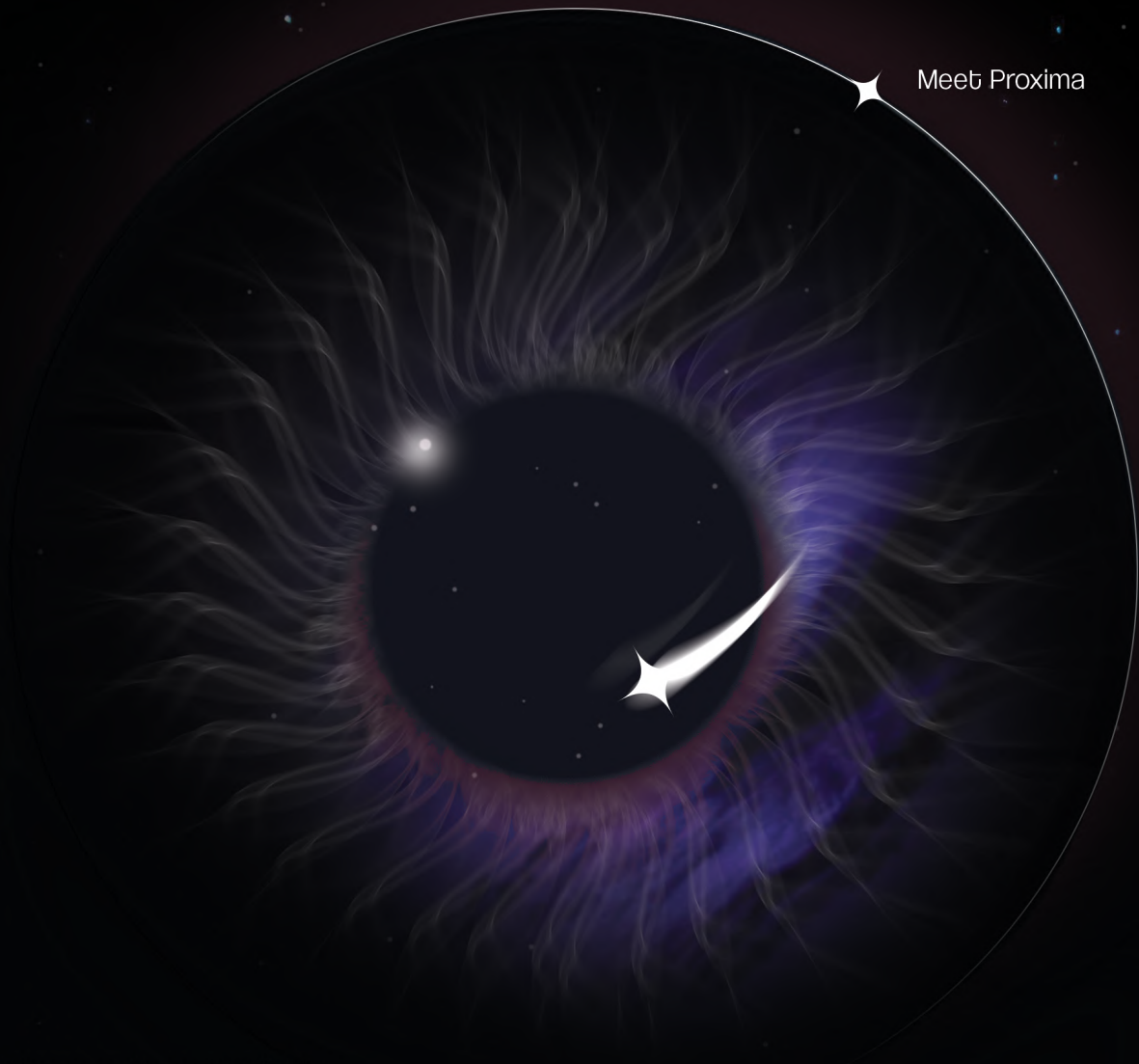


TWINKLE

Vol. 01 – Orbital Cycle: March 2024

✦ Constellations in hiding



Meet Proxima

Space myths unmasked ✦

Observed from: Earth, Milky Way

CONTENTS *Features*



Project Brief

To design a magazine :)
Be creative and experimental with the chosen concept. Treat every spread as a poster of its own.

Details

Spreads	10
Grid	7-column
Margins	Top: 15 mm Bottom: 20 mm Outer: 10 mm Inner: 12 mm
Gutter	4 mm
Display Type	Coolvetica Sloop medium Domaine display
Sub-heading	Neue Montreal regular 12 pt / 14.4 pt
Body copy	Lora regular 9 pt / 11 pt
Marginalia	Lato italic 8 pt / 9.6 pt
Image credits	Unsplash NASA gallery

Credits

Prof. Bappa Das
Nikhil Ranganathan
This issue wouldn't have shone as brightly without the guiding light of my incredible mentors. Thank you for your endless support and for helping me navigate the vast universe of magazine creation.

Concept

I chose astronomical theme. Being an astrophile, I want every viewer to witness the wonders and observe the hidden patterns in the night sky through my eyes. This magazine will surely take you on a thrilling cosmic ride!

★ ON PAGE 15, MARK YOUR CALENDARS FOR THE UPCOMING METEOR SHOWERS

★ PAGE 13, STAR OF THE ISSUE: OUR CLOSEST STELLAR SYSTEM

★ PAGE 11, BEYOND BIRTHDAY STARS, ASTRONOMY VS ASTROLOGY

★ PAGE 5, ORIGIN OF STARS

★ PAGE 17, SPOT THEM ALL WHILE TUNING INTO THE COSMIC PLAYLIST

Stars

Origin

Have you ever looked up at the night sky and marveled at the shimmering tapestry of stars?

✦ These distant points of light might seem like permanent fixtures, but they hold stories of incredible formation, diverse types, and fascinating characteristics.

Let's embark on a journey unraveling secrets of the celestial wonders.

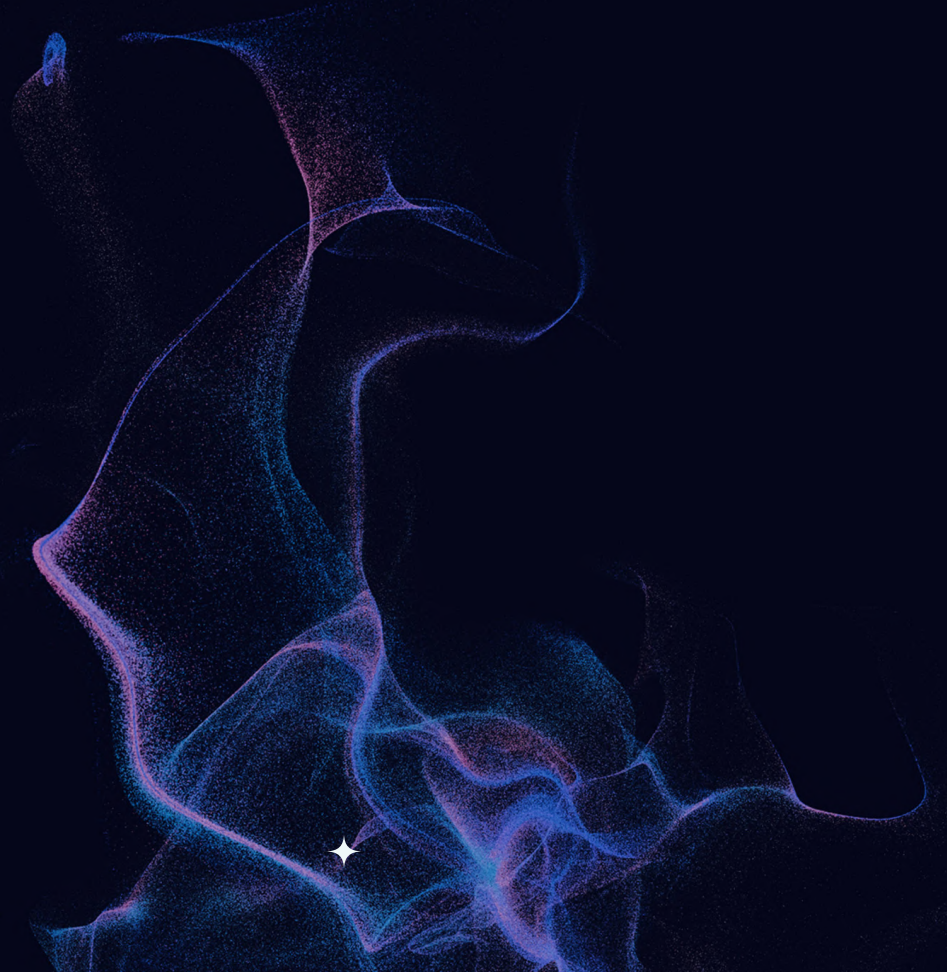


Stars are born from giant clouds of dust & gas, mostly hydrogen and helium, floating in the vast expanse of space. Under the influence of gravity, these clouds contract, their cores heating up immensely. When the temperature and pressure reach a critical point, nuclear fusion ignites, marking the birth of a star. This process transforms hydrogen into helium, which releases energy that makes the star shine.

5

The universe also holds stars with truly unique characteristics. Neutron stars, for example, are incredibly dense, packing the mass of our Sun into a sphere the size of a city! Black holes, though not technically stars themselves, are the ultimate examples of stellar gravity. Imagine a point in space where gravity becomes so strong that it tears the fabric of reality itself – that's a black hole. Once massive stars reach the end of their lives, they collapse inwards.

Neutron stars: are formed when a massive star runs out of fuel and collapses



CONSTELLATIONS

For millennia, constellations have been more than just twinkling patterns in the night sky. Serving as guiding lights for ancient travelers & inspiring countless stories.

48 of the 'official' constellations were based on Ancient Greek star patterns recorded by an astronomer called Ptolemy in the 2nd Century.

Guiding

Long before GPS, sailors and explorers relied on constellations to chart their course across vast oceans. The Big Dipper in the northern hemisphere, for instance, pointed towards the North Star, guiding mariners back home.

Across the Pacific, Polynesian voyagers navigated by constellations like Orion and the Southern Cross, their intricate knowledge helped them commute.

Lights

Ancient societies observed the movement of constellations across the sky to track the seasons and mark the passage of time. The appearance of specific constellations signaled the arrival of crucial events like planting seasons or religious festivals. In Egypt, the yearly flooding of the Nile River coincided with the rise of the constellation Sirius, marking a new agricultural cycle.

Through

While we no longer rely solely on constellations for navigation, they remain important in the world of astronomy. Astronomers divide the sky into 88 official constellations for precise celestial navigation, similar to street addresses for celestial objects. These constellations provide a framework for locating stars, galaxies, and other astronomical phenomena. Think of them as cosmic addresses! Just like a street address helps you pinpoint a specific location on Earth, constellations provide a framework for locating stars, galaxies, nebulae, and other celestial wonders. This allows for more accurate observations, and communication across the globe.

Time

From guiding ancient travelers to inspiring the modern-day stargazers, constellations have left an undeniable mark on human history. Though their practical application may have evolved, their enduring significance lies in their ability to connect us to the universe, spark curiosity, and reminding us of the long-standing wonders of the night sky.

Who named them?

Greek and Roman influence

Many of the constellation names we use today are derived from Greek and Roman mythology. Ursa Major, the Great Bear, embodies the mythical Callisto, transformed into a bear by Zeus. Orion, the hunter with the Pleiades, seven celestial sisters in Greek mythology. These were later adopted by Roman astronomers which became the foundation for many modern constellation names, across the planet.

(IAU) was founded in 1919. Its mission is to promote and safeguard the science of astronomy, members from 92 countries.

Beyond the Greeks and Romans

Remember that various cultures around the world have their own unique constellation names and stories. The Chinese night sky features a celestial dragon, signifying power and good fortune. Indigenous cultures across North America have their own interpretations of star patterns, often incorporating them into creation myths and spiritual beliefs. For example, some tribes see the Big Dipper as a celestial bear, while others view it as a group of hunters chasing their prey across the heavens.

The modern era: IAU takes the helm

International Astronomical Union (IAU) work to unify existing names used by different cultures throughout history. Think of them as the ultimate star chart editors, ensuring everyone on Earth is referring to the same constellation when they point to a specific region of the night sky. It also establishes clear boundaries for each constellation, preventing celestial squabbles over which stars belong to which celestial creature. With 88 officially recognized constellations, the IAU provides a standardized reference system, ensuring astronomers are on the same page when discussing the wonders of the cosmos.

Beyond *Birthday stars*

astrology share a common thread ✦ a profound

A Scientific Odyssey

Imagine wielding powerful telescopes and satellites, your gaze not limited to the twinkling dots above, but piercing through the cosmic veil to reveal the intricate workings of the universe. That's the realm of astronomers, the scientific detectives of the cosmos.

Armed with sophisticated instruments, they analyze the light emitted by celestial objects, measure vast distances with remarkable precision, and track the movements of stars, planets, and galaxies. This meticulous data collection unlocks a deeper understanding of the universe's grand narrative - from the birth and death of stars to the formation of galaxies and the mysteries of black holes.

A Realm of Symbolism

While astronomy delves into the scientific realm, astrology takes a more symbolic approach. It interprets the positions and movements of planets and celestial bodies, believing they influence human personality, relationships, and life events. Astrologers utilize birth charts, a celestial snapshot capturing the planetary positions at a person's birth, to draw interpretations and offer guidance.

Many find comfort and meaning in the narratives woven by astrology. However, it lacks the rigorous methodology and testable predictions. The correlations drawn between celestial movements and human affairs haven't been substantiated by scientific evidence.

While astrology uses constellations for symbolism, some constellations we see today were actually named based on their actual appearance!

fascination with the cosmos.

stories whispered across the ages.

dance of celestial bodies, while astrology seeks ✦ hidden narratives in its constellations, weaving

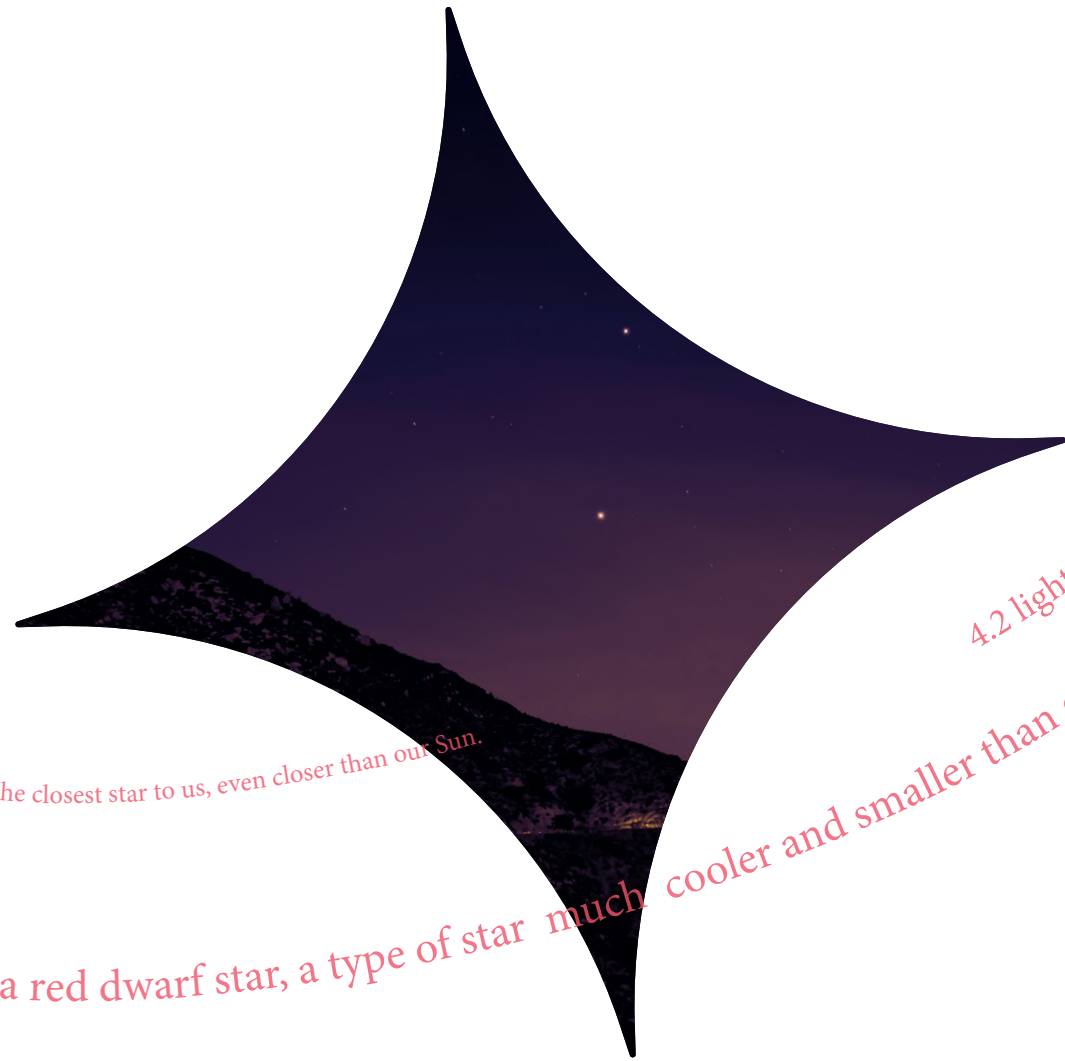
Both astronomy and

Astronomy unveils the clockwork of the cosmos, charting the

Babylonian astrologers used the phases of the moon to determine the ideal time for planting, including everyone's favorite crunchy veggie!

Proxima Centauri

Our Sun takes 25 days to complete 1 rotation on its axis, but Proxima Centauri is a dizzying dancer, whirling in just 8.6 hours!



Proxima Centauri is the closest star to us, even closer than our Sun.

It is a red dwarf star, a type of star much cooler and smaller than our Sun.

4.2 light-years away

Ever wondered if there might be neighbors lurking in our cosmic backyard? Proxima Centauri is our closest known star system, a mere 4.2 light-years away (that's a staggering distance, equivalent to trillions of kilometers!). This tiny red dwarf star is just a fraction of the size and brightness of our Sun. Forget sunshine as we know it - if you lived on a planet orbiting Proxima Centauri, you'd need a thick coat, as its surface temperature is much cooler than Earth's. Proxima Centauri is classified as a red dwarf, a type of star that's smaller and cooler than our Sun. These red dwarfs are the most common stars in the Milky Way galaxy, but they're also very faint, making them difficult to see with the naked eye. Proxima Centauri is no exception - it's actually the faintest star in the Alpha Centauri system, a triple star system that also includes the binary stars Alpha Centauri A and B. Despite its faintness, it is a very interesting star for astronomers. One reason for

this - to be of this interest is infact its proximity to our solar system. At only 4.2 light-years away, Proxima Centauri is the closest star to us besides our Sun. This close proximity makes it a prime target for astronomers searching for exoplanets, or planets orbiting stars outside our solar system. In fact, astronomers have already discovered several exoplanets (planets outside our solar system) orbiting Proxima Centauri. One such exoplanet is Proxima Centauri b, a rocky planet that's only slightly larger than Earth and completes one orbit around its star every 11 days. This close proximity makes the star a prime candidate for further study. Proxima Centauri b tidally locks its same side to its star, meaning one side of the planet is always in permanent daylight, while the other side is in perpetual darkness. However, some scientists

believe there could be a habitable zone along the terminator line, the boundary between the day and night sides, where temperatures might be right for liquid water to exist. Proxima Centauri is a fascinating star with a long and interesting history. It's estimated to be billions of years older than our Sun, and unlike our Sun, which rotates at - once every 25 days, Proxima Centauri spins at - a dizzying pace, completing a rotation every 8.6 hours! This rapid rotation is thought to be responsible for ProximaCentauri's energetic flares, which are - powerful bursts of radiation that can bathe orbiting planets in harmful radiation. Here's another interesting fact: Alpha Centauri, the binary star system that Proxima Centauri is gravitationally bound to, is actually a triple star system! Alpha Centauri A and B are two Sun-like stars orbiting each other, and Proxima Centauri, a much fainter red dwarf, orbits the pair at a much wider distance. This complex dance of three stars adds another layer of intrigue to this immensely

captivating stellar system. Looking towards the future, Proxima Centauri is a prime target for continued exploration. With the ever ongoing advancements in telescope technology, astronomers hope to learn more about the planets orbiting Proxima Centauri, including their atmospheres and potential for habitability. Additionally, scientists are actively researching and developing interstellar travel technologies, with Proxima Centauri being a potential destination for future space missions. Who knows, maybe one day we'll be able to send probes to explore this intriguing system and discover signs of life beyond our own solar system. The ongoing study holds potential to revolutionize understanding of star formation, planetary systems and possibility of life elsewhere - in the observable universe.

Lyrid Meteor Shower ✨

The Lyrids are known for their fast and bright meteors, with rates of up to 20 meteors per hour at their peak. The shower is associated with Comet C/1861 G1 (Thatcher).

Visible in: All parts of India

Apr 21 - 22

✨ Geminid Meteors

The Geminids are another popular meteor shower, known for their slow and colorful meteors. Rates can reach up to 100-150 meteors /hour at their peak under ideal observing conditions. It is associated with asteroid 3200 Phaethon.

Visible in: All parts of India

Dec 13 - 14

Eta Aquariid ✨

The Eta Aquariids are known for their fast-moving meteors, originating from debris of Halley's Comet. Rates can reach up to 30 meteors/hour at their peak under ideal observing conditions.

Visible in: All parts of India, but better view in southern skies

May 5 - 6

2024

Mark your calendars _____ for the year's meteor showers!

✨ Perseid Meteors

The Perseids are one of the most popular meteor showers, known for their fast and bright meteors. Rates can reach up to 50-100 meteors/hour at their peak under ideal observing conditions.

Visible in: All parts of India

Aug 9 - 14

Beta Taurid ✨

The Beta Taurids are a broad shower producing slow-moving meteors. They are associated with Comet 4P/Tuttle. Rates are typically around 5-10 meteors per hour at their peak.

Visible in: All parts of India

Jun 20 - July 30

✨ South Delta Aquariid

The Southern Delta Aquariids are a minor shower associated with Comet 96P/Machholz. Rates are typically around 5-10 meteors per hour at their peak.

Visible in: Southern India

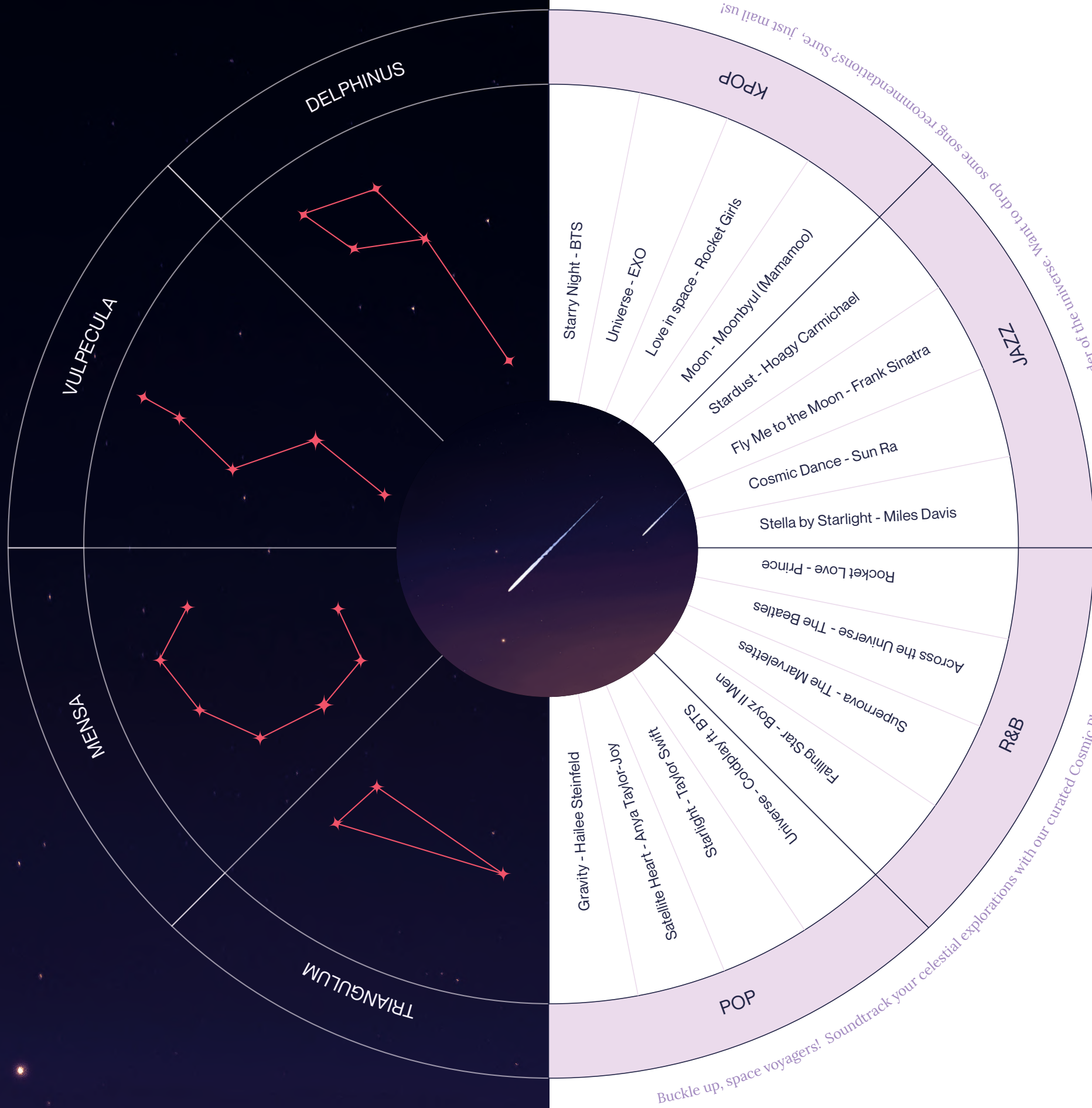
July 28 - Aug 19

Remember that these are just predicted dates and visibility can be affected by weather conditions and light pollution.

For the best viewing experience, try to find a location with dark skies and minimal light interference.

SPOT them all...

Have you spotted any constellation in the night sky? If not, you're in for some adventure! There are some constellations (the ones mentioned in this page) dispersed across this magazine...so, *can you spot them all?*



Cosmic Playlist

While you plug in your cosmic songs, it's time for us to say goodbye, until next time!

Stay curious and All eyes on Youiverse!



Myth

Constellations are fixed in place in the night sky.

Fact

Constellations appear different throughout the year and across locations due to Earth's rotation & revolution around Sun. Their positions are not fixed relative to each other.

Myth

We can see all the stars in the night sky with the naked eye.

Fact

Constellations appear different throughout the year and across locations. Light pollution and the limitations of our human vision prevent us from seeing most stars.

For millennia, constellations served as celestial maps for navigators. They relied on the predictable movement

of stars across the night sky to determine their location and course.

Myth / Fact

While constellations hold historical and cultural significance, some myths and misconceptions surround them. Here we breakdown some of the common cosmic fact vs. fiction.

Myth

Stars are twinkling lights, constantly turning on and off.

Fact

Stars are massive balls of burning gas, emitting a constant light. The twinkling effect we observe is due to the Earth's atmosphere causing distortions in the starlight.

Myth

Constellations determine personality or your life path.

Fact

Astrology, which associates constellations with human traits and events, lacks scientific evidence and is not considered a reliable source for such interpretations.



Designing this issue was a cosmic adventure. But beyond all starry tales, capturing the feel of a night sky into these spreads was the biggest challenge.

Each spread has been experimented with to make it distinct yet consistent with the recurring elements. I aimed to utilize the shapes & typography instead of heavy-imagery that every space magazine out there is covered with.

I'm grateful to my mentor, friends (Jiali Thakkar) who helped me push more hence, the dozens of explorations! It was fun to not just think about the layouts and be confused. Considering the context / content of every spread added to the multiverse of madness. But yeah, here's

the final outcome: far better than my initial layout sketches but surely nothing compared to what's going to come next. Wait.....what's happening

Wondering where the rest of the paragraph went? Guess we'll know in the next issue!

Caution: Do not attempt to stretch the fonts as shown above.