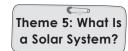
## **Lesson-6: Our Scientists**





11 Periods (40 minutes each)



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



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



# Curricular Goals and Objectives (NCF)

#### To enable the students:

- to explore the contributions of Indian scientists and their impact on society.
- to recognise the significance of scientific inventions in daily life.
- to develop creativity, problem-solving and life skills through hands-on activities.
- to apply interdisciplinary knowledge to solve real-world problems.
- to express ideas and observations through reflective journaling and project-based learning.

# Methodology

## Period 1

**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 together, 'I am brave.' Repeat after me: 'I am brave.'





**Teacher:** Alright. Today, we are going to begin a new chapter 'Our Scientists.' 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

**Teacher:** Let us start by filling out the 'K' and 'W' columns. Take a few minutes to think and write. If you have any auestions, 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: Let us begin with a fun drawing activity. Work with your



partner and draw a well-known invention (for example, television, radio, mobile phone, etc.) in your notebook. Think about what invention you want to showcase.

#### Kinaesthetic

Work with your partner. Draw one popular invention (example, television, radio, mobile phone, etc.) in your notebook. Ask your partner to talk about it.

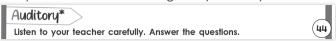
**Teacher:** Once done, share your drawing with your partner and discuss why this invention is important. How does it help people? What would happen if it did not exist? (Give the students time to complete the activity.)

## **Auditory**

**Teacher:** Let us move to auditory activity. Listen carefully to me. I will ask



you some questions and I want you to pay attention to every detail before answering. Are you ready?



**Teacher:** Kalpana Chawla was an Indian-American astronaut who made history as the first woman of Indian origin to travel to space. Born in Karnal, India, she dreamed of becoming an astronaut from a young age. In 1997, she made her first journey into space aboard the Space Shuttle Columbia as a mission specialist.

- 1. Where was Kalpana Chawla born?
- 2. What was the name of Kalpana Chawla's space shuttle?

(Waits for student responses.)

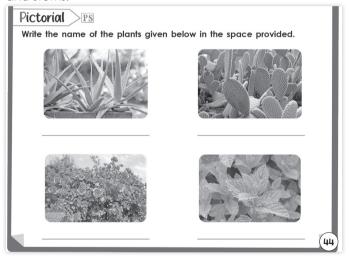
**Teacher:** Great listening. Now, let us do our next activity.

## Pictorial

**Teacher:** Let us now observe some pictures given on page 44 of the Main



Cours Book. You have to write their names in the space provided. Look closely at the shape of the leaves, flowers and stems.



**Teacher:** The first plant has long, thick leaves with a gellike substance inside. The second has small, green, spiky pads. The third has bright red flowers. The fourth has green leaves and is commonly used in cooking.

**Teacher:** Can you identify them and write their names? Take your time and observe carefully.

Teacher: Great work everyone.

#### **Differentiated Activities**

#### 110 km/hr



What was the first invention used for long-distance communication before telephones?

#### 80 km/hr



Name one invention that helps people travel faster.

#### 40 km/hr



Which invention allows us to watch news and entertainment at home?

## Home Task

Research any three Indian scientists. Write their names in your notebook and mention one important contribution of each.

## Period 2

## Interacting better

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



KoI ICL



Interacting better

Dr APJ Abdul Kalam was not only a great scientist but a great leader too. He also served as the President of India. Talk to your partner about Dr APJ Abdul Kalam.

**Teacher:** Great. Today, we will start with an 'Interacting better' activity. Dr APJ Abdul Kalam was not only a great scientist but also a great leader.

**Teacher:** Turn to your partner and talk about Dr APJ Abdul Kalam—his contributions, achievements or anything inspiring you know about him. After your discussion, we will share some interesting facts with the class.

(Encourage students to discuss and guide the discussion accordingly.)

(Use CRM signs to settle the class.)

Teacher: Great discussion.



Teacher: Open your books and carefully read the story

about Sam and his friends visiting the planetarium. Observe the pictures and conversations closely. While reading, think about the key details who they meet, what they learn and why it is important.



(Give time to the students to read the story)

Teacher: Now that you have read the story, let us discuss

Teacher: Where did Sam and his friends go and what did they learn about Indian space scientists?

Teacher: The children mentioned that many Indian scientists have contributed to space research. Can you name one scientist they talked about?

Teacher: Yes. Vikram Sarabhai is called the father of the Indian space programme. Why do you think he is given

**Teacher:** The children also saw a model of Chandrayaan-3. What is Chandrayaan-3 and why do you think India launched it?

**Teacher:** That is right. Chandrayaan-3 was sent to explore the moon. Does anyone remember when it was launched?

**Teacher:** Excellent, Now, let us think beyond the story. Why do you think space exploration is important? How does it

**Teacher:** Imagine you had the chance to go on a space mission. What would you like to explore—the moon, a faraway planet or something else?

**Teacher:** That was a great discussion.

(1991) You may show the Dictionary and eBook on the digital platform.

#### **Differentiated Activities**

#### 110 km/hr



Dr APJ Abdul Kalam played a key role in India's missile and space programmes. Name one of the major missile projects he worked on.

## 80 km/hr



Why is Vikram Sarabhai called the father of the Indian space programme?

#### 40 km/hr



When was Chandrayaan-3 launched?

## **Home Task**

Find out the name of any one Indian space scientist other than Vikram Sarabhai and Dr APJ Abdul Kalam. Write five sentences about their contribution to space research.

## Period 3

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



**Teacher:** Great. Let us begin with an exciting guessing game. I will give you some clues about popular inventions and you have to guess what they are. Are you ready?

**Teacher:** I help people talk to each other even when they are far away. I have buttons or a touchscreen. What am I? (Mobile phone)

Teacher: I show moving pictures and play sounds. People watch me for news, entertainment and learning. What am I? (Television)

**Teacher:** I take people to faraway places in the sky. I have big wings and a cockpit. What am I? (Aeroplane)

Teacher: I help people capture moments and create memories. You can find me in mobile phones and as a separate device. What am I? (Camera)

Teacher: Excellent. Now, let us move on to today's learning.

(The teacher will read the first two paragraphs of page 46 aloud and provide explanations to ensure that the students understand the content.)

SIR JC BOSE (Birthday: 30 November 1858)

Sir Jagadish Chandra Bose was a scientist in the field of plants. He was the first person to prove that, like animals and humans, plants can feel things too.



PRAFULLA CHANDRA RAY (Birthday: 2 August 1861) Prafulla Chandra Ray is known for his work in the field of chemicals. He founded India's first chemical factory. He made medicines and Prafulla Chandra Ray other important chemicals in that factory. 46

Teacher: Today, we will learn about two great Indian scientists, Sir Jagadish Chandra Bose and Prafulla Chandra Ray.



Teacher: Now, let us discuss. Who was Sir Jagadish Chandra Bose and what was his contribution to science?

Teacher: He proved that plants can feel things just like animals and humans. Why do you think this was an important discovery?

Teacher: Great. Prafulla Chandra Ray worked in the field of chemicals. What was his major achievement?

Teacher: Yes. He founded India's first chemical factory. Why do you think that was important for our country?

**Teacher:** Great. Let us do an interesting activity.

Teacher: Now, let us talk about these scientists with our partners. Turn to your partner and discuss what you found most interesting about Sir Jagadish



Chandra Bose and Prafulla Chandra Ray.

Teacher: You can talk about their discoveries, how their work helped the world or anything that inspired you. Once you finish, we will share some interesting facts with the class.

Teacher: Let us now use our creativity to understand these scientists better. Take a sheet of paper and draw something related to their discoveries.

You can draw plants with emotions to COULD DO show that they can feel or draw a scientist working in a chemical factory.



Teacher: After drawing, write five sentences explaining your picture. Let us see how well you can express what you have learnt today.

## Differentiated Activities

#### 110 km/hr



What was the name of the scientific instrument used by Sir Jagadish Chandra Bose to prove that plants can feel?

#### 80 km/hr



What did Prafulla Chandra Ray establish in India?

#### 40 km/hr



Which scientist proved that plants can feel things like humans?

## Home Task

Find out the name of one more Indian scientist and write five sentences about their contribution to science.

# Period 4

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



Teacher: Great. Let us begin with an exciting guessing game. I will ask you five questions and you have to guess the correct answers. Think carefully before you answer.

Teacher: I was a scientist who worked in the field of mathematics and astronomy. Who am I? (Aryabhata)

Teacher: I am known as the father of India's space programme. I played a key role in establishing ISRO. Who am I? (Vikram Sarabhai)

Teacher: I proved that plants can feel things just like humans and animals. Who am I? (Sir Jagadish Chandra

Teacher: I founded India's first chemical factory and made important medicines and chemicals. Who am I? (Prafulla Chandra Ray)

**Teacher:** I am known as the 'Missile Man of India' and also served as the President of India. Who am I? (Dr APJ Abdul Kalam)

Teacher: That was a great start. Now, let us continue our learning in today's lesson.

(The teacher will read the first two paragraphs of page 46 aloud and provide explanations to ensure that the students understand the content.)

ASIMA CHATTERJEE (Birthday: 21 September 1917)

Asima Chatteriee is highly recognised for her work in studying plants She successfully developed many medicines from plants, including medicines for diseases such as malaria and epilepsy





DR VIKRAM SARABHAI (Birthday: 12 August 1919) Dr Vikram Ambalal Sarabhai founded the Indian Space Research Organisation (ISRO) in 1969. He is globally known as the 'Father of the Indian Space Programme'. He also set up India's first am Sarabbai, rocket-launching station at Thumba near Thiruvananthapuram

**Teacher:** Today, we will learn about two great Indian scientists, Asima Chatterjee and Dr Vikram Sarabhai and how their work has helped people.



Teacher: Now, let us discuss. Who was Asima Chatterjee and what was her contribution to science?

**Teacher:** Yes. She developed medicines from plants. Why do you think using plants for medicine is important?

Teacher: Correct. Dr Vikram Sarabhai is called the 'Father of the Indian Space Programme'. What did he establish in India?

Teacher: He founded ISRO in 1969. Why do you think space research is important for our country?

Teacher: Now, let us talk about these scientists with our partners. Turn to your partner and discuss what you found most interesting about Asima Chatterjee and Dr Vikram Sarabhai.



Teacher: You can talk about their discoveries, how their work helped the world or anything that inspired you. Once you finish, we will share some interesting facts with the

Teacher: Let us now use our creativity to understand these scientists better. Take a sheet of paper and draw something related to their discoveries. You can draw plants that provide medicines to show

Asima Chatterjee's work or rockets to represent Dr Vikram Sarabhai's contribution to space research.



Teacher: After drawing, write five sentences explaining your picture. Let us see how well you can express what you have learnt today.



Teacher: Can you name the person who is known as the father of the Indian Space Programme?

**Teacher:** Yes, it is Dr Vikram Sarabhai. Well done, everyone. Dr Vikram Sarabhai played a crucial role in establishing ISRO and advancing India's space technology.



You may show the I Explain on the digital platform.

## Differentiated Activities

#### 110 km/hr



Where did Dr Vikram Sarabhai set up India's first rocket-launching station?

#### 80 km/hr



What did Asima Chatteriee develop from plants?

#### 40 km/hr



Which scientist is called the 'Father of the Indian Space Programme'?

## Home Task

Find out the name of any one Indian scientist who worked in the field of medicine or space research. Write five sentences about their contribution.

## Period 5

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



**Teacher:** Great. Let us begin with a fun guessing game. I will ask you five questions and you have to guess the correct answers.

Teacher: I developed medicines from plants and helped in treating diseases like malaria and epilepsy. Who am I? (Asima Chatterjee)

Teacher: I founded ISRO and set up India's first rocketlaunching station. Who am I? (Dr Vikram Sarabhai)

Teacher: I am an organisation responsible for space research in India. What am I? (ISRO)

Teacher: I help send rockets into space and explore planets. What am I? (Rocket-launching station)

Teacher: That was a great start. Now, let us continue our learning in today's lesson.

(The teacher will read the first two paragraphs of page 46 aloud and provide explanations to ensure that the students understand the content.)

Teacher: Today, we will learn about two famous Indian scientists—Har Gobind Khorana and Dr APJ Abdul Kalam. Now, let us discuss.

**Teacher:** Who was Har Gobind Khorana and what was his contribution to science?



Teacher: Yes. He received the Nobel Prize for Medicine. Why do you think his work on how our bodies function is important?

HAR GOBIND KHORANA (Birthday: 9 January 1922)

Har Gobind Khorana was a scientist who did a lot of work on how our bodies function. He received the Nobel Prize for Medicine in 1968.



DR APJ ABDUL KALAM (Birthday: 15 October 1931) Dr APJ Abdul Kalam was a great Indian scientist, an engineer and a leader. He served as the President of India from 2002 to 2007. He is also known as the 'Missile\* Man of India' as he successfully headed a programme that produced a number of missiles for our defence forces

Teacher: Great, Dr APJ Abdul Kalam was known as the 'Missile Man of India'. What does this title mean?

**Teacher:** Correct. He also served as the President of India. Why do you think a scientist becoming a President is inspiring?

**Teacher:** Great answers everybody.

Teacher: Now, let us discuss these scientists with our partners. Turn to your



partner and talk about what you found most interesting about Har Gobind Khorana and Dr APJ Abdul Kalam.

**Teacher:** You can discuss their discoveries, how their work helped people or what inspired you the most. Once you finish, we will share some interesting facts with the class.

Teacher: Now, let us bring creativity COULD DO into our learning. Take a sheet of paper and draw something related to these scientists. You can draw a DNA strand



to represent Har Gobind Khorana's research on genetics or a missile to show Dr APJ Abdul Kalam's contribution to India's defence programmes.

Teacher: After drawing, write five sentences explaining your picture. Let us see how well you can express what you have learnt today.

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

#### **Differentiated Activities**

#### 110 km/hr



In which year did Har Gobind Khorana receive the Nobel Prize?

#### 80 km/hr



Why is Dr APJ Abdul Kalam called the 'Missile Man of India'?

#### 40 km/hr



Which field of science did Har Gobind Khorana work in?

#### **Home Task**

Find out the name of any other Indian scientist who has received a Nobel Prize. Write five sentences about their achievement.

## Period 6

Teacher: Good morning, students.



How are you all today?

**Teacher:** Great. Let us begin with a fun guessing game. I will ask you five questions and you have to guess the correct answers.

**Teacher:** I worked in the field of genetics and received the Nobel Prize for Medicine. Who am I? (Har Gobind Khorana)

**Teacher:** I was called the 'Missile Man of India' for my contributions to India's defence. Who am I? (Dr APJ Abdul Kalam)

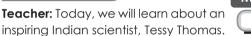
**Teacher:** I served as the President of India from 2002 to 2007. Who am I? (Dr APJ Abdul Kalam)

**Teacher:** Which scientist is known for developing medicines from plants for diseases like malaria and epilepsy? (Asima Chatteriee)

**Teacher:** Who is called the 'Father of the Indian Space Programme'? [Dr Vikram Sarabhai]

**Teacher:** That was great thinking. Now, let us continue our learning in today's lesson.

## **Knowing better**





She is known as the 'Missile Woman of India'. Open your books and read the information carefully. Think about why she is called the 'Missile Woman' and how her work has contributed to India's defence.



**Teacher:** Now that you have read, let us discuss.

**Teacher:** Who is Tessy Thomas and why is she known as the 'Missile Woman of India'?

**Teacher:** Correct. She was the first woman scientist to lead a missile project. Why do you think this is a significant achievement?

**Teacher:** Great thinking. Tessy Thomas worked with the DRDO. What does DRDO stand for and what do you think it does?

# Connecting better

**Teacher**: Correct. Now, let us read a short conversation about Sam and her friends. While waiting in a queue,



Sam sees a boy dressed as a great leader but cannot recognise him. She asks for a clue and the boy replies, 'He was the President of India from 2002 to 2007.' Sam then identifies the person as Dr APJ Abdul Kalam.

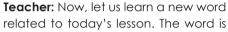
**Teacher:** What was the clue given by the boy and how did Sam figure out the answer?

# While waiting in a queue for entering the theatre room for the upcoming show with her friends, Sam sees a boy dressed as a great man. However, she cannot recognise him. She asks the boy to give her a clue about the person he is dressed up as. The boy says, "He was the President of India from 2002 to 2007. Tell me the pronoun in this sentence." Sam thinks for a while and answers that the boy is dressed up as Dr APJ Abdul Kalam and the pronoun in the sentence is 'He'. The boy smiles and claps for Sam.

**Teacher:** The boy mentioned 'He was the President of India...' What is the pronoun in this sentence?

**Teacher:** Why do you think Dr APJ Abdul Kalam is remembered as an important figure in India?

## Grasping better





'missile'. A missile is a weapon that is sent through the air and explodes when it hits the target.



**Teacher:** Can you think of any reason why scientists like Tessy Thomas and Dr APJ Abdul Kalam worked on missile development for India?

**Teacher:** Great. How do you think technology and science help in protecting a country?

Teacher: Well done everybody.

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

## **Differentiated Activities**

#### 110 km/hr



What is the full form of DRDO?

#### 80 km/hr



Who is known as the 'Missile Woman of India'?

#### 40 km/hr



Who was the President of India from 2002 to 2007?

# Home Task

Find out the name of any other woman scientist in India and write one sentence about her contribution.

# Period 7

**Teacher:** Good morning, students.



How are you all today?

**Teacher:** Great. Let us begin with a fun guessing game. I will ask you some questions and you have to guess the correct answers.

**Teacher:** I am called the 'Missile Woman of India' because I was the first woman to lead a missile project. Who am I? (Tessy Thomas)

**Teacher:** I was the President of India and also a famous scientist known as the 'Missile Man of India'. Who am I? (Dr APJ Abdul Kalam)

**Teacher:** I am a type of weapon that is launched through the air and explodes when it reaches its target. What am 1? (Missile)

Teacher: I am an organisation responsible for defence research in India. What am I? (DRDO)

Teacher: Who was the first person to prove that plants can feel things just like animals and humans? (Sir Jagadish Chandra Bose)

Teacher: That was great thinking. Now, let us continue our learning in today's lesson.

#### Recalling better

Teacher: Let us take a moment to recall what we have learned so far.





**Teacher:** Today, we will recall some of the greatest Indian scientists and their contributions. Scientists have played an important role in shaping our country and they are the pride of our nation. Now, let us discuss.

**Teacher:** Why are scientists important for a country's development?

**Teacher:** Great. Scientists help a country grow by solving problems, creating new technology and improving lives.

**Teacher:** Can you name some of the great Indian scientists mentioned in the text?

**Teacher:** Yes, well done. Sir JC Bose, Prafulla Chandra Ray, Asima Chatterjee, Dr Vikram Sarabhai and Dr APJ Abdul Kalam are all great scientists.

Teacher: What do you remember about Sir JC Bose and his discoveries?

**Teacher:** Exactly. Sir JC Bose proved that plants can feel things, just like animals and humans.

Teacher: What was Dr Vikram Sarabhai's contribution to space research?

Teacher: Perfect. Dr Sarabhai founded ISRO and set up India's first rocket-launching station. He is known as the 'Father of the Indian Space Programme.'

Teacher: Dr APJ Abdul Kalam is called the 'Missile Man of India.' Why is he called that?

Teacher: Well done. Dr Kalam earned this title for his work in developing India's missile systems, making our defense stronger. Great work remembering his contribution.

## Learning better

**Teacher:** Everyone please open page 47 of your Main Course Book.



In Exercise 'A' of 'Learning better' you have to tick the correct answer. Are you ready to get started?

Earning better	CBA
A Tick (√) the correct answers.	
1. How does a scientist find answers to his questions?	
a. by sleeping b. by exercising c. by experimenting	
2. Who founded India's first chemical factory?	
a. Dr Vikram Sarabhai b. Prafulla Chandra Ray	
c. Dr APJ Abdul Kalam	
3. When was the Indian Space Research Organisation founded?	
a. 1969 b. 1961 c. 1962	
4. Who received the Nobel Prize for Medicine in 1968?	
a. Sir JC Bose b. Asima Chatterjee	
c. Har Gobind Khorana	47
5. Who from the following served as the President of India?	
a. Asima Chatterjee	
b. Har Gobind Khorana	
c. Dr APJ Abdul Kalam	(48)

Teacher: Great. Let us begin with the first question. How does a scientist find answers to his questions?

Teacher: The correct answer is by experimenting. Well

(Similarly complete all five questions)

Teacher: Let us now use our creativity COULD DO to remember these scientists better. Take a sheet of paper and write the



name of one Indian scientist. Below their name, draw a small picture representing their work. It could be a plant for Sir JC Bose, a chemical flask for Prafulla Chandra Ray or a rocket for Dr Vikram Sarabhai.

Teacher: Once you finish, write five sentences explaining what they are known for.

(🕮) You may show the **Quiz** on the digital platform.

## **Differentiated Activities**

#### 110 km/hr



Which Indian scientist contributed to the field of genetics and received a Nobel Prize for Medicine?

#### 80 km/hr



Who is known as the 'Missile Woman of India'?

#### 40 km/hr



Name any two Indian scientists who contributed to space research.

## **Home Task**

Choose any one Indian scientist from the lesson and write five sentences about their contribution to science. You may draw a related picture to explain their work.

## Period 8

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



**Teacher:** Great. Let us begin with a fun guessing game. I will ask you five questions and you have to guess the correct answers.

**Teacher:** I discovered that plants can feel things just like humans. Who am I? (Sir JC Bose)

**Teacher:** I developed medicines from plants to treat diseases like malaria and epilepsy. Who am I? (Asima Chatterjee)

**Teacher:** I founded ISRO and set up India's first rocket-launching station. Who am I? (Dr. Vikram Sarabhai)

**Teacher:** I received the Nobel Prize for Medicine for my work on genetics. Who am I? (Har Gobind Khorana)

**Teacher:** I worked on India's missile programme and became the President of India. Who am I? (Dr. APJ Abdul Kalam)

**Teacher:** That was great thinking. Now, let us continue our learning in today's lesson.

## Learning better

**Teacher:** Everyone please open page 48 of your Main Course Book. Let us do Exercise 'B' of 'Learning better'.



In Exercise 'B' of 'Learning better' you have to fill in the blanks. Are you ready to get started?

<b>B</b>	Fi	ill in the blanks.	
	1.	Sir JC Bose was born on	
	2.	Asima Chatterjee developed medicines for diseases such as malaria and	
	3.	Dr Vikram Sarabhai was known as	
	4.	did a lot of work on how our bodies function.	
	5.	Dr APJ Abdul Kalam was born on	(48)

**Teacher:** Great. Let us begin with the first question. Sir JC Bose was born on \_\_\_\_\_\_. Think carefully and fill in the blanks.

(Discuss the correct answer. Similarly complete all five questions)

**Teacher:** Now, 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?



rodd, ro gor sranod.	
© Write short answers in your notebook.	
1. What is Prafulla Chandra Ray known for?	
2. What is Asima Chatterjee known for?	
3. Write about some contributions of Dr APJ Abdul Kalam.	(48)

**Teacher:** Great. Let us begin with the first question. What is Prafulla Chandra Ray known for?

(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)

## Differentiated Activities

#### 110 km/hr



Which Indian scientist won the Nobel Prize for his work in genetics?

#### 80 km/hr



Who founded the Indian Space Research Organisation (ISRO)?

#### 40 km/hr



Who is known as the 'Missile Man of India'?

## Home Task

Write five sentences about any Indian scientist you have learned about. Include their name, their field of work and one of their major contributions.

## Period 9

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



**Teacher:** Great. Let us begin with a quick recall game. I will ask you some questions and you have to think of the correct answer.

**Teacher:** I was the first woman scientist in India to lead a missile project. Who am I? (Tessy Thomas)

**Teacher:** I developed medicines from plants to cure diseases like malaria. Who am I? (Asima Chatterjee)

**Teacher:** I proved that plants can feel things just like humans. Who am I? (Sir JC Bose)

**Teacher:** I played a key role in India's missile development and became the President of India. Who am I? (Dr APJ Abdul Kalam)

**Teacher:** I helped India explore space by setting up ISRO. Who am I? (Dr Vikram Sarabhai)

**Teacher:** Great thinking, everyone. Now, let us move on to today's learning.

#### Learning better

**Teacher:** Great. Let us explore some long-answer questions. Let us begin



with the first question. Write in detail about the work of Sir JC Bose.

D	Write long answers in your notebook.	
	<ol> <li>Write in detail about the work of Sir JC Bose.</li> </ol>	
	2. Who is Vikram Sarabhai? Write about his work.	(48)

(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.)

## **Book of Holistic Teaching**

COULD DO

Refer to the Book of Holistic Teaching, page 24 under the title 'Our Scientists.'

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.

Chapter 6: Our Scientists

Theme 5: What Is a Solar System?

(A) English



Underline the pronouns in the given sentences and give the proper noun also.

- 1. He set up India's first rocket launching station at Thumba.
- 2. She is recognised for her work in the field of medicin(24)
- (B) Maths

If the cost of 20 toy rockets is ₹200, what is the cost of one toy rocket? Write the answer in your notebook.

C Social Studies

Just as scientists invent something new through their work and research, explorers also discover new places, continent(s) and area(s). Name an explorer who discovered a passage between the Atlantic and the Pacific Oceans. Write the answer in your notebook. (25)

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

#### **Differentiated Activities**

#### 110 km/hr



What is the name of the Indian space mission that explored the moon?

#### 80 km/hr



Who is known as the 'Father of the Indian Space Programme'?

#### 40 km/hr



What do we call a scientist who works with rockets?

## **Home Task**

Complete the 'Creating better' activity (Make a Straw Rocket) given on page 48 of the Main Course Book.

## Period 10

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



**Teacher:** Great. Let us begin with a quick warm-up to get our minds focused on the contributions of some great scientists.

**Teacher:** I will ask you questions about different scientists and you need to answer what their contribution to science was. Ready?

**Teacher:** What did Sir Jagadish Chandra Bose discover about plants?

**Teacher:** What important work did Dr APJ Abdul Kalam do in India's missile programme?

**Teacher:** How did Dr Vikram Sarabhai contribute to India's space programme?

**Teacher:** Excellent answers. Now, let us move on to today's lesson.

## Thinking better

**Teacher:** Let us begin with a question to make you think. I will ask a question and you have to answer that in your notebook.





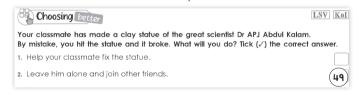
**Teacher:** If we did not have so many great scientists in India, would our country have developed as much as it has? Think properly and write your answer in your notebook.

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

## Choosing better

**Teacher:** Let us think about a situation. Your classmate has made a clay statue of the great scientist Dr APJ Abdul Kalam. By mistake, you hit the statue and it broke. What will you do?





**Teacher:** Here are two choices. First, help your classmate fix the statue. Second, leave him alone and join other friends.

(Pauses to allow students to think.)

**Teacher:** Yes, the first choice is the logical choice.

#### Worksheet 1

**Teacher:** Let us do some activities M from the workbook. Everybody, please open page 22 of your workbook and answer the questions given in worksheet 1.







Theme 5: What Is a Solar Sy  6. Our Scientis	`
A. Fill in the blanks.	
1 prov	ved that plants can also feel.
2. The medicine for epilepsy was	developed by
3. The Nobel Prize for Medicine in 1	1968 was received by
4 was kn	own for his work on chemical substance.
5. Indian Space Research Organi by	sation (ISRO) is founded
B. Write the field of work of the fo	ollowing scientists.
1. Har Gobind Khorana	
2. Prafulla Chandra Ray	
3. Sir JC Bose	
4. Dr Vikram Sarabhai	
5. Asima Chatterjee	
C. Write <b>C</b> for correct statements	and I for incorrect statements.
Sir Jagadish Chandra Bose was	s a scientist in the field of plants.
Har Gobind Khorana founded chemical factory.	India's first
3. Dr APJ Abdul Kalam is known c	as the 'Steel man of India'.
<ol> <li>Asima Chatterjee is known for to of plants.</li> </ol>	her work in the fields
5. Dr Vikram Ambalal Sarabhai is of the Indian Space Program.	known as the Father22

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

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

## Differentiated Activities

#### 110 km/hr



Name one key scientist who contributed to India's space programme.

#### 80 km/hr



What was the main discovery of Sir Jagadish Chandra Bose regarding plants?

#### 40 km/hr



Who founded ISRO?

## Home Task

The Project Idea, given in the book of Project Ideas, page number 14 under the title 'Our Scientists.' 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 with a quick warm-up activity. I say five statements about different scientists. Thumbs up for true, thumbs down for false. Ready?

**Teacher:** Dr APJ Abdul Kalam was the first man to go to space. Thumbs up for true, thumbs down for false. (False)

**Teacher:** Vikram Sarabhai established the Indian Space Research Organisation (ISRO). True or false? (True)

**Teacher:** Sir Jagadish Chandra Bose was the first to discover that plants can feel things like animals. True or false? (True)

**Teacher:** Asima Chatterjee developed medicines from plants for treating diseases like malaria. True or false? (True)

**Teacher:** Har Gobind Khorana won the Nobel Prize for his work in the field of physics. True or false? (False)

**Teacher:** Excellent answers. Now, let us move on to today's lesson.

## Revising better

Teacher: Now, students, I want you to write about the contributions of Homi Jehangir Bhabha in your Little Book.





#### **Worksheet 2**

			(Worksheet 2
A. Fill in the blanks using appropriate	words fron	n the	given options.
<ol> <li>Dr APJ Abdul Kalam developed sever defence forces.</li> </ol>	eral		(missiles/guns) for the
<ol><li>Prafulla Chandra Ray is known for his chemical) compounds.</li></ol>	s work on _		(physical/
3. First rocket-station in India was laund	ched at		(Thumba/Nasik).
<ol> <li>Har Gobind Khorana received the N (medicine/peace).</li> </ol>	lobel prize	for	
5. Dr Vikram Ambalal Sarabhai was an			(astronomer/botanist).
B. Write the birth dates of the scientist	s listed be	low.	
Sir Jagadish Chandra Bose			
2. Dr Vikram Ambalal Sarabhai			
3. Dr APJ Abdul Kalam			
4. Asima Chatterjee			
5. Prafulla Chandra Ray			
C. Match the following.			
Indian Space Research Organisation	•	•	a. Jagadish Chandra Bose
2. Chemical factory	•	•	ь. Dr APJ Abdul Kalam
3. Plants	•	•	c. Asima Chatterjee
4. Epilepsy	•	•	d. Dr Vikram Sarabhai
5. Missile Man of India	•	•	e. Prafulla Chandra Ray

Teacher: Let us do some activities from the workbook.

Everybody, please open page 34 of your workbook and answer the questions given in worksheet 2.





(Let the students answer the questions

on their own. Then discuss the answer by writing the correct answer on the blackboard.)

(19 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 previous period, COULD DO ID MIN.

focusing on helping students understand the objectives and addressing any challenges they face.

#### Chapter 6: Our Scientists

Find out about the following Indian Scientists. Use the Internet\* to make a ICT PRO 21st CS detailed PPT.

Theme 5: What Is a Solar System?

(14)

- ◆ Homi J Bhabha
  - Janaki Ammal ◆ Rajeshwari Chatterjee
- Srinivasa Ramanujan Satyendra Nath Bose
  - MS Swaminathan

Make a project report and present in your class.

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



**Teacher:** Take out your notebook and fill in the last column. Write what have you 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.

## Home Task

Create a colourful poster about an Indian scientist, including their name, a picture, their major contribution to science and why their work is important.

# **Learning Outcomes**

#### The students will:

Domain	Learning Outcome
Physical Development	enhance their fine motor skills through hands-on activities such as drawing a popular invention, making a straw rocket and creating a clay statue of a scientist.
Socio-Emotional and Ethical Development  • develop teamwork, empathy and ethical values by discussing the achiever Indian scientists, engaging in partner activities and making responsible decifixing a classmate's broken clay statue).	
Cognitive Development  • enhance their critical thinking and problem-solving skills by exploring the condition of Indian scientists, answering comprehension questions and engaging in discussion about India's scientific progress.	
Language and Literacy Development	strengthen their listening, speaking, reading and writing skills through guided listening exercises, discussions about scientists, answering questions and writing about scientific achievements.
Aesthetic and Cultural Development	develop an appreciation for India's scientific heritage by learning about renowned Indian scientists, their discoveries and their impact on the country's progress. They will also engage in creative expression through drawing and making a model rocket.
Positive Learning Habits	cultivate curiosity, perseverance and independent learning habits by engaging in exploratory discussions, hands-on activities and reflective thinking about the role of scientists in shaping India's development.

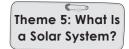
#### **Starry Knights**

How proud do you feel as a Science teacher after teaching this lesson? Express you thoughts here.

Kudos to you... Give yourself a STAR.



# Lesson-7: Yoga and Ayurveda





11 Periods (40 minutes each)



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



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



# **Curricular Goals and Objectives (NCF)**

#### To enable the students:

- to understand the importance of yoga in strengthening the body and calming the mind.
- to demonstrate basic yoga postures and describe their benefits.
- to recognise Ayurveda as an ancient Indian system of medicine focused on disease prevention.
- to apply healthy habits from yoga and Ayurveda in daily life for overall well-being.

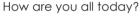
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# Methodology

## Period 1

Teacher: Good morning, students.





**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 together, 'I enjoy helping



others.' Repeat after me: 'I enjoy helping others.'



Teacher: Alright. Today, we are going to begin a new chapter 'Yoga and Ayurveda.' 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

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:** Let us start the Kinaesthetic activity. We are going to work in groups of four. Two of you will demonstrate



yoga asanas, such as the tree pose and the triangle pose, while the others will identify the poses being performed. Are you ready?

#### Kinaesthetic \

Make groups of four. Two partners in the group will demonstrate asanas such as the tree pose and the triangle pose, while the others in the group will identify the yoga poses being performed.

**Teacher:** Very good. Now, let us switch roles so that everyone gets a turn.

(Give the students time to complete the activity.)

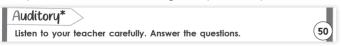
Teacher: Well done. Yoga keeps our body and mind healthy. Let us move to the next part.

## **Auditory**

**Teacher:** Let us move to auditory activity. Listen carefully to me. I will ask



you some questions and I want you to pay attention to every detail before answering. Are you ready?



**Teacher:** Yoga is a fun way to exercise and relax by doing different poses or movements. Some popular yoga poses include Tree Pose: standing on one leg and pretending to be a tree with your arms up like branches. Triangle Pose: stand with your legs wide apart, reach down to one side while stretching the opposite arm up and look at your raised hand.

- 1. How can we do a tree pose?
- 2. How can we do a triangle pose?

(Waits for student responses.)

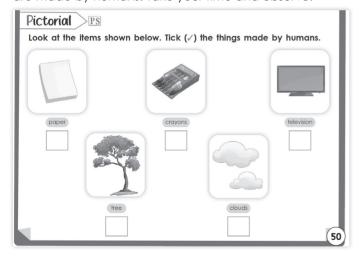
**Teacher:** Great listening. Now, let us do our next activity.

## **Pictorial**

**Teacher:** Let us now observe some pictures given on page 50 of the Main



Cours Book. Some of these are made by humans and some are found in nature. Your task is to tick the ones that are made by humans. Take your time and observe.



(Waits for the students to tick. And discuss the correct answer.)

Teacher: Great work everyone.

## Differentiated Activities

#### 110 km/hr



Name two things that are made by humans but come from natural resources.

#### 80 km/hr



Which of the following is made by humans: trees, television, clouds?

#### 40 km/hr



Which one is made by humans: crayons or a tree?

## Home Task

Look around your home and list three things that are made by humans and three things that are found in nature. Write them neatly in your notebook.

## Period 2

## Interacting better

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





**Teacher:** Great. Today, we will start with an 'Interacting better' activity. Turn to your partner and have a discussion about the different yoga poses we have learned, like the triangle pose and the tree pose. Talk about how they are performed and why they are good for our bodies.

(Encourage students to discuss and guide the discussion accordingly.)

(Use CRM signs to settle the class.)

**Teacher:** Once you have finished your discussion, take your notebook and draw your favourite yoga pose. Try your best to make it clear.

**Teacher:** Now, show your drawing to your friend and ask them to name and colour the pose.

Teacher: Great.



**Teacher:** Let us begin by looking at this picture story carefully given on page 51 of the Main Course Book. Read

it on your own and try to understand what is happening. Take your time and once you are done, I will ask you some questions.



(Give students time to read and observe the images.)

**Teacher:** Now that you have read the picture story, let us

discuss it together.

**Teacher:** Where are Sam and his friends in this story?

Teacher: Very good. What kind of books are they looking

at?

**Teacher:** Sam and his friends are discussing different books. Can you tell me which book Sam has picked up?

**Teacher:** Well done. Now, what is the book that Sam's friend is holding about?

mena is notating about?

**Teacher:** Good thinking. This book is about yoga and its connection with the five elements of Earth. Why do you think learning about yoga is important?

**Teacher:** Great answers. Now, in the second part of the story, one of Sam's friends asks Jas a question. What is the question?

**Teacher:** Yes. Jas is asked whether he practises yoga. How does he respond?

**Teacher:** Very well remembered. Now, Sam gives Jas an important piece of advice about yoga. Can you tell me what it is?

**Teacher:** That is right. Yoga helps increase our immunity. Why do you think immunity is important for us?

**Teacher:** Excellent. Our immune system helps keep us healthy and fight illnesses. Would you like to practise yoga regularly to stay strong and active?

**Teacher:** That is wonderful. Yoga is not just good for our body but also for our mind. It helps us stay calm, focused and happy.

## **Differentiated Activities**

#### 110 km/hr



Why do you think yoga is connected to the five elements of Earth? Name two elements and their possible connection to yoga.

#### 80 km/hr



What is the name of the book that Sam's friend is holding?

#### 40 km/hr



Who suggests that yoga should be practised regularly?

#### **Home Task**

Find out the names of three different yoga poses and write one benefit of each. Draw and colour your favourite yoga pose neatly in your notebook.

## Period 3

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



**Teacher:** Great. Let us start with a quick game before we begin today's lesson. I will describe something related to yoga and you have to guess what it is.

**Teacher:** Here is your first clue – It is a physical activity that helps keep our body flexible and our mind calm. What is it? (Yoga)

**Teacher:** Well done. Now, let us try another one – This yoga pose is named after a tall, green plant that gives us oxygen. Can you guess the pose? (Tree Pose)

**Teacher:** Very good. Now, here is a tricky one – This pose is named after a shape with three sides. Can you think of the name? (Triangle Pose)

**Teacher:** Excellent. Yoga is fun and keeps us healthy. Now that we are warmed up, let us begin our lesson.

(The teacher will read the last paragraph of page 51 and the first to third paragraph of page 52 aloud and provide explanations to ensure that the students understand the content.)

**Teacher:** Today, we will learn about two things that have their roots in India – Yoga and Ayurveda.

#### YOGA

Practising yoga strengthens our body and relaxes our mind. It is one of the most accepted forms of exercise around the world. Do you know yoga has its round in India?

Yoga originated in India around 5,000 years ago. Various Indian <u>sages</u>, wrote different 'sutras' (ancient Indian books) on yoga. These sutras were later developed by practitioners of yoga and taken to all corners of the world.

**Teacher:** First, let us talk about Yoga. Yoga strengthens our body and relaxes our mind. Do you know where yoga originated from?



**Teacher:** That's right, Yoga originated in India around 5,000 years ago. Can you tell me who wrote books on Yoga during those times?

**Teacher:** Excellent. Various Indian sages wrote these books, which are called 'sutras'.

## Discovering better



(Explain the given term 'sage' and discuss it with the class.)

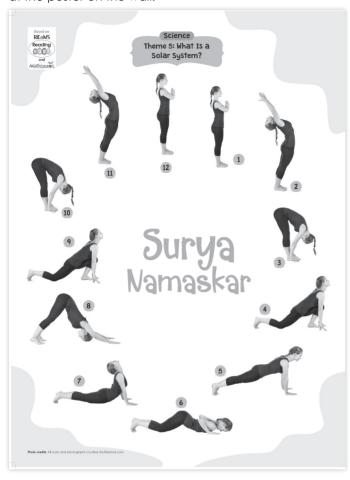
**Teacher:** What do you think 'sutras' mean?

**Teacher:** Very good. Sutras are ancient Indian texts or books. These were developed by different people and spread all around the world.

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 the learning about Surya Namaskar. Encourage students to observe the posters and discuss the different types of Surya Namaskar.)

**Teacher:** Great observation everyone.

#### AYURVEDA

Ayurveda\* is one of the oldest systems of medicine. It originated in India about 6,000 years ago. The ancient Indian healers, Charaka and Sushruta, in their books Charaka Samhita and Sushruta Samhita, respectively, explained this system of medicine.

Ayurveda focuses on prevention of diseases by maintaining a healthy lifestyle. It can be practised by

- ightharpoonup sleeping on time and waking up early
- ightharpoonup eating fresh and healthy food
- using herbs and doing yoga
- staying clean, calm and kind

Today, many people are studying Ayurveda, not just in India but in other countries too.

**Teacher:** Now, let's talk about Ayurveda, one of the oldest systems of medicine. Can anyone guess how old Ayurveda is?



**Teacher:** Ayurveda started in India around 6,000 years ago. It was explained by two great Indian healers, Charaka and Sushruta, in their books Charaka Samhita and Sushruta Samhita.

**Teacher:** Now, can anyone tell me how Ayurveda helps

**Teacher:** Ayurveda helps prevent diseases by encouraging a healthy lifestyle.

**Teacher:** Let us think about how we can live a healthy life according to Ayurveda. What do you think are some ways to stay healthy?

**Teacher:** One way is by sleeping on time and waking up

**Teacher:** Another way is by eating fresh and healthy food.

**Teacher:** Can anyone think of another way?

**Teacher:** Yes, using herbs and practising yoga is also important for staying healthy.

**Teacher:** What is another way we can stay healthy?

**Teacher:** Staying clean, calm and kind also helps us maintain good health.

**Teacher:** So, today, Ayurveda is not only studied in India but in many other countries as well.

**Teacher:** By following these simple practices, we can stay healthy and happy.

**Teacher:** Now, we will talk about how yoga and Ayurveda are linked. Yoga can be practised as part of Ayurveda.

When we do yoga regularly, we keep our body and mind healthy.

**Teacher:** Can anyone tell me how doing yoga helps with our health?



**Teacher:** Very good. Yoga helps increase immunity and makes us feel more relaxed. Now, Ayurveda also helps us stay healthy by eating well and sleeping on time. Why do you think sleeping on time is important?

**Teacher:** Excellent. Sleep helps us rest and refresh our body.

#### **Differentiated Activities**

#### 110 km/hr



What is the connection between Yoga and Ayurveda?

#### 80 km/hr



Where did Yoga originate?

#### 40 km/hr



(52)

What is one benefit of doing Yoga?

#### Home Task

Write down three things you can do to stay healthy, based on the lesson about Yoga and Ayurveda. Include one thing about eating, one thing about sleeping and one thing about doing physical activity. Write your answers neatly in your notebook.

## Period 4

**Teacher:** Good morning, students.

How are you all today?

**Teacher:** Great. Let us start with a warm-up activity. I will ask you a few questions and you will answer them based on what we have learned so far.

**Teacher:** Where did Yoga originate from? (India)

**Teacher:** Can you tell me one thing that Yoga helps us with? (It strengthens the body and relaxes the mind)

**Teacher:** Ayurveda is one of the oldest systems of

years ago)

Teacher: What is one way to stay healthy according to

medicine. How many years ago did it originate? (6,000

Ayurveda? (Eating fresh and healthy food)

Teacher: Can you name one ancient Indian healer who helped explain the system of Ayurveda? (Charaka or Sushruta)

Teacher: Now that we are warmed up, let us begin today's lesson.

**Teacher:** Today, we will learn about two things that have their roots in India – Yoga and Ayurveda.

**Teacher:** Today, we are going to learn about Charkha.

(The teacher will read the fourth paragraph of page 52 aloud and provide explanations to ensure that the students understand the content.)



(52)

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#### **CHARKHA**



Charkha, or the spinning wheel, invented around 500 AD, is another scientific invention of ancient India. The spinning wheel was used to spin animal or plant fibres, such as wool or cotton, into thread or yarn.

charkha

Teacher: Let us talk about the Charkha. It was invented around 500 AD in India. Can anyone tell me what the Charkha was used for?

**Teacher:** That's right. The Charkha was used to spin fibres such as wool or cotton into thread or yarn. Why do you think this was important in ancient times?

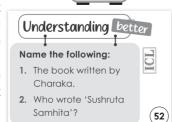
Teacher: Well done everyone.

# **Understanding better**

**Teacher:** Let us do the understanding better activity given on page 52 of the

Main Course Book. I will ask you two questions and you will answer them based on what we have learned.

**Teacher:** The first question is: Who wrote the book 'Charaka Samhita'?



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**Teacher:** And the second question is: Who wrote the book 'Sushruta Samhita'?

**Teacher:** Write down your answers in your notebook.

(Discuss the correct answer with the class.)

## Connecting better

**Teacher:** Let us look at the conversation between Sam and his friends. As I



read it out, listen carefully and think about what they are talking about. Ready?



Teacher: Sam and his friends are back from the planetarium. Sam asked, 'Did you see the big red planet?' What do you think Jas replied?

Teacher: Yes, Jas said, 'Yes, it was amazing.' Then, Lina said, 'I loved how they showed us the stars.' Why do you think Lina said that?

**Teacher:** Exactly. She loved how the planetarium presented the stars. Now, Sam asked, 'Did you notice how we used 'they' to talk about the people at the planetarium?' What do you think 'they' refers to in this case?

Teacher: Right. 'They' refers to the people at the planetarium. Now, Jas responded, 'Yes and we used 'it' for the planet.' Why do you think they used 'it' for the planet?

**Teacher:** Great answers. 'It' is used for the planet because the planet is a single object. Now, Lina said, 'Pronouns make talking about things so much easier.' Do you agree? Why are pronouns important?

Teacher: Yes. Pronouns help us avoid repeating words and make our sentences shorter and clearer. Can you think of a sentence where using a pronoun makes it easier to understand?

**Teacher:** Great thinking everyone.

## Differentiated Activities

#### 110 km/hr



How the invention of the Charkha contributed to the development of the textile industry in ancient

#### 80 km/hr



What was the main purpose of the Charkha in ancient times?

#### 40 km/hr



What did the Charkha spin?

## **Home Task**

Write a short paragraph (4-5 sentences) about the importance of the Charkha in ancient India. Include the answer to the question: 'Why was the Charkha useful?' Write your paragraph neatly in your notebook.

## Period 5

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



Teacher: Great. Let's begin today with a quick warm-up. I will ask you some questions and you can answer them based on what we learned vesterday.

**Teacher:** What was the Charkha used for in ancient India? (The Charkha was used to spin fibres like wool or cotton into thread or yarn.)

Teacher: Can anyone tell me when the Charkha was invented? (Around 500 AD)

**Teacher:** Who wrote the book 'Charaka Samhita'? (Charaka)

**Teacher:** Who wrote the book 'Sushruta Samhita'? (Sushruta)

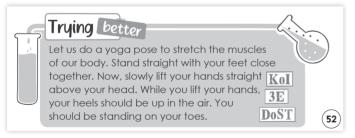
**Teacher:** Why do you think the Charkha was important in ancient times? (It helped in the production of thread or

**Teacher:** Great work. Now, let us move on to today's lesson.

## Trying better

Teacher: Now, let us focus on the yoga pose we did earlier to stretch our muscles. Let us stand straight with our feet close together.





**Teacher:** Slowly, lift your hands straight above your head. Can anyone tell me what happens when we lift our hands?

**Teacher:** That is right. While lifting your hands, your heels should be up in the air. You should be standing on your

**Teacher:** Let us hold the pose for a moment. How does your body feel now? Stretching helps your muscles stay strong and flexible.

**Teacher:** Great work. Let us move on to the next activity.

## Healing better

Teacher: Now, let us talk about Ayurveda. Can anyone tell me what Avurveda means?





Teacher: Yes. Ayurveda translates to 'knowledge of life.' It teaches us that our health and well-being are connected to our environment, mind, body and spirit.

**Teacher:** Can anyone tell me why it is important to keep our mind and body healthy according to Ayurveda?

**Teacher:** That's right. Ayurveda tells us that we should take care of both our body and our mind to live a happy and healthy life.

**Teacher:** Let us think about some ways we can take care of our body and mind. What are some healthy things we can do for both?

Teacher: Wonderful answers. We can eat healthy food, do yoga, get enough sleep and stay positive. Now, let us move on to the next activity.

## **Differentiated Activities**

#### 110 km/hr



How does Ayurveda help us maintain a healthy lifestyle and how is it connected to the practice of yoga?

#### 80 km/hr



What is one way yoga helps our body?

#### 40 km/hr



What does Ayurveda teach us? (Answer: Ayurveda teaches us about the connection between our body, mind, environment and spirit.)

## Home Task

Write three sentences about the benefits of yoga. In each sentence, include one benefit for the body, one for the mind and one for the spirit. Write your answers neatly in your notebook.

# Period 6

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



**Teacher:** Great. Let us start with a quick warm-up to recall what we have learned so far. I will ask you some questions and you can answer them based on our lessons.

**Teacher:** What does the term 'Ayurveda' mean? (Knowledge of life)

**Teacher:** How does Ayurveda connect our health with our mind, body, environment and spirit? (Holistic health)

**Teacher:** Can anyone tell me one way yoga helps our body? (Strengthens muscles)

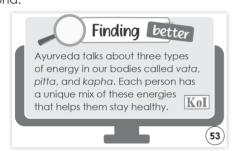
**Teacher:** What was the Charkha used for? (Spinning fibres) **Teacher:** Why is it important to stay healthy, both physically and mentally? (To live well)

**Teacher:** Excellent work. Now, let us begin today's lesson.

## Finding better

**Teacher:** Today, we are going to talk about Ayurveda and the three types of energy in our bodies: Vata, Pitta and Kapha.





**Teacher:** Ayurveda tells us that each person has a unique mix of these energies. Can anyone tell me why these energies are important?

**Teacher:** Great. Vata, Pitta and Kapha help us stay healthy by balancing different parts of our body and mind. Let's discuss them one by one. Who can tell me what Vata represents in Ayurveda?

**Teacher:** Yes, Vata represents movement, such as the movement of air and breath in our body. Now, what does Pitta represent?

**Teacher:** Right. Pitta represents energy and transformation in our body, like digestion. What about Kapha?

**Teacher:** Well done. Kapha represents structure, such as the bones and the body's strength. Each person has a different balance of these three energies, which helps them stay healthy.

# Grasping better

MUST DO

**Teacher:** Now, revise the term Ayurveda?



**Teacher:** That's right. Ayurveda is a system of unique medicine that uses natural ways to prevent diseases. Ayurveda helps us maintain balance in our body and mind using natural remedies, food and lifestyle. Why do you think it is important to keep this balance?

**Teacher:** Yes, keeping balance helps us stay healthy and prevent diseases. Let us now think about how Ayurveda can help in daily life. What are some things we can do to balance our energies according to Ayurveda?

Teacher: Great thinking everyone.

**Teacher:** Let us connect what we've learned today with a small activity. Ready?

**Teacher:** I will give you some examples of things we do every day and you will tell me which type of energy they might relate to: Vata, Pitta or Kapha.



**Teacher:** If I say 'eating spicy food,' which energy is that related to? (Pitta)

**Teacher:** What about 'sleeping and resting'? (Kapha)

**Teacher:** Great. Now, what about 'breathing deeply'? (Vata)

## Differentiated Activities

#### 110 km/hr



How can Ayurveda be applied in today's lifestyle to prevent diseases?

#### 80 km/hr



Name the four practices in Ayurveda to maintain a healthy lifestyle.

#### 40 km/hr



How does Ayurveda help in maintaining good health?

## Home Task

Create a poster on 'The Benefits of Ayurveda for Good Health'. Include the following: Illustrations or images representing the key practices of Ayurveda such as eating healthy food, doing yoga, using herbs and maintaining a calm and clean lifestyle. A short description of each practice and how it helps in maintaining health. Use bright colours and make the poster attractive.

# Period 7

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



**Teacher:** Great. Let's start today's lesson with a fun warm-up. I will ask some questions and you can try to answer them.

**Teacher:** What is the name of the ancient system of medicine that started in India 6,000 years ago? (Ayurveda)

**Teacher:** Can anyone tell me how Yoga benefits our body? (Strengthens body)

**Teacher:** Which invention from around 500 AD was used to spin fibres like wool or cotton into thread? (Charkha)

**Teacher:** How does practising Ayurveda help us in our daily lives? Can you mention one practice? (Healthy food)

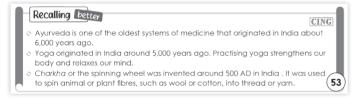
**Teacher:** When was Yoga first practised in India? Can anyone share one yoga pose you have learned? (5,000 years ago)

**Teacher:** Great answers, everyone. Let's now dive into today's lesson.

**MUST DO** 

## Recalling better

**Teacher:** Today, we will be discussing some important aspects of India's history and contributions. Let's begin with Ayurveda. Can anyone tell me how old Ayurveda is?



**Teacher:** Ayurveda is one of the oldest systems of medicine. It originated in India around 6,000 years ago. It is a very important part of India's heritage.

**Teacher:** Now, let us talk about Yoga. Do you know when Yoga began?

**Teacher:** Yoga originated in India around 5,000 years ago. Practising yoga strengthens the body and helps relax the mind. How do you think yoga can benefit us?

**Teacher:** Very good. Moving on to another important invention from India, the Charkha or spinning wheel. Does anyone know what it was used for?

**Teacher:** The Charkha was invented around 500 AD in India. It was used to spin animal or plant fibres, such as wool or cotton, into thread or yarn. How do you think this invention helped people at that time?

**Teacher:** These contributions of Ayurveda, Yoga and the Charkha show the importance of India's rich history. It is interesting to see how ancient practices and inventions have shaped the world.

#### Learning better

**Teacher:** Everyone please open page 53 of your Main Course Book.



In Exercise 'A' of 'Learning better' you have to tick the correct answer. Are you ready to get started?

	Learning better	CBA
A	Tick ( $\checkmark$ ) the correct answer.	
	<ol> <li>Which is one of the oldest systems of medicine that originated in India about 6,000 years ago?</li> </ol>	
	a. yoga b. charkha c. ayurveda	
	2. Name the Indian physician who wrote the book Sushruta Samhita.	
	a. Charaka b. Sushruta c. Agasthya	
	3. Which of the following strengthens our body and relaxes our mind?	
	a. yoga b. ayurveda c. charkha	(53)

4.	Which of the following is r	nade with the help of a spin	ning wheel?	
	a. cloth	b. thread	e. plastic	
5.	Which of the following is a	also known as charkha?		
	a. yoga	b. ayurveda	c. spinning wheel	<b>(53)</b>

**Teacher:** Great. Let us begin with the first question. Which is one of the oldest systems of medicine that originated in India about 6,000 years ago.

**Teacher:** The correct answer is ayurveda. Well done. (Similarly complete all five questions. And discuss the correct answers.)

## Differentiated Activities

#### 110 km/hr



How can Yoga and Ayurveda be combined to improve mental and physical health?

(By practising Yoga along with following Ayurvedic diet and lifestyle)

#### 80 km/hr



Name one benefit of practising Yoga for the body. (It strengthens the body)

#### 40 km/hr



What is one practice mentioned in Ayurveda to stay healthy? (Eating healthy food)

## Home Task

Create a poster showing the benefits of Yoga and Ayurveda for good health. Use images or drawings and write a few sentences explaining each practice.

## Period 8

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



**Teacher:** Great. Let's start today's lesson with a fun warm-up. I will ask some questions and you can try to answer them.

**Teacher:** What is the name of the system of medicine that started 6,000 years ago in India? (Ayurveda)

**Teacher:** How long ago did Yoga originate in India? (5,000 years)

**Teacher:** What was the Charkha used for? (Spinning fibres) **Teacher:** Name one benefit of practising Yoga. (Relaxing the mind)

**Teacher:** What is one of the practices recommended by Ayurveda? (Sleeping on time)

**Teacher:** Great work. Let's move ahead with today's lesson.

#### Learning better

**Teacher:** Everyone please open page 53 of your Main Course Book. Let us do



Exercise 'B' of 'Learning better'. In Exercise 'B' of 'Learning

better' you have to fill in the blanks. Are you ready to get started?



Teacher: Great. Let us begin with the first question. and fill in the blanks.

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

## Learning better

Teacher: Now, 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 benefits of yoga.

(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.)

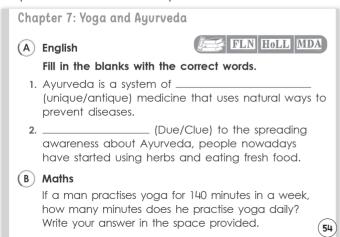
(Similarly, complete all three questions)

# **Book of Holistic Teaching**

Refer to the Book of Holistic Teaching, COULD DO page 25 under the title 'Yoga and Ayurveda.' 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.



## (C) Social Studies

We know that Indians were the first to spin and weave cotton into clothes. Name an explorer who was the first to reach the Cape of Good Hope in South Africa. Write your answer in the space provided.

54

(Instruct the students to bring their Workbook in their next period.)

## **Differentiated Activities**

#### 110 km/hr



How can the Charkha contribute to sustainable living by using natural fibres?

#### 80 km/hr



How does Yoga help in improving mental health?

#### 40 km/hr



What is one practice in Ayurveda to improve overall health?

## **Home Task**

Create a drawing of the Charkha and label its parts. Write a short paragraph on how it helps in spinning fibres into yarn.

## Period 9

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



Teacher: Great. Let's start today's lesson with a fun warmup. I will ask some questions and you can try to answer

Teacher: What is the name of the ancient healing system that focuses on a healthy lifestyle? (Ayurveda)

**Teacher:** What is one of the primary benefits of practising Yoga for physical health? (Strengthens muscles)

**Teacher:** In which country did Yoga originate? (India)

Teacher: What was the Charkha used for during its invention? (Spinning fibres into yarn)

Teacher: What type of fibres were commonly used with the Charkha? (Wool or cotton)

Teacher: Great work, everyone. Let us get started with today's lesson.

## Learning better

**MUST DO** 20 MIN.

**Teacher:** Everyone please open page 53 of your Main Course Book. 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. What is yoga? Describe.

(D) Write long answers in your notebook.

1. What is yoga? Describe.

2. Write about the origin of charkha in detail.

(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.)

#### Worksheet 1

**Teacher:** Let us do some activities from the workbook. Everybody, please open page 24 of your workbook and answer the questions given in worksheet 1.



	5: What Is a So	olar System? Yurveda	( Worksheet 1		
A. Write true or	false.				
1. Ayurveda or	iginated in Ame	erica.			
2. Ayurveda co and healthy		by eating fresh			
3. Mahatma G	andhi reintrodu	ced Ayurveda.			
4. Yoga relaxe:	s our mind.				
5. Charkha is u	sed in cooking f	food.			
B. Fill in the blo	ınks.				
Sushruta wrote the book Samhita.					
2. Ayurveda or	2. Ayurveda originated in India about years ago.				
3. Yarn is used to make					
4. Spinning who	4. Spinning wheel is also called as				
5. Spinning ma	chines were intr	roduced by	in India.		
C. Match the fo	ollowing.				
1. Yoga	•	a. using herbs and	doing yoga		
2. sutras	•	• b. healer			
3. Charaka	•	c. spinning wheel			
4. charkha	•	d. strengthens minc			
5. Ayurveda	•	e. ancient Indian b	ooks (24)		

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

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

## Differentiated Activities

#### 110 km/hr



How does the practice of Ayurveda differ from modern medicine in its approach to health?

#### 80 km/hr



What is one benefit of eating healthy food according to Ayurveda?

#### 40 km/hr



What is one Ayurvedic practice that promotes aood health?

## **Home Task**

The 'Creating better' activity (Make a solar system using thread) given on page 54 of the Main Course Book.

## Period 10

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



**Teacher:** Great. Let's start today's lesson with a fun warm-up. I will ask some questions and you can try to answer them.

**Teacher:** What is the main focus of Ayurveda when it comes to health? (balanced lifestyle)

**Teacher:** How does Yoga help improve flexibility? (By stretching and strengthening muscles)

**Teacher:** What does the Charkha spin into thread or yarn? (Animal or plant fibres)

**Teacher:** How does eating healthy food contribute to overall health according to Ayurveda? (It helps maintain balance and energy)

**Teacher:** What practice in Ayurveda helps to calm the mind and reduce stress? (Yoga)

**Teacher:** Great responses. Let us begin with today's lesson.

## Thinking better

notebook. Ready?

**Teacher:** Let us begin with a question to make you think. I will ask a question and you have to answer that in your



Thinking better	21st CS	HOTS
Think and write the answer in your notebook.		
Is yoga different from sports? How do both help you stay healthy and t	nappy?	(54)

**Teacher:** Is yoga different from sports? How do both help you stay healthy and happy? Think properly and write your answer in your notebook.

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

## **Choosing better**

**Teacher:** Let us think about a situation. Yoga focuses on the prevention of diseases by maintaining a healthy



lifestyle. What would you do to maintain a healthy lifestyle?



**Teacher:** Here are two choices. First, exercise regularly. Second, eat unhealthy food.

(Pauses to allow students to think.)

**Teacher:** Yes, the first choice is logical.

(Discuss the correct and incorrect choices with the class.)

#### Worksheet 2

Teacher: Let us do some activities from the workbook. Everybody, please open page 25 of your workbook and



answer the questions given in worksheet 2.

	Workshee	† 2
A.	Use the appropriate word from the box in the blanks given below.	
	written Yoga several fibres home	
1.	Ayurveda originated years ago in India.	
2.	Sushruta Samhita is by Sushruta.	
3.	Yoga can be practiced at	
4.	relaxes our mind.	
5.	Charkha is used to spin	
В.	Circle the appropriate word from the given options.	
1.	Ayurveda prevents us from falling (sick/down).	
2.	We should eat (fresh/stale) food to stay healthy.	
3.	(Herbs/Chocolates) are used to prepare ayurvedic medicines.	
4.	Ayurveda is practiced in (all/most) parts of the nation.	
5.	Indian women earned their livelihood from (farming/spinning) yarn in ancient times.	
C.	Which of the following statements about Ayurveda are true? Tick ( $\checkmark )\;$ the correct answers.	
1.	Yoga is a part of Ayurveda.	
2.	Ayurveda keeps us healthy and strong.	
3.	It can be practiced by waking up early.	
4.	Using ayurvedic medicines can make us fall sick.	
5.	All kinds of herbs are used to make ayurvedic medicines.	24

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

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

## **Differentiated Activities**

#### 110 km/hr



How do the principles of Ayurveda help maintain a balance between the mind and body?

#### 80 km/hr



What are the two key benefits of practising Yoga?

#### 40 km/hr



What is one practice in Ayurveda that helps you stay healthy?

## Home Task

The Project Idea, given in the book of Project Ideas, page 14 under the title 'Yoga and Ayurveda.' 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's start today's lesson with a fun warm-up. I will ask some questions, listen carefully and try to answer as quickly as you can.

**Teacher:** What ancient system of medicine focuses on a balanced lifestyle for health? (Ayurveda)

**Teacher:** Which invention from India was used to make yarn from fibres? (Charkha)

**Teacher:** How does Yoga help improve our concentration? (Focus)

**Teacher:** What kind of food does Ayurveda suggest for maintaining good health? (Healthy)

**Teacher:** What is one benefit of practising Yoga for the body? (Flexibility)

**Teacher:** Wonderful answers. Now, let's begin with today's lesson.

## **Revising better**

**Teacher:** Let's begin with 'Revising better'. You are going to revise and



write three benefits of Yoga and Ayurveda in your Little Book. Think about what we have learned so far and write down the benefits. Take your time to reflect on how both practices can contribute to good health.



## Pledging better

**Teacher:** Imagine you have time to play. How do you think this can help your health?





**Teacher:** Great. Now, let us take this pledge together. Repeat after me: 'In my own little way, I pledge to play outdoor games regularly to stay healthy.' Let us remember to act on this pledge and make a positive impact on our well-being.

Teacher: How does this connect to SDG 3: Good Health

and Well-Being? Think about it and share your thoughts. (Listens to students' responses.)

#### Worksheet 3

**Teacher:** Let us do some activities from the workbook. Everybody, please

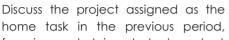


open page 26 of your workbook and answer the questions given in worksheet 3.

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

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

#### **Book of Project Ideas**





focusing on helping students understand the objectives and addressing any challenges they face.

# Chapter 7: Yoga and Ayurveda



History of Inventions

You can see the current models of a few inventions from around the world. These machines looked quite different when they were invented many years ago. Use the Internet\* or look up magazines to find out the pictures of the first models of these machines. Paste them on chart paper. Write the name of their inventors and the year of the invention.

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



**Teacher:** Take out your notebook and fill in the last column. Write what have you 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 can the principles of Ayurveda be applied to modern-day living to enhance long-term health?

#### 80 km/hr



How does regular practice of Yoga impact your body's flexibility?

#### 40 km/hr



What is one practice you learned in Ayurveda that helps you stay healthy?

## Home Task

Create a 'Healthy Lifestyle Ayurveda Chart' using craft materials such as coloured paper, markers and stickers. In your chart, draw and label three Ayurvedic practices that help in maintaining good health (e.g., eating healthy food, practising Yoga, using herbs).

# Learning Outcomes

## The students will:

Domain	Learning Outcome
Physical Development	improve flexibility, strength and body coordination by practising Yoga poses.
Socio-Emotional and Ethical Development	understand the importance of maintaining a balanced lifestyle, including cleanliness and calmness, which supports both mental and physical well-being.
Cognitive Development	comprehend the basic principles of Ayurveda and Yoga, including their benefits and origins and apply them to everyday life for health improvement.
Language and Literacy Development	use appropriate vocabulary to describe Yoga poses and Ayurveda practices, as well as the benefits of a healthy lifestyle.
Aesthetic and Cultural Development	develop an appreciation for traditional practices like Yoga and Ayurveda, which originated in India, by exploring their cultural significance and practising them.
Positive Learning Habits	regularly practise Yoga and incorporate Ayurvedic practices into daily routines to promote good health and well-being.

Starry Knights  Did you learn anything new while teaching this unit? Record your observations here.	
Kudos to you Give yourself a STAR.	