NCERT Solutions for Class 5 EVS
Chapter 11: Sunita in the Space

Straight from the heart:

Q1. What do you think the earth looks like? Make a drawing of the earth in your notebook.

Solution:
The Earth looks like a sphere, covered in blue (water) and green/brown (land) when viewed from space.

What do you think:

Q1. If the earth is round like a globe, how is it that we do not fall off?

Solution:
Earth's gravity pulls everything towards its center, preventing us from falling off.

Q2. Do the people in Argentina stand upside down?

Solution:
No, because of gravity, everyone on Earth feels like they are standing upright, regardless of their location.

Look at the photograph and write:

Q1. Can you think why Sunita's hair was standing?

Solution:
Sunita's hair was standing because of the zero gravity in space, making everything float.

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Q2. Look at Sunita's photographs and the dates written on each of them. Write what all is happening and when?

Solution:
The dates and photos capture various moments of Sunita's space mission, including takeoff, daily activities in space, and spacewalking.

The classroom becomes a spaceship:

Q1. Close your eyes. Imagine that your class is a spaceship. Now say:

- **Are you able to sit at one place?**

Solution:
No, I can't sit in one spot. I float around because there's no gravity.

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- **What about your hair?**

Solution:
My hair is floating up and doesn't stay down.
Solution:

- **Oh, look ... where are your bags and books going?**

Solution:
Our bags and books are floating away in the room.

- **And what is your teacher doing? Where is her chalk?**

Solution:
My teacher is floating too, trying to grab her floating chalk.

- **How did you eat your food during the break? How did you drink water? What happened to the ball that you threw up?**

Solution:
To have our lunch, we had to float over to our food and carefully grab it, eating it bit by bit. Drinking water turned into a fun game as we chased the floating blobs and sucked them into our mouths. Playing with the ball was different too; it stayed up in the air, gently drifting around the room – it never came back down like it does on Earth.

The classroom becomes a spaceship:

Q1. Can you now say why Sunita's hair kept standing?

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

Q2. Think why water flows downwards on any slope. On mountains too water flows downwards not upwards.

Solution:
Water flows downwards due to Earth's gravitational force pulling it towards the center.

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Magic 1 – A tiny paper races a coin:

Q1: Take a 5 rupee coin and a small piece of paper.

- **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!**

Solution:
The coin falls faster when dropped separately due to less air resistance, but when the paper is placed on the coin, they fall at the same speed, showing how air resistance affects falling objects.

Magic 2 – A mouse lifts an elephant:

Q1. To play this you will need a small stone, a bigger stone, a thick roll of paper, a 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?**

Solution:

When you spin the small stone fast, which is the mouse, it pulls up on the big stone, the elephant. It's because spinning the stone fast makes a force that lifts the elephant up.
The force is called centrifugal force. When you spin the small stone quickly, centrifugal force pulls the bigger stone upward.

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Look at this photograph and tell:

Q1. Can you see India?

Solution:
Yes, on the globe, India is clearly visible with its distinct geographical boundaries.

Q2. Can you recognize any other place?

Solution:
Sri Lanka is also recognizable near India, marked by its island shape on the globe.

Q3. Where is the sea?

Solution:
The sea is shown in blue on the globe, indicating water bodies surrounding the continents.

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

Solution:
Both the globe and the picture of the earth depict land and water, making it easy to differentiate between them. However, identifying specific countries or cities is more straightforward in the picture of the earth than on the globe due to the detailed representations.

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

Solution:
From space, distinguishing individual countries like Pakistan, Nepal, and Burma is challenging, as specific country outlines are not easily visible from such a great distance.

Look at the globe in your school and tell:

Q1. Can you find India?

Solution:
Yes, India can be easily identified on the globe due to its distinct geographical location.

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Look at this photograph and tell:

Q2. Where all do you find the sea?

Solution:
The sea is represented by the blue color, covering vast areas on the globe around the continents.

Q3. Which countries can you see?

Solution:
I can observe various countries across the globe including India, the USA, Australia, South Africa, China, Germany, and countries in Europe.

Q4. Can you see some of the countries with which India plays cricket matches?

Solution:
Yes, countries like England, Australia, Pakistan, Bangladesh, and South Africa, with whom India plays cricket, are visible.

Q5. What else can you see on the globe?

Solution:
Besides seas and countries, the globe also displays islands, mountain ranges, and other geographical features.

Look at the map of your country and tell:

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

Solution:
Yes, I found Punjab on the map, the state where I live.

Question: Which are the states next to the state you live in?

Solution:
The states bordering Punjab are Haryana, Himachal Pradesh, Jammu and Kashmir, and Rajasthan.

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

Solution:
I think those lines are only present on maps to show boundaries and are not actually drawn on the ground.

Look at the map of your country and tell:

Question: Why don't you try to do the same with a coin? How many centimetres away from the eye did you keep the coin to hide the moon?

Solution:
To hide the moon completely, the coin needs to be held at a specific distance, showcasing how objects can appear larger or smaller depending on their distance from the observer.

Think:

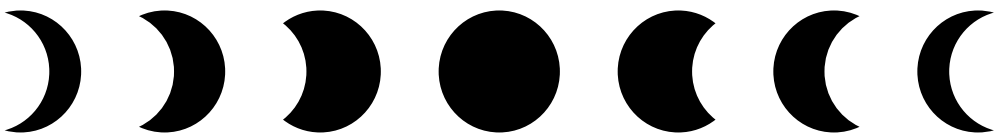
Q1. Do you think the moon is flat like the coin or round like a ball?

Solution:
The moon is round like a ball, not flat.

Q2. Look at the moon tonight and draw what it looks like. Look and draw again after one week and then after 15 days.

Solution:

Today's Day	Date after a week	Date after 15 days
1-02-2020 	8-02-2020 	16-02-2020 



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Find out:

Question: 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.

Solution:
The date and time of the next full moon vary, but it appears as a complete white circle in the sky.

Q2. What are the festivals related to the moon?

Solution:
Festivals like Karwa Chauth, Holi, and Eid are related to the moon.

Q3. At night, look at the sky carefully for 5 minutes. What could you see? Did you see anything moving in the sky? What do you think it could be? A star or a shooting star or a satellite?

Solution:
Observing the night sky might reveal the moon, stars, and possibly moving objects like satellites or shooting stars, depending on their speed and trajectory.

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).

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Date	Time of moon rise (hours : minutes)	Time of moon set (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).**

Solution:
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?

Solution:
No, the moon rises at different times each day due to its orbit around the Earth.

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?

Solution:
Seeing the moon during the day is hardly possible because the sunlight makes it harder to see the moon and stars.

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An interesting photograph!

Question: 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.

- **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).**

Solution:
The surface of the moon is indeed visible. Looking at the photo, I'm curious about several things:

- Who clicked this picture on the moon?
- What steps did they take to land there?
- Is there anything like water or air on the moon?
- Why is the moon so full of holes and bumps?
- What is it like to walk on the moon?
- Can anything grow on the moon?

What we have learnt:

Question: 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?

Solution:
Children slide down due to Earth's gravity. In space, the absence of gravity would prevent sliding in the usual way; instead, they would float.

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Question: Why do we see stars mostly at night?

Solution:
Stars are mostly visible at night because the absence of sunlight allows us to see their light.

Q2. Looking at Earth from 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?

Solution:
This statement highlights that political boundaries are human-made and not visible from space, emphasizing the unity and continuity of Earth's surface as seen from space.

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