

Galactica

Astronomy and Space Science Magazine



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SPACE Insights
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Moon Phases And Planet Visibility
What's Awaiting in May 2026
Space Paradoxes
Setbacks That Built Space Success
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GALACTICA

Galactica is a monthly magazine about astronomy & space science published by SPACE India targeting amateur astronomers. Each monthly issue includes astronomy news, space launches, what's up in the sky every month, events and announcements done by the space team, Astrophotographs and articles on astronomy & astrophysics submitted by the readers for the general audience, and the article about historical missions & events of astronomy and more. All of this comes in an easy-to-understand user-friendly style that's perfect for astronomers at any level.

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ABOUT SPACE



Legacy of 24 years



Pioneer Organization



10000+ Activities Developed



1000+ Schools Associated



1.5M+ Students Engaged



10K+ Outreach Events



10+ Cities Presence

SPACE is the pioneer organization working towards the development of science and astronomy in India. It aims to create a scientifically aware society and contribute to the technological and social development of the country, SPACE organization belongs to an astronomical league. Diligently working towards development in astronomy and space science through astronomical tutorials, modules, and curriculum for education requirements of schools & students in India. We constantly engage in offering introductory astronomy, science about space, astrophysics, telescopes, and internet astronomy to the masses.

Vision: To popularize hands-on space science & STEM Education through various fun-filled pioneering concepts, services, and programs.

Mission: To develop and popularize space science & STEM Education In India and establish a global association with national & international space science agencies, societies, amateur, and professional organizations, government agencies, and space observatories.

CMD's Message



Dr. Sachin Bahmba,
CMD, SPACE

Space and Astronomy are the future for the young generation of our country. This is a great means to inculcate scientific temperament among the masses. Such astronomy sessions will provide

a hands-on learning platform for students wherein they explore the real world of science. I wish for young students to let their ambitions soar and think big as they are the future of our country.

Co-founder's Message



Ms. Shalini Bahmba,
Co-founder, SPACE

Astronomy education is important as it builds curiosity, critical thinking, and problem-solving skills, helping young minds prepare for the future. It encourages innovation, exploration, and a scientific mindset.

Young learners build creativity and confidence through hands-on, experiential learning, preparing them for careers in space science and technology. We aim to cultivate future innovators who will lead progress, discovery, and global advancement.

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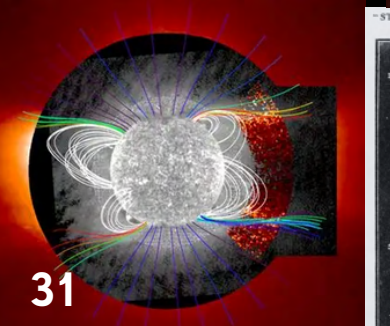
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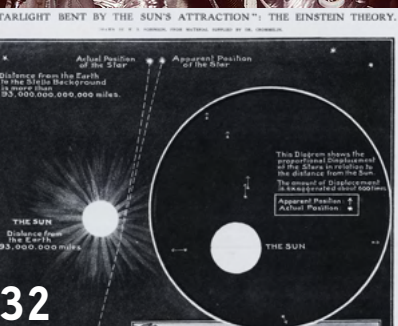
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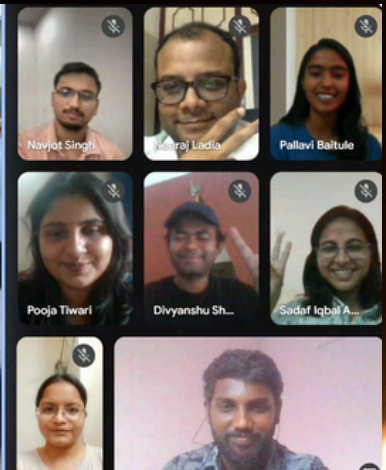


SPACE INSIGHTS

25 Years of Dreams, Growth & Togetherness

The Foundation Day celebration held on 14th April 2026 marked a historic milestone – 25 remarkable years of passion, innovation, learning and inspiration. What began as a vision to make astronomy and space science accessible to young minds has today evolved into a movement that continues to inspire thousands of students, educators, and institutions across the country. The celebration commenced with an inspiring address by Dr. Sachin Bhamba, who reflected upon the organization’s extraordinary journey over the past two and a half decades. His words beautifully captured the spirit of perseverance, vision, and collective dedication that transformed a dream into a nationally recognized force in astronomy and STEM education.

More than a speech, it was a reminder that every milestone achieved by the organization has been powered by curiosity, commitment, and the courage to dream beyond boundaries.



Constellations of Growth & Leadership

One of the most heartfelt moments of the celebration came through the stories shared by the organization’s leaders. Department heads including Mr. Vikrant Narang, Ms. Manalee Deka, Mr. Neeraj Ladia and Ms. Pooja Tiwari reflected upon their personal journeys within the organization. From beginning as young executives to eventually leading teams and initiatives, their experiences highlighted a culture rooted in trust, mentorship, learning, and opportunity. Their journeys stood as living proof that the organization not only builds careers, but also nurtures leaders who continue to shape its future. Their stories inspired every individual present, especially the younger members of the team who now carry forward the same spirit of growth and ambition.

Moments of Joy, Creativity & Belonging

As the evening unfolded, the celebration transformed into a vibrant gathering filled with laughter, creativity and togetherness. The event beautifully reflected the warmth and unity that define the organization beyond professional achievements.



GALACTICA

Ms. Ashi Seth brought energy and laughter to the celebration through an engaging stand-up comedy performance, while the Astrotourism & Astroport teams delivered spirited group performances that energized the audience. The new members from the PDT Department shared heartfelt reflections about their early experiences within the organization, expressing excitement about becoming part of a larger purpose-driven journey. Adding elegance and charm to the evening, Mr. Mayur Solanki curated creative decorations that enhanced the celebratory atmosphere. Even across cities, the spirit of togetherness remained strong as Team Nagpur and Team Chennai joined virtually, proving that shared dreams connect people beyond physical distance.



Charting the Next Cosmic Journey

The celebration concluded with a grand cake-cutting ceremony that symbolized not only 25 years of achievement, but also the beginning of a new chapter. In a deeply meaningful gesture, the new joinee's of the organization were invited to cut the anniversary cake - representing the trust, responsibility and hope being passed on to the next generation of dreamers, educators, innovators and leaders. The moment reflected a powerful truth: while the organization proudly celebrates its legacy, it continues to look ahead toward newer horizons, greater discoveries, and countless young minds yet to be inspired.



Beyond 25 Years – The Stars Shine Brighter Ahead

For twenty-five years, the organization has done far more than teach astronomy. It has nurtured curiosity, inspired exploration and encouraged generations to look upward with wonder and possibility. As the celebration came to a close, one thought echoed through every heart present that evening: Twenty-five years may have built the foundation, but the brightest constellations of this journey are still waiting to be discovered.

Universe In The School: Inspiring Young Minds Through Space Education

The Universe In The School (UITS) Programme continues to spark curiosity and scientific temper among students by bringing astronomy and space science into classrooms through engaging, activity based learning. Across Delhi and Nagpur, UITS has been instrumental in creating immersive experiences where students not only learn about space but also communicate, collaborate, and lead. Recent initiatives under the programme highlight the power of experiential learning and student driven engagement.

Summer Camps at Nagpur School

Two successful summer camps were conducted for Bishop Cotton School, Nagpur (10-17 April 2026), designed to introduce primary students to space science through hands-on activities.

At the **Dharampeth campus**, a four day camp engaged around 15 students from LKG to Grade 5. Activities included Rocket Rush (stomp rocket building and launching), safe solar observation with solar goggles, Target Earth telescope observation, and Train Like an Astronaut exercise focusing on physical coordination and balance. Students showed high enthusiasm and active participation throughout.



At the Sadar campus, a two day camp for 16 students (KG to Grade 4) focused on Target Earth and Train Like an Astronaut theme through interactive discussions and fun exercises.

Both camps successfully created an engaging learning environment where young learners explored astronomy concepts in an age appropriate manner. The hands on approach encouraged curiosity, teamwork, and scientific thinking, making the experience both educational and memorable.



Through such diverse initiatives, the UITS Programme continues to inspire the next generation, making space science accessible, interactive, and exciting for students across India.

AI Meets Space - A Stellar Assembly by Grade 1

On 27th April 2026, K. R. Mangalam World School, Vaishali, hosted a thought provoking morning assembly on the theme AI in Space, presented by Class 1A. The assembly beautifully blended imagination with scientific awareness.

It began with a confident introduction, followed by a serene prayer. Students then explained Artificial Intelligence and its role in space exploration highlighting how AI assists scientists and ensures safer missions.



The highlight was an engaging skit where students interacted with a “scientist,” leading to the introduction of Vyommित्रा, the humanoid robot of India’s Gaganyaan mission. The character’s appearance on stage captivated the audience as “Vyommित्रा” explained her role in preparing for human spaceflight.



The assembly also featured a poem connecting AI with the cosmos and a synchronized robotic dance performance, symbolizing technology and teamwork. The presentation concluded with the National Anthem, leaving the audience inspired.

Despite their young age, the students demonstrated remarkable confidence and understanding, showcasing how early exposure to science can nurture curiosity and innovation.

View more highlights: <https://lnk.dev/046in9s>

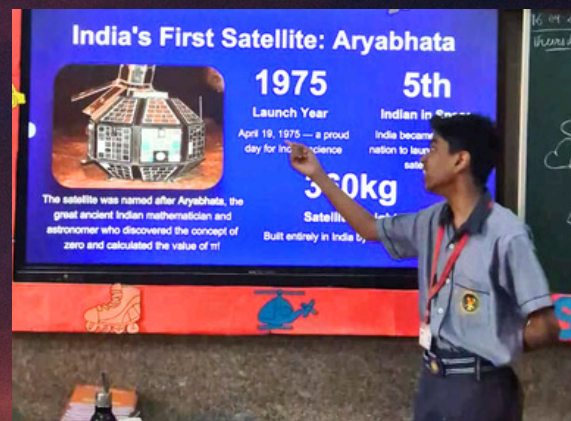
The Power of Peer Learning: Curiosity Shared & Knowledge Multiplied

The peer-led workshop conducted at Bal Bharti Public School, Pitampura (8-10 April 2026) highlighted the effectiveness of student driven learning initiatives. Students from Grades 7 and 8 facilitated an interactive session for Grades 3 to 6 focused on NASA's Artemis II mission.

During the workshop, the students explained the objectives of the Artemis program, including humanity's return to the Moon and preparations for future Mars missions. Concepts such as spacecraft testing, astronaut safety, lunar orbit, and the role of astronauts were presented in an engaging and age-appropriate manner. The session also incorporated quizzes and interactive discussions, which encouraged active participation and enhanced curiosity among the younger students.



At K. R. Mangalam World School, Vaishali (19 April 2026), Satellite Technology Day was celebrated through a peer-led session. Five Grade 8 students introduced Grades 3 and 4 to satellites, explaining their function, orbit, and importance in communication, navigation, and weather forecasting. India's milestone achievement with Aryabhata was also discussed.



The session concluded with an enthusiastic quiz, reinforcing learning in a fun and participative way. These initiatives demonstrated that peer teaching not only deepens understanding but also builds confidence, communication skills, and a sense of ownership among students.

View more highlights: <https://l1nk.dev/046in9s>

HIGHLIGHTS OF APRIL 2026

Back from the Moon: The Historic Journey of Artemis II

On April 10, 2026, history once again unfolded above the Pacific Ocean as NASA's Artemis II astronauts safely splashed down off the coast of San Diego, completing humanity's first crewed journey around the Moon in more than half a century. Their successful return marked not only the conclusion of a groundbreaking mission, but also the beginning of a bold new era of deep space exploration.



For the first time since Apollo 17 left lunar space in 1972, humans once again traveled beyond Earth orbit toward the Moon reigniting a dream that generations had only read about in history books.



The four-member crew included NASA astronauts Reid Wiseman, Victor Glover, Christina Koch, and Canadian Space Agency astronaut Jeremy Hansen. Launching aboard NASA's powerful Space Launch System rocket on April 1, the astronauts embarked on a ten-day mission aboard the Orion spacecraft, appropriately named Integrity.

Artemis II was not merely a technical mission it became a symbol of progress and representation in modern space exploration. Victor Glover became the first person of color to travel beyond Earth orbit. Christina Koch became the first woman to journey to lunar distance, while Jeremy Hansen became the first non-American astronaut to travel so far into deep space. Together, the crew represented a future where space exploration belongs to all humanity.

During the mission, Orion followed a carefully designed "free return trajectory," looping around the far side of the Moon before naturally returning toward Earth. This trajectory allowed astronauts to travel deep into lunar space without entering orbit around the Moon, while also ensuring maximum mission safety. As Orion moved farther from Earth than any human spacecraft in decades, the crew witnessed breathtaking views of the Moon's cratered surface and the fragile blue Earth suspended in the darkness of space.

The return to Earth was among the most dangerous phases of the mission. As Orion re-entered the atmosphere at extraordinary speeds, friction generated temperatures reaching thousands of degrees Celsius. Protecting the astronauts was Orion's massive heat shield—the largest ever constructed for a crewed spacecraft. Moments later, parachutes deployed successfully, slowing the capsule before it gently splashed into the Pacific Ocean. Recovery teams aboard the USS John P. Murtha quickly secured the spacecraft and welcomed the astronauts home.

NASA celebrated Artemis II as one of the most important milestones in modern spaceflight. Officials praised the dedication of thousands of engineers, scientists, technicians, and mission specialists whose years of work transformed the mission from concept into reality.



Artemis II Mission Specialist Christina Koch peers out of one of the Orion spacecraft's main cabin windows, looking back at Earth, as the crew travels toward the Moon.

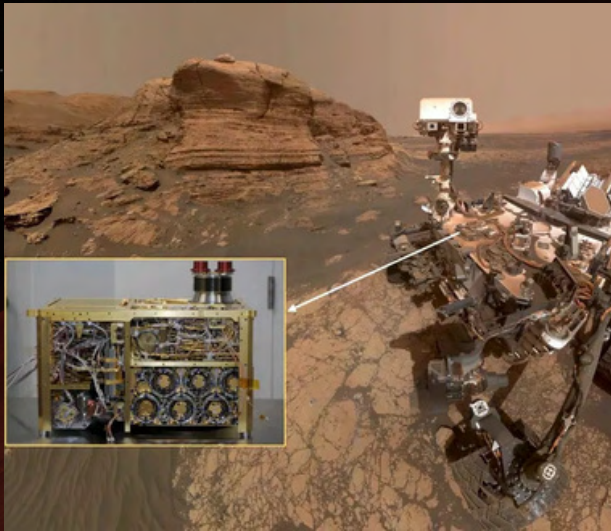
Yet Artemis II was never intended to be the final destination. The mission served as a critical stepping stone toward Artemis III—NASA's planned mission to land astronauts on the lunar surface, including the first woman and the first person of color to walk on the Moon. Every system tested during Artemis II will help pave the way for long-duration lunar exploration and future human missions to Mars.

With Artemis II successfully completed, humanity has once again proven its ability to venture into deep space and return safely home. More importantly, the mission has reignited global excitement for exploration, discovery, and the enduring human desire to push beyond known horizons.

The Moon is no longer a distant memory of the Apollo era.

It is once again the beginning of humanity's next great journey.

Curiosity Rover Discovers Building Blocks of life on Mars



NASA's Curiosity rover has uncovered a remarkable collection of organic molecules on Mars, offering fresh clues about the planet's ancient past. Scientists announced that the rover detected more than 20 carbon-based compounds in rock samples from Gale Crater, including chemicals containing nitrogen and sulfur elements considered essential for life on Earth.

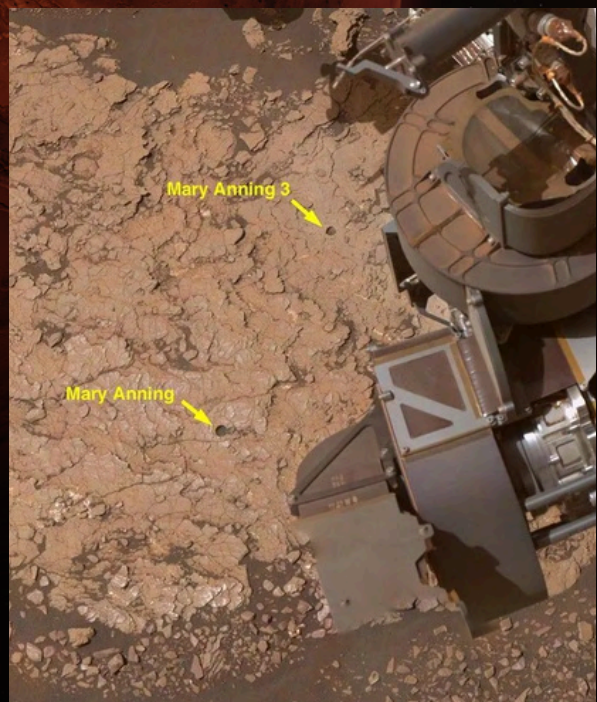
Curiosity, which landed on Mars in 2012, made the discovery while exploring the Glen Torridon region, an area rich in clay bearing rocks believed to have formed in the presence of water billions of years ago. These conditions may once have made the region suitable for microbial life.

The findings came from Curiosity's onboard Sample Analysis at Mars (SAM) laboratory, which used a new chemical technique involving tetramethylammonium hydroxide (TMAH). This marks the first time such an experiment has been conducted on another planet.

Researchers believe the molecules may be fragments of larger, more complex carbon compounds preserved in Martian rocks for around 3.5 billion years. Despite exposure to harsh radiation and geological changes over time, the ancient sediments still hold evidence of chemical diversity.

However, scientists caution that the discovery does not prove life ever existed on Mars. Organic molecules can also be created through non-biological geological processes such as volcanic activity or chemical reactions in rocks.

Still, the discovery is a major milestone in the search for past habitability on Mars. It strengthens the idea that the Red Planet once had the ingredients necessary for life and provides valuable targets for future missions seeking direct evidence of ancient Martian organisms.



Join the Hunt: Help Scientists Discover Galaxies That Bend Light



That galaxy acts like a magnifying lens, bending the light rays as they travel due to its gravity.

Astronomers are inviting people around the world to help discover one of the universe's most fascinating phenomena galaxies that bend light through gravity. This effect, known as gravitational lensing, happens when a massive galaxy or galaxy cluster warps space and bends light from a more distant galaxy behind it.

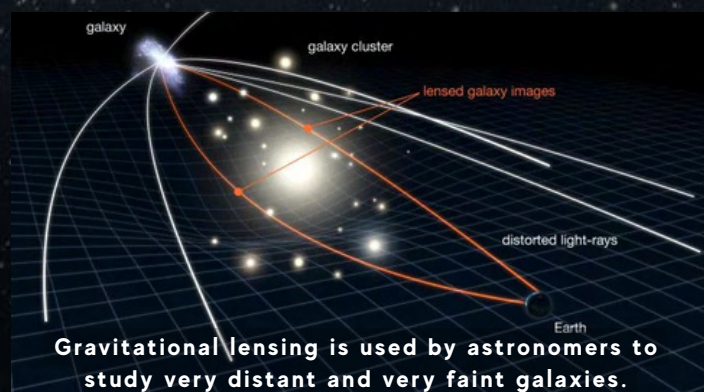
When the alignment is perfect, the distant galaxy appears as glowing arcs or even complete circles called Einstein rings. These stunning shapes are more than cosmic artwork they help scientists measure hidden matter, including mysterious dark matter, and understand how the universe is expanding.

The search is being led through the Space Warps citizen science project on the Zooniverse platform, using images from the European Space Agency's Euclid telescope. Euclid has already captured data on around 72 million galaxies, making it one of the largest space surveys ever conducted.

Although artificial intelligence has selected nearly 300,000 possible candidates, human eyes are still better at noticing unusual shapes and faint arcs that computers may miss. By examining images online, volunteers could help identify more than 10,000 new gravitational lenses more than the total found in all previous astronomy history.

The best part is that anyone can join. No telescope, science degree, or special training is required. All you need is curiosity and a few minutes of your time.

By helping scientists study these cosmic lenses, ordinary people can contribute to extraordinary discoveries about dark matter, dark energy, and the history of the universe.



[Link to participate in this project - https://www.zooniverse.org/](https://www.zooniverse.org/)

Gujarat Launch Sparks India's Reusable Rocket Dream



The sounding rocket launch was successfully conducted at Dholera.

Gujarat has taken a significant step in India's private space journey with the successful launch of the state's first sounding rocket near Dholera in March 2026. Developed by Ahmedabad-based startup Omspace Rocket and Exploration Private Limited (OSRE), the mission highlights the growing role of Indian startups in advancing indigenous space technology.

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Launched from Bavaliyari village near Dholera, the single-stage sub-orbital rocket reached an altitude of nearly 3 kilometers. Though modest in height, the mission carried major technical importance. It successfully tested key onboard systems, including propulsion, avionics, flight control, and an autonomous recovery mechanism. The rocket also carried a small atmospheric payload to gather weather-related data.

OSRE founder and CEO Dr. Ravindra Raj thanked the Gujarat government for supporting private innovation in the space sector. He noted that the successful test will contribute directly to the company's ambitious next project Infinity One, India's first fully indigenous reusable launch vehicle.

Reusable launch vehicles are considered the future of space transportation because they can dramatically reduce launch costs by recovering and reusing major rocket components. Nations such as the United States have already demonstrated the economic advantages of this model, and India's entry into this field would mark a strategic milestone.

The mission was conducted with approvals from national authorities including IN SPACe, DGCA, Airports Authority of India, and the Indian Coast Guard, reflecting a maturing regulatory framework for private launches.

Backed by the Gujarat SpaceTech Policy (2025-2030), the state is positioning itself as a new hub for aerospace innovation. This sounding rocket launch is more than a regional success, it is an early signal of India's growing capability to build affordable, reusable, and globally competitive launch systems.

ISRO's Gaganyaan Mission May Welcome Civilian Crew Members



ISRO plans a second Gaganyaan astronaut batch, adding STEM civilians to military pilots.

The Indian Space Research Organisation (ISRO) is preparing to select a second batch of astronauts for the Gaganyaan programme, and for the first time, civilians may be included. This marks a historic shift in India's human spaceflight journey, moving beyond military only astronaut selection toward a broader national space workforce.

In the first round of astronaut selection in 2020, all four candidates were chosen from the Indian Air Force. These test pilots underwent rigorous medical, psychological, and technical training, including advanced preparation in Russia under Roscosmos. Their training covered survival exercises, zero-gravity simulations, and spacecraft systems.

Now, ISRO is expanding its vision. The next astronaut batch is expected to include candidates from science, technology, engineering, and mathematics (STEM) backgrounds along with military personnel. Reports suggest a pool of around 10 astronauts may be selected, possibly including six defence personnel and four civilian specialists.

This move reflects India's long-term ambitions in space exploration. Gaganyaan is no longer viewed as a single mission but as the beginning of a sustained human spaceflight programme. India plans to build its own space station in the coming decade and aims to land an Indian astronaut on the Moon by 2040.

To support this transition, ISRO has formed a special committee to design the new astronaut selection process. The team is working on eligibility criteria, training systems, and evaluation methods. Current astronaut candidates are also helping build future training infrastructure.

One key challenge is making astronaut selection accessible while maintaining global standards. Unlike NASA, where civilian applicants often require expensive pilot training, ISRO is exploring alternative routes such as providing flying instruction after selection.

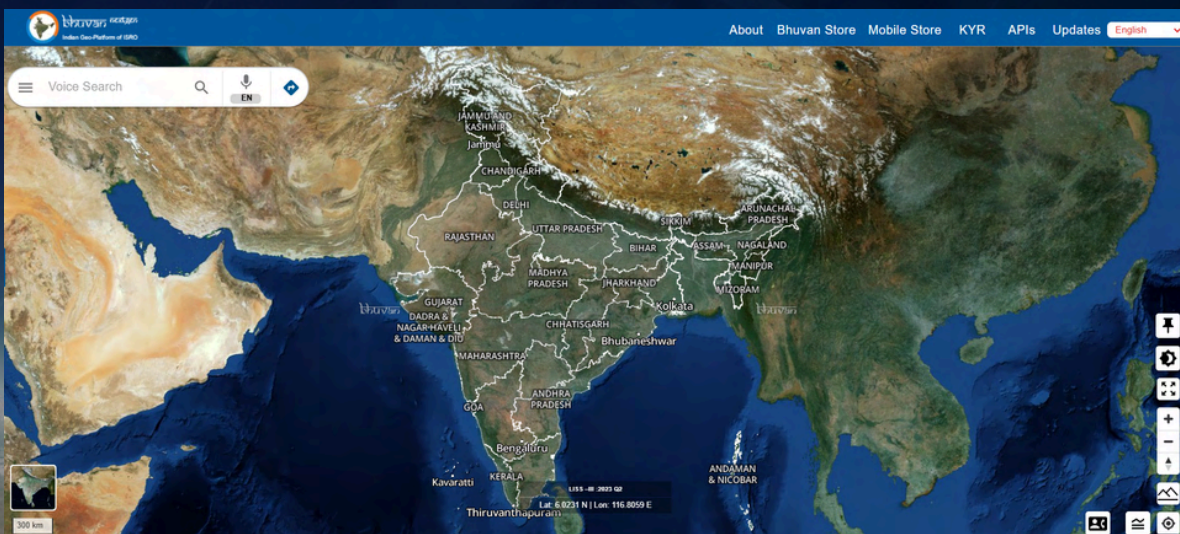
Opening astronaut opportunities to civilians is a powerful signal that India's space future belongs not only to pilots, but also to scientists, engineers, doctors, and innovators. It is a bold step toward creating a truly national space programme.



From Space to Soil: ISRO Empowering Rural India

India has taken a significant leap in leveraging space technology for grassroots development, as the Indian Space Research Organisation (ISRO) announced that it has successfully mapped every village in the country using high resolution satellite imagery. This ambitious achievement marks a transformative step in improving rural governance and planning across India.

The mapping, conducted at a detailed scale of 1:10,000, allows precise identification of land features such as agricultural fields, water bodies, and infrastructure. With over 6.4 lakh villages in India, this comprehensive dataset provides an unprecedented level of clarity for local level decision making.



ISRO has mapped every village in the country from space

One of the key applications of this initiative lies in strengthening decentralized governance. The data has been integrated into the Grammanchitra portal developed by the Ministry of Panchayati Raj, enabling village authorities to prepare more effective Gram Panchayat Development Plans. By offering accurate insights into land use and resource distribution, the platform empowers local bodies to plan infrastructure, agriculture, and welfare projects with greater efficiency and transparency.

Beyond governance, the satellite mapping is expected to play a crucial role in disaster management, agricultural planning, and sustainable resource utilization. Access to reliable geospatial data can help authorities respond more effectively to floods, droughts, and other natural challenges while optimizing land use for long term development.

This initiative reflects India's growing capability to harness space technology for societal benefits. By bridging the gap between advanced satellite systems and rural administration, ISRO is enabling data driven governance at the grassroots level. Ultimately, the mapping of every village is not just a technological milestone but a step toward more accountable, efficient, and inclusive rural development in India.



ISRO BRINGS THE COSMOS TO CLASSROOMS

India is taking a decisive step toward building a future ready space workforce by integrating advanced space education directly into universities and colleges. The government, led by Union Minister Jitendra Singh, has announced plans to establish seven space laboratories across academic institutions in collaboration with Indian Space Research Organisation (ISRO).

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These laboratories are designed to move beyond traditional classroom teaching by offering students hands on training in satellite systems, rocketry, and mission design. The initiative aims to bridge a growing talent gap in India's rapidly expanding space ecosystem, where demand for skilled engineers and researchers is rising sharply.



Bridging the Gap: Hands-on Space Tech

The timing of this move is significant. India's space sector has undergone major reforms in recent years, opening its doors to private players and startups. As a result, the ecosystem has grown dramatically from just a handful of startups to over 400 by 2026, attracting more than \$600 million in private investment.

These companies are now involved in building launch vehicles, satellites, and space based services, creating new opportunities for innovation and employment.

By embedding space labs within universities, the government is strengthening the pipeline between education, research, and industry. Students will gain practical exposure early in their academic journey, enabling them to contribute to real world space missions and technologies. This aligns with broader efforts by agencies like IN-SPACe to promote private participation and innovation in the sector.

Ultimately, this initiative reflects India's long-term vision of becoming a global leader in space technology. By nurturing talent at the grassroots level and fostering collaboration between academia and industry, the country is laying the foundation for sustained growth in its space economy and future missions beyond Earth.

WHAT'S UP IN THE SKY - MAY 2026

LUNAR CALENDAR

IMPORTANCE OF MOON PHASES FOR STARGAZERS

One might wonder why it is important to refer to moon phases for star gazing. The reason is that the phases of the Moon reflect a great deal of illumination, and because the Moon is so close to us, it overrides the brightness of other celestial objects.

So, What Moon phase is best for stargazing? "The New Moon and the days immediately before and after the new moon (Crescent phases)" are among the best times for stargazing. Whereas the Remaining phases like Full Moon, waxing or waning gibbous, the first or third quarter Moon offers a time to zoom in and witness the features of the Moon.



PLANETS VISIBILITY

Mercury

Superior conjunction 14 May, strong in evening sky second half of May. Sets 1h50m after sunset on 31 May.



Venus

Evening planet, sets 3h after sunset. 6%-lit waxing Moon nearby on 18 May, close to M35 on 20 May.



Mars

Morning planet not well placed in the dawn twilight.



Jupiter

Best in early May. 23%-lit waxing Moon nearby on 20 May. Venus close on 31 May.



Saturn

Morning planet, poorly placed. Waning crescent Moon close on 13 and 14 May.



Uranus

Uranus is near the Sun, so it's lost in glare and not safely visible.



Neptune

Too faint and too close to the Sun to be seen this month.



BRIGHT DEEP SKY OBJECTS

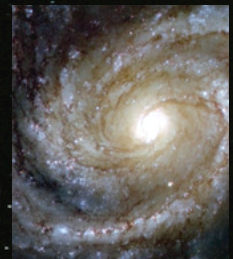
Messier 94 is a bright spiral galaxy located about 16 million light-years away in the constellation Canes Venatici. Known for its brilliant central core and compact appearance, M94 is an excellent deep-sky object for small telescopes during this month's observations, offering a beautiful target for galaxy enthusiasts and astrophotographers alike.



Messier 64, also known as the Black Eye Galaxy or Evil Eye Galaxy, is a striking spiral galaxy located in the constellation Coma Berenices. Its famous dark dust band crossing the bright nucleus gives it a unique appearance. Shining at magnitude 8.5, it can be observed through 10x50 binoculars or small telescopes as a faint, elongated glow.



M100, sometimes referred to as the Blowdryer Galaxy, is a striking illustration of an intermediate grand-design spiral galaxy. Strong star formation activity is present in this galaxy, which is among the largest and brightest in the Virgo Cluster. It is a star in the Coma Berenices constellation with an apparent magnitude of 9.3.



The galaxy NGC 4631 is a barred spiral. Its wedge-like shape earned it the moniker "Whale Galaxy." The galaxy is about the same size as the Milky Way galaxy. It is 9.2 in apparent magnitude. It is visible from the northern hemisphere and is located in the Canes Venatici constellation.



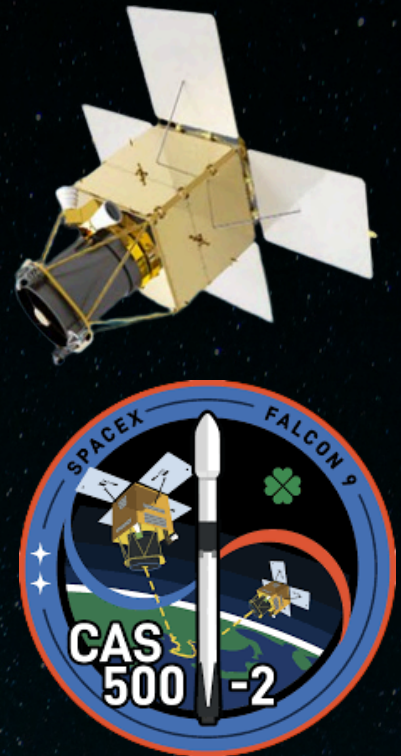
ROCKET LAUNCHES IN MAY 2026

CAS500-2

CAS500-2 (Compact Advanced Satellite 500-2) is a South Korean Earth-observation satellite developed by the Korea Aerospace Research Institute and Korea Aerospace Industries. It belongs to a standardized 500-kg satellite series aimed at enabling cost-effective production and expanding the country's space capabilities through domestic technology and private-sector involvement.

The satellite is scheduled to launch on May 3, 2026, aboard a Falcon 9 Block 5 from Vandenberg Space Force Base in the United States. It will be placed into a sun-synchronous low Earth orbit at an altitude of about 500-530 km, allowing it to capture images under consistent lighting conditions during each pass.

CAS500-2 delivers high-resolution Earth imaging, with about 0.5-meter panchromatic and 2-meter multispectral resolution. Its data will support mapping, environmental monitoring, agriculture, and disaster management, while also strengthening South Korea's independent satellite observation and commercial space services.



DRAGON CRS-2 SPX-34



Falcon 9 Block 5
(Credit: SpaceX)

Dragon CRS-2 SpX-34 is a cargo resupply mission by SpaceX under NASA's Commercial Resupply Services-2 program, designed to deliver essential supplies and scientific payloads to the International Space Station. It uses the reusable SpaceX Dragon 2, an advanced capsule capable of carrying both pressurized and unpressurized cargo, supporting long-term human spaceflight operations.

The mission is planned for 2026 and will launch aboard a Falcon 9 Block 5 from Kennedy Space Center in Florida. After reaching orbit, the Dragon spacecraft will autonomously navigate and dock with the station, where astronauts will unload supplies, experiments, and maintenance equipment for ongoing missions.

SpX-34 plays a vital role in sustaining ISS operations by delivering food, tools, and research materials. It supports experiments in microgravity, including biology, physics, and technology demonstrations, and will return to Earth with completed research samples and hardware for further analysis.

THE GRAIN GODDESS PROVIDES (IQPS LAUNCH 7)

The Grain Goddess Provides™ (iQPS Launch 7) is a commercial Earth-observation mission by iQPS (Institute for Q-shu Pioneers of Space). It involves launching a synthetic aperture radar (SAR) satellite designed to capture high-resolution images of Earth regardless of weather or daylight, supporting applications such as disaster monitoring, infrastructure tracking, and maritime surveillance.

The mission is scheduled for 2026 and will launch aboard a Falcon 9 Block 5 from the United States. As part of iQPS's growing satellite constellation, this launch represents another step toward building a near real-time Earth observation network with frequent revisit capabilities across the globe.

The satellite will operate in low Earth orbit, using SAR technology to provide reliable imaging in cloudy or nighttime conditions. This capability is especially valuable for emergency response, environmental monitoring, and security applications, strengthening global access to continuous, high-quality Earth observation data.



Electron
(Credit: spacelaunchschedule)

AMAZON LEO (LE-03)



Ariane 64 Block 2
(Credit: nextspaceflight)

Amazon Leo (LE-03) is part of Amazon's Project Kuiper initiative, a large satellite constellation designed to provide global broadband internet coverage. The LE-03 mission represents another batch of low Earth orbit satellites aimed at expanding connectivity, particularly in remote and underserved regions, competing with other satellite internet networks.

The mission is expected to launch in 2026 aboard a Falcon 9 Block 5 from the United States. Once deployed, the satellites will be placed into low Earth orbit, where they will join the growing Kuiper constellation and begin system checks before entering operational service.

These satellites use advanced communications technology to deliver high-speed, low-latency internet services. LE-03 contributes to Amazon's long-term goal of deploying thousands of satellites, improving global connectivity for homes, businesses, and governments, while strengthening competition in the rapidly evolving satellite broadband market.

STARSHIP FLIGHT 12

Starship Flight 12 is a test launch by SpaceX as part of its program to develop a fully reusable heavy-lift rocket system. Starship is designed for missions to low Earth orbit, the Moon, and Mars, and Flight 12 represents another step in testing its performance, reusability, and safety systems.

The launch is expected in 2026 from Starbase in Boca Chica, Texas, using the Super Heavy booster and Starship upper stage. The mission profile includes liftoff, stage separation, booster return attempt, and a controlled flight of the upper stage, with possible splashdown after completing test objectives.

Flight 12 will focus on improving reliability, engine performance, and recovery techniques. Data collected will support future crewed and cargo missions, helping SpaceX advance toward long-duration space travel and large-scale deployment capabilities.



Starship
(Credit: Space)

ONWARD AND UPWARD



Spectrum isaraerospace
(Credit: elonbuzz)

“Onward and Upward” is a mission by Rocket Lab, typically used as a themed name for one of its Electron rocket launches. The mission is part of Rocket Lab’s ongoing commercial launch program, delivering small satellites for customers into low Earth orbit for communications, Earth observation, or technology demonstrations.

The launch is expected in 2026 from Rocket Lab’s Launch Complex in New Zealand. After liftoff, the Electron rocket will follow a precise trajectory to deploy its payload into the designated orbit, often tailored to customer requirements such as altitude and inclination.

“Onward and Upward” reflects Rocket Lab’s continued growth in the small satellite launch market. The mission contributes to frequent, reliable access to space, supporting industries that rely on satellite data while demonstrating advancements in responsive and cost effective launch services.

****Note: Launch dates of the missions are scheduled to be launched in MAY 2026 but may subject to change.**

SETBACKS THAT BUILT SPACE SUCCESS

APOLLO 13: THE ULTIMATE SPACE SURVIVAL STORY

During the 1960s, the world witnessed an intense competition between the United States and the Soviet Union, known as the Space Race. Both nations wanted to prove their power in space exploration.

The Soviet Union took an early lead by launching the first satellite and sending the first human into space. In response, the United States began the Apollo program, aiming to land humans on the Moon. This goal was achieved in 1969 with the Apollo 11 mission, making space travel seem almost routine.

But in April 1970, the Apollo 13 mission shattered that sense of routine, reminding us that we are only one mistake away from disaster.



Rear Admiral Donald C. Davis welcomed the Apollo 13 mission crew. (Credit: NASA)

Now over 300,000 kilometres from home, the crew was trapped in a damaged spacecraft with limited resources. The Lunar Module, meant for landing, became their lifeboat. But it was not built to support three people for long. Temperatures dropped close to freezing. Water had to be strictly limited. Meanwhile, carbon dioxide levels began rising, making the air dangerous to breathe.

On Earth, engineers worked nonstop. Using only the materials available onboard, they created a way to fix the air filters. With no chance of landing, the astronauts took a longer path home, using the Moon's gravity to guide them back. Then, after days of fear, Apollo 13 safely splashed down on April 17, 1970.

It did not land on the Moon. But it brought its crew back alive. A mission that nearly ended in tragedy became one of the greatest survival stories in human history.



Mission Control Center (MCC) view during Apollo 13 Oxygen Cell Failure. (Credit: NASA)

On April 11, 1970, three astronauts, Jim Lovell, Jack Swigert, and Fred Haise, left Earth, aiming to land on the Moon. For two days, everything went smoothly. Then, without warning, an oxygen tank exploded.

The spacecraft shook. Warning lights flashed. Oxygen leaked into space. Power failed. Water supply dropped. In seconds, the mission turned into a life or death situation. What was meant to be a proud journey became a fight for survival. Calm but serious, the astronauts sent a message to Earth: "Houston, we've had a problem."

Happy Birthday



May 6, 1872

Willem de Sitter

Willem de Sitter (6 May 1872 – 20 November 1934) was a Dutch physicist, mathematician, and astronomer known for his contributions to cosmology and general relativity. He developed the de Sitter universe, an important model describing an expanding universe with a cosmological constant. A close collaborator of Einstein, he also advanced planetary motion studies and timekeeping. As director of Leiden Observatory, he promoted modern physics and shaped early 20th-century astronomical research. (Image Credit: Chicago Maroon).

Cecilia Payne

Cecilia Payne (May 10, 1900 – December 7, 1979) was a pioneering British-American astronomer whose groundbreaking work revolutionized our understanding of stars. In 1925, she discovered that stars are primarily composed of hydrogen and helium, challenging existing theories. Despite facing gender-based obstacles, Payne became a professor at Harvard University. Her contributions to stellar astrophysics remain profound, and she continues to inspire future generations of scientists, especially women in STEM fields. (Image Credit: Smithsonian Institution)



May 10, 1900

Antony Hewish

Antony Hewish (11 May 1924 – 13 September 2021) was a British radio astronomer renowned for discovering pulsars in 1967. Working with his student Jocelyn Bell Burnell, Hewish designed a radio telescope that unexpectedly detected the first pulsar, revolutionizing astrophysics. This discovery, which provided evidence for neutron stars, earned him the Nobel Prize in Physics in 1974, shared with Martin Ryle. Hewish's work greatly advanced radio astronomy and our understanding of stellar evolution and cosmic phenomena. (Image Credit: nytimes.com)



May 11, 1924

Happy Birthday



May 18, 1929

V. Radhakrishnan

Venkataraman Radhakrishnan (18 May 1929 – 3 March 2011) was an Indian radio astronomer known for his pioneering work in space science. He made significant contributions to the study of radio galaxies, quasars, and pulsars. In 1969, he discovered the phenomenon of interstellar scintillation, which helped understand the structure of our galaxy. HE also played a crucial role in the development of radio astronomy in India, influencing generations of scientists and advancing the country's space research programs. (Image Credit: rri.res.in).

John Tebbutt

John Tebbutt (25 May 1834 – 29 November 1916) was a self-taught Australian astronomer best known for discovering the Great Comet of 1861. Operating from a private observatory in Windsor, New South Wales, he made significant contributions to astronomy, including observations of comets, variable stars, and lunar occultations. Despite limited resources, He earned international recognition for his meticulous work. His dedication laid foundations for Australian astronomy, and he is honored on the Australian \$100 note. (Image Credit: dailytelegraph).



May 25, 1834

Sally K. Ride

Sally K. Ride (May 26, 1951 – July 23, 2012) was an American astronaut and physicist, making history in 1983 as the first American woman in space aboard the Space Shuttle Challenger. She flew on two missions, contributing to satellite deployment and scientific research. She also co-founded Sally Ride Science to inspire young people, especially girls, to pursue STEM careers. After retiring from NASA, she became a professor and authored several books, leaving an enduring legacy in space exploration and education. (Image Credit: Wikipedia).



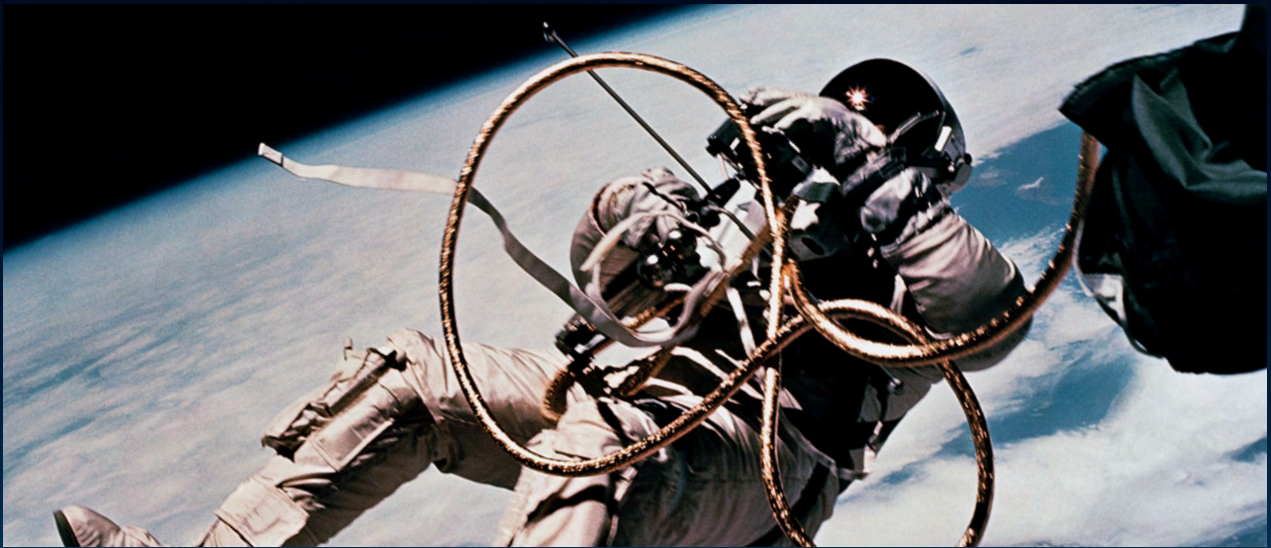
May 26, 1951

SPACE PARADOXES: GLITCHES IN THE COSMOS

THE SECRET BEHIND FLOATING ASTRONAUTS

Have you ever watched astronauts floating inside a spacecraft and wondered if there is no gravity in space? It may look that way, but the truth is quite different. Gravity exists almost everywhere in the universe. Even at the height where astronauts live and work, gravity is still very strong. For example, on the International Space Station, gravity is about 90% as strong as it is on Earth.

So, astronauts are not floating because gravity has disappeared.



NASA astronaut Ed White free floating in space during a spacewalk. (Credit: NASA)

The Secret:

Astronauts float because of free fall, which means moving only under the influence of gravity.

Imagine skydiving with a friend. Since both of you fall at nearly the same speed, your friend appears to float beside you instead of falling away. In the same way, when everything falls together, nothing seems to move relative to you.

This is what happens inside a spacecraft. Astronauts and their spacecraft are constantly falling toward Earth, but they don't crash because the spacecraft also moves sideways at a very high speed. This sideways motion, called tangential velocity, keeps them in orbit.

Why Do Astronauts Feel Weightless?

Inside the spacecraft, everything is falling together: astronauts, equipment, and even the air. Since everything moves the same way, nothing pushes against them. On Earth, we feel weight because the ground pushes us upward, but in space, this push is missing.

Even during a spacewalk outside the International Space Station, astronauts continue to float because they are still falling around Earth.

As a result, astronauts feel weightless because they are in continuous free fall, even though gravity is still present.

ASTRONOMICAL EVENTS

Eta Aquarids Meteor Shower 2026: A Spectacular Celestial Display

The Eta Aquarid Meteor Shower is one of the most anticipated annual sky events, active from mid April to late May, with its peak on the night of May 5-6, 2026. This meteor shower originates from the debris left behind by the famous Halley's Comet, making every meteor a tiny fragment of this historic comet.

The Eta Aquarids are known for their fast and bright meteors, entering Earth's atmosphere at speeds of about 65 km/s. Many of these meteors leave glowing trails that linger for a few seconds, adding to the beauty of the display. Observers in regions like India can expect to see around 10-30 meteors per hour under clear and dark-sky conditions, while locations closer to the equator often experience better viewing rates.



In 2026, viewing conditions will be influenced by the waning gibbous Moon, which rises later in the night and may brighten the sky during the early morning hours. However, good visibility is still possible, especially before moonrise and during the pre-dawn hours, when the sky is relatively darker.

How to Observe?

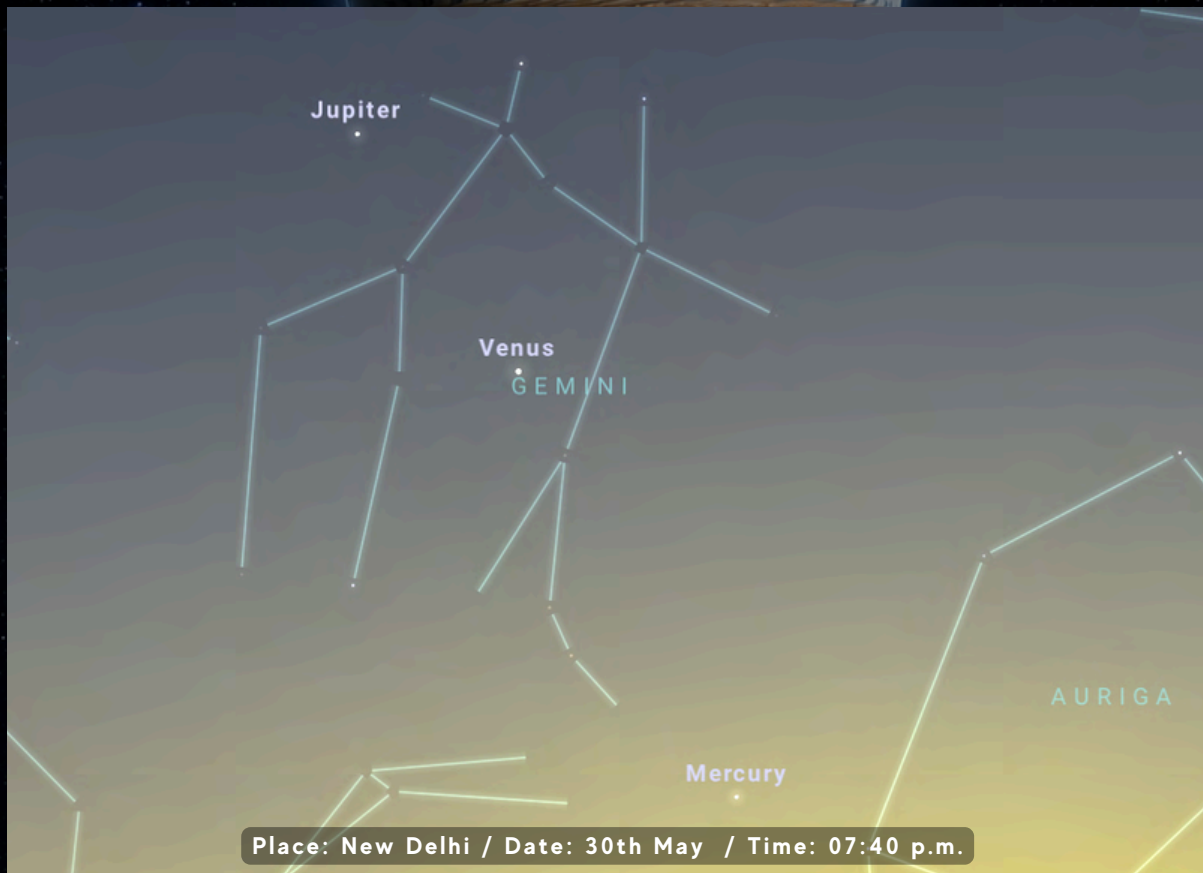
The meteors appear to radiate from the constellation Aquarius, which rises after midnight and becomes higher in the sky toward dawn. For the best experience, observers should choose a dark, open location away from city lights, allow their eyes to adjust to the darkness, and patiently scan the sky without the need for telescopes or binoculars.

The Eta Aquarid Meteor Shower is not just a visual treat but also a reminder of our connection to the cosmos. Each streak of light represents ancient comet dust burning up in Earth's atmosphere, offering a glimpse into the dynamic nature of our Solar System and the enduring legacy of Halley's Comet.

Planetary Parade: A Beautiful Alignment in the Evening Sky

On May 30, 2026, skywatchers will witness a striking planetary parade as Mercury, Venus, and Jupiter appear aligned in a nearly straight line across the western sky just after sunset.

This alignment occurs because all planets orbit the Sun along a common plane called the ecliptic. From Earth, this creates the visual effect of planets lining up, forming a smooth arc or almost straight line in the sky.



Soon after sunset, observers should look toward the western horizon. Venus will be the brightest and easiest to spot, shining brilliantly even in twilight. Jupiter will also be clearly visible nearby, while Mercury, being closer to the horizon and fainter, may require a clear, unobstructed view and careful observation.

Events like this are not everyday occurrences and offer a wonderful chance to see multiple planets together with the naked eye. For the best experience, choose a location with a clear view of the western horizon and minimal light pollution. No telescope is required to enjoy this planet parade. Binoculars can enhance the view.

This planetary parade beautifully showcases the harmony of our Solar System, reminding us of the continuous and graceful motion of planets as they journey around the Sun.

BLUE MOON: A RARE LUNAR TREAT

On May 31, 2026, the Moon will shine as a Blue Moon, specifically a monthly Blue Moon, the second full moon occurring within a single calendar month. Although the Moon will not actually appear blue, the name reflects its rarity and is the origin of the popular phrase "once in a blue moon."

On this night, the Moon will be located in the constellation Scorpius, appearing close to the bright red star Antares. This pairing creates a beautiful visual contrast in the night sky, with the soft glow of the Moon set against the reddish hue of Antares. The Moon will rise around sunset and remain visible throughout the night, offering ample time for observation.



This event becomes even more fascinating as the Moon will be near its apogee, the farthest point in its orbit from Earth, making it a Micromoon. As a result, it will appear about 5.5% smaller and 10.5% dimmer than an average full moon.

While this difference is subtle to the naked eye, careful observers may notice that it lacks the striking brightness and size often associated with supermoons.

Monthly Blue Moons occur roughly once every 2 to 3 years, making them relatively uncommon. Historically, the term "Blue Moon" has been used in folklore to describe rare or unusual events. Unlike other full moons that carry traditional seasonal names such as the Harvest Moon or Wolf Moon, a Blue Moon does not have a unique cultural name; it simply earns its title due to its timing within the calendar.

This event offers a wonderful opportunity for both observation and photography. With binoculars or a small telescope, we can explore lunar features and take a closer look at the Moon's surface. At the same time, photography enthusiasts can capture stunning images using a DSLR or mirrorless camera mounted on a tripod. As a starting point, try ISO 200-400, a shutter speed of 1/250s-1/500s, and an aperture of f/5.6-f/8. Then adjust to bring out sharp crater details.

Including foreground elements such as trees or buildings can add depth and creativity to the composition. This makes the Blue Moon not just a sight to admire but also a perfect subject to observe, study, and capture.

The combination of a Blue Moon and Micromoon, along with its position near Antares, makes May 31, 2026, a particularly noteworthy celestial event. This Blue Moon serves as a reminder that even familiar objects like the Moon can present unique variations, encouraging us to observe the sky more closely and regularly.



CONJUNCTIONS FOR THE MONTH

A phenomenon grabs the imagination of scientists and stargazers alike in the vast panorama of the night sky, where stars shine as distant diamonds and planets roam over the cosmic canvas. Conjunctions, those ethereal moments in the heavens when heavenly bodies appear to collide, provide a mesmerising sight that connects us to the beauty of the cosmos. The word "Conjunction" comes from Latin, meaning to join together.

From Earth's perspective, a conjunction occurs when two planets or a planet and the Moon or Sun align. Solar conjunctions are invisible to us. Moon-planet conjunctions occur throughout the month, every month, as the Moon passes past each planet. The planets in The Great Conjunction and when multiple align are rare and captivating conjunctions. Technically speaking, objects are said to be in conjunction in that instant when they have the same right ascension on our sky's dome. Practically speaking, objects in conjunction will likely be visible near each other for some days.

Conjunction of Moon near saturn

On May 14, the Moon appears close to Saturn in the eastern pre-dawn sky, near Pisces. Saturn shines at magnitude +1.1, while the Moon is around -11.8. Look about 20° above the horizon.



Conjunction of Moon near Mars

On May 15, the Moon passes near Mars in the eastern sky near the Pisces-Aries border. Mars shines at magnitude +1.2, while the Moon is around -11.5. Look 25° above the horizon before sunrise.



Conjunction of Moon near Venus

On May 19, the crescent Moon meets brilliant Venus in the eastern sky. Venus shines at magnitude -4.3, while the Moon is around -9.8. Look 15-20° above the horizon before sunset.



Conjunction of Moon near Jupiter

On May 20, the Moon appears near Jupiter in the western dusk sky, close to Gemini. Jupiter shines at magnitude -2.0, while the Moon is around -10.2. Look about 20° above the horizon.



STUDENTS CORNER

ALL ABOUT GALAXIES

VETRIVEL. T, IASTRONOMER

Introduction

Galaxies are the home to stars and other celestial objects. It was only in the early 20th century that the existence of the galaxies other than the Milky Way was recognized. Before that, early astronomers labelled them as Nebulas, since they appeared to look like hazy cloud. Galaxies are present in every part of space, as observed through powerful telescope. They differ in shape, structure and the level of activity within them.

What is a Galaxy?

A galaxy comprises a large group of hundreds of billions of stars and interstellar matter bound together by gravity. Almost all the large galaxies are also believed to have gigantic black holes at their centers. Galaxies exist in variety of shapes and size ranging from dim-dwarf sized object to bright, massive spiral-shaped ones. Almost all the galaxies seem to have been formed immediately after the universe came into existence. These beautiful formations are generally found in clusters, some of which forms a large cluster and span hundreds of millions of light years across the universe. A light year is the distance travelled by the light in one year, at the speed of 3,00,000 kmph.

Types of Galaxies

There are three main classifications of galaxies – elliptical, spiral and irregular. Some spiral galaxies are called barred galaxies.

Elliptical Galaxies

These galaxies are round, oval or more like elongated sphere. Sometimes they may be more stretched than they look like cigar. These galaxies generally contain many old stars, but not much dust and interstellar matter. Like stars in the disk of spiral galaxies. The largest known galaxies in the universe are giant elliptical ones which can be as big as two million light year long. The smaller these galaxies are known as dwarf elliptical galaxies. Virgo A / M87 is an example of a giant elliptical galaxy found close to the center of the Virgo cluster of galaxies.

Spiral Galaxies

Spiral galaxies comprise a flat disk, with a bulging center. These galaxies have long spiral arms that wind towards the center. The disk comprises stars, planets, dust and the gas, which rotates or spin around the galactic center in a regular manner.

The spinning motion may result in matter in the disc taking the shape of the spiral, like a pinwheel.

While many new stars are born in spiral galaxies, the older stars are generally located in the bulging center of the galactic disc. These discs have a halo around them and astronomers believe that they comprise unknown dark matter. The Milky Way is a spiral galaxy and is home to our solar system. It is one form a group of galaxies known as the Local Group.

Irregular Galaxies

Galaxies which do not have any distinct shape, such as spiral, elliptical or lenticular, are irregular galaxies. Irregular galaxies like the Large and Small Magellanic Clouds are uneven or out of shape as they are generally under the gravitational influence of other nearby galaxies. Since they are packed with lots of gas and dust, irregular galaxies are a fertile ground for the formation of new star.

ASK THE UNIVERSE

What are all the astronomical sights we can see in India, Chennai this year? (Question from Dia Navin)

There are many upcoming astronomical events happening throughout 2026. To explore all the celestial events in detail month wise, you can refer to the official Space Arcade event calendar using the link below:

<https://spacearcade.in/wp-content/uploads/2026/01/Annual-Celestial-Events-Calendar-2026.pdf>

When an matter enters space will the matter get destroyed or will exist somewhere else ? (Question from Sendhan grade 7)

Matter doesn't get destroyed just by entering space it continues to exist. In physics (see Law of Conservation of Mass-Energy), matter cannot simply disappear. Instead:

- It may float unchanged (like satellites or debris in orbit)
- It can break apart or burn if it re-enters an atmosphere
- It may freeze, evaporate, or spread out in vacuum
- In extreme cases, it can transform into energy (e.g., near stars)

So, matter in space doesn't vanish—it just changes form, location, or state.

I want to be a ISRO scientist.what i have to do next.pls guide.also i want to know anyother place in universe has life existence other than earth. (Questiond from Srutikasri grade 7)

Getting into Indian Space Research Organisation requires a focused path: choose PCM after school and build strong fundamentals in physics and mathematics. Pursue a B.Tech/BE in fields like aerospace, mechanical, electronics, or computer science. Aim for top institutes such as Indian Institute of Technology or Indian Institute of Space Science and Technology through JEE Advanced. Join ISRO via ICRB, IIST placements, or higher studies, while developing coding, robotics, and research skills.

Life on Other Planets:

Scientists are actively searching for life beyond Earth, but so far, no confirmed evidence has been found. Thousands of Exoplanet have been discovered, and some of them lie in the habitable zone where conditions may support life. Closer to home, places like Mars and moons such as Europa may have environments suitable for microbial life. Although there is no proof yet, scientists believe there is a strong possibility that life could exist elsewhere in the vast universe.

How do planets and moons keep increasing? (Question from Shynee Josewinrani grade 7)

Planets and moons don't continuously "increase" in number on a regular basis. Most of them formed billions of years ago during the early stages of the Solar System. However, new moons can sometimes form when objects like asteroids are captured by a planet's gravity or when collisions create debris that comes together. Similarly, scientists keep discovering new planets, especially Exoplanet, using advanced telescopes. So, the number isn't really increasing our discovery of them is improving over time.

A) How do astronomer see below visible spectrum waves and how are they useful?

B) What are some space related job/course opportunities and how to approach them? (Question from M B Nalayazhini Grade 8)

A) Astronomers study waves below visible light like radio, microwave, and infrared using special instruments instead of human eyes. Devices such as Radio telescope and infrared telescopes detect these invisible signals and convert them into images or data we can analyze.

These wavelengths are extremely useful because they reveal things we cannot see in visible light. For example, infrared helps us observe stars forming inside dusty clouds, while radio waves allow us to study galaxies, pulsars, and cosmic gas. Overall, observing beyond visible light gives a deeper and more complete understanding of the universe.

B) Space related careers include aerospace engineering, astronomy, astrophysics, satellite technology, space robotics, and science communication. To pursue these, choose PCM in school and build strong basics in physics and mathematics. You can study B.Tech/BE in core fields or B.Sc in Physics, then specialize through higher studies. Top institutes like Indian Institute of Technology and Indian Institute of Space Science and Technology offer excellent opportunities. Prepare for JEE Advanced and focus on skills like coding, research, and projects. Apply to organizations like Indian Space Research Organisation or private space companies.

"If the universe is continuously expanding, what is it expanding into? (Question from Himank Kakkar grade 9)

The universe is not expanding into anything; instead, space itself is stretching everywhere at once. This idea comes from the Big Bang Theory, which states that the universe began from a hot, dense state and has been expanding ever since. There is no outer edge or empty space beyond it. Initially, gravity tried to slow this expansion, but today a mysterious force called Dark Energy drives it faster. In simple terms, galaxies move apart because space itself is expanding, not because they are moving into something outside.

STORIES OF INDIA'S GREATEST MINDS

Rakesh Sharma *The Man Who Took India to Space*

Who was Rakesh Sharma?

Rakesh Sharma is a former Indian Air Force pilot and the first Indian citizen to travel into space. He became a national icon after his historic space mission in 1984, representing India on an international platform and inspiring millions of people.

What is he famous for?

He is best known for being the first Indian to go to space aboard the spacecraft Soyuz T-11. His mission marked a major milestone in India's space journey and demonstrated the country's growing involvement in space exploration.

Where did he work and contribute?

Rakesh Sharma flew as part of a joint mission between India and the Soviet Union. He spent time aboard the space station, Salyut 7, orbiting Earth and conducting experiments related to human health and Earth observation. Before this mission, India had not sent any human into space. Sharma's journey opened new possibilities for India in human spaceflight and encouraged scientific curiosity among students. His mission also strengthened international collaboration in space research.

What recognition did he receive?

After his successful mission, Rakesh Sharma was honored with the Ashoka Chakra, one of India's highest awards for bravery and achievement. We remember Rakesh Sharma for his courage, dedication, and contribution to India's space history. His famous reply to Prime Minister Indira Gandhi "Saare Jahan Se Achha" remains a proud moment for the nation. His journey continues to inspire future astronauts and space enthusiasts.

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HISTORICAL EVENTS OF MAY

THE DAY PLUTO GOT ITS NAME

On May 1, 1930, the name Pluto was officially adopted for the newly discovered world found earlier that year at Lowell Observatory. The suggestion came from Venetia Burney, an eleven-year-old schoolgirl from Oxford, England, who proposed the name of the Roman god of the underworld. Astronomers appreciated that the first two letters also honored Percival Lowell, whose observatory led the search. Pluto quickly captured public imagination as the Solar System's ninth planet. Although later reclassified as a dwarf planet in 2006, its naming remains one of astronomy's most charming and memorable stories. (Image Credits: www.space.com)



NEREID MOON DISCOVERY

On May 1, 1949, astronomer Gerard Kuiper discovered Nereid, one of Neptune's moons. Nereid became the second known satellite of Neptune after Triton. It follows a highly unusual and elongated orbit, making it one of the most eccentric moon orbits in the Solar System. This discovery added to the growing understanding of the outer planets and their satellite systems. Kuiper's work greatly advanced planetary science, and he later became one of the most influential astronomers of the twentieth century. Nereid remains an important object for studying Neptune's complex gravitational environment. (Image Credits: en.wikipedia.org)

JANSKY'S RADIO GALAXY ANNOUNCEMENT

On May 5, 1933, engineer Karl Jansky publicly announced his discovery of mysterious radio waves coming from the center of the Milky Way galaxy. While investigating radio interference for Bell Laboratories, he built a rotating antenna and found signals that repeated with the stars rather than the Sun. This proved the source was cosmic. Jansky's work founded the field of radio astronomy, allowing scientists to study invisible phenomena such as pulsars, quasars, and black holes. His discovery transformed astronomy by showing that the universe emits much more than visible light. (Image Credits: theskyisnotthelimit.org)

NEW RADIO WAVES TRACED TO CENTRE OF THE MILKY WAY

Mysterious Static, Reported by K. G. Jansky, Held to Differ From Cosmic Ray.

DIRECTION IS UNCHANGING

Recorded and Tested for More Than Year to Identify It as

Dr. Slipher concluded, at some distance above the earth's surface, and possibly produced by the earth's atmosphere.
The galactic radio waves, the announcement says, are short waves, 14.6 meters, at a frequency of about 20,000,000 cycles a second. The intensity of these waves is very low, so that a delicate apparatus is required for their detection.
Unlike most forms of radio disturbances, the report says, these newly found waves do not appear to be due to any terrestrial phenomena, but rather to come from some point far off in space—probably far beyond our solar system.
If these waves came from a terrestrial origin, it was reasoned, then they should have the same intensity all the year around. But their intensity varies regularly with the time of day and with the seasons, and they get much weaker when the earth, moving in its orbit, interposes itself between the radio



SHEPARD'S FIRST AMERICAN SPACEFLIGHT

On May 5, 1961, astronaut Alan Shepard became the first American in space aboard the Freedom 7 spacecraft. Launched by NASA's Mercury program, Shepard's suborbital mission lasted about fifteen minutes and reached an altitude of over 180 kilometers. Though brief, the flight proved that the United States could successfully send humans into space. Shepard's mission came only weeks after Yuri Gagarin's historic orbital flight and intensified the Space Race. His achievement inspired the nation and laid the groundwork for future Mercury, Gemini, and Apollo missions. (Image Credits: www.wmur.com)

HISTORICAL EVENTS OF MAY

SKYLAB LAUNCH

On May 14, 1973, NASA launched Skylab, the first United States space station. Built from a modified Saturn V rocket stage, Skylab was designed for long-duration missions in orbit. Astronaut crews later lived aboard the station, conducting experiments in solar astronomy, medicine, Earth observation, and materials science. Although the station suffered damage during launch, engineers successfully repaired it in orbit. Skylab demonstrated that humans could live and work productively in space for extended periods. Its success provided valuable lessons later used in building the International Space Station decades afterward. (Image Credits: en.wikipedia.org)

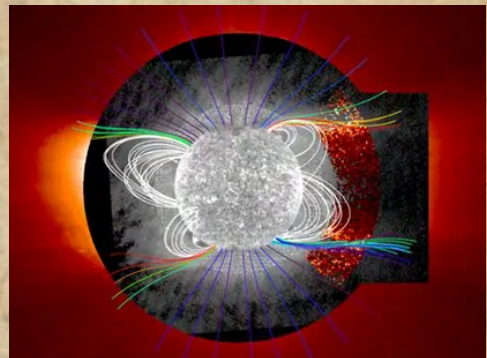


BAILY'S BEADS DISCOVERY

On May 15, 1836, English astronomer Francis Baily carefully described the sparkling points of light seen moments before and after a total solar eclipse. These bright flashes, later called Baily's Beads, occur when sunlight shines through valleys and craters along the rugged edge of the Moon. His detailed observations helped explain one of the most beautiful eclipse phenomena visible from Earth. The discovery remains important in eclipse science today, as astronomers use Baily's Beads to study the Moon's topography and to determine the precise timing of eclipse contacts during total and annular solar eclipses worldwide. (Image credits:www.celestron.com)

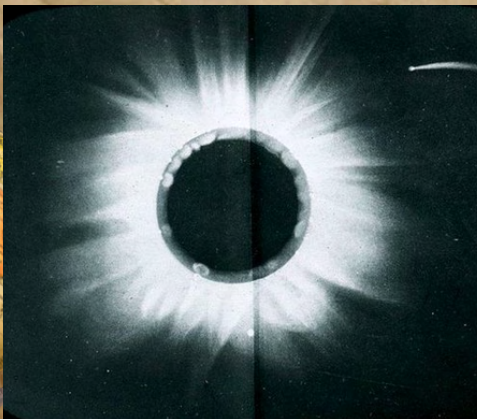
HELIUM DETECTION IN THE SUN

On May 18, 1868, astronomers studying the Sun's spectrum during a solar eclipse identified a bright yellow line that did not match any known element on Earth. This mysterious signature led to the discovery of helium, named after Helios, the Greek Sun god. Helium became the first element discovered in space before it was found on Earth. Later laboratory studies confirmed its presence on our planet. This milestone showed that spectroscopy could reveal the chemical makeup of stars, opening a new era in astrophysics and transforming how scientists study distant celestial objects. (Image credits: www.sci.news)



FIRST ECLIPSE COMET PHOTO

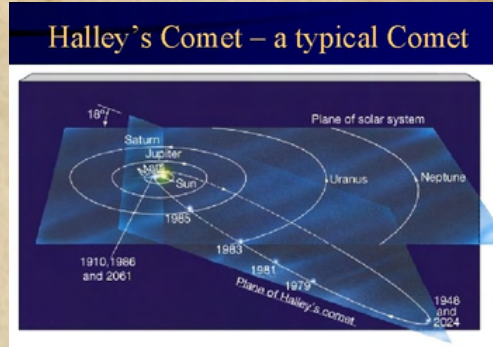
On May 18, 1882, astronomers achieved an important milestone in astrophotography by capturing one of the earliest photographs of a comet during a total solar eclipse. The darkness of totality allowed observers to detect faint celestial objects normally hidden by the Sun's intense glare. The photograph revealed a comet located close to the Sun, demonstrating how eclipses provide rare opportunities to study objects near the solar disk. This achievement highlighted the growing power of photography in astronomy and encouraged future eclipse expeditions to use cameras for scientific discoveries. It remains a notable moment in the history of observational astronomy. (Image credits: www.reddit.com)



HISTORICAL EVENTS OF MAY

HALLEY'S COMET SOLAR TRANSIT

On May 18, 1910, Earth passed through the tail of Halley's Comet during one of the most famous comet appearances in history. Although not a true transit across the Sun, the event created worldwide excitement and public anxiety. Many feared poisonous gases in the comet's tail, while astronomers calmly explained the harmless nature of the phenomenon. Halley's Comet shone brilliantly in the sky and became a major cultural event. The 1910 return helped scientists improve orbital calculations and increased public fascination with comets and celestial events. (Image credits: slidetodoc.com)

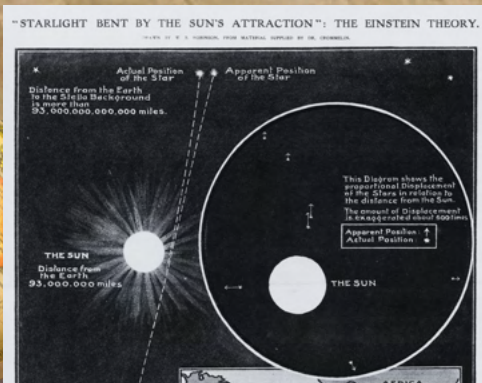


FIRST CHROMOSPHERE OBSERVATION

On May 18, 1868, astronomers observing a total solar eclipse made one of the first detailed studies of the Sun's chromosphere, the reddish atmospheric layer above the visible surface. During totality, when the bright photosphere was blocked by the Moon, a thin crimson rim became visible around the Sun. Scientists also observed prominences and used spectroscopy to study solar gases. These observations greatly improved understanding of the Sun's layered atmosphere and opened a new era in solar physics. The event demonstrated how eclipses allow astronomers to study delicate solar features otherwise hidden by intense sunlight. (Image credits: science.nasa.gov)

FIRST ECLIPSE MOTION PICTURE

On May 28, 1900, one of the earliest motion pictures of a total solar eclipse was recorded. Using primitive film equipment, astronomers captured the Moon covering the Sun and the appearance of the glowing corona. This was a remarkable technological achievement for its time, combining astronomy with the new art of cinema. The film preserved a dynamic record of eclipse phases that photographs alone could not show. Today it remains an important historical example of early scientific filmmaking and public engagement with astronomy. (Image credits: www.forbes.com)



EINSTEIN'S RELATIVITY CONFIRMED

On May 29, 1919, a total solar eclipse provided the perfect opportunity to test Albert Einstein's General Theory of Relativity. During the eclipse, astronomer Arthur Eddington photographed stars near the hidden Sun and measured how their light was bent by solar gravity. The results matched Einstein's predictions, proving that massive objects can curve space-time. This historic confirmation made Einstein world-famous and changed modern physics forever. It demonstrated that gravity was not simply a force, but a distortion of space and time caused by mass, reshaping our understanding of the universe. (Image credits: i.sstatic.net)

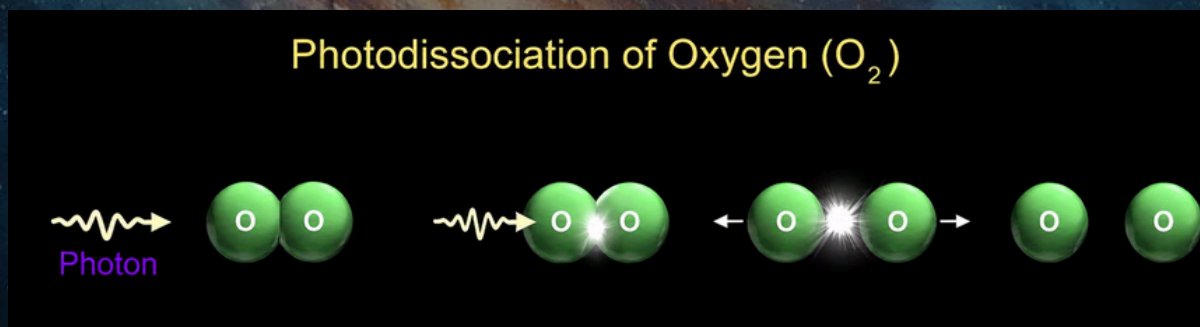
ASTRONOMY & SPACE TERM

PHOTODISSOCIATION: BREAKING MOLECULES WITH LIGHT

Photodissociation is the process by which molecules are broken apart by high-energy light, especially ultraviolet radiation from stars like the Sun.

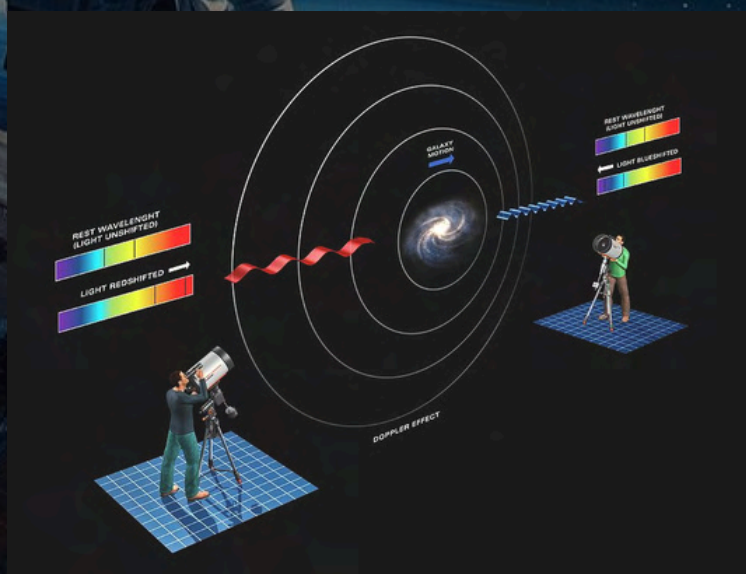
When a molecule absorbs this energy, its chemical bonds break, splitting it into smaller parts or individual atoms. This process is common in planetary atmospheres and interstellar clouds. A familiar example is the formation of the ozone layer on Earth, where ultraviolet light breaks oxygen molecules (O_2) into atoms, which then combine to form ozone (O_3).

Photodissociation plays a key role in shaping the chemistry of space, influencing how molecules form and break apart, and helping scientists understand the interaction between light and matter in the universe.



REDSHIFT AND BLUESHIFT: LIGHT IN MOTION

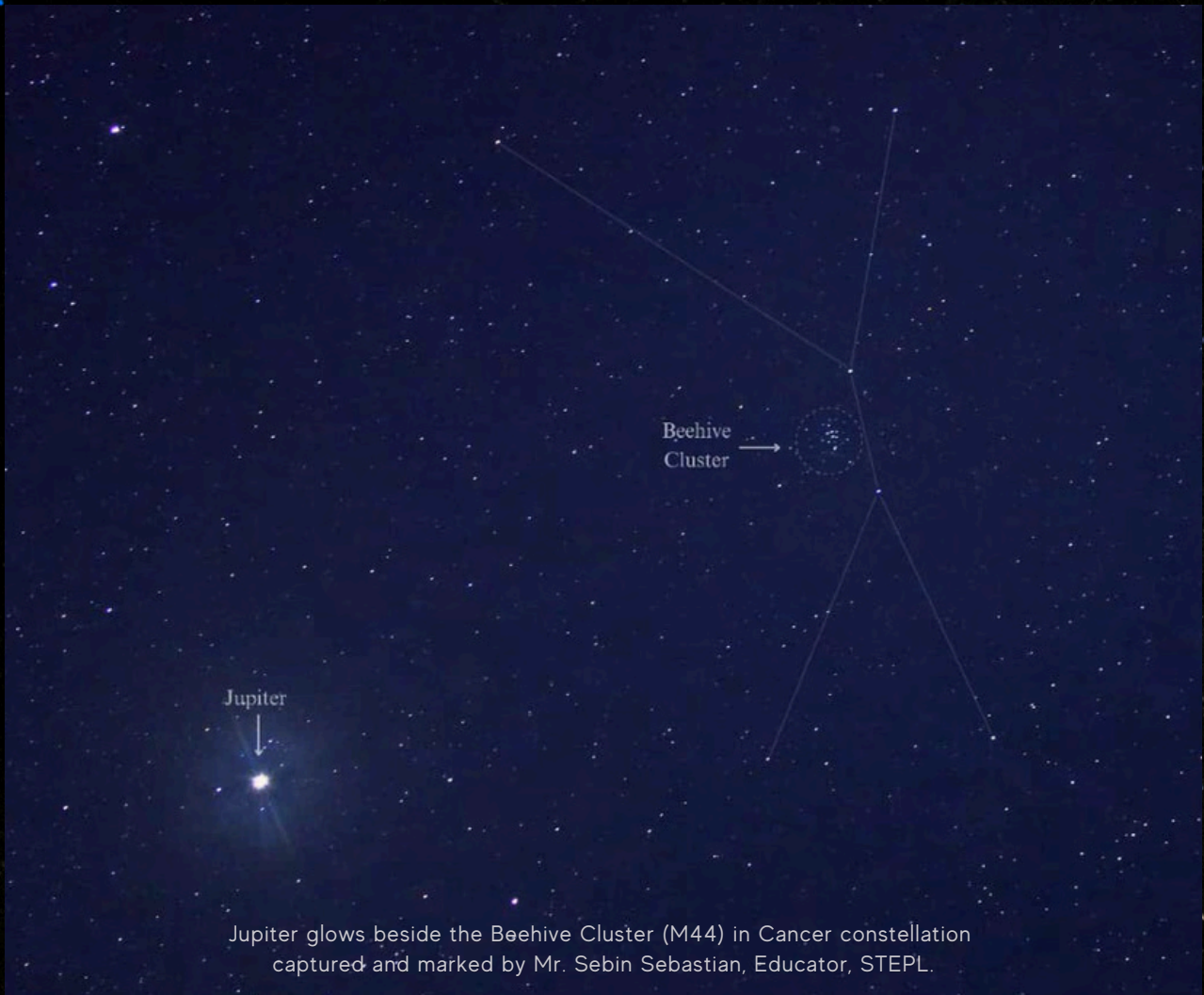
Redshift and blueshift describe how light changes when objects in space move relative to us, an effect explained by the Doppler effect, which also explains why a siren sounds different as it moves toward or away from us.



When a star or galaxy moves away from Earth, its light stretches to longer wavelengths, shifting toward red; this is redshift. When it moves toward Earth, the light compresses to shorter wavelengths, creating a blueshift.

Astronomers use these shifts to measure the speed and direction of celestial objects. Observations of widespread redshift in galaxies provide strong evidence that the universe is expanding since the Big Bang.

ASTROPHOTOGRAPHY BY SPACE TEAM

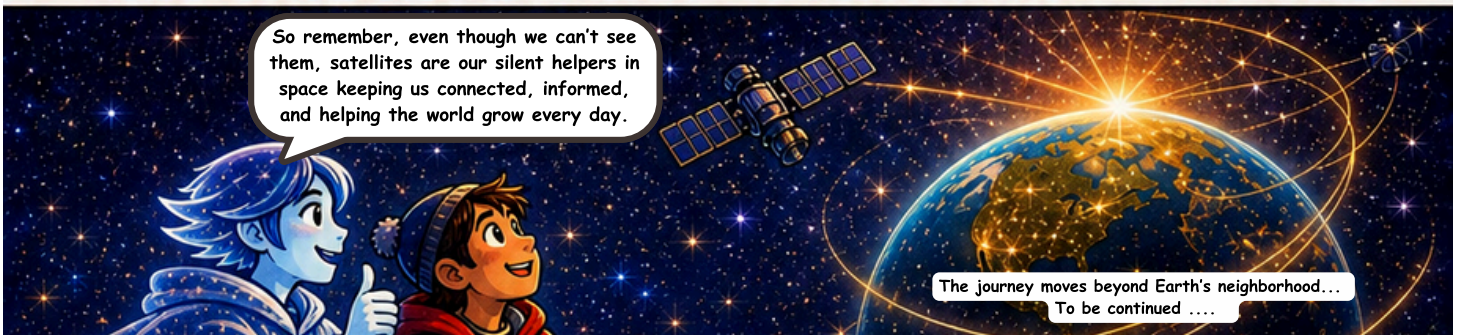
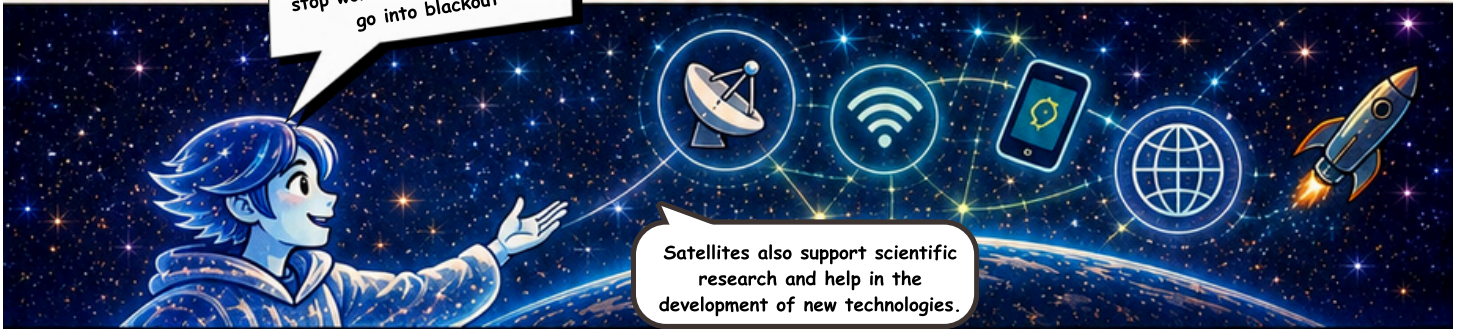
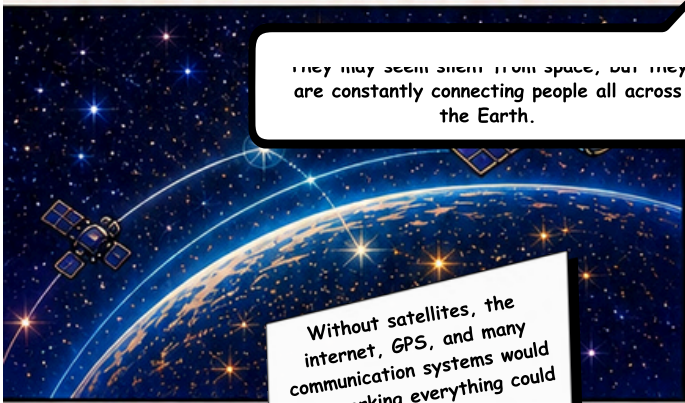


Jupiter glows beside the Beehive Cluster (M44) in Cancer constellation captured and marked by Mr. Sebin Sebastian, Educator, STEPL.



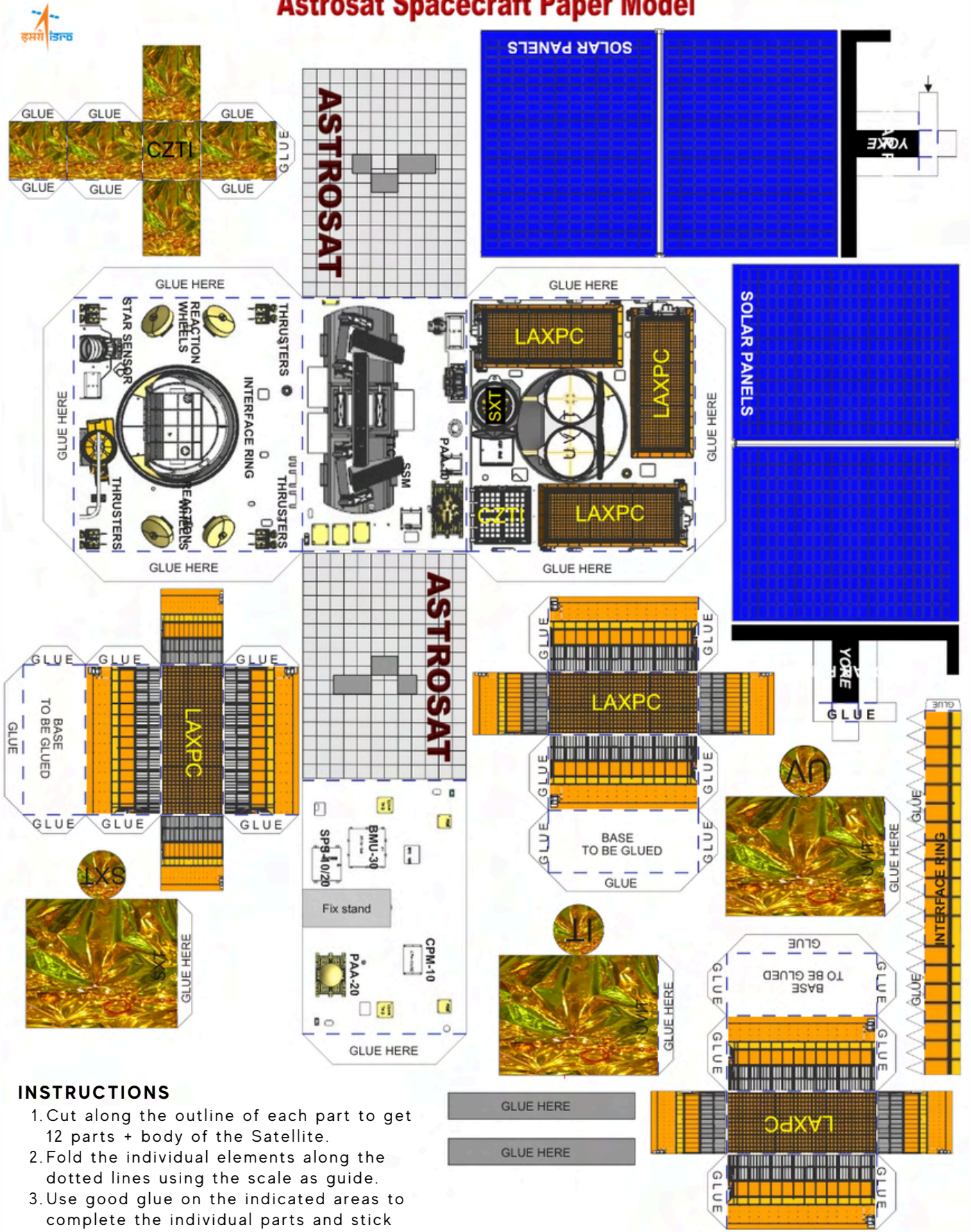
The Big Dipper in Ursa Major constellation captured and marked by Mr. Sebin Sebastian, Educator, STEPL.

COSMIC JOURNEY - THE VOICES AROUND EARTH



MISSION: DO IT YOURSELF

Astrosat Spacecraft Paper Model

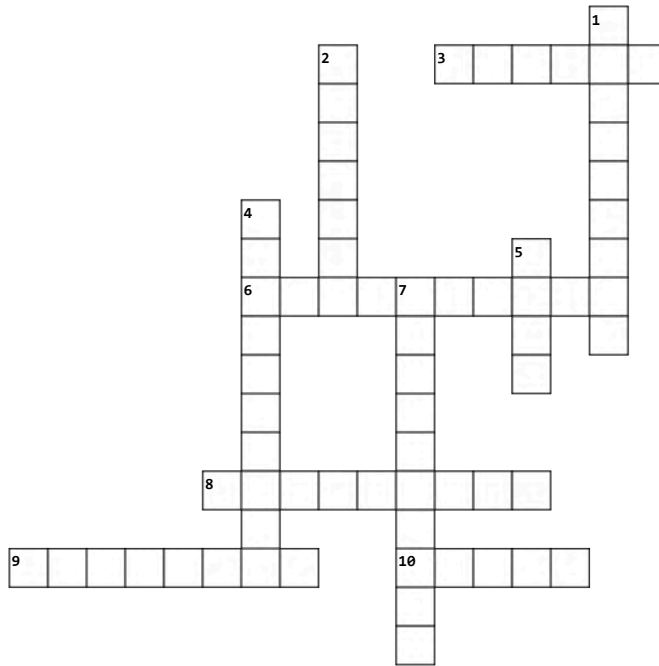


INSTRUCTIONS

1. Cut along the outline of each part to get 12 parts + body of the Satellite.
2. Fold the individual elements along the dotted lines using the scale as guide.
3. Use good glue on the indicated areas to complete the individual parts and stick on body of the satellite at respective locations.

TRAIN YOUR BRAIN

CROSSWORD



Across

- 3. What becomes unclear in the bootstrap paradox?
- 6. What design does the Hubble telescope use?
- 8. What is the brightness unit called?
- 9. What is the name of the parent comet responsible for Lyrids?
- 10. Which asteroid's orbit did Gauss calculate?

Down

- 1. What process uses microbes to extract metals?
- 2. Who discovered Saturn's moon Titan?
- 4. What key molecules were found in Bennu samples?
- 5. The Chandrasekhar Limit relates to?
- 7. Which is the largest galaxy type?

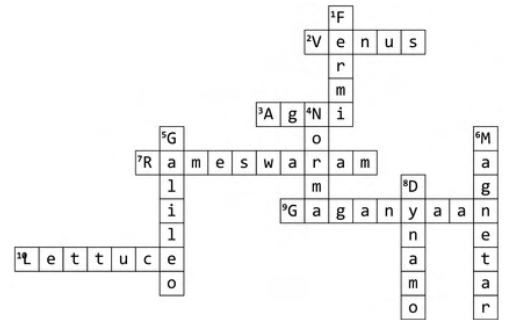
Astronomy Word Puzzle

Deep Sky Objects

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

- LAGOON
- EAGLE
- BEEHIVE
- CARINA
- TARANTULA
- OMEGA
- HORSEHEAD
- VEIL
- HELIX
- TRIFID
- ROSETTE
- HYADES
- BUTTERFLY
- PLEIADES
- FLAME

Answers for last month puzzles.



U	R	A	S	Y	M	P	H	O	N	I	E	N	R
C	O	T	I	K	U	B	Y	A	L	E	R	O	A
B	N	M	P	I	I	S	N	E	S	I	S	T	
O	R	B	I	T	A	I	O	T	U	K	M	S	S
Y	O	A	B	N	P	I	R	A	E	I	K	S	L
U	R	A	C	S	O	E	I	S	A	N	E	I	E
R	E	I	R	U	O	C	T	L	N	A	I	N	T
E	S	I	K	E	U	T	S	E	R	E	R	I	T
C	I	E	I	M	D	O	P	T	N	N	K	R	C
E	E	U	R	O	H	N	U	N	I	N	E	I	E
K	S	U	O	C	C	S	T	I	M	R	U	D	T
R	L	Y	E	N	A	U	N	S	B	T	M	I	C
A	T	R	O	Y	R	M	I	I	U	A	O	U	S
N	N	I	E	S	D	A	K	S	S	O	M	M	S

**Answers for this month puzzles will be shared in next magazine.

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