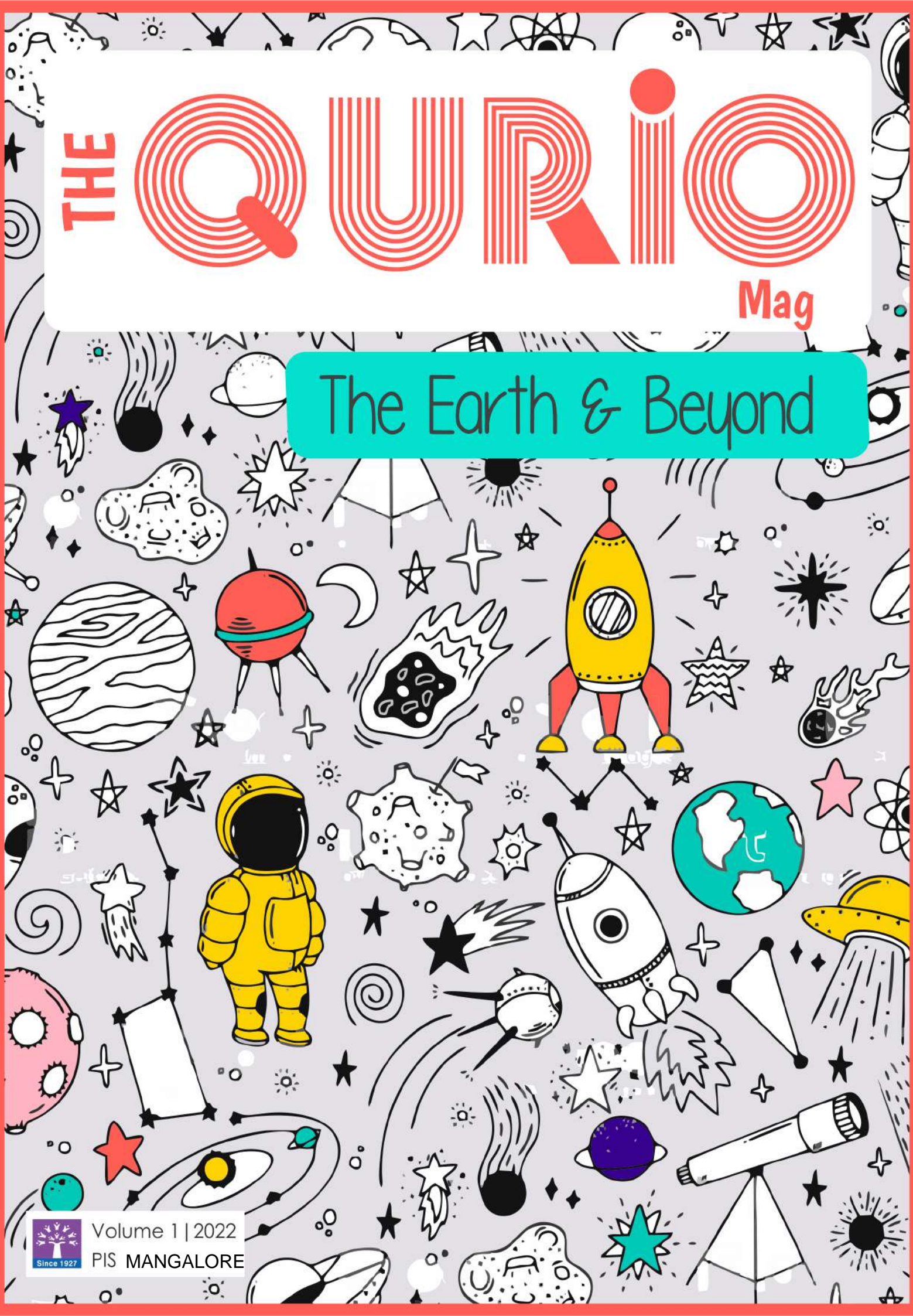


THE QUIRRO

Mag

The Earth & Beyond



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FROM THE PRINCIPAL'S DESK



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. Today, the role of a school is not only to pursue academic excellence but also to motivate and empower the 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.

The '*QUIRIO MEG*' magazine is the first edition and it showcases the efforts been put in by the students and the teachers and I am sure this would give lot of learning to our young students.

- Girish Kumar

Podar International School, Mangalore

CHRONICLES OF SPACE

Just like every other night she was up late working on one of her experiments. This one was particularly about summoning aliens or as she would put it 'The greater Gods of outer space'. And even though all this might sound a tad bit pretentious and childish, it's been her only escape from the real world since she was seven years old. She never had a lot of friends and was invisible most of her life. Of course, a part of her did want to experience -- what people call it -- a normal teenage life. And to satisfy this part of herself she knew that she was too socially awkward to talk to actual human beings and make friends with them in this world. So, she made her own, her own world where she would escape to at the end of the day.

She was currently laying on her bed drawing the god of space Aether, primordial god of the upper air, light, the atmosphere, space and heaven. But she wasn't having the usual spirit she had while drawing or writing about these characters. She would usually want to spend hours together drawing them but now, all she could think of was what her family had said to her earlier that day, "Maybe you should take up more 'grown up' interests" they said. This usually wouldn't affect her much, but she too started pondering whether it really made sense. She thought it was high time she got herself some real friends. And in the blink of an eye, she had all her drawings, theories, guides, books related to space above her the trash, contemplating whether to throw it all away.

She reminded herself again what her family had told her and started a mental countdown in her head. 3.. 2.. but wait- what's that flickering light outside her window. She squints her eyes to get a clearer look and

when that failed, she slowly went closer and closer to the window. At this point, the tip of her nose was touching the glass of the window. She thought she was seeing things and just when she backed up a little bit a sound from behind her called out, "LUKE!" She snapped her head back and found two unearthly creatures standing in front of her.

She immediately fell backward not only was it because she was scared but also because they were so much taller that she felt the need to completely fall back to just look at their faces. Both look very strong and big. They had long hair and crowns on their heads. One of them had emerald eyes and the other had deep brown ones. Both looked very similar, very similar to her depictions of the space gods she drew most often, Aether and Hermes. But she didn't want to believe that they were here because she was scared that it was her mind playing tricks on her.

The brown eyed giant, Aether and the emerald eyed giant, Hermes. Aether was standing in with his back straight and chest out, his hands on his waist looking at me with a serious look with a hint of playfulness. Hermes gave Aether a look of disbelief and said, "Seriously her name isn't even Luke."

Hermes loosens up from his superhero position and says, "That doesn't matter. It's supposed to be a reference to Star Wars not literal"

"How are you so sure she watches Star Wars?"

"How are you so sure she doesn't?"

"Fine then let's just ask her"

"Okay! Fine"

"Hey, kid do you watch Star Wars?"

She looked at them wide-eyed with her mouth hung open, "Um uh y-yeah?"

Aether looked at Hermes with a proud look on his face, "See, I knew it."

Hermes on the other hand rolled his eyes and said, "Fine, alright you win OK."

It felt as though she wasn't even in the room. It took her a bit of courage, but she finally decided to interrupt their conversation, "Uh w-who are you again?" Aether gasped dramatically and said, "You don't know us." Hermes patted Aether on the shoulder and said, "Give her a break." He then turned towards me and continued, "Hi, I'm Hermes and this is Aether" he said extending his arm out for a handshake, "And we are the Space Gods, you know, the ones you keep drawing often"

What. Is. Going. On. Here.

How far can Voyager 1 go before we lose contact?

In 1977, the Voyager 1 space probe was launched to study the outer solar system and beyond.

The two Voyager space probes have become the longest operating spacecrafts in spacecraft history.

44years later, Voyager 1 is now 19 Billion kilometers from Earth traveling at a whopping 61,000km/h.

Despite the Voyager 1 being billions of kilometers away from Earth we are still able to communicate with it but for how long?

Voyager starts sending data back to Earth with a 20watt signal which is picked up by NASA's Deep Space Network which consists of three antennas complexes equally spaced around Earth.

Each Complex has a 70metre antenna long with multiple 34 antennas which can be combined to pick up signals that are 1000 times weaker than your standard FM radio signal.



- Shambhavi Kartha
Grade 9

With our growing technology there really isn't a limit on how far we can communicate with objects in space.

Voyager 1 will continue its journey indefinitely, and although there is technically no limit to how far we can communicate we have only a few years left with Voyager 1. Since it's nuclear powered its electrical power weakens every day.

In 1990 in order to save power, engineers turned off the spacecraft's camera after Voyager took the famous photo "Pale Blue Dot" which showed Earth as a tiny blue pixel. In around 5 years Voyager 1 will run out of power and no longer be able to keep its instruments running.

So although the end is near for the Voyager Space probes, we can appreciate the journey they have been on and the valuable science they taught

- Rachith
Grade 9



JAMES WEBB SPACE TELESCOPE

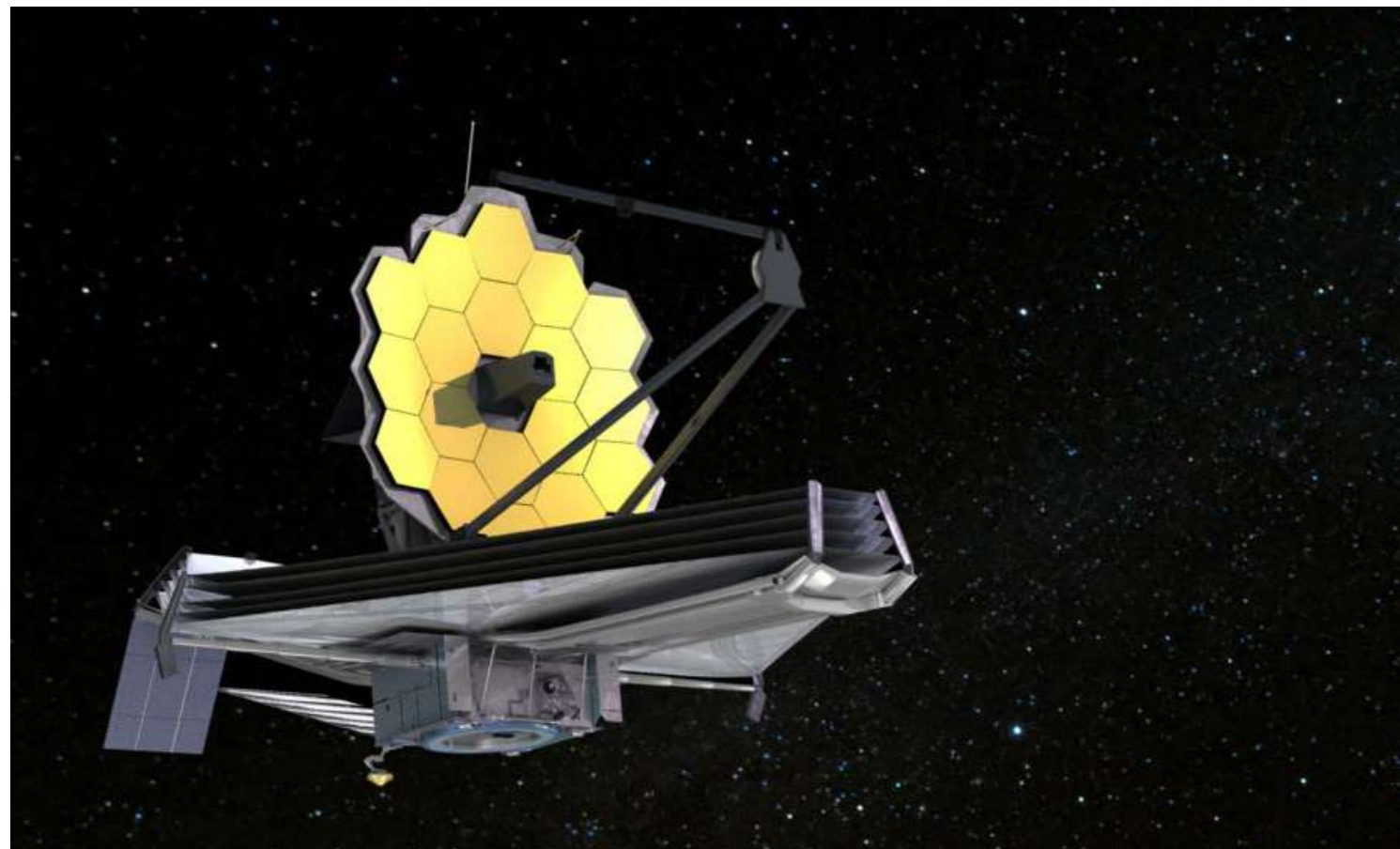
NASA's James Webb Space Telescope, the agency's successor to the famous Hubble telescope, launched on Dec. 25, 2021 on a mission to study the earliest stars and peer back farther into the universe's past than ever before. Webb is currently at its observing spot, Lagrange point 2 (L2), nearly 1 million miles (1.6 million km).

It is the largest and most powerful space telescope ever launched.

The James Webb Space Telescope is an infrared-optimized space telescope. Webb will probe for the "first light" after the Big Bang and find the first galaxies that formed in the early Universe, connecting the Big Bang to our own Milky Way Galaxy. Webb will peer

through dusty clouds to see stars forming planetary systems, connecting the Milky Way to our own Solar System and look for the chemical signatures of extra-terrestrial life.

- Vedang Tiwary
Grade 7



James Webb Space Telescope

Hubble launched into orbit around the Earth in 1990.



Visible - WFC3; 2015

The first images Hubble sent back were unexpectedly fuzzy. Its mirror turned out to have a tiny flaw.



Infrared - WFC3; 2015

Just a few years later, however, astronauts installed corrective optics. And what Hubble saw then was mind-blowing.

While Hubble has gazed out at stars and galaxies, astronomers and engineers have been hard at work on the James Webb Space Telescope, which is named after a former NASA administrator.

This telescope's massive mirror is divided into segments, so that it and a five-layer, tennis court-size sunshield can fold up inside a rocket and later unfurl. All of its technologies have to operate without a hitch, because unlike with Hubble, there's no way to send up a repair crew.



THE UNIVERSE TODAY

Space & Astronomy News



1. NASA calls off Artemis launch due to Hurricane Ian

The space agency had been targeting Tuesday, September 27th for the launch of Artemis 1 from Kennedy Space Center, on Florida's Atlantic coast. That remained the plan as recently as Friday, September 23 though NASA officials stressed that they were keeping a close eye on a brewing storm in the Caribbean called Tropical Depression 9.



Tropical Depression 9 intensified into Tropical Storm Ian late Friday and is expected to grow in strength further. It's moving northward and most models predict that it will hit Florida by the middle of next week as a bona fide hurricane, according to the National Hurricane center.

2. Four Meteoroids Crashed Into Mars

For the first time, a spacecraft has detected acoustic and seismic waves from impacts on Mars. NASA's InSight lander made the detections from four meteoroids that crashed on Mars in 2020 and 2021. Ever since the mission landed on the Red Planet in 2018, scientists have been hoping to be able to detect impacts with InSight's seismometer, which was mainly designed to sense Mars-quakes. But these impacts are the first the lander has detected

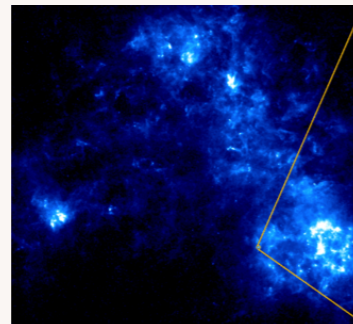


Craters formed by a Sept. 5, 2021, meteoroid impact on Mars

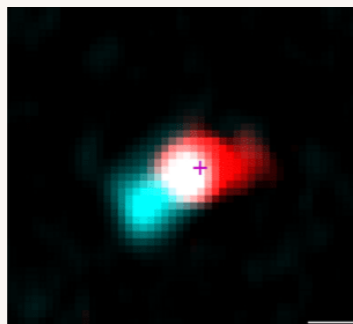
3. The First cry From a Brand new Baby Star

Star formation is a complex business. To make a baby star you need to start with a large, amorphous blob-like cloud of gas and dust and compress it down to the densities needed to trigger nuclear fusion.

In order to make this process work you also have to remove a lot of heat. That's because as the gas cloud compresses it heats up, and a hot cloud of gas can just sit there in equilibrium forever. So as the gas cloud compresses you also have to remove heat from the system so that it can compress even further.



WFR infrared image of the Small Magellanic Cloud



An image of the molecular outflow from the baby star Y246.

- Hithen Grade 7

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)

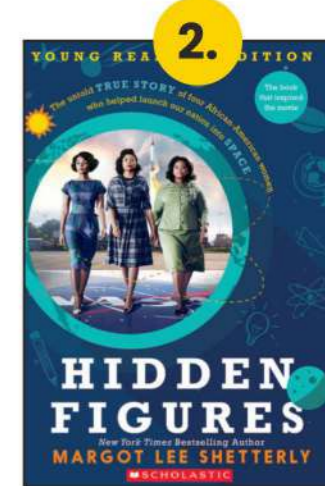
Based on true events of the Indian Space Research Organisation (ISRO) successfully launching the Mars Orbiter Mission (Mangalyaan), making it the least expensive mission to Mars.



Books



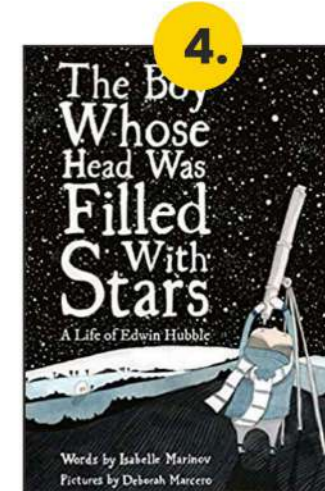
Sanity & Tallulah
Molly Brooks



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

Title of the Book/Movie:

EARTH

Movie/Book Summary:

This is an incredible story of three black women from Africa who worked at NASA as mathematicians, they dealt with racial and gender discrimination to pursue their dreams to become the first. The encouraging story of Katherine Johnson (First black woman Mathematician at NASA) Mary Jackson (First black woman engineer at NASA) and Dorothy Vaughan, African-American women who were essential to the success of early spaceflight is something which inspires women even today, influencing them to stand against any sort of discrimination. I personally liked the book and the firmness in the actions of each character.

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:

Poojana Jayaram - Grade 7

Title of the Book/Movie:

The Kid who came from Space

Movie/Book Summary:

This book take's us to a adventure across the galaxy. When twelve year old Ethan goes in search for his twin sister Tammie , he finds himself strangely relying on the help of his friend Iggy, a chicken called Susy and an alien called Hellayenn. As they begin to attempt to find the missing Tamie they discover they have a lot in common with each other than initially seemed possible.

How many hearts do you give this movie?

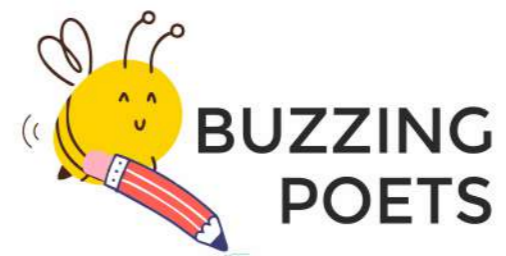
(Draw a heart to rate - 1 heart means the movie was really bad.

5 hearts means it was great!)



Movie/Book Reviewed By:

Aaron Pinto - Grade 7



EARTH

Here we are
 Standing on earth.
 Our own home
 Air, water
 And dirt
 Life's
 Home turf
 People
 Here and there
 Going everywhere
 Creatures ferocious
 And helpful
 plants
 Big and small,
 Short and tall.
 Life long
 And good
 If you are a
 Nerd or a fool
 It is good to be on Earth!

- Ayaan Jithesh
 Grade 4

EARTH

I am the Earth and the earth is me
 Each blade of grass,
 Each honey tree,
 Each bit of mud and stick and stone
 Is blood and muscle Skin and bone.
 And just as I need every bit of me to make my body fit
 So earth needs Grass and stone and tree
 And things that grow Naturally.
 That's why we celebrate this day
 That's why across the world we say
 As long as life,
 As dear, as free
 I am the Earth, and the earth is me

- Akshaj Amin
 Grade 5



OUR EARTH

The eight planets lay in our solar system,
And in that our Earth is awesome.
Seven continents on the Earth, forms the land,
The rest is filled with water and sand.

We should keep our Earth neat and clean,
And as much as we can, we should keep it green.
On this planet, people and animals have given birth,
And that is why we call it planet Earth.

Let's take an oath to plant a tree,
To keep our Earth pollution free.
Let's save water, and do not cut trees,
Let's also not contaminate our cool breeze.

Only on this land the soil is fertile,
Let's see that not to make it sterile.
So let us maintain greenery,
And not spoil Earth's scenery.

- Samik Pinto
Grade 5

SPACE

Space has lots of space!
It is the base of our world!
Kalpana Chowla went to space but,space
Never ever left a trace of her.
The mission was the moon, but it
Didn't happen.Her team crashed
And died and never everseen
Again-ever!

- Shreyas Bhat
Grade 5

SPACE Exploration



Space Exploration

- Space exploration is the use of astronomy and space technology to explore outer space. While the exploration of space is carried out mainly by astronomers with telescopes, its physical exploration though is conducted both by non-crewed robotic space probes and human spaceflight. Space exploration, like its classical form astronomy, is one of the main sources for space science.
- Humans have always looked at the heavens and wondered about the nature of the objects seen in the night sky. With the development of rockets and the advances in electronics and other technologies in the 20th century, it became possible to send machines and animals and then people above Earth's atmosphere into outer space.
- The early era of space exploration was driven by a "Space Race" between the Soviet Union and the United States. The launch of the first human-made object to orbit Earth, the Soviet Union's Sputnik 1, on 4 October 1957, and the first Moon landing by the American Apollo 11 mission on 20 July 1969 are often taken as landmarks for this initial period.
- So this was about space exploration, humans are growing much enough in technology that they can control the space by presenting in Earth.



- Mohammed Farhan Ameer
Grade 7





History of Space Exploration

The first earthling to orbit our planet was just two years old, plucked from the streets of Moscow barely more than a week before her historic launch. Her name was Laika. She was a terrier mutt and by all accounts a good dog. Her 1957 flight paved the way for space exploration back when scientists didn't know if spaceflight was lethal for living things

How did space exploration begin?

On Oct. 4, 1957, the Soviets launched the first artificial satellite, Sputnik 1, into space. Four years later on April 12, 1961, Russian Lt. Yuri Gagarin became the first human to orbit Earth in Vostok 1.

- Hardik R Rai
Grade 7

Celestial Mechanics

Celestial mechanics, in the broadest sense, the application of classical mechanics to the motion of celestial bodies acted on by any of several types of forces. By far the most important force experienced by these bodies, and much of the time the only important force, is that of their mutual gravitational attraction. But other forces can be important as well, such as atmospheric drag on artificial satellites, the pressure of radiation on dust particles, and even electromagnetic forces on dust particles if they are electrically charged and moving in a magnetic field.

The term celestial mechanics is sometimes assumed to refer only to the analysis developed for the motion of point mass

particles moving under their mutual gravitational attractions, with emphasis on the general orbital motions of solar system bodies. The term **astrodynamics (orbital mechanics)** is often used to refer to the celestial mechanics of artificial satellite motion.

Dynamic astronomy is a much broader term, which, in addition to celestial mechanics and orbital mechanics, is usually interpreted to include all aspects of celestial body motion (e.g., rotation, tidal evolution, mass and mass distribution determinations for stars and galaxies, fluid motions in nebula, and so forth).

- Shreenidhi
Grade 8



- K. Nithin
Grade 9

AURA - Understanding and Protecting the Air We Breathe

Aura was launched July 15, 2004. Aura is part of the Earth Science Projects Division, a program dedicated to monitoring the complex interactions that affect the globe using NASA satellites and data systems.

The Earth's Ozone Shield Protects All Life

Stratospheric ozone has decreased 3% globally between 1980 and 2000 and thins by 50% over Antarctica in winter and spring. Depletion of the ozone layer allows more ultraviolet radiation to reach the surface. Increases in UV radiation are known to have harmful effects on living things. The Montreal Protocol and its amendments have banned the use of ozone destroying chemicals and the rate of ozone depletion seems to have slowed. Climate change will have an impact on how quickly ozone recovers.

The Earth's Air Quality Is Fundamental To Public Health And Ecosystems

The atmosphere has no political boundaries; air pollution moves great distances across oceans and continents. The quality of air has degraded over certain parts of the world and has become a health issue. Severe pollution episodes increase mortality.

The Earth's Climate Is Affected By Changes In Atmospheric Composition

It is undeniable that human activity is beginning to alter the climate. The global rise in surface temperatures since the 1950's is correlated with the increase in greenhouse gases. Changes in carbon dioxide, methane, nitrous oxide, ozone, cloud cover, water vapor and aerosols all contribute to climate change.

Features

- Using satellites, regional air pollution and their sources can now be observed closely from space.
- Scientists head north to learn about air quality, ozone, and climate change predictions.

- The instruments on-board Aura will help scientists monitor pollution production and transport around the world.
- The story of a molecule and the spacecraft designed to help us understand it.

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 Space 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/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



Aaniya
Grade 9



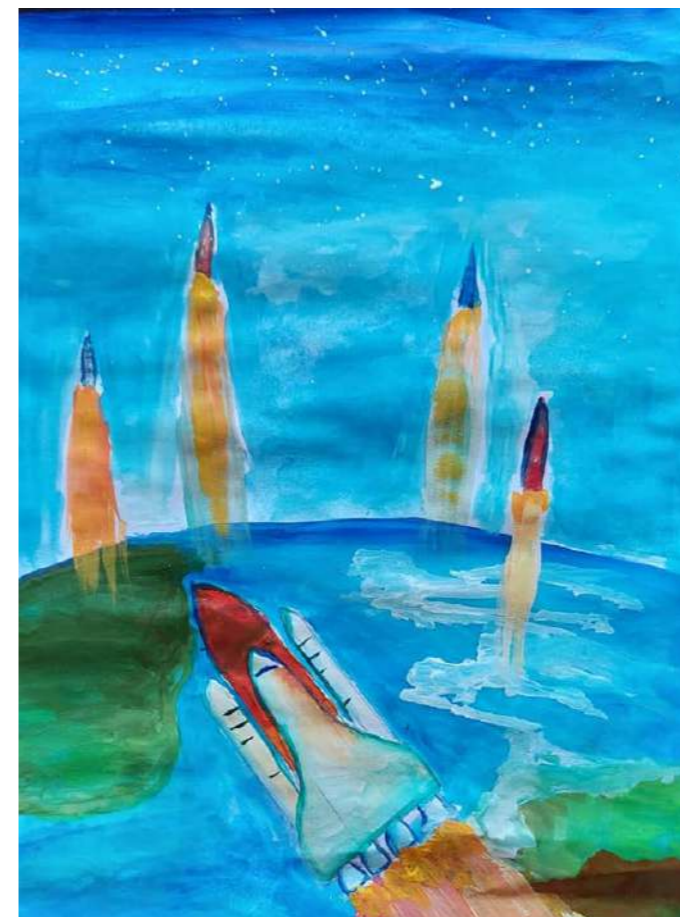
Navika Sajeev
Grade 4



Shreyas Bhat
Grade 5



Samik Pinto
Grade 5



Chinmayee
Grade 7



Naman. S
Grade 3



Soham
Grade 5

SPOTLIGHT @ PIS

Special Achievers



Vihaan Karanth

Grade 3
1st Rank
Gold Medal of Excellence
SOF - IMO



Aadhya Garg

Grade 4
25th Rank and Gold Medal
SOF - ISSO
23rd Rank and Gold Medal
SOF - NSO



Siddharth Vasanth Aacharya

Grade 5
5th Rank and Bronze Medal
SOF - IMO



Anvith P Shetty

Grade 4
5th Place
Chess WIZ
Inter Direct Rapid Chess
Tournament
NITK Aaradhana



Ripan Biswas

Grade 2
Orange Belt
Karnataka Competition
RYU - Seibukan Karate DO



Vihaan Shetty

Grade 4
7th Place
Chess WIZ
Inter Direct Rapid Chess
Tournament
NITK Aaradhana



Stuti M Kini

Grade 2
25th Rank
SFO - NSO



Sreevatsa Pattajee

Grade 8
10th Rank and Gold Medal
SOF - NCO



Nithin K Reddy

Grade 9
3rd Place - Special Mention
India's International Movement
to United Nations
St. Mary's School, Udupi



Aadhya Guruprasad

Grade 3
1st Place
Junior Bhakthu Saritha
NITK Aaradhana



Satakshi Yadav

Grade 10
1st Rank
Hindi Elocution
Literary Competition
AICS - St. Theresa School

A heartfelt congratulations and warm wishes to our dear students. You have won over our expectations, and we're proud of your achievement!!

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

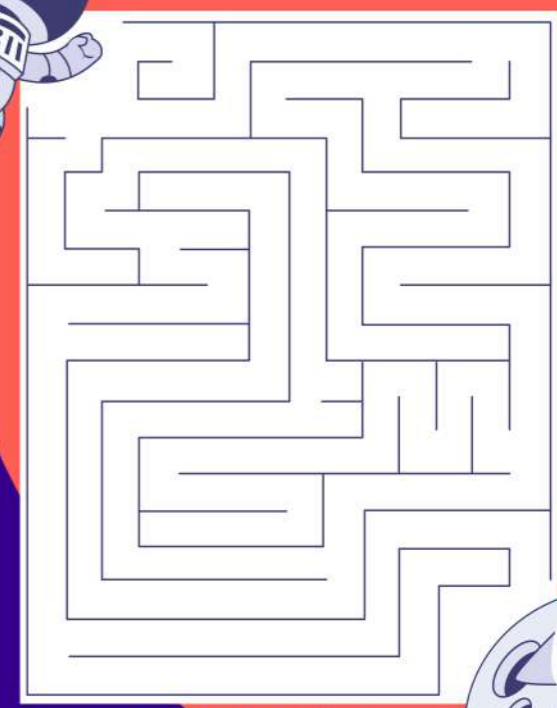
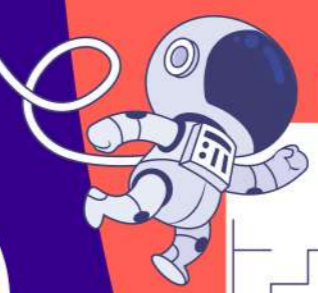


All you need to make these easy-to-assemble Martian snackers are:

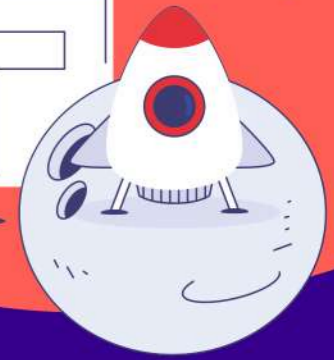
- Monaco biscuits
- Cherry tomatoes
- Cucumber
- Cheese
- Mayonnaise or Tomato sauce

BRAIN PLAY

← **HELP THE ASTRONAUT**



GET BACK TO HIS SHIP →



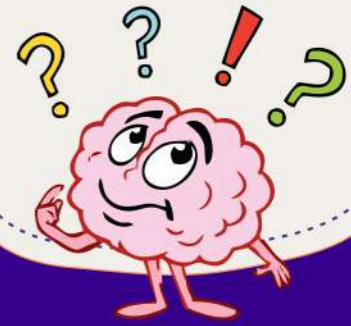
SPACE PUZZLE

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

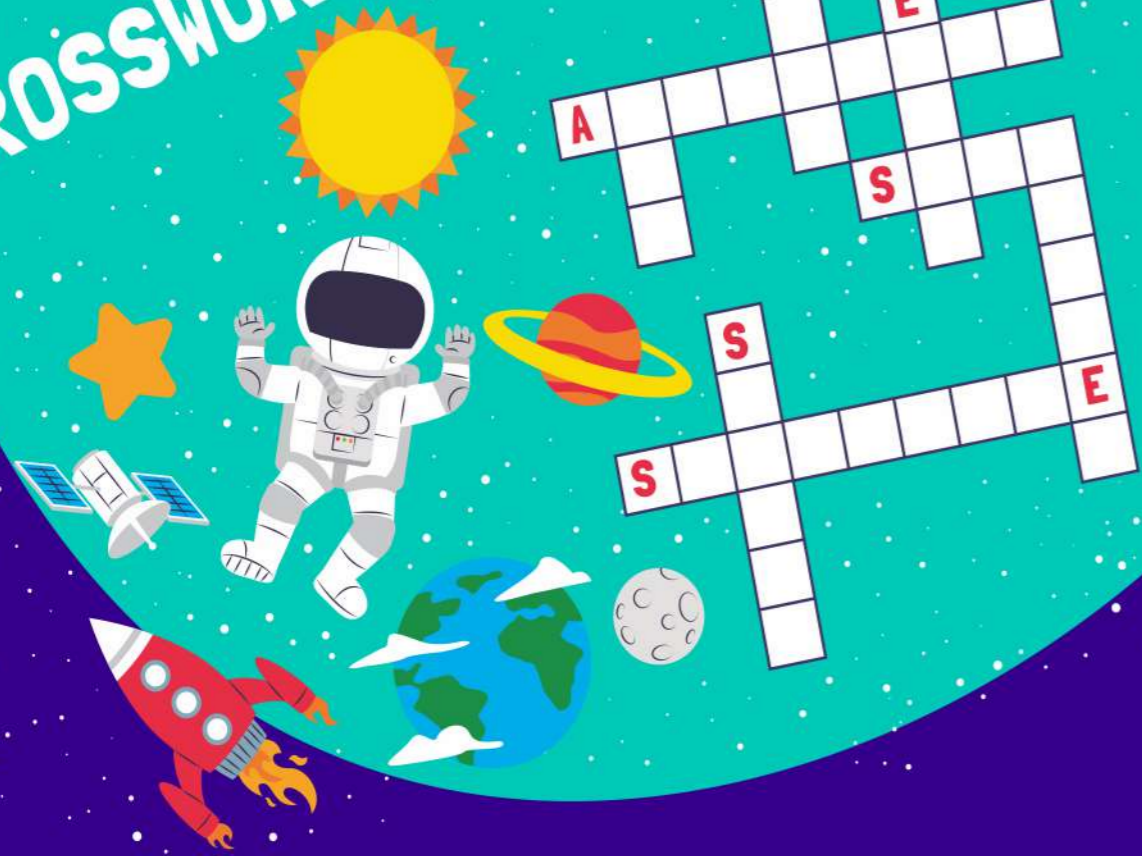
What Am I?

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!

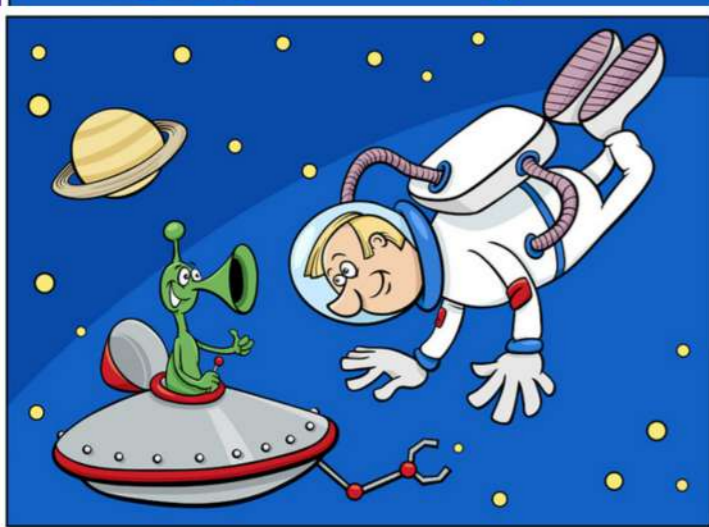
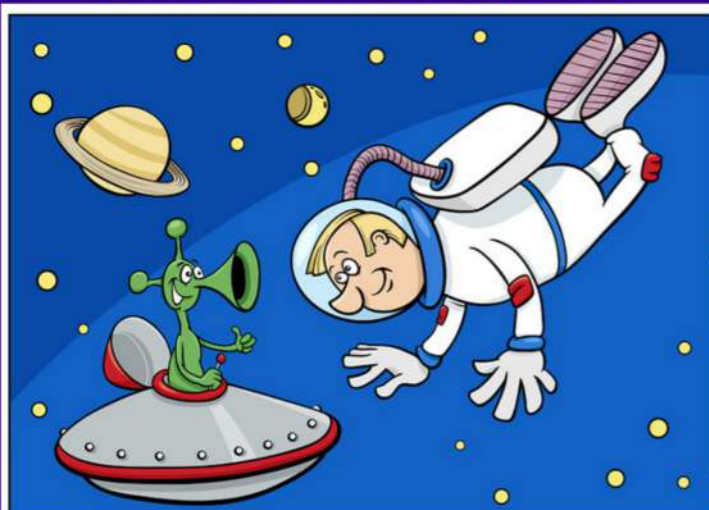


- STAR UFO
- SUN ROCKET
- ALIEN PLANET
- ASTRONAUT TELESCOPE
- MOON EARTH

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