

# THE QURRIO

Mag

## The Earth & Beyond



Volume 1 | 2022  
PIS **CHINCHWAD**



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## FROM THE PRINCIPAL'S DESK

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At the outset, I express my gratitude to the parents who have put their faith in us to educate their children. This brings with it tremendous responsibilities and I assure you that we are doing our best to live up to your trust in us.

Innovation in Education encourages teachers and students to explore research and use tools to unearth new mysteries. Today as a school we are moving towards competency based education where the learning process is student centric and efficient.

Schools do not graduate employees, they graduate human beings and we empower students to be lifelong learners, critical thinkers, and productive members of an ever-changing global society. Converting every individual into a self-reliant and independent citizen, our school provides an amalgam of scholastic and co-scholastic activities which leads to better overall outcome in the school environment.

We at Podar International School, Chinchwad are happy to launch our 1st school E magazine 'The Curio Mag', which gives opportunities to the students to showcase their creativity in the form of stories, articles, poems and anecdotes.

The theme for the 1st Volume is 'The Earth & Beyond' and has given the students a chance to learn and explore 'Outer Space' in a fun and creative manner.

I congratulate my entire team for their hard work and dedication to making this magazine. I am sure that the positive attitude, hard work, sustained efforts and innovative ideas exhibited by our young children will surely stir the minds of the readers and take them to the fantastic world of sheer joy and pleasure.

"Education is a shared commitment between dedicated teachers, motivated students and enthusiastic parents with high expectations"

Regards,

**Shehanaz Cottar**

**Principal**

**Podar International School, Chinchwad**

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# CHRONICLES OF SPACE

## Big Bang Theory

Bang! Bang! Bang! And that's how it came into presence. One of the biggest mysteries for humans is how the universe was formed. Even the planets and the stars might be wondering "how did we come into existence"? We might also sometimes wonder, what exactly are the mysteries behind this vast universe and the eye-catching twinkling lights in the night sky- the stars! The wonders of the galaxy are still unknown to mankind yet they are evolving at an incredible speed.

The story of the dawn of the galaxy goes like this :

It all began with an extraordinary and massive explosion that still amazes humanity. The 'Big Bang Theory' as astrologists declare, is the most widely acceptable and accurate explanation of human reality. 13.8 billion years ago, the universe was not as we see it today. It started as small as a point with infinite density and heat called Singularity or Plank Epoch in terms of cosmology. It cooled down and kept expanding at a phenomenal rate leading to the formation of subatomic particles which later formed simple atoms. Thereupon, the temperature dropped down below 1 billion Kelvin, allowing the protons and neutrons to combine and create hydrogen and helium atoms. Throughout several years that followed, the uniformly distributed matter in the cosmos began to get gravitationally attracted to each other. This was the period when the modern universe started to take shape. It consisted of visible matter of various structures and sizes, from stars to planets to galaxies and galaxy clusters. All of these processes are what we see now in this extended space and surprisingly they occurred in a fraction of a second!

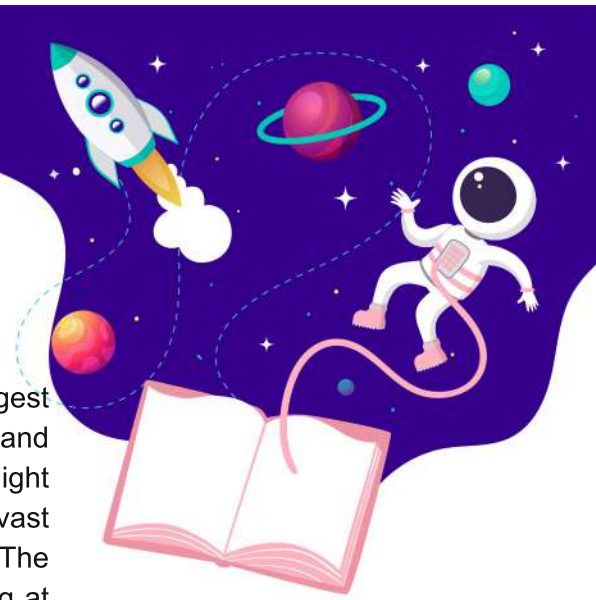
On the other hand, the big bang theory is merely a possibility of what might have led to the birth of the universe.

Isn't it amazing how nature always stuns us with its tricks and mysteries? Even now the galaxies, stars, dust clouds, and planets are developing at a very rapid speed. It does seem that the universe is endless and has no boundaries. Nature has once again proved itself unpredictable and so mighty which as a matter of course humans can't compare with even today.

**Radhika : XI Commerce**



**Avanish Sulebhavikar: V-A**



## Southern Lights

A brilliant stream of the southern lights or Aurora Australis is captured in this photograph from the International Space Station as it orbited 270 miles above the Indian Ocean near Antarctica.

The vibrant displays of light around Earth's North and South Poles are caused by the interaction of solar particles, ejected by the Sun, and our planet's protective magnetic field. Most of the time these interactions are relatively limited and go unnoticed by humans on Earth.

However, during large solar storms, called Coronal Mass Ejections, the Sun spews large bubbles of electrified gas which collide with Earth's magnetic field at its North and South Poles and enter our atmosphere.

Once in the atmosphere, these energized solar particles collide with atmospheric gasses resulting in the beautiful displays of light. When solar particles collide with atmospheric oxygen they give off rich red and green hues as seen in the image. Conversely, if these same particles collide with nitrogen in our atmosphere they illuminate the sky in glows of blue and purple (Source : NASA Instagram page)

**Sai Shamita: XI Commerce**

# CHRONICLES OF SPACE

## Dust to Dominant : An Odyssey

From being an almost trifling bacterial cell, about two billion years from now, to evolving as an intellectually attributed human, times have changed. From valuing humane norms to stumbling upon the materialistic aspects of the modern world, our ways and standards of living have progressed to zenith heights with time. Yet looking back in time, scientifically-backed facts and evolutionary traces demonstrate our constant efforts to fit into a niche and thrive through hurdles as the journey of existence continues. So what do humans have in common with the universe they have suited themselves into?

It is said that space is constituted by about 85% of dark matter, which is credited to play a major role in the formation of celestial bodies such as galaxies. Such an effect is achieved by providing some extra gravity that binds stars, preventing them from swirling out into space.

Contradicting the fact that these can literally tunnel through our body tissues as a flesh-melting plasma plume, they are an indirect prerequisite for our existence. Personifying them gives us an idea of how we are similar in behavior to our universe. Humans, having an equal amount of affinity towards negativity as for the positive part, are similar in behavior to dark space and dark matter. We might have negative thoughts and apprehensions about the things we surround ourselves with, but we must remember that we also possess the caliber to be able to organize our chaotic life and turn it more orderly, just as the dark matter uses its gravitational pull to form a heavenly galaxy; so important that our lives would be clueless without its existence.

We have in us, both the positive and the negative, just like the source of our existence: Our Universe, so limitless and full of anomalies and mysteries. Looking at the magical side of life, we see that we are not connected to the universe, but that we are the universe. We are made up of the very elements that were a product of the Big Bang, as well as the cataclysmic events of the death of supernovae and stars. Even the blood in our veins comprises a major element, namely Iron, which traces itself as an element involved in the stellar life cycle. Intimately, our river of life is connected with the cycle of life of celestial bodies.

All the complexities and compound products that we are made up of started with something as single as an atom or a cell. This singularity of origination makes us millions of similar, yet subtly different galaxies, very small in existence and confined into an unending universe. Who are we to each other? A part of me is a part of you. It is the same flow of energy reverberating within each one of us. Yet, in this modern world: an illusion that we have created for ourselves, our race for survival has buried the sense of commonality ever since.

In the end, all we have are the connections that we make.

[Varshini Balaji : XI PCMB](#)





# CHRONICLES OF SPACE



## A.P.J Abdul Kalam with NASA

As we all A.P.J Abdul Kalam was India's 11th President from 2002 to 2007. He was born on 15th October 1931. He died on 27th July 2015,

So, when Abdul Kalam went to Nasa he saw a painting of Tipu Sultan there in that painting he saw that the Tipu sultan was firing rockets at the enemies. So let's see how they invented these rockets at that time.

These Rockets are also known as Mysorean Rockets; these rockets were Tipu Sultan's weapons at that time.

This is very helpful for us to know about the history of rockets, we come to know that people of that time were having rich mindsets. I mean that people were having such a great mind to make those things, these resources should persevere. It helps us to get to the depth. In the picture, we can see the Rocket. Tipu Sultan used this for his wars which were the Anglo-Mysore Wars. (1767 to 1799)

The rockets have a range of something around 1000 yards. Those rocket designs were simple yet powerful, there were simple tools used for making the rockets that helped Tipu Sultan to beat the Britishers.



[Anika Singh : VIII-D](#)

# CHRONICLES OF SPACE



## ★ Story Of Kitu's Star



Once upon a time there lived a child in Mysore, his name was Krishnamurty, and his nick name was Kitu. Kitu was a brilliant student and a great sportsman. He was living with his family happily. All the day started with a prayer of lord Ganesha and then followed with the breakfast of the child Kitu.

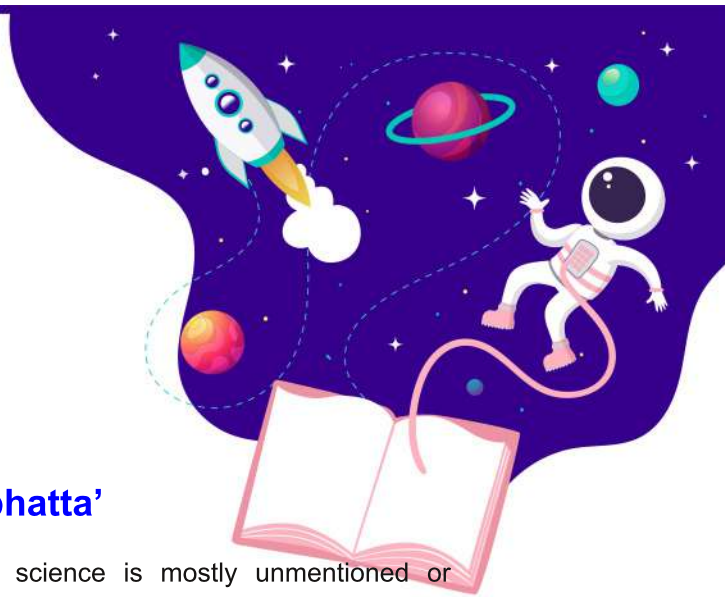
One day at his school there was a workshop with the theme of "Mighty Space" many astronauts and scientists were invited. Kitu was motivated from an astronaut who was successful in space travelling. Days passed and kitu was grown up. He was in 8th STD. He started studying very hardly to achieve the scholarship for his further studies. One day he was studying till late night, it was 4:00 o'clock in the morning. Kitu noticed one star which was very bright and big. In school his classmates were discussing about that star only. He went home and asked mother about the star she said that it was the Druvh Tara (morning star). And he again sat for studying and after a while he spotted one meteor. He hard a big sound of 'thud'. And the shiny light of that star was penetrating the darkness.Kitu ran outside to that space where the star fell. He was very shocked to see that the star was glooming so brightly. He tried to take it in his hand and rushed in his room shouting "Amma, Amma, what I have got!" in the school he asked and showed the star to the teacher who taught them about space science. They searched it on the internet, and it was a star which was having ability to generate nuclear energy.

Reporters, writers of different magazines reached kitu's home for the interview. His photos with the star were printed in the in the newspaper and many magazines. The Indian government awarded kitu for his discovery of the star. Further kitu became a scientist and worked for ISRO. Once he got job offer for NASA but he rejected the job offer and said that "I will work for my country, me and my team of ISRO will develop my country in the field of space science."

[Shreshth Saini- IX AB](#)



# CHRONICLES OF SPACE



## ‘The Legend of Aryabhata’

The contribution of Indian astronomers towards space science is mostly unmentioned or recognised just as a non-evidenced prediction" and "alleged philosophy' by the rest of the world. Indian astronomers such as Aryabhata had discovered those Facts about space, which after a few centuries were re-discovered and patented by Europeans. Let us understand Aryabhata's contribution in space research in detail:

Aryabhata was born in Kerala and lived from 476 AD to 550 AD. He received his education at the prestigious, ancient Nalanda University. He was a pioneering mathematician as well as an astronomer.

He pondered upon the solar system's motions and determined that the solar year had 365.8586805 days in it, rounding it up to 365 days. This data accuracy clearly proves the legitimacy and factuality in the theories of Aryabhata.

Though on a geocentric model earlier, Aryabhata scientifically described solar and lunar eclipses. He stated that the eclipse are caused due to Rahu and Ketu, he explains eclipses as shadows projected by and falling on Earth.

Nowadays Rahu and Ketu are just said to be complex astrological terms and a useless assumption but Rahu and Ketu just play the role of sun and moon in lunar and solar eclipse respectively.

Rahu is the point where the sun stands to cause eclipse.

Ketu is the point on moon's orbit where it stands to cause eclipse .

Later, Aryabhata also propounded a Heliocentric model. After 1000 years, the same was discovered by Galileo. This model stated that earth and other planets revolve around the Sun and the Sun is stationary.

This proves that Aryabhata was not stubborn in his beliefs. He accepted that the earlier used geocentric model was incorrect.

This shows that, unlike other astronomers, Aryabhata was not stubborn over his beliefs. He accepted his mistake of doing research on geocentric models and published the truth that the sun was stationary not earth.

He also described how moons and planets don't have their own light but only reflect the sunlight.

Aryabhata's discoveries make him a great astrologer, but what makes him greater is his flexible attitude. Other astrologers of the time, hated the criticism over their theories, while Aryabhata researched over the loopholes pointed.

Aryabhata's contributions to space are innumerable. Keeping Aryabhata's legacy alive, Indian scientists in the modern era have made sky- rocking discoveries and give India its rightful place in Worldwide space research.



[Avaneesh Bhosale : IX-B](#)



# SPACE PROJECTS



## Quasars

A Quasar is a super massive black hole that is actively feeding on material. Quasar can be broken down to 'quasi-stellar' meaning radio source. They are named so because they looked like stars when they were first noticed by astronomers around late 1950's and the early 60's. However Quasar aren't stars. It is currently believed by astronomers that Quasars are extremely luminous centers of galaxy in their infancy. They are located at a vast distance from us with their numbers increasing towards edge of the visible universe. If they are so far away how are they still visible? The answer to that is Quasars are extremely bright objects almost a 1000 times brighter than our own MILKY WAY galaxy. Thus it is known that they are highly active, emitting enormous amount of radiation across the electromagnetic spectrum. Since Quasars are very far from us we are seeing them as they were when the universe was younger. After years of studying these objects scientist have come up with another term for them Quasar is kind of a 'Active Galactic Nucleus' or AGN .

Scientists have come up with a theory that the radiation emitted by a AGN powers a super massive Black Hole at its center. The radiation comes from material in accretion disk surrounding the Black hole when it is heated to a million degrees , due to intense friction generated by Gas, Dust particles and other matter present in the disk colliding with each other countless times. In fact Quasars/ Black hole's accretion disk when heated up generates X-Rays , Ultraviolet rays and Visible light. Due to this the Quasar becomes so bright that it is able to outshine the whole galaxy. Many believed that most of the galaxies if not all of them went through a 'Quasar Phase' soon after their formation . If so they would've lowered in luminosity when they had run out of matter to feed the accretion disk surrounding their super massive black holes. Let us now discuss about the history of discovery of Quasar. It was first discovered in late 1950's. It was done by astronomers using Radio Telescopes. They saw objects that were like stars that emitted radio waves, hence the name. However these objects weren't visible through optical telescopes. Their resemblance to stars made scientist think that they were looking at objects from their own galaxy. However studying their radio spectrum revealed them to be more mysterious than expected at that time. Astronomers were unaware that 'quasars' were extremely far away.

Then in 1963 two astronomers Allan Sandage and Thomas A Matthews found what they wanted to. It appeared to be a faint blue star at the location of a known Quasar. Its spectrum readings stunned them. It was like nothing they had seen before. Further using a 5 meter long Hale telescope Bolton and his team observed a Quasar named 3C273 as it passed behind the moon. The observation also let them obtain spectra. Once again it showed unrecognizable emissions lines. These lines told astronomers about the chemical composition (which all elements were there) of the object they were examining. However the quasar's spectral lines shocked the scientists, as they seemed to indicate the elements that shouldn't be present. Astronomer Martin Schmidt suggested that astronomers were seeing normal emission lines that were highly shifted towards the red end of magnetic spectrum. Thus the answer was that the Red shift was due to Quasar's enormous distance. The study of Quasar's or AGN has come very far now, still there is much we don't know about it. Quasar is just one example of an animal in the cosmic zoo about which one just has to accept the facts rather than trying to comprehend them.

[Shreyans Surana : X-D](#)

An illustration for 'SPACE PROJECTS' featuring a satellite in a yellow circle, a constellation of yellow stars, an astronaut in a purple suit, and a blue and white planet. The background is a teal wave with yellow stars.

# SPACE PROJECTS

## Types of Satellites

Satellites play a vital role in our lives. They assist us to communicate over large distances, they also help us observe the weather. They're also used for researching far-away exo-planets. But have you ever wondered how they got there or how they're held in their specific orbits for decades?

Well, all satellites today get into orbit by riding on a rocket or by riding within the cargo bay of a space shuttle. ISRO for example launched 104 satellites into orbit with one rocket in 2017. But not all satellites have an identical orbit. Different satellites having differing utilities are present in numerous orbits.

An orbit could be a curved path that an object in space (such as a star, planet, moon, asteroid or spacecraft) takes around another object because of gravity. Gravity causes objects in space that have mass to be drawn to other nearby objects. If this gravitational attraction brings them along with enough momentum, they'll sometimes begin to orbit one another. variegated varieties of orbits -

**1. Geosynchronous Orbit (GEO)** - it's an orbit that circles Earth above the equator from west to east following Earth's rotation – taking 23 hours 56 minutes and 4 seconds – by travelling at precisely the same rate as Earth. This makes satellites in GEO appear to be 'stationary' over a fixed position. Here the satellites are almost at an altitude of 35,800 km above the Earth's surface. GEO is employed by satellites that require to remain constantly above one particular place over Earth, like telecommunication satellites.

**2. Low Earth Orbit (LEO)** - an occasional Earth orbit (LEO) is, because the name suggests, an orbit that's relatively near Earth's surface. It's normally at an altitude of about 1000 km but can be as low as 160 km above Earth – which is low compared to other orbits, but still very far above Earth's surface. Unlike satellites in GEO that have got to always orbit along Earth's equator, LEO satellites shouldn't always follow a specific path around Earth in the same way.

**3. Medium Earth Orbit (MEO)** - Medium Earth orbit consists a large range of orbits anywhere between LEO and GEO. It's like LEO therein it also doesn't have to take specific paths around Earth, and it's employed by a range of satellites with many alternative applications. It's very commonly employed by navigation satellites, just like the Galileo system.

**4. Polar Orbit and Sun-synchronous Orbit (SSO)** - Satellites in polar orbits usually travel past Earth from north to south instead of from west to east, passing roughly over Earth's poles. Satellites during a polar orbit don't must pass the North and pole precisely; even a deviation within 20 to 30 degrees continues to be classed as a polar orbit. Polar orbits are a sort of low Earth orbit, as they're at low altitudes between 200 to 1000 km. Sun-synchronous orbit (SSO) could be a particular quite polar orbit. Satellites in SSO, travelling over the polar regions, are synchronous with the Sun. This implies they're synchronised to always be in the same 'fixed' position relative to the Sun.

**5. Travelling Orbits and Geostationary Orbits** - Transfer orbits are special orbits accustomed to get from one orbit to another. When satellites are launched from Earth don't seem to be always placed directly in their final orbit. Often, the satellites which are to attain high altitude, are instead placed on a transfer orbit: an orbit where, by using relatively little energy from built-in motors, the satellite or spacecraft can move from one orbit to a special orbit.

**6. Lagrange Points** - For several spacecraft being put in orbit, being too near Earth is disruptive to their mission – even at more distant orbits like GEO for instance, for space-based observatories and telescopes whose mission is to observe Earth naturally emits light and electromagnetic wave which can prevent the telescope from discovering any faint lights like distant galaxies.

[Swaraj Pathak : X-D](#)





# THE UNIVERSE TODAY

Space & Astronomy News

## The Fate of the Universe: Past and Future



“Despite its name, The Big Bang Theory is not really the theory of a bang at all. It is really only a theory of the aftermath of a bang.” – Alan Guth.

Have you ever asked yourself how the Universe began? You are not alone. Physicists and astronomers have wondered the same. To date, the Big Bang Theory is the most accepted theory for the creation of the universe. The Big Bang hypothesis states that all of the current and past matter in the Universe came into existence at the same time, roughly 13.8 billion years ago.

What caused the Big Bang? Many astronomers claim that it was due to the ‘hatching’ of an egg! Yes, you read that right! Before the Big Bang was an astronomical unit called the ‘Cosmic Egg’ which ‘hatched’ to create the Big Bang. This egg ‘hatched’ due to the increasing temperature inside the egg. Due to the cooling Universe, subatomic particles were formed and constructed as atoms. The matter that originated from the cooling began clumping together, composing what are today known as stars. Millions of stars congregate together to create galaxies. To date, we know that galaxies are moving farther and farther away from us. That indicates that the universe is still inflating!

What happened after the Big Bang and the formation of stars? What happened to the remnants? The first second was called the ‘Planck Era’, in which the particles started to form from the Big Bang. After 380,000 years, the first atoms formed were hydrogen and helium. Hydrogen is the most abundant element in the universe. The cosmic expansion led to the ‘Cosmic Microwave Background’ that was cool enough to permeate the universe between 380,000 and 400,000 years. The ‘Reionisation era’ sees ancient luminous sources ionising interstellar gas between 150 million to 1 billion years. Between 1.6 million to 400 million years, gravity begins to form stars and galaxies from clouds of gas. Heavier atoms are created in the stars’ core and released via a supernova explosion. Between 400 million to 9.2 billion years, the creation of the first stars’ powers and the first galaxies took place from them, the oldest of which we know is ‘GN-z11’. 9.2 billion years ago, our Solar System formed from the collapse of a cloud of gas and dust and was arisen by a nearby supernova. Now, after 13.8 billion years, the Universe still keeps expanding.

How will the Universe end? There are five theories about the end of the Universe, and the most accepted one is ‘The Big Freeze’. The Big Freeze is a scenario under which continued expansion results in a universe that will reach absolute zero temperature. This scenario is gaining ground as the most significant hypothesis. With a positive cosmological constant, it could also occur in a closed universe. In this scenario, stars will continue to form naturally for 1–100 trillion years, but eventually, the gas supply needed for star formation will be exhausted. As existing stars run out of fuel and cease to shine, the universe will slowly and inexorably grow darker. Gradually, black holes will dominate the universe, which themselves will disappear over time. There will then be nothing left in the Universe. Subsequently, the Universe will be a place full of nothing but darkness.

[Shreshth Saini : IX-A](#)

# THE UNIVERSE TODAY

Space & Astronomy News



NASA is the Space Agency founded by Dwight D. Eisenhower which was started on October 1st, 1958 as a part of the United States government. Its main intention is to conduct experiments in space, observe planets and find whether there is life on other planets or not by finding the smallest hint of water. And if the water is formed or found on a specific planet then it is said that there should be an existence of biological life which was proven by NASA.

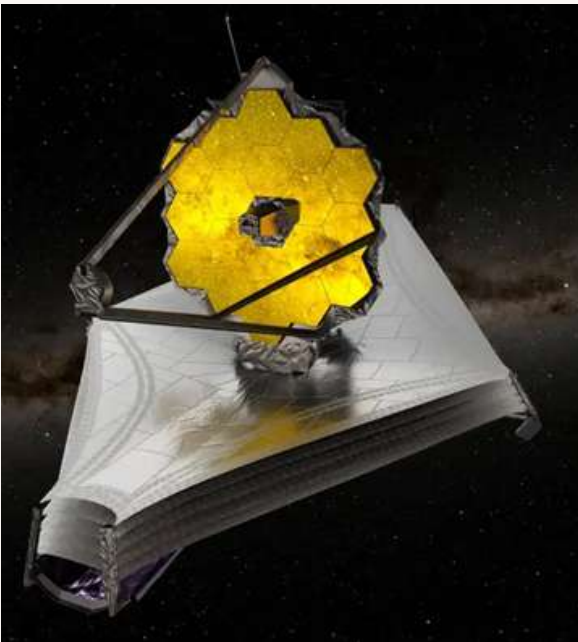
NASA's recent projects have been proven successful for our home planet Earth.

How NASA helpful to Earth?

Long back ago, NASA released its satellite, named SMAP which is a super complex Earth satellite that costs 900 million dollars. It has a radiometer in it which is used to measure the soil moisture level on earth and this measuring of soil moisture is essential as it contains the vital sign of the planet. With this technology, we can also use it for monitoring droughts, floods, and even crop yield for a given year.

This is used for those areas like Africa because they live in poverty so it is kind of helpful for them. Apart from this NASA is also trying to colonize Mars just if something catastrophically bad happens here on Earth then we could start living on Mars and make it a permanent habitat.

NASA's latest satellite, JWST or James Webb Space Telescope is 6 times larger than the Hubble telescope, but also 600 times more powerful.



JWST contains 18 of hexagonal gold-plated reflectors which are used for proper infrared reflectivity. It orbits in a Sun-Earth orbit and the Lagrange point is 1,500,000 kilometers.

How NASA is progressing its target of colonizing Mars?

There are many satellites, orbiters, and rovers out there on Mars which are helpful and are doing continuous 24/7 research on Mars, and just like the above paragraph, they're also searching for water so that they could find proof that life could exist on Mars.

Two of the best Rovers on Mars are: -

Curiosity: - Curiosity is a Rover which has landed on Gale Crater and is continuing its research on finding water on Mars. It was launched on 26th November 2011

Perseverance: - This Rover is the brother of curiosity, but compared to Curiosity, it has more advanced technological equipment in it. The famous thing about this Rover is that it contains a small helicopter that flew on Mars.

But we forgot the main Satellite which is still orbiting the earth and holds the post of the costliest man-made object in space the ISS :

The International Space Station (ISS) is the largest modular space station currently in low Earth orbit. It is an object moving around the space that was made by a collaboration with NASA (United States), Roscosmos (Russia), JAXA (Japan), ESA (Europe), and CSA (Canada). The cost of this whole thing is \$150,000,000,000. It's nearly the size of a football field.



[Nallanthigal Pranav Bharadwaj : X-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)

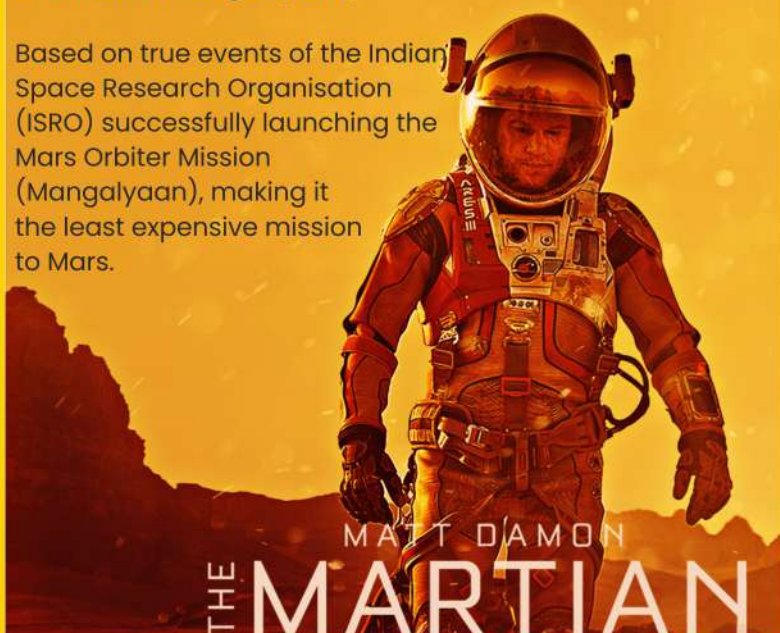
Two astronauts work together to survive after an accident leaves them stranded in space.

### 6. Fly Me To The Moon (2009)

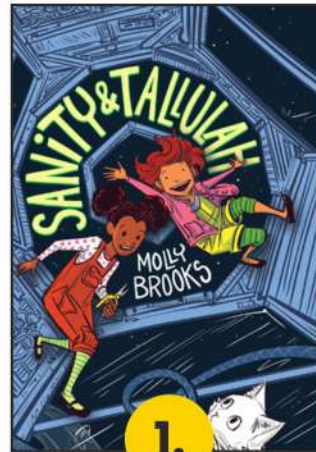
Three young house flies stowaway aboard the Apollo 11 flight to the moon.

### 7. Mission Mangal (2019)

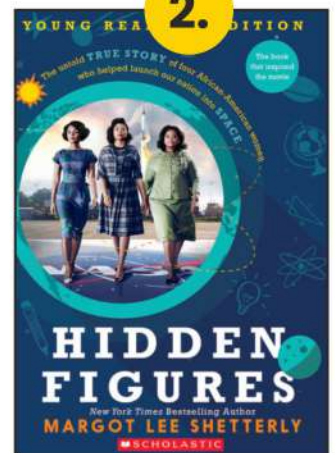
Based on true events of the Indian Space Research Organisation (ISRO) successfully launching the Mars Orbiter Mission (Mangalyaan), making it the least expensive mission to Mars.



## Books



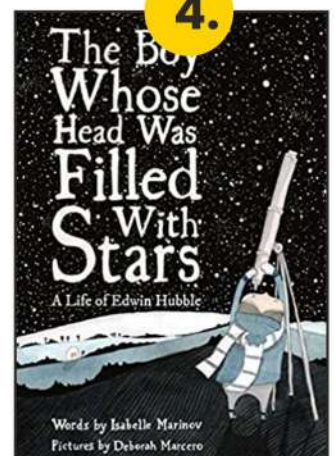
Sanity & Tallulah  
Molly Brooks



Hidden Figures  
Young Readers'  
Margot Lee Shetterly



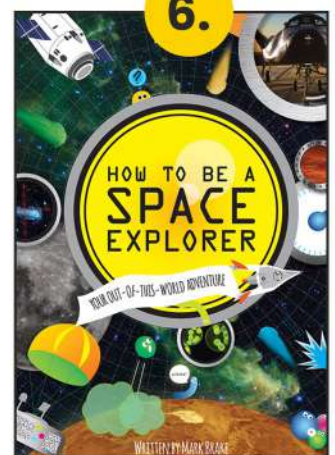
Galaxy Girls: 50 Amazing  
Stories of Women  
In Space  
Libby Jackson



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



The Kid Who Came  
From Space  
- Ross Welford



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





# Review

## Movies & Books

**Title of the Book/Movie:** Movie: The Martian

### Movie/Book Summary:

The 2015 film *Martian* portrays a story of Mark Watney who is left behind on Mars after being presumed dead by his crew. Matt Damon's acting plays a crucial role as he is the only person in majority of the film. The audience feel the emptiness and loneliness of Mark without being bored out. Though being a sci-fi film, *Martian* has a quite realistic take in terms of science. The story on only with one person in a deserted place, but at the same time keeps the audience interested in the plot. The CGI used in the film is incredible as it looks realistic and does not stand out too much. The movie is heavily based on survival, knowledge and hope. The extreme knowledge which Mark has, helps him to survive on the red planet and connect with people on Earth. The most important line in the movie is "I am not gonna die here" which shows the hope which Mark has. Overall *The Martian* is a well-made sci-fi movie which portrays a message about survival instincts and hopefulness.

**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:** Sanika Kamat : IX-F

**Title of the Book/Movie:** Book : Land of Stories

### Movie/Book Summary:

The "Land of Stories" is a book series which I have recently read. It is written by Chris Colfer. There are six books: "Wishing Spell", "The Enchantress Returns", "The Grimm Warning", "Beyond the Kingdom", "An Author's Odyssey", "Worlds Collide" in the series. It is the perfect combination of suspense and fantasy. The author has beautifully managed the magic of the story through all six books. I recommend it to all who love mystery and magic.

**How many hearts do you give this movie?**

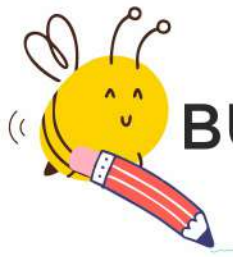
(Draw a heart to rate - 1 heart means the movie was really bad.

5 hearts means it was great!)



**Movie/Book Reviewed By:** Joann Mariam Joshua : VIII-D





# BUZZING POETS

## Dust to Dominant : An Odyssey

In an unending darkness  
That no man has yet explored,  
A million shiny pieces  
Guide the world into light!

Each star tells a different story,  
From being born within clouds of dust,  
To ending their lives as red giants..

Some twinkle in the evening sky;  
While others shoot off to their pied-à-terre,  
I closed my eyes to make a wish..

Suddenly, I heard Ma call out to me,  
And outside my window,  
I saw a star outshining everything!

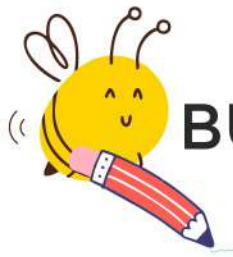
I thought of making my incomplete wish,  
But this star didn't advance a step  
In the blue yonder!

I waited all day till it disappeared;  
Specks of white then adorned the sky,  
But none came whooshing by..

The moon shone bright in the sky,  
No star took my side, to fulfil my only wish,  
My face hung as gloomy as Melpomene..

Years later, I explored them all,  
Many swooshed past my space vehicle..  
True did come many wishes,  
Though I didn't see them on that gloomy day!

**Suhaila Noushad: XII-PCMB**



# BUZZING POETS

## Space Sight

I Think About Space  
I Think About Space  
I got Inspired too  
I got Motivated too

Could you imagine that,  
What all I saw?  
Could you imagine that,  
What all surprise there?

At the time of moonsight ,  
My mind full of wonders.  
At the time of sunlight,  
My eyes full of tears.  
At the time of Planet crossing,  
My brain full of photo copy.  
Good vision gives good mind  
Good vision gives good ways  
Good vision gives good thoughts  
So, space sight is good vision  
It relaxes our mind

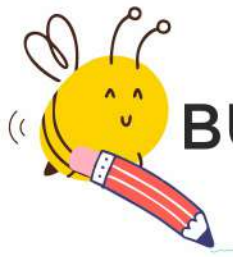
**Jenessa Johman : VI-A**

## SPACE

Outer Space is where I really like to go.  
I like to ride inside the big spaceship, don't you know?  
I like to ride through the stars, waves to Jupiter and Mars.  
Outer Space is where I really like to go.  
Then 'Whoosh' went the spaceship  
Buckle up to the light,  
And the five astronauts zoomed out of the sight!

**Janvi Prashant Kumawat : VI-B**





# BUZZING POETS

## THE UNIVERSE

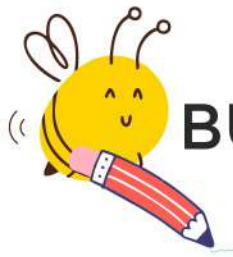
I am the endless, I am the darkest,  
I neither have death nor any life,  
I hold the death, I hold the life,  
believe or not the afterlife.

I own the time, time and matter,  
matter and energy, energy and space,  
I am the one, whom one can explore but one cannot trace.  
Here the clouds of grass collapse and rotate  
where the beautiful stars evolve,  
Of beautiful, gigantic maze of galaxies  
together they resolve.

In the Milky Way,  
around the Sun and the planets revolve,  
In the mother Earth  
the beautiful creatures that involve.  
Every second, every minute,  
the total of me extends,  
And the growth of stars  
every year in me amends.

Not a definite face cause at a single pace I extend,  
Always the creatures and planets,  
stars and galaxies, on me will depend.!

**Atharva Gadvi : VIII-D**



# BUZZING POETS

## SPACE

It is a Irony that the planets are formed through Catastrophe ,  
But the testimony shows that it's worthy  
We are able to explain many mysteries through Physics,  
And also could understand Aurora's lyrics.

The World is covered all around with vacuum ,  
Too big for us to even assume  
The Astronauts are very lucky to see space's beauty,  
That too very closely .

**Anshula Sandeep Waghere: X-F**

### The Space

One tiny soul,  
who is fully sore  
Looks up at the sky so whole,  
there's so much more

There is something surely,  
beyond the sky so heavenly  
Been thinking about it lately,  
and I just found it ultimately

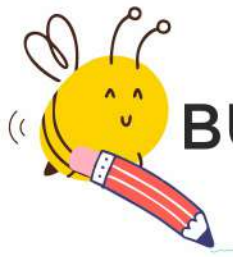
It's boundless of all,  
like a starry shawl  
Giving aesthetic nightfall,  
to my little eyeball

It's so cosmic,  
magical as unrealistic  
With sparkling spheres so galactic,  
and gleaming stars being scenic

Everytime I feel so empty,  
you are the only necessity  
I just look into the sky so blue,  
I'm so lost in you

**Shreya Modak : IX-F**





# BUZZING POETS

## The Cosmos

Drifting from the heavens,  
there's this darkness aloft  
All I see is black emptiness,  
as colder and colder it gets.

The blazing rock and the white dwarf,  
One showing aggression other peace,  
A ball of fire and a ball of silver dust,  
People call them the Sun and the Moon.

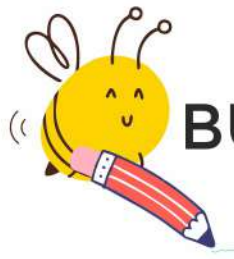
From land I see the twinkling stars,  
But oh! What a gigantic sparkle are they;  
Floating and falling in the space,  
A wish is all I can make.

Eight hanging bodies up there, but  
but life on only one of them.  
What's this celestial vastness?  
What's this unconquerable void?  
Let it stay a mystery unexplained.

Oh! This phenomenal cosmos.

Oh! This phenomenal cosmos.

**Shreya Bhujbal : X-D**



# BUZZING POETS

## The Gleam in the Gloom

With a last few moments in space, seek I did a helping man  
And when I found one, towards him I desperately ran.

Slowly I saw, quite a peculiar physique he had,  
Even more slowly I twigged, of the danger in gone I had.

Vikhyath Patil : X-D

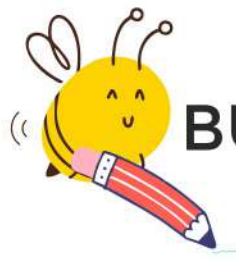
## Into The Unknown

Bored of the earth, set, I out to venture the universe,  
Found myself in the middle of nowhere I did.

Lost my way back, but did not worry to make it worse,  
Knew a big field lied ahead of me full of adventures quite  
splendid.

Vikhyath Patil : X-D





# BUZZING POETS

## Space

Space where all planets  
revolve around a great,

Are on prolonged loop  
in a key race

Where stars twinkle at night,  
like lightfirefly in the midnight

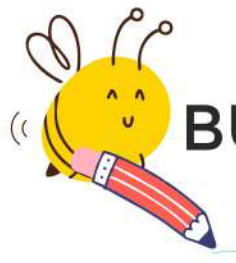
As i see the planets ,  
Venus , Earth , Neptune ,

Saturn and others  
I fell proud to be in earth's light

If sometimes you stuck in space ,  
start praying until you are saved

space where all planets ,  
revolve around a great .

**Swanand Sathe : X-B**



# BUZZING POETS

## Little Stargazer

Every star has a lore of its own  
Some are symbols of the God's might,  
Some guide the travelers of the night  
Some bring death as they arrive,  
Some bestow light and make life thrive  
But when the little one gazes the night,  
All that appears to her innocent eyes,  
Is a happy friend who shines bright  
And talks to her by twinkling lights.

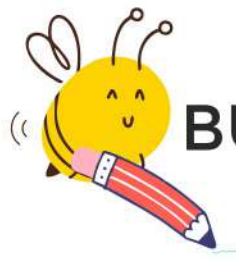
**Advait Dhanawade : X-D**

## Space (Acrostic Poem)

**S**o much there lies, above the blue heights-  
**P**lanets and Stars, Comets and Meteorites.  
**A**ll of it is ours to explore,  
**C**an we walk them all, the worlds beyond our own?  
**E**xtraordinary adventures are in store!

**Advait Dhanawade : X-D**





# BUZZING POETS

## **Crumbling into netherworld...**

I felt as if at loss of words,  
When it comes to describe different worlds...

Outside our beloved Earth  
There's more the eye could cover  
Yet not one warms to me like home and hearth,  
As I will love my Earth forever...

This may be the end of Earth  
The place where we took birth, is going to be tarnished!  
Yet I'll take my stand against humanity,  
And save our mother from human brutality.

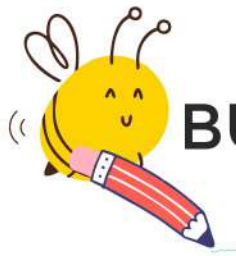
My efforts have been nonpareil  
To pave a path and save the earth  
from crumbling into the netherworld

Multiverses,  
not one which can cure the curses  
of mortal tending  
to extract the life source  
of a giver of life force...

Decades have passed,  
The theories of earth to end did last.  
Yet the efforts have gone waste  
Not many could do enough to save  
Making mother Earth dig her own grave  
Taking us down with her  
To a deep dark cave

And then there's no coming back...

**Anwita Jeyaprakash : X-C**



# BUZZING POETS

## Space

What really is this  
Concept of space?  
Why amongst the genius  
Is it such a craze?

Is there an end,  
To this universe?  
How much will it extend  
Till it meets it's curse?

A vast expanse of nothingness  
Covered with a dark sheet of silence  
The very base of our existence  
Will we ever come to know  
Of the universe's greatness?

Curiosity engulfs me  
All the wonders I wish to see  
Dangerous and shiny,  
But all I can do  
Is awe at it's monstrosity


In the back of my mind  
A sliver of doubt  
For our little minds  
Will this wisdom workout?

I sometimes wonder,  
Is this knowledge  
Really ours to own?  
Or are the mysteries of  
Space better unknown?

**Shreya Iyer : X-C**



# SPACE



## Exploration



### Are We Space?

Space is simply everything that surrounds us. Scientifically, space is a perfect vacuum, void of matter with variable low temperatures. The first thought that comes to our mind when we think about space is clouds, gases, galaxies, asteroids, comets, and black holes. Wait... Did someone mention a black hole? Is it a true picture of us? Didn't resonate? Let's see how.

"Black Hole is a cosmic body of extremely intense gravity from which nothing, not even light can escape". Two such renowned black holes are Sagittarius A\* which is a supermassive black hole and the Messier 87 (supergiant) of the elliptical galaxy with several stars in the Virgo constellation and clusters of local galaxies like the Milky Way. It is like the beast inside the Milky Way's heart.

The first picture of the Sagittarius A\* was captured on 12th May 2022 by Event Horizon Telescope (EHT). The EHT is a large telescope array consisting of a global network of radio telescopes. This was successful in creating the image. Sagittarius A\* is small- just 30 times wider than our Sun and 27,000 light years distant. Surprisingly, its appearance changes from time to time.

Structurally it is a complex body. It comprises mainly of—singularity, photonsphere, relativistic jet, inner most stable orbit, and acceleration disc.

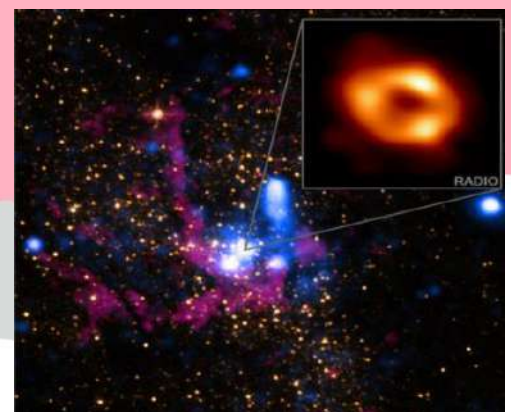
It is said that nothing escapes a 'Blackhole'—the same is the case with our mind. All types of impressions, whether we remember them or not are deposited in our subconscious mind. We know little about human minds just as we have limited knowledge of 'black holes'. 'Black holes can attract everything—even light can't pass through them. Similarly, the human mind has the potential to attract everything if it desires it earnestly. That is the 'power of the subconscious mind'.

Our mind and body consist of many unknown wonders in physical and mental senses both. Physically, many functions of the human body are unknown and yet to be discovered while mentally, wonders just appear.

Today man has reached the moon and come back. Isn't it the manifestation of the power of the mind? The mind can also be very destructive like a black hole that can assimilate everything, A 'dark mind' can wreak havoc and destroy the Earth and cause the loss of millions of lives by the mere push of a 'nuclear button'.

If we can go up to the black hole, create its image, develop space stations, and space crafts to explore space so can we with our minds. By adopting self-developed methodologies, one can go beyond its potential and overlook themselves as 'space'.

**Shreya Ranjan : XII-PCMB**



# SPACE



## Exploration

### THE UNKNOWN SPACE



This is the most awesome place to be explored! Although a lot of part of the space has been discovered it only accounts for just 5% of the universe. The remaining 95% is still a MYSTERY- an unknown universe of new particles and forces awaiting discovery.

Let's have a peek into some of the Awesome discoveries of space.

#### Supernovas

It is caused by the "last hurrah" of a dying massive star. This happens when a star at least five times the mass of our sun goes out with a fantastic bang! That's cool! Stars burn huge amounts of nuclear fuel at their cores. This produces tons of energy which makes the centre very hot thus generating pressure. Gravity tries to squeeze it but the nuclear burning keeps it from collapsing.

When a massive star runs out of fuel, it cools off. This causes the pressure to drop. Gravity wins out, and the star suddenly collapses. Imagine something one million times the mass of Earth collapsing in 15 seconds! The collapse happens so quickly that it creates enormous shock waves that cause the outer part of the star to explode! Boom!!

#### Nebula

As seen earlier, a dying star explodes due to gravitational pressure. Now, when it explodes, it throws out gas and dust (mostly hydrogen and helium) this is called Nebula. They are basically remnants of the dying star.

The other nebula is the one where new stars are beginning to form. They are even called "star nurseries" for this reason. The dust and gases in a nebula are very spread out, but gravity can slowly begin to pull together clumps of dust and gas. As these clumps get bigger and bigger, their gravity gets stronger and stronger. Eventually, the clump of dust and gas gets so big that it collapses from its own gravity. The collapse causes the material at the center of the cloud to heat up-and this hot core is the beginning of a star. It is approximately 700 light-years away from Earth. That means even if you could travel at the speed of light, it would still take you 700 years to get there!

#### Black Holes

A black hole is a place in space where gravity pulls so much that even light can not get out. The gravity is so strong because matter has been squeezed into a tiny space. If an astronaut, by chance enters black hole (accidentally), then will have to spend, probably the entire life inside it as his speed should be more than that of the light to get out, which is currently impossible.

The largest black holes are called "supermassive". These black holes have masses more than 1 million Suns. Scientists have found proof that every large galaxy contains a supermassive black hole at its center.

#### Dark matter

This might be surprising, but we seriously don't know what's out there in space. Galaxies, planets, etc. make up only about 5% of the entire universe. There is a lot more to discover. When scientists study our universe, they see that it's expanding. But if the universe is only made of the galaxies, stars, planets, and other things that we know about, it shouldn't be expanding. These things don't increase in size. That's for sure. Something else is out there. There has to be energy that is making the universe expand. We just don't know what this energy is. We also don't know where it comes from. But we can tell that it's there. Scientists named this energy dark energy.

Together, dark energy and dark matter make up 95% of the universe. That's almost all of it! Energy like light, heat, and X-rays, together with matter like people, elephants, planet Earth, the sun, and all the galaxies only makes up 5% of the universe! That's not very much.

Maybe we will be able to discover what all that stuff is in the near future. There's always to learn and discover something new in space.



# SPACE



## Exploration

### The Vision of Time



#### Can we time-travel?

Nowadays, there are many theories coming upon that we can travel through time, although these rumours we still know that time-travel is not possible .

But have you ever imagined what if we could see our past without time-travelling?

Yes we can, we cannot travel but we can see time.

#### How can we see time?

Do you know that light takes time to travel and based on that there are light years which determine the time light will take to reach us?

For example-Light from Saturn takes 1 hrs,13 mins and 39.6693 seconds to reach Earth .Which means if Saturn exploded at present it will take 1hr,13 mins and 39.6693 seconds for the dying light of Saturn to reach earth and we wouldn't know till the dying light comes.

Just like that all the stars which are visible are not alive at present, some have exploded many years ago but their dying light has not yet reached us.

Now lets understand how we can see the past of Earth.

#### Let's See Earth's Past

If there would be any observer 4.5 billion light years away,at present he could see the birth of earth to hoe life started and all.

Just like that, if in the future some very advanced technology comes which can create a telescope which can even see the smallest of light and detect and will specify Earth's light as even Sun's light can come and results may be wrong.

Telescope's width will be even bigger than earth itself and if we could place it some billion or million light years away.

We would be able to see the light coming from Earth and see its past and thus see the time.

**Aahan Patil : VIII-A**

### The Vision of Time

What is the first thing that comes to your mind after hearing the word "SPACE" ?

I'm guessing NASA (National Aeronautics and Space Administration), SpaceX and ISRO (Indian Space Research Organisation).

These were started by an organisation, except for SpaceX.The CEO of SpaceX is Elon Musk , also the owner of renowned companies such as Tesla and many more...

SpaceX is an American spacecraft manufacturer, space launch provider, and a satellite communications corporation headquartered in Hawthorne, California.

SpaceX was founded in 2002 by Elon Musk, with the aim of reducing the expenditure of space transportation and to enable the colonisation of Mars. It manufactures the Falcon 9 and Falcon Heavy launch vehicles, several rocket engines, Cargo Dragons, crew spacecrafts, and Starlink communication satellites.

The Company faced many problems ,and even failed thrice. Elon's personal and company's budget went to waste ,but still he tried hard and rose up with a BOOM!


Now SpaceX is also receiving many contracts from Nasa and other space organisations.

The message from the Article was short , but can cause a great impact in your mindset

**"Never , never , never GIVE UP"**

**Adarsh Dinesh Waghmare : X-B**

# SPACE



## Exploration



### Southern Lights

\* A brilliant stream of the southern lights or Aurora Australis is captured in this photograph from the International Space Station as it orbited 270 miles above the Indian Ocean near Antarctica

\* The vibrant displays of light around Earth's North and South Poles are caused by the interaction of solar particles, ejected by the Sun, and our planet's protective magnetic field. Most of the time these interactions are relatively limited and go unnoticed by humans on Earth.

\* However, during large solar storms, called Coronal Mass Ejections, the Sun spews large bubbles of electrified gas which collide with Earth's magnetic field at its North and South Poles and enter our atmosphere.

\* Once in the atmosphere, these energized solar particles collide with atmospheric gasses resulting in the beautiful displays of light. When solar particles collide with atmospheric oxygen they give off rich red and green hues as seen in the image. Conversely, if these same particles collide with nitrogen in our atmosphere they illuminate the sky in glows of blue and purple

(Source : NASA Instagram page)

### SAI SHAMITA : XII-COMMERCE

#### History of Space

- Astronomy, the study of the universe (planets, stars, moon etc.) is a subject studied by astronomers like Nicholas Copernicus, Galileo Galilei etc. Universe includes stars, planets, moon, constellations and other heavenly bodies.

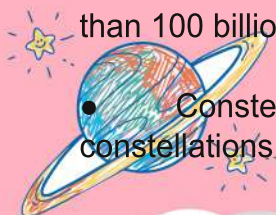
- NASA National Aeronautics and Space Administration is known for exploring science and technology related to the universe and space.

- Yuri Alekseyevich Gagarin was the first person to journey in outer space. His mission Vostok 1 completed on orbit of Earth on 12 April 1961 while Neil Alden Armstrong was the first person to step on the moon.

- The Milky Way Galaxy includes more than 2500 solar systems, 3200 stars and more than 100 billion planets.


- Constellations like Ursa Major, Orion, Canis Major and Crux are the most common constellations.

### Kritika Rajani Kant Pandey : VI-D





# SPACE



## Exploration



### SPACE – A MYSTERY

Neil Armstrong once said, "Mystery creates wonder and wonder is the basis of man's desire to understand." The space scientists definitely took these phrases into consideration which has resulted in a reveal of a mystery i.e. Space.

The space was formed many centuries ago due to the Big Bang explosion. This explosion resulted in formation of galaxies, stars, planets and many other celestial and heavenly bodies. This explosion although gave us a clear picture about the formation of the universe but this theory is itself a mystery. The reason for its occurrence is still hidden. Well, this is not only a riddle but there are many such other riddles revolving about space. One such mystery is the formation of planets. There are two thoughts of schools regarding this. One such group says that the planets are formed due to the most widely accepted core accretion theory while the other says that it is formed due to the disk instability method.

There are many more riddles which are not resolved yet like where does the atmosphere ends, how the supermassive black hole was formed or why have we seen no sign of aliens? There are hundreds of explanations to these questions but none of them manages to satisfy the human theories. According to a study, only 4% of the universe which includes all stars, planets and galaxies is known to humans and the remaining 96% of the universe is made up of stuff that astronomers can't see, detect and even comprehend. It includes many interesting wonders of space like dark energy, dark matter etc. Thus, the space still remains a deep secret, a deep mystery which is not yet resolved.

### SOUMYA SANCHETI : IX-A

#### The Shrinking Planet

Name of the planet: CoRoT-2b

Location : The constellation Aquila (spell it 'Uh-KWIK-uh')

Distance : 880 Light Years from Earth

Discovered in 2007, this planet resembles Jupiter, swirling gases that form this world. This planet takes about 1.7 days to complete a revolution around its sun. It is 880 light years away from Earth. If one tries to reach there in an ordinary spacecraft, it would take 24 million years to reach there. Temperature on this planet reaches 2240°F. This is because the sun near the planet emits X-ray radiation, the same form of energy that doctors use to take pictures of broken bones. The sun uses its gravity to pull the planet dangerously close. The rays emitted by the sun are a hundred thousand times more intense than those that the Earth receives from its sun. The X-rays create an intense wind that blows particles off the planet and into space. Every second the radiation strips off about 4.5 million tons of particles from the planet's surface. That's the weight of 12 Empire State Buildings. The high wind, blistering temperature, and extreme X-rays are more than any spacecraft can handle. These extreme conditions make it hard for any living being to survive on this planet.

#### Fun Fact-

The sun that is causing CoRoT-2b to shrink is about 300 million years old. That sounds ancient, but Earth's own sun is about 4-5 billion years old. Still, HD140283 — or Methuselah which was discovered in 2000 is estimated to be 16 billion years old.



### Siddhant Mutha : VIII-B

# SPACE Exploration



## THE MYSTERY OF THE MULTIVERSE?

The multiverse is a term that scientists use to describe the idea that beyond the observable universe, other universes may exist as well. But **why do scientists think that there can be more than one universe?**

**“We cannot explain all the features of our universe if there’s only one of them,” says science journalist Tom Siegfried, whose book *The Number of the Heavens* investigates how conceptions of the multiverse have evolved over millennia.**

The multiverse may be a hypothetical statement made by scientists but there are still more scientifically accepted ideas of the people such as “inflationary cosmology” which is the idea that in the minuscule moments after the big bang, the universe rapidly and exponentially expanded. It also explains the distribution of galaxies. Linde who is one of the architects of cosmic inflationary said that this theory earlier looked like a piece of imaginative science fiction but it explained so many interesting features of the world, so people took it seriously.

Another theory that mathematically describes how matter behaves is called the many-worlds interpretation of quantum physics, which was proposed by scientist Hugh Everett in 1957. It predicts the presence of branching timelines or alternate realities in which our decisions play out differently, sometimes producing wildly different outcomes.

According to this interpretation, versions of you could be off living the many different possible lives you could have led if you’d made different decisions. Recently many movies are based on multiverse concepts like **Marvel’s *Dr. Strange and Multiverse of madness*, *Spider-man: Into the Spider-verse*, *Spider-man: No way home*, *Loki*, etc which possibly give us an interesting idea about the theory of the full multiverse.**

## Purva Kachave : IX-F

### Joke of the day

What is astronaut’s favourite key  
on the keyboard?

-----  
-----

**A SPACE BAR**





# SPACE Exploration



## THE MYSTERY OF THE MULTIVERSE?



A wormhole. A wormhole is not the wormhole what we generally expect after listening the word. This is something that has marked a big question in the field of science. To understand this concept that defies all laws of science, we must understand many other things that too defy the laws of science.

**Black holes:** These mysterious objects are immensely dense. Their gravity is so huge that not even light can escape the black holes. As no light can escape the black holes we haven't seen it yet. A black hole radius 10miles or around 16km is 2.7 times heavy than our sun. Einstein's general theory of relativity also predicts it. The knowledge gained till now by human race tells that the object travels faster than the speed of light in the black holes. The time goes differently in black holes. As per the general theory of relativity the speed near and inside black holes is faster than that of the light. A usual black hole emits light which is around 900billion to a few hundred trillion suns.

**White holes:** This is a scientific fantasy which doesn't have and solid proof. But mathematically it is opposite of the black holes. Till now we only have only some mathematical equations that debate its existence. Some theories state that they are the other end of the wormholes. Some state that they form when the black holes die. These theories state that after the death of black holes they shrink to a small size, and turn to white hole. These objects always keep spewing out the things that they had engulfed when they were black holes in their earlier lifetime. The white holes emit a tremendous amount of energy. This energy can be equal to produce a few million solar systems to a few billion galaxies.

A wormhole is an excellent conceptual question whose answer is still pending. The wormhole's existence can be debated by the mathematical equations but as they defy the theories which have a source from human knowledge nothing can be said owing to it. There is still no solid proof of the worm holes but the scientists are still trying to find the thread that will lead to a mass development of human knowledge and will answer all the science defying questions.

A wormhole is basically like a tunnel. It had 2 ends. Some theories stated with the help of the theories stated by Einstein and Stephen Hawkins asserted that the space is like an endless imaginary gird. The gird has 2 dimensions which are: The space and the time. . Everything that exists in the space lies on it.

In this concept of wormholes the endless gird is folded such that the 2 places come one upon another and then are joined by a tunnel. Through a wormhole, one can travel with the speed more than that of light. Hence though we travel a few hundred light years, then too our speed is greater than light and hence we won't experience the time.

**No one has really seen a black hole. We only have images of it. Who knows that one black**

**Kushal Kulkarni : IX-F**

# SPACE

## Exploration

### My Space Travel



One night, I was sitting on my comfy sofa checking my emails on the laptop. As I opened a mail from my organization, a blast of surprise hit me! The mail said that I had got a chance to go and research in space. Yay!! I was so happy and excited that I started jumping on my sofa! Space was the topic I loved the most, and do you know why?? Of course! I was an astronaut. I was excited about my space travel and informed about it to everyone. Everyone congratulated me, and even my boss sent me a congratulatory message. That day was so surprising that I couldn't sleep! And though my trip was next week, I was already ready for it.

A few days passed. On Sunday morning, I woke up early as I had to begin with the preparations. The trip had only a few days. I did my breakfast quickly and removed my blue backpack from the cupboard. I started packing all the necessary things – First aid kit, experiment sets, dry food, clothes, space water bottle, etc. I also kept my secret travel diary, so that I wouldn't forget this experience. I also took some books to read. As I was packing these things, my phone beeped. I took the phone and saw that my parents had sent me good wishes and also told to take care. My father had sent me a space travel book with lots of information that I would need. As I was going to start reading it, the bell rang. "Who it might be now?" , I wondered. As I opened the door, I saw a parcel boy with a parcel for me. He said, "This is parcel for Anagha Patil. Please be cautious with your parcel." And he handed me the parcel. "Thank you" , I said to him and closed the door. I wondered who had sent it, and saw on the package that my boss had sent it. I unwrapped the package as fast as I could. Wow! It contained a satellite phone, my very own satellite phone. Now, I would be able to take pictures, view digital files and do much more. I kept it to, in the bag and also transferred the space travel document to it. I then ate my lunch and took a nap.

At last, the day came when I was going to go to space. I woke up early, ate a sumptuous breakfast and headed where my rocket was going to launch. As I entered it, I looked around. It was all white and very congested. Then, I met with my colleagues who were going to come with me. They were Nisha and Aarya. Then, the rocket suddenly began to countdown and we took our seats. 5....4....3...2...1...go!

As we waited, nothing happened. Nothing! The rocket didn't move at all. Everyone was surprised. What had happened?! Then, after some time, we came to know about the problem. Oopppsss!!! One of it's button was turned off. After we hit it, it directly soared up the sky. Whoosshhh!! I was startled by this, but quickly sat down.




After we finally reached space, I was happy. We did a lot of things there, like—doing experiments, clicking pictures of planets. We also saw them very closely. Our earth looked like a blue and peaceful sphere. I also wrote the everyday happenings in my secret diary. We finally returned to earth with some new information too. It was a delightful experience.

Anagha Patil : VII-F



# SPACE



## Exploration



### 10 Crazy Facts of Space

1. Space is completely silent.
2. The hottest planet is 450 degree celsius.
3. A full Nasa Space suit costes \$12,000,000.
4. The sun's mass takes up 99.86%.
5. One million earths can fit inside the sun.
6. There are more trees on earth than stars in the milky way.
7. The sunset on mars appears blue.
8. There are more stars in the Universe than grains of sand on Earth.
9. One day on Venus is longer than one year.
10. There is a planet made of diamonds.

**Ananya.D.Kothawade : VI-A**

### Unknown Facts

- The new James Webb Space Telescope's infrared images have revealed never-before-seen cosmic details like newborn stars and ancient galaxies.
- The sunset on mars appears blue.
- You can't walk on Jupiter, Saturn, Uranus or Neptune because they have no solid surface.
- Olympus moon which is 3 times higher than Mount Everest is the highest mountain known to man and is located on mars.

**Preesha Jadeja : VIII-C**



# SPACE

## Exploration

My Space Travel

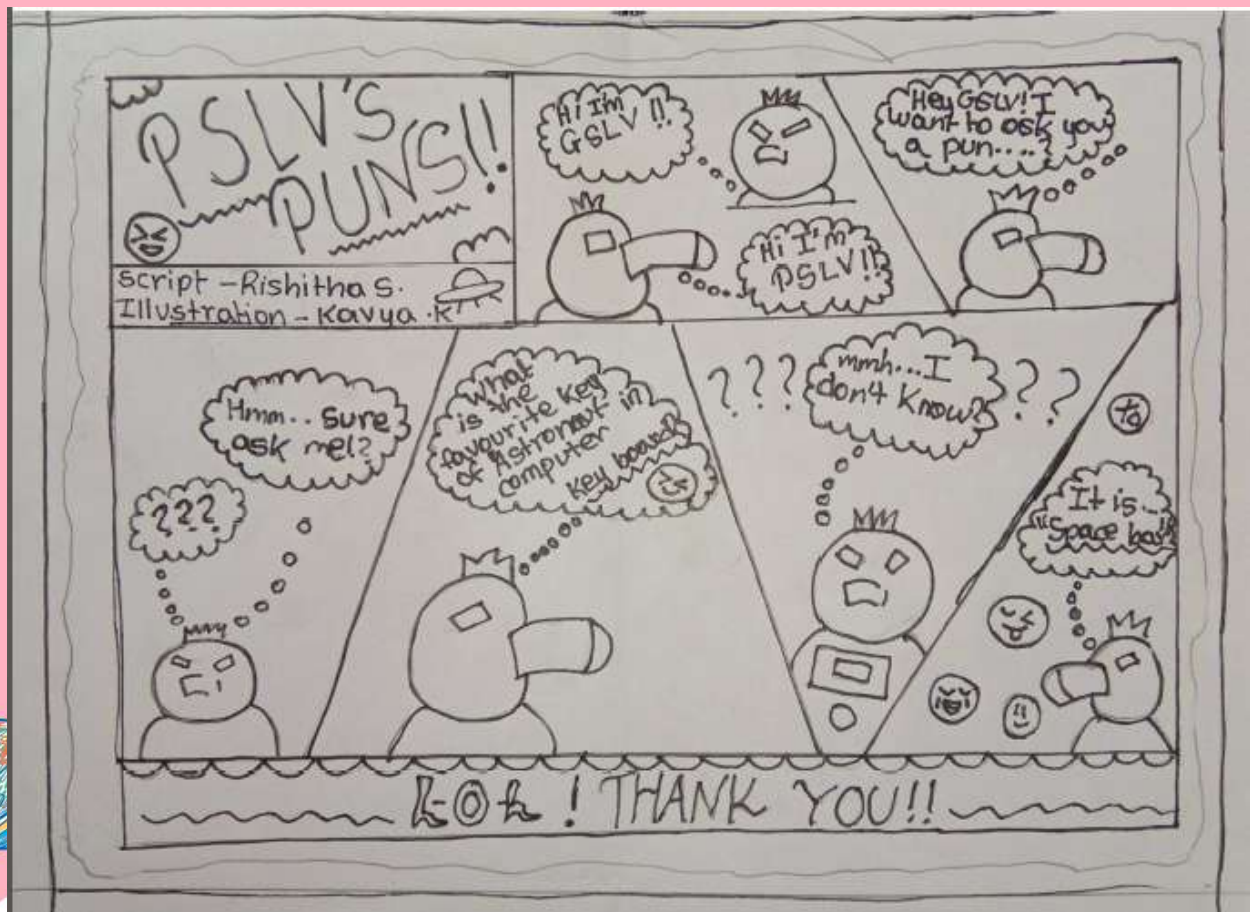


Stars are huge celestial bodies made mostly of hydrogen and helium that produce light and heat from the churning nuclear forges inside their cores. Aside from our sun, the dots of light we see in the sky are all distant from earth by light-years!

Black holes are formed when stars die. Black holes have a strong gravitational force which can even take Light inside. Our Sun can fit the solar system more than 600 times. Our Moon is the brightest object in our night sky following Venus and Jupiter. Jupiter, when looked from a telescope is visible with its four Galilean Moons, Ganymede, the largest moon in solar system along with Callisto, Europa and IO. Andromeda Galaxy is the largest galaxy in our Local group of galaxies along with our own galaxy, Milky Way. The Dwarf Planets in our solar system are Eris, Pluto, Ceres, Haumea and Makemake. There are various satellites launched in space.

Two most powerful telescopes namely, James Webb Space telescope and Hubble Space telescope are giving us hints to understand this vast Universe. The edge of our solar system is Oort Cloud made up of dust and ice. The distance between Sun and Earth is called 1 AU (astronomical unit). The largest star ever known to mankind is UY Scuti. The Big Bang is a big explosion and release of energy that happened at the starting of our Universe. Our Earth tilts 23.5 degree but Uranus tilts almost 98 degree! This Universe is expanding with the change of Time and expanding our way of thinking.

Varad Sonavane : IX-E

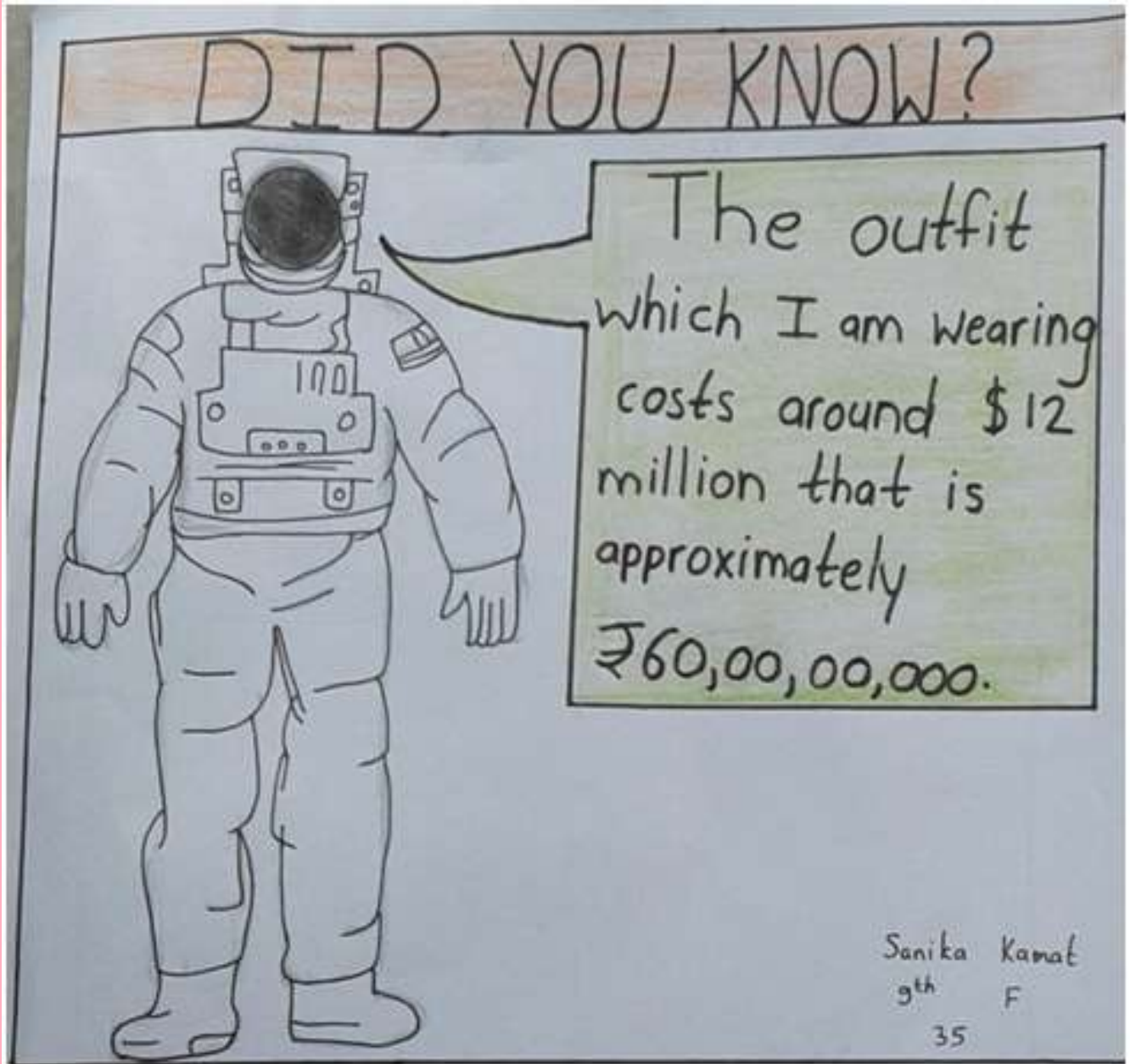


Rishita and Kavya : VIII-G



# SPACE

Exploration



Sanika Kamat : IX-F





# SPACE Exploration



**MY SPACE TRIP**  
(some fun facts about planets)  
Ritarko Mondal

Oh, the alien is here! Let's go!

Hi! You want to visit space?

OK. Come with me.

Yes. Can I come? Explain.

Let's start from the planet Mars. Red is my favourite colour!

Which planet do you want to visit?

Oh, no no no never. You know there's a record breaking volcano in Mars named Olympus Mons which is biggest volcano in solar system. Once it erupted out runny river of black lava that almost burnt the planet.

Hey planet looks like it's wearing a wearing a striped pyjama! We he he.

Yes, the biggest planet Jupiter has bands of clouds around it that looks like striped pyjama. Ha ha...

Violent winds whip up storms all over the Jupiter. We can't land there dear!

Let's go to another planet.

Yes, and you know Saturn is so light that if there is an even big enough, the planet would float in it like a ball.

Oh! What a beautiful view!

Let me imagine it.

That's funny. See it's tilted on one side. That's why the poles are the warmest places on the planet. Summer at the South pole lasts 42 years.

Oh! What a beautiful planet!

Yes. Lots of storm winds up in Neptune constantly, that's cause the change.

Now, let's move towards Sun. We came far away.

The planet is changing its appearance constantly.

Do you know what planet is pulling power? Someone knew something big something Uranus & Neptune discovered.

Oh! Up! Don't go. Don't go. Let's catch Mercury.

Mercury is the smallest as well as fastest planet in. It zooms around sun at an incredible speed. Let's see if we can catch it.

So that the level planet. Trully said its the most beautiful planet in the sky.

But we will not go there. Venus got lot of volcanoes. Let me take you to the moon.

Can we land in moon? I want to see my Earth from space!

OK. Let's land on moon.

Tana. Gana. Mana.

Hey, why are singing our National anthem sitting in window, so late at night, so late!

Wow, our Earth looks so so amazingly beautiful from space. I have never imagined it could be so beautiful. I love my planet. I want to sing our National anthem. Tana... Gana... Mana...

It was an amazing dream. Hope I can really visit space one day.

END



Ritarko Mondal : III-D





## 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)
- Aryabhata 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/fevikwik 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.





# SCIENCE FUN

– @Home –

Science at home is very interesting there are so many facts about space.

I liked the topic Solar System. There are 8 Planets in Solar System. The first planet is Mercury. My very Educated mother just showed me nine planets.(Acronym) stands for:

Mercury is very close to Sun and it is the smallest Planet.

The second Planet is Venus. Venus is the same size as that of Earth, and it is near to Earth.

The third Planet is Earth, it is the only Planet in Solar System where we all live. It is also called as Blue Planet, It has 29% of Land and 71% of Water.

The fourth Planet is Mars. It is also called as Red Planet and 'Mangalgraha. It has hard and rocky surface.

The fifth Planet is Jupiter, it is the largest Planet in Solar System, it is mostly made up of Hydrogen and Helium gases, it also shines brightly in night in the Sky.

The sixth Planet is Saturn, it is the second largest Planet in Solar System. It is surrounded by Rings that are made up of Dust & Ice.

The seventh Planet is Uranus, it is the third largest Planet in Solar System. It is very cold & windy.

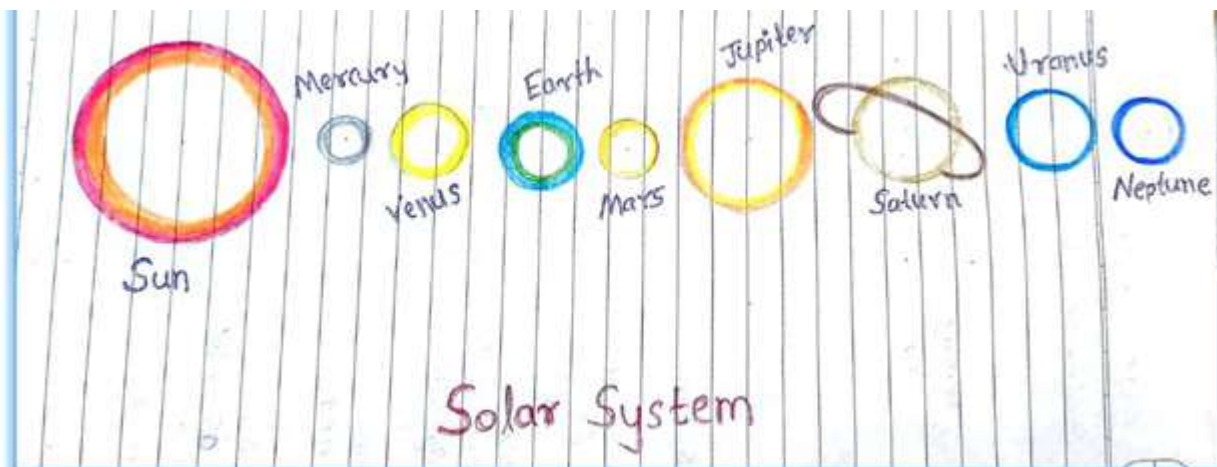
The last Planet is Neptune, it is the Coldest Planet and has Stormy Weather.

Revolution - When Earth rotates around the Sun is known as Revolution.

Rotation – When Earth rotates around itself is known as Rotation.

Facts-

- 1) Venus is the Earth's twin Planet
- 2) Our Solar System has 5 Dwarf Planets
- 3) There are 181 Moons and 5,52,894 Asteroids
- 4) There are 3,083 Comets
- 5) In Winter season – Days are shorter and Nights are longer
- 6) In Summer season – Days are longer and Nights are shorter



Siya Jagtap : IV-E

# SCIENCE FUN

– @Home –

Fill your bowl with water until it is about 1cm deep.

Now sprinkle the glitter into the middle of the bowl. We used about a table spoon with in a variety of colours and shapes,

Now place some dish soap in a small dish or cup, dip your finger in the dish soap.

Make sure to dip your finger right in so you get a good coating of soap.

Then touch in the middle of glittery water and see the magic!

You will observe that the glitter has moved to the edge of the bowl. The science behind this is that when soap mixes into the water it changes the surface tension causing glitter to top floating on the top of the water.



**Kunal Nandapurkar : IV-E**



# SCIENCE FUN

— @Home —

Science is everywhere, not only in laboratories, but also hi- tech technologies use simple methods of conservation. I am referring to the 4 R's of conserving our environment. These may seem simple but play a major role in conserving our nature. These R's are 'Reduce', 'Reuse', 'Recycle' and 'Refuse'. We can follow these also at home at very basic level. We can reduce the use of plastic bags and use its alternative such as cloth bags. We can reuse the glass jars, containers, and other materials at home so that nothing goes waste. Recycling is usually done in industries but can also be done at home by following steps underwritten:

- 1 Make a compost
- 2 Put old newspapers into the compost
- 3 Keep it moist under the Sun

These steps will give you recycled paper which can be used again. We can Refuse using plastics and fossil fuel, which went burnt produces harmful gases. Following the 4 R's system will help us to build, 'Best out of waste'.

**Anuj Kulkarni : IV-E**

One day I thought of an experiment because of my love for science. I thought of an experiment and worked on it.

### **Experiment:1**

Take a glass and filled it with water. Then add few drops of food color and observe it dissolves in water. Next take another glass and fill it half with water, half with sugar and mix it with a spoon. Then add few drops of food color and observe that it doesn't dissolve but it stays up.

### **Conclusion:-**

- 1.The density of food color is greater than water as it sinks to the bottom.
- 2.The density of food color is less than sugar water as it floats up.

### **Experiment: 2**

The next experiment is of an orange. Take two oranges, one peeled and one unpeeled. Then take two glasses filled with water. The unpeeled orange floats up and the peeled orange settles to bottom.

**Conclusion:** - The density of the orange peel is less than water so it floats up and the density

**Rutu Joshi ; IV-E**

# SCIENCE FUN

– @Home –

\*Experiment Name- Candle under Glass fire Experiment

\*Aim-To show how oxygen is important for candle burning

\*Materials required-Matchbox, Candle and Transparent Glass tumbler

\*Procedure- Step 1- Sit on the plain floor take all material required for experiment and ensure there is safe place for experiment.

Step 2- Place the candle on the floor- keep the matchbox and glass ready.

Step 3- Light/Burn candle and leave it for some time and then cover the candle with glass tumbler.so that you can see the burning of candle.

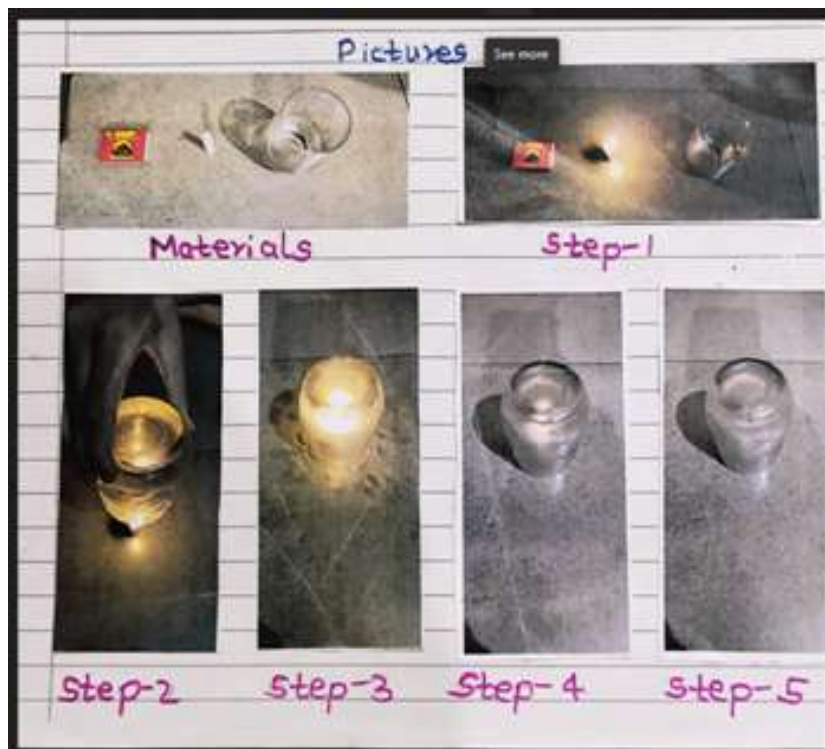
Step 4- After few second, we can see flame comes down slowly and eventually goes off.

\*Observation-

1) We can see that candle will burn till the oxygen is present in glass tumbler.

2) We can also see small sediment of moisture in the inner wall of glass that is proof that fire releases  $H_2O$ .

\* Conclusion- To burn the fire oxygen is required.



Atharva Modi : IV-E



# INTERSTELLAR ART GALLERY

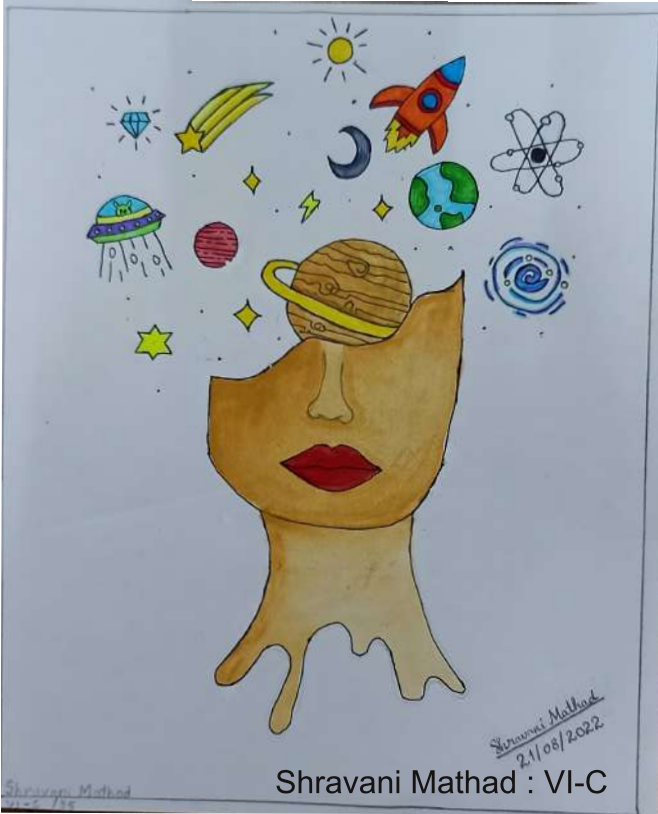
Artist of Podar International School Chinchwad





# INTERSTELLAR ART GALLERY

Artist of Podar International School Chinchwad





# INTERSTELLAR ART GALLERY

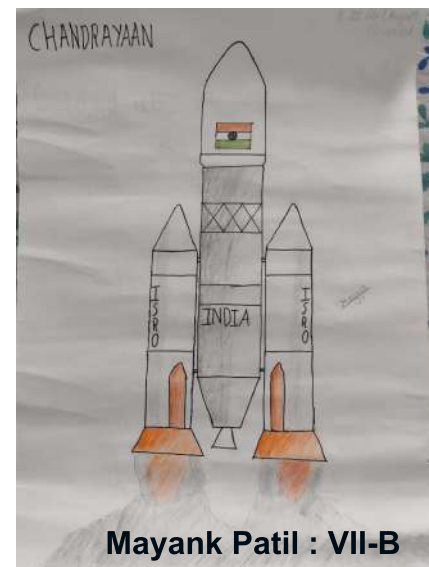
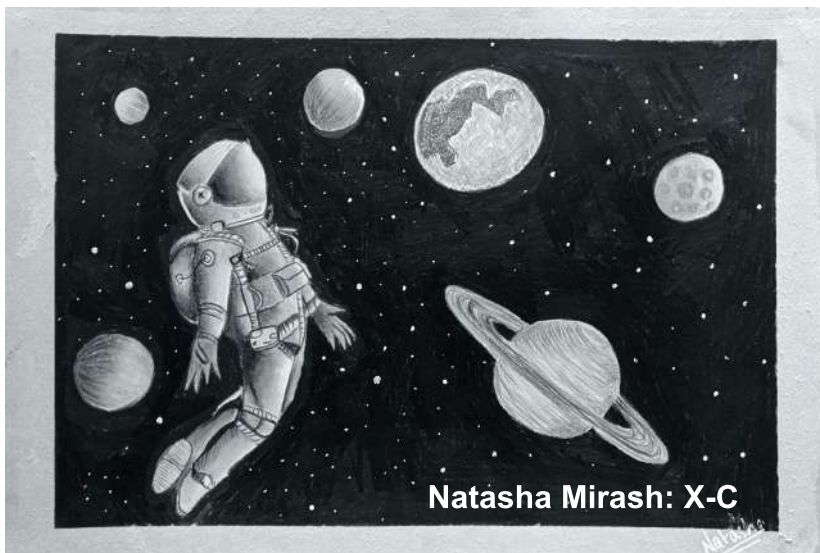
*Artist of Podar International School Chinchwad*



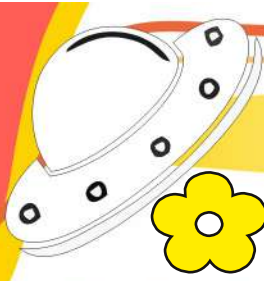


# INTERSTELLAR ART GALLERY

*Artist of Podar International School Chinchwad*







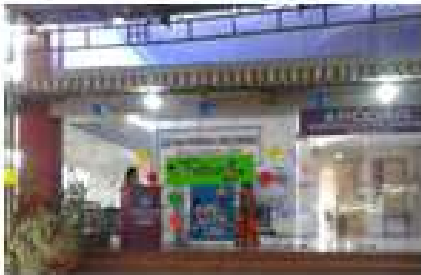
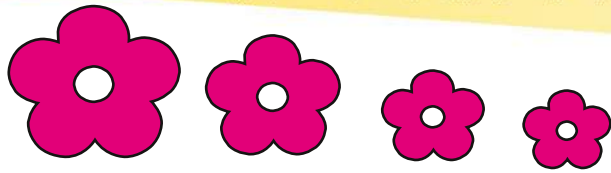
# SPOTLIGHT @ PIS







# SPOTLIGHT @ PIS





# 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.

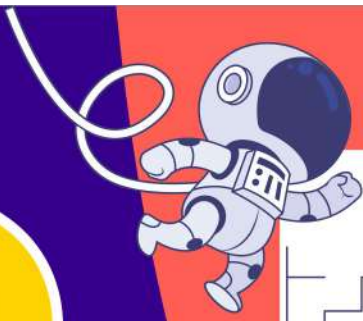
All you need to make these easy-to-assemble Martian snackers are:

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

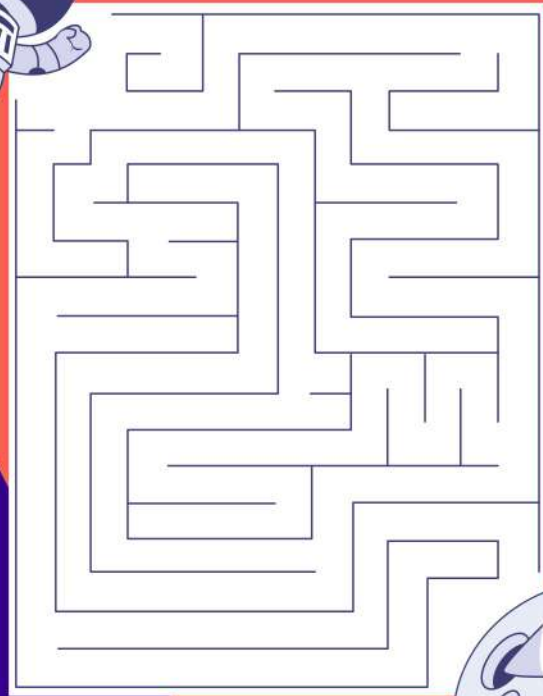
## MARTIAN SNACKERS



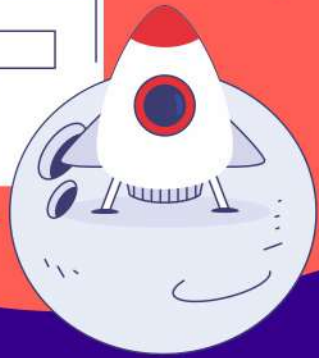
# BRAIN PLAY



← **HELP THE ASTRONAUT**



**GET BACK TO HIS SHIP** →



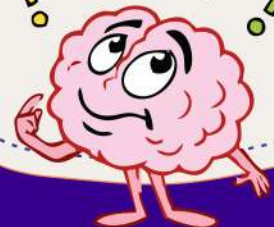
## SPACE PUZZLE

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 |

### 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!

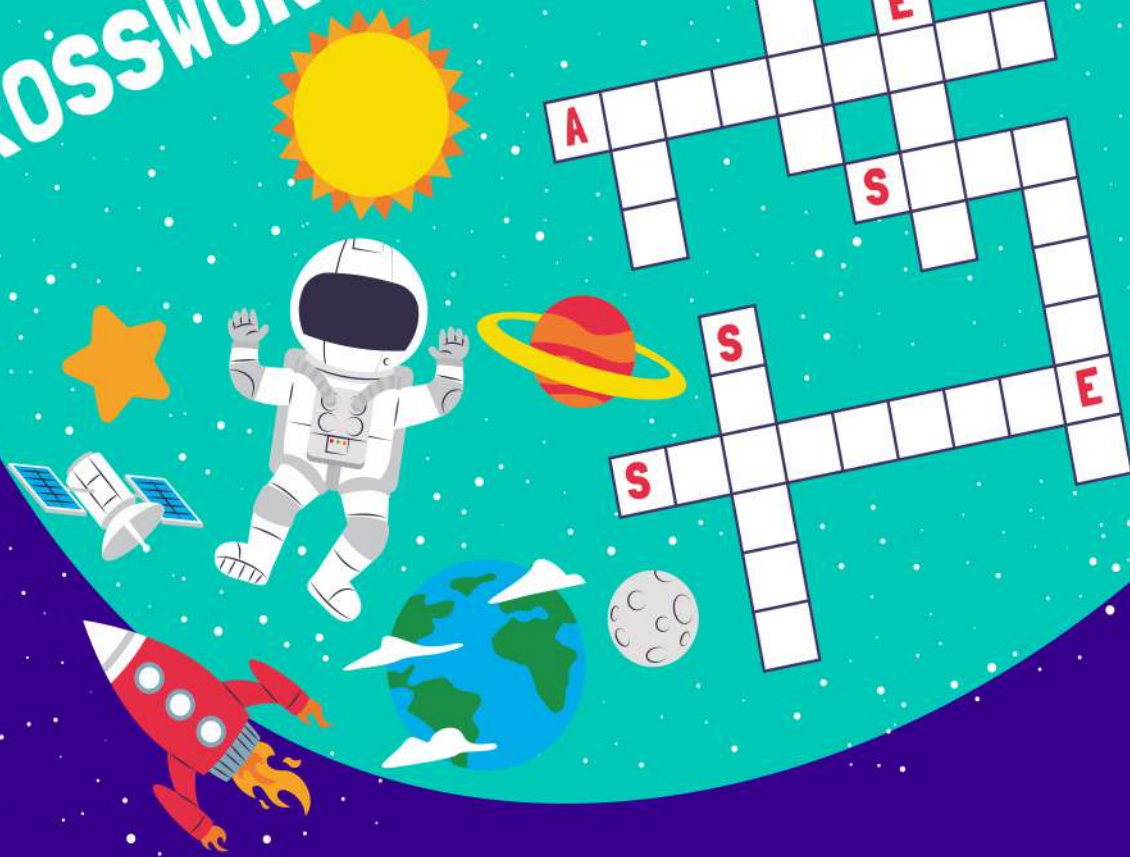


STAR UFO    SUN ROCKET    ALIEN PLANET    ASTRONAUT TELESCOPE    MOON EARTH

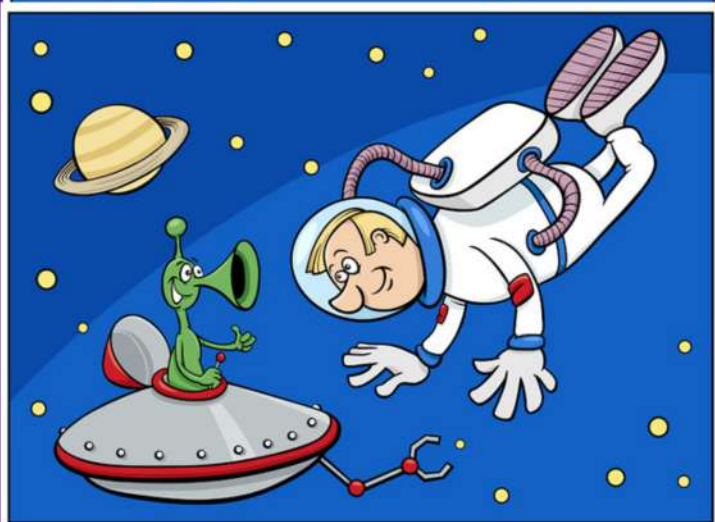
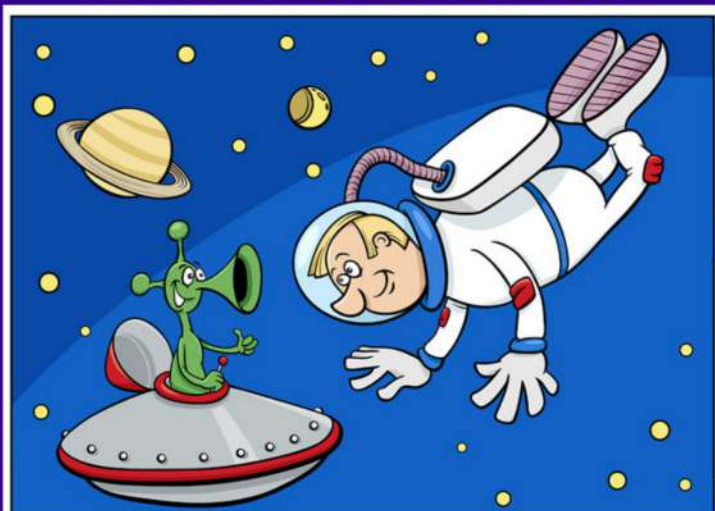




# CROSSWORD



## Find 6 differences



Using just the letters in the word below, can you make at least 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 at least 4 letters long.

**GOOD LUCK!**

## ASTEROID

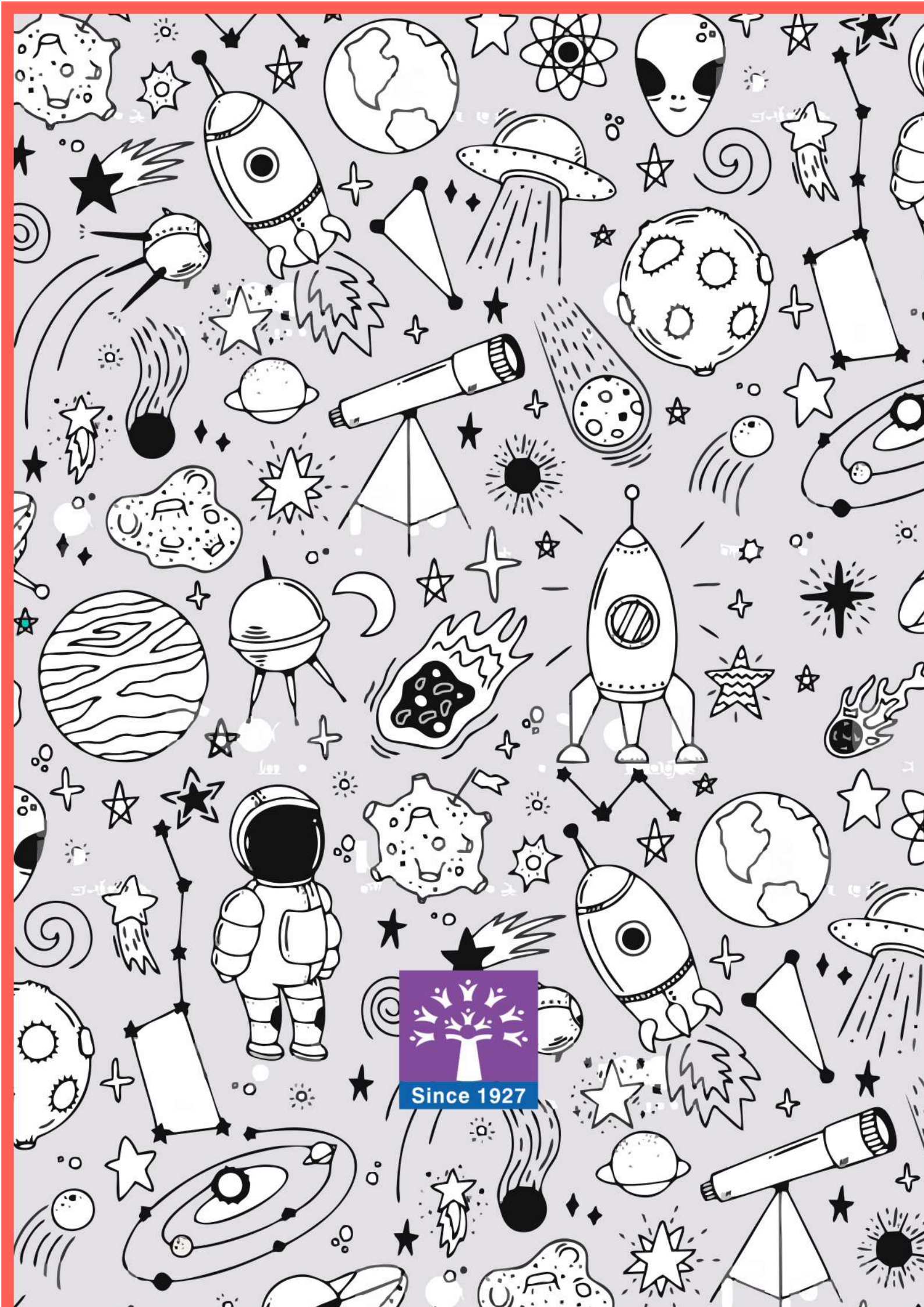
### Riddle

I am bigger than Venus  
but smaller than Uranus.

I am a living rock.

What am I??





Since 1927