

NCERT Solutions Class 8 English (Poorvi)

Unit 5: Chapter 13 Feathered Friend

Let us do these activities before we read. (Page 205)

I. Work in pairs and discuss the questions given below. Share your answers with your classmates and teacher.

Question 1. Who can a 'feathered' friend be?

Answer: A feathered friend can be a bird.

Question 2. Which 'feathered' friend do you like? Why?

Answer: I like parrot as my feathered friend. It is very intelligent, and can imitate the voice of human beings.

Question 3. If you have a choice between a feathered' and a 'furry' friend, who would you choose? Why?

Answer: I would like to choose a feathered friend, because of having a light body and less expensive. On the other hand, the furry friends refer to animals with fur, like a cat. Sometimes, they can bite us without reason.

Question 4. Do you think a 'feathered' or a furry' friend can accompany astronauts to space? If yes, why? If no, why not?

Answer: No, I don't think a furry friend can accompany astronauts to space. Furry friends are very disturbing. They Will always create problems for astronauts in the aircraft by their notorious activities.

II. Complete the words given below by inserting vowels. Refer to their meanings given alongside. Share your answers with your classmates and teachers.

1. official rule that controls how something is done: R _ G _ L _ T N
2. to not allow something: F _ R B _ D
3. join or blend to form a single entity: F _ S _
4. suddenly: _ B R _ P T L Y
5. admit one's mistake: C _ N F _ S S
6. a person who advises what to eat to keep healthy: D T _ T N

Answer: 1. REGULATION

2. FORBID

3. FUSE

4. ABRUPTLY



- 5. CONFESS
- 6. DIETITIAN

Let us discuss (Page 209)

I. Answer the following questions briefly.

Question 1. Why did the narrator think Sven had sneaked a bird aboard? What was Sven's scientific reason?

Answer: The narrator had some reasons to think so. It was the bird's unusual behaviour, like her seemingly effortless flight in a space station and lack of concern for the absence of gravity. On the other hand, Sven's scientific reason for bringing the bird aboard was to observe how a bird would function in a weightless environment. He wanted to experience how a bird could operate and navigate without the effects of gravity.

Question 2. How did Claribel adjust to the new surroundings?

Answer: Claribel learnt to operate without using her wings or much efforts. She learnt to simply hang in the air, motionless with her wings folded. This adaptation allowed her to thrive and even gain weight in the unique conditions of her new surroundings.

Question 3. What made the narrator mistake the musical whistle for a sound from the intercom?

Answer: The narrator heard the whistle near his ear. He expects an announcement to follow the whistle, that is typical of intercoms. The melody of the whistle, rather than a human voice, hence leads him to realize it wasn't the intercom.

Question 4. Do you think the presence of the canary would lead the spacers into trouble? If yes, why? If no, why not?

Answer: Especially during a long mission, the presence of canaries on the spacecraft could lead to some challenges for the spacers. While they can be valuable as early warning indicators for certain gases, they also have some particular needs and vulnerabilities that could be difficult to manage in a confined space environment.

Let us discuss (Page 211)

I. Identify whether the following statements from parts I and II are true or false. Share your answers with your classmates and teachers.

1. The alarm at the space station failed to work properly because they were not connected.

Answer: False



2. Claribel was brought to the space station for an official experiment on animal behaviour in space.

Answer: False

3. The canary's suffering helped the crew discover a problem with the air purifier.

Answer: True

4. The air purifier froze because there was a rare eclipse.

Answer: True

5. Claribel could fly gracefully in the space station, performing loops in the air.

Answer: True

6. The space station crew was uninterested in Claribel and hardly noticed her presence after she was discovered.

Answer: False

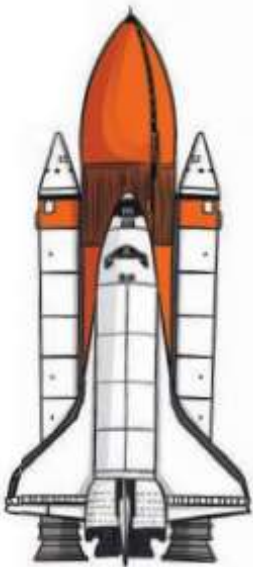
7. Claribel had fainted and had to be revived with oxygen supply.

Answer: True

Let us think and reflect (Pages 212-213)

I. Read the given extracts and answer the questions that follow.

1. Sven was one of our best construction men, and excelled at the tricky and specialised work of collecting assorted girders as they floated around in free fall, making them do the slow-motion, three-dimensional ballet that would get them into their right positions, and fusing the pieces together when they were precisely dovetailed into the intended pattern: it was a skilled and difficult job, for a space suit is not the most convenient of garbs in which to work.



(i) What can be inferred about Sven's abilities from his job description?

- A. He is good at following instructions but lacks creativity.
- B. He possesses a strong understanding of working in space.
- C. He struggles with the complexities of construction in space.
- D. He prefers working on simpler tasks rather than complex jobs.

Answer: B. He possesses a strong understanding of working in space.

(ii) How can we conclude that Sven was working in zero gravity?

Answer: Sven was working in space. His job was to collect assorted girders as they floated around in a free fall. He had to make them do the slow-motion that would get them into their right position and then, fuse the pieces together into the required pattern

(iii) Select the option that is correct for both (Assertion) A and (Reason) R.

(A): Sven's job required him to make girders perform a 'three-dimensional ballet' in space.

(R): Working in zero gravity allows objects to float, making precise positioning more challenging.

- A. Both (A) and (R) are true, and (R) is the correct explanation of (A).
- B. Both (A) and (R) are true, but (R) is not the correct explanation of (A).
- C. (A) is true, but (R) is false.
- D. (A) is false, but (R) is true.

Answer: A. Both (A) and (R) are true, and (R) is the correct explanation of (A).

(iv) Replace the underlined word with a word similar in meaning from the extract.

During the festival, people wore colourful outfits that represented their culture.

Answer: Garbs

2. "Jim!" There's something wrong with the air! That's why Claribel's passed out. I've just remembered that miners used to carry canaries down to warn them of gas."

"Nonsense!" said Jim. "The alarms would have gone off. We've got duplicate circuits, operating independently. "

"Er—the second alarm circuit isn't connected up yet, " his assistant reminded him. That shook Jim; he left without a word, while we stood arguing and passing the oxygen bottle around like a pipe of peace.

(i) Fill in the blank by selecting the correct option from those given in the brackets.

The narrator references canaries and miners in order to _____.

(highlight the historical use of canaries as warning systems/explain the reason that caused Claribel to faint suddenly)

Answer: highlight the historical use of canaries as warning system.

(ii) Complete the following sentence with a suitable reason.

Jim initially dismisses the warning about the air because _____.

Answer: the alarms would have gone off.

(iii) What does the phrase 'shook Jim' mean in the context of the information in the extract?

Jim was _____.

- A. physically pushed by someone
- B. startled by unexpected information
- C. cold and needed to warm up
- D. trying to shake off sleepiness

Answer: B. startled by unexpected information

(iv) What does the crew's action of passing the oxygen bottle around 'like a pipe of peace' suggest about their response to the situation?

Answer: This phrase suggests that the crew is sharing a valuable, life-saving resources equally and perhaps even peacefully during a difficult situation. It also indicates that they are not either selfish or greedy.

II. Answer the following questions.

Question 1. What was the purpose of the alarm? What had caused its failure?

Answer: The purpose of the alarm was to warn the crew of low oxygen levels in space. The alarm failed because an eclipse caused part of the air purifier to freeze. The freezing prevented the air purifier from properly functioning, which in turn prevented the alarm from triggering.

Question 2. How does the crew's reaction to Claribel change over the course of the story?

Answer: The crew's initial reaction to Claribel is one of the curiosity and perhaps even a bit of amusement. They are surprised to see a pet onboard the space station. However, as the story progresses, their feelings towards Claribel evolve, becoming one of deep concern and eventually affection. This shift is largely due to Claribel's unexpected ability to alert the crew to a dangerous situation, saving their lives.

Question 3. What does the last part of the story tell us about the significance of unusual ways of problem solving?

Answer: The unusual ways of problem solving revolves around a canary bird named Claribel. She detects air quality issue on a space station. When she passes out due to poor air quality, the crew realizes a malfunction in the air purifier has caused this problem. This shows reliance on a living organism to act as an early warning system for dangerous conditions, a method that might not be immediately obvious or conventional in space.



Question 4. Justify the appropriateness of the title of the story.

Answer: The title of the story, 'Feathered Friend' is appropriate. The story directly related to the core theme of friendship and the bond between humans and animals, particularly birds. The title evokes the image of a bird as a companion and a source of joy, that supports the narrator's focus on the relationship between Sven and Claribel, who is a canary bird.

Question 5. 'Without Claribel, we should soon have been slightly dead.' What does this line suggest about uncertainty of life in space?

Answer: This quote highlights the crucial role of Claribel in alerting the space station crew to a potentially deadly situation, caused by a malfunctioning air purifier. They would have suffered from the poisonous atmosphere, without Claribel's sensitivity to changes in the air.

Question 6. Explain how has the writer presented science fiction with a touch of humour.

Answer: The narrator's disbelief in the canary's ability to thrive in space, and his causal attitude towards breaking rules, creates a comedic contrast with the serious nature of their mission. The over-exaggeration of the space station's equipment, like the alarm that failed to function, and the crew's reactions, especially the narrator's initial sluggishness add a layer of comedic absurdity to the story. Sven is a crew member, and brings Claribel aboard. He is presented as a somewhat eccentric and unpredictable figure, that adds to the overall humorous tone of the story. Moreover, the unexpected way in which Claribel revives and the subsequent events, such as the air purifier freezing, provides moments of light hearted amusement to the story.

Question 7. How would Sven reflect on his experience of almost losing Claribel and for saving the lives of the entire crew?

Answer: Sven would likely reflect on the tragic loss of Claribel and acknowledge her role in saving the lives of the entire crew member. The loss of Claribel would be mourned as a personal and profound tragedy, in the light of the affectionate bond she shared with the crew. However, the story also emphasizes the profound impact of her alertness, that highlights her accidental yet significant contribution to their survival.

Let us learn (Pages 214-217)

I. Choose the appropriate adjectives from the box given below to match with the words 1-8 that follow.

nagging	vague	delighted	narrow
sluggish	hushed	inexplicable	sheepish

1. _____ path
2. _____ worry
3. _____ plan
4. _____ look



5. _____ reason
6. _____ traffic
7. _____ voices
8. _____ expression

Now, underline the sentences that use these adjectives in the text.

Answer: 1. narrow

2. nagging
3. inexplicable
4. sheepish
5. vague
6. sluggish
7. delighted
8. hushed

The sentences that use the above adjectives in the text have been underlined below.

1. I had a nagging headache, and vague memories to fitful, disturbed dreams.
2. We all waited in hushed silence while he held Claribel against his ear in an attempt to detect any heartbeat.
3. My mind seemed to be very sluggish that morning, as if I was still unable to cast off the burden of sleep.
4. He came back ten minutes later with sheepish expression.
5. So now, if you visit any space station, don't be surprised if you hear an inexplicable snatch of birdsong.
6. To our delighted surprise, she arrived at once.
7. There were a couple of narrow escapes.

II. The word 'intercom' is used in the text.

It is called a merged word as it is made by combining the parts of two words— 'internal' and 'communication'. Merged words are made by combining two words. Combine the words in Column 1 with the words in Column 2 to make merged words. Write the merged word and its meaning.

One example has been done for you.

Column 1	Column 2	Merged word	Meaning
breakfast	lunch	(i) brunch	meal eaten between breakfast and lunch hours



motor	hotel	(ii)	
smoke	fog	(iii)	
situation	comedy	(iv)	
video	log	(v)	
spoon	fork	(vi)	
web	seminar	(vii)	

Answer:

Merged word	Meaning
(i) bmnch	Meal eaten between breakfast and lunch hours
(ii) motel	A type of lodging often found near highways for motorists
(iii) smog	A type of fog that consists of smoke particles, or a mixture of dust and smoke

(iv) sitcom	A type of television show focussed on humorous situations
(v) vlog	A type of log that contains video data or a video, also serving as a log
(vi) Spork	An eating utensil having a spoonlike bowl and tines
(vii) webinar	An online presentation, often used by businesses to deliver information to a remote audience

III. Read the following sentence from the text and fill in the blank.

It will mean that you're being doubly safeguarded.

In the given sentence, 'will' denotes _____ (past/present/future) time.

Answer: Future

There are several ways to use verbs to talk about the future in English.

The following table lists some of the usages of future time references.

Tense	Usage	Examples
1. 'will' [Note: also common in offers, promises, and orders expressing willingness, certainty or obligations]	When we provide information about future events or discuss possible future occurrences.	I think the Kailash House will win.

2. Simple Present Tense	When we talk about the future only in situations that are a part of a regular schedule or planned action.	My school reopens on 03 January
3. Present Progressive Tense	When we use for future actions and events mostly for personal arrangements and filed plans	<ul style="list-style-type: none"> • My exams are getting over this weekend. • I am visiting my grandparents during the vacation.
4. 'Going to'	Present Progressive Tense of 'go' — This is common in informal style, especially in speech or conversation.	We're going to get a new motorbike soon.
5. Future Perfect (will have + Past Participle)	When we say that something will be finished or completed by a certain time in future.	The teacher says, she will have completed the portions by next month.
6. Future Progressive (will + be + -ing)	When we say that something will be in progress at a particular moment in the future.	This time tomorrow I will be relaxing at home.



7. Future in the Past	Sometimes, when we talk about the past, we need to mention something that was still in the future at that time— something that had not happened yet	<ul style="list-style-type: none"> • I had no time to shop as I was leaving for Chennai in an hour. (instead of 'am leaving') • Last time I saw you, you were going to start a new business. (instead of 'are going to') • In 2024, I arrived in a town where I would spend the rest of my life. (instead of 'will spend')
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IV. Fill in the blanks with the correct form (Simple Present, Present Progressive, 'will', or 'going to') to indicate future time.

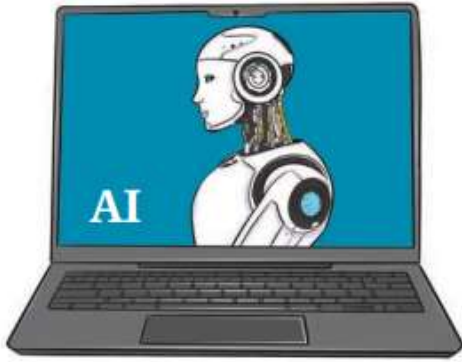
1. Our flight _____ (leave) at 10.00 a.m. tomorrow.
2. They _____ (finish) the project by the end of this week.
3. The weather forecast says it _____ (rain) later today.
4. We _____ (move) into our new house next month.
5. I _____ (start) my new hobby class next Monday.
6. She _____ (go) to the mall this afternoon.
7. The team _____ (have) a meeting at 3.00 p.m. tomorrow.
8. I _____ (help) you with your homework after dinner

Answer: 1. leaves
2. will have finished
3. is going to rain



4. are moving
5. am starting
6. will go
7. is having
8. am going to help

V. Fill in the blanks with the suitable forms of verbs given in brackets to express future time reference.



By 2040, artificial intelligence 1. _____ (revolutionise) medical treatments. Researchers 2. _____ (develop) AI-powered diagnostic tools that 3. _____ (transform) healthcare by the end of this decade. Next week, the International Science Congress 4. _____ (open) to showcase advancements in AI and robotics. In the coming years, robots 5. _____ (assist) surgeons in performing complex operations. Years ago, experts had predicted that AI would reshape our world, and now, as we approach the future, this 6. _____ (be) our new reality

Answer: 1. is going to revolutionise

2. are developing
3. will transform
4. opens
5. will assist
6. is going to be

Let us listen (Pages 217-218)

I. You will listen to a conversation between Monika and Toby. Toby is a Martian and is stranded on Earth. He has become Monika's friend. As you listen, put a tick mark (✓) against the correct statements and a cross against the wrong ones.



Monika : Hi, Toby! Do you miss your planet?

Toby : Very much, Monika! I miss my people and home.

Monika : Oh! I wish I could do something about it! But I am happy to have you as my friend.

Toby : Thank you, Monika!

Monika : Er... could you tell me something more about yourself?

Toby : Why not! What do you want to know about me, Monika?

Monika : What do you eat for breakfast?

Toby : Well, we Martians don't need to eat anything. We get our energy from the Sun.

Monika : Oh! Don't you ever feel like having ice creams and chocolates? I can't think of life without them!

Toby : No, Monika! We are made of different stuff.

Monika : Okay, tell me one thing. How are you able to see with only one eye? I see only one big eye in the centre of your face.

Toby : My friend, we Martians need only one eye to see clearly. In fact, I can see even with my eye closed. I can see beyond mountains and clouds, wood and even metals. I can see that you are carrying a toy in your pocket. It's a blue aeroplane. Isn't it? And yes! That apple you just had for breakfast is going round-and-round in your stomach right now!

Monika : (gasps in disbelief) Oh my goodness!

(Refer to the NCERT Textbook Page 249 for transcript.)

1. Toby misses his school.

Answer: False

2. Monika accepts Toby as her friend.

Answer: True

3. Monika asks Toby about one of his facial features.

Answer: False

4. Toby tells Monika that she had a banana for breakfast.

Answer: False

5. Toby shares that he can see much clearer with a closed eye.

Answer: True

II. Listen to the conversation again and fill in the blanks with the exact words you hear.

1. Toby: I miss my and home.

2. Toby: Well, we don't need to eat anything. We get our from the Sun.

3. Monika: Oh! Don't you ever feel like having ice-creams and !

4. Monika: Okay, tell me one thing. How are you able to see only with eye?

5. Toby: I can see beyond mountains and, woods and even



- Answer:** 1. people
2. Martians; energy
3. chocolates
4. one
5. clouds; even metals

Let us speak (Page 218)

I. Read the following words from the text aloud and circle the letters that are not pronounced (silent letters).

ballet (ba-lay) [ba pronounced as in bat] whistle (wi-sl)

alarm (uh-laam) psychologist (sai-ko-luh-juhst)

Now, read some more words with silent letters. As you read, circle the letters that are not pronounced.

receipt	debris	pneumonia	almond	foreign
island	wreck	aisle	campaign	fasten

Answer: Receipt – the letter ‘p’ is silent.

Debris – the letter ‘s’ is silent.

Pneumonia – the letter ‘p’ is silent.

Almond – the letter ‘l’ is silent.

Foreign – the letter ‘g’ is silent.

Island – the letter ‘s’ is silent.

Wreck – the letter ‘w’ is silent.

Campaign – the letter ‘g’ is silent.

Fasten – the letter ‘t’ is silent.

II. Work in pairs. Use the given situations to ask for and give suggestions.

- You need to make a model of the solar system for the Science Exhibition but don’t know what materials to use. Ask your friend for suggestions.
- You need to prepare for the inter-class quiz on the topic Chandrayaan-3. Ask your friend for advice on how to prepare. You may use the prompts given below.

Asking for Advice	Giving Advice
What should I do...?	I feel you should...



How can I... ?	You should ensure...
What are the best ways... ?	It's good to prepare yourself...
How can I make sure... ?	If you have an issue... , try...
What should I... ?	It is best to use...

Answer: I need to make a model of the solar system for the Science Exhibition, but I have no idea how I should complete my model. I need your suggestion.

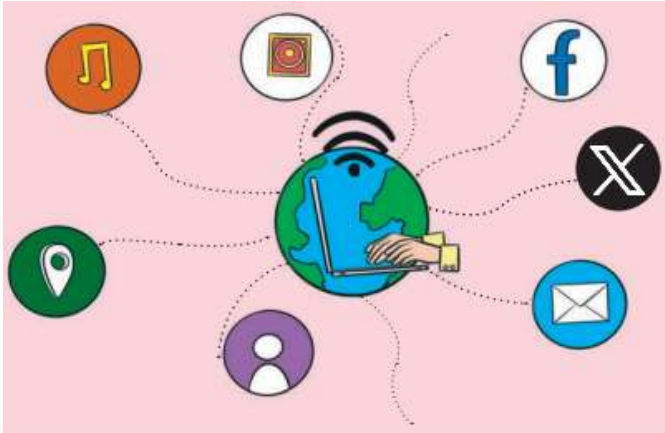
Friend's suggestions: To make a model of the solar system, first decide if you want to represent planet sizes or distances or both, and then, choose a scale that fits your space. Now, you should gather materials like craft supplies or materials found around your house. Then, you should think over using paints, markers, or other creative mediums. At last, you should research on the characteristics of each planet, such as size, colour, rings, etc. to accurately represent them on your model. Thus, your model of the solar system for the Science Exhibition would be ready for demonstration.

2. I need to prepare Inter-class quiz on the topic Chandrayaan-3, but I have no knowledge how to make questions about the important aspects of Chandrayaan-3. I hope you can better suggest me, as you are quite familiar with this topic. Friend's suggestions: To prepare a successful inter-class quiz on Chandrayaan-3 is not a difficult task. You should focus on

understanding the mission's goals, key components, and scientific objectives. Moreover, you should include questions about the launch date, landing site, the purpose of the rover and lander, and the instruments they carry. In addition, you shouldn't forget to touch upon the significance of the lunar south pole and the mission's broader implications for Indian space exploration. Your quiz kit should contain everything related to this pride mission.

Let us write (Page 219)

I. Complete the social media web given below with the uses of the internet.



Answer:



Now, write an article titled 'The Importance of Internet' with the help of the social media web.

Points to remember:

Heading/Title

Name of the writer

Paragraph 1: Give a general introduction to the topic.

Paragraph 2: Explain the uses of the internet and why it is important. Give examples to support your view.

Paragraph 3: End with a comment and leave the reader with a thoughtful idea or quote.

Answer:

The Importance of Internet

Garima, Class-7

The last few years have witnessed heavy reliance on the Internet. This has been because of multiple advantages that it has to offer – for instance, reducing work stress and changing the face of communication most importantly. If we take the current scenario, we cannot ignore how important the Internet is in our everyday lives. It is now indeed a challenging task to visualize a world without the internet. One may define the internet as a large library composed of stuff like – records, pictures, websites, and pieces of information. Another

sector in which the internet has an undeniably important role to play is the field of communication. Without access to the internet, the ability to share thoughts and ideas across the globe would have also been just a dream.

Let us explore (Pages 219-221)

‘A canary in the coal mine’ is a popular phrase to describe early signs of potential danger.

I. Coal miners in places like Arunachal Pradesh used canary birds to detect the presence of carbon monoxide. Such gases are a potential risk to the life of the miners. These little birds are particularly sensitive to carbon monoxide and can prevent mining accidents.

II. Astronauts living in space stations have to do things differently. Read how they manage the routine tasks in the absence of gravity. You may find out more information about it from the internet.

1. Write: Astronauts use a special Space Pen which has a cartridge with ink combined with resin. The ink remains solid until friction with the ball at the point of the pen liquefies it. It works in all positions, in extreme heat and cold, and in atmospheres ranging from pure oxygen to vacuum.

2. Exercise: Astronauts use resistance exercise equipment. Weight training is done by applying a load using vacuum cylinders. Running on the treadmill is made possible with the bodies held down using rubber straps.

3. Eat: Astronauts eat preserved foods which is dried, canned, vacuum-packed, and frozen. These can be prepared by adding cold or hot water, and some can be heated in an oven. They also eat ready-to-eat items, such as nuts, breads, and fruits.

4. Sleep: Astronauts can sleep on a floor, wall, or ceiling as there's no distinction between up and down but they may gradually float away while sleeping. Therefore, they need to restrain their bodies in small sleeping compartments or sleeping bags.

III. Did you know that animals can save humans from natural calamities?

Animals can sense natural calamities. Read the following examples and decide if this is true.

- In 2004, before a tsunami could hit the coastline of Indonesia, some animals made efforts to flee—elephants ran for higher ground, flamingos abandoned low-lying nesting areas, and dogs refused to go outdoors.
- Minutes before the Naples quake of 1805, oxen, sheep, dogs, and geese started making alarm calls in unison.
- Migratory birds crossing the Pacific are able to dodge storms and other hazards.

- In the Gulf of Mexico, sharks sense the drop in barometric pressure that precedes hurricanes and tend to swim to deeper waters as a result. Dolphins have also been observed swimming away from storm-prone areas.

Scientists have studied this behaviour and found that when severe stresses arise in deep rock before the earthquake, ultra-low frequency electromagnetic waves are generated that animals can sense.

IV. Salim Ali, the ‘Birdman of India’, was an Indian ornithologist (a person who studies birds). He was the first Indian to conduct systematic bird surveys across India and wrote several books on birds. He was awarded the Padma Bhushan in 1958 and the Padma Vibhushan in 1976.

V. We need to conserve our ‘feathered’ friends. Work in groups of four. Look at the pictures and make a bird feeder with cardboard, chart paper, etc.



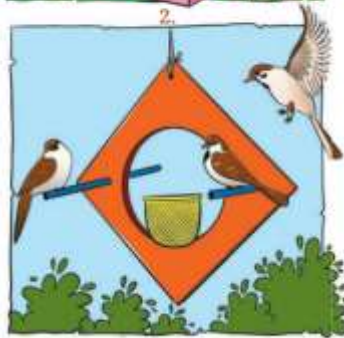
1.



2.



3.



4.

Answer: Do it yourself.

NCERT Solutions Class 8 English (Poorvi)

Unit 5: Chapter 14 Magnifying Glass

Let us do these activities before we read (Page 222)

I. Work in pairs. Answer the questions that follow the pictures given below. Share your answers with your classmates and teacher.



Question 1. What is common in all these pictures?

Answer: All the pictures show people using a magnifying glass to observe small or tiny objects in detail.

Question 2. Select the pictures you are familiar with.

Answer: (Answers may vary) Do it yourself.

Question 3. Why do you think the people in the pictures need to use a magnifying glass?

Answer: The people use a magnifying glass to see small details more clearly, such as the structure of insects, leaves, or patterns that are not visible to the naked eye.

Question 4. What other instruments magnify objects?

Answer: Other instruments that magnify objects include microscopes, telescopes, binoculars, hand-held magnifiers, and magnifying spectacles.

II. If you have a magnifying glass, what would you like to use it for and why? Share your answers with your classmates and teacher.

Answer: If I had a magnifying glass, I would use it to observe leaves, insects, and tiny patterns on stones or shells. It would help me see things in nature more clearly and understand how beautiful and complex even the smallest things can be.

Let us discuss (Pages 223-224)

I. Complete the summary of the poem given below with suitable words from the poem.

The poem describes the magic of seeing the world through a 1. _____. It reveals how tiny things like 2. _____ and 3. _____ can appear vast and complex. Even a 4. _____ of water can seem like a hive of 5. _____. The poet is impressed at how the spider spins its 6. _____ from its 7. _____. The poem ends with the idea that, through lenses, the 8. _____ could seem within reach.

Answer: 1. magnifying glass

2. moss

3. chalk

4. drop

5. bees

6. web

7. spinnerets

8. moon

II. Fill in the blanks by choosing the correct answer from the brackets.

1. The main idea of the poem is the transformative power of _____ (wonders in nature/close observation) through the magnifying glass.

2. The tone of the poem is _____. (wonder and curiosity/peaceful and emotional)

3. The poem has _____ stanzas with _____ lines in each stanza. Hence, it is a quatrain. (four; six/six; four)

4. The rhyme scheme of the poem is _____. (ABCD; ABCB)

Answer: 1. close observation

2. wonder and curiosity

3. six /four

4. ABCB

III. Pick examples from the poem for the following poetic devices.

1. Simile

2. Alliteration

3. Metaphor

Answer: 1. Simile:

- A drop of water/Like hive of bees
- Yes, and with lenses like it

2. Alliteration:

Shells show, forest-flowers, wait and watch, woven web-silk, make more marvellous

3. Metaphor:

- “Magic talk” (the magnifying glass is not literally talking)
- The whole poem is metaphorical in how it compares ordinary things to magical wonders.

IV. The poem is rich in visual imagery, painting vivid pictures of small, everyday things magnified into something grand.

1. In the line, ‘A myriad shells show in a scrap of chalk’, the magnifying glass reveals _____.

2. In the line, ‘A forest—flowers and trees’ the poet uses the imagery of nature to emphasise _____.

Answer: 1. the hidden patterns or fossil-like structures in something as simple as chalk.

2. how a tiny patch of moss can look like an entire forest under magnification.

V. Complete the following sentences with a reason.

1. The poet uses exclamation marks in lines, ‘The tigerish claws he has!’, ‘With all those eyes!’ and ‘In an afternoon!’ because it _____.

2. In the phrase, ‘Magic talk’ the poet uses personification to describe the magnifying glass because it _____.

3. Each stanza follows a repetitive pattern of introducing a small or ordinary object and then describing the extraordinary details revealed through magnification. This is because it supports the theme of _____ as the speaker reveals _____.

4. In the final stanza the poet shifts from small, everyday objects being magnified to a celestial body like moon because _____.

Answer: 1. expresses his sense of amazement and excitement at what he sees through the



magnifying glass.

2. seems to reveal secrets or tell stories that are otherwise hidden from the naked eye.
3. curiosity and discovery; how much beauty and wonder exists in small things.
4. it shows how far human curiosity and observation can go, even reaching space through lenses like telescopes.

Let us think and reflect (Pages 224-225)

I. Read the extracts given below and answer the questions that follow.

1. With this round glass
I can make Magic talk—
A myriad shells show
In a scrap of chalk;
Of but an inch of moss
A forest—flowers and trees;

(i) Identify whether the following statement is true or false:

The poet uses his magical powers to make the round glass powerful.

Answer: False

Explanation: The poet does not have magical powers; the magnifying glass itself reveals the magic of small objects when observed closely.

(ii) Select the line from the extract that expresses the presence of intricate patterns in ordinary objects.

Answer: “A myriad shells show / In a scrap of chalk”

Explanation: This line shows how even a simple piece of chalk can contain complex patterns visible through a magnifying glass.

(iii) What does the comparison of ‘an inch of moss’ to a forest “suggest about the speaker’s view of the world through the magnifying glass?”

Answer: It suggests that the speaker sees immense beauty and complexity in even the tiniest parts of nature. Through the magnifying glass, the ordinary becomes grand and magical.

(iv) How does the poet feel about the ability of the magnifying glass to reveal hidden wonders?

- A. Satisfied
- B. Fascinated
- C. Grateful
- D. Determined

Answer: B. Fascinated

Explanation: The poet expresses awe and wonder at how the magnifying glass reveals the unseen marvels of the natural world.

II. Answer the following questions.

Question 1. What is the significance of the spider in the poem?

Answer: The spider represents skill, precision, and natural beauty. The poet admires how the spider spins its web using its spinnerets and how even its small, tiger-like claws become visible through magnification. It reflects the hidden intricacies of life that are revealed when observed closely.

Question 2. How might the speaker's view of the natural world change if there was no use of a magnifying glass?

Answer: Without a magnifying glass, the speaker might miss the minute details and hidden beauty of small things. The natural world would seem ordinary rather than extraordinary and magical, and the sense of curiosity and wonder would be diminished.

Question 3. Why does the poem, end with the idea of the moon being within reach?

Answer: The poem ends with the idea of the moon being within reach to show that scientific instruments like lenses and telescopes can expand our reach and imagination. It suggests that human curiosity and observation can take us beyond the Earth, even to celestial bodies like the moon.

Question 4. What is the speaker's attitude towards nature and the act of observation?

Answer: The speaker has a deep sense of curiosity, fascination, and admiration for nature. He sees observation as a way to uncover hidden beauty and believes that even the smallest things hold wonder and mystery when seen up close.

Question 5. Which is your favourite part of the poem? Why?

Answer: My favourite part is "A drop of water/ Like hive of bees" because it beautifully compares a simple drop of water to a busy beehive, showing how full of life and activity even the smallest things can be when seen through a magnifying glass. It reminds me to appreciate the hidden wonders all around me.

Let us learn (Pages 225-226)

I. Fill in the blanks in the sentences with the words given in the box below.

woven myriad deft
stumble surpass marvellous

With his 1. _____ description, the author has written the story beautifully 2. _____ with fascinating details. When you read the story, you will surely enjoy the 3. _____ storytelling technique that attracts all kinds of readers. What makes the



story interesting is the superb way of describing the 4. _____ emotions and feelings of the characters. The reader will 5. _____ upon the unexpected twists and turns that 6. _____ all our understanding and make us wonder at the narrative power of the author

Answer: 1. deft

2. woven

3. marvellous

4. myriad

5. stumble

6. surpass

II. The collective noun 'a hive of bees', is used in the poem. Match the phrases in Column 1 with suitable words in Column 2 to make collective nouns.

Column 1	Column 2
1. a swarm of	(i) ships
2. a constellation of	(ii) soldiers
3. a grove of	(iii) dancers
4. a troupe of	(iv) locusts
5. a battalion of	(v) trees
6. a fleet of	(vi) stars

Answer:

Column 1	Column 2
1. a swarm of	(iv) locusts
2. a constellation of	(vi) stars
3. a grove of	(v) trees
4. a troupe of	(iii) dancers
5. a battalion of	(ii) soldiers
6. a fleet of	(i) ships

III. The poet uses the expression 'eyeing the moon' in the poem. Match the idiomatic expressions with 'eye' given in Column 1 with their meanings in Column 2. You may refer to a dictionary.

Column 1	Column 2
1. apple of one's eye	(i) watch something or someone closely
2. in the blink of an eye	(ii) act as if you do not see or notice

3. keep an eye on something or somebody	(iii) something that happens very quickly
4. turn a blind eye	(iv) an overall look at something
5. see eye to eye	(v) a person who is very precious or important
6. bird's-eye view	(vi) agree with each other

Answer:

Column 1	Column 2
1. apple of one's eye	(v) a person who is very precious or important
2. in the blink of an eye	(iii) something that happens very quickly
3. keep an eye on something or somebody	(i) watch something or someone closely
4. turn a blind eye	(ii) act as if you do not see or notice
5. see eye to eye	(vi) agree with each other
6. bird's-eye view	(iv) an overall look at something

IV. The poet uses the adjective form 'tigerish' in the poem by adding the suffix '-ish' to the noun 'tiger'. In the same way, we can make adjectives by adding the suffix '-ish' to some nouns. Choose the nouns to which you can add the suffix '-ish' to make adjectives.

girl	glass	book	silk
boy	water	moon	scrap

Answer:

- girl → girlish
- boy → boyish
- silk → silkish
- moon → moonish
- book → bookish

Let us listen (Page 227)

I. You will listen to a conversation between a father and daughter about lesser-known Indian inventions. As you listen, mark the four true statements from (1)—(6) given below.

Daughter : Papa, everyone talks about how yoga and the concept of zero came from India, but I recently found out there are so many more inventions that people don't really know about!

Father : Oh really? Like what?

Daughter : Well, did you know that radio broadcasting has roots in India? We usually credit Marconi, but Jagadish Chandra Bose, a Bengali scientist, actually conducted an experiment using microwaves before Marconi.

Father : Wow, I didn't know that! That's incredible. I can recollect something about fire optics.

Daughter : Yes! You're absolutely right Papa. Can you imagine life without fibre optics? No fast internet, no clear communication... And guess what? It was pioneered by Narinder Kapany, an Indian physicist from Punjab. He's called the 'father of fibre optics.'

Father : That's something I use every day, but I just had an idea that the origins were in India. What about fun things? Any of those that you've found out about?

Daughter : Yes indeed! You'll love this one—Snakes and Ladders! It was actually invented as a game to teach children values, with ladders representing virtues and snakes representing evil. It wasn't just a board game like we think today. It had a spiritual meaning in ancient times.

Father : So even that simple game had such deep roots. Let me tell you about one that I just remembered.

Daughter : Of course! I'd love to know.

Father : Well, the USB port, something we rely on all the time to connect devices, was invented by Ajay

Bhatt. He's an Indian-born engineer who helped revolutionise the way we use technology.

Daughter :That's amazing. USB is such a basic part of life now. It's hard to imagine a time without it.

Father :That's incredible. And all this from India. I definitely learned a lot from this conversation.



Answer: True Statements: 1, 4, 5 and 6

Let us speak

I. When pronouncing /v/ and /f/, the lower lip lightly touches the edge of the upper teeth. Air flows through the small gap, creating a soft friction sound.

Note the difference between /v/ and /f/. When we pronounce words with /v/ sound, there is a vibration, whereas /f/ sound has no vibration. Both the sounds can occur in the beginning, middle, or at the end of words.

Read these words aloud with the help of your teacher.

beginning sound /f/: forest flowers from

middle sound /f/: deft afternoon

end sound /f/: of itself

beginning sound /v/: vase valour victory

middle sound /v/: woven even marvellous

end sound /v/: hive

Answer: Do it yourself.

II. If you could travel to space, which planet would you like to visit? Why? What preparations would you like to make? Speak about any five things that you would like to take along.

Answer:

If I could travel to space, I would like to visit Mars because it is known as the Red Planet and scientists believe that it may have had water and life in the past. I would love to see its rocky surface and experience low gravity.

Preparations I would make:

- Train in a space program
- Learn how to live in zero gravity
- Understand how to use a space suit
- Carry necessary equipment

Five things I would take along:

1. Oxygen supply
2. Space food
3. A camera to record my journey
4. A communication device
5. A journal to write about my experiences

III. If you could invent something, what would you like to invent and how? Give reasons for the choice of your invention. Speak about your wonder invention.



Answer: If I could invent something, I would invent a Pollution Cleaner Drone. It would fly around cities and absorb harmful gases and dust particles from the air to keep the environment clean. I would invent it because pollution is a big problem today, and clean air is necessary for a healthy life. This drone would help people breathe better and reduce diseases.

It would use sensors to detect polluted areas and special filters to clean the air.
It would be solar-powered to make it environment-friendly.
This invention would truly be a gift to the Earth!

Let us write (Page 229)

I. In a conversation, we communicate through dialogues. While writing a conversation, we need to ensure that the dialogues are engaging and serve a purpose.

Points to remember:

- Mention where, when, and with whom the conversation is taking place.
- Identify the word choice and tone—formal or informal.
- Include key information, points of agreement and disagreement, etc.
- Use words in brackets to express emotions or actions, such as (joyfully) (sits down).
- You may use filler words like Uff, Er... , Ugh, etc.

Deepa and Asma, members of the Science Club have a conversation to take a decision about making a model for an upcoming Science Fair.
Create this conversation between Deepa and Asma.

You may begin the conversation like this.

Deepa : Hi Asma! Our Science teacher mentioned that you have a wonderful idea for the Science Fair project.

Asma : (hesitatingly) Yes, I do. But I'm not sure if it is good enough.

Deepa : (encouragingly) Don't worry...

Answer:

Deepa : Hi Asma! Our Science teacher mentioned that you have a wonderful idea for the Science Fair project.

Asma : (hesitatingly) Yes, I do. But I'm not sure if it is good enough.

Deepa : (encouragingly) Don't worry, Asma!

I'd love to hear it. Every idea has potential. Just tell me what you're thinking.

Asma : Well... I am thinking we can make a working model of a water purification system using natural materials like sand, charcoal, and gravel. It can show how clean water can be produced using simple, eco-friendly methods. Deepa : That sounds amazing! It's a practical idea and also spreads an important message about clean water and sustainability.

Asma : You really think so? I was worried it might be too simple compared to some of the high-tech models others might present.

Deepa : Simple doesn't mean boring. If we present it well and explain the science clearly, it can actually stand out. It's something everyone can relate to.

Asma : That makes sense. Maybe we can also show water samples before and after filtration to highlight the difference.

Deepa : Great idea! And we can add labels and posters explaining each layer's function in the filtration process.

Asma : Yes! Maybe even a small interactive section where visitors can try pouring in some 'dirty' water and see it come out clean.

Deepa : Perfect! Let's start planning the materials we need and divide the work. I'm excited already.

Asma : Me too, Deepa. Thanks for encouraging me. I'm glad we're doing this together.

Deepa : Anytime! Let's make this Science Fair project awesome!

Let us explore (Pages 229-232)

I. Children with low vision may benefit from different types of visual aids, such as magnifying spectacles, stand magnifiers, hand-held magnifiers, and telescopes.

Magnifying spectacles are used for reading, threading a needle or doing other close-up tasks. Stand magnifiers rest above the object and are hands-free and help to keep the magnifying lens at a proper distance. Hand-held magnifiers with and without built-in



lights, are usually smaller and lighter to move over printed material. They can be moved more easily. Telescopes are used to see objects or signs far away. Some telescopes can even be attached to eyeglasses.

II. Did you know that telescopes also use lenses?

1. The largest telescope in India for studying celestial objects is located in the district of Nainital, Uttarakhand. Commissioned in 2016, it is maintained and operated by ARIES (Āryabhaṭa Research Institute of Observational Sciences).
2. The Indian Astronomical Observatory (IAO) is a high-altitude astronomy station located in Hanle, Ladakh, India. It is situated at an elevation of 4,500 meters (14,764 ft), and supports optical, infrared, and gamma-ray telescopes.
3. The largest, most powerful, and most complex telescope ever launched into space is the James Webb Space Telescope. NASA launched it on, 25 December 2021. It orbits the Sun at a distance of 1.5 million kilometres from Earth. To learn more, visit the link below.
<https://science.nasa.gov/mission/webb/>
4. The Mauna Kea Observatory, astronomical observatory in Hawaii, US, that has become one of the most important in the world because of its outstanding observational conditions. The Mauna Kea Observatory is operated by the University of Hawaii and lies at an elevation of 4,205 metres (13,796 feet) atop the peak of Mauna Kea, a dormant volcano on north-central Hawaii island. The summit hosts a worldrenowned collection of astronomical research facilities and large telescope observatories, including the Keck Observatory and Subaru Telescope, for optical, infrared, and submillimeter astronomy.

The observatories are set up here because of Mauna Kea's high elevation, dry environment, and stable airflow that make it a prime location for astronomical observation. The focus is scientific research across the electromagnetic spectrum.

Public Access: The Onizuka Center for International Astronomy provides visitor information and exhibits about the mountain and its observatories, and offers guided tours of the summit.

Find out more about them from the internet and discuss with your science teacher and classmates. By Frank Ravizza – Own work, CC BY-SA 4.0

III. Read about ancient Indian scholars.

1. One of the eminent astronomers of the ancient India was Āryabhaṭa. His work Āryabhaṭīyam, laid the groundwork for various astronomers to develop in subsequent centuries and continues to be an important work even today. Āryabhaṭa proposed a



heliocentric model of the solar system centuries before Copernicus. He also gave a scientific explanation of lunar and solar eclipses.



2. Varāmiḥira, the sixth-century CE astronomer, philosopher, and mathematician wrote the astronomical treatise Pañchasiddhāntika (Fine Treatises), a compendium of Greek, Egyptian, Roman, and Indian astronomy.



3. The tenth-century CE mathematician-astronomer Bhāskarachārya II contributed significantly to the advancement of astronomical concepts. His works Siddhāntaśiromaṇi and Karaṇakutūhala, include compiled data on planetary positions, conjunctions, and eclipses. <https://indianculture.gov.in/timeless-trends/unveiling-cosmos-journey-through-history-astronomy-india>



IV. Jantar Mantar in New Delhi is an astronomical observatory. It has large-scale astronomical instruments designed for precise calculations and measurements of celestial movements. It was built in 1724 by Maharaja Sawai Jai Singh II. The observatory is a UNESCO World Heritage Site. Five such observatories were built by Jai Singh II, the other four are located in Ujjain, Mathura, Varanasi, and Jaipur.

Answer: Do it yourself

NCERT Solutions Class 8 English (Poorvi)

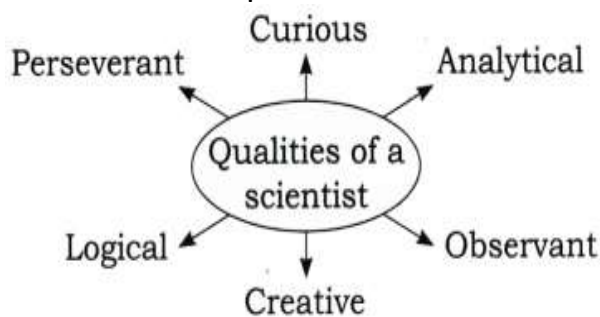
Unit 5: Chapter 15 Bibha Chowdhuri: The Beam of Light that Lit the Path for Women in Indian Science

Let us do these activities before we read. (Page 233)

I. Work in pairs. What qualities do you associate with a scientist? Share your answers with your classmates and teacher. Complete the word web given below.



Answer: Some qualities associated with a scientist may include:



II. Some pictures of women scientists are given below. What do you know about their work? Share your answers with your classmates and teacher.



Answer: 1. Kalpana Chawla – The first woman of Indian origin to go to space. She was an

astronaut with NASA and died in the Space Shuttle Columbia disaster in 2003.

2. Dr. Tessy Thomas – Known as the “Missile Woman of India,” she played a key role in the Agni missile project at DRDO.

3. Dr. Ritu Karidhal – Known as the “Rocket Woman of India,” she was Deputy Operations Director of ISRO’s Mars Orbiter Mission and led Chandrayaan-2.

4. Dr. Indira Hinduja – A pioneer in reproductive medicine in India, she delivered the country’s first test-tube baby.

Let us discuss (Page 237)

I. Arrange the following events from Bibha Chowdhuri’s life in the correct order of occurrence. Share your answers with your classmates and teacher.

1. The International Astronomical Union (IAU) honoured her legacy by renaming a star in the constellation Leo—HD 86081—as ‘Bibha’.
2. She became the first woman faculty member at the Tata Institute of Fundamental Research (TIFR).
3. Bibha Chowdhuri was born in pre-independent India.
4. The Government of India declared a chair professorship in Bibha’s name.
5. She joined the University of Manchester under the guidance of the celebrated Nobel Laureate, Patrick M.S. Blackett.
6. She was nominated for a Nobel Prize by Erwin Schrodinger.

Answer: 3 → 5 → 6 → 2 → 1 → 4

Let us think and reflect (Pages 237-239)

I. Read the given extracts and answer the questions that follow.

1. In 1945, Bibha’s academic journey took her to the University of Manchester. Under the guidance of the celebrated Nobel Laureate, Patrick M.S. Blackett, she delved deeper into the field of cosmic rays. Her Ph.D. thesis on cosmic rays earned local recognition, with newspapers introducing her as ‘India’s New Woman Scientist—She has an eye for Cosmic Rays’.

(i) Why is the mention of Patrick M.S. Blackett, a Nobel Laureate, significant in this extract?

Answer: The mention of Patrick M.S. Blackett is significant because it shows that Bibha was working under one of the most respected and renowned scientists of the time, highlighting the calibre of her research and the respect she had earned in the field of physics.



(ii) What can be inferred about the public perception of women scientists in the 1940s from the title given to her by the press ‘India’s New Woman Scientist’?

- A. Women scientists were widely accepted and celebrated at that time.
- B. The world was still doubtful about the capabilities of women scientists.
- C. Women scientists were as common and renowned as men in the 1940s.
- D. Women were not allowed to study sciences or pursue scientific careers.

Answer: B. The world was still doubtful about the capabilities of women scientists.

(iii) In the phrase ‘celebrated Nobel Laureate,’ the word ‘celebrated’ refers to all of the following EXCEPT someone who is

- A. famous and highly respected
- B. frequently seen in public
- C. renowned for their achievements
- D. well-regarded in their field

Answer: B. frequently seen in public

(iv) Complete the following sentence suitably. The phrase ‘She has an eye for Cosmic Rays’ suggests that _____

Answer: The phrase ‘She has an eye for Cosmic Rays’ suggests that she had a deep understanding and insight into the study of cosmic rays.

2. The journey from Bibha Chowdhuri’s era to today’s women scientists has been long and arduous, but it is also inspiring. The struggles Chowdhuri faced are a stark reminder of how far we’ve come—and how much Jiirther we have to go. But with every cosmic achievement— be it landing on the moon or reaching Mars—these women prove that the journey is well worth it. Bibha Chowdhuri’s legacy lives on. Her story continues to inspire young women to pursue their passions, break barriers, and leave their mark on the world. As the stars of Indian science shine brighter, Bibha Chowdhuri, the beacon-beam of light, ’ will always guide the way.

(i) What can be inferred about the challenges faced by women scientists today, as compared to Bibha Chowdhuri’s era?

- A. Women scientists no longer face any barriers.
- B. The challenges remain, but progress has been made.
- C. The struggles have become more difficult over time.
- D. The struggles are the same as they were for Chowdhuri.

Answer: B. The challenges remain, but progress has been made.

(ii) The phrase ‘Bibha Chowdhuri’s legacy lives on’ suggests that _____

Answer: The phrase ‘Bibha Chowdhuri’s legacy lives on’ suggests that her contributions continue to inspire and influence future generations.



(iii) Why is Bibha Chowdhuri referred to as a “beacon’ and a “beam of light’ in the extract?

Answer: Because she led the way for women in science through her courage, dedication, and pioneering work, giving hope and inspiration to others.

(iv) State whether the following sentence is a fact or an opinion.

Bibha Chowdhuri was the beacon, the ‘beam of light’ whose story continues to inspire young women.

Answer: Opinion – It reflects the writer’s admiration and interpretation of her legacy.

II. Answer the following questions.

Question 1. Why is Bibha Chowdhuri considered a pioneer in the field of science?

Answer: Bibha Chowdhuri is considered a pioneer because she was the first Indian woman physicist to work in the highly specialized field of high-energy particle physics. She broke gender barriers, conducted crucial research on cosmic rays and subatomic particles, and paved the way for future women in Indian science.

Question 2. What does Bibha Chowdhuri’s nomination by Erwin Schrodinger tell us about her abilities?

Answer: It shows that Bibha Chowdhuri’s scientific work was of exceptional quality and internationally recognized. Being nominated for a Nobel Prize by a renowned scientist like Erwin Schrodinger indicates her outstanding contributions and talent.

Question 3. Bibha Chowdhuri never worked for awards or recognition. Support this statement with evidence from the text.

Answer: Despite her groundbreaking work, Bibha Chowdhuri never received any awards during her lifetime. She continued her research tirelessly, often working in the background, focusing on her passion for science rather than seeking fame or recognition.

Question 4. How does the renaming of a star as ‘Bibha’ serve as both a literal and symbolic recognition of her contributions to science?

Answer: Literally, it immortalizes her name in the cosmos, while symbolically, it reflects the “beam of light” she represented in science—illuminating the path for future generations and acknowledging her once-forgotten brilliance.

Question 5. How do the roles of women in ISRO today reflect broader changes in societal attitudes towards women in STEM in India?

Answer: Women in ISRO today hold leadership roles in major space missions, showing that societal attitudes have shifted to recognize and support women’s capabilities in science and technology. This progress is rooted in the pioneering efforts of women like Bibha Chowdhuri.



Question 6. What is the writer's purpose of highlighting the contributions of Bibha Chowdhuri and other modern women scientists?

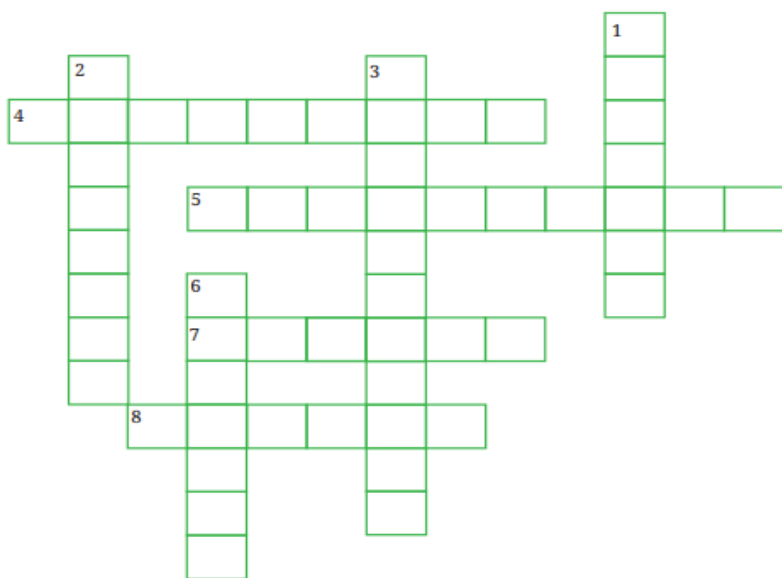
Answer: The writer aims to inspire readers, especially young girls, by showcasing how women have overcome challenges to excel in science. It also seeks to acknowledge unsung heroes and promote gender equality in STEM fields.

Question 7. How might this text help shape people's perception of the role of women in other traditionally male-dominated fields?

Answer: This text challenges stereotypes and encourages society to view women as equally capable in all fields, including those traditionally dominated by men. It motivates individuals to support and recognize women's contributions across professions.

Let us learn (Pages 239-244)

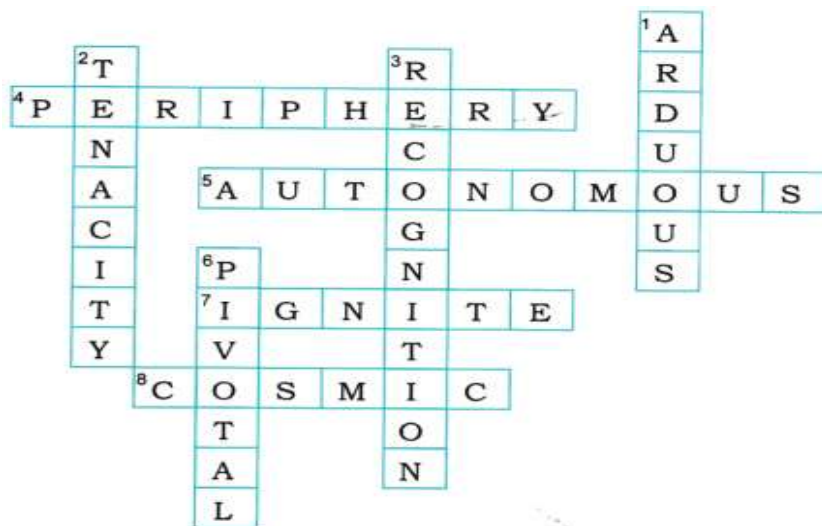
I. Complete the crossword puzzle by filling in the antonyms from the clues given below in the table. You may refer to the text.



Across:	Down:
4. core,	1. effortless,
5. dependent,	2. weakness,

7. extinguish,	3. neglect,
8. terrestrial	6. trivial

Answer:



II. Substitute the underlined phrase in the sentences with the suitable words from the box given below.

physicist luminaries pioneers
peers barriers persistence

1. They are considered to be the first people to start the online markets.
2. A scientist who studies matter, energy, light, etc.
3. Most of my friends are my classmates and are my age.
4. We first welcomed all the famous and important people in folk song for the award ceremony.
5. My brother finally succeeded in his business because of his continuous efforts and determination.
6. We should remove all the things that block our way in achieving success

Answer: 1. Pioneers

2. Physicist

3. Peers

4. Luminaries

5. Persistence

6. Barriers

III. The words 'professorship', 'mentorship', and 'leadership' are used in the text. These words are made by adding the suffix '-ship' to the words 'professor', 'mentor' and 'leader'. Similarly, we can make words by adding -ment and -hood to certain words.

Now, make words by adding suitable suffixes -ship, -ment, and -hood to the words given below. One example has been done for you.

achieve + ment = achievement

1. member + _____ = _____
2. govern + _____ = _____
3. partner + _____ = _____
4. child + _____ = _____
5. citizen + _____ = _____
6. entertain + _____ = _____
7. brother + _____ = _____
8. agree + _____ = _____

Answer: 1. member + ship = membership

2. govern + ment = government

3. partner + ship = partnership

4. child + hood = childhood

5. citizen + ship = citizenship

6. entertain + ment = entertainment

7. brother + hood = brotherhood

8. agree + ment = agreement

IV. The abbreviations—ISRO and STEM— used in the text are called acronyms because they are read or pronounced as full words.

The grid given below has acronyms for the following. Circle the acronyms in the grid.

1. National Aeronautics and Space Administration
2. All India Institute of Medical Sciences
3. Ayurveda, Yoga and Naturopathy, Unani, Siddha, and Homoeopathy
4. National Institute of Pharmaceutical Education and Research
5. World Health Organization

A	C	B	G	A	I	I	M	S
Y	R	T	H	A	I	T	A	W
U	S	W	H	O	C	M	T	J
S	A	R	O	F	G	C	R	T
H	B	N	I	P	E	R	B	I
D	G	N	O	J	T	O	N	M
E	F	N	A	S	A	J	E	E

Clipping

The short form of laboratory is lab. In making this short form, the front part of the word is retained and the end part is removed or clipped.

Clipping is a method of making words from larger words in English. There are three clipping methods.

1. Back clipping: a word is made by removing the end part of a word and retaining the front part (exam—examination, ad—advertisement, gas—gasoline, memo—memorandum, gym—gymnasium, photo—photograph, etc.).
2. Front clipping: a word is made by removing the front part of a word and retaining the end part (phone—telephone, net—internet, bike—motorbike, net—internet, etc.).
3. Middle clipping: a word is made by removing the front and the end parts of the word and retaining the middle part (flu—influenza, fridge—refrigerator, etc.).

Answer:

A	C	B	G	A	I	I	M	S
Y	R	T	H	A	I	T	A	W
U	S	W	H	O	C	M	T	J
S	A	R	O	F	G	C	R	T
H	B	N	I	P	E	R	B	I
D	G	N	O	J	T	O	N	M
E	F	N	A	S	A	J	E	E

V. Read the following sentence from the text and the table that follows. ..., the foundation was laid by early pioneers like Bibha Chowdhuri...

Here the verb is expressed in passive form.

Verbs can be expressed in either active voice or passive voice.

When the subject performs the action, the sentence is said to be in active voice. On the other hand, when the subject receives the action, the sentence is in passive voice.

Subject	Verb	Object
The foundation	was laid	early pioneers like Bibha Chowdhuri...



Generally, sentences written in active voice are considered effective.
However, passive voice is used when the

action is more important than the doer,
A cure for the disease was discovered.
(The focus is on the discovery, not on who discovered it.)

doer of the action (agent) is obvious,
The national anthem is sung at the beginning of the event.
(It is clear that people sing it, so mentioning the doer is unnecessary.)

doer of the action is unknown.
The car was stolen last night.
(The identity of the thief is unknown.)

Now, complete the following news report with the passive form of verbs given in the box below. (Remember that the verb must agree with the subject.)

discover test measure publish record take

Last year, significant advancements in medical science 1. _____ in leading medical journals when a new vaccine for malaria 2. _____. The vaccine 3. _____ through several clinical trials and results 4. _____ in those journals. During the trials, blood samples 5. _____ regularly from participants to monitor their immune response. The amount of antibodies produced 6. _____ carefully to assess the effectiveness of the vaccine.

Answer: 1. were published
2. was discovered
3. was tested
4. were recorded
5. were taken
6. was measured

VI. Read the following report of an experiment. Rewrite the report using passive verbs wherever necessary.

I conducted an experiment to investigate the effects of light on plant growth. I placed various plants under different light conditions and measured their growth over several weeks. I recorded data daily to track the height of each plant. At the end of the experiment, I analysed the results and found that plants exposed to natural light grew significantly taller



than those under artificial light. I concluded that sunlight plays a crucial role in plant development. I presented my findings to the class, highlighting the importance of light in enhancing photosynthesis and overall plant health.

You may begin like this.

An experiment was conducted...

Answer: An experiment was conducted by me to investigate the effects of light on plant growth. Various plants were placed by me under different light conditions and their growth was measured over several weeks. Data was recorded daily by me to track the height of each plant. At the end of the experiment, the results were analysed by me and it was found that plants exposed to natural light grew significantly taller than those under artificial light. It was concluded by me that sunlight plays a crucial role in plant development. The findings were presented by me to the class, highlighting the importance of light in enhancing photosynthesis and overall plant health.

VII. Read the instructions given in the box on landing of Chandrayaan. Complete the passage by choosing the correct answer from the options given.



Launch the spacecraft towards the Moon from Earth.

- Position the spacecraft to enter the Moon's orbit.
- Adjust the spacecraft's path for landing.
- Slow down the spacecraft as it nears the Moon's surface.
- Release the rover to explore the surface and collect valuable data

Chandrayaan's landing mission involves several key steps. First, the spacecraft 1. _____ towards the Moon from the Earth. Then, it 2. _____ to enter the Moon's orbit. After reaching the Moon's orbit, the spacecraft's path 3. _____ for landing. Next, the spacecraft 4. _____ as it nears the Moon's surface. Finally, the rover 5. _____ to explore the surface and collect valuable data.

(i) A. launched

B. were launched

C. was launched

D. is launched

Answer: C. was launched

(ii) A. position

- B. was positioned
- C. is positioned
- D. has positioned

Answer: B. was positioned

(iii) A. adjusted

- B. was adjusted
- C. is adjusted
- D. were adjusted

Answer: B. was adjusted

(iv) A. slowed down

- B. was slowed down
- C. is slowed down
- D. were slowed down

Answer: B. was slowed down

(v) A. is released

- B. has released
- C. were released
- D. was released

Answer: D. was released

Let us listen (Page 244)

I. You will listen to a podcast about Artificial Intelligence. As you listen, answer the following questions by selecting the correct options. Refer to the NCERT Textbook Page 251 for transcript.

1. What is one of the key benefits of AI in the healthcare sector?

- (i) Helps doctors communicate faster with patients.
- (ii) Provides personalised treatments and faster diagnoses.
- (iii) Focuses on cosmetic surgeries to improve appearance.

Answer: (ii) Provides personalised treatments and faster diagnoses.

2. How did AI play a crucial role during the global pandemic?

- (i) AI robots monitored patient behaviour in hospitals.
- (ii) AI assisted in speeding up the discovery of new medicines.
- (iii) AI developed different types of vaccines by itself.

Answer: (ii) AI assisted in speeding up the discovery of new medicines.

3. What example was given regarding AI's role in renewable energy?

- (i) AI is optimising the placement of wind turbines and solar panels in cities.



(ii) AI is promoting alternative energy from wind turbines and solar panels.

(iii) AI is improving the performance of wind turbines and solar panels.

Answer: (iii) AI is improving the performance of wind turbines and solar panels.

4. What does AI offer to teachers in the field of education?

(i) Helps teachers assign grades more quickly.

(ii) Allows teachers to communicate better with students.

(iii) Helps teachers analyse student performance.

Answer: (iii) Helps teachers analyse student performance.

5. What is one of the user-friendly features that AI is enhancing for people with disabilities?

(i) Helps them find better jobs in the mainstream.

(ii) Improves speech recognition and voice command technologies.

(iii) Trains individuals to interact with robots.

Answer: (ii) Improves speech recognition and voice command technologies.

Let us speak



I. Form a group of five. Conduct a panel discussion on the topic, 'Evaluating the Impact of Mobile Phones—Beneficial or Harmful'. Each student will take on one of the following roles.

- Moderator (initiates and directs the flow of the discussion inviting the speakers to share their views on the subject; at the end sums up the points of discussion and thanks the members of the group)
 - Principal (opposed to—focus on discipline in school)
 - Teacher (in favour of—partially in favour, educational use with limitations)
 - Parent (opposed to—concerned about health and social effects on children)
 - Student (in favour of—highlighting the benefits like connectivity and learning)
- You may use the cues given below and add your own ideas when speaking.

Principal

As a Principal, I strongly believe mobile phones are largely disruptive because...

Teacher

From an educator's perspective, I think mobile phones can be valuable but...

Parent

As a parent, I'm concerned that mobile phones pose certain risks to children's health and social development...

Student

As a student, I feel mobile phones are essential because...

Answer: 1. Moderator: Good morning everyone.

Welcome to today's panel discussion on the topic "Evaluating the Impact of Mobile Phones—Beneficial or Harmful." We have with us a Principal, a Teacher, a Parent, and a Student who will share their perspectives. Let's begin with the Principal.

2. Principal (Opposed to mobile phones):

As a Principal, I strongly believe mobile phones are largely disruptive in schools. They distract students, reduce focus in classrooms, and affect discipline. I have seen students misuse phones for games and social media. In my opinion, mobile phones should be banned in school premises.

3. Teacher (Partially in favour): From an educator's perspective, I see both sides. Mobile phones can be useful for educational apps, online research, and quick communication. However, students must be taught to use them responsibly. I support their use only under supervision and within limits.

4. Parent (Opposed to mobile phones):

As a parent, I am concerned about the health and social impact of mobile phones. Children spend too much time on screens, leading to eye strain, lack of physical activity, and reduced real-world interaction. It's becoming harder to engage them in healthy habits.

5. Student (In favour of mobile phones):

As a student, I feel mobile phones are essential tools for learning and staying connected. We use them for online classes, accessing study material, and even solving doubts through educational platforms. They also help us stay in touch with family and friends. We just need to use them wisely.

Moderator (Conclusion): Thank you all for your valuable insights. From today's discussion, we see that mobile phones can be both beneficial and harmful, depending on how they are used. Responsible use, clear guidelines, and awareness can help us make the best of this technology while avoiding its drawbacks. Thank you for being part of this meaningful discussion!



Let us write

I. Your school recently hosted the Zonal Science Exhibition, in which teams of students from 25 schools participated enthusiastically. As the student editor, write a report on the exhibition to be published in your school magazine. Use the cues given below with your own ideas to compose this report.

- Who was the organiser and who hosted the exhibition?
- When (date and time) and where was it held?
- Why was it held?
- Who participated?
- Who was the Chief Guest?
- What were the competitions held? For example: Science Quiz, Science Models, etc.
- What were the topics of models exhibited? Give details.
- Which team got the trophy for best exhibit?
- What were the observations of the Chief Guest and other visitors?

Points to remember:

1. Write the report in past tense, passive voice, and third person.
2. Follow proper format with a headline, reporter's name, and three paragraphs.

Answer: Young Innovators Shine at the Zonal Science Exhibition By: Aarav Mehta, Student Editor The Zonal Science Exhibition 2025 was successfully hosted by Green Valley Public School on 10th August 2025 in the school auditorium. The event was organised under the guidance of the Science Department in collaboration with the District Education Office. The purpose of the exhibition was to promote scientific curiosity, creativity, and innovation among school students. Participation and Events A total of 25 schools from across the zone participated with great enthusiasm. The Chief Guest, Dr. Anjali Rao, a renowned scientist from the Indian Institute of Science, inaugurated the event. The exhibition featured various competitions such as the Science Quiz, Model Display, and Poster Making Contest.

Students presented models on topics like Renewable Energy, Space Technology, Water Conservation, and Artificial Intelligence. Among all entries, the model titled "Smart Irrigation System" by Springdale Public School won the Best Exhibit Trophy for its innovation and practical application.

Observations and Conclusion The Chief Guest appreciated the creativity and scientific temperament displayed by the students. Visitors were impressed by the depth of research and presentation skills. The event successfully created awareness about science and

motivated students to explore and innovate. The exhibition concluded with a vote of thanks by the school Principal and the distribution of certificates and mementos.



Let us explore (Pages 247-248)

I. In the recent times, Augmented Reality and Virtual Reality are changing the way students learn. Let us know more about them.

- Augmented reality (AR) enhances a person's environment by adding digital elements to what can be seen in real time, usually through a smartphone camera.
 - Virtual reality (VR) offers a fully immersive experience, replacing the real world with a simulated one.
 - Through AR and VR, the students can see and interact with things that they could not interact with in real life. This enables younger students to understand difficult ideas easily.
 - To keep up with the times, NCERT has developed the e-Pathshala AR (Augmented Reality) App under the aegis of MHRD, Government of India.
 - This App aims to enable students to go beyond textbooks and four walls of the classrooms and learn concepts by directly experimenting rather than only through reading and memorisation.
 - This revolutionary effort will change most students from passive listeners to active learners.
 - This effort is in line with the Prime Minister's Digital India vision to empower varied sectors using technology and addressing the triple need of skill, scale, and speed.
- Gear up for the new age education!

<https://ciet.ncert.gov.in/ar-vr>

II. The Government of India has come out with a new set of National Awards in the field of Science, Technology, and Innovation known as 'Rashtriya Vigyan Puraskar'.

The objective of the Rashtriya Vigyan Puraskar (RVP) is to recognise the notable and inspiring contribution made by the scientists, technologists, and innovators individually or in teams in various fields of science, technology, and technology-led innovation.

1. Vigyan Ratna (VR) award will recognise lifetime achievements and contributions made in any field of science and technology.
2. Vigyan Shri (VS) award will recognise distinguished contributions in any field of science and technology.
3. Vigyan Yuva-Shanti Swarup Bhatnagar (VY-SSB) award will recognise and encourage young scientists up to the age of 45 years, who have made an exceptional contribution in any field of science and technology.
4. Vigyan Team (VT) award to be given to a team comprising three or more scientists/researchers/innovators, who have made an exceptional contribution working in a team in any field of science and technology.



III. A glimpse of women pioneers from different fields.

