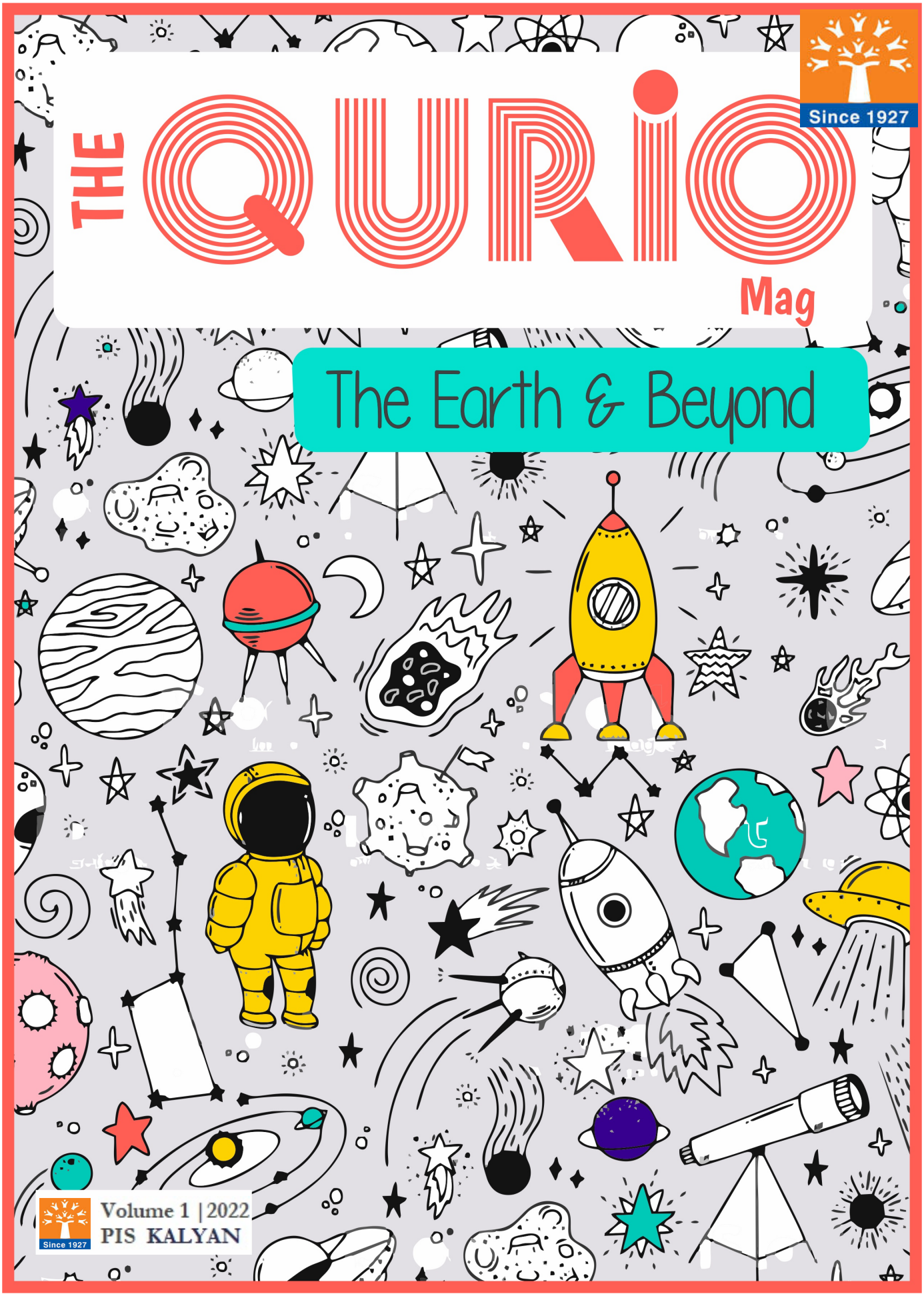
Since 1927

THE QURIO Mag

The Earth & Beyond



Volume 1 | 2022
PIS KALYAN

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FROM THE PRINCIPAL'S DESK

Dear Readers,

"Children are the future and the most valued treasure of a strong and prosperous nation."
Today's education system faces a greater challenge in terms of imparting the right knowledge and the apt experience that blends to create wonderful, young and successful students. Podar International School provides every treasured child a platform to move with a positive mind full of confidence so that they grow up to become a strict disciplinarian and take their country towards prosperity.
The world of the 21st century is changing at an accelerated scale. It is a challenge for educators to cope with the changing world order and prepare their students for the future.We, at Podar International School ICSE Kalyan are blissful to launch a school magazine "The Qurio Mag" an excellent tool which will surely help you to get a glimpse of the stories, articles, poems etc. I am sure the quality and variety of contents would not only be informative but also impressive and enjoyable which are very picturesquely designed by our students for all of you to cherish. The theme "The Earth and Beyond" will take you into a world created by our students to explore. In this pursuit, I appreciate our parent fraternity for supporting the school in every aspect. I also laud the relentless efforts of our teachers for giving their best in bringing out the best in each child. I would exhort the students to always be modest, humble and acclimatized, while being ready to expand the horizons of their knowledge and skills by dreaming big and working hard.
"Education is a shared commitment between dedicated teachers, motivated students and enthusiastic parents with high expectations".

Best Regards & Wishes
Sanjivani Bose
Principal

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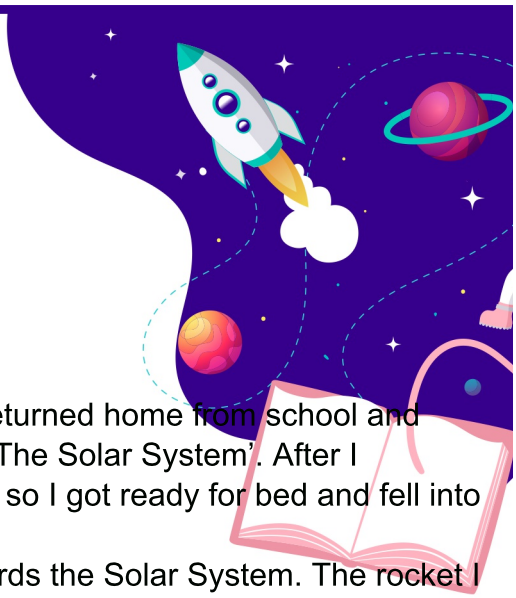
CHRONICLES OF SPACE



Visit to Space

About six months ago when I was in standard III, I returned home from school and began reading my Social Studies textbook, the chapter was ‘The Solar System’. After I completed my studies, I had my dinner and it was 11.00 p.m, so I got ready for bed and fell into a deep sleep.

I dreamt that I was in a rocket which was flying towards the Solar System. The rocket I was in was red and yellow in colour and it took off from a space station. After travelling for a long time, I reached the centre of the solar system. At the centre of the solar system, I saw the Sun. It looked like a burning ball of gas, after all, it was made of hydrogen and helium. Near the Sun, I saw all the eight planets rotating in their orbits.

After visiting the Sun, I visited the first planet which is Mercury. It is the smallest planet in the solar system. The colour of the planet Mercury is dark grey, and it does not have any satellites. I moved to the second planet, Venus. It is the brightest and hottest planet in the Solar System. It is also known as ‘Morning Star’ and ‘Evening Star’ because it can be seen a few hours before sunrise and sunset and it also does not have any satellites. Now, I came to the prettiest and happiest planet which is Earth. It has one satellite which is the Moon. The colour of the earth is blue, green, brown and white. The next planet is Mars. It is also known as the ‘Red Planet. It has only two satellites. The colour of planet Mars is also rusty red. Now it was Jupiter’s turn. It's the largest and heaviest planet. It is covered by red, white, brown and yellow colour clouds as it was covered with many clouds, therefore the colour of the planet is not clearly seen, it has sixty seven satellites. Next in line was Saturn, the second largest planet in the solar system. It has rings around it which are made up of ice, rocks and dust. It has sixty two satellites and is blue-green in colour. The next planet I visited was Uranus. It is the largest planet on record, it's also the only planet to rotate on its side. Uranus has twenty seven satellites, and the colour of this planet is bluish green. The last was Neptune. Neptune is the furthest planet from the Sun. Neptune is the smallest of the gas giants. It has thirteen satellites and the colour of the planet is blue.

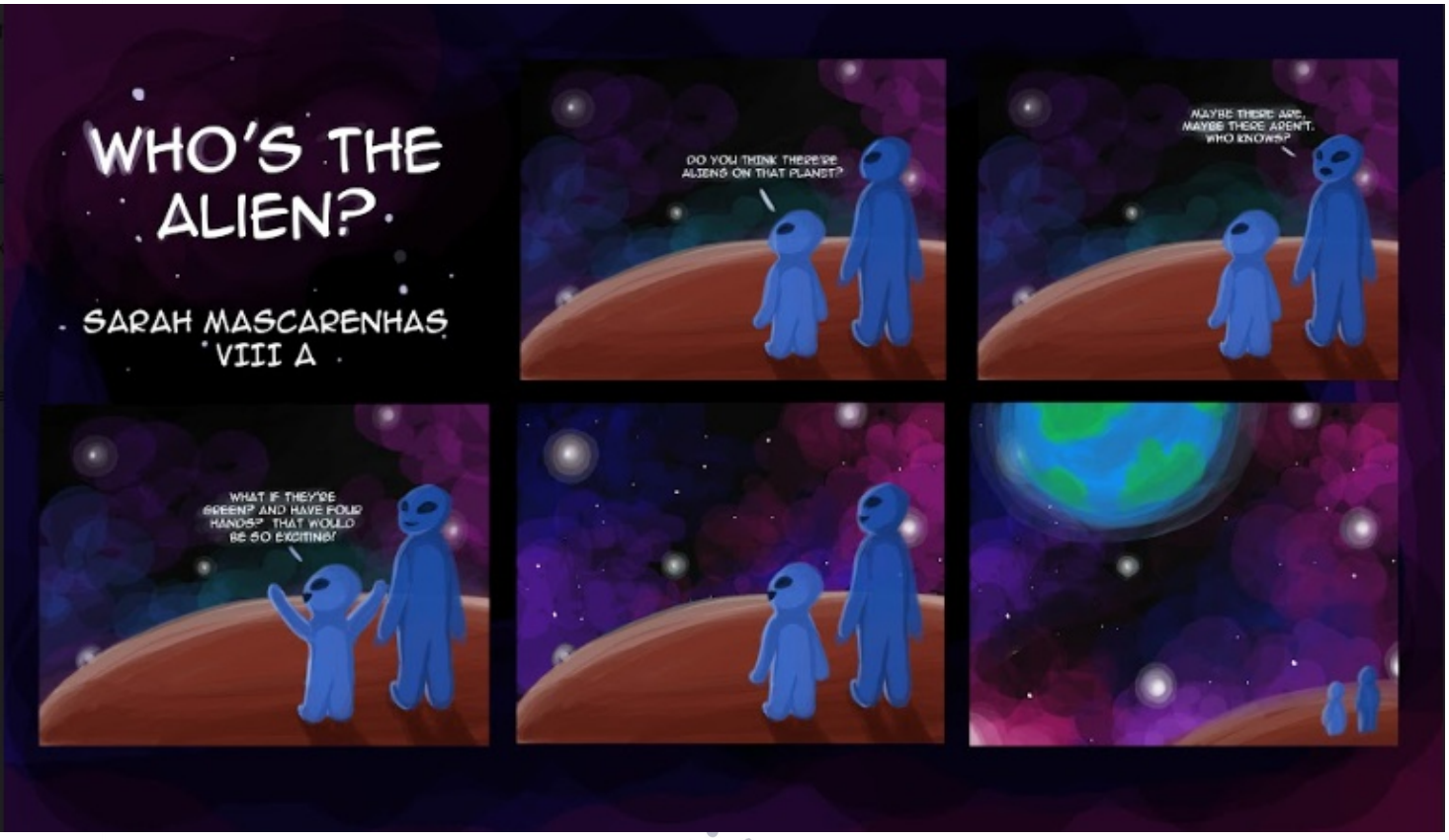
While going back, I went inside the Milky Way Galaxy which is also called Akash Ganga. When I entered, all the stars welcomed me with open arms and referred to me as ‘Fairy’. It was morning and I woke up and I realised that it was a dream and I narrated it to my parents.

By-Kaushani Kumar
Std./Div.-IV B

CHRONICLES OF SPACE

Comic Strip

Who's The Alien



By Sarah Mascarenhas
Std./Div.- VIII A

CHRONICLES OF SPACE

In 1992, Alex Wolszczan and his team discovered a deadly, red, giant star which they believed to have swallowed its whole solar system. This was a huge matter of concern for the whole scientist community as in the near future there was a possibility for the Sun to expand and turn into a red giant. Scientists from renowned agencies started working together to find out the life expectancy of the Sun to see the time left for the solar system before it gets swallowed by the Sun. After years of hard work, scientists figured out that the Sun is expected to expand into a red giant in about 5 billion years. Can you imagine that the Sun, the GOD star, will ever be responsible for our extinction? And if so, will there be any solution to escape from this deadly disaster? Let's peep into the future (About 5 billion years later) and see how scientists from top agencies came together and left no stone unturned to save Mother Earth and the whole living world from getting into the mouth of the red giant, Sun.

S.K. Shivakumar, the Senior Scientist from ISRO (Indian Space Research Agency); John M.
Debery, Joint Director of NASA (National Aeronautics and Space Administration) ; Yuri Chertok, Head of Research and Development from ROSCOSMOS(Russian Space Agency) - are on a mission to rescue Earth from getting extinct forever. The top agencies from the world have selected these three big minds and their team to work jointly and bring out a concrete and feasible solution for the deadly disaster knocking at the door. In a meeting held by the top three scientists, to discuss the problem and possible solutions, Shivakumar says, "The oceans and other water bodies have started evaporating at a higher speed. The glaciers are melting and the temperature is rising even in the winter season. This clearly indicates that the Sun is expanding at a higher rate". "with this speed the Sun would swallow Mercury, Venus and then finally Earth within three years.", John sighed. There was silence in the room and then Yury Chertok came forward and exclaimed, "I have a solution!". "What?" Both the scientists asked curiously. Yury replied, "As you guys know my father was also a scientist and he had been working on a project to build a planet from asteroids which will have lesser mass but a higher magnetic field than the earth itself. But, he could not complete the project as it was risky and nobody believed in him. But now we do not have any other choice except to take this risk and continue his project." Shivakumar curiously asked, "How will this help in saving Earth?". Yury answered, "With the help of the very high magnetic field of an artificial planet we can drag the Earth out of its orbit and hence move away from the Sun". "Oh! Now I understand why your father was working on such a risky project of creating an artificial planet." Shivakumar said. Yury said,"Yes, he was secretly working on this project as he sensed the danger coming. He had shared his project, ideas and work only with me before his death."

CHRONICLES OF SPACE

After listening to the conversation very attentively something struck John and he asked," This is a nice idea but how will we be able to move such a huge artificial planet because if it does not move then how will it drag Earth along with it?". Yury replied, "For that, we need a powerful spacecraft. As the mass of the artificial planet will be less, so the spacecraft can move the artificial planet easily and eventually Earth." "And how will we create such a powerful spacecraft?" John wondered. Shivakumar replied, "Well, that's not a problem! ISRO has already built such a powerful spacecraft that can easily move artificial planets using special technology. You must have heard about Savior- 99. This is the strongest spacecraft in the whole world. It uses special technology to create a strong magnetic field around it. This will definitely succeed in moving an artificial planet along with it."

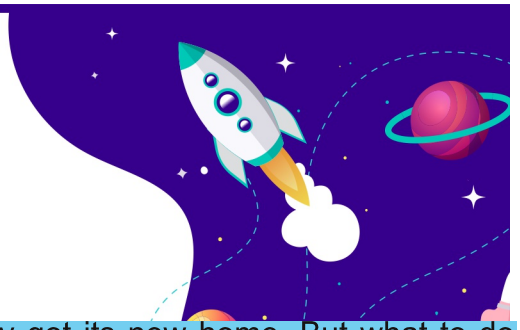
Yury said,"Guys, we still have one problem. Since we will be dragging the Earth away from the Sun, we need to find out the nearest possible solar system in which we can place our Earth." Shivkumar replied instantly, "Alpha century! The Indian space agency has already gathered information about this star. This is the nearest star we have after the Sun and few planets which match the characteristics of Earth. We can safely place the Earth in its solar system and at an accurate distance." The Scientists finally had a plan but this needed a precise execution. Yury said, "Let's start working on building an artificial planet now, as we do not have much time left."

A year later the Sun had already swallowed Mercury and had expanded to twice its original size. Scientists were working day and night without taking any break. They were on the last stage of creating the artificial planet. This was the last hope they had to save Earth. They collected asteroids from space and started merging them together through a chain of nuclear reactions to build the planet. They succeeded in creating a higher magnetic field of the planet than Earth. They named the planet as 'SOTIRA' derived from the Greek word "SOTIROS" which means 'The Rescuer'.

Eight Months passed in the process and scientists witnessed Venus being swallowed by the Red Giant Sun. Now, Earth was going to be the next target! The space craft "Savior-99" and the artificial planet "SOTIRA'" were fully prepared for the rescue operation. Now the day had finally come to launch the spacecraft "Savior- 99" with the artificial planet "SOTIRA" to save Mother Earth. The countdown for the launch began. As the countdown started the heart pounded for the whole world as it was their last hope of survival. The countdown started 10…9…8…7..6…5…4…3…2…1…….Launch … and the spacecraft successfully launched and started its journey towards space. They successfully accomplished phase one of the mission.

In phase 2, they had to connect the spacecraft with SOTIRA which would eventually drag the Earth away from the Red Giant Sun. The spacecraft connected successfully after a few trials but scientists were not sure if the spacecraft would be able to carry the SOTIRA along with it. After a few attempts, SOTIRA also started trailing after the spacecraft. But, soon scientists were ready to face a new challenge. And, it was to move the SAVIOR-99 at a neck-breaking speed that could drag the Earth under the effect of SOTIRA's magnetic field. They used the special built-in technologies which allowed

CHRONICLES OF SPACE



the spacecraft to travel at a rate higher than the speed of light. And when they switched the travel mode provided in the spacecraft remotely, Savior-99 successfully dragged the Earth out of its orbit and Earth started trailing after SOTIRA. It was indeed painful to watch the Earth moving from its home galaxy to a distant place after millions and millions of years. The Alpha Santory, the nearest star, was four light years away from the Earth but scientists were quite relieved as the spacecraft could travel faster than the speed of light. They tried to take the spacecraft as fast they could.

As the Earth started moving away from the Sun, it started freezing. The South pole got fully frozen but the people were saved as they were transported in the special areas created in the North pole but the challenges were not getting over. Soon in the North pole water bodies started freezing and the Antarctic circle also froze. And with this, half of the earth got completely frozen, but the Earth had already reached half of its journey. After some time, the Tropic of Cancer also started freezing, as per the prediction of scientists they had only two weeks left before planet Earth froze to death. The scientists started losing their hopes as they still had a long way to reach Alpha Centauri's Solar System.

Then a miracle happened. They noticed that the snow had started melting because SOTIRA had attracted many burning asteroids and meteorites along the way. Finally, they reached their final destination- the solar system of Alpha Santory. They used SOTIRA to fit the Earth at an accurate distance from the new star for proper temperature. The Earth finally got its new home. But what to do with SOTIRA now? If they did not disperse the SOTIRA then the Earth would not be able to revolve around Alpha Santory. They had to release it but to their surprise SOTIRA itself started orbiting around the new Sun.

The Scientists were glad as the SOTIRA had also got its new home. They could again use SOTIRA if Alpha Santory also turns into a red giant in the future. The space craft Savior-99 did its job successfully. The Earth started getting its warmth and sunshine from the new star, Alpha Centauri. It was the first night in the new solar system and the world was surprised to see that the Moon, our natural buddy, was still shining its radiance on Earth. It also got dragged along with the Earth and accompanied the Earth in its long journey.

By-Antash Saxena
Std./Div. -VI D

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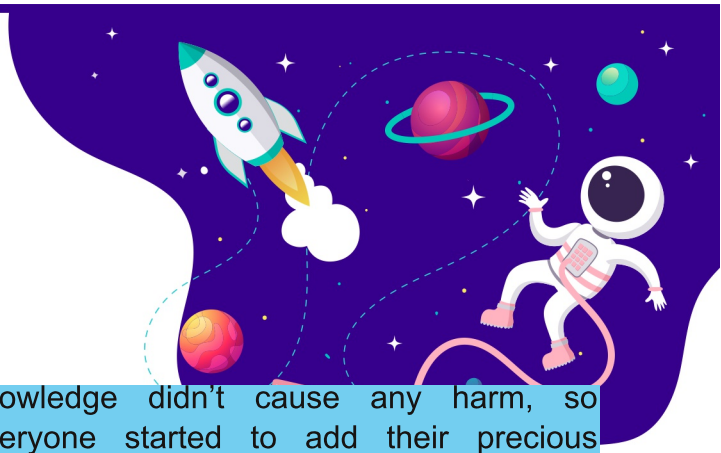


A Cosmic Friend

Nobody ever saw Mr. Keshav Sharma getting angry although many causes arise every day for him to get angry. For the last twenty years since 1960, he has been teaching Geography in a primary school in his village Vilasganj in Raipur district in Madhya Pradesh. Many students came and passed out from that school but the legacy of irritating him like drawing his cartoons on the blackboard, applying sticky gums on his chair, putting firecrackers behind him in Diwali are continuing for the last twenty years.

But if he would leave this job, at an age of 53 years, he would surely never get a job again anywhere else. During the weekend evenings, he would usually spend his time chatting away with the members of the village Panchayati system, at the house of advocate Mr. Sanjeev Sanap. Plenty of times, he thought that this would be probably the last time he would be visiting his house because the continuous taunting by students was unbearable, but being bullied by elders was unacceptable. They made him sing forcefully, stole his things like shoes and umbrella almost on a daily basis, but still he would attend all the meetings as otherwise, Mr. Sanjeev Sanap would be upset with him as Mr. Sanap was an influential man in the village.

Today, they were discussing satellites. Some villagers had spotted a moving light, a few hours ago near their village, right after the sunset, in the northern sky. It was first observed by Mr.Sharma and then he called Mr. Singhania and showed it to him. But, in the meeting Mr. Sharma heard Mr. Singhania boasting about sighting the light himself first. He didn't object. Nobody knew enough about satellites, but providing fake knowledge didn't cause any harm, so everyone started to add their precious comments about satellites.

Mr. Shadija said, "Anyways, I don't think we should discuss anything more about these satellites because for us satellites are just like gems on snakes' heads. Huh!"

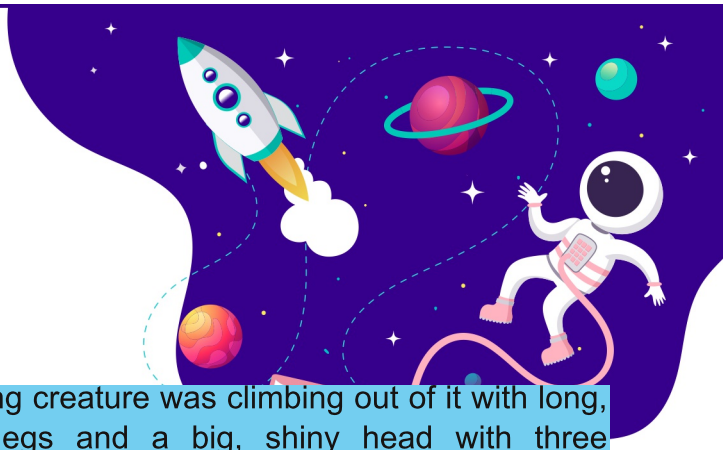
Everybody started concentrating in their cups and sipping their tea, when Mr. Sharma coughed lightly, "Suppose, any alien comes here?", Mr. Jagtap slapped him on the back in an uncivilized way, which he did always, and said with a grin, "Wow, Keshu wow! Someone from another planet will come to this remote village? Not in Moscow, London, New York or not even in Bhopal? You are something!"

Keshav Sharma became silent but his mind was racing. If someone from another planet would just wish to land on Earth, it would never calculate and land in a specific place. Advocate Sanap put down his cup and said with a smirk, "I think Keshu is right, if they come here, they would definitely wish to take a specimen from here and Keshu would be the best person for the job as he's eligible to be a specimen that can be kept in a museum or a zoo!". There was a roar of laughter. Mr. Sharma's eyes welled up with tears and he stood up to go home. He had expected to enjoy today's gathering but everything was ruined.

Mr. Sharma noticed a light while passing by the field of Mr. Gaurav Chaturvedi. He was not carrying a light with him as it was winter so there was no risk of getting bitten by snakes and that lane was deserted. For a while, Mr. Sharma was feeling uneasy as the crickets were not chirping.

Suddenly he noticed the eastern sky and saw the light. At first, he thought there must be forest fire as there was a pinkish light

CHRONICLES OF SPACE



glowing, surrounding the lake located in the field. But he realized it was not fire as the light was still. He could hear an unrecognizable sound as if his ears were buzzing. He was shivering a little bit but out of curiosity he didn't stop.

When he crossed the bamboo tree a little bit farther from the lake, he saw an inverted saucer-like thing which was covering the entire lake and that pinkish light was reflecting from it. Mr. Sharma had never witnessed such a thing and after observing surprisingly for some time, he noticed that the saucer was still but not lifeless like it was breathing! To get a closer look, as soon as he went ahead, suddenly a current flow made him immobile as if somebody had tied him with an invisible rope. He had no strength left to move ahead or go back instead.

Mr. Sharma suddenly felt that the vibration in the saucer stopped and his ears were not buzzing anymore. Then, he heard a soft voice just like a human being which said, "Mili-Pipping-Crook, Mili-Pipping-Crook!". Mr. Sharma got surprised as the language was unrecognizable and also, he couldn't find anyone speaking. Another shouting came, "qui es-tu? qui es-tu?" Mr. Sharma couldn't respond. Then the voice asked, "Are you French? Are you French?" Mr. Sharma guessed he was being questioned and replied, "No sir, I can understand English but not French."

Sometime later, a clear voice uttered, "Hello!" Mr. Sharma released his breath and responded back. As soon as he did so, he found he was being released from the invisible rope. He could have escaped but he didn't because he noticed a part of the saucer had opened and a slimy looking creature was climbing out of it with long, thin legs and a big, shiny head with three protruding, yellow eyes. It was entirely clad in a pink covering and it had two holes in place of ears and one each in the place of nose and lips respectively.

Automatically, Mr. Sharma folded his hands. After watching for almost one minute, the creature sounded like a flute, "Are you human? Is this Earth?" Mr. Sharma could only nod. It seemed to Mr. Sharma that the creature was laughing, "My guess was accurate! My machines are not working properly. I was supposed to reach Pluto but landed here. That is why I questioned you in Pluto's language previously." Mr. Sharma didn't know what to say as he was feeling very uncomfortable as that weird creature had started pressing his hands and legs and was examining him. After examining it, it exclaimed, "I am Ang from Cranius planet and we are way more developed creatures than human beings." Mr. Sharma suppressed his smile thinking that a four-feet creature like Ang was more developed than him! But the creature read his thought, "I know you are distrusting me." Then, it gave one small stone to Mr. Sharma which made Mr. Sharma shiver. Quickly, he returned it to Ang.

Ang smiled. "I made you paralyzed with this thing prior. We can deactivate our enemies without hurting them. Do you want to visit any of the places in this world but you cannot?" Mr. Sharma thought he was a Geography teacher but couldn't even go out of his village! Ang again read his mind and handed him a long, nozzle-like thing and instructed him to look through it and think about the place he wanted to visit. He felt goosebumps as he looked through the gadget, Sahara Desert, Amazon River, Anaconda hanging from a tree were visible in front of him! Suddenly he saw a crocodile popping out of the water. Then, his

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eyes widened as he saw the lower part of the crocodile was almost flesh less and five demon piranhas with their sharp teeth were eating that part. Mr. Sharma couldn't see anymore as he was feeling dizzy.

Ang smiled. "Are you convinced that we are superior to humans, or do you want more proof?" Mr. Sharma felt thirsty and nodded quickly. Ang spoke, "Ok. After examining you, I have concluded that you are a good human being. But you are very timid. Not protesting against wrongdoings and tolerating continuous insults are not graceful for any animal. Anyway, nice meeting you. Bye…"

Mr. Sharma couldn't reciprocate his feelings as that saucer took off from the lake. Suddenly he found himself in the familiar environment among the chirping of crickets. He couldn't believe his luck and pinched himself, realizing that he is the only human being on earth to witness this. He was dancing out of joy.

The following day was Sunday. Everybody was present at the residence of Mr. Sanap. Even Gaurav was present, as his field had been totally ruined and he couldn't understand the story behind it. Everybody started sipping their tea and suddenly Mr.Sharma entered from nowhere and for a minute he laughed aloud. Finally, he stopped laughing and cleared his throat, "Friends! I am announcing happily that today is the last day when I am attending this gathering. But before leaving I want to clear something. Firstly, you all talk rubbish and nonsense, secondly, you have reached an age where hiding somebody's shoes or umbrella is really hilarious. If you again address me "Keshu", I will also distort your names. Mr. Sanap, you are a well-respected person, so you will surely have flatterers around you, but I will not be able to play this role anymore. Oh, Gaurav you are also here? Then let me inform you that yesterday night one Ang came from planet Cranius and landed on the lake in your field. I met him and that man-sorry-that Ang was amazing."

After saying this Mr. Sharma patted Mr. Jagtap's back and made him choke and left the room. The cup fell from the hands of Mr. Jagtap producing a clinking sound in the shockingly silent room.

By- Aishi Banerjee
Std./Div.- VIII B

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

National Aeronautics and Space Administration (NASA)

The National Aeronautics and Space Administration (NASA) is an independent agency of th executive branch of the United States federal government responsible for the civilian spac program, as well as aeronautics and aerospace research.

NASA Missions

Over the last 60 years, NASA has achieved every one of the goals through various mission some of which are given below, and it continues to seek answers to some of the biggest mysterie in science as it evolves with a changing world.

Mission	Detail
The Apollo Missions Launched: 1968	▪ It resulted in American astronauts making a total of 11 space flights and walking on the moon. ▪ The first Apollo flight happened in 1968. The first moon landing took place in 1969. The last moon landing was in 1972.
Arctic Research of the Composition of the Troposphere from Aircraft and Satellites (ARCTAS) Operated: March 2, 2008 to April 20, 2008	▪ The Arctic is undergoing significant environmental changes related to global climate change. ▪ NASA is extensively **studying the role of air pollution in this climate-sensitive** region as part of the ARCTAS field campaign, the **largest airborne experiment** ever to do so.
Cluster ESA (European Space Agency)/NASA Mission: 1996	▪ Cluster is currently **investigating the Earth's magnetic environment and its interaction with the solar wind** in three dimensions.
Curiosity: 2011	▪ A rover named Curiosity is part of NASA's **Mars Exploration Program,** a long-term effort of robotic exploration of the red planet. ▪ Curiosity was designed to assess whether Mars ever had an environment able to support small life forms called microbes. o In other words, its mission is to determine the planet's "habitability."

SPACE PROJECTS

Double Asteroid Redirection Test (DART) Mission Launching: 2021	▪ The DART is a **planetary defense-driven test** of technologies for preventing an impact of Earth by a hazardous asteroid.
International Space Station (IIS)	▪ The ISS is a **multi-nation construction project** that is the largest single structure humans ever put into space. ▪ Its main construction was completed between 1998 and 2011, although the station continually evolves to include new missions and experiments. ▪ The NASA, Roscosmos (Russia) and the European Space Agency are the major partners of the space station.
The James Webb Space Telescope Launching: 2021	▪ The James Webb Space Telescope (sometimes called JWST or Webb) will be a **large infrared telescope** with a 6.5-meter primary mirror. ▪ The telescope will be launched on an Ariane 5 rocket from French Guiana in 2021. ▪ **It will find the first galaxies that formed in the early universe** and peer through dusty clouds to see stars forming planetary systems.

By-Sanshrita Sharma
Std./Div.7B

SPACE PROJECTS

1. India's Mission to Mars

2. India's Mission to the Moon

3. India's 3 in 1 mission to Moon

The Indian Space Research Organization (ISRO) has made some of the commendable achievements in the field of space. The three most important and remarkable space missions of ISRO are:

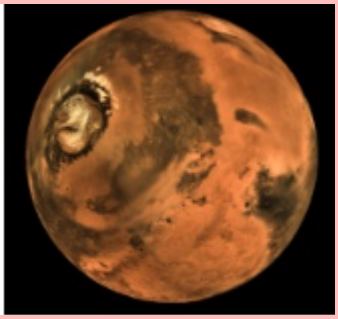
CHANDRAYAAN – 1
CHANDRAYAAN – 2
MANGALYAAN

MANGALYAAN

Marking India's 1st Interplanetary Mission 'MANGALYAAN' was one of the proudest moments for all the citizens of India. India became the first country in Asia and the first country in the world to succeed in its first attempt. It is also called the Mars Orbiter Mission (MOM). It was made on a budget of Rs. 400 crores. The launch day for the satellite was 5 November, 2013, and India accomplished its goal on 24 September, 2014. The time duration was 11 months. The spacecraft was launched at Satish Dhawan Space Centre (SDSC), Andhra Pradesh.

Northern Hemisphere of 'The Red Planet'

It was indeed a tough job for the scientist to achieve this. There are some instances when Mars is closest to the earth. This day in that particular year was 24th September. If the satellite's launch was delayed, even at the slightest, they would have missed Mars and would again get a chance straight away in 2017.

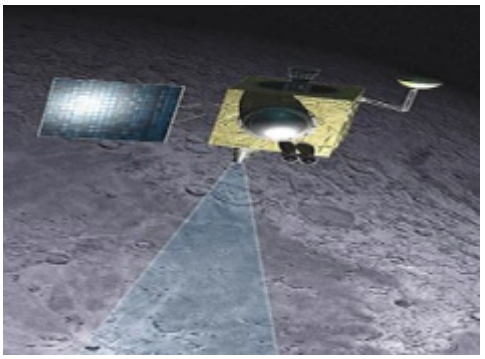


There were several challenges faced by the scientist during the mission. One of them was escaping the Gravitational belt of the earth. Moon lies within the gravity belt. The core objectives of the Mangalyaan spacecraft included the discovery of technical aspects relating to the surface, features, morphology, mineralogy and atmosphere on Mars, with the help of locally developed scientific instruments.

CHANDRAYAAN 1

Chandrayaan 1 was the first Indian lunar probe under the Chandrayaan program. It was launched in October 2008 and operated until August 2009. It was launched from Satish Dhawan Space Centre (SDSC). The main objectives of the Chandrayaan lunar probe were as follows:

1. To conduct scientific experiments using instruments on the spacecraft to yield data.
2. To increase scientific knowledge.
3. To test the impact of a sub – satellite on the surface of the moon as a fore – runner for future landing missions.



The mass of the satellite was 1380 kgs. The mission also highlighted some major goals. Some of them are listed below:

1)High resolution mineralogical and chemical imaging of the permanently shadowed north – south polar regions.
2)Finding the presence of water on the lunar surface.
3)Identification of chemicals in lunar rocks.

The satellite had an operating expectancy of 2 years but on 28 August 2009, communication with the spacecraft was suddenly lost. It operated for 312 days.

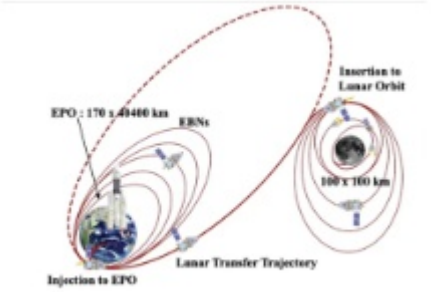
SPACE PROJECTS

CHANDRAYAAN 2

Chandrayaan 2 mission is a highly complex mission, which represents a significant technological leap compared to the previous missions of ISRO , which brought together an Orbiter, lander and rover with the goal of exploring the south pole of the moon.

Why did ISRO choose the moon?

The moon is the closest cosmic body at which space discovery can be attempted and documented. It is also a promising test bed to demonstrate technologies required for deep space missions. Chandrayaan 2 aims to enhance our understanding of the moon, stimulate the advancement of technology, promote global alliances and inspire a future generation of explorers and scientists.

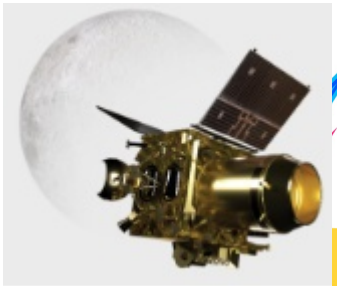


The launcher used for the launch was GSLV – MK III.

It is the most powerful launcher of India till date. It was completely built in India.

Orbiter:

The orbiter weighs 2,379 kg. Its Electric Power Generation Capability is about 1000 W. It is capable of communicating with the Indian Deep Space Network (IDSN). The precise launch and mission management has ensured a mission life of almost seven years instead of the planned one year.



SPACE PROJECTS

VIKRAM – Lander

The weight of the lander is 1,471 kg. The Electric Power Generating Capability is about 650 W. It is named after Dr. Vikram Sarabhai, the father of the Indian Space Program. It was designed to function for 1 lunar day which is equivalent to 14 earth days.

PRAGYAN – Rover

The weight of the rover is just 27 kg. The Electric Power Generation capability is 50 W. It is a 6-wheeled robotic vehicle named Pragyan, which means wisdom in Sanskrit.

By: Diya Paresh Pandav
Std/Div: IX D

THE UNIVERSE TODAY

Space & Astronomy News

Current Space News

1. The James Webb Space Telescope (JWST):

The James Webb Space Telescope

The James Webb Space Telescope is the most powerful and the largest telescope ever built. It is basically a space telescope built primarily to conduct infrared astronomy and study stars, galaxies and other celestial bodies which are very faint and distant to be identified by the Hubble Telescope. Being the largest optical telescope in space, it improved infrared resolution and sensitivity, allowing a broad range of investigations and studies in the field of astronomy and cosmology. For example, it allows the observation of first stars and formation of first galaxies after 'The Big Bang' and the detailed study of potentially habitable exoplanets.

2. The JSWT may have found the most distant known galaxy

Just after the first five pictures captured by the telescope were released on July 12, 2022, the James Webb Space Telescope may have found a galaxy that existed 13.5 billion years ago.
Known as GLASS-z13 , the galaxy dates back to 300 million years after the Big Bang, about 100 million years earlier than anything previously identified.

One of the few images taken by JSWT.

THE UNIVERSE TODAY

Space & Astronomy News

3. Experts find dormant black hole near our galaxy

A stellar massive black hole has been discovered in the Magellanic cloud, a galaxy neighboring to the Milky Way Galaxy. This galaxy was discovered by a group of international scientists. They also discovered that the star which created the black hole disappeared without leaving any traces of massive explosion. This discovery was made possible by six years of observation through the Very Large Telescope of the European Southern Observatory.

BY – Tanvi Avhad
Std./Div.- X C

THE UNIVERSE TODAY

Space & Astronomy News

Space is the boundless three-dimensional extent in which objects and events have relative position and direction. Basically, space is everything that isn't matter, or in layman terms 'emptiness'. But Space is the most mysterious and interesting thing. This article will include some theoretical space inventions that could be possible and would make human life extremely interesting.

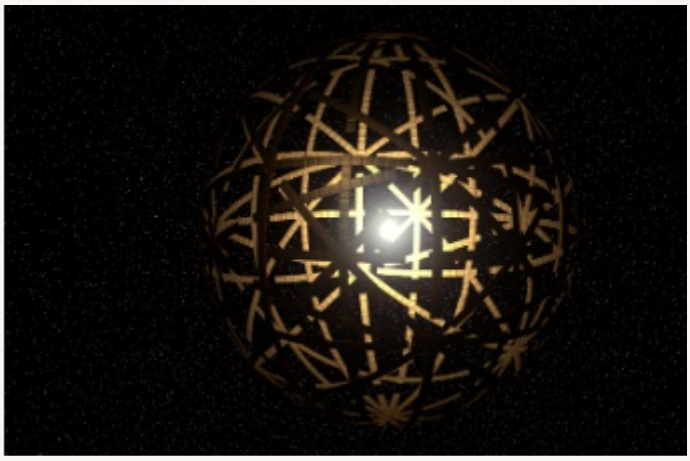
The theoretical space inventions that we will cover now are:-

i. Dyson spheres
ii. Warp drives
iii. Asteroid mining
iv. Bonus: Space-time continuum; One of Einstein's less popular findings.

Then, let us dive into the mysterious boundaries of space.

1. Dyson spheres – A Dyson sphere is a hypothetical mega-structure that completely encompasses a star and captures a large percentage of its solar power output.

This is what a Dyson sphere would probably look like. That tiny little dot at its centre. That's roughly the size of our Sun. This gives a clue of how many resources would be necessary to build a colossal structure like this.



Would be probably much more efficient.

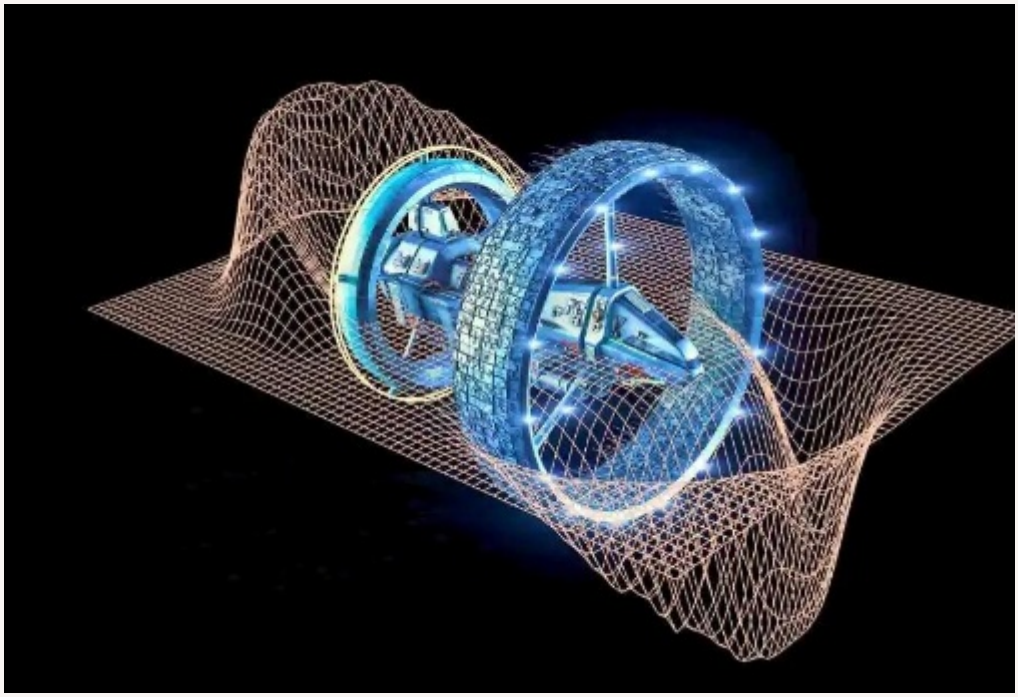
A Dyson sphere is basically supposed to perform the function of a solar panel, but really close to the Sun. It would capture around 90% of the Sun's total energy output, and then this energy would be used by the earth's residents i.e. us.

THE UNIVERSE TODAY

Space & Astronomy News

2. Warp drives – Or more accurately, something that defies the laws of physics, without even actually breaking it, let me explain. According to Einstein, it's impossible for any object with mass to travel faster than the speed of light.

But Warp drives would be able to do so, without breaking the laws of physics. A warp drive is a device that distorts the shape of the space-time continuum. A spacecraft equipped with a warp drive may travel at speeds greater than that of light by many orders of magnitude.



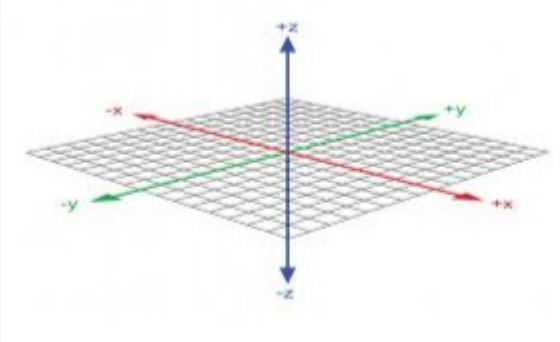
So, a warp drive would compress the space-time interface ahead of it, by using a matter-antimatter core which would then decrease the distance between two points. Therefore, it would move the same distance in space time, but to an observer it would move by faster than light, as the space is distorted.

3. Asteroid mining - Asteroid mining is a concept that interests scientists, and businessmen alike. The concept is pretty straight forward, everyone is aware of an asteroid belt between the inner and outer planets of our solar system. Asteroid mining refers to the use of highly advanced technological spaceships, which would venture into the asteroid belt, and safely land on asteroids.

Asteroids are indeed rich for its valuable materials such as gold, diamonds, platinum, silver and other rare minerals. In fact, there are so many of these minerals, it is said "In this universe, wood is much rarer than diamonds." Asteroid mining would allow us to access all these minerals and give us the ability to stop depleting this planet's resources. It is surely the next step to preserve the natural cycle of this planet.

4. Bonus: Space time Continuum.

Space time continuum was proposed by Hermann Minkowski as a way to reformulate Albert Einstein's theory of relativity. This theory changed the way of thinking of scientists forever. Before 1908 it was believed that Space and Time were two distinctly different and unrelated constructs. But Albert Einstein refuted this and combined the ideas of our 3 dimensional space with that of another dimension of time.



This is the current diagrammatical representation of our universe's fabric. The space-time continuum refers to the singular 4 dimensional fabric of space (3D space, length breadth, height) and time (1D time, time only moves ahead).

This made scientists reconsider what they had previously interpreted about the universe and made it a much more confusing world. And we have the great Albert Einstein to thank for it.

By: Paurush Vishnoi
Std./Div.: IX D

THE UNIVERSE TODAY

Space & Astronomy News

Hubble Space Telescopes Captures an image of Turquoise blue waves rippling through Milky way's Companion Galaxies

In this image taken by the Hubble Space Telescope in 2014 and recently released by NASA, scientists have observed turquoise blue waves within the milky way's companion galaxy Large Magellanic Cloud (LMC). The image was taken near the outskirts of the Tarantula Nebula and within LMC.

NASA released a statement along with the image stating " In most images of the LMC the colour is completely different to that seen here. For this image, researchers substituted the customary R filter, which selects the red light, and replaced it with a filter letting through the near-infrared light. In traditional images, the hydrogen gas appears pink because it shines most brightly in the red. Here, however, other less prominent emission lines dominate in the blue and green filters."

The image was taken as a part of an initiative APPP(Archival Pure Parallel Project) which comprises more than 1000 images taken using Hubble's Wide Field and Planetary Camera 2 and the Telescope's scientific instruments.

The data obtained in this initiative(APPP) can be used to study a wide range of astronomical features and effects, including gravitational lensing (the phenomenon when a massive celestial body such as a galaxy cluster causes a sufficient curvature of spacetime for the path of light around it to be visibly bent, as if by a lens), cosmic shear (distortion of images of distant galaxies due to weak gravitational lensing by the large-scale structure in the Universe.), stars varying mass, and distant galaxies. The data can also be used to supplement observations collected in other wavelengths to paint an even more clear idea of the cosmos.

By-Advait Nayak
Std./Div.-IX A

MOVIES AND BOOKS RECOMMENDATIONS

Movies

1. Apollo 13 (1995)

NASA must devise a strategy to return Apollo 13 to Earth safely after the spacecraft undergoes massive internal damage putting the lives of the three astronauts on board in jeopardy.

2. The Martian (2015)

An astronaut becomes stranded on Mars after his team assumes him dead, and must rely on his ingenuity to find a way to signal to Earth that he is alive and can survive until a potential rescue.

3. Interstellar (2014)

A team of explorers travel through a wormhole in space in an attempt to ensure humanity's survival.

4. First Man (2019)

A look at the life of the astronaut, Neil Armstrong, and the legendary space mission that led him to become the first man to walk on the Moon on July 20, 1969.

5. Gravity (2013)

Two astronauts work together to survive after an accident leaves them stranded in space.

6. Fly Me To The Moon (2009)

Three young house flies stowaway aboard the Apollo 11 flight to the moon.

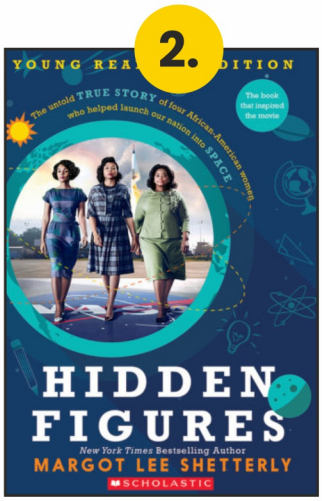
7. Mission Mangal (2019)

Based on true events of the Indian Space Research Organisation (ISRO) successfully launching the Mars Orbiter Mission (Mangalyaan), making it the least expensive mission to Mars.

Books

1.

Sanity & Tallulah
Molly Brooks

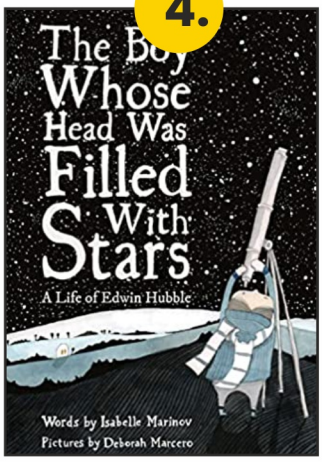


2.

Hidden Figures
Young Readers'
Margot Lee Shetterly

3.

Galaxy Girls: 50 Amazing
Stories of Women
In Space
Libby Jackson



4.

The Boy Whose Head Was Filled with Stars:
A Life of Edwin Hubble

5.

The Kid Who Came
From Space
- Ross Welford

6.

How To Be A Spcae Explorer:
Your Out Of This World
Adventure By -
Lonely Planet Kids

Review
Movies & Books

Title of the ~~Book~~/Movie: INTERSTELLAR

Movie/~~Book~~ Summary:

This movie is one where we see the blend of Christopher Nolan's brilliance in storytelling and his skill to connect emotion with intelligence. Nolan does an outstanding job, exploring ideas like time, space, the fifth dimension, gravity, how the world will end, if we will be able to save humanity or not, etc. that have time and time again puzzled humanity. One of the most important things in Interstellar, the nerve-wracking moments, is the clock. The clock builds up the suspense with each tick you hear and then the organs coming in at the right time and boom it's a full explosion of music coming at you, it starts calmly and builds up and then builds up more and then finally you have an explosion of music just coming at you. The acting is phenomenal, but that's to be expected when you pair up Jessica Chastain and Matthew McConaughey- their father/daughter bond is the heart and soul of this movie. Even as it ends on a hopeful note, there is an underlying sadness throughout the movie. While the ending isn't very good, it is still a fair ending and closes off the story between Murph and Cooper. The idea of a father's love for his daughter saves the entire human race is riveting, and makes us wonder whether one of the dimensions that are still not comprehended by us, could it be love? It challenges us with a deep message about the value of time, and really makes us question our reality/existence in our vast universe. That is also one of the reasons why I think this is a great film. I think this movie could awaken a lot of people to what the science-fiction genre is truly about, in terms of what it is meant to teach the audience. Envisioning the future and being able to learn from it, rather than being scared of aliens or explosions constantly, is refreshing to watch. I think everyone should watch this movie once in their lifetime, regardless of their interest in space or the universe.

How many hearts do you give this movie?

(Draw a heart to rate - 1 heart means the movie was really bad.

5 hearts means it was great!)

Movie/Book Reviewed By:

By -AMRITA MAHINDRAKAR Std./Div-X A

Title of the ~~Book~~/Movie: Gravity

Movie/~~Book~~ Summary:

Gravity is a movie which revolves around the plot of 'not losing hope' where Dr. Ryan Stone, a biomedical engineer, is on her first flight accompanied by astronaut Matt Kowalski and a few others.

The first scene starts from the mission control, warning them about the debris of a satellite which exploded from a missile strike. The debris hit the space station killing all the other crew and leaving Stone and Kowalski alone in the darkness. The story of them trying to survive and helping each other is beautifully explained with the help of cinematic effects. The animation and graphics are used just perfectly to depict reality.
The script holds your interest throughout the movie and every scene makes you feel fascinated. Only thing that could have been improved was if the movie had more dialogues and if it was a little more fast paced.

The movie has been filmed on the basis of sci-fi and technology but the mission being the first mission for Stone and the last one for Kowalski somewhere gives it a little emotional touch too.
Overall the movie is a must watch and the director Alfonso has provided us with some great cinematic experience.

How many hearts do you give this movie?

(Draw a heart to rate - 1 heart means the movie was really b

5 hearts means it was great!)

Movie Reviewed By-
Kriti Pandey, STD/Div- X B

Review
Movies & Books

Title of the ~~Book~~/Movie: CONTACT

Movie/~~Book~~ Summary:

The central idea of the movie not only revolves around science but also portrays different opinions of people in the fields of political philosophy and strongly questions the mere existence of God.Starring, Jodie Foster who plays the role of Dr. Eleanor Ann Arroway, a SETI radio scientist who has been a huge fan of space since her childhood, receives a strange radio signal from a star, Vega which is the fifth brightest star in our universe, relatively twenty six light years away claiming to be from the 'little green men'. She along with her fellow scientists come across a problem; to decipher the scripts which she extracted from the signals cleverly. However, her senior, David Drumlin takes over the credit for the research, but she doesn't easily give up, as she is determined to attain her dreams. After battling with all of the criticism and disbelief of people, she continues to advance in the mission and she finally gets the credit for the mission, making history.Furthermore, few of the scenes in the movie are completely mind blowing. The protagonist travels in the spaceship, which is being recorded by the unit, through many wormholes to Vega and she finds her father telling her that she has actually accomplished her dreams despite the attempts of the politics and beliefs of people trying to prove her wrong. The journey takes eighteen hours to come back to earth. However, all the experiences of the doctor get tagged as made up stories by the people against her, who claim that due to a malfunction she doesn't travel anywhere at all. But at the end of the movie, they notice that the duration of the static recording is indeed eighteen hours leaving the viewers in complete awe.
Robert Zemeckis, the director, didn't fail to draw the viewers' attention towards the thoughtful juxtaposition of science and faith in God.
Sometimes, certain things cannot be expressed or proved.I guess it's just a pretty big Universe!

How many hearts do you give this movie?

(Draw a heart to rate - 1 heart means the movie was really bad.
5 hearts means it was great!)

❤️❤️❤️❤️❤️

Movie/Book Reviewed By:
By -VEDANTI PATIL Std./Div-X B

Title of the Book/~~Movie~~:
'Unlocking The Universe' by Stephen Hawking, English theoretical, physicist, cosmologist

Movie/Book Summary:

It is a really good book to get a brief idea about the universe and space. The book is very engaging and has good narration. As a whole, it gives a short description of many topics like Big Bang Theory, Expansion of Universe, Earth and its Elements, Genetics, Black Holes, Planets in Solar System, Space Travel, Comets, etc. Each of these topics are covered briefly in two to three pages. Also, there are some incredible questions explored in this collection of fascinating facts and scientific theories, covering everything from life on Mars and the secrets of black holes to climatic changes and the truth about pandemics throughout history.
Anyone having an intense hunger to know about the universe must read this book.

How many hearts do you give this movie?

(Draw a heart to rate - 1 heart means the movie was really b
5 hearts means it was great!) ❤️❤️❤️❤️❤️

Book Reviewed By-
Sandra Maji, STD/Div- IX A

THE BLACK HOLE

Worlds fall apart,
Right here in the dark!
They find me bizarre,
With darkness like tar.
The stars they sparkle around me so bright,
Although I'm scary, I've got elegance and might.

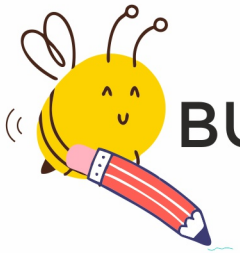
There might be no light in Heaven or Earth,
Yet I clasp the power, right from my birth.
They dread and fear this blackness of mine,
Within me I bend all space and time.

You might feel like a bird,
You might feel like a plane,
You might not be able to return home again.

Magnetic am I,
You may fall for me,
Magnetic am I,
You may fall in me.

I can be chaotic, dark yet fair,
If you come near me, you better take care.
If you're here, you're already there,
I'm a black hole, please enter if you dare.

By-Ubika Jain
Std./Div.-IX E



BUZZING POETS

The Milky Way

Eight planets around the Sun,

Let me call them one by one.

Mercury, Venus, Earth and Mars

The third one you see is ours.

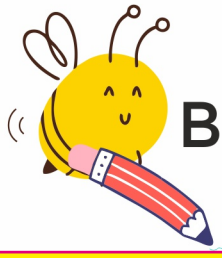
Jupiter is big in size,

Saturn comes with rings as its price.

Uranus and Neptune are the farthest from the Sun,

So let's join the planets and have some fun.

By- Sahaj Rai
Std./Div.-VII A



BUZZING POETS

The Starlight Kingdom.

We know that our universe is made up of comets, asteroids,
planets and stars.
But do you think it can be filled with beautiful and mythical
creatures from near and far?

Can't there be a Royal Kingdom, that protects the space,
The fairies of Good Counsel, who solve an easy or a hard case?

Can't there be leprechauns, guarding the kingdoms power,
In a majestic, mysterious, magical faraway tower?

Can't the Milky-Way Galaxy have a special celestial lake?
Keep reading, don't think these tales are real or fake.

There can be a group of fairies, that give light to the stars
Celestial cooks called Glimmer Fairies, making the best chocolate
bars.

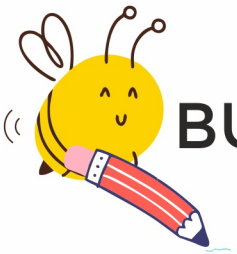
Clever nymphs and centaurs, who love riddles.
The Tickly Asteroids who love to tickle.

The Galaxy Elves who make StarDust,
In a secret laboratory under the stars' crust.

This kingdom can be called the Starlight Kingdom,
In which the Kings and Queens rule in complete wisdom.

These tales, of The Starlight Kingdom may be untrue,
But use your imagination, you might just make it true!

By- Saanvi Valvi
Std./Div.- V A



BUZZING POETS

Planet Song

All the planets rotate in harmony
Around the bright, bright Sun.
First in line comes Mercury
The biggest brother of none.
Second comes Venus,
It's sheen is so bright,
It gets quite hot,
So choose the next right.
Third comes our Earth
The liveliest of all,
With its land and oceans,
There's life for big and small.
Fourth comes Mars,
Mysterious of all,
It's called the Red planet,
In case you ever haul.
Fifth, is Jupiter,
Smaller to nil,
You can go to the Great Red Spot,
In case you plan to chill.
Sixth comes Saturn
With its seven icy rings,
You can make a snow-man,
And watch the icicles cling.
Seventh comes Uranus,
It rolls like a ball
Just be little careful,
Or else you might fall.
Eighth comes Neptune,
The farthest from the Sun,
17 times the mass of the Earth,
It weighs more than a tonne.
Ninth and last
Comes poor little Pluto,
As it is a dwarf planet.
And now that's all,

By- Vaidehi Vipin Kumar
Std./Div.-VII B

SPACE Exploration

The Amazing Origin and History Of Space Travel

Mankind has been venturing into space since October 4, 1957, when the Union of Soviet Socialist Republics (U.S.S.R.) launched 'Sputnik', the first artificial satellite to orbit the Earth. This event took place during the period of political hostility between the Soviet Union and the United States known as the 'Cold War'. For several years, the two superpowers had been competing to develop missiles, called intercontinental ballistic missiles (ICBMs), to carry nuclear weapons between continents. In the U.S.S.R., the rocket designer Sergei Korolev had developed the first ICBM, a rocket called the 'R7', which began the era of space exploration.

The first human in space was the Soviet cosmonaut, Yuri Gagarin, who made one orbit around Earth on April 12, 1961, on a flight that lasted 108 minutes. A little more than three weeks later, NASA launched astronaut Alan Shepard into space, not on an orbital flight, but on a suborbital trajectory. Shepard's suborbital flight lasted just over 15 minutes. Three weeks later, on May 25, President John F. Kennedy challenged the United States to an ambitious goal, declaring: "I believe that this nation should commit itself to achieving the goal, before the decade is out, of landing a man on the moon and returning him safely to Earth."

Since the Apollo lunar program ended in 1972, human space exploration has been limited to low-Earth orbit, where many countries participate and conduct research on the International Space Station. However, unpiloted probes have travelled throughout our solar system. In recent years, probes have made a range of discoveries, including that a moon of Jupiter, called Europa, and a moon of Saturn, called Enceladus, have oceans under their surface ice that scientists think may harbour life. Meanwhile, instruments in space, such as the Kepler Space Telescope, and instruments on the ground have discovered thousands of exoplanets, planets orbiting other stars. This era of exoplanet discovery began in 1995, and advanced technology now allows instruments in space to characterize the atmospheres of some of these exoplanets.

By- Saujanya Agarwal
Std/ Div- VII A

SPACE Exploration

Big Bang Theory is an explanation of how the Universe began. It started with an infinitely hot and high-density single point which inflated and stretched. It is still expanding.

The Universe contains a group of clusters like clouds. These are known as SUPERCLUSTERS. The Supercluster contains our spiral shaped Milky Way Galaxy. It is a part of Canes Venatici cloud. Many galaxies are present in one Supercluster.
One galaxy contains many Systems. We live in the Solar System. It contains 1 giant star known as the Sun, 8 planets, Thousands of Asteroids, Meteorites, Stars, Comets etc.
The 8 planets of our system are Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune. The cute little one is Pluto. It's too small to be considered a planet.
A huge six-mile meteoroid named Chicxulub hit our Earth which led to the extinction of huge, amazing Dinosaurs.
The Gas Giant Jupiter acts as a barrier in saving the Earth from all the evil Meteoroids. Its powerful gravity sucks in asteroids and comets, protecting us from them.
The Universe is so vast and it is still expanding. Scientists are still researching and studying about it. It's amazing and puzzling to learn something new about space.

By-Aishwarya Suresh
Std./Div.VI D

Black Hole

Introduction:

The term black hole is of very recent origin. It was coined in 1969 by the American scientist John Wheeler as a graphic description of an idea that goes back at least two hundred years, to a time when there were two theories about light. One, which Newton favoured, was that it was composed of particles; the other was that it was made of waves. At first people thought that particles of light travel infinitely fast, so gravity would not have been able to slow them down, but the discovery by Roemer that light travels at a finite speed meant that gravity might have an important effect. On the assumption, a Cambridge don, John Michell, wrote a paper in 1783 in the Philosophical Transactions of the Royal Society of London in which he pointed out that a star that was sufficiently massive and compact would have such a strong gravitational field that light could not escape: any light emitted from the surface of the star would be dragged back by the star's gravitational attraction before it could get very far.

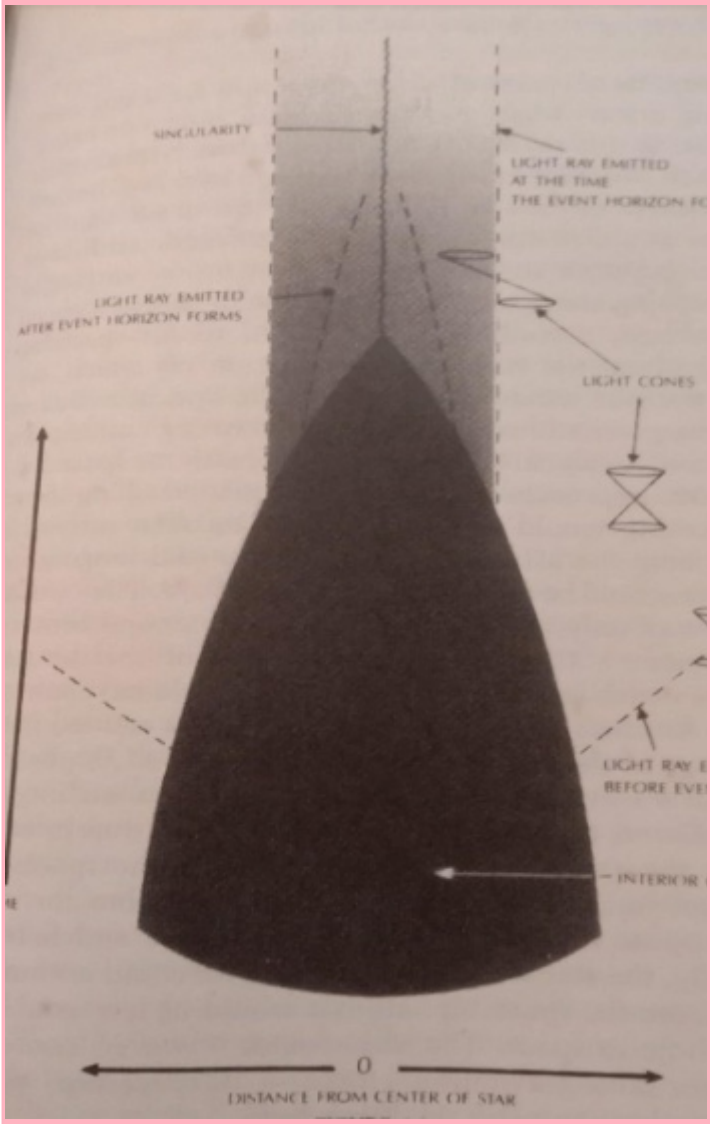
Formation of stars:

To understand how a black hole might be formed, we first need an understanding of the life cycle of a star. A star is formed when a large amount of gas, mostly hydrogen, starts to collapse in on itself due to its gravitational attraction. As it contracts the atoms of the gas collide with each other more and more frequently and at greater and greater speed – the gas heats up. Eventually, the gas will be so hot that when the hydrogen atoms collide they no longer bounce off each other, but instead form helium. The heat released in this reaction, which is like a controlled hydrogen bomb explosion, is what makes the star shine. This additional heat also increases the pressure of the gas until it is sufficient to balance the gravitational attraction, and the gas stops contracting. It is a bit like a balloon – there is a balance between the pressure of the air inside, which is trying to make the balloon expand, and the tension in the rubber, which is trying to make the balloon smaller. Eventually, however, the star will run out of its hydrogen and other nuclear fuels. Paradoxically, the more fuel a star starts off with, the sooner it runs out.

Formation of Black Hole:

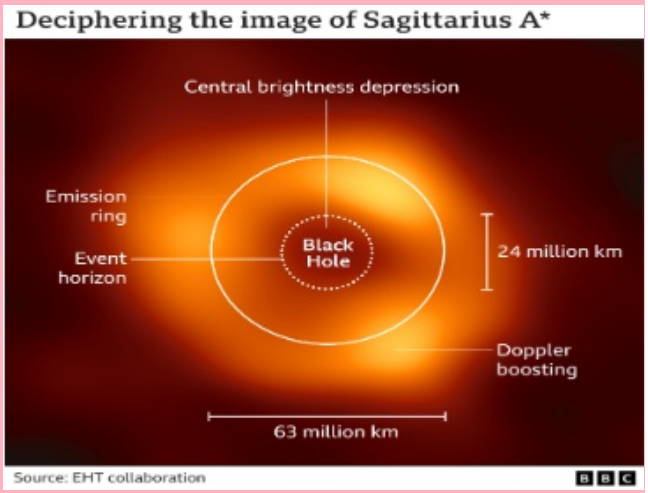
The problem of understanding what would happen to a collapse star, according to general relativity, was first solved by a young American, Robert Oppenheimer in 1939. His works suggested as follows: the gravitational field of the star changes the paths of light rays in space- time from what they would have been had the star not been present. The light cones, which indicate the paths followed in space and time by flashes of light emitted from their tips, are bent slightly inward near the surface of the star. This can be seen in the bending of light from distant stars observed during the eclipse of the Sun. As the star contracts, the gravitational field at its surface gets stronger and the light cones get bent inward more. This makes it more difficult for light from the star to escape, and the light appears dimmer and redder to an observer at a distance. Eventually, when the star has shrunk to a certain critical radius, the gravitational field at the surface becomes so strong that the light cones are bent inward so much that light can no longer escape. According to the theory of relativity, nothing can

travel faster than light. Thus if light cannot escape, neither can anything else.



The work that Roger Penrose and Stephen Hawking did between 1965 and 1970 showed that, according to general relativity, there must be a singularity of infinite density and space-time curvature within a black hole. This is rather like the big bang at the beginning of time, only it would be an end of the time for the collapsing body and the astronaut. At this singularity the laws of science and our ability to predict the future would break down.

Cygnus X1



A black hole can be observed however, by the effect of their enormous gravitational fields on nearby matter. For example, if a black hole is a member of a binary star system, it becomes intensely heated and then radiates x-rays copiously before entering the event horizon of the black hole and disappearing forever. One of the component stars of the binary x-ray system Cygnus X1 is a black hole, discovered in 1971 in the constellation Cygnus X1. One such super massive black hole, existed in our Milky Way Galaxy is Sagittarius A. A black hole's weight is equivalent to more than 4,000,000 suns.

By-Nivritty Bhattacharjee
Std./Div.- VII D

The Space Within

Introduction

The space between galaxies is not empty but averages one atom per cubic metre. This states that the space is not a total vacuum, but it contains 70% dark energy, 25% of dark matter and 5% of regular matter. This suggests that everything we experience is just really only a tiny fraction of reality. It also suggests that the space we know has more energy than everything else in the universe combined. In this article, I will discuss the composition of the universe.

Dark Energy

Dark matter is the stuff that makes it possible for galaxies to exist. With the help of advanced scientific equipment, we calculated why the universe is structured the way it is, it became clear that there's just not enough normal matter. The gravity of the visible normal matter is not strong enough to form galaxies and other complex structures. The stars would more likely be scattered all over the place and not form galaxies. By this, we know that there is something which is inside and around them, which doesn't emit or reflect light.

But besides being able to calculate the existence of dark matter, we can kind of see it. This is because places with a high concentration of dark matter tend to bend light passing nearby. So we know it is something that interacts with gravity. Dark matter is not anti-matter because anti-matter reacts with normal matter producing unique gamma rays. Dark matter is also not made up of black holes, this is because dark matter is scattered in all places.

With this, we can conclude that Dark matter is probably made of some exotic particles which don't interact with light and matter. But this fact is still unsure and is being researched.

Dark Energy

Dark Energy is even more mysterious as we can't measure it, detect it, and can't taste it, But we can see its effects very clearly. In 1929, Edward Hubble examined how the wavelength of light emitted by distant galaxies, shifts towards the end of the electromagnetic spectrum as it travels through space. He found that fainter, distant galaxies showed a large degree of redshift; closer galaxies not so much.

Hubble then determined that this was because the universe itself is expanding. The redshifts occur because the wavelengths of light are stretched as the universe expands. Recent discoveries have shown that the expansion of the universe is accelerated. Before these discoveries, it was thought that the pull of gravity would cause the expansion to either slow down or event to retract and collapse in on itself at some point. Space doesn't change its properties as it expands; there's just more of it.
New space is constantly created everywhere, galaxies are tight-bound clusters of stuff held together by gravity so we don't experience this

expansion in our daily lives. But we see it everywhere around us. Wherever there is an empty space in the universe, more is forming every second. So dark energy is some kind of energy intrinsic to space. This energy is stronger than anything else we know. But if dark energy exists, we don't know how and where we could detect it.

Normal Matter

Pic of Plasma

Pic of Bose-Einstein Condensate

As we have studied, Matter exists in three different states Solids, Liquids, and Gases. But recent studies have shown that there are two more states of matter which are Plasma and Bose-Einstein Condensate. Plasma is hotter than gas. It is said that plasma is a form of matter in which many of the electrons wander around freely among the nuclei of the atoms. Plasma is found in lightning,

Earth's Ionosphere, etc. It is also said that Bose-Einstein Condensate tends to be much colder than Solids. A Bose-Einstein condensate is a group of atoms cooled to within a hair of absolute zero. It is artificially made in laboratories.

On that note, I conclude this article by saying, even though we have advanced equipments there are still a lot of things we don't know about and some remain a mystery. Thank you readers who took some time from their busy schedule to read this article.

By-Advait Nayak
Std./Div.-IX A

SPACE CAREERS

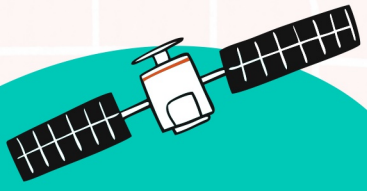
Reaching for the Stars

If you're among those who dream of making their mark in the field of space, you're in luck. Space exploration and related careers is an ever-expanding area with great potential for numerous future career specializations. If your answer is yes there are many careers that you can opt to be a part of space such as:

- Astronauts
- Space Technology
- Engineering
- Space Researchers/ Scientists (Astrophysicists, Biologists, Biochemists, Biophysicist, Geoscientists, Astrobiologists)
- Space Law
- Space Tourism
- Space Architecture
- Space Medicine/Psychology

Which are the top Space Science colleges in India?

- Indian Institutes of Technology (IITs)
- Indian Institute of Science, Bangalore
- Indian Institute of Science Education and Research (IISER-TVM)
- Indian Institute of Space Science and Technology, Kerala
- Centre for Earth and Space Sciences, (University of Hyderabad)
- Aryabhatta Research Institute of Observational Sciences, Nainital
- Indian Institute of Astrophysics, Bangalore
- Inter-University Centre for Astronomy and Astrophysics, Pune
- National Centre for Radio Astronomy, Pune



What are the courses you can opt for in Space Science after 12th?

- B.Tech in Aerospace Engineering B.Tech in Avionics Engineering
- B.Tech+M.S./M.Tech (B.Tech. in Engineering Physics + M.S. in Solid State Physics, Astronomy, Earth System Science / M.Tech. in Optical Engineering)
- M.Tech in Electronics, Electrical, Mechanical and Computer Science
- PhD in relevant disciplines.

SCIENCE FUN

– @Home –

Let's make a Hovercraft

Materials:

- An old CD
- HOT GLUE gun/fevikwik
- Thumbtack/ pin
- Bottle cap
- Balloon

Steps to make a Hovercraft :

- Make holes in the plastic bottle top.
- Use a hot glue gun/feviquick and fix the bottle top over the hole of the CD. *(Please Note: Students can take help of adults while handling the fevikwik and pins.)*
- Blow up the balloon.
- Twist the neck of the balloon to keep it inflated and pull the lip of the balloon over the edges of the bottle cap.
- Let it Go - Set on a flat surface like a counter top or floor. Release the balloon and watch it glide along without any effort just over the surface.

INTERSTELLAR ART GALLERY

Yash Kamble
Std./Div.-IX A

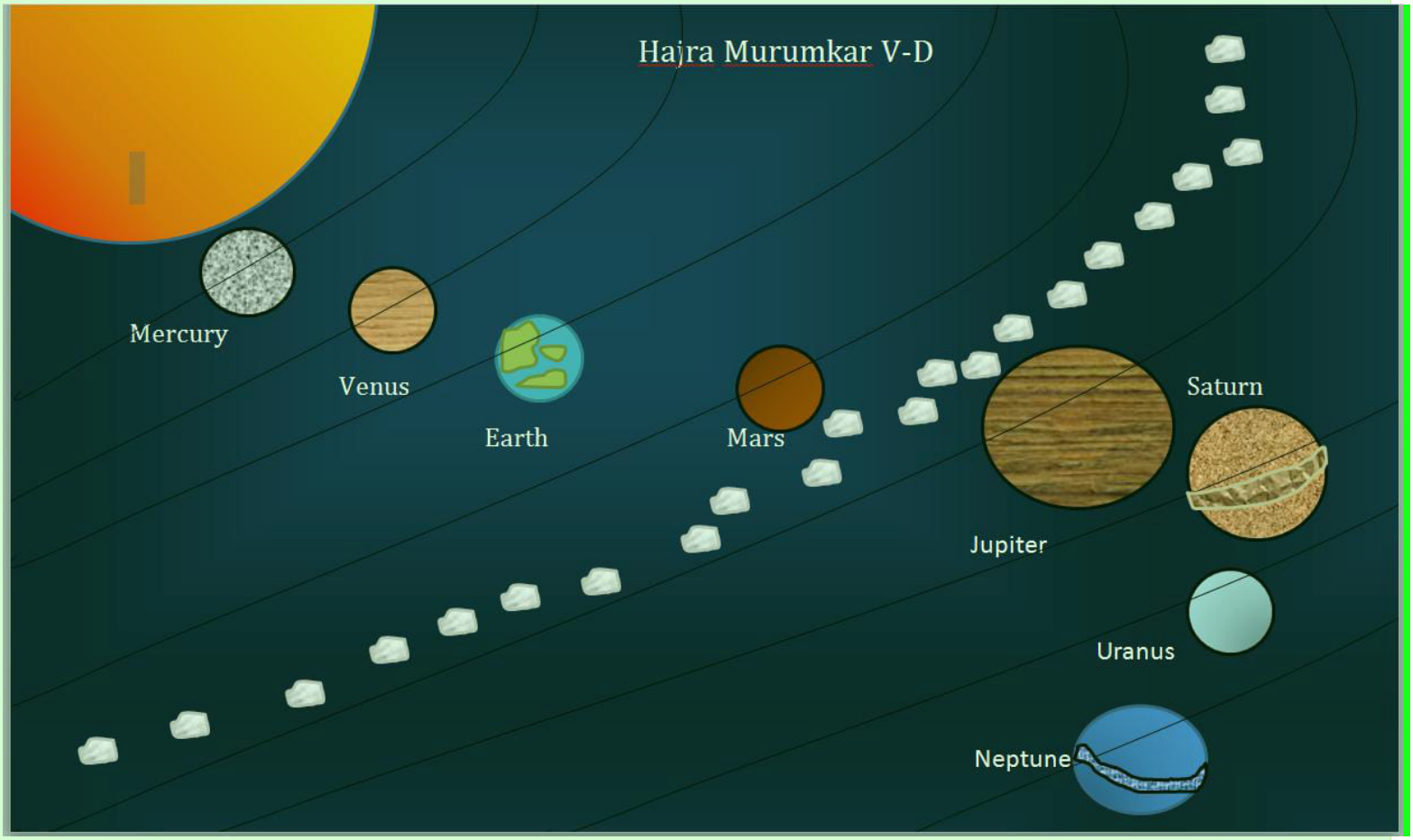
Shruti Ghugare
Std./Div.- I B

INTERSTELLAR ART GALLERY

Myra Vasani
Std./Div.- IIB

Arunima Arun
Std./Div.-VIII A

INTERSTELLAR ART GALLERY



Hajra Murumkar
Std./Div.-V D

INTERSTELLAR ART GALLERY

Pranjal Pawar
Std./Div.-VII D

SPOTLIGHT @ PIS

#Congratulations

Podar International School ICSE, KALYAN would like to congratulate all our students who excelled in the Std X ICSE Board Examinations.

We are extremely proud of all our students and wish them all the best in their future endeavours

"Pottery, one of the oldest and most widespread decorative art"

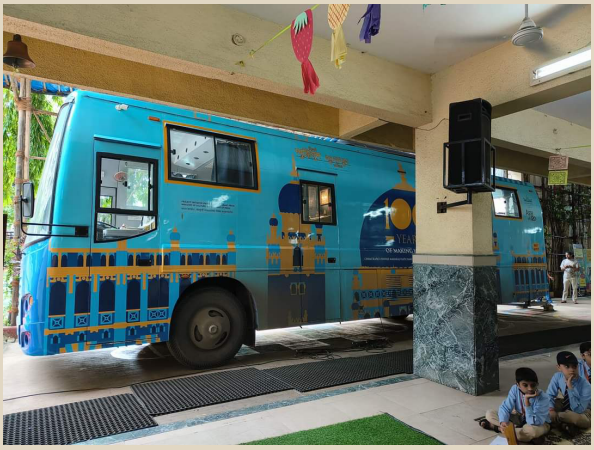
Clay gives children wings to let their imagination soar.
The students of Podar International School ICSE, KALYAN very keenly and energetically loved to engage themselves in such a creative and exploring art of Pottery on working with their hands.

The Pottery workshop was conducted on the 2nd, 3rd and 4th of August 2022 with active participation of each and every student of our school bringing them close to nature.

Museum on Wheels, named Chhatrapati Shivaji Maharaj Vastu Sangrahalaya visited our school on 22nd August. Our students welcomed the Museum on Wheels with a thundering applause.

The excited students toured around the museum. They were briefed with the help of slideshow presentation and the display of the artifacts displayed on the bus. The rich and beautiful replicas, manuscripts, sculpture, Indian textile, jewellery, currency and costumes won the hearts of the enthusiastic learners.

It was indeed an enriching and fun filled experience for all the students.



ASTRO SNACKS

FRUIT ROCKETS

All you need to make these easy-to-assemble Fruit Rockets are:

- watermelon
- banana
- kiwi
- strawberries
- cantaloupe
- skewers

FUN FACT

Some foods like bread, fruits and nuts stay the same in space. Other foods have to be vacuum packed to keep their shape and save space.

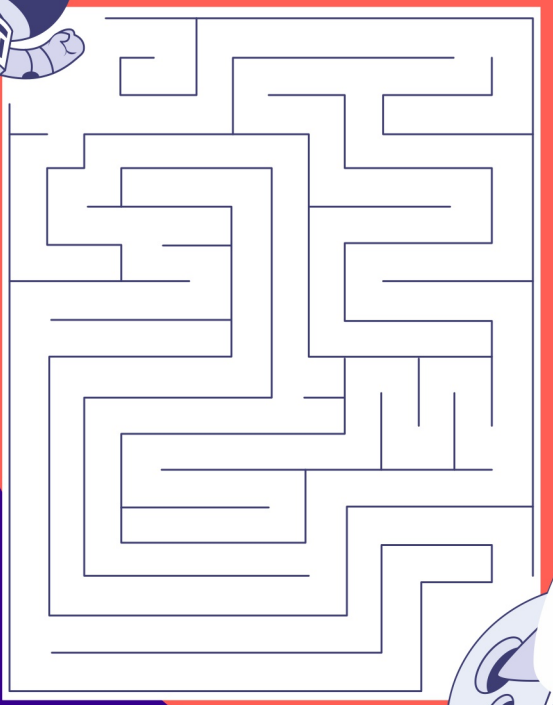
MARTIAN SNACKERS

All you need to make these easy-to-assemble Martian snackers are:

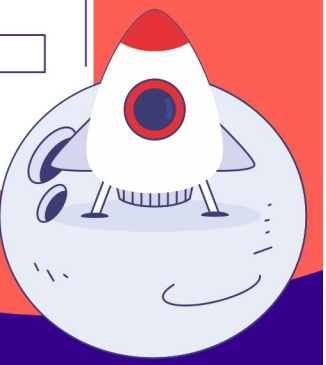
- Monaco biscuits
- Cherry tomatoes
- Cucumber
- Cheese
- Mayonnaise or Tomato sauce

BRAIN PLAY

HELP THE ASTRONAUT



GET BACK TO HIS SHIP



SPACE PUZZLE

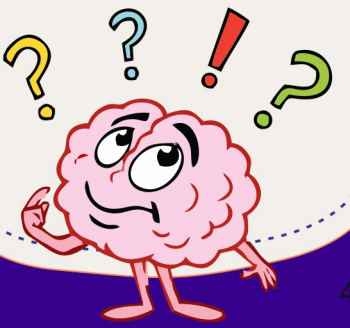
Complete the word search

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

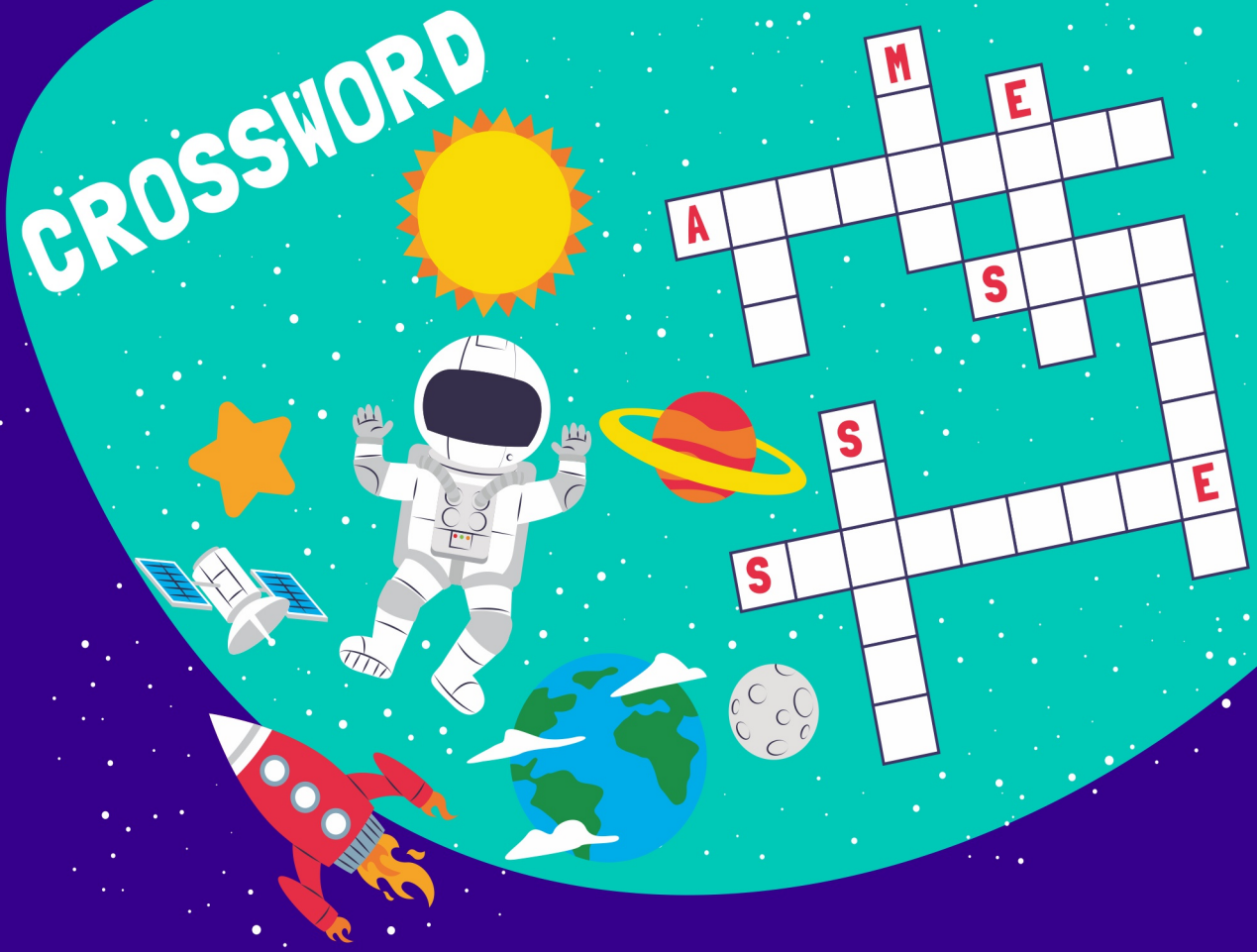
STAR SUN ALIEN ASTRONAUT MOON
UFO ROCKET PLANET TELESCOPE EARTH

What Am I?

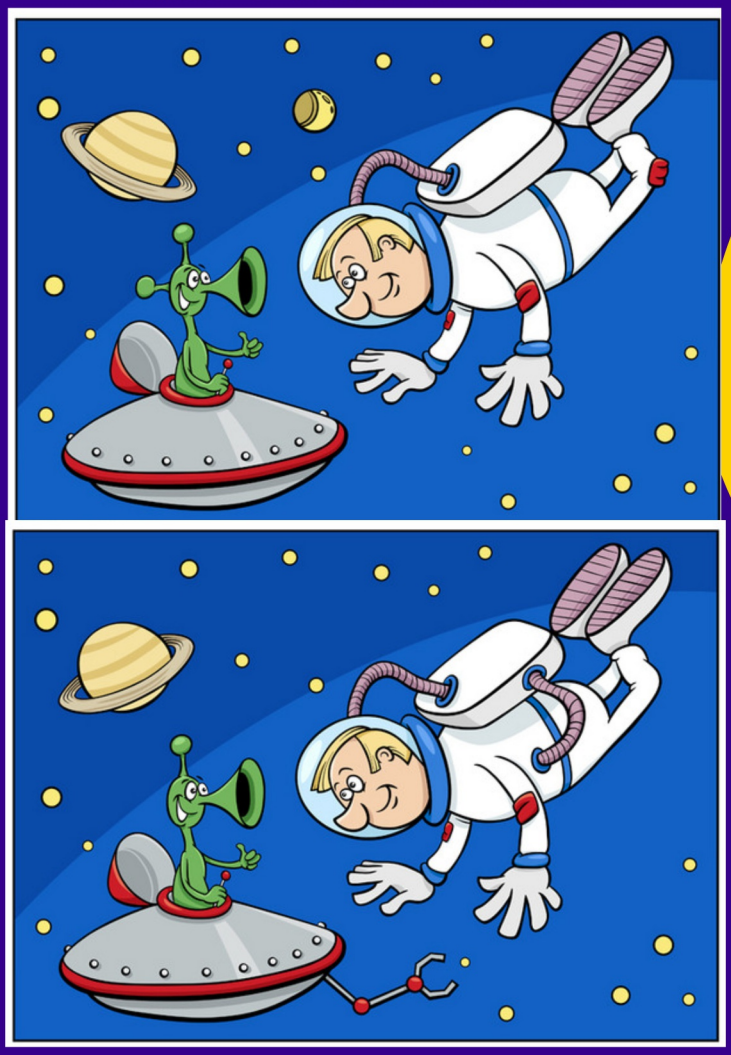
I can be looked through but
I'm not a window,
I have your eye pressed to me
but I'm not a door peephole,
I'm often placed on a tripod
but I'm not a camera,
I help you see things that are
far away but I'm not a pair of
binoculars,
I'm often pointed at the sky
but I'm not a satellite dish!



CROSSWORD



Find 6 differences



Using just the letters in the word below, can you make atleast 12 new words?

RULES: You may only use a letter as many times as it is shown in the key word. Each word must be atleast 4 letters long.

GOOD LUCK!

ASTEROID

Riddle

I am bigger than Venus
but smaller than Uranus.
I am a living rock.
What am I??


Since 1927