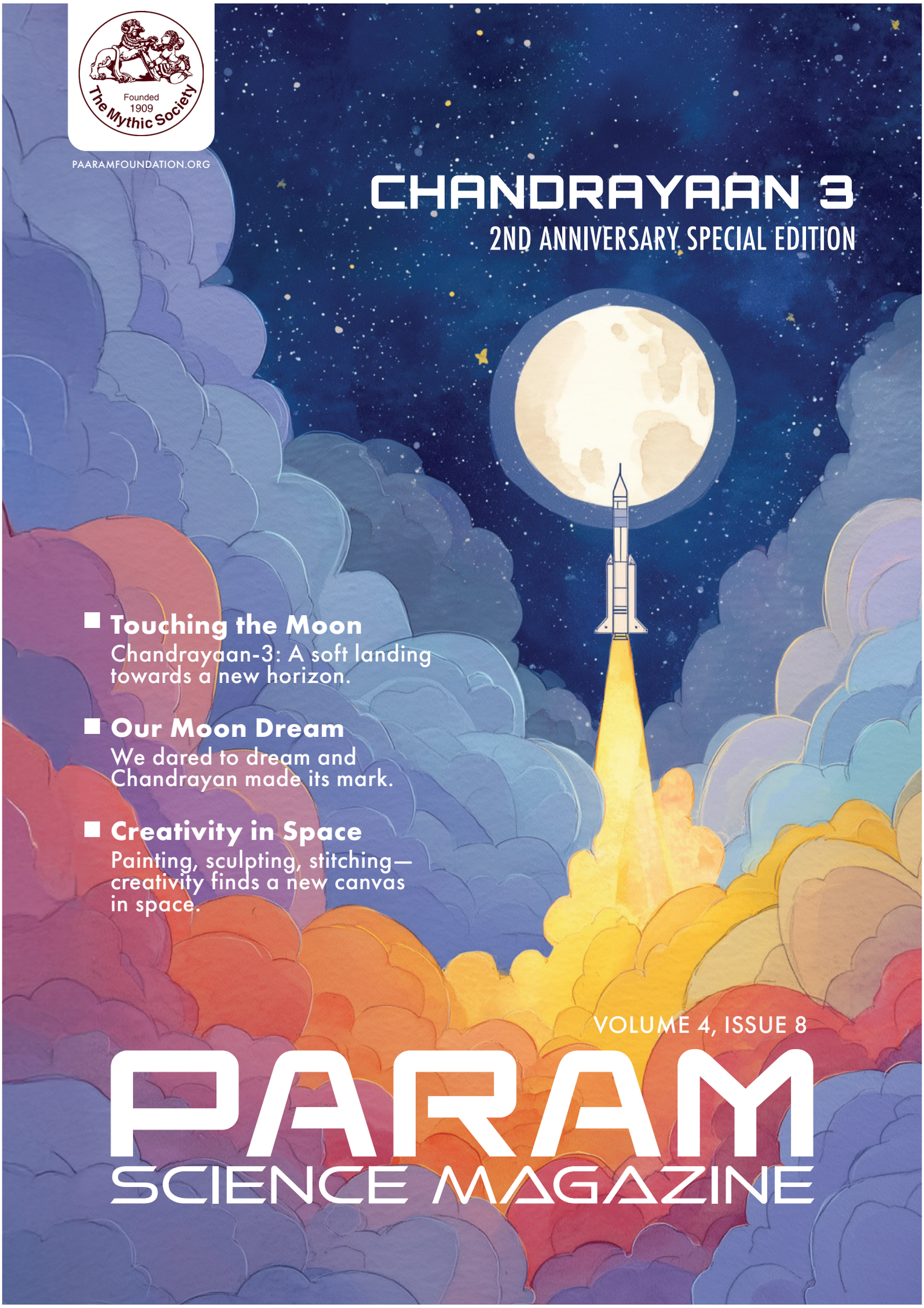
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The Mythic Society
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CHANDRAYAAN 3
2ND ANNIVERSARY SPECIAL EDITION
Touching the Moon
Chandrayaan-3: A soft landing towards a new horizon.
Our Moon Dream
We dared to dream and Chandrayan made its mark.
Creativity in Space
Painting, sculpting, stitching—creativity finds a new canvas in space.
VOLUME 4, ISSUE 8
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SCIENCE MAGAZINE

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DESIGN REVIEW
Arpit C

A SKY FULL OF STORIES

Every journey into space is more than a voyage of science—it is also a journey of imagination, discovery, and the human spirit. In this issue, we bring together voices and ideas that reflect how space continues to inspire us in countless ways.

From groundbreaking missions to bold dreams of life beyond Earth, from creativity shaped by new environments to the enduring curiosity that pushes us forward, this collection is a celebration of exploration in all its forms.

We are delighted to feature specially picked submissions from the many inspiring ones we received from the students of the National Centre For Excellence. Their vision and creativity remind us that the future of space exploration lies not only in technology, but also in the limitless wonder of young minds.

We are able to share these stories and ideas with a wider audience, thanks to the enduring sponsorship and support from the Mythic Society.

As you turn these pages, we hope you find inspiration—by discovery, by imagination, and by the limitless universe that is full of surprises awaits us.

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CONTENTS

TOUCHING THE MOON

CHANDRAYAAN-3 & INDIA'S SOUTH POLE LEAP

Something spectacular happened on a quiet evening of August 23rd 2023. A tiny spacecraft gently touched down on the moon making India only the fourth country to achieve this feat and the first ever to land near the moon's mysterious south pole.

That moment wasn't just about flags or headlines. It was about persistence, about lessons learnt during the heartbreak of Chandrayan 2 in 2019, and about the dreams of scientists, engineers and millions of Indians alike.

Chandrayaan-3 was a mission that carried not just instruments, but hope.

Launched on July 14, 2023, aboard the powerful LVM3 rocket, Chandrayaan-3 was built to be leaner, wiser, and more focused. Its objectives were threefold: to achieve soft landing, explore with a rover, and conduct in-situ experiments. In short, it aimed to prove that India could land successfully and learn new things about the moon.

"From launch to landing, the entire journey comprised of just 40 days–from July 14 to August 23, 2023."

After a series of precise orbit maneuvers, the vikram lander seperated from the propulsion module by mid August.

Soft landing successfully executed on August 23rd at a location now known as Statio Shiv Shakti, a name chosen to reflect the strength (Shakti) and wisdom (Shiv) behind the mission.

Chandrayaan-3 journey in sketches.

Chandrayaan-3 Lander on the Moon, Aug 30, 2023

Pragyan Rover, Chandrayaan-3, Aug 30, 2023

The Pragyan rolled out from Statio Shiv Shakthi. It moved slowly but surely. Every inch it travelled was a triumph With only one-sixth Earth's gravity and no atmosphere, even a small crater could have ended the mission. Yet Pragyan navigated a 4-meter-wide crater, showcasing its exceptional adaptability.

As it roved, Pragyan embarked on its scientific mission. It found sulphur—a rare discovery that hints at ancient volcanic processes. It also detected aluminium, calcium, silicon, iron, and magnesium, helping geologists understand the Moon's crust better than ever before.

The mission cost ₹615 crore—less than some big-budget space themed movies and went on to deliver precious scientific insights.

One of the most surprising results came from the temperature sensors. The Moon's surface near the south pole was expected to reach 20–30°C. Instead, it soared to 70°C—a significant finding that changes how we think about thermal environments on the Moon.

Another thrilling discovery was ferroan anorthosite—a type of rock believed to have formed when the Moon had a global ocean of molten magma. These rocks help us piece together the Moon's ancient story, long before Earth's first civilizations looked up at it in wonder.

The lander and rover operated for one lunar day—about 14 Earth days—until darkness fell and temperatures dropped to below -100°C.

While the rover rover went into eternal silence,, the propulsion module continued orbiting Earth, conducting experiments until November 2023.

INDIA BECAME THE FIRST COUNTRY TO LAND NEAR THE MOON'S SOUTH POLE— AND THE FOURTH EVER TO SOFT-LAND ON THE MOON.

Chandrayaan-3 is more than a successful space mission. It symbolises patience, determination and perseverance. Scientists reimagining and recalculating. It is a nation rightfully claiming its place in this spcae.

With Chandrayaan-4, ISRO may aim for an even more ambitious goal—a sample-return mission. But Chandrayaan-3 has already achieved profound consequences. It reminds us that even in the vacuum of space, human imagination finds a way to breathe.

FEATURE STORY

OUR MOON DREAMS

A STORYTELLING TRIBUTE TO CHANDRAYAAN-3'S QUIET LANDING AND HUMUNGOUS IMPACT

Two Years Ago... it's hard to believe it's been two years, isn't it?

August 23, 2023 — Vikram, the lander of Chandrayaan-3, kissed the Moon's south pole in silence. While a million screens glowed, a perfect landing was executed as Vikram made history while a country held its breath and erupted in joy.

The Moon had a new visitor.
And we, a new dream.

The mission wasn't just about landing—it was about listening, to the dust, to the light, and to the secrets the Moon had been holding onto for billions of years.

Vikram and it's tiny friend Pragyan got to work. They fired tiny lasers at the soil—yes, lasers!—and watched the light bounce back. That's how we found out the Moon's surface contains Aluminum, Sulfur, Calcium, Iron, Titanium, Chromium, and Silicon. Even traces of Oxygen, locked inside rocks.

It may look like a barren wasteland from here. But up close, it's a treasure trove of elements and not just a dusty rock; , a cosmic hardware store! Think of all those sci-fi movies where crews somehow conjure up entire bases on alien worlds, like the Martian base in the Hollywood movie, 'The Martian' or the lunar settlements astronauts dream about.

Chandrayaan-3 just gave us the actual ingredient list, a workbench of elements—ready to be put to test by future engineers, builders, and dreamers.

BUILDING ON THE MOON? LET'S IMAGINE THE "LUNARCRETE" ERA!

Let's say we send architects up there, fresh off watching Moon or Ad Astra and brimming with ideas. What would they build with?

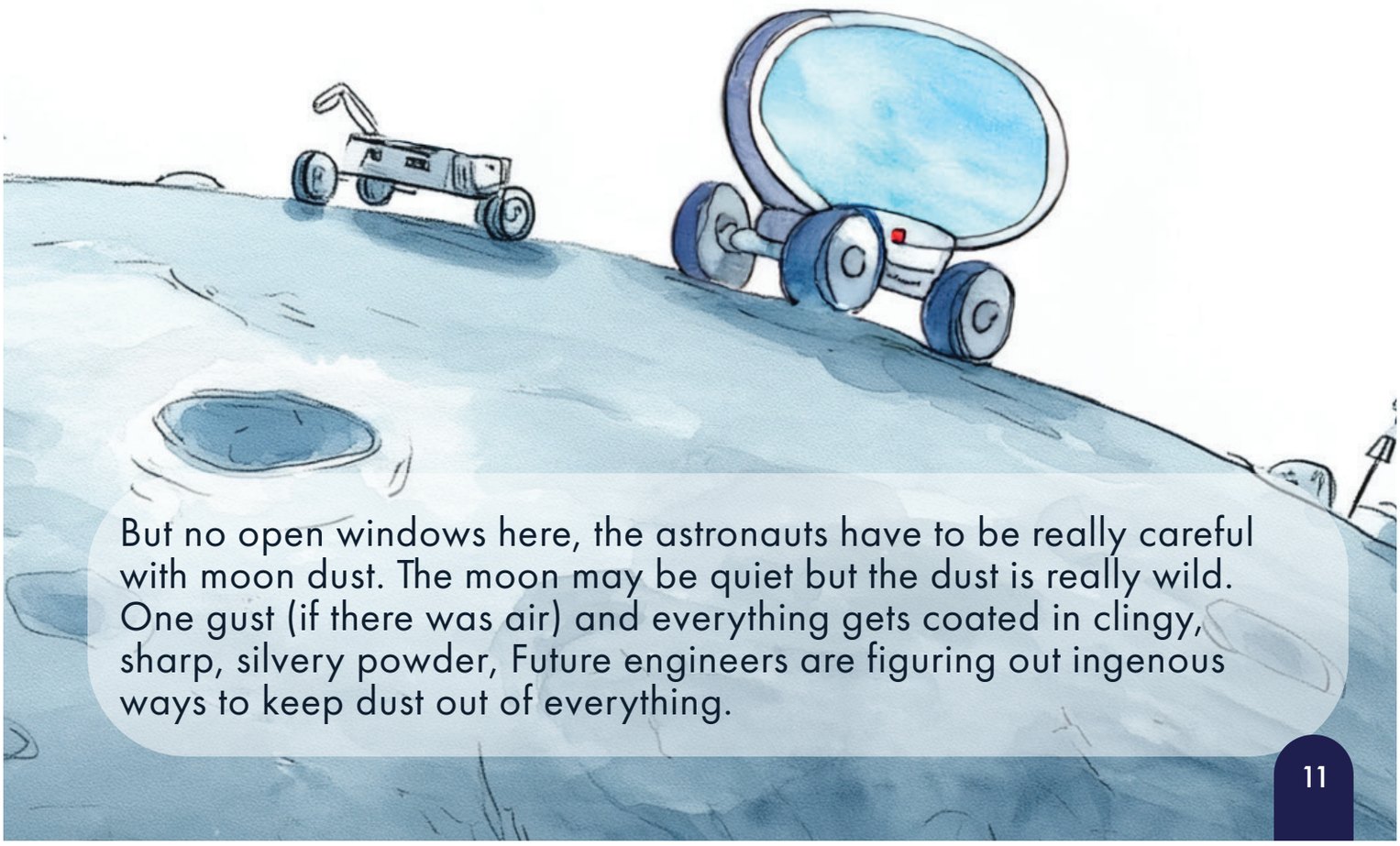
Well, Chandrayaan-3 confirmed the Moon's soil has Iron and Silicon. This isn't just trivia; it's a game-changer! These are the perfect ingredients for making "lunar concrete" – or "lunarcrete" as some call it. Imagine giant 3D printers, like the futuristic ones seen in movies, but instead of plastic, they're extruding this moon-dust concrete! Add in some Aluminum, also found by Vikram, and suddenly you've got lightweight domes rising from the dust – structures that could rival even the most impressive sci-fi habitats. They'd sparkle under a Sun that never sets for 14 Earth days.

And when it gets dark? You head underground, into temperature-stable caves or lava tubes, much like the proposed "Moontopia" concepts scientists are exploring for protection from radiation. Safe from meteorites, quieter than silence, where the Moon truly keeps its secrets, offering natural shelters far better than any surface tent ever could.

AND THEN COME THE MOON BUSES: SLEEK, NOT CLUNKY!

Forget the clunky lunar rovers from old documentaries!

These are compact, sleek, and feather-light, more akin to the agile vehicles seen in the movies 'Interstellar' or 'landspeeders' in 'Star Wars', but designed for lunar terrain. As Moon's gravity is 1/6th of the Earth, they don't need heavy bodies or thick wheels. Mesh-like tires gliding over soft dust, in their Titanium bones—yes, Chandrayaan-3 found Titanium too, a super-strong, lightweight metal—make them tough without the bulk.

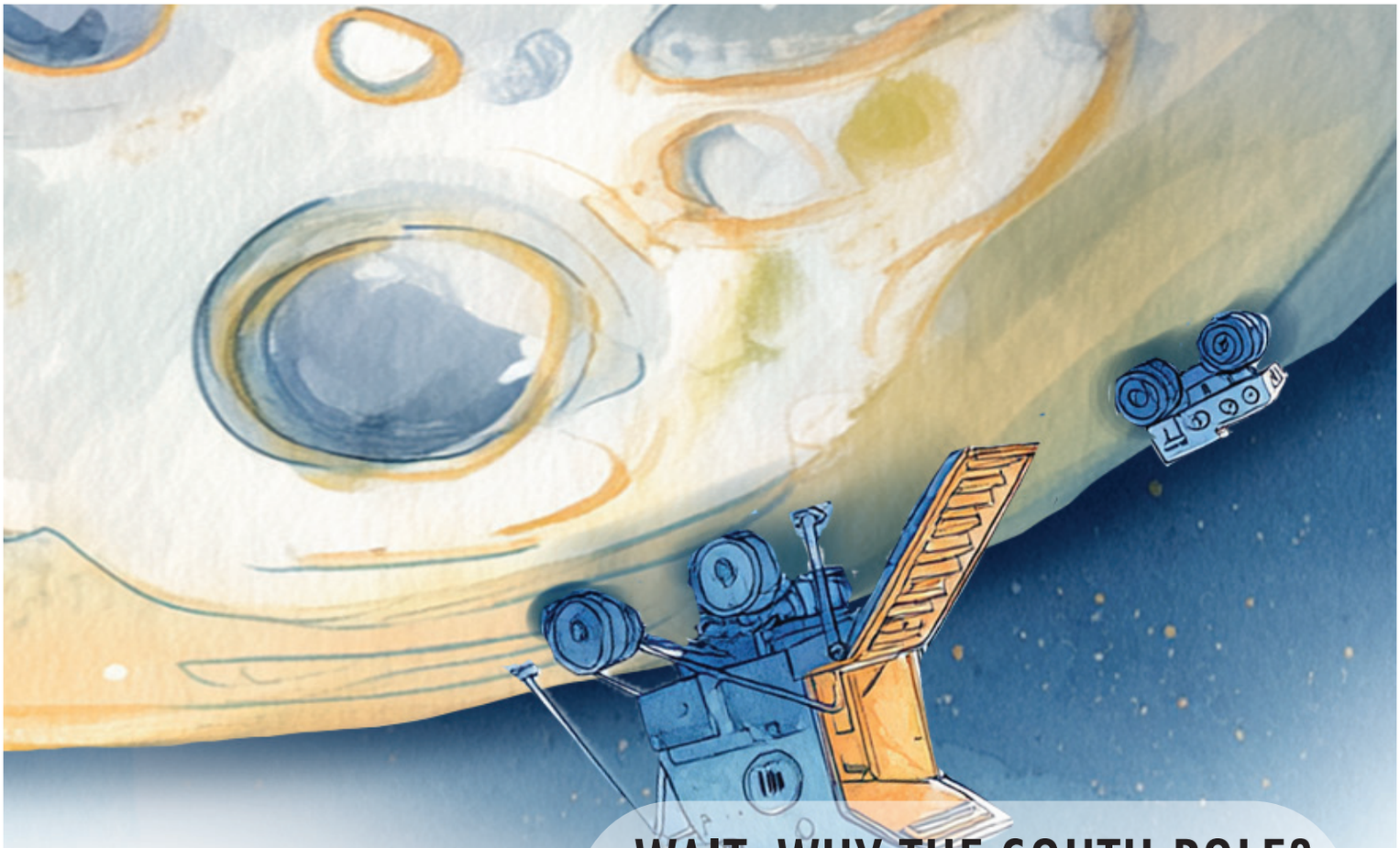


But no open windows here, the astronauts have to be really careful with moon dust. The moon may be quiet but the dust is really wild. One gust (if there was air) and everything gets coated in clingy, sharp, silvery powder, Future engineers are figuring out ingenous ways to keep dust out of everything.

THE LIGHTS THAT DANCE IN SILENCE: POWERING A LUNAR CITY

Now picture this: a row of glinting solar panels stretching across the grey, soaking up the Sun, powering habitats and labs. Think of it like the large solar farms we see on Earth, but scaled for a lunar city.

But there's a twist. Chandrayaan-3 detected something else in the Moon's environment—a thin, almost invisible layer of plasma. It's a kind of electric fog made by solar radiation. And it messes with electronics. panels have to be carefully yet cleverly designed, grounded, shielded to be quiet, precise, and ready for cosmic surprises. This is a real challenge for future "Moon engineers," ensuring our future lunar bases don't suffer power outages like a bad electrical storm!



WAIT, WHY THE SOUTH POLE? THE SECRET INGREDIENT!

The Moon’s south pole is different. It’s a land of extremes—permanent shadows, soaring peaks, and possibly frozen water in hidden craters.

Water means air, fuel and survival. It’s the ultimate resource! Imagine splitting that water into hydrogen for rocket fuel, allowing missions to refuel directly on the Moon, making deep space travel much easier – a game-changer like in the TV show 'The Expanse' where resources from asteroids can fuel expansion of the human habitat. It can also mean breathable air and even growing food in lunar greenhouses.

That’s why space agencies around the world, like those involved in NASA's Artemis program, have been eyeing the south pole. Getting there is no small feat. The terrain is rugged, Light is scarce but Chandrayaan-3 got us there! It wasn't just a Soft landing; it was a scouting mission for humanity's next giant leap.

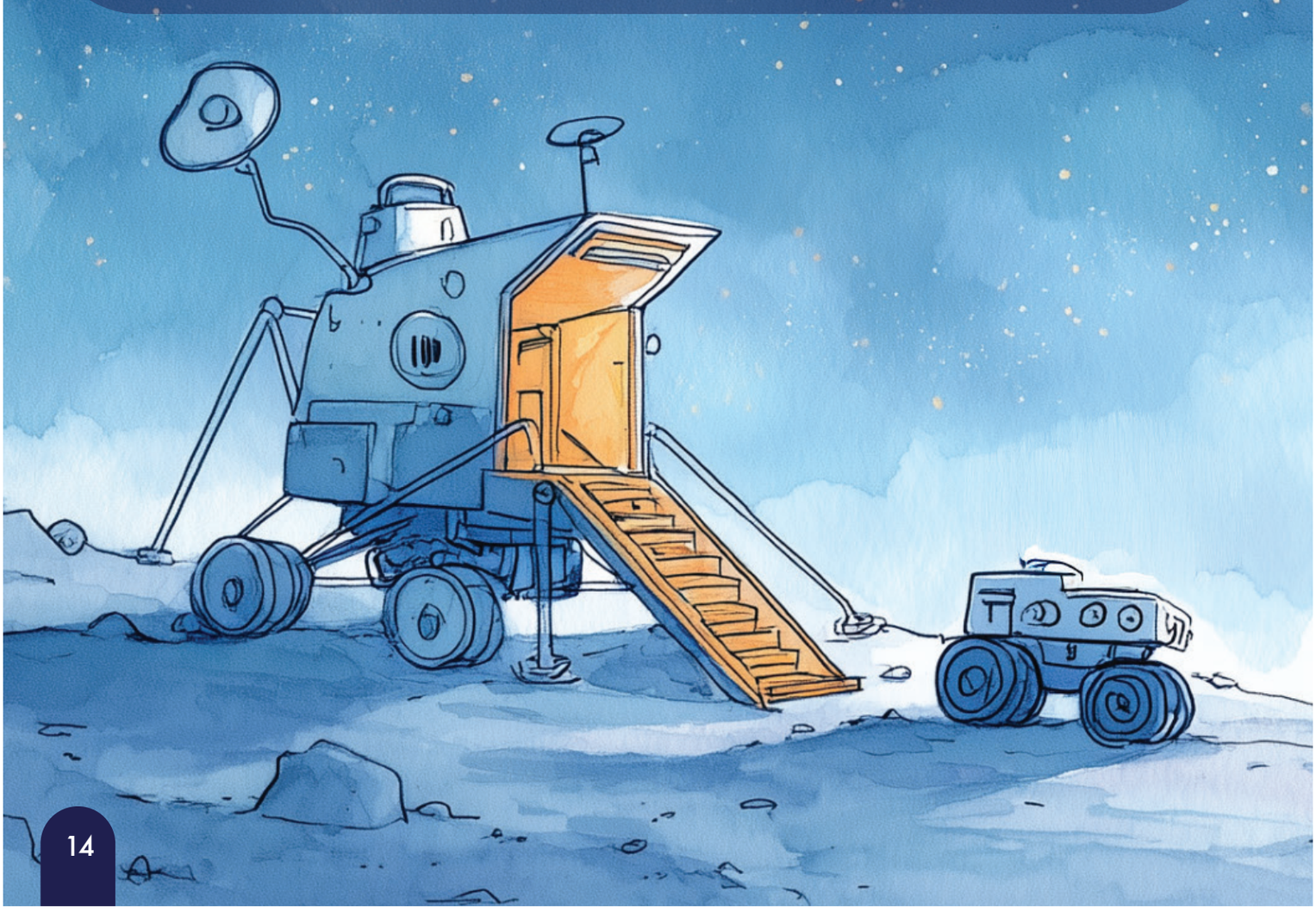
TWO YEARS LATER... A UNIVERSE OF POSSIBILITIES

What remains isn’t just data. It’s a feeling.

Of standing on the edge of something bigger, of looking up and seeing not just a glowing disc—but stupendous possibilities.. Chandrayaan-3 showed us that the Moon isn't just a distant object; it's a tangible frontier, ready for our ingenuity. It fuels dreams of a future where lunar colonies, once confined to the pages of science fiction could soon become reality.

Because, that landing showed us what happens when vision meets patience. When science meets silence.

When an ancient celestial companion becomes a new frontier with immense possibilities.



MOON MUSINGS AT A GLANCE

WHAT WE FOUND

Aluminum, Sulfur, Titanium, Iron, Silicon—and traces of crucial Oxygen! These are the building blocks for lunar civilization.

HOW WE FOUND IT

Lasers (LIBS), X-rays (APXS), and temperature probes, acting like super-smart geological detectives.

WHY IT MATTERS

We now know where we might build durable shelters ("lunarcrete" domes!), craft lightweight vehicles (titanium rovers!), and power future lunar life, even extract vital resources like water!

WHERE IT HAPPENED

Shivshakti Point, Moon's south pole—a historic spot for future exploration.

WHO MADE IT HAPPEN

A passionate team with a massive dream—ISRO, showing the world what single minded dedication can achieve.

CREATIVITY IN MICROGRAVITY

When we think of space, we imagine data, discoveries, and distant planets. But tucked inside space stations and orbiting missions are stories of a different kind—ones painted with memory, sculpted by physics, and soaked in human emotion. In microgravity, water becomes a brush, memory becomes a muse, and science doesn't just explain—it expresses. These aren't just experiments. They are expressions—where art and science merge in weightless wonder.

LIGHT PAINTING: DRAWING WITH FLOATING LIGHT

The JAXA Spiral Top isn't just a toy—it's a dancing experiment in space. Built with LED-lit arms and movable weights, it's designed to reveal how spinning objects behave in microgravity. On Earth, gravity and friction quickly bring a spinning top to rest. But in space, those forces vanish. What's left is pure motion.

LED Light Painting

As astronauts set it spinning aboard the ISS, the top begins to draw light trails—elegant spirals, sudden curves, sometimes a soft wobble. That wobble, called precession, and the rhythmic sway, or nutation, are influenced by how its mass is distributed and how it's set in motion. With no up or down, the center of gravity shifts unpredictably.

'The Wave': The First Watercolor Painting in Space

WATERCOLOR PAINTING: EARTH THROUGH A WEIGHTLESS BRUSH

In 2009, astronaut Nicole Stott painted the first watercolor in space—a delicate wave, inspired by Venezuela's Isla Los Roques as seen from the ISS. But this wasn't just art; it was a quiet experiment in fluid physics and human perception.

The Wave is inspired by a photo Nicole took from the ISS of Isla Los Roques, Venezuela. Seeing this place from space looked like someone had reached down with a big paintbrush and painted a wave on the ocean. Nicole painted her interpretation of this place while she was still in space, inspiring her to share the spaceflight experience through art.

Without gravity, watercolors behave strangely—paint turns into beads of floating spheres, clings to surfaces, and resists traditional brushstrokes. Blending pigments became an act of precision as Nicole adapted with slow dabs, letting surface tension guide the motion. Even drying changed, thanks to microgravity's altered airflow.

Beyond technique, the act was deeply human. Cameras couldn't capture Earth's vibrant glow the way her eyes saw it. So she painted—not just to document, but to feel. Her brush became a bridge between orbit and emotion.

She left her paint kit aboard the ISS, inviting others to do the same: to explore space not only through data and drills, but through color and personal creative expression.

IMPOSSIBLE OBJECT: A SCULPTURE ONLY POSSIBLE IN SPACE

"In April 2022, aboard the ISS, astronaut Eitan Stibe activated Impossible Object—a fluid sculpture created by artist Liat Segal and physicist Prof. Yasmine Meroz. Brass rods and tubes guide water in microgravity, where it clings, stretches, and dances through invisible forces. On Earth, such effects—like elastocapillarity and capillary action—are too small to notice. But in space, they come alive."

Sculpture in Space

With no gravity pulling it down, the sculpture has no fixed “top” or “bottom.” Water forms soft, liquid bridges between brass structures, shaped entirely by surface tension. It's a shape that cannot exist on Earth.

This isn’t just science—it’s a discovery. That space is not only for equations and experiments, but also for wonder, emotions and art. By turning liquid into sculpture, 'Impossible Object' reveals the poetry of physics and reminds us: space is a new canvas for human imagination.

Astronaut Karen Nyberg stichinga T-Rex in Space

A STITCH OF EARTH IN THE SILENCE OF SPACE

In the quiet weightlessness of the International Space Station, astronaut Karen Nyberg stitched a small Tyrannosaurus Rex—olive green with white thread—using scraps of velcro-like fabric and an old T-shirt, a gift for her young son, Jack. Way to send love across 400 kilometers of atmosphere.

Stiched in Spaace

But crafting in microgravity is no simple act. Without gravity, fabric floats, threads don't dangle, and tools can drift away. Each stitch demands slow, intentional movement—measured, mindful, precise. Even threading a needle becomes a delicate challenge where nothing stays still.

The dinosaur wasn't just a toy. It was a lifeline—between mother and child, Earth and orbit, emotion and adaptation. Nyberg's tiny act of sewing became a profound gesture of connection and creativity. As the dinosaur drifted freely through the station, it became a symbol of how, even in the vastness of space, we find ways to carry love with us.

SPACE, ONCE RESERVED FOR PRECISION AND PROTOCOL, IS BECOMING A SPACE FOR CULTURE, CURIOSITY, AND FEELING. IT'S A PLACE WHERE SCIENCE SINGS, MEMORIES FLOAT, AND ART FINDS NEW FORMS–PROVING THAT HUMANITY DOESN'T LEAVE ITS HEART BEHIND WHEN IT LAUNCHES INTO THE STARS.

MYTHBUSTER

TABBY'S STAR

KIC 8462852, better known as Tabby's Star or the WTF Star ("Where's The Flux?"), has baffled astronomers since 2015. Located 1,470 light-years away in the constellation Cygnus, this ordinary-looking F-type star behaves in extraordinary ways—dimming by up to 22% in unpredictable patterns.

LET'S BUST THE MYTHS AND EXPLORE WHAT WE KNOW SO FAR.

MYTH #1: IT'S AN ALIEN MEGASTRUCTURE

The Claim: A Dyson Sphere—an enormous energy-harvesting structure built by an advanced civilization—is orbiting the star.

The Truth: While the idea captured imaginations, follow-up studies found no supporting evidence. Infrared data from NASA's Spitzer and Swift telescopes showed no excess heat, which a megastructure would likely emit. Scientists consider this a last-resort hypothesis, not a leading theory.

MYTH #2: IT'S JUST A SWARM OF COMETS

The Claim: A massive family of comets is blocking the star's light.

The Truth: This was an early theory, but it doesn't hold up. The amount of dimming would require an implausibly large number of comets, and infrared observations didn't detect the expected dust signatures.

MYTH #3: IT'S A TRIPLE-STAR SYSTEM

The Claim: A hidden companion star is causing the dips.

The Truth: No gravitational evidence supports this. Tabby's Star appears to be a single star with no massive companion in orbit.

THEORY #1: COSMIC DUST CLOUDS

The Idea: Irregular clouds of fine dust orbit the star, blocking light at different wavelengths.

Evidence: Dimming is stronger in ultraviolet than infrared, suggesting small dust particles. But it doesn't explain all the patterns, especially the long-term fading.

THEORY #2: EXOMOON DISRUPTION

The Idea: A moon orbiting a planet was torn apart, creating debris that now orbits the star.

Evidence: In 2019, astronomers proposed this model to explain the irregular dips. It's one of the more promising natural explanations.

THEORY #3: PLANETARY DEVOURING

The Idea: Tabby's Star may have swallowed a planet, leaving behind debris and chemical traces.

Evidence: Some stars show signs of "planet-eating" through their spectral fingerprints. Tabby's Star might be one of them.

THEORY #4: A NEW CLASS OF VARIABLE STARS?

The Idea: Tabby's Star may belong to a newly identified group of "dipper" stars with unpredictable brightness changes.

Evidence: Astronomers have found ~21 similar stars, mostly F-type or G-type, showing strange dimming behavior. Tabby's Star might be the first known example of a broader phenomenon.

Tabby's Star reminds us that the universe still holds mysteries we can't explain. It's a cosmic puzzle that challenges our models, fuels imagination, and invites young minds to ask: What else don't we know yet?

SCIENCE ISN'T JUST ABOUT ANSWERS, IT'S ABOUT ASKING BETTER QUESTIONS.

SCIENCE UPDATES

AUGUST 2025

INDIA CONDUCTS FIRST SPACE EXPERIMENTS ABOARD ISS — WHAT YOU SHOULD KNOW

August 2025 — In a historic milestone for Indian space science, astronaut Shubhanshu Shukla recently completed an 18-day mission aboard the International Space Station (ISS) as part of Axiom Mission 4 (Ax-4). He is the first Indian astronaut to visit the ISS and the second Indian in space after Rakesh Sharma in 1984.

The mission, which ended on July 15, 2025, featured seven scientific experiments designed by ISRO, focused on space agriculture, human health, and life sciences in microgravity. This marks the first time India has conducted biological experiments in space aboard the ISS.

THE ISRO EXPERIMENTS

Muscle Regeneration: Studying microgravity's impact on muscle repair.

Crop Seeds Study: Sending moong, methi and other seeds to test genetic changes for future space farming.

Microalgae Growth: Evaluating algae as a food and oxygen source.

Sprouting Seeds: Observing germination of salad greens in space.

Tardigrade Resilience: Studying survival of extremophiles in space.

Cyanobacteria Behavior: Measuring photosynthesis and growth in microgravity.

Human-Computer Interaction: Assessing astronaut eye tracking and cognitive performance in zero gravity.

WHY IT MATTERS

These experiments support India's Gaganyaan human spaceflight program and its long-term goals of a future Indian space station.

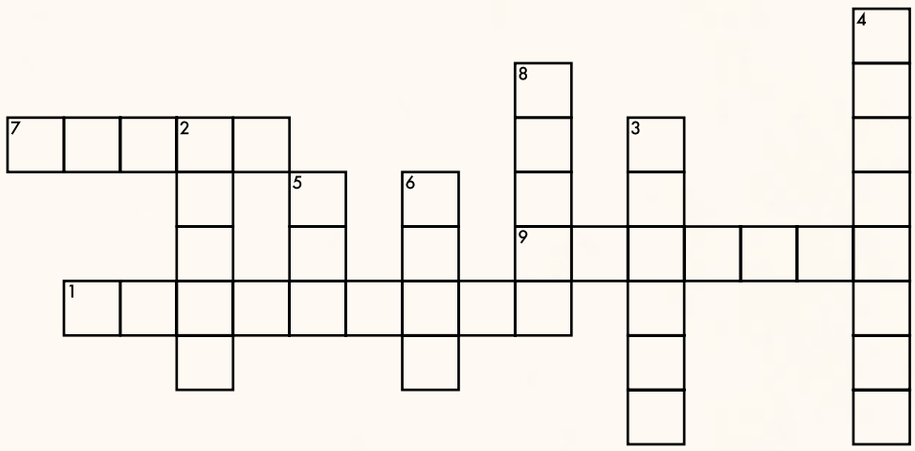
Data from this mission will help deign better life support systems, optimize astronaut health, and enable sustainable space farming.

WHAT'S NEXT

The mission samples have just returned to Earth. Data analysis is underway, and results are expected in the coming months. No official findings have been released yet, but scientists hope the insights will shape the next generation of Indian space exploration.

Stay tuned for upcoming publications from ISRO's Human Space Flight Centre and possible international collaborations based on the mission's outcomes.

OUTER SPACE CROSSWORD



ACROSS

1 Person who travels in outer space

7 Not from this planet

9 A darkening of the sun or moon

DOWN

2 A planet that is the third closest to the sun.

3 A celestial system of stars and gas

4 The sum total of all matter and energy that exists in the cosmos.

5 A strange object that appears in the sky

6 A heaavenly body that emits light and heat

8 It can appear as a bright star with a tail.

CONTEST

DESIGN A MISSION PATCH

DRAW THE PATCH FOR "TEAM INDIA'S MARS BASE 2040."

Submit your drawings to magazine@paraminnovation.org and get a chance to be featured in the next issue.

SUBMISSIONS GALLERY

YOUNG EXPLORERS OF PARAM

From the many submissions we received, the entries from students of NATIONAL CENTRE FOR EXCELLENCE shone the brightest. Their work was filled with awe, curiosity, and the kind of wonder that makes us all look up at the night sky with a bright new perspective.

And here's the thrilling news — these winners have been awarded free passes to Parsec! A place where their imagination can meet real, hands-on science, letting them explore, experiment, and discover the wonders of Sciecne in exciting new ways.

Let's applaud their creativity and keep their sense of wonder alive!

Cosmic Truths

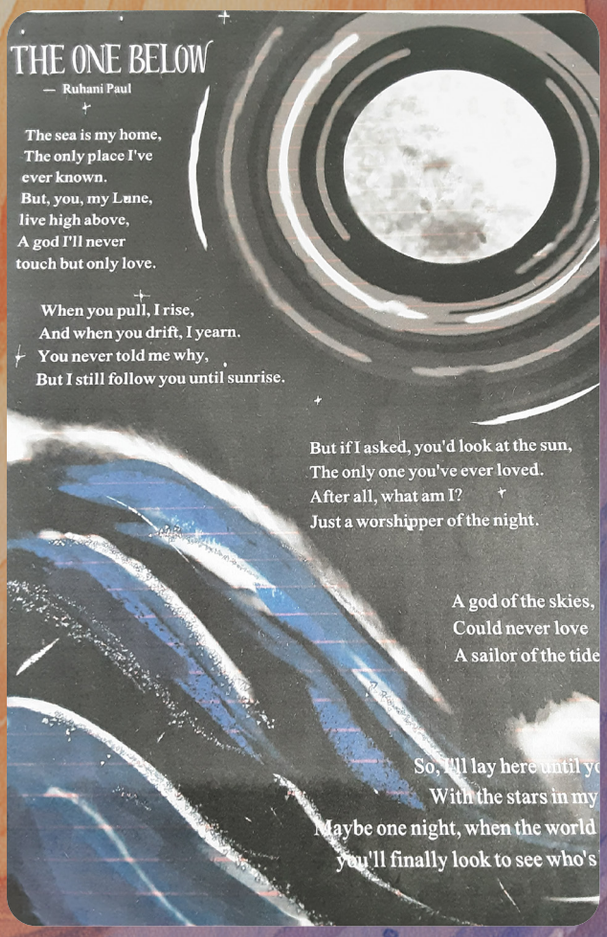
The stars don't talk, but still they glow—
Fused hydrogen in steady flow.
They shine for billions of years in place,
A glimpse of time and endless space.

The Moon is still, yet feels Earth's pull,
Its gravity keeps oceans full.
It bears the marks of ancient scars
And lights our night with borrowed stars.

The planets spin and orbit too,
Held fast by gravity they flew.
Elliptic paths, both slow and fast.
Their silent journeys long and vast.

And space, though cold, is not afar—
We're made of stardust from a star.

—K. Madhu Abinavi, IX A

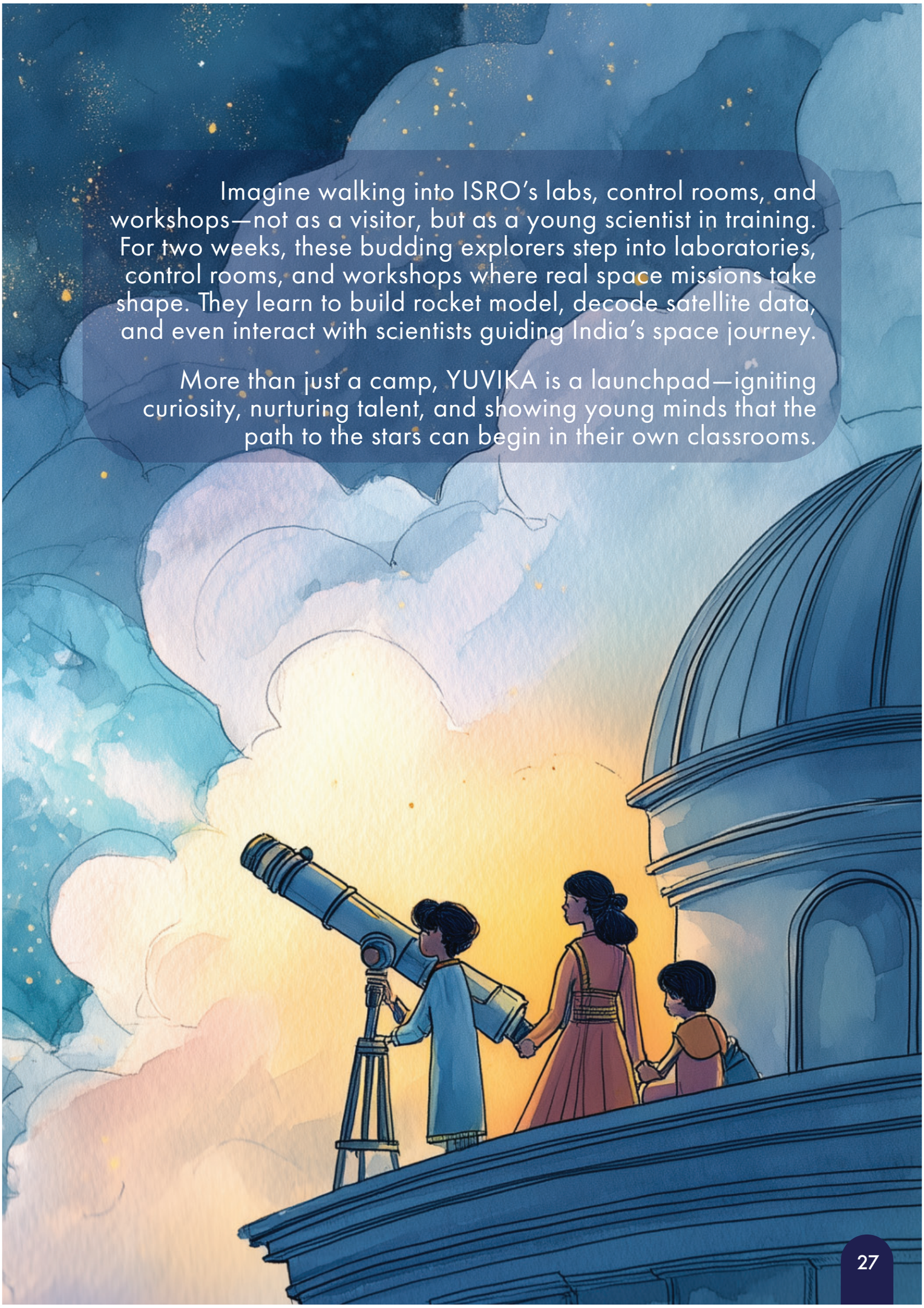


BE A PART OF INDIA'S SPACE JOURNEY

YUVIKA: TRAINING YOUNG SCIENTISTS OF INDIA

Every summer, ISRO opens its doors to bright Class 9 students from across India through the YUVIKA (Young Scientist Programme).

Link: https://www.isro.gov.in/YUVIKA.html



Imagine walking into ISRO's labs, control rooms, and workshops—not as a visitor, but as a young scientist in training. For two weeks, these budding explorers step into laboratories, control rooms, and workshops where real space missions take shape. They learn to build rocket model, decode satellite data, and even interact with scientists guiding India's space journey.

More than just a camp, YUVIKA is a launchpad—igniting curiosity, nurturing talent, and showing young minds that the path to the stars can begin in their own classrooms.

Are you ready for an immersive science exprience in Jayanagar

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