Lesson-11: Movement of the Earth

10 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, Infographic, Quiz, Slideshow, Test Generator

Affirming better: I enjoy the wonders of nature.

Curricular Goals and Objectives (NCF)

To enable the students:

- to understand the movements of the Earth and their effects, such as day, night and seasons.
- to explain the concepts of axis, rotation, revolution and orbit using simple terms.
- to observe natural patterns and relate them to daily life and seasonal changes.
- to develop curiosity, routine-building and appreciation for nature and space exploration.

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.

Confirming better

Affirming better — I enjoy the wonders of nature. PLH 74

Teacher: Before we start the class, let us all say something positive together: 'I enjoy the wonders of nature.' Repeat after me: 'I enjoy the wonders of nature.'

Teacher: Alright. Today, we are going to begin a new chapter, 'Movement of the Earth.' 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

Kinaesthetic

Work in pairs. Draw the Sun, Moon and Earth. Swap your drawing with your partner and colour it. 74

MUST DO — 10 MIN.

Teacher: We are beginning with a fun task today. You have to work in pairs. Draw the Sun, Moon and Earth. Make sure all three are included in your drawing. Once you are done, swap your drawing with your partner. Now, colour your partner's drawing beautifully.

(Give time to the students to draw and colour.)

Teacher: Lovely work, everyone. Your drawings are full of detail. I am proud of your teamwork. Let us move to the next part.

Auditory

Auditory*

Listen to your teacher carefully. Answer the questions. 74

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: When Earth moves on its axis, this movement is called rotation. One rotation of Earth gets completed in 24 hours. Upon rotation of Earth, the part which faces the Sun gets light whereas the other half does not get light.

1. What is rotation?
2. During rotation, which part of the Earth gets light?

(Waits for student responses.)

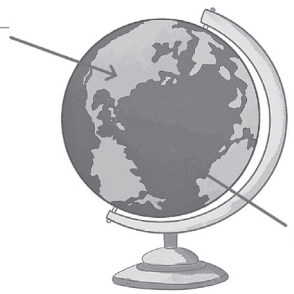
Teacher: Fantastic answers. You were all listening carefully. Now, let us try a pictorial task.

Pictorial

Pictorial PS

Fill in the blanks. Label the parts of the Earth correctly.

1. The Earth is made up of _____ and _____.
2. We breathe _____, which is present all around the Earth.
3. _____



4. _____

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Teacher: Everyone, please look at the Pictorial section.

MUST DO

10 MIN.

Teacher: Read the first sentence. Can you fill in the blanks?

Teacher: The Earth is made up of _____ and _____.

Teacher: Yes. The Earth is made up of land and water. Now try the second one.

Teacher: We breathe _____, which is present all around the Earth.

Teacher: Yes. We breathe air, which is present all around the Earth. Very good. Now, look at the picture of the Earth below. Let us label the parts.

Teacher: What do you think this arrow is pointing to? Write your answer next to number 3.

Teacher: Correct. The arrow is pointing to land. And what about number 4? Write your answer there.

Teacher: Correct. The arrow is pointing to water. Great observation. I am happy to see you identifying the parts correctly.

Differentiated Activities

110 km/hr

What is the name of the line on which the Earth spins?

80 km/hr

What do we breathe that surrounds the Earth?

40 km/hr

Name one thing you see on the surface of the Earth.

Home Task

Draw a simple picture of the Earth, Sun and Moon in your notebook.

Period 2

Interacting better

Interacting better ICL

We experience many seasons. Ask your partner which season they enjoy the most and why? 75

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

MUST DO

10 MIN.

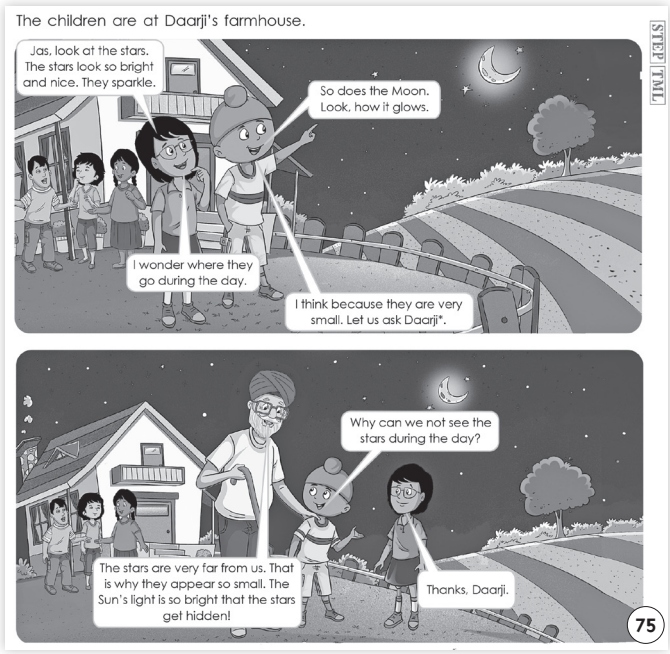
Teacher: Great. Let us do an interesting activity. We experience many different seasons throughout the year. Now, turn to your partner and ask, 'Which season do you enjoy the most and why?'

Teacher: Take turns and make sure you both share your answers. You may speak about what you like to do in that season too.

(Give time to the students to share their answers and discuss.)

(Use CRM signs to settle the class.)

Teacher: Wonderful. Thank you for being good listeners and good partners. Let us now move ahead with our next task.



Teacher: Everyone, open your books and look at the picture story given on page 75 of your Main Coursebook. Take a few minutes to read the conversation between the children and Daarji at the farmhouse. Observe the images and try to understand what they are talking about.

MUST DO
30 MIN.

(Let the students read the story.)

Teacher: Now that you have finished reading, let us discuss. Why do you think Jas and his friends were so curious about the stars?

Teacher: That is right. They saw the stars sparkling and wondered where they went during the day.

Teacher: Now tell me, what did Daarji say about why we cannot see the stars during the day?

Teacher: Well observed. The stars are very far away and their light is very faint. The Sun's light is so bright that it hides the stars. Can anyone explain what this tells us about the brightness of the Sun compared to the stars?

Teacher: Excellent. The Sun is much closer to the Earth, so its light overpowers that of the stars. Now tell me, how did Daarji help the children understand the reason clearly?

Teacher: Good. He used simple observations and explanations. How many of you have also wondered about this while looking at the sky?

Teacher: That is lovely to hear. Keep observing and keep thinking.

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

110 km/hr

Why do the stars disappear during the day?

80 km/hr

How does the Sun's brightness affect our ability to see the stars?

40 km/hr

Name one object in the sky that shines at night.

Home Task

Write three sentences about your favourite season and describe one thing you like to do during that season. Then, draw a small picture to show it.

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 are the two things that cover most of the Earth's surface? (Land and water)

Teacher: What do we breathe that is present all around the Earth? (Air)

Teacher: Which object do we live on – the Sun, the Moon or the Earth? (Earth)

Teacher: What is the shape of the Earth – round, square or triangle? (Round)

Teacher: What do we call the blue parts we see on a globe? (Water)

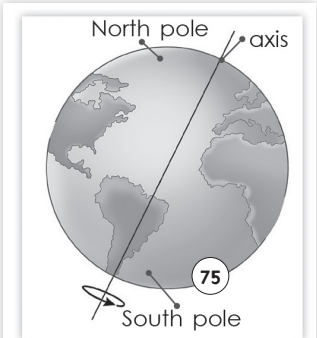
Teacher: Well done, everyone. Let us now move ahead with the lesson.

(The teacher will read the last paragraph of page 75 and the first and second paragraphs of page 76 aloud and provide explanations to ensure that the students understand the content.)

AXIS OF THE EARTH

Axis is an imaginary line around which an object spins or turns. It passes through the centre of an object.

The Earth also has an axis. It passes through the North Pole and the South Pole. The axis of the Earth is slightly tilted. The Earth spins around like a top on its axis. 75-76



Earth's axis

Teacher: Who can explain what an axis is?

MUST DO
15 MIN.

Teacher: Yes, it is an imaginary line around which an object spins or turns. Very good.

Discovering better

(Explain the terms mentioned in 'Discovering better' on page 75 of the Main Coursebook.)

Teacher: Where does this axis pass through in the case of the Earth?

Teacher: Correct – it passes through the centre of the Earth, from the North Pole to the South Pole.

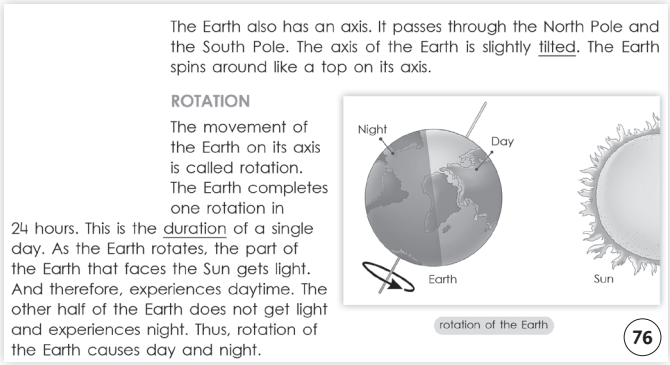
Teacher: Now, let us look at the picture. What do you see in the image? What is shown with arrows?

Teacher: That is the Earth's axis. Look closely – is it straight or tilted?

Teacher: Yes, it is slightly tilted. Very observant.

Teacher: The Earth spins like a top on its axis. Can you show that movement using your hand? Spin it gently in the air.

Teacher: Well done. That is exactly how the Earth moves. Now, let us learn what happens because of the Earth's spin.


The Earth also has an axis. It passes through the North Pole and the South Pole. The axis of the Earth is slightly tilted. The Earth spins around like a top on its axis.

ROTATION

The movement of the Earth on its axis is called rotation. The Earth completes one rotation in 24 hours. This is the duration of a single day. As the Earth rotates, the part of the Earth that faces the Sun gets light. And therefore, experiences daytime. The other half of the Earth does not get light and experiences night. Thus, rotation of the Earth causes day and night.

rotation of the Earth

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Teacher: Who can tell me what the movement of the Earth on its axis is called?

MUST DO 20 MIN.

Teacher: That is right – rotation.

Teacher: How long does one rotation of the Earth take?

Teacher: Yes, 24 hours. That is the time it takes for one full rotation – one day.

Teacher: What happens to the part of the Earth that faces the Sun during this rotation?

Teacher: Correct – it receives light and experiences daytime.

Teacher: And the other side that does not face the Sun?

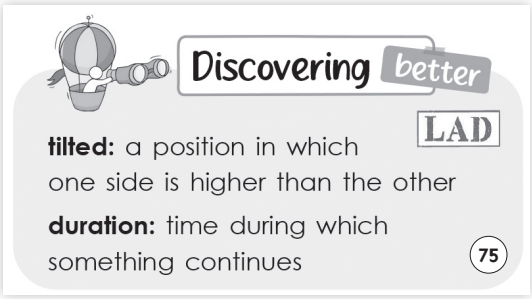
Teacher: Yes – it is night there. So what causes day and night?

Teacher: Absolutely correct. The rotation of the Earth causes day and night. Now let us look at the picture to understand this better.

Teacher: What do you observe in the image? Which side of the Earth is facing the Sun?

Teacher: Very good. That side has day and the opposite side has night. You all are doing a great job today. Keep it up.

Discovering better



(Explain the terms mentioned in 'Discovering better' on page 75 of the Main Coursebook.)

Differentiated Activities

110 km/hr

What causes day and night on the Earth?

80 km/hr

How many hours does the Earth take to complete one rotation?

40 km/hr

What is the movement of the Earth on its axis called?

Home Task

Draw a circle to show the Earth. Then draw arrows to show how the Earth rotates on its axis. Label where it is day and night.

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 the imaginary line called that passes through the Earth? (Axis)

Teacher: What are the two ends of the Earth called? (North Pole and South Pole)

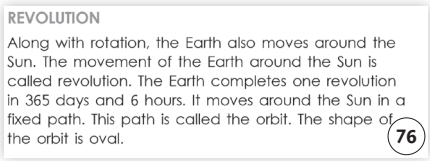
Teacher: What is the Earth doing when it spins on its axis? (Rotation)

Teacher: How many hours does rotation take? (24 hours)

Teacher: What does the Earth's rotation cause? (Day and night)

Teacher: Well done, everyone. Let us now move ahead with the lesson.

(The teacher will read the third paragraph of page 76 aloud and provide explanations to ensure that the students understand the content.)



REVOLUTION

Along with rotation, the Earth also moves around the Sun. The movement of the Earth around the Sun is called revolution. The Earth completes one revolution in 365 days and 6 hours. It moves around the Sun in a fixed path. This path is called the orbit. The shape of the orbit is oval.

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MUST DO 25 MIN.

Teacher: What is the movement of the Earth around the Sun called?

Teacher: Yes, that movement is called revolution. Very well done.

Teacher: How long does the Earth take to complete one revolution?

Teacher: That is right – 365 days and 6 hours. Excellent reading.

Teacher: Where does the Earth move during this revolution? What is the name of this path?

Teacher: Yes, it is called the orbit.

Teacher: Now, look at the picture given below the paragraph. What shape is the orbit in the image?

Teacher: That is correct – the orbit is oval.

Teacher: What do you see at the centre of the orbit?

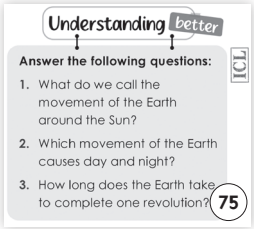
Teacher: The Sun, yes. And where is the Earth shown?

Teacher: Good observation. The Earth moves in this fixed oval path around the Sun.

Teacher: Well done, everyone. You have understood that the Earth moves around the Sun in an oval-shaped orbit. This movement is very important as it gives us different seasons.

Teacher: Excellent participation. You all are learning with great attention.

Understanding better



Understanding better

Answer the following questions:

1. What do we call the movement of the Earth around the Sun?
2. Which movement of the Earth causes day and night?
3. How long does the Earth take to complete one revolution?

ICL

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MUST DO 10 MIN.

Teacher: Let us now do the 'Understanding better' activity. Let us answer the questions together.

Teacher: First question – What do we call the movement of the Earth around the Sun?

Teacher: The answer is revolution. Well remembered.

Teacher: Second question – Which movement of the Earth causes day and night?

Teacher: Yes, that is rotation. Rotation happens on the axis and it causes day and night.

Teacher: Third question – How long does the Earth take to complete one revolution?

Teacher: The correct answer is 365 days and 6 hours. This is also called one year.

Teacher: Wonderful. Your answers show clear understanding. Keep it up.

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

Differentiated Activities

110 km/hr

What is the name of the path that the Earth follows around the Sun?

80 km/hr

How many days does the Earth take to complete one revolution?

40 km/hr

What is the movement of the Earth around the Sun called?

Home Task

Draw the Sun and the Earth. Show the oval path of the Earth's revolution and label it as 'orbit'.

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 the movement of the Earth around the Sun called? (Revolution)

Teacher: What is the name of the path in which the Earth moves? (Orbit)

Teacher: What is the shape of the orbit? (Oval)

Teacher: How many days does one revolution take? (365 days and 6 hours)

Teacher: What is present at the centre of the Earth's orbit? (Sun)

Teacher: Well done, everyone. Let us now move ahead with the lesson.

(The teacher will read the last paragraph of page 76 aloud and provide explanations to ensure that the students understand the content.)

MOVEMENTS OF THE EARTH – DIFFERENT SEASONS

We know that there are different seasons – summer, monsoon, winter, autumn and spring. These seasons are a result of the Earth's revolution.

Different seasons have different climatic conditions. For example, in summer, the days are hot, while in winters the days are cold.

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MUST DO 15 MIN.

Teacher: Now tell me, how many seasons are mentioned in the text?

Teacher: Yes, summer, monsoon, winter, autumn and spring. Well done.

Teacher: What causes these seasons to change?

Teacher: That is correct. These seasons are a result of the Earth's revolution.

Teacher: What do you understand by the line that says different seasons have different climatic conditions?

Teacher: That is a good explanation. It means that every season brings a change in the weather. For example, it is hot in summer, cold in winter and rainy during the monsoon. These changes affect what we wear, eat and do.

Teacher: Excellent. So now we know that Earth's revolution is responsible for the seasons we enjoy. Let us explore this further through an activity.

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

Teacher: Now, we will do a fun group activity called Season Circles.

Teacher: I will divide you into five groups. Each group will represent one season – summer, monsoon, winter, autumn or spring.

COULD DO
20 MIN.

Teacher: Each group will talk about the season, describe its weather and act out one thing people usually do in that season.

Teacher: For example, the summer group may pretend to use a fan. The monsoon group can pretend to use an umbrella.

Teacher: After preparing for a few minutes, each group will perform for the class.

(Divide the class into groups and let them perform the activity.)

Teacher: Well done, everyone. You are using your knowledge and creativity to show how seasons change with the Earth's revolution. I am very happy about your participation.

You may show the **Slideshow** given on the digital platform.

Differentiated Activities

110 km/hr

Which movement of the Earth causes different seasons?

80 km/hr

Name one season caused by the Earth's revolution.

40 km/hr

What is the season called when days are hot?

Home Task

Draw a picture of your favourite season. Write one sentence to describe the weather during that season.

Period 6

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: How many different seasons we usually experience in a year? (Five)

Teacher: What causes seasons to change? (Revolution)

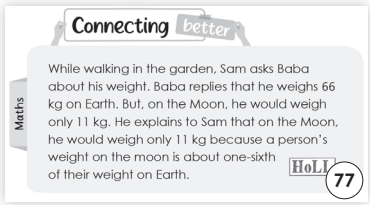
Teacher: What is the weather like in the summer? (Hot)

Teacher: What is the weather like in winter? (Cold)

Teacher: In which season do we use umbrellas? (Monsoon)

Teacher: Well done, everyone. You remembered the key ideas. Let us now move ahead with the lesson.

Connecting better



Teacher: Everyone, please look at the Connecting better section. Read the conversation between Sam and Baba.

MUST DO
10 MIN.

(Let the students read the 'Connecting better' section.)

Teacher: Let us begin with a quick question. How much does Baba say he weighs on Earth?

Teacher: Yes, 66 kilograms. Now think like a mathematician. What would his weight be on the Moon if it is one-sixth of 66?

Teacher: That is right, 11 kilograms. Very well done.

Teacher: Now tell me, why do you think his weight is less on the Moon than on Earth?

Teacher: Yes, because the Moon has less gravity than the Earth.

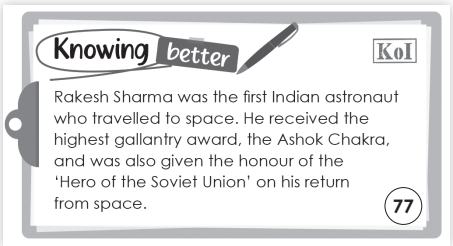
Teacher: So, we can say that a person's weight on the Moon is about one-sixth of their weight on Earth.

Teacher: If someone weighs 60 kilograms on Earth, what would be their weight on the Moon?

Teacher: Exactly 10 kilograms. That is how we use division in real life.

Teacher: This is how maths helps us understand science. Excellent thinking, everyone. Keep going like this.

Knowing better



Teacher: Now, look at the 'Knowing better' box.

MUST DO
10 MIN.

(Let the students read the 'Knowing better' section.)

Teacher: Tell me, who is the Indian astronaut mentioned here?

Teacher: Yes, Rakesh Sharma. Very good.
Teacher: What special award did he receive for his bravery and achievement?
Teacher: That is right – the Ashok Chakra.
Teacher: Can you find another honour that was given to him by the Soviet Union?
Teacher: Correct – he was called the 'Hero of the Soviet Union'.
Teacher: Now, think. Why do you think he received such honours?
Teacher: Yes, because he was the first Indian to travel to space. That was a big moment for our country.
Teacher: Excellent understanding. Keep reading like this and keep learning.

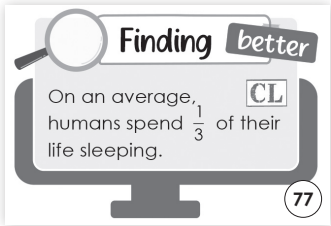
Healing better

Teacher: Look at the 'Healing better' box.
(Let the students read the 'Healing better' section.)

MUST DO
10 MIN.

Teacher: Let us begin. What time of day is mentioned as good for walking or running?
Teacher: Yes, early morning. Good observation.
Teacher: What happens to our bodies when we walk or run in the fresh air?
Teacher: Correct – it becomes stronger and our breathing system improves.
Teacher: Why do you think fresh air is helpful in the morning? Think and share your thoughts.
Teacher: That is a thoughtful response. The air is clean and calm at that time.
Teacher: Very well done. You are learning how science is part of our daily life. Keep taking care of your health.

Finding better



Teacher: Now read the 'Finding better' box.
(Let the students read the 'Finding better' section.)

MUST DO
5 MIN.

Teacher: What does it say about sleep?
Teacher: Yes, humans spend one-third of their life sleeping.
Teacher: Very good. That shows how important rest is for us.

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

Differentiated Activities

110 km/hr
How much would a 60-kg person weigh on the Moon?

80 km/hr
Name the first Indian astronaut who went to space.

40 km/hr
What helps improve our breathing?

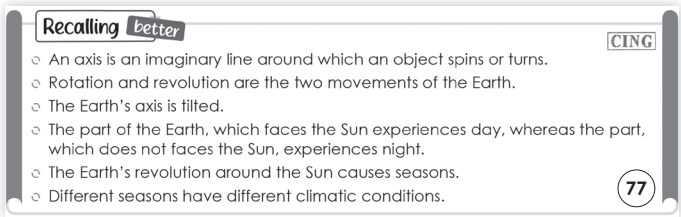
Home Task

Draw a small poster showing one healthy habit you follow. Write one sentence about how it helps your body.

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: How much does a person weigh on the Moon compared to Earth? (One-sixth)
Teacher: Who was the first Indian astronaut? (Rakesh Sharma)
Teacher: What award did Rakesh Sharma receive? (Ashok Chakra)
Teacher: What time of day is good for walking or running? (Early morning)
Teacher: What fraction of life do humans spend sleeping? (One-third)
Teacher: Well done, everyone. You remembered the key ideas. Let us now move ahead with the lesson.



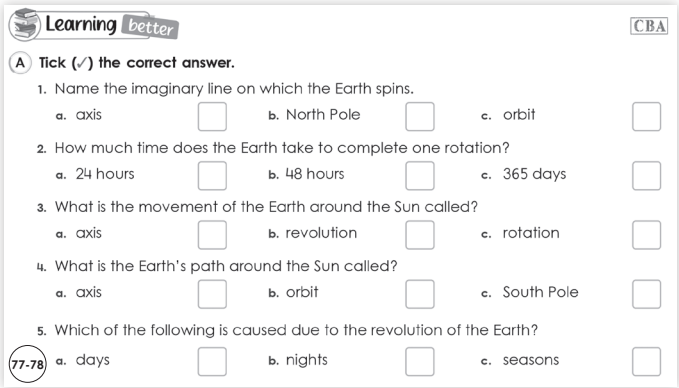
Teacher: Let us now move to 'Recalling better'. I will ask you questions. Try to remember all we have learnt so far.

MUST DO
15 MIN.

Teacher: What is an axis? Can anyone tell me what it means?
Teacher: Yes, an axis is an imaginary line around which an object spins or turns. Good memory.

Teacher: Now, think of the Earth. What are the two main movements of the Earth?
Teacher: Correct – rotation and revolution. Well remembered.
Teacher: Is the Earth's axis straight or tilted?
Teacher: Yes, it is tilted. Excellent observation.
Teacher: What happens to the part of the Earth that faces the Sun?
Teacher: Yes, it experiences day. And what about the part that does not face the Sun?
Teacher: Right, it experiences night.
Teacher: Now, think about the Earth's revolution. What does it cause?
Teacher: Correct – it causes the different seasons.
Teacher: Do all seasons feel the same?
Teacher: No, each season has different weather. That is called climatic conditions.
Teacher: You have recalled all the important points clearly. Well done. Let us now continue learning.

Learning better



Learning better CBA

A Tick (✓) the correct answer.

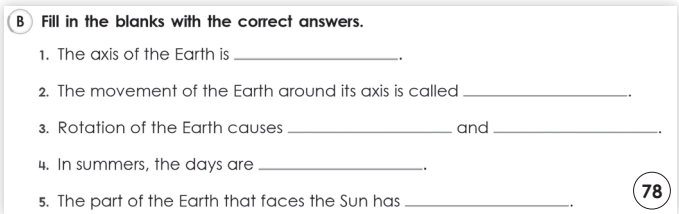
1. Name the imaginary line on which the Earth spins.
   a. axis ☐ b. North Pole ☐ c. orbit ☐
2. How much time does the Earth take to complete one rotation?
   a. 24 hours ☐ b. 48 hours ☐ c. 365 days ☐
3. What is the movement of the Earth around the Sun called?
   a. axis ☐ b. revolution ☐ c. rotation ☐
4. What is the Earth's path around the Sun called?
   a. axis ☐ b. orbit ☐ c. South Pole ☐
5. Which of the following is caused due to the revolution of the Earth?
   a. days ☐ b. nights ☐ c. seasons ☐

77-78

Teacher: Everyone, please open page 77 of your Main Coursebook. In Exercise 'A' of 'Learning better' you have to tick the correct answer. Are you ready to get started?

MUST DO
10 MIN.

Teacher: Great. Let us begin with the first question. Name the imaginary line on which the Earth spins.
Teacher: The correct answer is axis. Well done.
(Similarly, complete all five questions. And discuss the correct answers.)



B Fill in the blanks with the correct answers.

1. The axis of the Earth is _____.
2. The movement of the Earth around its axis is called _____.
3. Rotation of the Earth causes _____ and _____.
4. In summers, the days are _____.
5. The part of the Earth that faces the Sun has _____.

78

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

MUST DO
10 MIN.

Teacher: Great. Let us begin with the first question. The axis of the Earth is _____.
Teacher: The correct answer is tilted. Well done.
(Similarly, complete all five questions. And discuss the correct answers.)

Differentiated Activities

110 km/hr
Which movement of the Earth causes the seasons?
80 km/hr
What is the name of the line around which the Earth spins?
40 km/hr
What causes day and night?

Home Task

Draw the Earth and the Sun. Show one side of the Earth facing the Sun (day) and one side not facing the Sun (night). Label them.

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 imaginary line around which the Earth spins? (Axis)
Teacher: What are the two movements of the Earth? (Rotation and revolution)
Teacher: What causes day and night? (Rotation)
Teacher: What causes the different seasons? (Revolution)
Teacher: What is the Earth's axis – straight or tilted? (Tilted)
Teacher: Well done, everyone. Let us now begin our new lesson.

Learning better

C Write short answers in your notebook.

1. Name the two types of movements of the Earth.
2. Define orbit.
3. Why do we have different seasons?

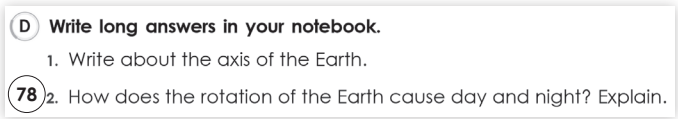
78

Teacher: Everyone, please open page 78 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?

MUST DO
15 MIN.

Teacher: Great. Let us begin with the first question. Name the two types of movements of the Earth.

(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.)


D Write long answers in your notebook.
1. Write about the axis of the Earth.
78 2. How does the rotation of the Earth cause day and night? Explain.

Teacher: Let us explore some long-answer questions. In Exercise 'D' of the 'Learning better', you have to write a long answer. Let us begin with the first question. Write about the axis of the Earth.

MUST DO
20 MIN.

(Students have to write the answers for the given questions in about 100 to 150 words in their notebook. Wait for the students to write the answers.)
(Similarly, complete the second question and discuss the correct answer with the class.)
(Instruct the students to bring their Little Book in their next class.)

Differentiated Activities

110 km/hr

What is the shape of the path in which the Earth moves around the Sun?

80 km/hr

Which half of the Earth experiences night – the one facing the Sun or the one away from it?

40 km/hr

Name one season caused by the Earth's movement.

Home Task

Complete the 'Creating better' activity (Make a model of the Earth from wastepaper.) given on page 78 of the Main Coursebook.

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 would happen if the Earth stopped rotating? (No day or night)
Teacher: Which movement of the Earth takes longer – rotation or revolution? (Revolution)
Teacher: In which season do we wear woollen clothes? (Winter)
Teacher: What is the position of the Earth's axis – straight or slanted? (Slanted)
Teacher: Why do we not feel the Earth spinning even though it rotates? (Because everything around us, including the air, is moving with it at the same steady speed and there is no sudden movement or change, we do not notice it.)
Teacher: Well done, everyone. You answered all the questions thoughtfully. Let us now move ahead with the lesson.

Thinking better

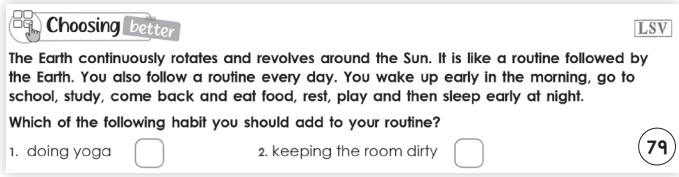

Thinking better 21st CS HOTS
Think and write the answer in your notebook.
The Earth revolves around the Sun in 365 days and 6 hours. This is the actual duration of one year. But, we usually have only 365 days in a year. What do you think happens to the extra 6 hours? 79

Teacher: Let us begin with a question to make us think deeply.

MUST DO
10 MIN.

Teacher: The Earth takes 365 days and 6 hours to revolve around the Sun. However, our calendar year has only 365 days.
Teacher: Now, what do you think happens to the extra 6 hours? Think and write the answer in your notebook.
(Let the students think and write the answer.)
Teacher: Great thoughts. The extra 6 hours are not counted in the regular year. So, after 4 years, these 6 extra hours add up to 24 hours, which is why we have a leap year with 366 days.
Teacher: Well done, everyone. Your answers show great thinking. Keep it up.

Choosing better

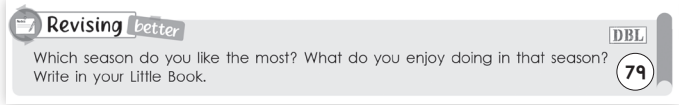

Choosing better LSV
The Earth continuously rotates and revolves around the Sun. It is like a routine followed by the Earth. You also follow a routine every day. You wake up early in the morning, go to school, study, come back and eat food, rest, play and then sleep early at night.
Which of the following habit you should add to your routine?
1. doing yoga ☐ 2. keeping the room dirty ☐ 79

Teacher: Let us now look at 'Choosing better'. Read the paragraph about how the Earth follows a routine.

MUST DO
5 MIN.

Teacher: Just like the Earth, you also follow a daily routine. Look at the two options given.
Teacher: Which habit should you add to your routine – doing yoga or keeping the room dirty?
(Let the students choose.)
Teacher: Yes, doing yoga. That is a healthy choice. Well done for making the right decision.

Revising better


Revising better DBL
Which season do you like the most? What do you enjoy doing in that season? Write in your Little Book. 79

Teacher: Next is 'Revising better'. Think about the seasons you have learnt.

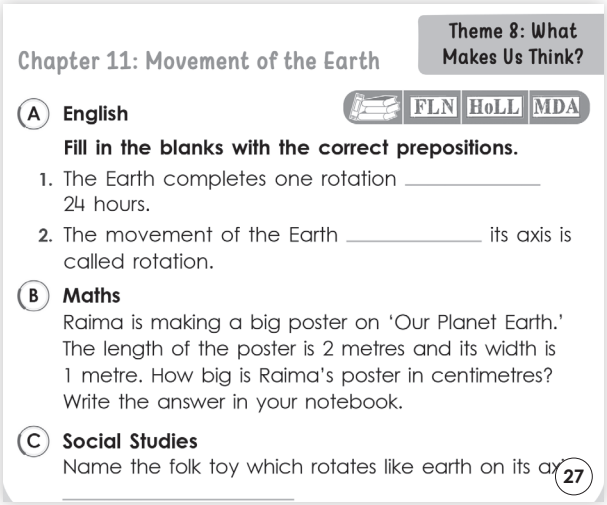
MUST DO
5 MIN.

Teacher: Which season do you like the most? What do you enjoy doing in that season? Write your answer in your Little Book.

(Let the students write their answers in the Little Book.)

Teacher: Lovely reflections, everyone.

Book of Holistic Teaching



Chapter 11: Movement of the Earth

Theme 8: What Makes Us Think?

FLN HoLL MDA

(A) **English**

Fill in the blanks with the correct prepositions.

1. The Earth completes one rotation _____ 24 hours.
2. The movement of the Earth _____ its axis is called rotation.

(B) **Maths**

Raima is making a big poster on 'Our Planet Earth.' The length of the poster is 2 metres and its width is 1 metre. How big is Raima's poster in centimetres? Write the answer in your notebook.

(C) **Social Studies**

Name the folk toy which rotates like earth on its ax

27

COULD DO

15 MIN.

Refer to the Book of Holistic Teaching, page number 27 under the title 'Movement of the Earth.' 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

Why do we not count the extra 6 hours in a normal year?

80 km/hr

What healthy habit can you add to your daily routine?

40 km/hr

Name one season you like.

Home Task

The Project Idea, given in the book of Project Ideas, page 16 under the title 'Movement of the Earth.' 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 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 if the Earth's axis were not tilted? (There would be no seasons and the climate would be the same throughout the year.)

Teacher: If the Earth did not rotate, what would happen to day and night? (We would experience either constant day or constant night, with no changes.)

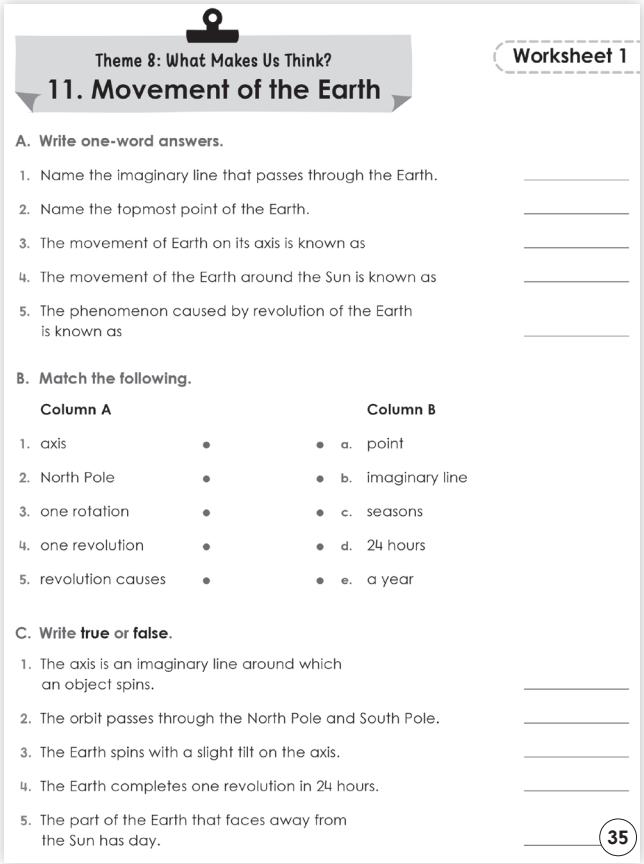
Teacher: Why do we need a leap year every four years? (The extra 6 hours every year add up to one extra day, which is added in a leap year.)

Teacher: If you lived on the Moon, how would the experience of time be different? (Days and nights would last much longer, as the Moon's rotation is slower than Earth's.)

Teacher: Why is it important to have a routine, just like the Earth follows a routine of rotation and revolution? (Having a routine helps us stay organised, healthy and aware of time.)

Teacher: Well done, everyone. Your answers show great thinking. Let us now move ahead with the lesson.

Worksheet 1



Theme 8: What Makes Us Think?

Worksheet 1

11. Movement of the Earth

A. Write one-word answers.

1. Name the imaginary line that passes through the Earth. _____
2. Name the topmost point of the Earth. _____
3. The movement of Earth on its axis is known as _____
4. The movement of the Earth around the Sun is known as _____
5. The phenomenon caused by revolution of the Earth is known as _____

B. Match the following.

Column A		Column B
1. axis	•	• a. point
2. North Pole	•	• b. imaginary line
3. one rotation	•	• c. seasons
4. one revolution	•	• d. 24 hours
5. revolution causes	•	• e. a year

C. Write true or false.

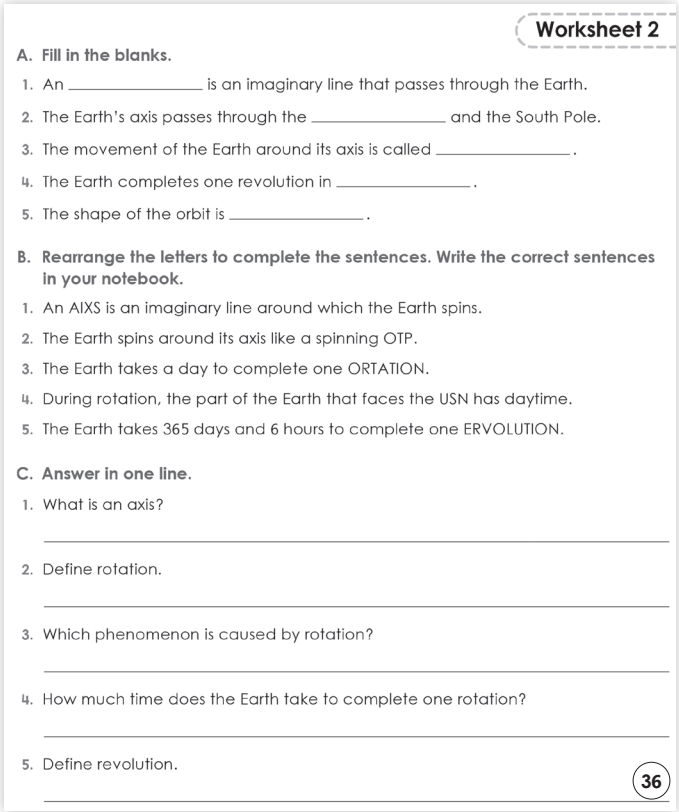
1. The axis is an imaginary line around which an object spins. _____
2. The orbit passes through the North Pole and South Pole. _____
3. The Earth spins with a slight tilt on the axis. _____
4. The Earth completes one revolution in 24 hours. _____
5. The part of the Earth that faces away from the Sun has day. _____

35

Teacher: Let us do some activities from the workbook. Everybody, please open page 35 of your workbook and answer the questions given in worksheet - 1. (Let the students answer the questions on their own. Then discuss the answer by writing the correct answer on the blackboard.)

MUST DO
10 MIN.

Worksheet 2



Worksheet 2

A. Fill in the blanks.

1. An _____ is an imaginary line that passes through the Earth.
2. The Earth's axis passes through the _____ and the South Pole.
3. The movement of the Earth around its axis is called _____.
4. The Earth completes one revolution in _____.
5. The shape of the orbit is _____.

B. Rearrange the letters to complete the sentences. Write the correct sentences in your notebook.

1. An AIXS is an imaginary line around which the Earth spins.
2. The Earth spins around its axis like a spinning OTP.
3. The Earth takes a day to complete one ORTATION.
4. During rotation, the part of the Earth that faces the USN has daytime.
5. The Earth takes 365 days and 6 hours to complete one ERVOLUTION.

C. Answer in one line.

1. What is an axis?
2. Define rotation.
3. Which phenomenon is caused by rotation?
4. How much time does the Earth take to complete one rotation?
5. Define revolution.

36

Teacher: Let us do some activities from the worksheet - 2. Everybody, please open page 36 of your workbook and answer the questions given in worksheet – 2.

MUST DO
10 MIN.

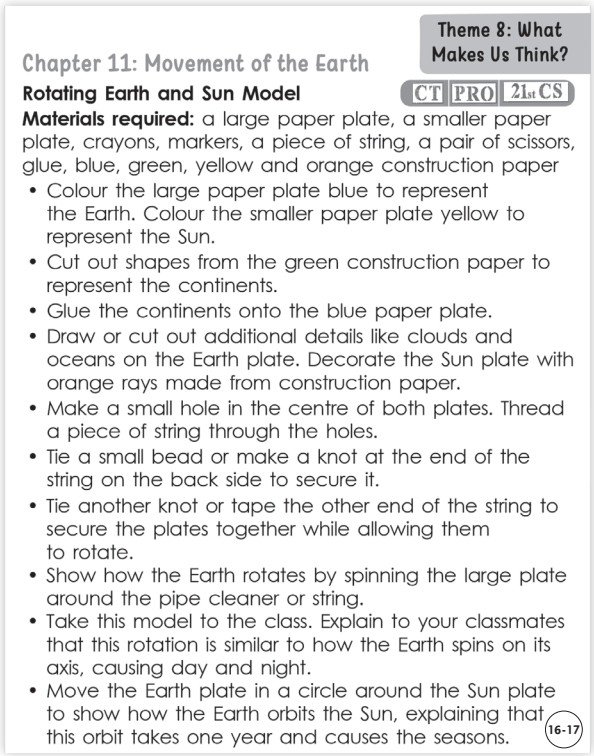
(Let the students answer the questions on their own. Then discuss the answer by writing the correct answer on the blackboard.)

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

Book of Project Ideas

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.

COULD DO
10 MIN.



Theme 8: What Makes Us Think?

Chapter 11: Movement of the Earth

CT PRO 21st CS

Rotating Earth and Sun Model

Materials required: a large paper plate, a smaller paper plate, crayons, markers, a piece of string, a pair of scissors, glue, blue, green, yellow and orange construction paper

- Colour the large paper plate blue to represent the Earth. Colour the smaller paper plate yellow to represent the Sun.
- Cut out shapes from the green construction paper to represent the continents.
- Glue the continents onto the blue paper plate.
- Draw or cut out additional details like clouds and oceans on the Earth plate. Decorate the Sun plate with orange rays made from construction paper.
- Make a small hole in the centre of both plates. Thread a piece of string through the holes.
- Tie a small bead or make a knot at the end of the string on the back side to secure it.
- Tie another knot or tape the other end of the string to secure the plates together while allowing them to rotate.
- Show how the Earth rotates by spinning the large plate around the pipe cleaner or string.
- Take this model to the class. Explain to your classmates that this rotation is similar to how the Earth spins on its axis, causing day and night.
- Move the Earth plate in a circle around the Sun plate to show how the Earth orbits the Sun, explaining that this orbit takes one year and causes the seasons.

16-17

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 does the Earth's tilt affect the length of day and night during different seasons?

80 km/hr

Why do we experience different weather in each season?

40 km/hr

What do we call the movement of the Earth around the Sun?

Home Task

Draw a diagram of the Earth, Sun and Moon showing the Earth's rotation and revolution. Label the different parts, including the axis, the orbit and the position of day and night.

Write a short description of how the Earth's movements cause day and night and different seasons.

Learning Outcomes

The students will:

Domain	Learning Outcome
Physical Development	• enhance physical coordination and health awareness by observing how the Earth's movements affect the natural world, such as adjusting daily routines to align with the changes in day, night and seasons and incorporating physical activities like walking, running or yoga to improve well-being in response to these natural cycles.
Socio-Emotional and Ethical Development	• appreciate the importance of the Earth's movements in sustaining life and the environment and develop a sense of responsibility towards maintaining natural balance through understanding seasons and climate change.
Cognitive Development	• explain the concepts of Earth's axis, rotation and revolution and understand how these movements cause day and night, as well as the changing seasons, applying this knowledge to real-life contexts like timekeeping and weather patterns.
Language and Literacy Development	• use appropriate scientific vocabulary in oral and written forms to explain the concepts of Earth's rotation and revolution and describe their effects on seasons and environmental changes.
Aesthetic and Cultural Development	• create models or drawings to visually represent Earth's rotation, revolution and axis and appreciate the cultural relevance of these concepts through their connection to festivals, traditions and seasonal activities.
Positive Learning Habits	• foster curiosity and critical thinking by exploring questions about how the Earth's movements influence life on Earth and develop habits of observing natural phenomena, such as seasonal changes and understanding their effects on the community.

Starry Knights

Have you achieved your target of the mid-session in Science class?

_____

If yes, write how do you feel.

_____

Award yourself a STAR for being an efficient teacher..

Lesson-12: Going into Space

10 Periods (40 minutes each)

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

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

Affirming better: I am proud of what I do.

Curricular Goals and Objectives (NCF)

To enable the students:

- to develop curiosity about space and gravity.
- to learn about astronauts and space missions.
- to understand why life is not possible on the Moon.
- to think critically and work together with others.

Methodology

Period 1

SHOULD DO — 5 MIN.

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

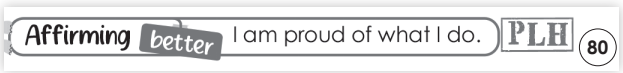
Teacher: Great. Before we dive into our lesson, let us take a moment to relax and focus our minds with a short meditation. Ready?

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 say something positive together: 'I am proud of what I do.' Repeat after me: 'I am proud of what I do.'

Teacher: Alright. Today, we are going to begin a new chapter, 'Going into Space.' 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.

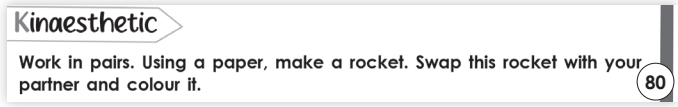
MUST DO — 5 MIN.

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.

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: Everyone, please take a sheet of paper. Today, we are going to make something very exciting. Can anyone guess what it might be?

MUST DO — 10 MIN.

Teacher: Yes, we are making a rocket. Make your rocket using the paper. Fold it carefully. Once you are ready, please swap your rocket with your partner.

Teacher: Now, colour the rocket you received from your partner. Use bright colours and be creative.

(Give time to the students to make the rocket and colour.)

Teacher: Very good. I can see some wonderful rockets already. Well done, everyone.

Auditory

Auditory*

Listen to your teacher carefully. Answer the questions. 80

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?

Teacher: In order to go to space, we use special vehicles because these vehicles have the power and speed to take us away from the Earth's gravitational force. A spacecraft is carried into the space using space rockets.

1. Why special vehicles are used to travel into space?
2. How does a spacecraft is carried into the space?

(Waits for student responses.)

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

Pictorial

Pictorial PS

Match the following.



Rocket | Kalpana Chawla | Moon

80

MUST DO 10 MIN.

Teacher: Look at the three pictures in front of you. One is of Kalpana Chawla, one is of the Moon and one is of a Rocket.

Teacher: Now, look at the words below the pictures. Match the pictures with the correct words. Take your time. Point to the correct match.

Teacher: Wonderful matching. I can see many correct answers. I am proud of you all for observing so carefully.

Differentiated Activities

110 km/hr

What force pulls a rocket back to the Earth?

80 km/hr

What do we use to travel into space?

40 km/hr

What do we see shining in the night sky?

Home Task

Draw a picture of a rocket and label any two parts of it. Then, write one sentence about where rockets go.

Period 2

Interacting better

Interacting better ICL

What you and your partner think astronauts* see in space when they look out of the window of the spacecraft*? Discuss with your partner. 81

MUST DO 10 MIN.

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

Teacher: Great. Everyone, please look at the 'Interacting better' section. Imagine you are in a spacecraft. What do you think astronauts see when they look out of the window?

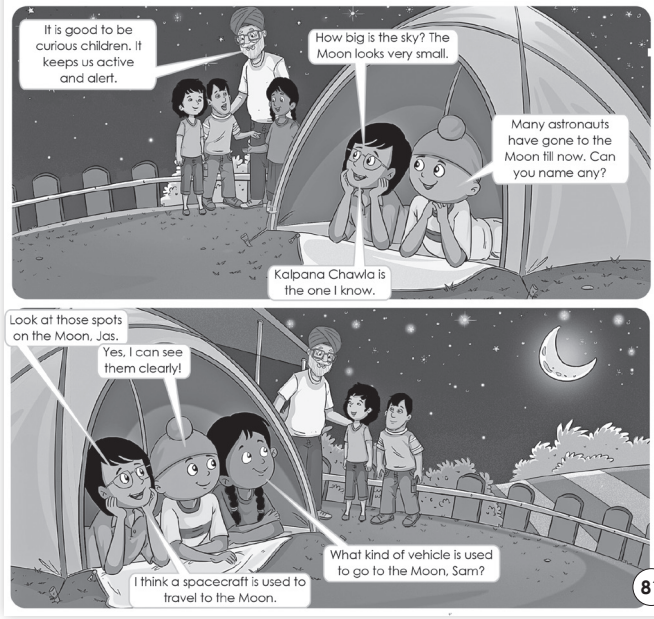
Teacher: Now, talk to your partner about your ideas. Take turns and listen carefully to each other.

(Give time to the students to share their answers and discuss.)

(Use CRM signs to settle the class.)

Teacher: I hear some brilliant thoughts. Stars, planets and the Earth are great answers. Well done for sharing so creatively.

The children play in the farmhouse garden for some time. But they want to know more about the outer space.



MUST DO 30 MIN.

Teacher: Everyone, open your books and look at the picture story given on page 81 of your Main Coursebook. 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: Who is the astronaut mentioned in the story?

Teacher: Yes, that is correct. It is Kalpana Chawla. She was the first woman of Indian origin to travel into space.

Teacher: What kind of vehicle is used to travel to the Moon?

Teacher: Good thinking. The answer is a spacecraft. It helps astronauts go into space.

Teacher: What do the children notice on the Moon?

Teacher: That is right. They noticed some spots on the surface. These are called craters. That is a very good observation.

Teacher: Can you name any other astronaut apart from Kalpana Chawla?

Teacher: Excellent. Some of you mentioned the names of Neil Armstrong and Rakesh Sharma. That shows you are connecting your knowledge well.

Teacher: What do you think astronauts see when they look out from the spacecraft window?

Teacher: Those were some creative answers. Astronauts may see stars, planets, the Earth and a lot of darkness. Your imagination is wonderful.

Teacher: I am very happy with how well you all read and understood the story. Keep thinking and exploring just like real scientists.

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

Differentiated Activities

110 km/hr

Why can astronauts not live on the Moon without a suit?

80 km/hr

What do astronauts see outside the spacecraft window?

40 km/hr

What vehicle is used to go into space?

Home Task

Draw a picture of what you think astronauts see when they look out from a spacecraft window. Write two things that you have drawn in your picture.

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 force pulls everything back to the Earth?

(Gravity)

Teacher: What special vehicle is needed to travel into space? (Spacecraft)

Teacher: Why can humans not live on the Moon? (No air)

Teacher: What are the dark spots on the Moon called? (Craters)

Teacher: Who was the first woman of Indian origin to go into space? (Kalpana Chawla)

Teacher: Well done, everyone. Let us now move ahead with the lesson.

(The teacher will read the last paragraph of page 81 and the first two paragraphs of page 82 aloud and provide explanations to ensure that the students understand the content.)

SPACE

Throw a stone up in the air, it will always fall back to the ground. This pull or force of attraction is called the force of gravity. It is not easy to get out of the Earth's gravitational pull and enter space. There are special vehicles that have the power and speed to take us away from the Earth's gravitational force.

81-82

MUST DO

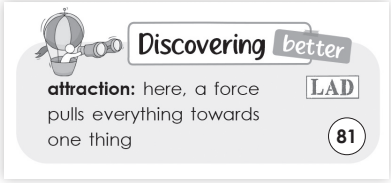
15 MIN.

Teacher: When you throw a stone up into the air, what happens to it?

Teacher: Yes, it comes back down. Very good. Do you know what force brings it back?

Teacher: Correct. It is called gravity. Gravity is a pulling force. It always pulls things back to the Earth.

Discovering better



(Explain the term 'attraction' mentioned in 'Discovering better' on page 81 of the Main Coursebook.)

Teacher: Look at the word 'attraction' in the paragraph. What do you think it means here?

Teacher: Exactly. It means a pull towards something. In this case, the Earth pulls everything towards itself.

Teacher: Now, is it easy to escape the Earth's gravity?

Teacher: That is right. It is not easy to get out of the Earth's gravitational pull.

Teacher: Can you name something that helps us escape this pull?

Teacher: Very good. Special vehicles like rockets help us. They have a lot of power and speed.

Teacher: Wonderful thinking today. You are all using your reading and understanding skills so well. Let us keep learning with the same energy.

SPACE TRAVEL

Astronauts go into space in a spacecraft. Space rockets are vehicles, which are used to carry a spacecraft into space. They wear special suits that contain a supply of oxygen. These suits also protect them from harmful rays of the Sun. Astronauts are trained to live in space for many days. They study the space closely during this time.

82

Teacher: Let us move to the next topic: space travel.

MUST DO
20 MIN.

Teacher: Who goes into space in a spacecraft?
Teacher: Yes, astronauts. They are trained to live in space and observe it closely. Very well answered.
Teacher: What vehicle carries a spacecraft into space?
Teacher: Correct. Space rockets carry the spacecraft. They are very powerful.
Teacher: What do astronauts wear to stay safe in space?
Teacher: That is right. They wear special suits. These suits help them breathe and protect them from the Sun's harmful rays.
Teacher: What is inside these suits that helps astronauts survive?
Teacher: Excellent. There is oxygen inside the suits.
Teacher: How long do astronauts stay in space?
Teacher: Yes, they stay for many days and study space carefully.
Teacher: Well done, everyone. You read the paragraph with focus and answered with confidence. I am proud of your efforts.

Differentiated Activities

110 km/hr

What force keeps everything on the ground?

80 km/hr

Name the vehicle that helps us go into space.

40 km/hr

What pulls a stone back when thrown up?

Home Task

Write two sentences explaining why rockets are needed to travel into space. Draw a rocket and label its tip.

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 the name of the force that pulls everything down? (Gravity)
Teacher: Is it easy or hard to escape the Earth's pull? (Hard)
Teacher: What kind of vehicles help us travel to space? (Space rockets)
Teacher: What do space rockets need to escape Earth's gravity? (Power and speed)
Teacher: What happens when we leave the Earth's gravitational force? (We enter space)
Teacher: Very good answers. Let us now move ahead with the lesson.
(The teacher will read the third and fourth paragraphs of page 82 aloud and provide explanations to ensure that the students understand the content.)


Neil Armstrong

HUMANS ON THE MOON

Humans went to the Moon for the first time in 1969 on a spacecraft, called Apollo 11. Neil Armstrong was the first man to step on the surface of the Moon. The first words he said after landing on the Moon were, "That's one small step for man, but a giant leap for mankind." The two other astronauts who travelled with Neil Armstrong were Edwin Aldrin and Michael Collins. Rakesh Sharma was the first Indian to go to space.

82

Teacher: Let us begin by discussing the 'Humans on the Moon' section.

MUST DO
20 MIN.

Teacher: Look at the picture beside the text. Who do you think this person is?
Teacher: Yes, this is Neil Armstrong. He was the first man to step on the surface of the Moon in 1969.
Teacher: Which spacecraft took him there?
Teacher: That is correct. It was Apollo 11.
Teacher: What did he say after stepping on the Moon?
Teacher: Yes, he said, 'That is one small step for man, but a giant leap for mankind.' That was a very famous moment in history.
Teacher: Can you name the two other astronauts who travelled with him?
Teacher: Good. Their names were Edwin Aldrin and Michael Collins.
Teacher: Now, who was the first Indian to go to space?
Teacher: Well done. The answer is Rakesh Sharma.

Kalpana Chawla

Kalpana Chawla was the first woman of Indian origin to go into space. She first went in the space shuttle Columbia in 1997. She went into space again in January 2003.

82


Kalpana Chawla 82

Teacher: Let us now discuss the next part about Kalpana Chawla.

MUST DO
15 MIN.

Teacher: What do we learn about Kalpana Chawla in this paragraph?
Teacher: That is right. She was the first woman of Indian origin to go into space.

Teacher: Which space shuttle did she travel in for her first mission?
Teacher: Yes, it was Columbia, in the year 1997.
Teacher: Did she go to space again?
Teacher: She did. Her second journey was in January 2003.
Teacher: You all answered each question with understanding. Brilliant work, everybody.

Differentiated Activities

110 km/hr

Name the two astronauts who went to the Moon with Neil Armstrong.

80 km/hr

In which year did Neil Armstrong land on the Moon?

40 km/hr

Who was the first Indian woman to go to space?

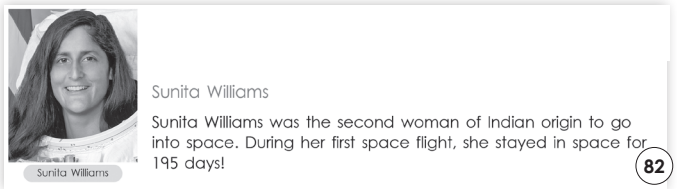
Home Task

Write two sentences about Neil Armstrong and one sentence about Kalpana Chawla. Draw a small flag of India beside your writing.

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: Who was the first man to walk on the Moon? (Neil Armstrong)
Teacher: What was the name of the spacecraft that took him to the Moon? (Apollo 11)
Teacher: Who was the first Indian to go to space? (Rakesh Sharma)
Teacher: In which year did Kalpana Chawla first go to space? (1997)
Teacher: What was the name of Kalpana Chawla's space shuttle? (Columbia)
Teacher: Excellent work. Let us now move ahead with the lesson.
(The teacher will read the last two paragraphs of page 82 aloud and provide explanations to ensure that the students understand the content.)



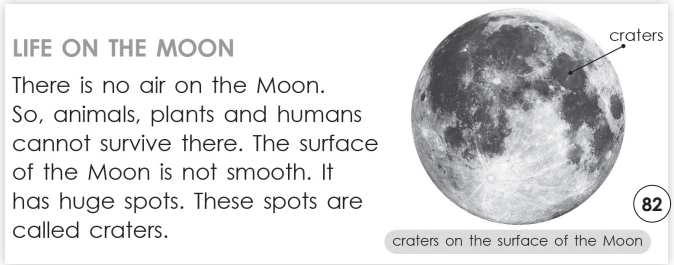
MUST DO
5 MIN.

Teacher: Let us discuss about Sunita Williams.
Teacher: Who is Sunita Williams?
Teacher: That is right. She was the second woman of Indian origin to go into space.
Teacher: How many days did she stay in space during her first space flight?
Teacher: Yes, she stayed in space for 195 days. That is a long time.
Teacher: Wonderful effort. You are all paying close attention.

Poster

MUST DO
10 MIN.

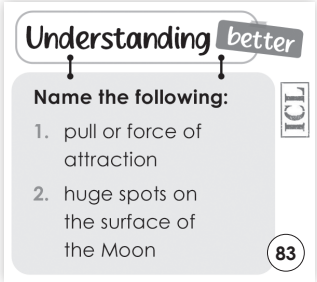
Teacher: Let us take a moment to look at the poster on the wall.
(Please display and discuss the posters prominently in the classroom to reinforce the learning about the Astronauts who landed on the Moon. Encourage students to observe the posters and identify and discuss the different Astronauts who landed on the Moon.)
Teacher: Great observation, everyone.



MUST DO
10 MIN.

Teacher: Now, let us discuss the topic of Life on the Moon.
Teacher: Can animals, plants or humans live on the Moon?
Teacher: No, they cannot because there is no air. Well done for noticing that.
Teacher: Is the surface of the Moon smooth?
Teacher: That is correct. It is not smooth. It has many large spots.
Teacher: What are these spots called?
Teacher: Yes, they are called craters. Craters are bowl-shaped holes formed when rocks from space hit the Moon's surface. Look at the image and find the label craters.
Teacher: Excellent observation. You are all doing an excellent work. Keep it up.
You may show the **Animation** given on the digital platform.

Understanding better



Teacher: Now, look at the 'Understanding better' box.

Teacher: What is the pull or force of attraction called?

MUST DO
10 MIN.

Teacher: Correct. It is called gravity.

Teacher: What are the huge spots on the surface of the Moon called?

Teacher: Yes, they are craters.

Teacher: Very good. Let us now move ahead with the lesson.

Differentiated Activities

110 km/hr

How are craters formed on the Moon and what makes their shape bowl-like?

80 km/hr

What is the name of the huge spots on the Moon?

40 km/hr

Can humans live on the Moon?

Home Task

Draw the Moon and mark two craters. Write one sentence about why humans cannot live on the Moon.

Period 6

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: Who stayed in space for 195 days? (Sunita Williams)

Teacher: Why can humans not live on the Moon? (No air)

Teacher: What is the surface of the Moon covered with? (Craters)

Teacher: What is the shape of a crater? (Spot or hole)

Teacher: What is the force that pulls things to Earth? (Gravity)

Teacher: Great answers, everyone. Let us now move ahead with the lesson.

PROJECT CHANDRAYAAN

Chandrayaan is a series of space programmes carried out by the Indian Space Research Organisation (ISRO). Its aim is to explore the Moon. Chandrayaan 1 (Moon craft) found water on the Moon.

Chandrayaan 3 is India's first mission to successfully land on the Moon.

83

Teacher: Let us discuss the topic of 'Project Chandrayaan'. Read the paragraph silently and carefully.

MUST DO
10 MIN.

Teacher: What is Chandrayaan?

Teacher: Yes, it is a series of space programmes carried out by ISRO.

Teacher: What was the aim of Chandrayaan?

Teacher: That is correct. It aimed to explore the Moon.

Teacher: What did Chandrayaan 1 discover?

Teacher: Very good. It found water on the Moon.

Teacher: What is special about Chandrayaan 3?

Teacher: Yes, it is India's first mission to land successfully on the Moon. Wonderful responses.

Grasping better

Teacher: Now, let us revise the terms from the 'Grasping better' section.

MUST DO
5 MIN.

Teacher: Who are astronauts?

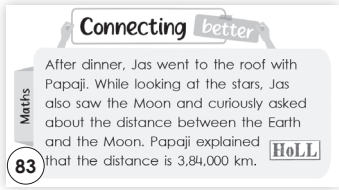
Teacher: Yes, they are people who travel and work in a spacecraft.

Teacher: What is a spacecraft?

Teacher: Correct. It is a vehicle designed for space travel.

Teacher: Good work. You all understand the meanings clearly.

Connecting better



Teacher: Now let us look at 'Connecting better'. Read the conversation between Jas and Papaji.

MUST DO
10 MIN.

(Let the students read the conversation.)

Teacher: What did Jas ask Papaji while looking at the stars?

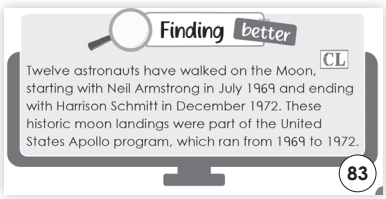
Teacher: That is right. He asked about the distance between the Earth and the Moon.

Teacher: What answer did Papaji give?

Teacher: Very good. He said the distance is 3,84,000 km.

Teacher: Well done everybody. You are all doing very well.

Finding better



Teacher: Let us read 'Finding better'. Read the paragraph silently.

MUST DO
10 MIN.

(Let the students read.)

Teacher: How many astronauts have walked on the Moon?

Teacher: Correct. Twelve astronauts have walked on the Moon.
Teacher: Who was the first astronaut to walk on the Moon?
Teacher: Yes, Neil Armstrong in July 1969. Excellent.
Teacher: When did the last astronaut walk on the Moon?
Teacher: That is right. Harrison Schmitt in December 1972.
Teacher: Which programme were these landings part of?
Teacher: Good. The United States Apollo programme.
Teacher: You have read and understood everything very clearly. Well done.

You may show the **Concept Map** and **Animated Activities** given on the digital platform.

Differentiated Activities

110 km/hr

What did Chandrayaan 1 discover on the Moon?

80 km/hr

Who was the first astronaut to walk on the Moon?

40 km/hr

How far is the Moon from the Earth?

Home Task

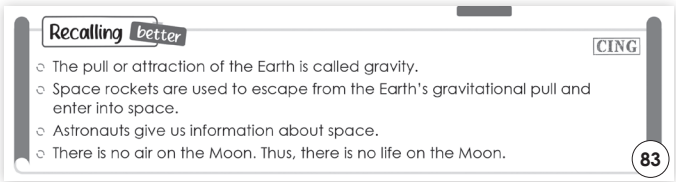
Complete the 'Trying better' activity given on page 83 of the Main Coursebook.

Period 7

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 is the full form of ISRO? (Indian Space Research Organisation)
Teacher: Which Chandrayaan mission was the first to land successfully on the Moon? (Chandrayaan 3)
Teacher: What is the Moon's surface covered with? (Craters)
Teacher: Who was the last astronaut to walk on the Moon in 1972? (Harrison Schmitt)
Teacher: How far is the Moon from the Earth? (3,84,000 km)
Teacher: Brilliant work. Let us now move ahead with the lesson.


Recalling better
CING
- The pull or attraction of the Earth is called gravity.
- Space rockets are used to escape from the Earth's gravitational pull and enter into space.
- Astronauts give us information about space.
- There is no air on the Moon. Thus, there is no life on the Moon.

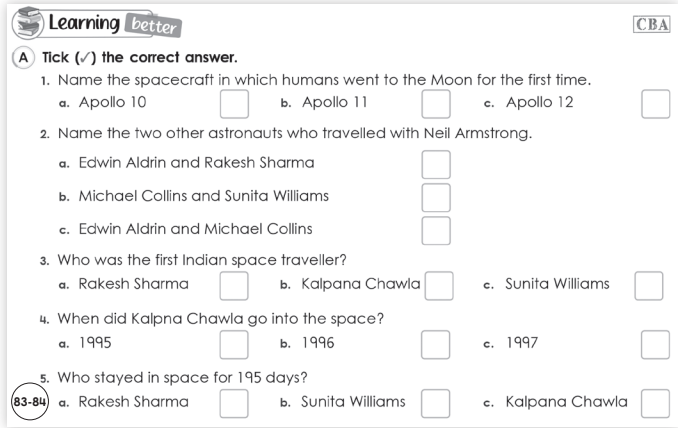
83

Teacher: Let us now move to 'Recalling better'. I will ask you questions. Try to remember all we have learnt so far.

MUST DO
15 MIN.

Teacher: Think about what pulls everything towards the Earth. What is this force called?
Teacher: Yes, it is called gravity. This pull or attraction is what brings everything back to the ground when we throw it up. Very good remembering.
Teacher: Now, if gravity pulls everything towards Earth, what can help us escape this strong pull?
Teacher: Correct. Space rockets are made with the power and speed to escape the Earth's gravitational pull. Well done.
Teacher: We have learnt a lot about astronauts. What kind of information do they bring back to us?
Teacher: That is right. Astronauts give us information about space. They observe everything closely and help us understand what space is like. Excellent.
Teacher: Let us think about the Moon. Can people or animals live on the Moon like we do on Earth?
Teacher: No, they cannot. There is no air on the Moon. That means no animals, no plants and no humans can survive there. Good understanding.
Teacher: You have recalled all the important points clearly. Well done. Let us now continue learning.

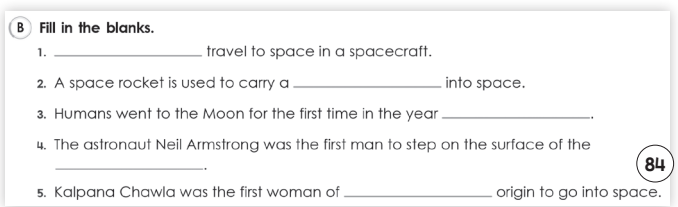
Learning better


Learning better
CBA
A Tick (✓) the correct answer.
1. Name the spacecraft in which humans went to the Moon for the first time.
a. Apollo 10 ☐ b. Apollo 11 ☐ c. Apollo 12 ☐
2. Name the two other astronauts who travelled with Neil Armstrong.
a. Edwin Aldrin and Rakesh Sharma ☐
b. Michael Collins and Sunita Williams ☐
c. Edwin Aldrin and Michael Collins ☐
3. Who was the first Indian space traveller?
a. Rakesh Sharma ☐ b. Kalpana Chawla ☐ c. Sunita Williams ☐
4. When did Kalpna Chawla go into the space?
a. 1995 ☐ b. 1996 ☐ c. 1997 ☐
5. Who stayed in space for 195 days?
a. Rakesh Sharma ☐ b. Sunita Williams ☐ c. Kalpana Chawla ☐
83-84

Teacher: Everyone, please open page 83 of your Main Coursebook. In Exercise 'A' of 'Learning better' you have to tick the correct answer. Are you ready to get started?

MUST DO
10 MIN.

Teacher: Great. Let us begin with the first question. Name the spacecraft in which humans went to the Moon for the first time.
Teacher: The correct answer is Apollo 11. Well done. (Similarly, complete all five questions. And discuss the correct answers.)


B Fill in the blanks.
1. _____ travel to space in a spacecraft.
2. A space rocket is used to carry a _____ into space.
3. Humans went to the Moon for the first time in the year _____.
4. The astronaut Neil Armstrong was the first man to step on the surface of the _____.
5. Kalpana Chawla was the first woman of _____ origin to go into space.
84

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

MUST DO
10 MIN.

Teacher: Great. Let us begin with the first question. _____ travel to space in a spacecraft.

Teacher: The correct answer is Astronauts. Well done.

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

You may show the **Slideshow** given on the digital platform.

Differentiated Activities

110 km/hr

Why do astronauts wear special suits when they go into space?

80 km/hr

What force pulls everything towards the Earth?

40 km/hr

What helps astronauts travel into space?

Home Task

Write two facts about Chandrayaan 1. Then, draw the Earth and Moon, showing the distance between them. Label the craters on the Moon's surface.

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 force that pulls everything back to the ground? (Gravity)

Teacher: Who was the first man to walk on the Moon? (Neil Armstrong)

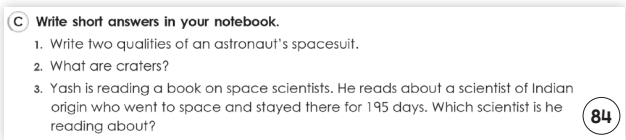
Teacher: What is the distance between the Earth and the Moon? (3,84,000 km)

Teacher: What do astronauts wear in space to survive? (Space suits)

Teacher: Which Indian astronaut was the first to go to space? (Rakesh Sharma)

Teacher: Wonderful responses. Let us continue with our learning today.

Learning better



C Write short answers in your notebook.

1. Write two qualities of an astronaut's spacesuit.
2. What are craters?
3. Yash is reading a book on space scientists. He reads about a scientist of Indian origin who went to space and stayed there for 195 days. Which scientist is he reading about?

84

Teacher: Everyone, please open page 84 of your Main Coursebook.

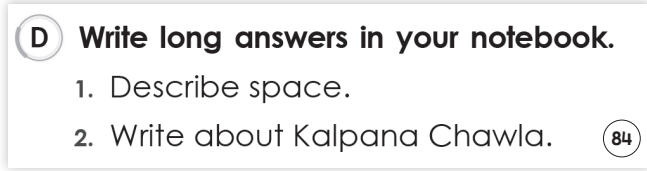
MUST DO
15 MIN.

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?

Teacher: Great. Let us begin with the first question. Write two qualities of an astronaut's spacesuit.

(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.)



D Write long answers in your notebook.

1. Describe space.
2. Write about Kalpana Chawla.

84

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

MUST DO
20 MIN.

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

(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.)

You may start the **Quiz** given on the digital platform.

Differentiated Activities

110 km/hr

What is the main purpose of a space rocket?

80 km/hr

What is gravity and how does it affect space travel?

40 km/hr

What do astronauts wear to protect themselves in space?

Home Task

Complete the 'Creating better' (Make a model of an astronaut using cardboard) given on page 84 of the Main Coursebook.

Period 9

SHOULD DO
5 MIN.

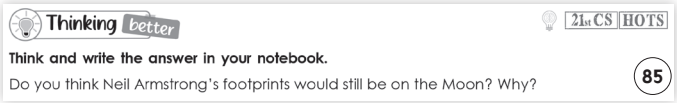
Teacher: Good morning, students. How are you all today?

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: What is the name of the force that pulls everything towards the Earth? (Gravity)

Teacher: What is the name of the vehicle that carries astronauts into space? (Spacecraft)
Teacher: Who was the first man to step on the Moon? (Neil Armstrong)
Teacher: How far is the Moon from the Earth? (3,84,000 km)
Teacher: What did Chandrayaan 1 discover on the Moon? (Water)
Teacher: Excellent. You remembered all the key facts. Let us move forward with today's lesson.

Thinking better

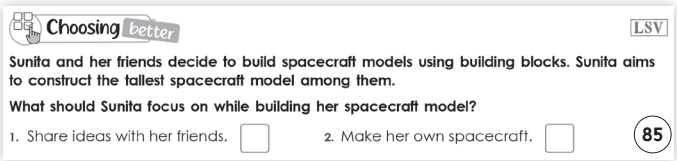

Thinking better
21st CS HOTS
Think and write the answer in your notebook.
Do you think Neil Armstrong's footprints would still be on the Moon? Why?
85

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.

MUST DO
10 MIN.

Teacher: Do you think Neil Armstrong's footprints would still be on the Moon? Why?
Teacher: Take a moment to think about this. Consider how the Moon's surface is different from Earth's.
(Let the students think and write.)
Teacher: I can see some of you are thinking carefully. Remember, the Moon has no air, so the footprints may not get washed away by rain or wind. Excellent ideas. Very good work, everyone.

Choosing better


Choosing better
LSV
Sunita and her friends decide to build spacecraft models using building blocks. Sunita aims to construct the tallest spacecraft model among them.
What should Sunita focus on while building her spacecraft model?
1. Share ideas with her friends. ☐ 2. Make her own spacecraft. ☐
85

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

MUST DO
5 MIN.

Teacher: Sunita and her friends are building spacecraft models using building blocks. Sunita wants to build the tallest spacecraft model. What do you think she should focus on?
Teacher: Should she share ideas with her friends or should she make her own spacecraft?
(Let the students choose.)
Teacher: Well done, everyone. You have thought about it carefully. Sharing ideas can be very helpful. When Sunita shares her ideas with her friends and listens to their ideas, she might learn new ways to make her spacecraft taller. Working together helps everyone improve. When we cooperate and learn from each other, we can create better things than we could alone.

Pledging better

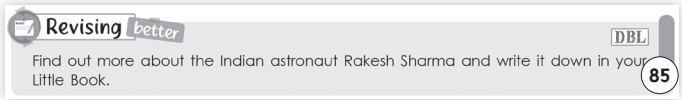

Pledging better
SDGs
In my own little way, I pledge to reuse old toys, clothes instead of throwing them away.
SDG 13: CLIMATE ACTION
85

Teacher: Now, let us look at 'Pledging better'.

MUST DO
5 MIN.

Teacher: Repeat after me – In my own little way, I pledge to reuse old toys and clothes instead of throwing them away.
Teacher: This small action supports SDG 13: Climate Change, which encourages us to take steps to protect our planet.
Teacher: Well done. You have all made thoughtful pledges. Together, we can make a big difference.

Revising better


Revising better
DBL
Find out more about the Indian astronaut Rakesh Sharma and write it down in your Little Book.
85

Teacher: Now, let us focus on the 'Revising better' section. Think and revise about Rakesh Sharma and write down some key facts about him in your Little Book.

MUST DO
5 MIN.

Teacher: Think about when he went to space, what he achieved and why he is important. Take a few minutes to write this down.
(Let the students revise and write it down in their Little Book.)
Teacher: Well done, everyone. I can see you are all working hard to learn more about his achievements.

Book of Holistic Teaching


Chapter 12: Going into Space
FLN HoLL MDA

(A) **English**

Circle the words that have a ve ending.

1. Rihani asks Sujal, "Do you want to live on the Moon?"
2. Sujal says, "Yes Rihani, I would love to! I could wave to you from above!"

(B) **Maths**

Manak uses moulding clay to make a model of earth. He uses 750 grams of clay. Convert grams into kilograms and write in your notebook.

(C) **Social Studies**

Choose an outdoor sport which requires a ball in the shape of earth. Tick (✓) the correct option.

1. Chess ☐ 2. Football ☐ 3. Boxing ☐

28

Refer to the Book of Holistic Teaching, page number 28 under the title 'Going into Space.' Complete the

COULD DO
10 MIN.

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

Why do astronauts float in space instead of walking like on Earth?

80 km/hr

Why do you think astronauts wear space suits?

40 km/hr

What is one thing astronauts need to breathe in space?

Home Task

The Project Idea, given in the book of Project Ideas, page 17 under the title 'Going into Space.' 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 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: Who was the first person to walk on the Moon? (Neil Armstrong)

Teacher: In which year did Neil Armstrong walk on the Moon? (1969)

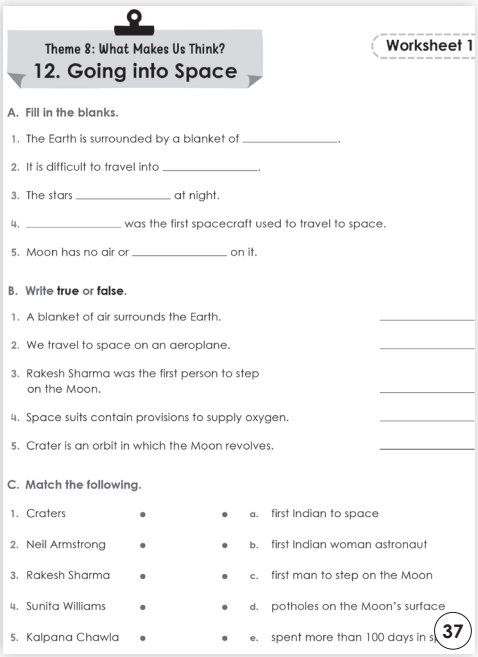
Teacher: Which spacecraft took Neil Armstrong to the Moon? (Apollo 11)

Teacher: What is the name of the first Indian astronaut to go to space? (Rakesh Sharma)

Teacher: What did Chandrayaan 1 discover on the Moon? (Water)

Teacher: Excellent work. You all remembered the facts very well. Let us move on to today's lesson.

Worksheet 1



Theme 8: What Makes Us Think?

12. Going into Space

Worksheet 1

A. Fill in the blanks.

1. The Earth is surrounded by a blanket of _____.
2. It is difficult to travel into _____.
3. The stars _____ at night.
4. _____ was the first spacecraft used to travel to space.
5. Moon has no air or _____ on it.

B. Write **true** or **false**.

1. A blanket of air surrounds the Earth. _____
2. We travel to space on an aeroplane. _____
3. Rakesh Sharma was the first person to step on the Moon. _____
4. Space suits contain provisions to supply oxygen. _____
5. Crater is an orbit in which the Moon revolves. _____

C. Match the following.

1. Craters	•	•	a. first Indian to space
2. Neil Armstrong	•	•	b. first Indian woman astronaut
3. Rakesh Sharma	•	•	c. first man to step on the Moon
4. Sunita Williams	•	•	d. potholes on the Moon's surface
5. Kalpana Chawla	•	•	e. spent more than 100 days in s

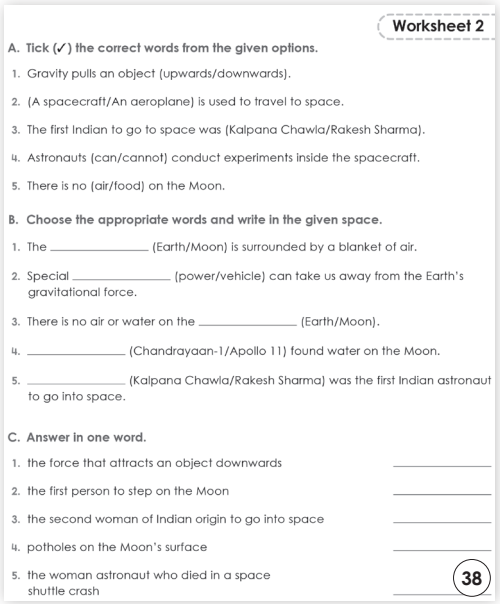
37

Teacher: Let us do some activities from the workbook. Everybody, please open page 37 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. Tick (✓) the correct words from the given options.

1. Gravity pulls an object (upwards/downwards).
2. (A spacecraft/An aeroplane) is used to travel to space.
3. The first Indian to go to space was (Kalpana Chawla/Rakesh Sharma).
4. Astronauts (can/cannot) conduct experiments inside the spacecraft.
5. There is no (air/food) on the Moon.

B. Choose the appropriate words and write in the given space.

1. The _____ (Earth/Moon) is surrounded by a blanket of air.
2. Special _____ (power/vehicle) can take us away from the Earth's gravitational force.
3. There is no air or water on the _____ (Earth/Moon).
4. _____ (Chandrayaan-1/Apollo 11) found water on the Moon.
5. _____ (Kalpana Chawla/Rakesh Sharma) was the first Indian astronaut to go into space.

C. Answer in one word.

1. the force that attracts an object downwards _____
2. the first person to step on the Moon _____
3. the second woman of Indian origin to go into space _____
4. potholes on the Moon's surface _____
5. the woman astronaut who died in a space shuttle crash _____

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Teacher: Let us do some activities from the worksheet - 2. Everybody, please open page 38 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

Chapter 12: Going into Space

ICT PRO 21st CS

Space travel timeline

Materials required: sheet of paper, marker, glue, a pair of scissors, ruler

- Use Internet* and gather information about key events like first human in space, first moon landing, list of astronauts who landed on Moon, etc.
- Draw the line and mark the years of the events on the sheet.
- Paste a picture of each event in front of the year timeline.
- Write a brief description about each event.
- Your timeline is ready. Present and explain it to your class.

17

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.

COULD DO

10 MIN.

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.

SHOULD DO

5 MIN.

(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

If you were the first person to land on the Moon, what would be the first thing you would do and why?

80 km/hr

What do you think astronauts learn from living in space that they cannot learn on Earth?

40 km/hr

Why is it important for astronauts to wear space suits when they travel to space?

Home Task

Write a paragraph about the challenges astronauts face when living on the Moon. Include details about the Moon's environment, such as the lack of air and gravity. Then, draw a diagram of an astronaut on the Moon.

Learning Outcomes

The students will:

Domain	Learning Outcome
Physical Development	• develop fine motor skills and physical awareness by exploring how space suits help astronauts maintain health, manage oxygen and protect from radiation and extreme temperatures while engaging in activities that simulate these space-related challenges.
Socio-Emotional and Ethical Development	• recognise the value of teamwork and ethical behaviour in space missions, appreciating how astronauts rely on collaboration and ethical decision-making while facing challenges in space.
Cognitive Development	• grasp the cognitive concepts of gravity, space travel and the Moon's characteristics, demonstrating knowledge of the role of space rockets, spacecraft and astronauts' training to overcome the challenges of space exploration.
Language and Literacy Development	• enhance their language and literacy skills by describing space exploration and astronaut life through written and spoken explanations, improving their ability to communicate scientific ideas clearly and accurately.
Aesthetic and Cultural Development	• engage in aesthetic development by creating visual representations of spacecraft, astronauts and the Moon, fostering an appreciation for the creative aspects of science and cultural achievements in space exploration.
Positive Learning Habits	• develop positive learning habits, demonstrating curiosity and critical thinking by questioning and exploring space-related concepts, developing their problem-solving skills and resilience in the face of complex scientific topics.

Starry Knights

Mention any two activities that took a lot of effort in managing the class.

Give yourself a STAR for being a proactive teacher...