Lesson-6: All About Satellites

11 Periods (40 minutes each)

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

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

Confirming better
I am curious about satellites.

Curricular Goals and Objectives (NCF)

To enable the students:

- to recall different types of satellites and their functions.
- to describe how artificial satellites are used in daily life.
- to apply knowledge of artificial satellites to real-life scenarios.
- to use new vocabulary related to satellites in sentences and discussions.
- to explain the functions of different types of satellites.

Methodology

Period 1

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

SHOULD DO
10 MIN.

Students: Good morning, teacher. We are doing well.

Teacher: That is great to hear. Today, we are going to start an exciting new lesson about something that moves in space but is very useful to us here on Earth. Can anyone guess what it might be?

(Allow students to respond.)

Confirming better

Teacher: Fantastic guesses. Today, we will explore satellites. Before we begin, let us set our curiosity right. Say this with me:

'I am curious about satellites.'

(Students repeat after the teacher.)

Teacher: Today, we will begin a new chapter 'All About Satellites'. We are going to 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

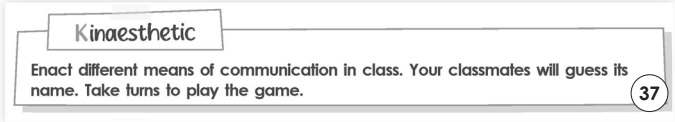
Teacher: The KWL chart has three columns. The first column is labelled 'K,' in which you will write what you already know about the topic. In the second column 'W,' you will write what do you want to know about the topic and the third column is labelled 'L' which is what I have learnt, which we will fill in the end.

Teacher: Take a few minutes to think and write. If you have any questions, feel free to ask.

Teacher: You all did an amazing job in this activity. Let us move to Re-KAP activities. We will use Kinaesthetic, Auditory and Pictorial activities today to make our learning exciting. Let us start with the Kinaesthetic activity.

Kinaesthetic

(Show **CRM sign:** Keep Thinking)



Teacher: Satellites help us in many ways, especially in communication. Let us play an exciting game to understand different means of communication.

MUST DO
10 MIN.

Teacher: Each student will take turns acting out a means of communication (e.g., making a phone call, writing a letter, using a video call) and the rest of the class will guess what form of communication it is.

Teacher: Let us start. Who wants to act first?

(Students take turns enacting different types of communication while classmates guess.)

Teacher: Great job, everyone. We use different means of communication every day. Now, let us think—do satellites help with any of these?

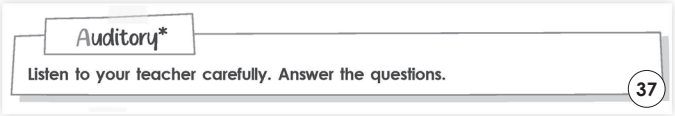
(Students respond.)

Teacher: Yes. Satellites help us make phone calls, send messages and even watch videos. Now, let us listen to a story about two friends who use different ways to communicate.

Auditory

Teacher: Listen carefully as I read a short story about two friends, Ravi and Maya, who communicate using different methods.

MUST DO
10 MIN.



(Show **CRM sign:** listen and learn)

Teacher (reads aloud):

'In a small village, there were two friends named Ravi and Maya. Ravi liked to send postcards with drawings of his adventures to Maya whenever he travelled. Maya enjoyed sharing stories with Ravi through video calls, where they showed each other their favourite books and toys. Both ways, they stayed connected and shared their interests.'

Teacher: Now, let us think about the story.

How does Ravi communicate with Maya when he travels? What do Maya and Ravi share with each other during their video calls? Do you think postcards need satellites?

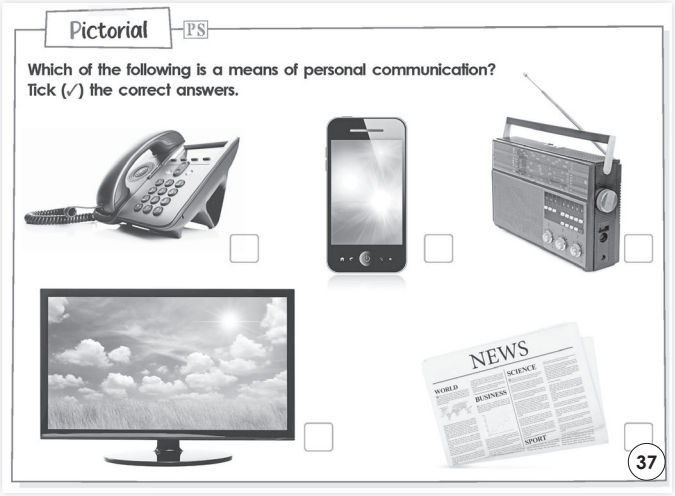
Teacher: Well done. Satellites play a crucial role in communication, navigation and weather forecasting. Now, let us move on to a picture activity.

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

Pictorial

Teacher: Now, let us observe some pictures. I want you to find out which of these are used for personal communication. Look at the images on Page 37 of your book.

MUST DO
10 MIN.



Teacher: Raise your hand if you see a telephone. Is this used for personal communication?

Teacher: Good. What about a mobile phone?

Teacher: Excellent. Now, look at the radio. Does radio help us talk to each other?

Teacher: That is correct. A radio gives information, but it does not let us talk back. What about television? Can you call someone using a TV?

Teacher: Right again. And finally, what about a newspaper?

Teacher: Well done. Telephones and mobile phones are used for personal communication, but radio, television and newspapers are used to share information with many people.

Differentiated Activities

110 km/hr

Explain how radio helps in giving information?

80 km/hr

How do you think phones help us in our daily lives?

40 km/hr

Does a newspaper help us talk to our friends?

Home Task

Draw simple pictures of different means of personal communication in your notebook.

Period 2

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

SHOULD DO
5 MIN.

Students: Good morning, teacher. We are doing well.

Teacher: That is wonderful. Yesterday, we started learning about satellites. Can anyone share one interesting thing you have learnt?

(Students respond.)

Teacher: Excellent. Let us do a quick warm-up before we move ahead. Answer the simple question: What is a satellite?

Teacher: Fantastic. Now that our minds are ready, let us discuss how satellites help us in daily life.

Interacting better

Teacher: Let us imagine that we are all scientists working in a space station. Today, our job is to find out how satellites help people on Earth. Are you all ready?

MUST DO
10 MIN.

(Students respond: Yes.)

Teacher: Wonderful. I will give each group a special clue about how satellites help us. Your job is to think, discuss and share your answer. Let us begin.

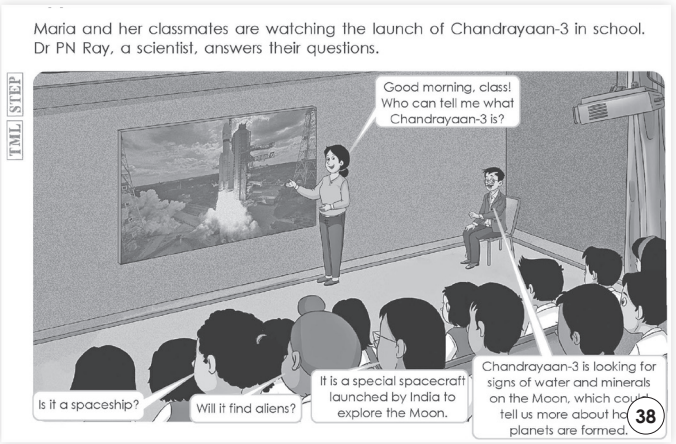
(The teacher hands out clues to different groups.)

- Group 1 Clue: 'I help you call your friend who lives far away.'
- Group 2 Clue: 'I help farmers know when it will rain.'
- Group 3 Clue: 'I help you find the best route when you travel.'
- Group 4 Clue: 'I help scientists learn about space.'

Teacher: You have one minute to discuss your clue with your group. Talk to your teammates and decide how satellites help in this situation.

(The students discuss and share their answers.)

Teacher: Great job. So, satellites help in communication, weather prediction, navigation and space exploration.



Teacher: Look at the picture on page 38. What do you see happening?

MUST DO
15 MIN.

(Ask the students to role play the scene.)

Teacher: Yes. A rocket is launching into space. Can anyone tell me the name of this spacecraft?

Students: That is Chandrayaan-3.

Teacher: Great. Why do you think scientists send spacecraft like Chandrayaan-3 to space?

(Students respond with ideas.)

Teacher: Excellent. Let us take a closer look. Who can read what the scientist in the picture is telling?

(Students read the dialogue of the scientist)

Teacher: Now, based on the story let us think:

1. Is Chandrayaan-3 a spaceship that takes people to space?
2. Do you think it will find aliens?
3. What is its real purpose?

(Students discuss and respond.)

Teacher: That is right. Chandrayaan-3 is an Indian Space Research Organisation (ISRO) mission that successfully landed near the south pole of the Moon on 23 August 2023.Now, look at the students in the picture. They seem very curious. If you had a chance to ask a scientist about space, what would you ask?

(Students share their questions.)

Teacher: Amazing curiosity. That is how we learn more about space. Now, let us imagine—if you could send a satellite into space, what would you want it to do?

(Students respond with creative ideas.)

Teacher: Fantastic answers, everyone. Just like Chandrayaan-3 spacecraft, satellites help us explore and learn more about the universe. Now, let us continue our lesson about satellites.

Satellites: Natural and Artificial

Teacher: Open your books to page 39 and look at the two pictures. What do you see?

MUST DO
10 MIN.

(Students respond.)

Teacher: Yes. One picture shows the Moon and the other shows an artificial satellite. Can anyone tell me which one is natural and which one is artificial?

(Students answer.)

Teacher: That is correct. The Moon is a natural satellite as it moves around the Earth and it is not made by humans. Artificial satellites are made by humans and launched into space. Can you think of why we need artificial satellites?

(Students discuss.)

Teacher: Wonderful thinking. Now, let us learn more about artificial satellites and their different uses in our next class.

You may show the **Animation** of the story given on digital platform.

Differentiated Activities

110 km/hr

How do satellites help in communication?

80 km/hr

What does a satellite look like?

40 km/hr

If you could design a satellite, what would it do?

Home Task

Imagine you are a scientist designing a new satellite. Write three sentences about what your satellite will do. You can also draw a simple picture of it.

Period 3

Teacher: Good morning, everyone. How are you today?

Students: Good morning, teacher. We are doing well.

SHOULD DO — 5 MIN.

Teacher: That is great to hear. Today, let us begin with a discussion on your home task. If you had your own satellite, what would you do with it?

(Wait for students to think and respond.)

Teacher: Imagine you could send a satellite into space. Would you use it to help people, explore the universe or maybe even search for aliens?

(Encourage different responses.)

Teacher: Wonderful, everyone. Satellites do many things for us, from helping with communication to exploring space.

Discovering better

Teacher: Look at the word 'artificial' in your book given on page 39. Can anyone read the definition aloud?

MUST DO — 10 MIN.

(A student reads: "Artificial: made to copy something, not real.")

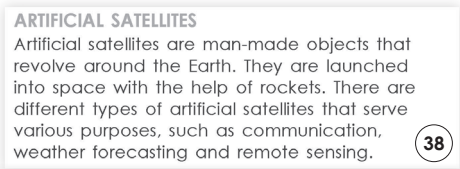
Teacher: Great. Now, let us think about it. I will ask some quick questions and you answer:

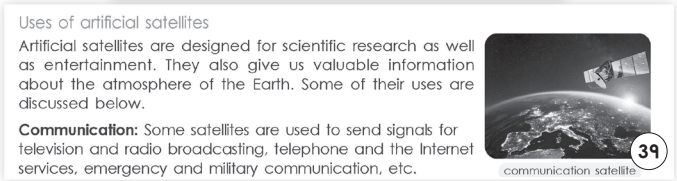
1. Is a tree artificial or natural? (Students: Natural.)
2. Is plastic fruit artificial or natural? (Students: Artificial.)
3. Are satellites natural or artificial? (Students: Artificial.)
4. Can you think of something artificial that we use every day? (Students give examples: plastic bottles, fake flowers, robots, etc.)

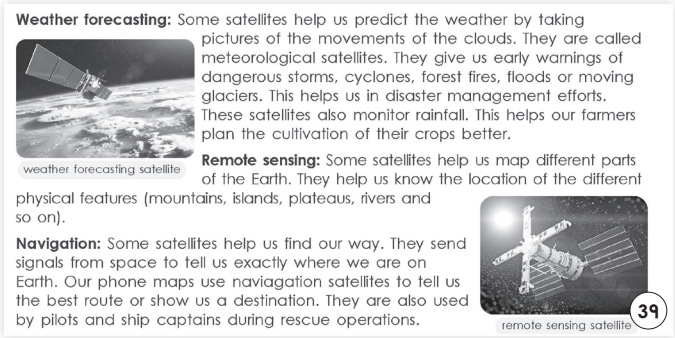
Teacher: Wonderful thinking. Satellites are artificial because humans make them help us. Now, if you could create an artificial object, what would it be?

(Students share their ideas.)

Artificial Satellites & Their Uses







Teacher: Artificial satellites help us in many ways. Let us read about their uses. Open your books and follow along as I read.

MUST DO — 25 MIN.

(Read each type of artificial satellite aloud, explaining them while asking questions in between.)

1. What are artificial satellites?
2. How are artificial satellites different from natural satellites?
3. What is the purpose of communication satellites?
4. How do weather satellites help in predicting natural disasters?
5. Why are remote sensing satellites important?
6. How do navigation satellites help us in daily life?
7. Can you name a device that uses navigation satellites?
8. Why do scientists send satellites into space?
9. What would happen if there were no satellites?
10. If you could design a satellite, what special task would it perform?

(Students will answer all the questions and the teacher will discuss the responses with the class.)

Teacher: Excellent answers. Satellites make our lives easier in so many ways. Keep thinking about how space technology helps us every day.

Teacher: Well done, everyone. Give yourselves a big round of applause. See you in the next class.

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

Differentiated Activities

110 km/hr

Explain how artificial satellites help in disaster management.

80 km/hr

What are the two types of satellites?

40 km/hr

Is the Moon a natural or artificial satellite?

Home Task

Satellite Diary

Write a short diary entry as if you are an artificial satellite in space. Describe:

- What do you see from space?
- How do you help people on Earth?
- What does a day in space feel like?

Period 4

Teacher: Good morning, everyone. Let us start with an exciting thought. Imagine you are a scientist launching India's next satellite. What would you name it and what would be its purpose?

SHOULD DO
5 MIN.

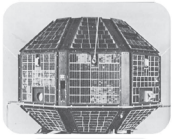
(Students share creative ideas.)

Teacher: Wonderful. Today, we will learn about artificial satellites and their role in space exploration.

Artificial Satellites in Space

ARTIFICIAL SATELLITES IN SPACE

The world's first artificial satellite was launched into space on 4 October 1957. Today, many countries have their own space programmes for developing different satellites and launch vehicles. India also has a strong space programme. It launched its first communication satellite, Aryabhatta, in 1975. Today, India's GSATs (Geostationary Satellites) are used for the purpose of audio-visual communication.



Aryabhatta satellite

IRS-1A, India's first remote-sensing satellite, was launched on 17 March 1988. A remote-sensing satellite helps scan the Earth's surface so that scientists can study and learn more about the Earth. Today, several highly advanced Indian Earth Observation (EO) Satellites are floating in space.

39

Teacher: Open your books to page 40 and look at the section 'Artificial Satellites in Space.' What do you see in the picture?

MUST DO
15 MIN.

(Students observe and describe Aryabhata.)

Teacher: That is right. Aryabhatta was India's first satellite, launched in 1975. Let us read about it.

(Students take turns reading and the teacher explains.)

Teacher: Now, let us answer some quick questions:

1. What was the world's first artificial satellite?
2. When was Aryabhatta launched?
3. What is the function of GSAT satellites?
4. Why are remote-sensing satellites important?

(Students answer and the teacher discusses.)

Understanding Better

Teacher: Now, let us check our understanding with a quick activity. Answer in one word:

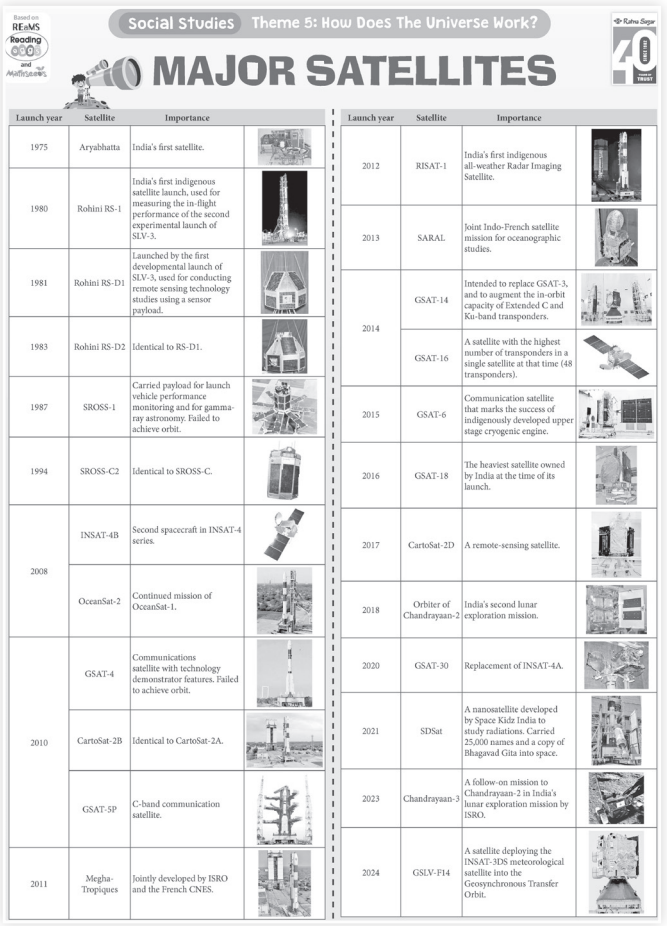
MUST DO
5 MIN.

1. Name the first Indian satellite.
2. Name India's first remote-sensing satellite.

(Students respond: Aryabhata, IRS-1A.)

Teacher: Great job. Now, let us move on to a creative task.

Poster



Teacher: Look at the 'Major Satellites' poster. Today, we will focus on satellites launched between 1975 and 2011. Look closely at the images and details.

MUST DO
15 MIN.

Teacher: Walk around the classroom and carefully observe the students. Try to find the answers to these questions:

1. Which satellite was launched first?
2. Which satellite was used for communication?
3. Which satellite was launched in partnership with another country?
4. Which satellite failed to achieve orbit?

(Students walks to the board and examine the poster.)

Teacher: Now, let us discuss. I will point to a satellite and you tell me what you know about it.

(Point at Aryabhatta, GSAT-4, Megha-Tropiques, etc., and encourage students to share their thoughts.)

Teacher: Excellent observation, everyone. You have done a great job identifying important details about the satellites launched between 1975 and 2011.

Teacher: In the next class, we will focus on the second part of the poster—satellites launched between 2012 and 2024. Get ready to explore more interesting facts and discoveries.

Teacher: Let us test our memory.

- Which satellite was launched in 1975?
- What is the function of CartoSat-2B?
- Which satellite was developed jointly with France? (Students answer.)

Teacher: Excellent work. We will cover the remaining satellites in the next class.

Differentiated Activities

110 km/hr

What type of satellites help us find directions?

80 km/hr

When was Aryabhatta launched?

40 km/hr

What is the name of India's first satellite?

Home Task

Satellite Scrapbook

- Find pictures of any three Indian satellites (past or present).
- Paste them in your notebook or a sheet.
- Write one important fact about each satellite.

Period 5

Teacher: Good morning, students. Are you ready to explore more about satellites?

MUST DO
15 MIN.

Poster

Students: Yes, teacher.

Teacher: Wonderful. We have already learnt about the satellites launched between 1975 and 2011. Today, we will explore the satellites launched from 2012 to 2024. Look at the poster. What do you notice?

(Students observe and describe key features.)

Teacher: Let us focus on the first satellite in this list, RISAT-1. What do you think its purpose could be?

(Students share ideas.)

Teacher: Great thoughts. RISAT-1 is India's first indigenous all-weather Radar Imaging Satellite. Now, let us continue reading about the rest of the satellites and discuss their importance.

Connecting better

MUST DO
10 MIN.

Teacher: Did you know that Aryabhatta, India's first satellite, weighed 360 kg? That is a big number. Let us explore an interesting fact about it. Maria's mother told her that 360 is the smallest number divisible by every number from 1 to 10, except 7. Can you think of any other interesting number facts?

(Students share their number facts.)

Teacher: Fantastic thinking. This shows how space and mathematics are connected. Now, imagine if you were to design a satellite, what all would you keep in it and how much do you think it would weigh?

(Students share ideas.)

Helping better

Teacher: Have you ever seen birds looking for food near your home or school? What do they usually eat?

MUST DO
5 MIN.

(Students share their answers.)

Teacher: That is right. Birds rely on nature for food, but sometimes they struggle to find enough. What do you think we can do to help them?

(Students suggest ideas.)

Teacher: A great way to help birds is by making bird feeders using recycled materials like milk cartons or toilet paper rolls. Have you ever made something useful from recycled materials?

(Students share their experiences.)

Teacher: Imagine a little bird visiting your feeder every day. How would that make you feel? What do you think we should put inside the feeder for them to eat?

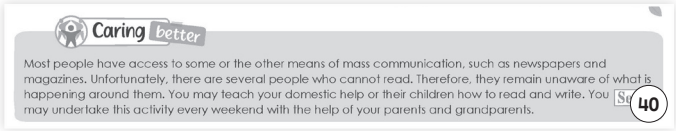
(Students respond with different food options like grains, seeds or breadcrumbs.)

Teacher: Wonderful ideas. For your home task, try to make a bird feeder and place it in a safe spot near your home. Observe if any birds visit it.

Caring better

MUST DO 10 MIN.

Teacher: Imagine not being able to read the news, a book or even a simple signboard. How would that make you feel?


Caring better

Most people have access to some or the other means of mass communication, such as newspapers and magazines. Unfortunately, there are several people who cannot read. Therefore, they remain unaware of what is happening around them. You may teach your domestic help or their children how to read and write. You may undertake this activity every weekend with the help of your parents and grandparents.

40

(Students respond with their thoughts.)

Teacher: Some people around us cannot read or write. Can you think of who they might be?

(Students mention domestic helpers, grandparents or children in their neighbourhood.)

Teacher: That is right. What if we could help them learn? How do you think we can teach someone to read simple words?

(Students share their ideas – using picture books, writing alphabets, reading simple stories, etc.)

Teacher: Wonderful. Your small effort can change someone's life. Let us try to help others read and write whenever we can. What do you think will happen if more people learn to read?

(Students discuss positive changes, such as more knowledge and better jobs.)

Teacher: Fantastic discussion, everyone. You all did an amazing job today. Let us appreciate our efforts with a big round of applause. See you all in the next class.

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

Differentiated Activities

110 km/hr

Compare two satellites launched after 2012. How are their purposes different?

80 km/hr

Why do we need different types of satellites instead of just one?

40 m/hr

Which satellite was launched in 2023?

Home Task

Look around your home and find three things that work because of satellites (TV, GPS, Weather apps, etc.). Write how satellites help each of these things work.

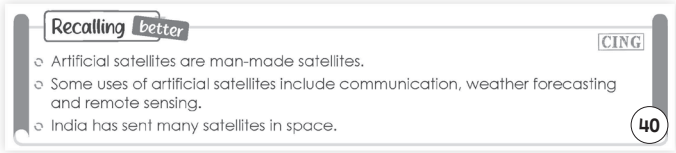
Period 6

MUST DO 10 MIN.

Recalling better

Teacher: Good morning, everyone. Let us quickly recall what we have learnt about satellites. Can anyone tell me what an artificial satellite is?

(Students respond.)


Recalling better

CING

- Artificial satellites are man-made satellites.
- Some uses of artificial satellites include communication, weather forecasting and remote sensing.
- India has sent many satellites in space.

40

Teacher: Great. Now, let us go through some key points together. Look at the statements in 'Recalling better' on page 40. Read the first point aloud.

(A student reads.)

Teacher: Wonderful. Now, let us discuss the next statement. What are some uses of artificial satellites?

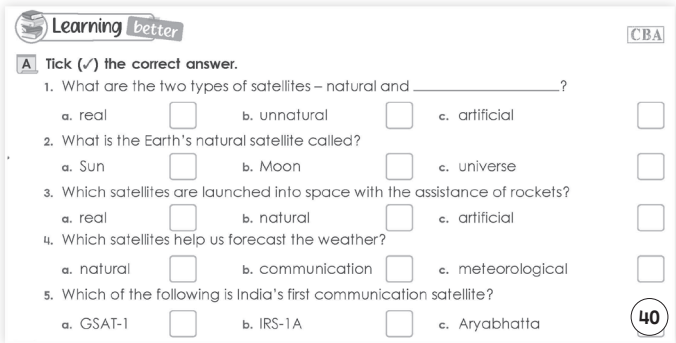
(Students respond.)

Teacher: Excellent thinking. Now, let us move on to an exciting exercise.

Learning better

MUST DO 15 MIN.

Exercise A


Learning better

CBA

A Tick (✓) the correct answer.

1. What are the two types of satellites – natural and _____?
   a. real ☐ b. unnatural ☐ c. artificial ☐
2. What is the Earth's natural satellite called?
   a. Sun ☐ b. Moon ☐ c. universe ☐
3. Which satellites are launched into space with the assistance of rockets?
   a. real ☐ b. natural ☐ c. artificial ☐
4. Which satellites help us forecast the weather?
   a. natural ☐ b. communication ☐ c. meteorological ☐
5. Which of the following is India's first communication satellite?
   a. GSAT-1 ☐ b. IRS-1A ☐ c. Aryabhatta ☐

40

Teacher: Turn to Exercise A on page 40. Let us solve these questions together. Here is the first one:

Teacher: What are the two types of satellites – natural and____?

(Students respond.)

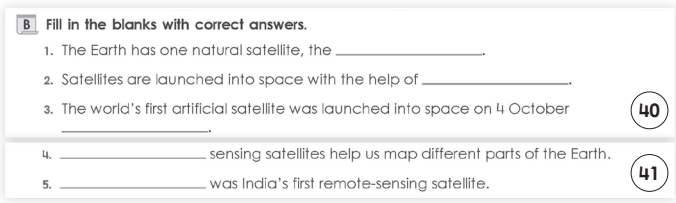
Teacher: Correct. The answer is 'artificial.' Let us tick the correct option. Now, let us move on to the next question.

(Follow the same pattern for the rest of the exercise, where the teacher reads the question, allows students to respond and discusses the answer.)

Learning better

MUST DO 15 MIN.

Exercise B


B Fill in the blanks with correct answers.

1. The Earth has one natural satellite, the _____.
2. Satellites are launched into space with the help of _____.
3. The world's first artificial satellite was launched into space on 4 October _____.

40

4. _____ sensing satellites help us map different parts of the Earth.
5. _____ was India's first remote-sensing satellite.

41

Teacher: Now, let us move to Exercise B. We will fill in the blanks with correct answers. Here is the first question:

Teacher: The Earth has one natural satellite, the _____. Who knows the answer?

(Students respond: Moon.)

Teacher: That is right. Let us write 'Moon' in the blank. Now, let us move on to the next question.

(Follow the same pattern for the rest of the exercise,

where the teacher reads each question, allows students to respond and discusses the answer.)

Differentiated Activities

110 km/hr

What are artificial satellites used for?

80 km/hr

Can you name India's first satellite?

40 m/hr

What is the Earth's natural satellite?

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

Home Task

Imagine you are a news reporter covering the launch of ISRO's Chandrayaan 3 launch. Write a short news report (4-5 sentences) announcing the satellite launch, its purpose and why it is important.

Period 7

MUST DO
10 MIN.

Gratitude sheet

Teacher: Good morning, everyone. Today, we will start with something special—showing gratitude. Can you think of a person who has helped or supported you in any way? It could be a family member, teacher or anyone who helped you.

(Students share their thoughts.)

Teacher: That is wonderful. Now, take out your Gratitude Sheet. You will cut out a gratitude card from the sheet and on the back side, there is space to write a short thank-you note.

Teacher: Think about the person you are grateful for and write one or two sentences thanking them for what they have done for you.

(Students take out their sheets, cut the gratitude cards and write their messages.)

Teacher: Once you are done, let us share a few notes with the class. Who would like to read their gratitude message?

Students: (Volunteers share their messages.)

Teacher: Beautiful words. Now, let us place our gratitude cards on the Gratitude Chart. This will remind us to appreciate the kindness around us.

Exercise C

C Write short answers in your notebook.
1. What is the difference between natural and artificial satellites?
2. Enumerate the different uses of artificial satellites.
3. Ramya is able to watch television every day. Which kind of artificial satellite helps this?

41

MUST DO
15 MIN.

Teacher: Now, let us move to our next task. Open your books to Exercise C. You will write short answers in your notebooks. Let us try the first question together.

Teacher: What is the difference between natural and artificial satellites?

(Students share responses.)

Teacher: Great. Now, write your answers in your notebooks.

Teacher: Continue with the rest of the questions, following the same pattern. Once you are done, we will review them together.

(Students write their answers and then discuss them as a class.)

Exercise D

D Write long answers in your notebook.
1. How are meteorological satellites helpful to us?
2. Write about India's satellite programme.

41

MUST DO
15 MIN.

Teacher: Excellent work, everyone. Now, let us move to Exercise D. These are long-answer questions, so we will write only one of them today.

Teacher: Look at the first question: How are meteorological satellites helpful to us?

Teacher: Can anyone share their thoughts before writing?

(Students discuss the uses of meteorological satellites.)

Teacher: Well done. Now, write this answer in your notebooks. We will do the second question in the next class.

(Students write their responses.)

Teacher: Now, let us wrap up with a quick reflection. What is one new thing you learnt today?

(Students share their thoughts.)

Teacher: Fantastic. You all did an amazing job today. Let us give ourselves a round of applause. See you in the next class.

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

Differentiated Activities

110 km/hr

What is the difference between natural and artificial satellites?

80 km/hr

Which satellite helps with predicting the weather?

40 km/hr

Do satellites help with the weather? (Yes/No)

Home Task

For the next class, bring the following materials to create your own satellite:

- Cardboard paper (small and big pieces)
- Kitchen foil (to wrap the satellite)
- Sticky notes (for labeling)
- A paper roll (to make the antenna)
- Tape or glue (for sticking parts together)
- Crayons or markers (to decorate your satellite)

Period 8

SHOULD DO
5 MIN.

Teacher: Good morning, everyone. Today, we are going to do something very exciting. But first, let us warm up with a quick question—if you could send a satellite into space, what special function would you want it to have?

(Students share their ideas.)

Teacher: Wonderful answers. Now, let us use our creativity to make our own satellite models.

Creating better

MUST DO
25 MIN.

Teacher: Get ready, engineers. You are all part of a team working for a space agency and today, we will build satellites to send into space. Let us first check if we have all the materials. Hold up your cardboard pieces. Now, your foil. Great.


Creating better

ArtI 21stCS

Make your own satellite.

1. Cut a small rectangle from a cardboard paper. This will be the main body of your satellite.
2. Wrap the rectangle with kitchen foil.
3. Cut two big rectangles from a cardboard paper. Fix these on either side of the satellite. Paste sticky notes on the big rectangles.
4. Make the antenna of the satellite using a paper roll. Tape the paper roll to the top of your satellite body.

Use crayons or markers to decorate your satellite. It is ready!

41

Teacher: Here is our challenge: we need to design a satellite that will complete a mission in space. Follow these steps carefully:

Step 1: Cut a small rectangle from cardboard. This will be the satellite's main body.

Step 2: Wrap the rectangle with foil to make it look metallic, just like real satellites.

Step 3: Cut two big rectangles for the solar panels and attach them on both sides.

Step 4: Make an antenna using a paper roll and attach it to the top.

(Students work in small groups, helping each other.)

Teacher: Excellent teamwork. Now, each group will present their satellite and explain its special mission. What does your satellite do? How does it help people?

(Students present their models.)

Teacher: Amazing creativity, everyone. You have built satellites that could change the world. Let us give a big round of applause for our future space scientists.

Thinking better

MUST DO
10 MIN.

(Show **CRM sign:** Keep Thinking)


Thinking better

21stCS HOTS

Think and answer in your notebook.

If you had the chance to build a satellite, what would it do?

41

Teacher: Now, let us think—if you could build a real satellite, what would you want it to do? Would it help scientists? Would it help people communicate? Or something else?

(Students brainstorm.)

Teacher: Now, write a short paragraph in your notebook answering this question: If you had the chance to build a satellite, what would it do?

(Students write and share their ideas with the class.)

Teacher: Amazing creativity, everyone. You all are future scientists. See you in the next class.

Differentiated Activities

110 km/hr

Categorise the following satellites as Communication, Earth Observation or Space Exploration satellites:

- Aryabhatta
- IRS-1A
- GSAT-6
- RISAT-1
- CartoSat-2B
- Chandrayaan-3

80 km/hr

Imagine a satellite that helps animals. What would it do?

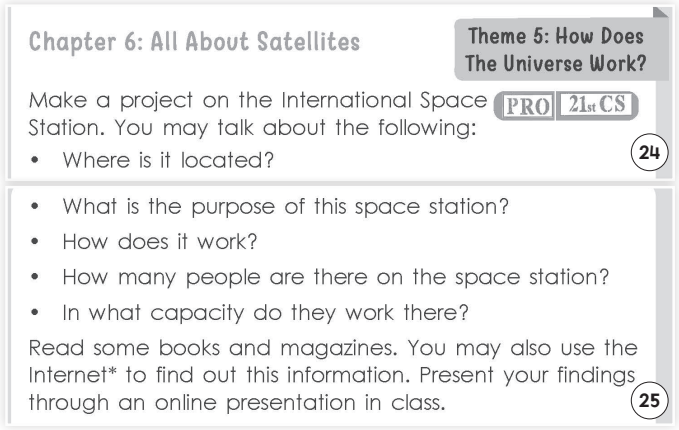
40 km/hr

What shape is the satellite? Circle the correct option: Square / Round / Triangle

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

Home Task

Project Idea



(For project Ideas, please refer to the book of Project Ideas, page 24 and 25 under the title 'All About Satellites.' This project should be assigned to the students to work on. Ensure that the students understand the project requirements and provide any necessary guidance or materials they might need. Encourage them to explore and learn about satellites through this engaging project.)

Period 9

Teacher: Good morning, everyone. Before we begin, let us wake up our bodies and minds with a quick stretching activity. Stand up and follow my actions.

SHOULD DO
10 MIN.

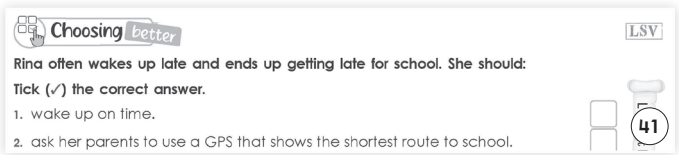
(Guide students through basic stretches including reaching for the sky, bending to touch their toes and gently twisting side to side.)

Teacher: Great. Now, let us take a deep breath and get ready for today's activities.

Choosing better

Teacher: Let us read about Rina's situation in your books. She often wakes up late and gets late for school. What should she do?

MUST DO
10 MIN.



(Students read the given options.)

Teacher: Raise your hands if you think waking up on time is the best solution.

(Students respond.)

Teacher: And how many of you think using a GPS to find a shorter route is a better solution?

Teacher: That was an interesting discussion. Why do you think waking up on time is the right choice?

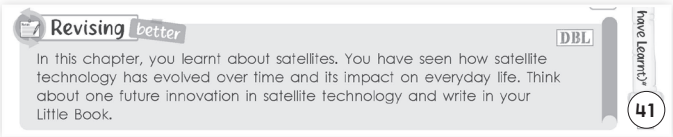
(Students share their thoughts.)

Teacher: Excellent. Our daily habits shape our lives. Making the right choices helps us become more responsible.

Revising better

Teacher: We have learnt so much about satellites in this chapter. Now, let us think about the future.

MUST DO
10 MIN.



Teacher: Now, take out your notebooks and write about one future innovation in satellite technology. Think about how it could help people.

(Students write their answers.)

Teacher: Once you are done, we will share some interesting ideas with the class.

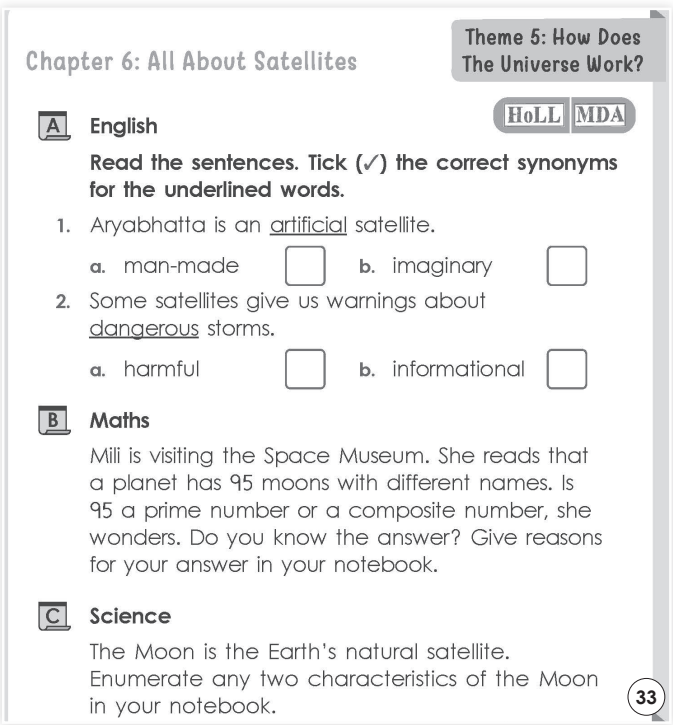
(Students present their innovations.)

Teacher: Brilliant ideas. Who knows, maybe one of you will invent the next big satellite in the future.

Holistic Teaching

(Refer to the Book of Holistic Teaching, page 33 under the title 'All About Satellites.' Complete the activities mentioned in this section and ensure that the students complete them. These activities are designed to enhance their holistic understanding and engagement with the topic. Provide any necessary support and materials to help the students successfully finish the activities.)

COULD DO
10 MIN.



Differentiated Activities

110 km/hr

Imagine you are an astronaut and you have discovered a new planet. How would you use satellites to explore it?

80 km/hr

How does a weather satellite help farmers?

40 km/hr

Match the following satellite types with their functions:

- Communication Satellite → a) Helps us find directions
- Weather Satellite → b) Helps in predicting rainfall
- Navigation Satellite → c) Helps in phone and TV signals
- Remote Sensing Satellite → d) Helps in mapping Earth's surface

Home Task

Satellite Timeline

- Create a simple timeline of five important Indian satellite launches.
- Mark the year and write one sentence about each satellite's purpose.

Period 10

Teacher: Good morning, everyone. Today, we will start with a fun challenge called 'Satellite Mission Control.' Imagine that you are part of a space team launching a satellite into space. Teacher: Close your eyes for a moment. Imagine that we are all astronauts floating in space. There is no gravity and everything around us is silent. We see the Earth below us—huge and beautiful. Now, look up. What do you see?

SHOULD DO
10 MIN.

(Students share their thoughts—stars, planets, satellites, etc.)

Teacher: Amazing creativity. Just like real scientists and space engineers, you have imagined something new and exciting. Now, let us learn more about the satellites that are already in space and how they help us.

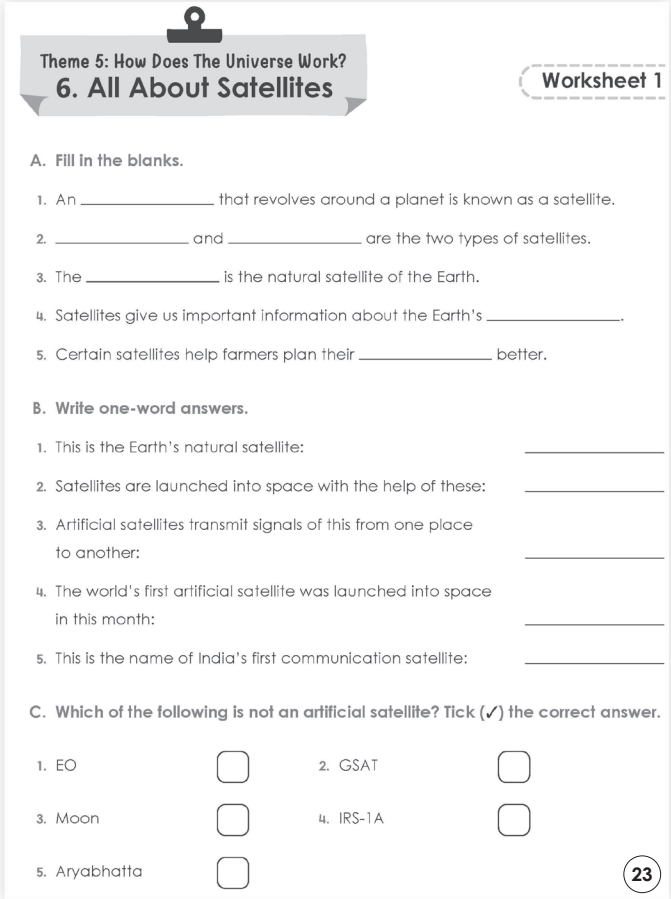
Worksheet 1

Teacher: We are going to complete Worksheet 1 together. Please turn to page 23 in your workbooks. This worksheet will help you recall key facts about satellites.

MUST DO
15 MIN.

Teacher: Let us start with the first exercise, 'Fill in the blanks.' Read the first question and try to answer it.

(Students respond and the teacher discusses the correct answer.)



Theme 5: How Does The Universe Work?

6. All About Satellites

Worksheet 1

A. Fill in the blanks.

1. An _____ that revolves around a planet is known as a satellite.
2. _____ and _____ are the two types of satellites.
3. The _____ is the natural satellite of the Earth.
4. Satellites give us important information about the Earth's _____.
5. Certain satellites help farmers plan their _____ better.

B. Write one-word answers.

1. This is the Earth's natural satellite: _____
2. Satellites are launched into space with the help of these: _____
3. Artificial satellites transmit signals of this from one place to another: _____
4. The world's first artificial satellite was launched into space in this month: _____
5. This is the name of India's first communication satellite: _____

C. Which of the following is not an artificial satellite? Tick (✓) the correct answer.

1. EO ☐ 2. GSAT ☐
3. Moon ☐ 4. IRS-1A ☐
5. Aryabhatta ☐

23

Teacher: Now, let us move to the 'One-word answers' exercise. Read the first question and answer in just one word.

(Students complete the section and the teacher discusses answers.)

Teacher: Finally, let us move to the 'Tick the correct answer' exercise. Read the first question and choose the correct option.

(Students tick the answers and the teacher explains as needed.)

Teacher: Fantastic job. Now, let us review what we have learnt before moving on. What is India's first communication satellite?

(Students answer and the teacher reinforces the concept.)

Worksheet 2

Teacher: Now, let us turn to Worksheet 2 on page 24. This will help us reinforce our understanding of satellites.

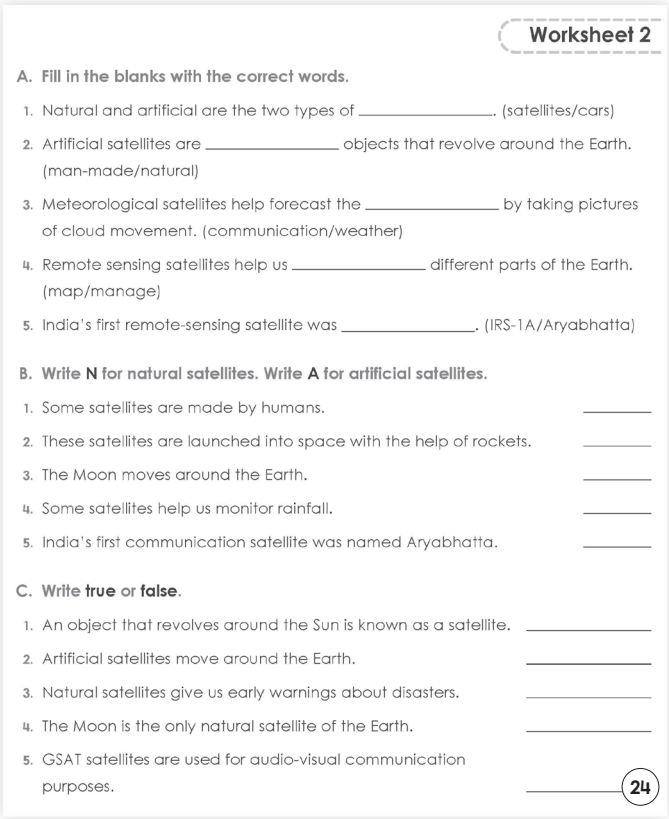
MUST DO
15 MIN.

Teacher: Let us start with 'Fill in the blanks with correct words.' Read the first question and complete it using the options given.

(Students complete the section and the teacher discusses the answers.)

Teacher: Now, let us move to 'Write N for natural satellites and A for artificial satellites.' Read the first statement and decide if it refers to a natural or artificial satellite.

(Students complete the activity and the teacher reviews answers.)



Worksheet 2

A. Fill in the blanks with the correct words.

1. Natural and artificial are the two types of _____. (satellites/cars)
2. Artificial satellites are _____ objects that revolve around the Earth. (man-made/natural)
3. Meteorological satellites help forecast the _____ by taking pictures of cloud movement. (communication/weather)
4. Remote sensing satellites help us _____ different parts of the Earth. (map/manage)
5. India's first remote-sensing satellite was _____. (IRS-1A/Aryabhatta)

B. Write **N** for natural satellites. Write **A** for artificial satellites.

1. Some satellites are made by humans. _____
2. These satellites are launched into space with the help of rockets. _____
3. The Moon moves around the Earth. _____
4. Some satellites help us monitor rainfall. _____
5. India's first communication satellite was named Aryabhatta. _____

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

1. An object that revolves around the Sun is known as a satellite. _____
2. Artificial satellites move around the Earth. _____
3. Natural satellites give us early warnings about disasters. _____
4. The Moon is the only natural satellite of the Earth. _____
5. GSAT satellites are used for audio-visual communication purposes. _____

24

Teacher: Lastly, let us move to 'True or False.' Read the first statement and decide whether it is true or false.

Teacher: Well done. You all did a fantastic job in today's class. Let us quickly summarise—what are the two types of satellites?

(Students answer.)

Teacher: Excellent. Keep revising and we will continue learning more in our next lesson. See you all next time.

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

Differentiated Activities

110 km/hr

Can you name one country that has launched satellites into space?

80 km/hr

Why do we need artificial satellites in space?

40 km/hr

What is a satellite used for?

Home Task

Write a short poem from the perspective of a satellite orbiting Earth. Describe what you can see from above, like cities, mountains and oceans. Talk about how you help people on Earth, such as providing TV signals, helping weather forecasts or aiding communication. Use creative language and make it fun

Period 11

Teacher: Good morning, students. How did you find the worksheet we completed in the last class?

SHOULD DO
10 MIN.

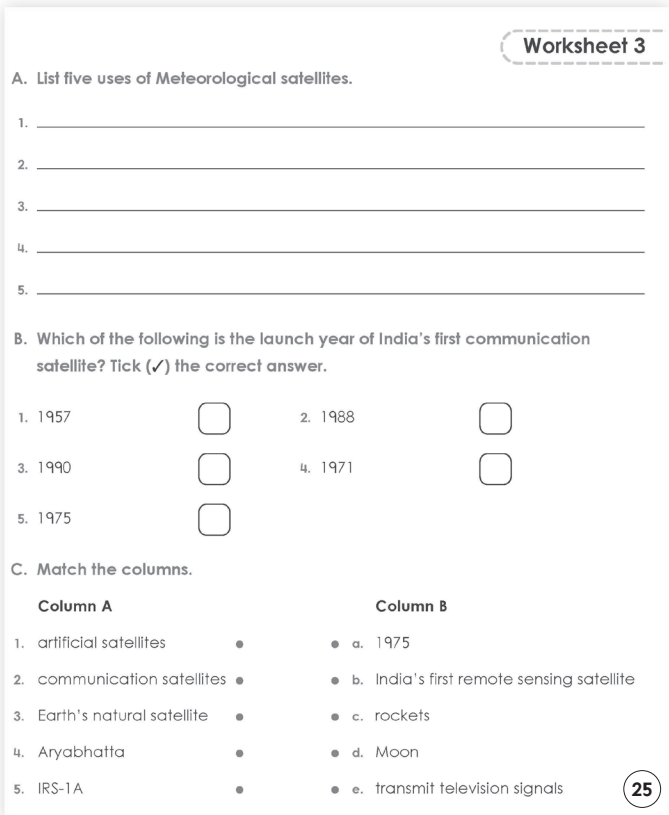
Teacher: Let us quickly go over it. Can anyone recall some of the key things we learnt? (Students respond.)

Teacher: Great. We discussed the different types of satellites, how they are used and also answered some fun questions. Let us review one or two questions from the worksheet.

Teacher: First, can anyone tell me what a satellite does? (Students respond.)

Teacher: Wonderful. Now, let us move on to today's worksheet.

Worksheet 3



Worksheet 3

A. List five uses of Meteorological satellites.

1. _____
2. _____
3. _____
4. _____
5. _____

B. Which of the following is the launch year of India's first communication satellite? Tick (✓) the correct answer.

1. 1957 ☐
2. 1988 ☐
3. 1990 ☐
4. 1971 ☐
5. 1975 ☐

C. Match the columns.

Column A		Column B
1. artificial satellites	•	• a. 1975
2. communication satellites	•	• b. India's first remote sensing satellite
3. Earth's natural satellite	•	• c. rockets
4. Aryabhatta	•	• d. Moon
5. IRS-1A	•	• e. transmit television signals

25

Teacher: Now, we are going to work on Worksheet 3. Please open to page 25. This worksheet will help us review some important points about meteorological satellites and other topics we've discussed.

MUST DO
20 MIN.

Teacher: Let us start with Exercise A – List Five Uses of Meteorological Satellites. Take a moment to think and then share your answers.

(Allow students time to complete and share their answers.)

Teacher: Excellent. Meteorological satellites are very helpful in predicting the weather, forecasting natural disasters and monitoring the environment. Now, let us move to Exercise B – Launch Year of India's First Communication Satellite.

Teacher: What do you think is the launch year of India's first communication satellite? Let us discuss the options.

(Students respond and discuss the correct answer.)

Teacher: Good job, everyone. Now, let us do Section C - Matching Columns. In Column A, you have different satellites and objects and in Column B, you have their details. Let us work on matching them correctly.

(Allow students time to complete and share answers.)

Teacher: Great. Let us go through each match together.

Teacher: Fantastic work, everyone. Let us quickly review what we have learnt today.

Teacher: Today we worked with Worksheet 3, which helped us recap different satellite types, uses and facts about India's space programme.

Teacher: Can anyone share one interesting thing they learnt today? (Students respond.)

Teacher: Great responses. Remember, satellites play a crucial role in many aspects of our daily lives.

Teacher: Now, let us fill in the last column of the KWL chart.

Teacher: In this column we will write what we have learnt in this chapter.

Teacher: Think about the topics, we have learnt and write them neatly in the 'L' column of the chart.

(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 job, everyone. See you in the next class. Have a wonderful day ahead.

Differentiated Activities

110 km/hr

What is the role of communication satellites in everyday life?

80 km/hr

Where do satellites go once they are launched?

40 km/hr

If you could send a message to an astronaut in space using a satellite, what would your message be?

Home Task

Find out the name of the most famous satellite launched by your country. In your notebook, write down when it was launched and its purpose.

Learning Outcomes

The students will:

Domain	Learning Outcome
Physical Development	• engage in hands-on activities such as building a satellite model using craft materials.
Socio-Emotional and Ethical Development	• develop teamwork and communication skills by collaborating in group discussions and projects.
Cognitive Development	• understand and analyse the functions of satellites, their types and their impact on daily life.
Language and Literacy Development	• enhance vocabulary related to satellites and space technology through reading and discussions.
Aesthetic and Cultural Development	• appreciate cultural and scientific advancements by exploring India's contributions to space technology.
Positive Learning Habits	• demonstrate responsibility by completing assigned tasks, participating actively and showing curiosity about space exploration.

Starry Knights

How was the learners' response for the achievements in the Indian space programmes? Did they enjoy the activities on satellites?

Reward yourself with a STAR.

Answers

Theme 5: How Does The Universe Work?
Chapter 6. All About Satellites

Main Coursebook

Re-KAP

Kinaesthetic: Accept all relevant responses.

Auditory:

1. postcards and video calls
2. stories

Pictorial:

✓ ✓ ☐ ☐ ☐

Interacting Better: Accept all relevant responses (Possible Answer: finding our location (GPS), weather forecasts, tracking aeroplanes and watching TV through satellite television)

Understanding Better (page 39)

1. Aryabhatta
2. IRS-1A

Learning Better

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

B. 1. Moon 2. rockets 3. 1957
4. Remote 5. IRS-1A

C. 1. Natural satellites are natural satellites. The Earth has one natural satellite, the Moon, whereas artificial satellites are man-made objects that revolve around the Earth.
2. Artificial satellites are used for communication, weather forecasting, remote sensing and navigation.
3. communication satellite

D. 1. Meteorological satellites give us early warnings of dangerous storms, cyclones, forest fires, floods or moving glaciers. This helps us in disaster management efforts. These satellites also monitor rainfall. This helps our farmers plan the cultivation of their crops better.
2. India also has a strong space programme. It launched its first communication satellite, Aryabhatta, in 1975. Today, India's GSATs (Geostationary Satellites) are used for the purpose of audio-visual communication. IRS-1A, India's first remote-sensing satellite, was launched on 17 March 1988.

Creating Better : Accept all relevant responses.

Thinking Better: Accept all relevant responses.

Choosing Better: Accept all relevant responses

Revising Better: Accept all relevant responses.

Students' Worksheets

Worksheet 1

A. 1. object 2. Natural and artificial
3. the Moon 4. atmosphere
5. crops

B. 1. The Moon
2. rockets
3. Communication Satellite
4. October
5. Aryabhatta

C. 3. (✓)

Worksheet 2

A. 1. satellites 2. man-made
3. weather 4. map
5. IRS-1A

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

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

Worksheet 3

A. 1. They help us predict the weather.
2. They give us early warnings of dangerous storms, cyclones, forest fires, floods or moving glaciers.
3. They help our farmers plan the cultivation of their crops better.
4. They help in measuring pollution in the air.
5. They help scientists study changes in the Earth's climate.

B. 5. (✓)

C. 1. d 2. e 3. d 4. a 5. b

Book of Holistic Teaching

Developing better

A. **English:**

1. a
2. a

B. **Maths:** 95 is a composite number.

A composite number is a number that has more than two factors. The factors of 95 are 1, 5, 19 and 95. Since 95 has four factors, it is a composite number.

A prime number, on the other hand, has only two factors: 1 and the number itself. For example, 7 is a prime number because its only factors are 1 and 7.

So, 95 is not a prime number, it is a composite number.

C. **Science:**

1. **The Moon revolves around the Earth:** The Moon orbits or moves around the Earth.
2. **The Moon has different phases:** The Moon changes its shape as it orbits the Earth and these shapes are called the phases of the Moon.

Book of Project Ideas

Making better

Accept all relevant responses.