T8QB2

From Zero to Infinity

Biography of Srinivasa Ramanujan

Warm up

Solve this

	2	4	
1			3
4			2
	1	3	

- Did you enjoy solving this?
- Was it easy or hard to solve?
- Do you like Mathematics? Give reasons.

The arithmetic class was in progress. The teacher was solving questions on division. On the blackboard were drawn three bananas.

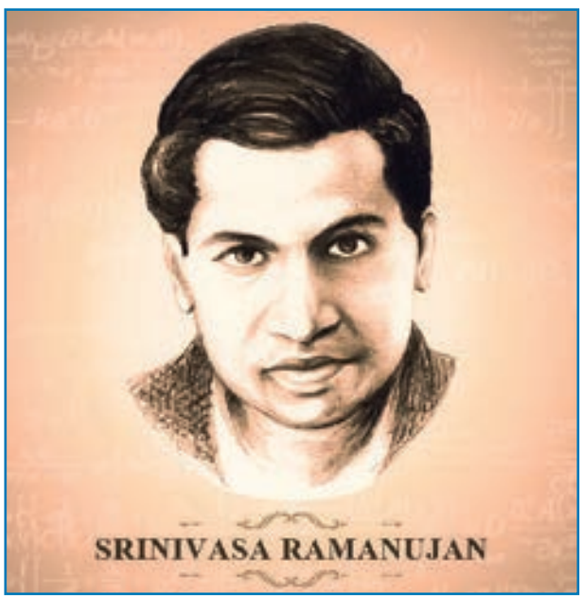
"We have three bananas," the teacher said, "and we have three boys. Can you tell me how many each will get?"

A smart boy in the front row replied, "Each will get one."

"Right," the teacher said. "Now, similarly, if 1,000 bananas are distributed among 1,000 boys, each will get one, isn't that so?"

While the teacher was explaining, a boy sitting in one corner raised his hand and stood up. The teacher stopped and waited for the boy to speak.

"Sir," the boy asked, "If no banana is distributed among no one, will everyone still get one banana?" There was a roar of laughter in the class. What a silly question to ask!



"Quiet!" the teacher said loudly and thumped the desk. "There's nothing to laugh at. I will just explain what he means to say. For the division of bananas, we divided three by three, saying that each boy will get one banana. Similarly, we divided 1,000 by 1,000 to get one. What he is asking is that if zero banana is divided among zero, will each one get one? The answer is 'no'. Mathematically, each will get an infinite number of bananas!"

Everyone laughed again. The boys understood the trick, arithmetic had played upon them. What they could not understand was why the teacher later complimented the boy who had asked that absurd question.

The boy had asked a question that had taken mathematicians several centuries to answer. Some mathematicians claimed that zero divided by zero was zero. Others claimed it to be unity. It was the Indian mathematician Bhaskara who proved that it is infinity. The boy who asked the intriguing question was Srinivasa Ramanujan. Throughout his life, whether in his native Kumbakonam or Cambridge, he was always ahead of his mathematics teachers.

- What was the reaction of the classmates to Ramanujan's question?
- What did the Indian mathematician Bhaskara prove?

Ramanujan was born in Erode in Tamil Nadu on December 22, 1887. His father was a petty clerk in a cloth shop. From early childhood it was evident that he was a prodigy. Senior students used to go to his dingy house to get their difficulties in mathematics solved. At the age of 13, Ramanujan was lent a book on advanced trigonometry written by S.L. Loney. Not only did he master this rather difficult book but also began his own research. He came forth with many mathematical theorems and formulae not given in the book, though they had been discovered much earlier by great mathematicians.

The most significant turn came two years later when one of his senior friends showed him the book *A Synopsis of Elementary Results in Pure Applied Mathematics,* a collection of 4,865 formulas and theorems without proof by G.S. Carr. For a boy of 16 the title itself must be frightening, but Ramanujan was delighted. He took the book home and began to work on the problems given in it. This book triggered the mathematical genius in him.

Mathematical ideas began to come in such a flood to his mind that he was not able to write all of them down. He used to do problems on loose sheets of paper or on a slate and jot the results down in notebooks. Before he went abroad he had filled three notebooks, which later became famous as Ramanujan's *Frayed Notebooks.*

- Where did Ramanujan get S.L. Loney's book on Trigonometry?
- Where did Ramanujan do his mathematical problems?

Although Ramanujan secured a first class in Mathematics in the matriculation examination and was awarded the Subramanyan Scholarship, he failed twice in his first-year arts examination in college, as he neglected other subjects such as History, English and Physiology. This disappointed his father. When he found the boy always scribbling numbers and not doing much else, he thought Ramanujan had gone mad.

Ramanujan began to look for a job. He had to find money not only for food but for papers as well to do his calculations. He needed about 2,000 sheets of paper every month. Ramanujan started using

even scraps of paper he found lying on the streets. Sometimes he used a red pen to write over what was written in blue ink on the piece of paper he had picked up.

Unkempt and uncouth, he would visit offices, showing everyone his frayed notebooks and telling them that he knew mathematics and could do a clerical job. But no one could understand what was written in the notebooks and his applications for jobs were turned down.

Luckily for him, he at last found someone who was impressed by his notebooks. He was the Director of Madras Port Trust, Francis Spring, and he gave Ramanujan a clerical job on a monthly salary of ₹25. Later some teachers and educationists interested in Mathematics initiated a move to provide Ramanujan with a research fellowship. On May 1, 1913, the University of Madras granted him a fellowship of ₹75 a month, though he had no qualifying degree.

- What were the subjects neglected by Ramanujan in college?
- Which University granted him a fellowship of ₹75 a month?

A few months earlier, Ramanujan had sent a letter to the great mathematician G. H. Hardy, of Cambridge University, in which he set out 120 theorems and formulae. Among them was what is known as the *Reimann Series,* a topic in the definite integral of Calculus. But Ramanujan was ignorant of the work of the German mathematician, George F. Riemann, who had earlier arrived at the series, a rare achievement. Also included was Ramanujan's conjecture about the kind of equations called "modular". Pierre Deligne subsequently proved this conjecture to be correct.

It did not take long for Hardy and his colleague, J.E. Littlewood, to realise that they had discovered a rare mathematical genius. They made arrangements for Ramanujan's passage and stay at Cambridge University. On March 17, 1914, he sailed for Britain.

- What did Ramanujan send to G.H. Hardy?
- Who discovered a rare mathematical genius in Ramanujan?

Ramanujan found himself a stranger at Cambridge. The cold was hard to bear and being a vegetarian, he had to cook his own food. However, he continued his research in Mathematics with determination. In the company of Hardy and Littlewood, he could forget much of the hardship he had to endure.

In Ramanujan, Hardy found an unsystematic mathematician, similar to one who knows the Pythagorus theorem but does not know what a congruent triangle means. Several discrepancies in his research could be attributed to his lack of formal education. Ramanujan played with numbers, as a child would with a toy. It was sheer genius that led him to mathematical "truths". The task of proving them, so important in Science, he left to lesser mortals.

Ramanujan was elected, Fellow of the Royal Society on February 28, 1918. He was the youngest Indian to receive this distinguished fellowship. In October that year he became the first Indian to be elected Fellow of Trinity College, Cambridge. His achievements at Cambridge include the Hardy-Ramanujan-Littlewood circle method in number theory, Roger-Ramanujan's identities in partition of integers, a long list of the highest composite numbers, besides work on the number theory and the algebra of inequalities. In algebra his work on continued fractions is considered to be equal in importance to that of great mathematicians like Leonard Euler and Jacobi.

While Ramanujan continued his research work, Tuberculosis, then an incurable disease, was devouring him. Ramanujan was sent back to India and when he disembarked, his friends found him pale, exhausted and emaciated. To forget the agonising pain, he continued to play with numbers even on his death bed.

Besides being a mathematician, Ramanujan was an astrologer of repute and a good speaker. He used to give lectures on subjects like "God, Zero and Infinity".

Glossary

6S1JV

absurd (adj.) - stupid and unreasonable, silly in a humorous way

infinity (n) - unlimited space, time, amount, a number large beyond any limit

intriguing (adj.) - very interesting because of being unusual or mysterious

prodigy (n) - a child who shows a great ability at a young age

dingy (adj.) - a dark and dirty place

Physiology (n) - the branch of biology that deal with the normal functions of living organisms and their parts

unkempt (adj.) - not neat or cared for

uncouth (adj.) - behaving in an unpleasant way

conjecture (n) - an opinion or conclusion formed on the basis of incomplete information.

discrepancy (n) - an illogical or surprising lack of compatibility or similarity between two or more facts

distinguished (adj.) - used to describe a person, respected and admired for excellence

devouring (adj.) - destructively consuming

disembark (v) - to leave a ship, aircraft, etc. after a journey

emaciated (adj.) - very thin and weak, usually because of illness or extreme hunger

agonising (adj.) - causing extreme physical or mental pain

A. Answer the following questions in a sentence or two.

1. Why did the students laugh at Ramanujan?
2. Why did the teacher compliment Ramanujan?
3. What did Ramanujan do after reading the book on Trigonometry?
4. What disappointed Ramanujan's father?
5. How did Ramanujan manage his paper crisis?
6. Why were Ramanujan's application for jobs rejected?
7. Why was Ramanujan sent back to India?

B. Answer the following questions in about 80 – 100 words.

1. Describe the life of Srinivasa Ramanujan in India.
2. Narrate the association of Ramanujan with G.H. Hardy.

C. Match the words with correct Synonym and Antonym from the table.

S.No	Word	Synonym	Antonym
1	distribute	boundless	trivial
2	infinite	commence	sorrow
3	significant	joy	collect
4	delight	guess	clean
5	unkempt	circulate	conclude
6	initiate	messy	fact
7	conjecture	important	measurable

*LISTENING

D. *Listen to the anecdote "Two Geniuses" and narrate it in your own words.

SPEAKING

E. Divide the students into groups of five and conduct a group discussion on the topic "Importance of Mathematics in Our Everyday Life". The teacher will act as a moderator .

READING

Automated Teller Machine (ATM) is an indispensable part of our lives now worldwide!

John Shepherd-Barron once explained that he came up with the idea of cash dispensers in

*Listening text is on Page - 212

1965 while lying in his bath after finding his bank closed. It was then his habit to withdraw money on a Saturday, but on this particular weekend he had arrived one minute late and found the bank doors locked against him.

Later that year, he bumped into the Chief General Manager of Barclays Bank who was about to have lunch. Shepherd-Barron asked him for 90 seconds to pitch his idea for a cash machine.

"I told him I had an idea that if you put your standard Barclays cheque through a slot in the side of the bank, it will deliver standard amounts of money around the clock."

"He said, 'Come and see me on Monday morning'."

Barclays commissioned Shepherd-Barron to build six cash dispensers, the first of which was installed at a branch in the north London suburb of Enfield on June 27, 1967. The first person to withdraw cash was actor Reg Varney, a celebrity resident of Enfield known for his part in a number of popular television series. An early deployment of this device outside of the UK took place in Zurich in November, 1967.

Shepherd-Barron was born at Shillong, India in 1925 to British parents and later served in the Indian Army in Second Airborne division where he taught Gurkhas to parachute.He also invented the PIN by recalling his Indian Army number, he had originally intended to make Personal Identification Number (PIN) six digit long, but reduced the number to four when his wife, Caroline, complained that six was too many. "Over the kitchen table, she said she could only remember four figures, so because of her, four figures became the world standard," he recalled.

All this was possible due to a mathematical prodigy by the name of Srinivasa Ramanujan — A mathematical genius of India. When you put your debit or credit card in the machine and order the machine to dispense the amount of your desire, the machine divides and arranges your money before dispensing it, using Ramanujan's 'Partition Theory'.

F. Answer the following questions based on the given passage.

1. What made John Shepherd-Barron to come up with the idea of ATM?
2. When and where was the first ATM installed?
3. Who was the first person to withdraw cash from the ATM?
4. Why did Shepherd-Barron reduce the PIN number from six digits to four?
5. Which theory of Ramanujan helps the ATMs to dispense cash?

WRITING

Paragraph Writing

A paragraph discusses one idea in detail and aids the development of an overall topic for the essay. Paragraph length will vary depending on the purpose of the paragraph.

Parts of a Paragraph

The basic paragraph consists of three parts:

1. A Topic sentence, 2. Supporting details, 3. A Concluding sentence

Topic Sentence

The main idea of each paragraph is stated in a topic sentence. Generally, the topic sentence is the first sentence of a paragraph. All subsequent points made in the paragraphs should support the topic sentence.

Supporting Details

Supporting details elaborate upon and prove the topic sentence. Supporting details should be drawn from a variety of sources. The following are common sources of supporting details:

- ✓ Expert Opinion
- ✓ Brief Stories
- ✓ Facts and Statistics
- ✓ Research Studies
- ✓ Personal Experiences
- ✓ Interviews

Concluding Sentence

Each paragraph should end with a concluding sentence that ties together the ideas brought up in the paragraph and emphasizes the main idea one last time.

A model paragraph is given below:

An Unconventional Pianist

Glenn Gould is widely regarded as Canada's most famous and eccentric pianist. He is renowned for his recordings of the music of Johann Sebastian Bach. For example, Bach's Goldberg Variations, Gould's first recording, was among the best-selling classical music albums of its time. Gould is also famous for his unusual behaviour. He would only play concerts while sitting on an old chair his father had made, and he usually hummed while he played. Contrary to most pianists, he disliked playing in concert halls, and devoted most of his career to the recording studio until his death in 1982. In brief, Glenn Gould was an unconventional pianist who made a significant impact on the world of music.

Topic Sentence | Supporting Detail #1 | Supporting Detail #2 | Concluding Sentence

G. 1. Write a paragraph of 100 – 120 words about a memorable anecdote/incident of your life.

2. Write a paragraph of 100 – 120 words about your favourite personality.

Grammar

Connectors

- We could go to the library **or** the park.
- He **neither** finished his homework **nor** studied for the test.
- I did not go out **because** the weather was hot.

In each of the above sentences, two different ideas are expressed in one sentence. To connect the ideas, some words like *or, neither...nor, because* are used. These words and phrases are called **Connectors.**

A connector may be used to indicate the relationship between the ideas expressed in a clause or a sentence.

The following connectors can be used for different purposes.

Look at the following sentences, how connectors are used.

Adding	Sequencing	Illustrating	Cause and Effect
and also as well as moreover too furthermore additionally	first, second, third finally next meanwhile after then subsequently	for example such as for instance in the case of as revealed by illustrated by	because so therefore thus consequently hence
Comparing	**Qualifying**	**Contrasting**	**Emphasising**
similarly likewise as with like equally in the same way	but however although unless except apart from as long as if	whereas instead of alternatively otherwise unlike on the other hand conversely	above all in particular especially significantly indeed notably

- The man has much money. **However**, he isn't happy at all.
- I like playing football. **On the other hand**, my brother likes playing basketball.
- His family made a lot of effort to make their son's lessons better, **conversely**, he never made any effort.
- She spent four years studying for her law degree. **Meanwhile**, she continued to work at the bank.
- You are not allowed to use your phone here. **Similarly**, you have to switch it off when you are in the library.

A. Complete the following sentences using appropriate Connectors from the box.

moreover	although	meanwhile	therefore	because
as long as	thus	above all	for instance	except

1. Irine felt cold _____ she was wearing a winter coat.
2. This restaurant has some of the best chefs in the town. _____ their service is excellent.
3. I'm not going to the party tonight _____ I didn't get an invitation.
4. You can set the table. _____, I'll start making dinner.
5. I can play quite a few instruments._____, the flute, the guitar and the piano.
6. The store was out of chocolate chips; _____ they would need to make a different type of cookies.
7. The stores are open daily _____ Sundays.
8. I'll stay _____ you need me.
9. This detergent is highly concentrated and _____ you will need to dilute it.
10. It was the thing he prized _____.

Active Voice and Passive Voice

Read the following sentences and analyse the difference.

The team leader presented the report.
The report was presented by the team leader.

- In the first sentence, the verb shows that the subject is the doer of the action. Therefore, the sentence is in *active voice*.
- In the second sentence, the verb shows that the subject is not the doer of the action. Therefore, the sentence is in *passive voice*.

We use the Passive voice when -

- the focus is on the action rather than the doer of the action.
  (e.g.) About 50 per cent of the graduates **are employed** in IT related sectors.
- we do not know who the doer is.
  (e.g.) My bike **was stolen** yesterday.
- we talk of a system or a process.
  (e.g.) The vegetables **are washed** well. Then, they **are cut** into cubes.
- we write newspaper headlines and notices at public places. ('be' verb is omitted as the language has to be concise)
  (e.g.) 20 sportsmen **felicitated** by PM.
- we describe changes that have taken place.
  (e.g.) Our school looks completely different. The whole place **has been** painted.

Look at the below table. It shows the changes in tense while changing sentences from active voice into passive voice.

Tense	Active Voice	Passive Voice
Simple Present	He makes coffee.	Coffee is made by him.
Present Continuous	He is making coffee.	Coffee is being made by him.
Present Perfect	He has made coffee.	Coffee has been made by him.
Simple Past	He made coffee.	Coffee was made by him.
Past Continuous	He was making coffee.	Coffee was being made by him.
Past Perfect	He had made coffee.	Coffee had been made by him.
Simple Future	He will make coffee.	Coffee will be made by him.
Future Perfect	He will have made coffee.	Coffee will have been made by him.

B. Convert the following active sentences into passive sentences by supplying an appropriate passive verb form.

1. She will not recognize us. / We _____ by her.
   a. will not recognize b. will not being recognized c. will not be recognized

2. They didn't invite me, but I went anyway. / I _____ but I went anyway.
   a. wasn't invited b. wasn't being invited c. wasn't inviting

3. They broke up the table for firewood. / The table _____ up for firewood.
   a. broke b. had broken c. was broken

4. She has won the first prize. / The first prize _____ by her.
   a. has won b. has been won c. had been won

5. A friend of mine is repairing the car. / The car _____ by a friend of mine.
   a. is repairing b. is repaired c. is being repaired

6. Begin the work tomorrow. / Let the work _____ tomorrow.
   a. be begun b. begin c. is beginning

7. They speak English in New Zealand. / English _____ in New Zealand.
   a. is speaking b. is spoken c. is being spoken

8. His attitude shocked me. / I _____ by his attitude.
   a. had shocked b. had been shocked c. was shocked

9. She had already sent the parcel. / The parcel _____ by her.
   a. has already been sent b. had already been sent c. was already sent

10. Her silence worries me. / I _____ her silence.
    a. am worrying by b. am worried by c. have worried by

C. Match the following Active voice sentences with Passive voice

	Active Voice	Passive Voice
1.	I will never forget this experience	A novel has been written by her.
2.	Mother made a cake yesterday.	The deer was being chased by the tiger.
3.	Have you finished the report?	A cake was made by mother yesterday.
4.	The tiger was chasing the deer.	Has the report been finished by you?
5.	She has written a novel.	This experience will never be forgotten by me.

Imperatives in Passive

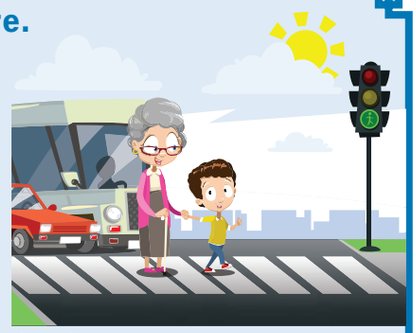
Let + object + be + past participle. (Positive)

(e.g.) Open the window. *(Active)*
Let the window be opened. *(Passive)*

Let + object + not + be + past participle. (Negative)

(e.g.) Do not pluck the flowers. *(Active)*
Let the flowers not be plucked. *(Passive)*

Look at these imperatives in passive and compare.



Active: Help me.

Passive: You are requested to help me.

Active: Don't touch it.

Passive: You are warned not to touch it.

(**Note:** *We can begin the passive sentence with **you** if we want to put emphasis on the person addressed to.)*

D. Change the following into passive voice.

1. Stanley will inform you later.
2. People speak Portuguese in Brazil.
3. My grandfather built this house in 1943.
4. Do not hurt the animals.
5. You must not drop litter in the streets.
6. Carry it home.
7. They are decorating the wall.
8. He has already mended the TV set.

Project

E. Make a scrapbook of '*Famous Biographies*' by collecting at least five biographies of famous scientists, mathematicians, inventors, artists etc., of your choice. You may also collect the pictures related to their achievements, inventions etc.

Marie Curie

Jonas Salk

M.S. Subbalakshmi

Stephen Hawking

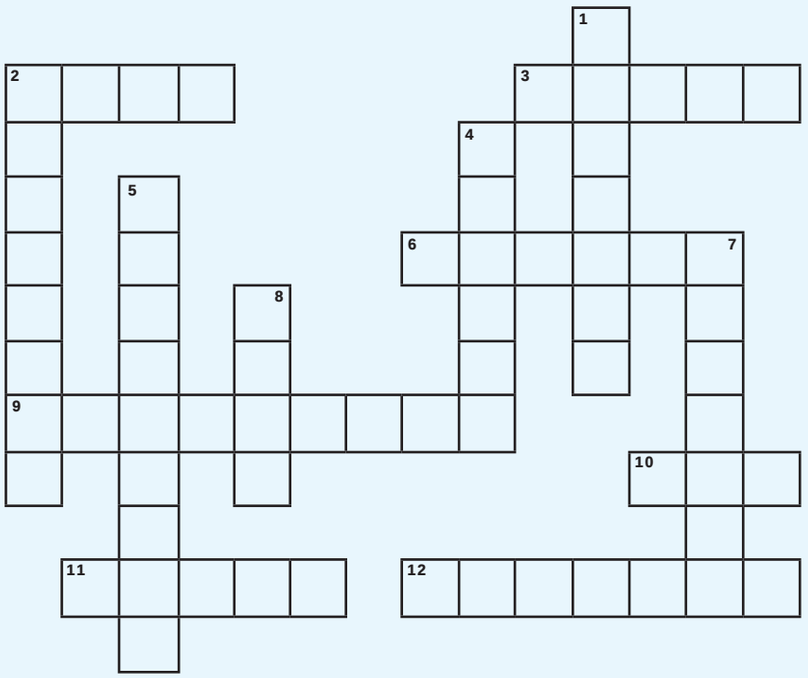
Unit 6 Poem

*The Comet

Norman Littleford

Warm up

Fill in the crossword puzzle using the clues given below.

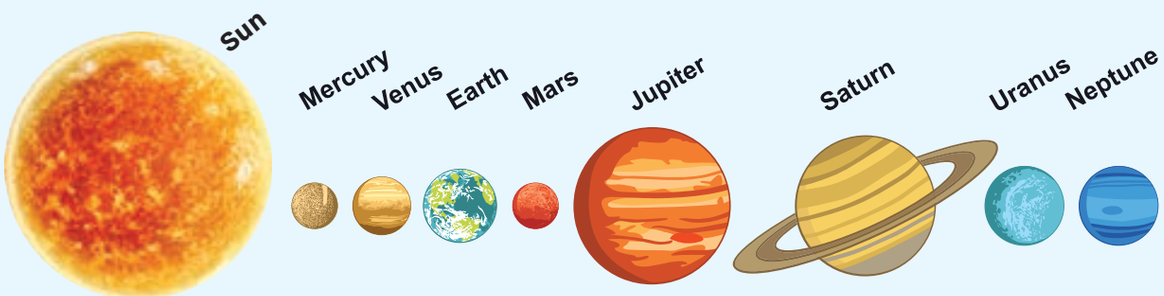


ACROSS

2. Earth's only natural satellite
3. Morning star
6. Titan is the largest moon of ____
9. Smaller bodies in orbit around the Sun
10. The star at the centre of solar system
11. The Blue planet
12. Largest planet in the solar system

DOWN

1. Smallest planet in the Solar system
2. Our Galaxy
4. Seventh planet from the sun
5. Distance travelled by light in a vacuum in one tropical year
7. Farthest planet in the Solar system
8. The Red planet



Rampaging through the heavens
Never stopping day or night,
A spectacle of a lifetime
A comet in full flight.

Faster than a cheetah
With a tail that's miles long,
Bigger than a mountain
So powerful and strong.

The outer ice is melting
Causing vapor from the force,
And leaves a trail behind it
As it travels on its course.

If one should come too close to earth
The atmosphere will shake,
With shockwave reaching to the ground
Causing the land to quake.

Scientists say the chemicals
In the dust they leave behind,
Could have started life on the earth
Which resulted in mankind.

I cannot say if this is true
I do not have the right,
But I know no better spectacle
Than a comet in full flight.

About the Author

Norman Littleford (18 May 1889 - 20 May 1947) was an American poet, born in Maryland, USA. Most of his works focused on life and nature. His poems are simple but deep in thought and provoke the readers to absorb the ideas beyond the usual.

Glossary

B65KR

rampaging (v) - going through an area making a lot of noise and causing damage

spectacle (n) - an unusual or unexpected event or situation that attracts attention, interest

comet (n) - an icy small Solar body, which when passing close to the Sun, warms and begins to release gases that are seen on rare occasions from the earth as a bright line in the sky

trail (n) - a path often made or used for a particular purpose

quake (v) - a sudden violent movement of the earth's surface, some times causing great damage (short form of earthquake).

A. *Memorise the first three stanzas of the poem.

0KQ4O

B. Read the following lines and answer the questions.

1. *Rampaging through the heavens*
   Never stopping day or night,
   a. How does the comet travel?
   b. Which word could you replace 'rampaging' with?
      a. charging b. rolling c. speeding d. flying

2. *Faster than a cheetah*
   With a tail that's miles long,
   a. Why is the comet compared to a cheetah?
   b. Whose tail is compared here?

3. *With shockwave reaching to the ground*
   Causing the land to quake
   a. What is reaching to the ground?
   b. What is causing the land to quake?

4. *In the dust they leave behind,*
   Could have started life on the earth
   Which resulted in mankind

   a. What does the word 'they' refer to?
   b. According to scientists, how did life start on earth?

5. *But I know no better spectacle*
   Than a comet in full flight.

   a. Who does 'I' refer to?
   b. What is the best spectacle mentioned in the above lines?

C. Complete the summary by filling in the given spaces with suitable words/ phrases given below

a trail	spectacular	spectacular scene	outer ice	a cheetah
day or night	emerging of life	powerful and strong	shock wave	scientists

The poet describes a moving comet which speeds through the heavens and never takes a break by _____. When a comet is in full flight, it gives a _____ which can never be compared to anything else for a lifetime. The comet is compared to _____ for its speed and a mountain as it is _____. The _____ melts which causes a vapour from the force and leaves behind _____ as it travels on its way. If it comes very close to the atmosphere, it causes a shake which in turn produces a _____ that reach the Earth's surface. According to the _____ the comets leave behind chemicals in the form of dust which resulted in the _____ on earth and mankind came into existence. But the poet is not sure whether this principle is true or not but he knows for sure that whatever the truth may be, the sight of the comet in full flight is _____.

D. Poem appreciation

If one should come too close to earth
The atmosphere will shake,
With shock wave reaching to the ground
Causing the land to quake.

1. Pick out the rhyming words.
2. Mention the rhyme scheme of the stanza.
3. When you read the poem aloud, you can feel/hear a rhythm. What according to you gives rhythm to the poem- the rhyme or the words in a line? Support your answer with examples from the poem.

E. Answer the following questions in about 80-100 words.

1. Narrate how the poet describes the comet.
2. Give a detailed account of the various effects caused by the comet to the earth.

*LISTENING

F. *Listen to the passage on 'Comet' and fill in the blanks by choosing the correct answer.

1. Comets are believed to be remnants of the materials created by the _____.
   a. Moon b. Sun c. star d. asteroids

2. Comets are mostly made of _____.
   a. dust b. ice c. sand d. snow

3. The _____ can be seen in the night sky as a bright, quickly-moving light.
   a. head b. star c. tail d. wings

4. Comets orbit at the very edge of the galaxy, past the _____.
   a. Earth b. Neptune c. Pluto d. Saturn

5. **State whether the statement is true or false.**
   The melting process causes bits of dust and debris to trail behind the comet.

SPEAKING

G. Imagine you are interviewing an astronaut about his/her experiences in space. Select a partner to be an astronaut and present the interview as a role-play in front of the class.

WRITING

H. Imagine that you and your friend get a chance to visit another planet. There, you befriend an alien who takes you around the planet. After reaching the earth, write a letter thanking him for all the help he did.

*Listening text is on Page - 213

Read and Enjoy

The Star

Jane Taylor

Twinkle, twinkle, little star,
How I wonder what you are!
Up above the world so high,
Like a diamond in the sky.
Twinkle, twinkle, little star,
How I wonder what you are!

When the blazing sun is gone,
When he nothing shines upon,
Then you show your little light,
Twinkle, twinkle, all the night.
Twinkle, twinkle, little star,
How I wonder what you are!

Then the traveller in the dark,
Thanks you for your tiny spark,
He could not see which way to go,
If you did not twinkle so.
Twinkle, twinkle, little star,
How I wonder what you are!

In the dark blue sky you keep,
And often through my curtains peep,
For you never shut your eye,
Till the sun is in the sky.
Twinkle, twinkle, little star,
How I wonder what you are!

As your bright and tiny spark,
Lights the traveller in the dark,
Though I know not what you are,
Twinkle, twinkle, little star.
Twinkle, twinkle, little star,
How I wonder what you are!

Mother's Voice

Vasil Berezhnoy

E1PCA

Warm up

If you are given an opportunity to go on a one-way trip to Mars, will you accept it? Discuss.

Read the story about the spirit of discovery that prompts a young astronaut to go looking for another world.

When she came to the Moon she looked around and admired the moonscape: 'I never realized it was such a beautiful place'.

He took her along the endless tunnels of Selenopolis, showing her the tall structures, which propped up the star-studded sky.

'It's so easy to walk here, son!'

His mother had still a young, ringing voice: perhaps because she had been such a great singer! So long as he could remember her, she had always liked singing. On holidays, when they had guests, she sang cheerily and enthusiastically, but on weekdays, as she went about the chores, her singing was muted and a little sad. She even talked in a singsong manner. Now, too, there was something unusual in her voice – perhaps she was excited because it was her first visit to the Moon! As he listened to her familiar voice that was so dear to him, he wondered why it had this ringing sound.

'Back home the orchards are in bloom.There will be a lot of fruit this year, if only the frosts don't strike. Will you come for a holiday in the summer?'

He almost told her about the expedition. The words were on the tip of his tongue, but he checked himself. Why make her worry? Worry. That was it. There was worry in her voice. The words were cheerful but the voice was worried. Had she guessed that this was their parting!

‘It’s easy to walk here,’ he said, ‘but the distances are long. Selenopolis occupies more than a hundred square kilometres. Let’s ride for a bit’.

A moving pavement covered with green plastic strips rushed them through echoing tunnels and spacious caves with walls sparkling in the light of the quartz lamps. The elevator delivered them to the surface. She looked in silence at the enormous lily-shaped tent over a crater that was at least a kilometre in diameter.

‘The community of Nations Square,’ he told her. ‘People of different nationalities who work in Selenopolis come here after work. And there are some tourists. They’re walking towards the lake. It’s quite an exotic experience to have a swim on the Moon.’

‘I’m sure it’s better in the river Dnieper when you come to the Earth for your holiday.’

When they looked at the astrodrome, where two spaceships the size of the Ostankino TV tower were pointed into the black void of the universe, she sighed again.

‘What are these?’

‘Long–range spaceships, Mother. They’re planning an expedition to a neighbouring galaxy.’

She screwed up her eyes to look at the rockets where assembly men were busy. They looked quite small from a distance.

She said quietly: ‘Why should people go off into the unknown? Why ask for trouble?’

‘These are very reliable spaceships, Mother!’

‘Wouldn’t it make more sense to settle properly on the Moon first, and then on the planets in the solar system, before going further?’

It was now his turn to sigh. ‘You may be right, but...’

‘But what?’

‘How do I know?’

He longed to tell her about the flight he was longing for and about how nervous he had been when confronted by the selection commission. But he checked himself. It was their last meeting before his departure, so why spoil it?

Mothers were all the same, and she was sure to get upset.

He felt good listening to her. It didn't matter what she was talking about, he just wanted to hear the voice that was so dear to him.

'Do you know why people settle down on the Moon so easily?' she was philosophizing. 'It's because they are in the gravitation field of their native Earth, under their native Sun. It's the space allotted to us by nature. But if you leave your Sun…anything might happen…'

He listened and listened as if drinking water from a spring on the Earth, in the shade of trees. His mother, looking in the direction of the vast blue globe, lowered her voice and continued:

'Look, son, isn't it a miracle? The Earth floats through space, all by itself.

See the snow-cap on the pole, and the glittering ocean! The cradle of life. And you want to leave this fabulous beauty!'

He suddenly saw everything with different eyes. He saw how beautiful his native planet was, a real wonder of nature.

He had never felt that way before. His heart ached.

'When will you take your holidays?'

'I don't know, Mother… That's why I asked you to come. I don't know when we'll see each other again'.

But he knew very well that there would be no holidays and that his mother was seeing him for the last time. The thought of such a tremendous journey was already sending a chill through his heart.

'At least try to come in the Autumn,' she pleaded, 'in time for the apples and pears… and the water-melons.'

'You think I don't want to walk barefoot on the dewy grass?'

'Of course, you'll walk on the dewy grass. And you could visit your relatives and friends'.

She shrank from the thought that her son might go off into space and be lost to his relatives forever.

'They've deepened our pond; it's full of fish now, You like fishing…'

'Operator on duty, …… report to office,' a voice bellowed from the loud-speaker.

He pushed a button and the screen went dark. His mother fell silent.

'Coming.'

He often plays back this recording and he feels as if he is walking again with his mother on the Moon, looking down at his native planet. Their group had gone off to another galaxy after all: they had left their native Sun, which was now just a 12th - magnitude star, visible through the telescope. And they couldn't see the Earth at all.

Why had they gone? Because they were young. And humanity is young.

Glossary

UEF39

chore (n) - a routine task, especially a household one

orchard (n) - a piece of enclosed land planted with fruit trees

expedition (n) - a journey undertaken by a group of people with a particular purpose, especially that of exploration, research, or war

quartz (n) - a hard, transparent mineral substance, used in making electronic equipment

exotic (adj.) - unusual and exciting

void (n) - a completely empty space

confronted (v) - to face, meet, or deal with a difficult situation or person

departure (n) - the action of leaving, especially to start a journey

pears (n) - a sweet, juicy, yellow or green fruit with a round base and slightly pointed top

galaxy (n) - one of the large, independent groups of stars in the universe

A. Choose the correct answer

1. Mother was excited because _____.
   a. her son would be home in the spring
   b. her son was coming back to earth
   c. it was her first visit to the moon
   d. her son was going to another galaxy

2. On weekdays, as Mother went about the chores_____.
   a. she constantly thought of her son
   b. she was always tired
   c. her singing would be soft and almost inaudible
   d. her singing was muted and a little sad

3. _____ occupies more than a hundred square kilometres on the moon.
   a. Selenopolis b. Metropolis
   c. Astrodrome d. Orchards

4. The Community of Nations Square is where people_____.
   a. live on the moon
   b. work on the moon
   c. walk on the moon
   d. of different nationalities come after work

5. They are planning an expedition to a neighbouring _____.
   a. galaxy b. country
   c. planet d. star

6. The mother was not able to understand why people wanted to leave the moon because _____.
   a. it was better to remain as a part of solar-system
   b. it was better to remain on the earth
   c. it was not possible to come back
   d. it was a place to enjoy life

B. Identify the character or speaker of the following lines.

1. It's so easy to walk here, son!
2. They're planning an expedition to a neighbouring galaxy.
3. Why should people go off into the unknown?
4. I don't know when we'll see each other again.
5. Operator on duty, ... report to office.

C. Answer the following question in about 100 – 120 words.

1. Write a paragraph listing all the sentimental and the scientific reasons given by the mother against the expedition to neighbouring galaxy.

D. Think and answer.

"The explorer in this story is travelling to another galaxy. The final destination is an unknown planet in another galaxy. The travel will take many years". What qualities and lifeskills do you think an explorer like him must possess? Why? Do you have any of these skills and qualities? Explain.

E. Based on the understanding of the story, discuss in groups and make a note of the following.

Setting

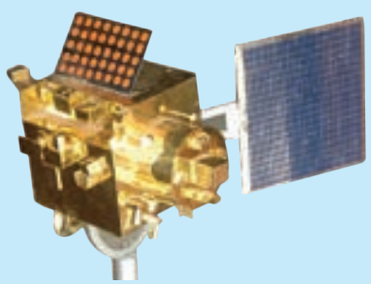
Plot

Characters

Conclusion

DO YOU KNOW?

- On October 2008, ISRO (*Indian Space Research Organization*) launched its first unmanned Lunar Space Probe *"Chandrayaan-1"*.
- India became the fourth nation to place its flag on the Moon and collected soils and detected water-ice on the Moon for the first time using Minerology mapper.

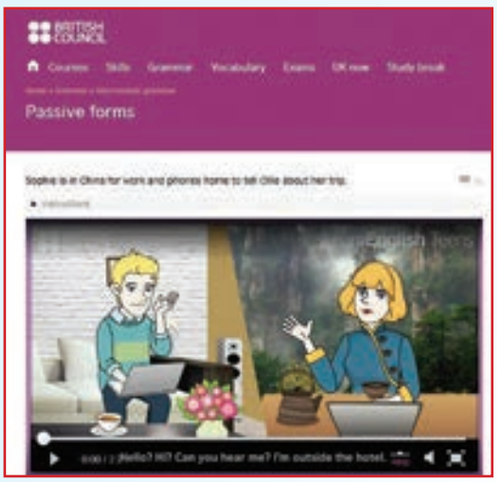


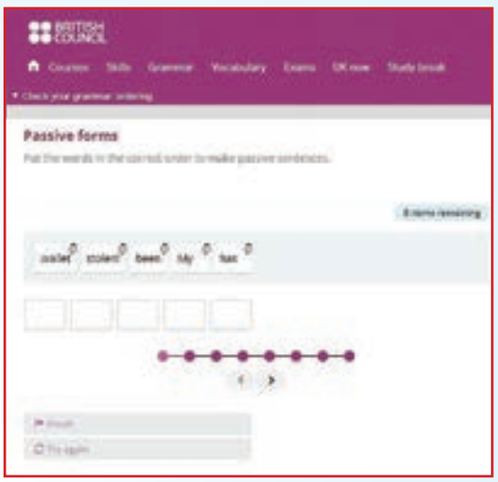
- On August 28, 2009 the mission ended as the probe stopped sending radio signals.

ICT CORNER

Passive Forms

This webpage from British Council helps the students to learn Passive forms with examples. Students can also try the online worksheets to improve their learning.





Steps

1. Type the URL link given below in the browser or scan the QR code.
2. Read the Instructions which are given above the video, then watch the video to know about the content.
3. After the video, read the explanation and examples for passive forms.
4. Click the “Check Your Grammar” tab to practice exercises like “True or False, Ordering and Gap Fill” on your own and check the answers online.
5. You can also download and use the resources offline which is given under “Worksheets and Downloads” tab.

Download Link

Type the following link in your browser or click or scan the QR code to download the application and install it.

http://learnenglishteens.britishcouncil.org/grammar/intermediate-grammar/passive-forms