CHAPTER- 11

SUNITA IN SPACE

2 MARK QUESTIONS

1. What do you think the earth looks like?

ANSWER:

The earth looks like a sphere in shape.

2. If the earth is round like a globe, how is it that we do not fall off?

ANSWER:

Due to the gravitational pull from the earth towards itself, we won't fall down.

3. Do the people in Argentina stand upside down?

ANSWER:

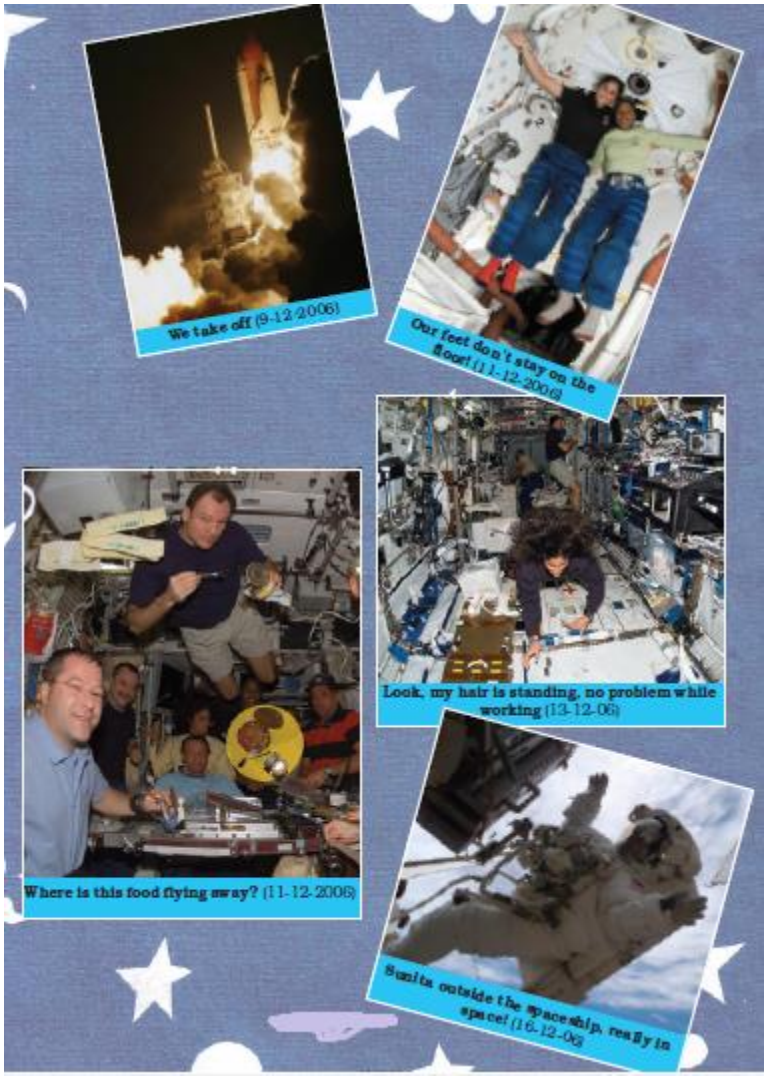
No, they don't stand upside down. There is no concept like standing upwards or downwards, everything is relative.

4. Can you think why Sunita's hair was standing?

ANSWER:

Sunita's hair was standing because she was in space, and there was zero gravity which made everything float.

5. Look at Sunita's photographs and the dates written on each of them. Write what is happening and when.



ANSWER:

Date	Event
09-12-2006	The spacecraft is taking off
11-12-2006	Astronauts are floating inside the spacecraft
11-12-2006	Astronauts are having food
13-12-2006	Sunita is in her work mode
16-12-2006	Sunita is roaming outside the spacecraft

6. Think why water flows downwards on any slope. On mountains too water flows downwards, not upwards.

ANSWER:

The earth has a gravitational force, and due to the earth's gravitational force, the water flows down the mountain.

7. When is the next full moon? At what time will the moon rise on this day? What does the moon look like on this day? Draw it.

ANSWER:

The next full moon is on the 8th of this month. It rises just after the sun sets. The moon looks like a complete white circle.

8. What are the festivals related to the moon?

ANSWER:

Festivals related to the full moon are Karwa Chauth, Holi, Eid, etc.

9. At night look at the sky carefully for 5 minutes.

– What could you see?

Answer: At night, I could see the moon and the stars.

– Did you see anything moving in the sky? What do you think it could be? A star or a shooting star or a satellite (satellites are used for the TV, telephones and for weather reports).

ANSWER:

Yes, I saw something moving in the sky. Maybe it is a shooting star since it crosses off faster. In case it is a satellite, it would move very slowly.

10. Why do children always slide down the slide and not slide up? If this slide were there in Sunita's spacecraft, would children slide like this? Why?

ANSWER:

Due to the gravitational force of the earth, children slide down and cannot slide up. If this slide was in Sunita's spacecraft, then children would not enjoy it since there is zero gravity and children cannot slide; instead, they would float.

11. Why do we see stars mostly at night?

ANSWER:

We see stars only at night because there is no sunlight at night.

12. Looking at earth from the space, Sunita said, “Different countries cannot be seen as separate from here. These lines are on paper. They are made by us.” What do you understand by this?

ANSWER:

Humans have created boundary lines; indeed, it’s not nature. So from space, we cannot identify a particular country or a city; just for human understanding, they have drawn the lines and separated the countries.

5 MARK QUESTIONS

1. Magic 1 – A tiny paper races a coin

Q1. Take a 5 rupee coin and a small piece of paper. The paper should be about one-fourth the size of the coin.

– Hold the coin in one hand and the paper in the other. Drop them at the same time. What happened?

– Now place the tiny paper on the coin and drop them. What happened this time? Surprised!

ANSWER:

When dropping the coin in one hand and the paper in the other, the coin reaches the ground faster than the paper.

When placing the tiny paper on the coin and dropping them together, both reach the ground at the same time.

2. Magic 2 – A mouse lifts an elephant

Q1. To play this you will need a small stone, a bigger stone (lemon-sized), a thick roll of paper (which can be made with layers of papers), mouse and an elephant made of paper.

– Take a string about 2 feet long.

– At one end of the string tie the small stone. Stick or tie the mouse to the stone.

– Put the string into the roll of paper.

– At the other end of the string tie the bigger stone and stick the elephant.

– Hold the roll of paper and move your hand to rotate the small stone.

– Who is pulling whom? You will be surprised! The mouse lifts the elephant!

How did this magic happen?

ANSWER:

When the small stone, i.e., the mouse rotates, it creates a force due to which the bigger stone, i.e., the elephant is being pulled up.

3. Look at this photograph and tell

Q1. Can you see India?

Answer: Yes, I can see India on the globe.

Q2. Can you recognize any other place?

Answer: Yes, I can recognize Sri Lanka on the globe.

Q3. Where is the sea?

Answer: Blue colour on the globe indicates water.

Q4. Do you find anything similar between the globe and this picture of the earth? In what ways are they different?

Answer: Similarities between the globe and the earth is that we can identify which part is land and which part is the sea. But it is difficult to identify a particular country or a city on the globe.

Q5. Do you think Sunita could make out Pakistan, Nepal and Burma separately, when she saw the earth from space?

Answer: No, it is difficult to identify these countries since no particular country can be visible from space.

4. Look at the globe in your school and tell

Q1. Can you find India?

Answer: Yes, we can easily find India.

Q2. Where all do you find the sea?

Answer: The blue-coloured part is the sea.

Q3. Which countries can you see?

Answer: I can see all the countries like India, the USA, Australia, South Africa, China, Germany, Europe, etc.

Q4. Can you see some of the countries with which India plays cricket matches? For example: England, Australia, Pakistan, Bangladesh and South Africa.

Answer: Yes, I can see all these countries.

Q5. What else can you see on the globe?

Answer: Apart from the sea and countries, I can see islands, mountains, etc., on the globe.

5. Look at the map of your country and tell

Q1. Can you find the state in which you live? Write its name on the map.

Answer: Yes, I can find Karnataka, the place I live in.

Q2. Which are the states next to the state you live in?

Answer: The states next to Karnataka are Maharashtra, Telangana, Andhra Pradesh, Tamil Nadu, Kerala and Goa.

Q3. Have you been to any other state?

Answer: Yes, I have been to Maharashtra, Telangana, Andhra Pradesh, Tamil Nadu states.

Q4. Shahmir thinks that there are lines drawn on the ground between the states. What do you think?

Answer: I think these lines are just on the map and not for real.

6. Look at the moon tonight and draw what it looks like. Look and draw again after one week, and then after 15 days.

Today's Date	Date after a week	Date after 15 days
1-2-2020	8-2-2020	16-2-2020
		

Here are the phases of moon:

Q1. When is the next full moon? At what time will the moon rise on this day? What does the moon look like on this day? Draw it.

Answer: The next full moon is on the 8th of this month. It rises just after the sun sets. The moon looks like a complete white circle.

Q2. What are the festivals related to the moon?

Answer: Festivals related to the full moon are Karwa Chauth, Holi, Eid, etc.

7. Look at the table and tell

Q1. Given below are the times at which the moon rises and sets in Delhi (on the given days).

Date	Time of moonrise (hours : minutes)	Time of moonset (hours : minutes)
28.10.2007	19:16	08:50
29.10.2007	20:17	10:03
30.10.2007	21:22	11:08
31.10.2007	22:29	12:03

– On 28 October, the moon came out at ___ minutes past ___ o'clock.

– On 29 October, the moon came out at ___ minutes past ___ o'clock.

– On 29 October, there was a difference of ___ hours and ___ minutes in the time of the moon rise (as compared to 28 October).

ANSWER:

– On 28 October, the moon came out at 16 minutes past 7 o'clock.

– On 29 October, the moon came out at 17 minutes past 8 o'clock.

– On 29 October, there was a difference of 1 hour and 1 minute in the time of the moon rise (as compared to 28 October).

Q2. If you saw the moon rising at 7 pm today, would you see it at the same time tomorrow?

Answer: No, the moon rises at different times on different days.

Q3. On 31 October, the time of setting of the moon is given as 12:03. Have you ever seen the moon at 12 in the afternoon? Why don't we easily see the moon or stars during the day?

Answer: No, I have not seen the moon at 12 in the afternoon. Due to the dominating sunlight during the day, we cannot see the moon or stars during the day.

8. An interesting photograph!

A spaceship went to the moon. This photograph of the earth was clicked from the surface of the moon. See how the earth is looking. Can you see the surface of the moon? Do you have some questions after looking at this picture? Write down those questions and discuss them in the class.

ANSWER:

Yes, I can see the surface of the moon clearly. There are a few questions running through my mind:

- Who clicked this picture?
- How could they land on the moon?
- How was their experience seeing the earth from the moon?
- Does water or air exist on the moon?

9. What message does Sunita Williams convey to children regarding their aspirations and challenges?

ANSWER:

Sunita Williams encourages children not to give up on their aspirations if things don't go as planned. Drawing from her own experience, she advises them to do their best, emphasizing that persistence pays off. Sunita's journey serves as an inspiration for children to overcome challenges and pursue their dreams with determination.

10. Explain the significance of Sunita Williams' statement, "Different countries cannot be seen as separate from here. These lines are on paper. They are made by us."

ANSWER:

Sunita Williams, while observing Earth from space, emphasized that the divisions between countries, marked by lines on maps, are human constructs. She suggests that from a distance, these divisions are not visible, highlighting the unity of the Earth. This statement prompts reflection on the human-made nature of borders and encourages a broader perspective on global unity and interconnectedness.

11. Analyze the impact of Sunita Williams' experiences on children's understanding of science and space.

ANSWER:

Sunita Williams' experiences provide children with a firsthand account of life in space, offering insights into the effects of microgravity on daily activities. The challenges she faced, such as floating food and standing hair, spark curiosity and engage children in understanding the concepts of gravity. Her journey encourages children to explore science and space-related subjects, emphasizing the practical applications of these concepts in real-life situations.

FILL IN THE BLANKS

1. Sunita Williams set a record for the _____ space flight by a woman in 2007. **(longest)**

2. Sunita Williams started her career as a _____ before becoming an astronaut. **(helicopter pilot)**

3. In space, Sunita Williams and her crewmates had to _____ themselves to stay in one place. **(strap)**

4. Sunita Williams emphasized that the lines dividing different countries on maps are made by _____. **(us)**

5. Sunita's hair kept standing all the time in space due to the absence of _____. **(Gravity)**

6. Sunita Williams became interested in space after seeing pictures of _____ landing on the moon. **(Neil Armstrong)**

7. Sunita wished to become a school teacher in the future to help children understand the connection between _____ and _____. **(science, maths)**

8. The photographer who took a picture of Earth from the moon's surface was on a _____ mission. **(spaceship)**

9. Sunita Williams encourages children to do their best and not give up on their _____. **(aspirations)**

10. Sunita Williams expressed her admiration for the _____ and the amazing view of Earth from space. **(beautiful)**

MULTIPLE CHOICE QUESTIONS

1. Sunita Williams set a record for the longest space flight by a woman in:

a. 2005

b. 2007

c. 2010

d. 2012

Answer: b. 2007

2. Before becoming an astronaut, Sunita Williams worked as a:

a. Doctor

b. Engineer

c. Helicopter pilot

d. Teacher

Answer: c. Helicopter pilot

3. In space, to stay in one place, astronauts had to:

a. Walk carefully

b. Float and catch blobs of water

c. Use magnetic boots

d. Sit in a fixed position

Answer: c. Float and catch blobs of water

4. According to Sunita Williams, the lines dividing different countries on maps are made by:

a. Cartographers

b. Nature

c. Us

d. Space agencies

Answer: c. Us

5. Sunita's hair kept standing in space due to the absence of:

a. Air

b. Gravity

c. Light

d. Heat

Answer: b. Gravity

6. Sunita Williams became interested in space after seeing pictures of:

a. Yuri Gagarin

b. Neil Armstrong

c. Buzz Aldrin

d. Kalpana Chawla

Answer: b. Neil Armstrong

7. Sunita expressed her desire to become a school teacher to help children understand the connection between:

a. Literature and History

b. Science and Maths

c. Art and Music

d. Physical Education and Geography

Answer: b. Science and Maths

8. The photographer who took a picture of Earth from the moon's surface was on a:

a. Lunar Rover

b. Space Shuttle

c. Spaceship

d. Satellite

Answer: c. Spaceship

9. Sunita Williams encourages children to:

a. Give up on their dreams

b. Do their best and not give up

c. Pursue only one career

d. Avoid challenges

Answer: b. Do their best and not give up

10. Sunita Williams expressed her admiration for the beautiful and amazing view of Earth from:

a. The ocean floor

b. Mount Everest

c. Space

d. A high mountain peak

Answer: c. Space

SUMMARY

In the chapter "Sunita in Space," children Uzaira and Shahmir engage in a conversation about space and the experiences of astronaut Sunita Williams. The chapter explores the curiosity of young minds as they grapple with questions about Earth's shape, the absence of gravity in space, and the perspective of people living in different parts of the world. Sunita Williams shares her firsthand experiences of living in space, describing the challenges of floating, eating, and even washing in a gravity-free environment. The narrative emphasizes the relative nature of direction in space and encourages children to imagine their classroom turning into a spaceship.

The chapter also delves into Sunita Williams' personal journey, from being inspired by Neil Armstrong's moon landing to becoming a record-setting astronaut. Sunita's message to children revolves around perseverance and the idea that doing one's best can lead to unexpected opportunities. The text integrates engaging activities, such as magical experiments and observations of the night sky, to foster a sense of wonder and curiosity in young readers. Through Sunita's story, the chapter not only provides insights into space exploration but also encourages children to dream big and overcome challenges in pursuit of their passions.