and Force

FLN HoLL MDA

(A) English

Underline the conjunctions in the following sentences.

1. The push or pull of an object from its original position is called force.
2. Some sounds are pleasant but some are unpleasant.

(B) Maths

Parul completes the given number of listening activities in a week.

Days	Monday	Tuesday	Wednesday	Thursday	Friday
Number of activities completed	5	3	4	2	1

28

Use the information above to make a pictograph in your notebook.

(C) Social Studies

During an earthquake, we must not push any object or person. What do you mean by earthquake? Write the answer in your notebook.

29

Refer to the Book of Holistic Teaching, page number 28 under the title 'Light, Sound and Force.' 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.

COULD DO

10 MIN.

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

Differentiated Activities

110 km/hr

Why should we not look at a solar eclipse without protection, but we can watch a lunar eclipse safely?

80 km/hr

What happens when you apply force to a ball lying still on the ground?

40 km/hr

What do we call the gentle push or pull used to open a drawer?

Home Task

The Project Idea, given in the book of Project Ideas, page 17 under the title 'Light, Sound and Force.' This project should be assigned to the students as a Home Task to work on. Ensure that the students understand the project requirements and provide any necessary guidance or materials they might need.

Period 11

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

Teacher: Great. Let us begin today's lesson with a quick game. I will ask some questions, and you have to answer them. Ready?

SHOULD DO

5 MIN.

Teacher: What do we call the force that helps us lift or move things? (Push or pull)

Teacher: What happens when light is blocked by an opaque object? (A shadow is formed)

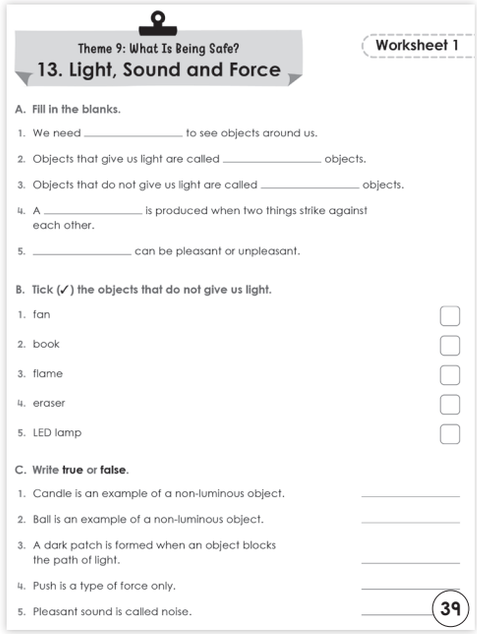
Teacher: What should we wear to safely observe a solar eclipse? (Special glasses)

Teacher: What does regular sunlight help remove from our body? (Toxins)

Teacher: Which object in the sky gives us light during the day? (Sun)

Teacher: Excellent answers. Let us move forward with today's lesson.

Worksheet 1



Theme 9: What Is Being Safe?

Worksheet 1

13. Light, Sound and Force

A. Fill in the blanks.

1. We need _____ to see objects around us.
2. Objects that give us light are called _____ objects.
3. Objects that do not give us light are called _____ objects.
4. A _____ is produced when two things strike against each other.
5. _____ can be pleasant or unpleasant.

B. Tick (✓) the objects that do not give us light.

1. fan ☐
2. book ☐
3. flame ☐
4. eraser ☐
5. LED lamp ☐

C. Write true or false.

1. Candle is an example of a non-luminous object. _____
2. Ball is an example of a non-luminous object. _____
3. A dark patch is formed when an object blocks the path of light. _____
4. Push is a type of force only. _____
5. Pleasant sound is called noise. _____

39

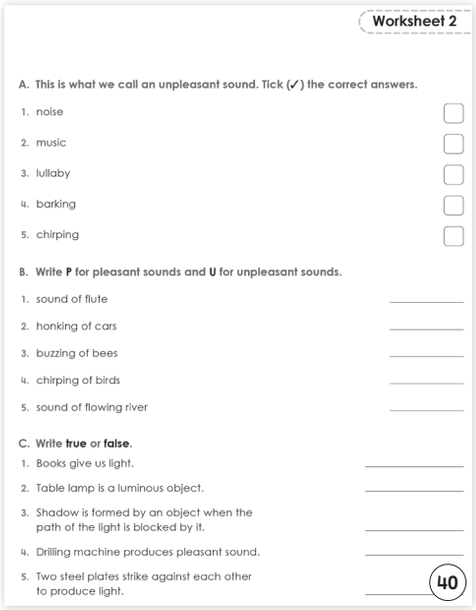
Teacher: Let us do some activities from the workbook. Everybody, please open page 39 of your workbook and answer the questions given in worksheet 1.

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.)

Worksheet 2



Worksheet 2

A. This is what we call an unpleasant sound. Tick (✓) the correct answers.

1. noise ☐
2. music ☐
3. lullaby ☐
4. barking ☐
5. chirping ☐

B. Write **P** for pleasant sounds and **U** for unpleasant sounds.

1. sound of flute _____
2. honking of cars _____
3. buzzing of bees _____
4. chirping of birds _____
5. sound of flowing river _____

C. Write **true** or **false**.

1. Books give us light. _____
2. Table lamp is a luminous object. _____
3. Shadow is formed by an object when the path of the light is blocked by it. _____
4. Drilling machine produces pleasant sound. _____
5. Two steel plates strike against each other to produce light. _____

40

Teacher: Let us do some activities from the worksheet 2. Everybody, please open page 40 of your workbook and answer the questions given in worksheet 2.

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.)

You may generate additional practice worksheets using the **Test Generator** given on the digital platform.

Book of Project Ideas

Theme 9: What Is Being Safe?

Chapter 13: Light, Sound and Force

ICT PRO 21st CS

Find out about the Ustad Bismillah Khan and the instrument he use to play using Internet* and make a poster.

Materials required: chart paper, glue, printed images of Ustad Bismillah Khan, shehnai and a pair of scissors

- Gather the information about Ustad Bismillah Khan using Internet.
- In the center of the poster, paste a picture of Ustad Bismillah Khan.

17

- Write a brief description of Ustad Bismillah Khan.
- Next to the picture of Ustad Bismillah Khan paste a picture of shehnai.
- Write a brief description about the instrument shehnai.
- Add colourful decorations around the edges of the poster. You can draw musical notes, flowers, or other fun designs.
- Check weather font size is visible or not.
- Your poster is ready.

18

Discuss the project assigned as the Home Task in the ninth Period, focusing on helping students understand the objectives and addressing any challenges they face.

Teacher: Now, let us complete the 'KWL' activity.

SHOULD DO

5 MIN.

Teacher: Take out your notebook and fill in the 'L' column. Write what you have learned in this chapter.

(Wait for students to fill in the chart.)

Teacher: Let us all give a huge round of applause to everyone for their hard work and creativity. Great work, everyone. See you in the next class. Have a wonderful day ahead.

Differentiated Activities

110 km/hr

How are shadows and eclipses similar and different? Write one similarity and one difference.

COULD DO

10 MIN.

80 km/hr

What is the difference between a push and a pull?

40 km/hr

What do we call the sound made by a flute or violin?

Home Task

Complete 'Activity 2' (Build a popsicle stick catapult) given on page 93 of your Main Coursebook.

Learning Outcomes

The students will:

Domain	Learning Outcome
Physical Development	• demonstrate control and coordination while performing hands-on tasks like making shadow puppets or catapults.
Socio-Emotional and Ethical Development	• express care for others by practising silence and switching off lights and noise when someone is resting.
Cognitive Development	• identify and differentiate between luminous and non-luminous objects, types of sounds and types of force.
Language and Literacy Development	• explain scientific ideas like shadow formation and eclipses using appropriate vocabulary in speaking and writing.
Aesthetic and Cultural Development	• appreciate natural phenomena like light and sound by observing patterns and expressing them through art or craft.
Positive Learning Habits	• demonstrate curiosity and responsibility by actively engaging in activities like building shadow puppets, creating sound models or catapults and participating in group discussions that promote safe and collaborative learning.

Starry Knights

Which part of this unit did you find to be the most challenging? How did you overcome the challenge? Record your thoughts here.

Give yourself a STAR.

Lesson-14: About Soil

12 Periods (40 minutes each)

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

Animation, Animated Activities, Concept Map, Diagram, Dictionary, eBook, Experiment, Quiz, Slideshow, Test Generator

Affirming better: Soil helps plants grow strong and healthy.

Curricular Goals and Objectives (NCF)

To enable the students:

- to understand how soil is formed, its types and its role in plant growth.
- to explore and observe soil through real-life examples and simple experiments.
- to express scientific ideas clearly using appropriate language in speaking and writing.
- to develop responsible habits towards soil care and nature.
- to participate in creative and hands-on activities related to soil.

Methodology

Period 1

SHOULD DO — 5 MIN.

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

Teacher: Great. Before we dive into our lesson, let us take a moment to relax and focus our minds with a short meditation. Ready?

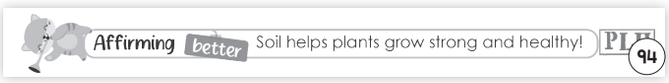
Teacher: Sit comfortably in your chair, with your back straight and feet flat on the ground. Close your eyes gently and take a deep breath through your nose. Hold it for a moment, then slowly breathe out through your mouth.

Let us do these three more times. Breathe in... and breathe out. As you breathe, imagine your mind becoming clear and ready to learn.

Open your eyes and smile at your friends. Let us start our lesson with positive energy.

Affirming better

Teacher: Before we start the class, let us all affirm something positive together: 'Soil helps plants grow strong and healthy.' Repeat after me: 'Soil helps plants grow strong and healthy.'



Teacher: Alright. Today, we are going to begin a new chapter, 'About Soil.' We use a KWL chart to help us organise 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

MUST DO — 5 MIN.

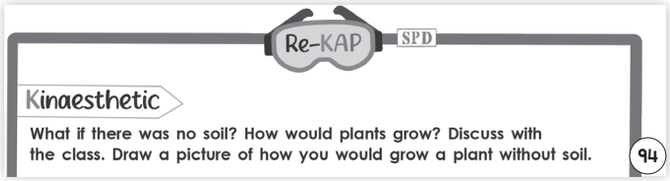
Teacher: Let us start by filling out the 'K' and 'W' columns. Take a few minutes to think and write. If you have any questions, feel free to ask.

Teacher: Before we start the chapter, we will do a quick Re-KAP, which involves revisiting our previous knowledge through creative activities using Kinaesthetic, Auditory and Pictorial methods to make our learning interactive and engaging.

Kinaesthetic

MUST DO — 10 MIN.

Teacher: Imagine if there was no soil on Earth. How would plants grow then? Can anyone think of a way to grow plants without soil?



(Let the students think and respond.)

Teacher: Fascinating ideas. Now, take your pencils and draw a picture of how you would grow a plant without using soil. Be creative and think about what you might use instead.

(Let the students draw pictures.)

Teacher: Well done, everyone.

Auditory

MUST DO

10 MIN.

Teacher: Let us start the auditory activity. Now, it is time to listen carefully. I will read something aloud to you. After that, you will answer a few questions. I want you to pay attention to every detail before answering. Are you ready?

Auditory*

Listen to your teacher carefully. Answer the questions. 94

Teacher: While gardening, Kiran and Rahul were digging in the soil. Kiran said, 'Look at all the things in the soil. It has plants, pebbles and even tiny bits of old plants and animals.' Rahul added, 'There are also different types of soil like sandy and clayey.' silt, clayey and loamy soil.

1. What can you find in the soil, according to Kiran and Rahul?
2. What are two types of soil mentioned by Rahul?

(Waits for student responses.)

Teacher: Fantastic answers. You were all listening carefully. Now, let us try a pictorial task.

Pictorial

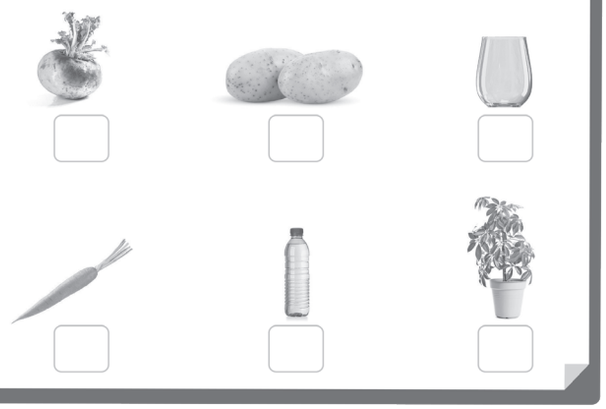
MUST DO

10 MIN.

Teacher: Let us look at these pictures given on page 94 of your Main Coursebook carefully. Can you tell me which of these items grow in soil? Colour the boxes below the items that grow in soil. Take your time and check the pictures before colouring.

Pictorial PS

Which of the following items grow in soil? Colour the correct box.



Teacher's Note: *Read aloud to the class the listening text on the last page. Ask the questions given there.
*Guide the students to recall and answer these in their notebooks. 94

(Let the students observe the pictures and colour the boxes.)

Teacher: Yes, good observation. The turnip, potatoes, carrot and the plant in the pot grow in soil. What about the glass and the water bottle?

Teacher: That is right. They do not grow in soil. Great observation everyone.

Differentiated Activities

110 km/hr

What will happen if there is no soil on Earth? Explain in two lines how it will affect plants and animals.

80 km/hr

Name any two things that grow in soil and explain why soil is important for them.

40 km/hr

Write the name of one plant that grows in soil and one thing that does not grow in soil.

Home Task

Draw a picture of one plant that grows in soil and one way in which soil helps that plant. Label the plant and write one line below your drawing.

Period 2

Interacting better

Interacting better ICL

Ask your partner about three plants, which grow in water and soil respectively. 95

MUST DO

10 MIN.

Teacher: We have learnt that some plants grow in soil while some grow in water. Can you think of a few examples?

Teacher: Now, turn to your partner and ask them to name three plants that grow in water and three that grow in soil. Listen to each other carefully and note the answers.

(Let the students discuss.)

(Use CRM signs to settle the class.)

Teacher: Wonderful. Great discussion, everyone.

Teacher: Everyone, open your books and look at the picture story given on page 95 of your Main Coursebook. Read it silently. Observe the expressions of the characters, the setting and what they are saying. Take your time and read each dialogue carefully.

MUST DO
30 MIN.

(Let the students read the story.)

Teacher: Now, let us discuss what you have read. Who can tell me where the children are walking?

Teacher: They are walking in the garden with Daarji at night.

Teacher: What are they noticing about the soil?

Teacher: They are noticing that the colour of the soil looks different from the one they saw the previous day.

Teacher: What colour was the soil they saw yesterday?

Teacher: It was dark-brown in colour.

Teacher: Can you name the type of soil that Daarji talks about?

Teacher: It is called clayey soil.

Teacher: What does Daarji say about how this soil feels?

Teacher: He says that it is sticky and soft.

Teacher: What does Daarji say about the use of this soil?

Teacher: He says that clayey soil is good for growing vegetables and is often used in gardens.

Teacher: What warning does Daarji give the children about the soil after it rains?

Teacher: He tells them to walk carefully because the soil is wet and slippery.

Teacher: Why do you think clayey soil becomes slippery after rain?

Teacher: Because it holds water and becomes soft and sticky, which makes it hard to walk on.

Teacher: Great work, everyone. You have understood the story well.

You may show the **Dictionary** and **eBook** on the digital platform.

Differentiated Activities

110 km/hr

Why do different types of soil have different colours and textures? Write your answer in two sentences.

80 km/hr

Write two features of clayey soil and name one plant that can grow well in it.

40 km/hr

Name the type of soil that is sticky and soft. Write one sentence about where it is used.

Home Task

Ask your parents or grandparents about one plant they have grown at home. Write its name and the type of soil it grows in.

Period 3

SHOULD DO
5 MIN.

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

Teacher: Great. Let us begin today's lesson with a quick game. I will ask some questions and you have to answer them. Ready?

Teacher: What is the top layer of the Earth where plants grow called? (Soil)

Teacher: Which type of soil feels sticky when wet? (Clayey soil)

Teacher: What is soil made up of? (Pebbles, sand, clay, humus, air, water and dead plants and animals)

Teacher: Which soil holds water for a longer time? (Clayey soil)

Teacher: Name any one thing that does not grow in soil. (Glass / Bottle / Metal)

Teacher: Well done, everyone. Let us begin today's class. (The teacher will read the last paragraph of page 95 and the first paragraph of page 96 aloud and provide explanations to ensure that the students understand the content.)


SOIL

Soil is the upper layer of the Earth where plants and living organisms grow. Many years ago, there was no soil. Soil is formed over hundreds of years. Let us understand the process of soil formation.

95

Teacher: What is the upper layer of the Earth called where plants and living organisms grow?

MUST DO
10 MIN.

Teacher: It is called soil.

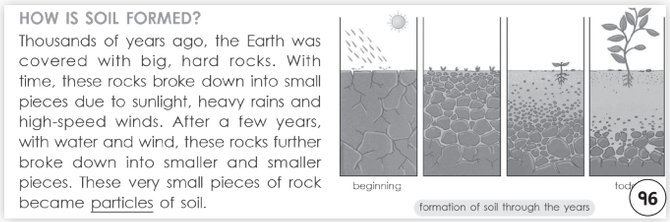
Teacher: Very good. Was soil always present on Earth?

Teacher: No. Many years ago, there was no soil. Then how did soil come to exist?

Teacher: Very good. Soil is formed over hundreds of years. So, should we expect soil to form quickly?

Teacher: No, it takes a very long time. That is why we must take care of the soil.

Teacher: Well done, everyone. Now, let us understand how this soil is formed.


HOW IS SOIL FORMED?

Thousands of years ago, the Earth was covered with big, hard rocks. With time, these rocks broke down into small pieces due to sunlight, heavy rains and high-speed winds. After a few years, with water and wind, these rocks further broke down into smaller and smaller pieces. These very small pieces of rock became particles of soil.

formation of soil through the years

96

Teacher: Thousands of years ago, what was the Earth covered with?

MUST DO
25 MIN.

Teacher: It was covered with big, hard rocks.

Teacher: Very good. What caused these rocks to break into small pieces?

Teacher: Sunlight, heavy rains and high-speed winds broke them down.

Teacher: Excellent. What happened to these small pieces over the next few years?

Teacher: They were broken down further by water and wind into even smaller pieces.

Teacher: And what do we call these very small pieces of rock?

Teacher: These are called particles of soil.

Teacher: Now, look at the four pictures beside the text. What do you notice in the first picture?

Teacher: It shows only big rocks and dry land with the sun and rain falling on it.

Teacher: What is happening in the second and third pictures?

Teacher: The rocks are breaking into smaller pieces and the soil is starting to form. We can also see small plants beginning to grow.

Teacher: Finally, what do we see in the last picture?

Teacher: The soil is ready and a full plant is growing in it.

Teacher: So, what do these pictures show us from left to right?

Teacher: They show how the surface of the Earth changed over time. In the beginning, there were only hard rocks. Then, due to sunlight, rain and wind, the rocks started breaking. Slowly, soil began to form. After many years, the soil became rich enough for plants to grow. This whole process is called the formation of soil over the years.

Teacher: Well done, everyone. You now understand how soil is formed slowly with the help of natural forces.

You may show the **Animation** on the digital platform.

(Bring these materials required for the jar activity in the next period: A transparent jar with a lid, Garden soil, Water and a Spoon or stick for stirring)

Differentiated Activities

110 km/hr

Which natural forces help break rocks into soil?

80 km/hr

What are very small pieces of rocks called?

40 km/hr

What was the Earth covered with long ago?

Home Task

Draw a picture showing how rocks break into soil. Label each step using simple words like sun, wind, water and soil.

Period 4

SHOULD DO

5 MIN.

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

Teacher: Great. Let us begin today's lesson with a quick game. I will ask some questions and you have to answer them. Ready?

Teacher: What is soil made from? (Rocks)

Teacher: What breaks down rocks over time? (Sunlight)

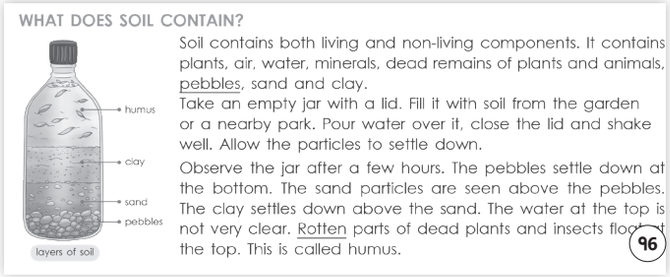
Teacher: What do the smallest rock pieces become? (Particles of soil)

Teacher: How long does it take to form soil? (Hundreds of years)

Teacher: What was the Earth covered with before soil formed? (Hard rocks)

Teacher: Excellent answers. Now, let us begin today's class.

(The teacher will read the second to sixth paragraphs of page 96 aloud and provide explanations to ensure that the students understand the content.)



WHAT DOES SOIL CONTAIN?

Soil contains both living and non-living components. It contains plants, air, water, minerals, dead remains of plants and animals, pebbles, sand and clay.

Take an empty jar with a lid. Fill it with soil from the garden or a nearby park. Pour water over it, close the lid and shake well. Allow the particles to settle down.

Observe the jar after a few hours. The pebbles settle down at the bottom. The sand particles are seen above the pebbles. The clay settles down above the sand. The water at the top is not very clear. Rotten parts of dead plants and insects float at the top. This is called humus.

96

MUST DO

25 MIN.

Teacher: What are the different things found in soil?

Teacher: Yes, soil contains both living and non-living things like plants, air, water, minerals and dead remains of plants and animals.

Teacher: Good. What solid materials do we see in soil?

Teacher: Yes. Pebbles, sand and clay.

Teacher: Great. Today, I will be showing you an activity to help us understand what soil contains. Let us see what we discover together.

Teacher: Here is a clean, empty jar. I am filling it halfway with soil taken from the school garden.

Teacher: Now, I am pouring water into the jar until it is almost full.

Teacher: I will close the lid tightly and shake the jar well. Watch carefully.

Teacher: Now, we will let the jar rest on the table for some time so that the particles settle.

Teacher: After a while, you will begin to see layers forming inside the jar.

(Let the jar rest for some time so that the particles settle.)

Teacher: Look at the bottom. You can see the pebbles settle first because they are the heaviest.

Teacher: Just above them, we can see the sand layer, followed by the layer of clay.

Teacher: At the top, floating in the water, you will notice some dark matter. These are the rotten parts of dead plants and insects. This is called humus.

Teacher: Excellent. What is humus?

Teacher: It is made from rotten parts of dead plants and insects.

Teacher: Very good. And how does the water at the top look?

Teacher: It is not very clear.

Teacher: Now, look at the picture beside the text. What do the layers show?

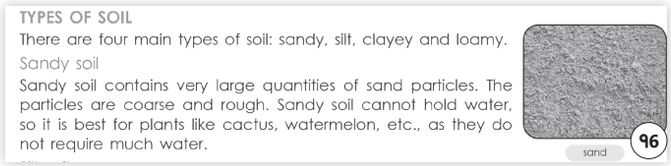
Teacher: Yes. The picture shows how the particles settle in layers—pebbles at the bottom, then sand, then clay and humus at the top.

Teacher: Lovely. This activity helps us see clearly what soil is made of.

You may show the **Diagram** and **Experiment** on the digital platform.

Discovering better

(Explain the terms mentioned in the 'Discovering better' section given on page 96 of the Main Coursebook.)



Teacher: Now let us move to the next part — 'Types of Soil'. How many main types of soil are there?

MUST DO
10 MIN.

Teacher: There are four: sandy, silt, clayey and loamy.

Teacher: Very good. What is special about sandy soil?

Teacher: It has large amounts of sand particles that feel coarse and rough.

Teacher: Can sandy soil hold water?

Teacher: No, it cannot.

Teacher: So, which plants grow best in sandy soil?

Teacher: Cactus, watermelon and other plants that do not need much water.

Teacher: Well done. You have understood sandy soil very clearly.

Differentiated Activities

110 km/hr

What is the name of the layer made of dead plants and insects that floats on water?

80 km/hr

Which soil component settles above the sand in the jar activity?

40 km/hr

Which type of soil has rough particles?

Home Task

Take a clear glass, fill it with garden soil and water. Stir the glass well. Let it rest. Observe and draw the layers you see in your notebook.

Period 5

SHOULD DO
5 MIN.

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

Teacher: Great. Let us begin today's lesson with a quick game. I will ask some questions and you have to answer them. Ready?

Teacher: What are the two types of things found in soil? (Living and non-living)

Teacher: What is the floating layer made of dead plants and insects called? (Humus)

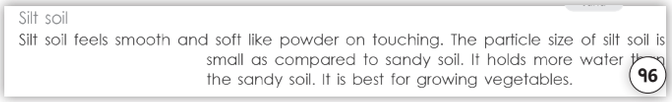
Teacher: Which soil has large, rough particles? (Sandy soil)

Teacher: Can sandy soil hold water? (No)

Teacher: Name one plant that grows in sandy soil. (Cactus)

Teacher: Excellent answers. Let us now move ahead with today's class.

(The teacher will read the last paragraph of page 96 and the first two paragraphs of page 97 aloud and provide explanations to ensure that the students understand the content.)



Teacher: What is the texture of silt soil when touched?

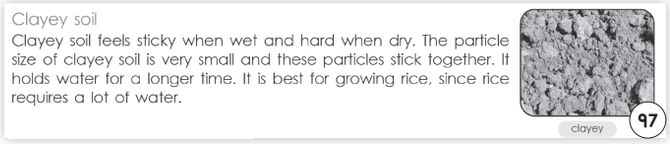
MUST DO
5 MIN.

Teacher: It feels smooth and soft like powder. Well done. How does the particle size of silt soil compare to sandy soil?

Teacher: Correct. The particles of silt soil are smaller than those in sandy soil. Does silt soil hold more or less water than sandy soil?

Teacher: Great. It holds more water. What is silt soil best suited for?

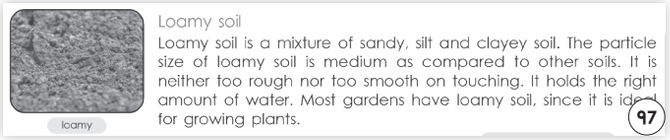
Teacher: It is best for growing vegetables. Very good. You have understood the properties of silt soil very clearly.



Teacher: How does clayey soil feel when it is wet?

MUST DO
5 MIN.

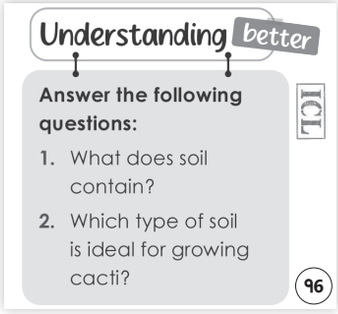
Teacher: Good. It feels sticky. And when it is dry?
Teacher: Yes. It becomes hard. What can you tell me about the size of its particles?
Teacher: Correct. The particles are very small and stick together.
Teacher: Can clayey soil hold water?
Teacher: Yes, it holds water for a longer time. Which crop grows well in this type of soil?
Teacher: Rice grows well in clayey soil, as it needs a lot of water. Very well explained.


Loamy soil
Loamy soil is a mixture of sandy, silt and clayey soil. The particle size of loamy soil is medium as compared to other soils. It is neither too rough nor too smooth on touching. It holds the right amount of water. Most gardens have loamy soil, since it is ideal for growing plants.
loamy
97

Teacher: What is loamy soil made of?
Teacher: It is a mixture of sandy, silt and clayey soil. Excellent.
Teacher: How does it feel when you touch it?
Teacher: It is neither too rough nor too smooth. Well done.
Teacher: What is the size of the particles in loamy soil?
Teacher: The particles are of medium size. Good observation.
Teacher: Does loamy soil hold too much water or just the right amount?
Teacher: It holds the right amount of water. Perfect.
Teacher: Why is loamy soil ideal for gardens?
Teacher: Because it is best for growing plants. You all are doing a wonderful job with this.

MUST DO
10 MIN.

Understanding better

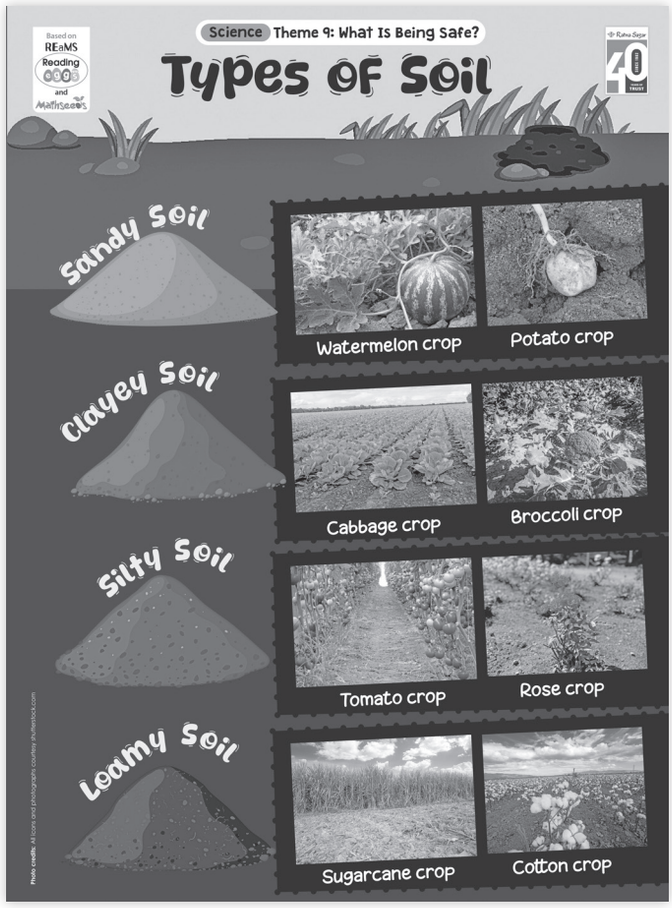

Understanding better
Answer the following questions:
1. What does soil contain?
2. Which type of soil is ideal for growing cacti?
ICL
96

Teacher: Now look at the 'Understanding better'. Let us read and discuss the questions together.
Teacher: What does soil contain?
Teacher: Soil contains air, water, minerals, plants and the remains of dead plants and animals. Well answered.
Teacher: Which type of soil is best for growing cactus?
Teacher: Sandy soil, because cactus does not need much water. Very good recall.
Teacher: Excellent responses, everyone. You have understood the different types of soil very well.

MUST DO
5 MIN.

Poster

Teacher: Let us take a moment to look at the poster on the wall.



(Display and discuss the posters prominently in the classroom to reinforce learning about the types of soil. Encourage students to observe the posters and discuss the different types of soil.)
Teacher: Great observation, everyone.

MUST DO
10 MIN.

Differentiated Activities

110 km/hr
Which soil type has the smallest particles and holds water for a long time?
80 km/hr
Which soil is made from a mix of sandy, silt and clayey soils?
40 km/hr
Which soil is soft and smooth like powder?

Home Task

Draw three types of soil: silt, clayey and loamy. Below each drawing, write one property and one use of that soil.

Period 6

SHOULD DO
5 MIN.

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

Teacher: Great. Let us begin today's lesson with a quick game. I will ask some questions and you have to answer them. Ready?

Teacher: Which soil feels soft like powder and is good for vegetables? (Silt soil)

Teacher: Which soil holds the most water and is sticky when wet? (Clayey soil)

Teacher: Which crop grows well in clayey soil? (Rice)

Teacher: What is loamy soil made up of? (Sandy, silt and clayey soil)

Teacher: Why is loamy soil ideal for gardens? (It holds the right amount of water)

Teacher: Fantastic answers. Let us begin our new lesson.

(The teacher will read the third paragraph of page 97 aloud and provide explanations to ensure that the students understand the content.)

SOIL AND CROPS

Different types of soils are used to grow different types of crops.

- Sandy soil is used to grow plants, such as cactus and aloe vera.
- Silt soil is used for growing vegetables.
- Crops, such as broccoli and cabbage, grow in clayey soil.
- Loamy soil is the best soil for crops, such as wheat, sugarcane, cotton, etc.

97

MUST DO
20 MIN.

Teacher: Today, we are going to discuss the topic of 'Soil and Crops'.

Teacher: Which soil is used to grow cactus and aloe vera?

Teacher: Well done. Sandy soil. Sandy soil does not hold much water, so it is perfect for such plants.

Teacher: Next. Which soil is best for growing vegetables?

Teacher: Silt soil. Very good. It holds more water than sandy soil, which helps vegetables grow better.

Teacher: Now tell me, where do broccoli and cabbage grow best?

Teacher: In clayey soil. Excellent. Clayey soil holds a lot of water, which suits these crops.

Teacher: And which soil is considered the best for most crops like wheat, sugarcane and cotton?

Teacher: Loamy soil. Well remembered. Loamy soil holds the right amount of water and has a good mix of all three soil types.

Teacher: Great work, everyone. This shows you understand the importance of soil in farming.

Understanding better

Answer the following questions:

1. Which soil does not hold water?
2. Name the types of soil.
3. Which soil is good for agricultural purposes?

ICL

97

MUST DO
15 MIN.

Teacher: Let us now look at the 'Understanding better' section. We will answer these questions together. Ready?

Teacher: First question. Which soil does not hold water?

Teacher: Sandy soil. Well done. It has large particles that do not retain water.

Teacher: Second question. Can you name the types of soil?

Teacher: Sandy, silt, clayey and loamy. Excellent memory.

Teacher: Last one. Which soil is good for agricultural purposes?

Teacher: Loamy soil. Very good. It has the right mix of all types and holds enough water for crops to grow well.

Teacher: Great work, everyone. You have understood the properties and uses of different soils very clearly.

You may show the **Concept Map** and **Slideshow** on the digital platform.

Differentiated Activities

110 km/hr

Which soil is used for growing broccoli and cabbage?

80 km/hr

Name one crop that grows in loamy soil.

40 km/hr

Which type of soil has rough particles?

Home Task

Write the name of one plant or crop grown in each type of soil: sandy, silt, clayey and loamy.

Period 7

SHOULD DO
5 MIN.

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

Teacher: Great. Let us begin today's lesson with a quick game. I will ask some questions and you have to answer them. Ready?

Teacher: Which soil is good for growing aloe vera? (Sandy soil)

Teacher: Which crop grows in clay soil? (Broccoli)

Teacher: Which soil is good for farming wheat and cotton? (Loamy soil)

Teacher: Which soil is soft like powder and holds more water than sandy soil? (Silt soil)

Teacher: Which soil is not good at holding water? (Sandy soil)

Teacher: Excellent answers. Let us begin today's class.

Connecting better

MUST DO
15 MIN.

Teacher: You have learnt so much about different types of soil. Now, let us connect this with Maths. Are you ready for an activity?

Teacher: I would like you to create a data chart just like Sam did in the story. You will make four columns.

Teacher: The headings for your columns will be: soil type, texture, colour and holds water (yes or no).

Teacher: You will fill the rows with details about sandy, silt, clayey and loamy soils.

Teacher: For example, sandy soil has a rough texture, is light brown in colour and does not hold water.

Teacher: This chart will help you revise all the important features of the different soil types.

Teacher: Once you complete the chart, you can check with a partner to see if your answers match.

Teacher: Well done. This is a great way to connect Science and Maths together. Keep it neat and organised.

Sample Data Chart

Soil Type	Texture	Colour	Holds Water (Yes/No)
Sandy	Coarse and rough	Light brown	No
Silt	Smooth and soft	Greyish brown	Yes
Clayey	Sticky when wet, hard when dry	Dark brown	Yes
Loamy	Medium texture	Brown	Yes

Knowing better

Teacher: Let us now learn about someone who has made a real difference in the world of soil science.

MUST DO
10 MIN.

Teacher: Have you heard of Dr Rattan Lal?

Teacher: Yes. Dr Rattan Lal is a soil scientist. He is known for helping to keep soil healthy.

Teacher: Why do you think it is important to maintain healthy soil?

Teacher: Correct. Healthy soil helps farmers grow better crops. That is a very thoughtful answer.

Teacher: Dr Lal has helped small farmers improve their soil. What do you think this has led to?

Teacher: Yes, it has helped increase the amount of food grown across the world.

Teacher: Well done. It is inspiring to learn how scientists like Dr Lal use their knowledge to help others. Let us remember that caring for the soil can improve life for many people.

Healing better

Teacher: Let us now look at a special use of soil in our daily lives. Have you heard of mitti chikitsa?

MUST DO
5 MIN.

Teacher: Mitti chikitsa means mud therapy. It is a method that uses soil to refresh and clean the skin.

Teacher: Do you know what kind of soil is used in this therapy?

Teacher: Ant hill soil is used. Very good.

Teacher: Why do you think people use this therapy in the summer?

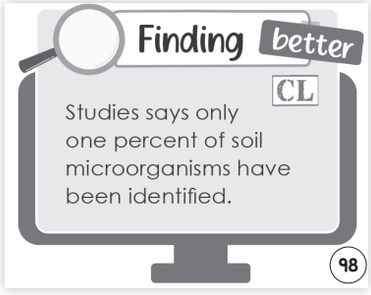
Teacher: Because it keeps the body cool. That is right.

Teacher: Mud therapy is not only natural but also helpful for our health. It shows us that soil is not just for growing crops, but it also helps us feel better. Well done, everyone.

Finding better

Teacher: Let us now explore something fascinating about soil. Did you know that soil is full of microorganisms?

MUST DO
5 MIN.



Teacher: Studies say that only one percent of soil microorganisms have been identified.

Teacher: What does that tell us about the remaining ninety-nine percent?

Teacher: Yes, they are still unknown. Scientists have not yet discovered or studied them.

Teacher: Why do you think it is important to learn about these microorganisms?

Teacher: Yes. Because they might help in farming, medicine or even solving problems we face today.

Teacher: Very thoughtful answers. Soil is not just important for plants—it holds secrets that we are still trying to understand. Keep thinking and asking questions. Well done.

You may show the **Animated Activities** and **Quiz** on the digital platform.

Differentiated Activities

110 km/hr

Which soil type is made of a mixture of sandy, silt and clayey soil?

80 km/hr

Name the soil that is sticky when wet and holds water for a long time.

40 km/hr

Which soil is rough and cannot hold water?

Home Task

Complete the 'Trying better' activity given on page 97 of the Main Coursebook.

Period 8

SHOULD DO — 5 MIN.

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

Teacher: Great. Let us begin today's lesson with a quick game. I will ask some questions and you have to answer them. Ready?

Teacher: What is humus made of? (Rotten parts of dead plants and insects)

Teacher: Which soil is best for growing rice? (Clayey soil)

Teacher: What is the name of the therapy that uses ant hill soil? (Mitti chikitsa)

Teacher: What percent of soil microorganisms have been discovered? (One percent)

Teacher: Excellent answers. You are learning very well. Let us begin today's lesson.

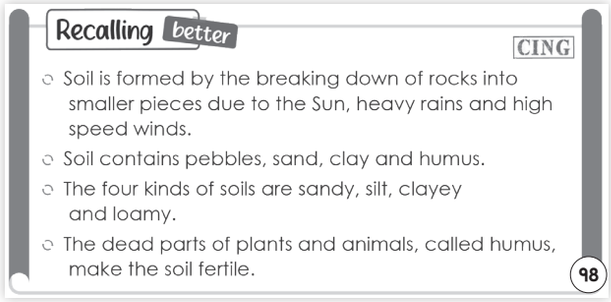
Recalling better

MUST DO — 15 MIN.

Teacher: Let us begin our recalling activity today. We will go over the concepts we have learnt so far. I will ask some quick questions. Think carefully before you answer.

Teacher: Let us begin with a basic question. How is soil formed?

Teacher: Correct. Soil is formed by the breaking down of rocks into smaller pieces. Can anyone tell me what causes this breakdown?


Recalling better

CING

- Soil is formed by the breaking down of rocks into smaller pieces due to the Sun, heavy rains and high speed winds.
- Soil contains pebbles, sand, clay and humus.
- The four kinds of soils are sandy, silt, clayey and loamy.
- The dead parts of plants and animals, called humus, make the soil fertile.

98

Teacher: Yes, it happens due to the Sun, heavy rains and high-speed winds.

Teacher: So, over time, these natural forces break large rocks into very tiny pieces. What do these tiny pieces become?

Teacher: Yes. They become particles of soil.

Teacher: Now, let us think about what soil contains. When we looked at the jar activity, we observed different layers. Can you name the materials found in those layers?

Teacher: Soil contains pebbles, sand, clay and humus.

Teacher: Let us now recall the different kinds of soil we studied. Who can name all four?

Teacher: Sandy, silt, clayey and loamy. Yes, that is absolutely correct.

Teacher: Each of these soils has different textures and water-holding capacities. You have done a great job remembering them.

Teacher: Now, one last question. What makes the soil rich or fertile?

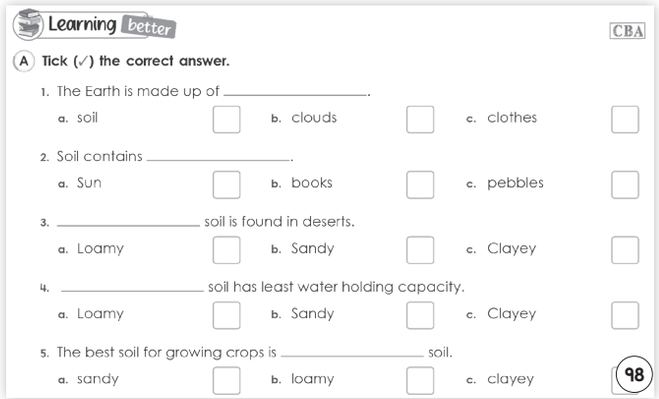
Teacher: The dead parts of plants and animals are called humus. This humus makes the soil fertile. Excellent answer.

Teacher: Well done, everyone. This recap helps us strengthen our understanding. You all have shown great focus and effort.

Learning better

MUST DO — 10 MIN.

Teacher: Everyone, please open page 98 of your Main Coursebook. In Exercise 'A' of 'Learning better' you have to tick the correct answer. Are you ready to get started?


Learning better

CBA

A Tick (✓) the correct answer.

1. The Earth is made up of _____.
   a. soil ☐ b. clouds ☐ c. clothes ☐
2. Soil contains _____.
   a. Sun ☐ b. books ☐ c. pebbles ☐
3. _____ soil is found in deserts.
   a. Loamy ☐ b. Sandy ☐ c. Clayey ☐
4. _____ soil has least water holding capacity.
   a. Loamy ☐ b. Sandy ☐ c. Clayey ☐
5. The best soil for growing crops is _____ soil.
   a. sandy ☐ b. loamy ☐ c. clayey ☐

98

Teacher: Great. Let us begin with the first question. The Earth is made up of _____.

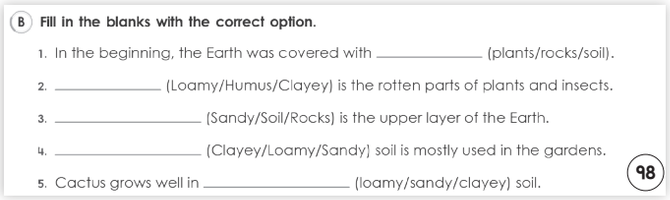
Teacher: The correct answer is soil. Well done.

(Similarly, complete all five questions. And discuss the correct answers.)

Teacher: In Exercise 'B' of 'Learning better', you have to fill in the blanks with the correct options. Are you ready to get started?

MUST DO

10 MIN.



B **Fill in the blanks with the correct option.**

1. In the beginning, the Earth was covered with _____ (plants/rocks/soil).
2. _____ (Loamy/Humus/Clayey) is the rotten parts of plants and insects.
3. _____ (Sandy/Soil/Rocks) is the upper layer of the Earth.
4. _____ (Clayey/Loamy/Sandy) soil is mostly used in the gardens.
5. Cactus grows well in _____ (loamy/sandy/clayey) soil.

98

Teacher: Great. Let us begin with the first question. In the beginning, the Earth was covered with _____ (plants/rocks/soil).

Teacher: The correct answer is rocks. Well done.

(Similarly, complete all five questions. And discuss the correct answers.)

Differentiated Activities

110 km/hr

Name the natural forces that work together over years to break rocks into soil.

80 km/hr

Name the process in which rocks break down to form soil.

40 km/hr

Which part of the soil helps plants grow strong and healthy?

Home Task

Write two special uses of soil that are not related to farming. Explain in one sentence.

Period 9

SHOULD DO

5 MIN.

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

Teacher: Great. Let us begin today's lesson with a quick game. I will ask some questions and you have to answer them. Ready?

Teacher: Which soil type is made up of medium-sized particles and is good for gardening? (Loamy soil)

Teacher: What do we call the soft and smooth soil that holds more water than sandy soil? (Silt soil)

Teacher: Which soil turns hard when dry and sticky when wet? (Clayey soil)

Teacher: What do we call the useful layer of dead plants and animals in the soil? (Humus)

Teacher: Which soil is best suited for growing crops like cotton and wheat? (Loamy soil)

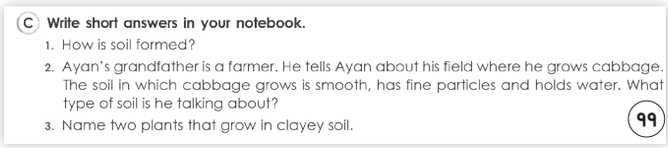
Teacher: Well done, everyone. You are remembering details very well. Let us now begin today's lesson.

Learning better

MUST DO

15 MIN.

Teacher: Everyone, please open page 99 of your Main Coursebook. Let us explore some short-answer questions. In Exercise 'C' of the 'Learning better' section, you have to write a short answer. Are you ready to get started?



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

1. How is soil formed?
2. Ayan's grandfather is a farmer. He tells Ayan about his field where he grows cabbage. The soil in which cabbage grows is smooth, has fine particles and holds water. What type of soil is he talking about?
3. Name two plants that grow in clayey soil.

99

Teacher: Great. Let us begin with the first question. How is soil formed?

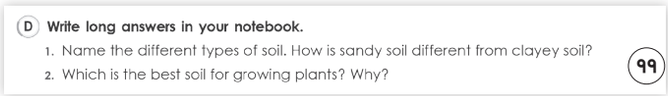
(Students have to write the answers for the given questions in about 40 to 50 words in their notebook. Wait for the students to write the answers.)

(Similarly, complete all three questions and discuss the correct answer with the class.)

MUST DO

20 MIN.

Teacher: Let us explore some long-answer questions. In Exercise 'D' of the 'Learning better', you have to write a long answer.



D **Write long answers in your notebook.**

1. Name the different types of soil. How is sandy soil different from clayey soil?
2. Which is the best soil for growing plants? Why?

99

Teacher: Let us begin with the first question. Name the different types of soil. How is sandy soil different from clayey soil?

(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.)

(Similarly, complete the second question and discuss the correct answer with the class.)

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

Differentiated Activities

110 km/hr

Why do you think loamy soil is better than sandy soil for growing crops?

80 km/hr

What would happen if soil could not hold any water?

40 km/hr

Name one soil that is not good for plants needing a lot of water.

Home Task

Complete the 'Creating better' activity (Making a butterfly using moulding clay.) given on page 99 of the Main Coursebook.

Period 10

SHOULD DO — 5 MIN.

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

Teacher: Great. Let us begin today's lesson with a quick game. I will ask some questions and you have to answer them. Ready?

Teacher: What would happen to farming if all soil types held too much water? (Plants might rot)

Teacher: Why do we see different colours of soil in different places? (Because of different minerals)

Teacher: What do you think will happen if we remove humus from the soil? (Soil will lose fertility)

Teacher: How does soil support life apart from helping plants grow? (It supports living organisms)

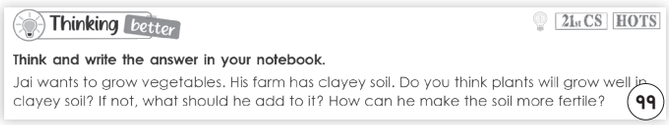
Teacher: Why is it important to study the texture and water-holding capacity of soil before planting? (To choose the right crops)

Teacher: Excellent answers. Let us move forward with today's lesson.

Thinking better

MUST DO — 10 MIN.

Teacher: Let us begin with the 'Thinking better' section. I will ask you a question and I want you to think deeply before writing your answer in your notebook.



Teacher: Let us begin with a thinking question. Jai wants to grow vegetables. His farm has clayey soil. Do you think vegetables will grow well in clayey soil? So, what can Jai do to improve the fertility of the soil?

(Let the students think and write the answer in their notebook.)

Teacher: Vegetables generally do not grow well in pure clayey soil because it holds too much water, becomes sticky when wet and hard when dry. This makes it difficult for roots to spread and get enough air.

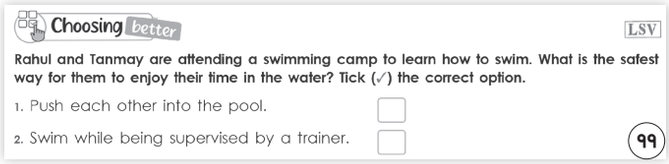
Teacher: To improve the fertility and texture of the clayey soil, Jai can mix it with organic matter like compost or dry leaves. This will make the soil loose and allow better air and water movement.

Teacher: Jai can also add sand or loamy soil to improve drainage and reduce stickiness. These additions will help make the soil more balanced and suitable for vegetable farming.

Choosing better

MUST DO — 5 MIN.

Teacher: Now let us move to 'Choosing better'. Rahul and Tanmay are attending a swimming camp. What is the safest way for them to enjoy their time in the water?

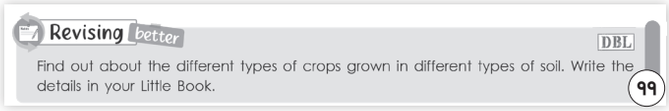


Teacher: Should they push each other into the pool or swim while being supervised?

(Let the students choose the correct option.)

Teacher: Yes, swimming under supervision is the safest option. Very good. You made the right choice by thinking about safety.

Revising better



MUST DO — 5 MIN.

Teacher: For 'Revising better', let us think back on everything we learnt about soil and crops.

Teacher: Can you find out which crops grow in which type of soil?

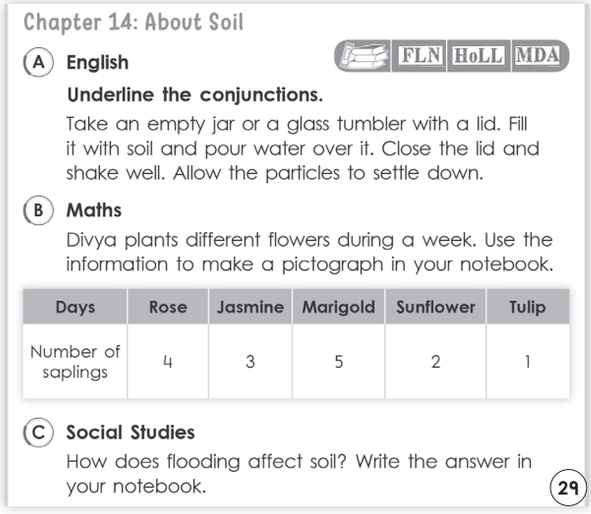
Teacher: Great. Use your Little Book and make a list. For example, rice grows in clayey soil, while wheat grows in loamy soil. Write neatly and try to include at least one crop for each type of soil. This will help you revise the entire chapter.

Teacher: You have done a great job recalling, applying and connecting your learning. Keep it up.

Book of Holistic Teaching

COULD DO — 15 MIN.

Refer to the Book of Holistic Teaching, page 29, under the title 'About Soil.' 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.



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

Differentiated Activities

110 km/hr

If there were no microorganisms in the soil, what would be one major problem for farming?

80 km/hr

Why is it important to know the water-holding capacity of soil before planting crops?

40 km/hr

What happens to soil when it is mixed with too much water for a long time?

Home Task

The Project Idea, given in the book of Project Ideas, page 18 under the title 'About Soil.' This project should be assigned to the students as a home task to work on. Ensure that the students understand the project requirements and provide any necessary guidance or materials they might need.

Period 11

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

SHOULD DO — 5 MIN.

Teacher: Great. Let us begin today's lesson with a quick game. I will ask some questions and you have to answer them. Ready?

Teacher: What part of the soil is made up of small round stones? (Pebbles)

Teacher: Why does loamy soil support plant growth better than clayey soil? (It has better drainage)

Teacher: What could happen if the top layer of soil gets washed away by rain? (Plants may not grow well)

Teacher: Which soil feels neither too rough nor too smooth? (Loamy soil)

Teacher: Excellent answers. Let us move on with today's work.

Worksheet 1

Teacher: Let us do some activities from the workbook. Everybody, please open page 42 of your workbook and answer the questions given in worksheet 1.

MUST DO — 10 MIN.

Theme 9: What Is Being Safe?

14. About Soil

Worksheet 1

A. Fill in the blanks.

1. Thousands of years ago, soil was only composed of big _____.
2. Soil is composed of _____ and non-living things.
3. Sandy soil contains tiny particles of _____.
4. Particle size of silt soil is _____ as compared to sandy soil.
5. _____ soil is a mixture of sand, silt and clayey soil.

42

B. Match the soil types with their characteristics.

1. silt soil	•	• a. cactus
2. clayey soil	•	• b. wheat
3. humus	•	• c. feels like sand on touching
4. loamy soil	•	• d. rotten parts of dead plants
5. sandy soil	•	• e. growing vegetables

C. Write C for correct statements and I for incorrect statements.

1. Heavy rains break the rocks into water droplets. _____
2. Soil contains plants, air and water. _____
3. Clay settles down above the sand when placed in a bottle. _____
4. Sandy soil is good for agricultural purposes. _____
5. Manure improves the soil fertility. _____

42

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

Worksheet 2

Teacher: Let us do some activities from the worksheet - 2. Everybody, please open page 43 of your workbook and answer the questions given in worksheet 2.

MUST DO — 10 MIN.

Worksheet 2

A. State true or false.

1. Soil is the bottom layer of the Earth. _____
2. The Earth is made up of dead remains of plants and animals. _____
3. Humus is harmful for the soil. _____
4. Sandy soil is best for plantation. _____
5. Manure is used for agricultural purpose. _____

B. Use appropriate words from the given options and complete the sentence.

1. _____ (Loamy/Sandy) soil is best for crops.
2. _____ (Rocks/Humus) helps the plants to grow faster.
3. Sandy soil has _____ (good/poor) water-holding capacity.
4. Cabbage grows better in _____ (clayey/sandy) soil.
5. Manure makes the soil _____ (suitable/harmful) for farming.

C. Answer the following in one word.

1. only composed of rocks thousand years ago _____
2. soil component made from dead remains of plants and animals _____
3. soil that contains humus _____
4. soil type that has weathered rocks _____
5. soil used in the gardens for growing plants _____

43

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

You may generate additional practice worksheets using the **Test Generator** given on the digital platform.

Book of Project Ideas

COULD DO
15 MIN.

Discuss the project assigned as the home task in the ninth period, focusing on helping students understand the objectives and addressing any challenges they face.

Chapter 14: About Soil

Observe soil types CT PRO 21st CS

Materials required: containers, chart, marker, soil

- Take small soil samples from the roadside, playground and garden.
- Put each sample in a separate container.
- Look at each soil sample and note if it is light brown, dark brown or black.
- Look at the soil particles through a magnifying glass.
- Notice the size of the particles (small, medium, large) and their texture (smooth, gritty, sticky).
- Create a simple chart with columns for location, colour, particle size and texture.
- Describe each soil in a detailed way. Write your observations.

18

Differentiated Activities

110 km/hr

If farmers used only one type of soil for all crops, what problems might they face?

80 km/hr

How can planting trees help improve soil quality?

40 km/hr

What can you do at home or school to stop soil from getting dirty or wasted?

Home Task

Complete 'Activity 3' (Planting papaya seeds in a pot) given on page 100 of the Main Coursebook.

Period 12

SHOULD DO
5 MIN.

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

Teacher: Great. Today, we will talk about something very important—our safety and our feelings.

Teacher: Can you tell me how you feel when someone gives you a warm hug or holds your hand gently?

(Let students respond.)

Teacher: And how do you feel when someone touches you in a way that makes you uncomfortable or scared?

(Allow responses and guide respectfully.)

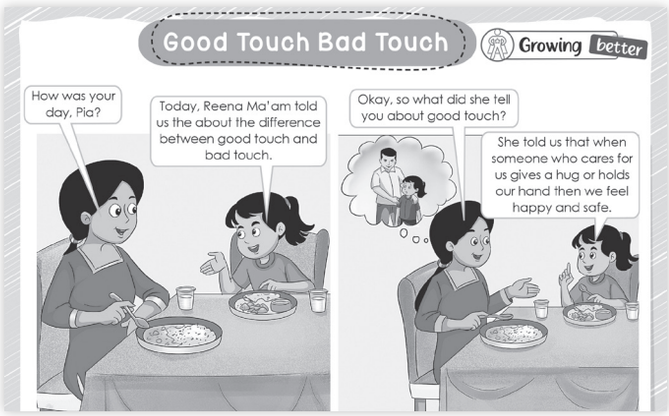
Teacher: Thank you. It is important to understand these feelings. Let us look at a story now.

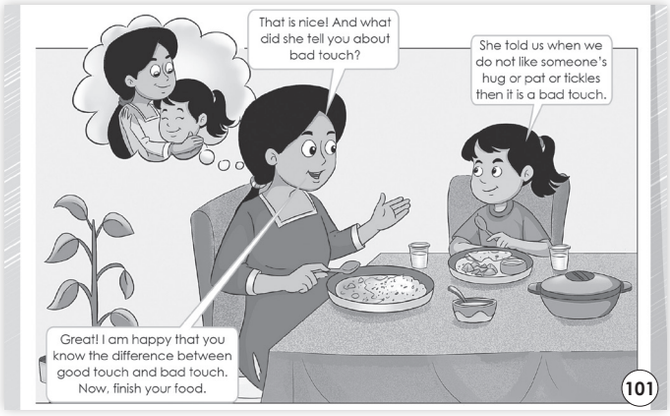
Teacher: Look at the story given on page 101 of the Main Coursebook. This is Pia talking to her mother during dinner. Read it silently. Observe the expressions of the characters, the setting and what they are saying. Take your time and read each dialogue carefully.

MUST DO
20 MIN.

(Let the students read the story.)

Teacher: Let us now talk about what we have learnt from Pia's story.





Teacher: Why do you think Reena Ma'am taught the students about good touch and bad touch?

Teacher: So that they know how to keep themselves safe and understand their feelings. Very good.

Teacher: When Pia said that a good touch makes us feel happy and safe, can anyone give me an example of that?

Teacher: Yes, like a hug from a parent or a pat from a teacher when you do something good. Well said.

Teacher: And what did Pia say about bad touch?

Teacher: That it makes us feel scared, confused or uncomfortable, especially if someone tickles us or touches us when we do not like it.

Teacher: Should we keep it a secret if someone gives us a bad touch?

Teacher: No, never. You must tell a trusted adult immediately. Very important learning.

Teacher: Who are some trusted adults you can speak to if something makes you feel unsafe?

Teacher: Parents, grandparents, teachers, school counsellors—excellent.

Teacher: Why is it important to speak up?

Teacher: Because staying silent might make us feel scared or confused for longer. Telling someone helps us feel safe again.

Teacher: I am proud of all of you for listening carefully, thinking deeply and sharing honestly.

Teacher: Remember, your safety is very important. You always have the right to say 'No' and to protect your body.

Teacher: Thank you, everyone. You learnt something very important today and I hope you always remember it.

Teacher: Now take your notebook and draw a small circle. Inside the circle, draw or write names of 3 adults you trust and can talk to if you ever feel unsafe.

Teacher: Share your drawing with your partner. If you cannot think of someone, speak to me after class. Remember, you are never alone.

Teacher: Now, let us complete the 'KWL' activity.

Teacher: Take out your notebook and fill in the 'L' column. Write what you have learned in this chapter.

(Wait for students to fill in the chart.)

Teacher: Let us all give a huge round of applause to everyone for their hard work and creativity. Great work, everyone. See you in the next class. Have a wonderful day ahead.

Differentiated Activities

110 km/hr

Why is it important to tell a trusted adult if someone touches you in a bad way?

80 km/hr

How can you identify a bad touch? Mention one sign.

40 km/hr

Who can you talk to when you feel unsafe?

Home Task

Talk to your parents about what you learnt today. Ask them to share who they spoke to when they needed help as a child.

Learning Outcomes

The students will:

Domain	Learning Outcome
Physical Development	• demonstrate control and coordination while performing hands-on tasks like the jar activity, soil layering and seed planting in different soils.
Socio-Emotional and Ethical Development	• express responsibility towards nature by recognising the importance of soil conservation and showing care while handling soil and plants.
Cognitive Development	• identify and compare types of soil based on texture, colour and water-holding capacity and explain their role in crop growth.
Language and Literacy Development	• explain scientific concepts like soil formation and components using appropriate terms like humus, clayey and loamy in speech and writing.
Aesthetic and Cultural Development	• appreciate the role of soil in traditional practices like mitti chikitsa and represent soil-related learning through drawing and clay modelling.
Positive Learning Habits	• demonstrate curiosity, care and systematic observation in activities like seed planting and reflective tasks on soil utility.

Starry Knights

How were the learners' responses to the types of soil and growing plants using humus? Mention a few instances.

Give yourself a STAR.