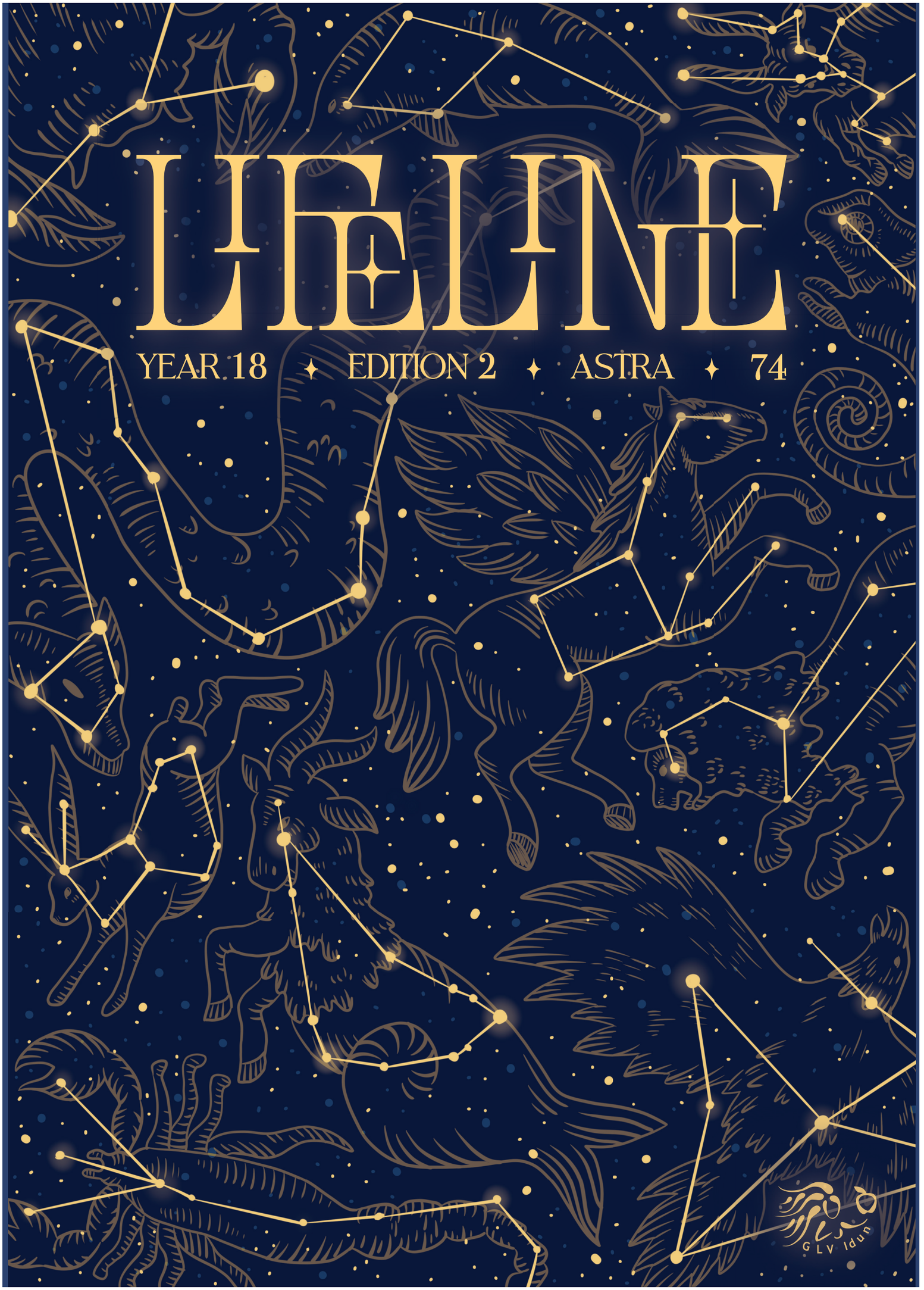

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PREFACE

Dear reader,

Sometimes we all get caught up in our comet-sized problems, guiding us from solution to yet another problem. It might then help to stare at the night sky and realise the mere size we are. To face the insignificance of our insecurities and petty fights in the bigger picture.

And just like that, the planets and the fates and all the stars aligned. Our skilled lifeliners put their heads together, glanced at the sky, and decided that the stars are what they were shooting for. With reality dragging us down in daily life, we decided to look up and provide you once again with 5-star worthy articles. From the lifecycle of a star to circadian rhythms, and from Astrazeneca to navigation using stars, we have filled this edition with everything you need to take you out of your uni slump and transport you to an intergalactic journey of cosmic reading. I am proud to present to you this year's second edition of the Lifeline themed: Astra! Make sure to fill in the Iduzzle, check your horoscope and let the review results be your guiding light to make the best choices in life. But above all, enjoy reading!

Love you to the moon and to Saturn,

Cecile Bruil

Lifeline editor in chief 2023-2024

Dear reader,

In front of you lies the second edition of Lifeline! The first quarter of this year already flew past! I hope it was just as fun for you all as it was for me. This time, we're diving into the cosmos with the theme "Astra" – not just as a theme but also as a symbol of exploration and discovery.

I am extremely proud of everything that our committees and members have already achieved this year! Just like stars lighting up the night sky, you all bring your own shine to our association. As Chairman, I've seen the passion and dedication of our community. This edition is a peek into the diverse talents within Idun. So, buckle up for a ride through the galaxy as we dive into the "Astra" edition of Lifeline. Let's explore the wonders together!

Enjoy the read!

Sieuwert Molema

Chairman of GLV Idun 2023-2024

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SCIENCE NEWS

NASA's Webb reveals new features in the heart of the Milky Way

By Antigoni Papadhima

The James Webb Space Telescope (JWST), NASA's cutting-edge observatory, has provided a remarkable and detailed image of the dense center of our galaxy, unveiling features that challenge the existing astronomical understanding. This image, taken by the Near-Infrared Camera (NIRCam) instrument on the telescope, focuses on Sagittarius C (Sgr C), a star-forming region located about 300 light-years from the Milky Way's central supermassive black hole, Sagittarius A*.

Samuel Crowe and his observation team at the University of Virginia were enthused by the JWST resolution and sensitivity, allowing for the exploration of details no one had ever seen before! The galactic center, the most extreme environment in our Milky Way, seems to set the ground for current theories of star formation.

Among the 500,000 stars captured in the Sgr C region together with some as-yet unidentified features, a cluster of protostars stands out. These protostars are still under formation as they accumulate mass, but can emit outflows that resemble a glowing bonfire within an infrared-dark cloud. Also, the density of the surrounding cloud is so intense that it obscures light from stars positioned behind it; creating the illusion of a less crowded region when, in fact, it is one of the most densely packed areas in the image!

JWST NIRCam also detected large-scale emissions from ionized hydrogen, appearing cyan-colored in the image. This phenomenon, usually associated with energetic photons emitted by young massive stars, surprised researchers due to its vast extent, prompting further investigation. Besides that, the chaotically-orientated needle-like structures within the ionized hydrogen pose another intriguing feature for examination. Also, the galactic center, characterized by star-forming clouds, showcases the impact of these stars on their surrounding environment through outflows, winds, jets, and radiation.

Crowe underscored the importance of JWST for the galactic center's precise observations of approximately 25,000 light-years from Earth. He also highlighted that the understanding of massive stars is akin to learning the universe's origin story, as stars act as factories producing heavy elements in their nuclear cores. The James Webb Space Telescope, an international collaboration led by NASA,along with partners like the European Space Agency (ESA) and the Canadian Space Agency (CSA), continues to unlock mysteries within our solar system, investigate distant exoplanets, and delve into the origins and structures of the universe!

Nuclear fission even in Cosmos

By Razvan Blanaru

"People have thought fission was happening in the cosmos, but to date, no one has been able to prove it." - Matthew Mumpower, theoretical physicist at Los Alamos National Laboratory.

Fission yields occur in splitting heavy atoms into lighter ones - the same process also met in nuclear weapons and reactors. It was long believed that heavy elements, beyond iron, were a product of stellar explosions, called supernovae, or when two neutron stars merged. However, we might rethink that now.

However, the analysis of steller abundances and nucleosynthesis would debate these assumptions. The analysis, led by astronomer Ian Roederer, was based on the observation of 42 stars and found exactly the predicted correlation between the abundant presence of heavy elements and the stellar explosions.

At Los Alamos, besides the nuclear weapon research, some nuclear mission models were developed. The models work well when compared to measured data and thus give credence to their extrapolations where there are no measurements.

Upcoming Idun events

6th of February
Jam session
-
8th of February
Cocktail workshop
-
12th of February
E&E Meet & greet
-
14th of February
First dates
+
Idunight
-
15th of February
Avebe tour
-
20th of Febuary
Idun Talk: science of sex
-
29th of February
Bingo night
-
7th of March
Idun takes the stage
-
8th till 10th of March
Members Weekend
-
20th of March
Idunight

I don't know about you, but SN 2023ixf is feeling 22

By Filip Manda

SN 2023ixf is the name of a type-II supernova in the Pinwheel Galaxy. This supernova was the closest core collapse in the last couple of years. The Pinwheel Galaxy is a spiral galaxy in the constellation Ursa Major, almost 22 million light-years from Earth. Supernovas, or core collapses, are explosions which mark the end of life for some of the galaxy's biggest stars, shining extremely bright with illuminating dark energy. The supernova was first observed in May of 2023 by Japanese astronomer Koichi Itagaki, just a few days after the star exploded. Analysis of prior Hubble Space Telescope images potentially showed a Red Supergiant in that exact location before the explosion. Since this supernova was the closest core collapse recently, it might help jump-start further research into the deaths of stars. Previously, only the light emitted by the blast could notify astronomers of a star collapse. However, recently astronomers have been observing "multi-messenger" signals which would be based both on light emitted, as well as other signals, such as electromagnetic radiation, neutrinos, or cosmic rays. So far, these 'more complex' messengers have only been picked up within the Milky Way. Hopefully, the future will hold a widening of the detection of "multi-messengers" outside our own galaxy.

ASTRAZENECA

A STAR AMONGST PHARMACEUTICAL COMPANIES

CHAY WESSELS

Many of you may know the name AstraZeneca from the COVID-19 vaccines, but they have developed a lot more ground-breaking medicine since its establishment. AstraZeneca is an Anglo-Swedish biopharmaceutical company based in Cambridge, UK and it was formed in 1999 after the merger between Astra AB and Zeneca Group PLC. They focus on creating genuinely innovative medicines and improving access to them so that the greatest benefits to healthcare systems, patients, and societies can be achieved on a global scale. Their main research areas are oncology, biopharmaceuticals (including Cardiovascular, Renal & Metabolism, Respiratory & Immunology Therapies and Vaccines & Immune Therapies), and rare diseases. Let's see what this star-studded company has created in the last 2 decades.

Their most revunable drug as of 2022 is Tagrisso (generic name: osimertinib) which was approved in 2017. The drug treats patients with non-small cell lung cancer (NSCLC) that have certain abnormal epidermal growth factor receptor (EGFR) genes to stop the tumor from coming back after removal or diminish spreading. It reduced the risk of death by 51% in a Phase III trial. In addition, they have developed a new drug called 'Enhertu' that targets the currently incurable HER-2-positive breast cancer. Their ground-breaking results led to FDA approval in 2022, after it was shown that 72% of patients showed no disease progression after 12 months compared to 34.1% of those treated with the intravenous antibody drug TDM1, the current standard of care medication. Besides this, they have developed many more cancer drugs such as Lynparza (olaparib), a poly ADP ribose polymerase inhibitor used for the treatment of certain types of ovarian and breast cancers, and Imfinzi, which targets lung, liver, and biliary tract cancer.

Other revolutionary drugs that have produced their highest revenues include:

- Nexium (esomeprazole): Treats acid reflux and peptic ulcers.
- Crestor (rosuvastatin): Lowers cholesterol levels.
- Symbicort (budesonide/formoterol): Manages asthma and COPD.
- Brilinta (ticagrelor): Reduces cardiovascular risk in acute coronary syndrome.
- Farxiga (dapagliflozin): Treats type 2 diabetes by aiding glucose removal by kidneys.

Current medications for rare diseases

Current medications for rare diseases in Phase III trials are acoramidis, anselamimab (CAEL-101), danicopan, and gefurulimab. Danicopan has already been filed for approval and is used to treat people with paroxysmal nocturnal haemoglobinuria with clinically significant extravascular haemolysis. Acoramidis is set to be filed for approval in early 2024 and will be used to treat people with transthyretin amyloid cardiomyopathy, a disease where amyloid will build up in the heart, causing stiffness of the heart muscle and ultimately leads to heart failure. In late 2024 it is expected that gefurulimab and anselamimab will be filed for approval. Gefurulimab targets generalized myasthenia gravis, a chronic neuromuscular disease that causes weakness in voluntary muscles and anselamimab targets AL amyloidosis, a disease where immunoglobulin light chain protein accumulates on tissue and organs due to malignant or premalignant growth of identical lymphocytes or plasma cells.

What's next?

In November 2021, AstraZeneca unveiled its new Discovery Center (DISC) in Cambridge, UK. The $1.2 billion state-of-the-art R&D facility includes advanced robotics, high-throughput screening, and AI-driven technology. It will support AstraZeneca's focus on specialized and precision medicine and foster the discovery and development of next-generation therapeutics, including nucleotide-based, gene-editing, and cell therapies. As of November 9, 2023, there are 167 ongoing projects, with 14 new molecular entities in late stages of which 3 are under review. These projects include 71 cancer drugs, 10 drugs for cardiovascular, renal, and metabolic diseases, and 18 new drugs for respiratory & immunological diseases, which will be filed for approval somewhere in 2024.

As you can see, AstraZeneca is a star when it comes to developing revolutionary drugs and they will hopefully continue to do so.

A GUIDING LIGHT

HOW MOONLIGHT AFFECTS THE BEHAVIOUR OF LION'S PREY

CECILE BRUIL

When you look out of your window in the middle of the night you can admire the silver-white crescent shape floating in the air, accompanied by dozens of tiny yellow specks which together make up the night sky. A beautiful image so calm and organised with the moon as its clear focal point. Living in concrete cities with artificial light 24/7, it's hard to believe that many landscapes are dependent on moonlight for visibility during the night. So much so that besides food resources, light is the most important environmental driver for behavioural and physiological changes. For this reason, researchers have investigated the moonlight's effect on animals for decades, and keep finding new pieces to this interesting puzzle. Here are some of the interesting insights we have gained on how lion's prey adjust (or not) to the different light intensities throughout the lunar cycle.

In the middle of the night, the lions of the Serengeti head out with their pride to catch a delicious meal. Why during the night you may ask. Well, for the very simple reason that it's easier to ambush something when they don't see you coming. But with changing lunar cycle phases, and thereby changing light intensity, the prey animals should react in order to maintain the chance of surviving another night. How the lion's prey responded to this moonlight was a dark mystery (get it) for the longest time, but by using camera traps and dozens of citizen science volunteers we now have a better understanding.

The largest part of the lion's diet consists of wildebeests (*Connochaetes taurinus*). These antelope adjacent animals need to forage for greens all day and night to meet their food requirements. These animals really pay attention to the lunar phase each night. During the darkest nights of the month, the wildebeests hide in safe places to avoid falling prey. However, when the nights get brighter, the wildebeests get more daring and step into dangerous territory where they are likely to run into lions.

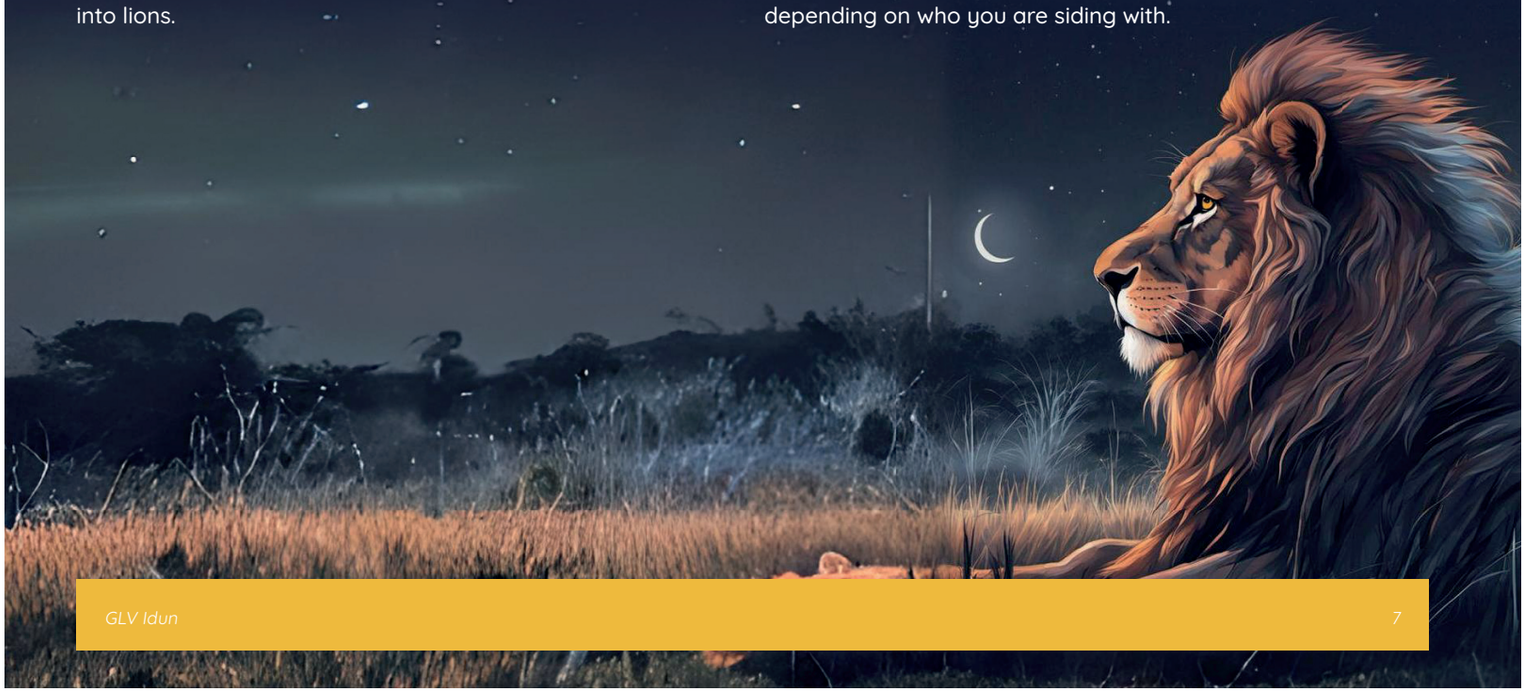
The African buffalo (*Syncerus caffer*) has less to fear than the wildebeests as the buffalos weigh up to 900 kilograms. A truly impressive meal for a lion to catch which requires more tactics than just darkness. Therefore they also feel safer and are not that strongly affected by the moonlight. However, it can be noticed that on darker nights, the buffalos are more likely to graze in herds, as being in a group can offer safety.

The zebra (*Equus quagga*) is the master of 'never let them know your next move'. They are up and running before the moon rises. Dangling around in the darkness is a terrible idea for an easy prey like zebras. But researchers suggest that this might be part of the zebras' defence mechanism: be unpredictable to keep the lions guessing.

Gazelles (*Eudorcas thomsonii*) are a bit smarter in comparison to zebras. They respond to more direct changes in the lunar cycle. When there is light they feel free to roam around, but when it's pitch black, they lay low. Meaning that when the moon has come up, the gazelles become more active and feed on their greens.

Both the buffalos, zebras, and gazelles are aware of their surroundings and make sure to avoid high lion-risk areas and they change their behaviour to reduce the predation threat. These patterns in behaviour across the lunar phase show that the moonlight intensity has a big impact on the behaviour of the prey animals. The effect of these adaptations can also be seen in the predators themselves. Lions have more expanded bellies on darker nights compared to a full moon night, as was observed by the camera trap images.

So next time you look up and see a new or crescent moon, just remember all the prey animals are fighting for their lives. Or remember the lions which are getting a buffet to feast on, depending on who you are siding with.

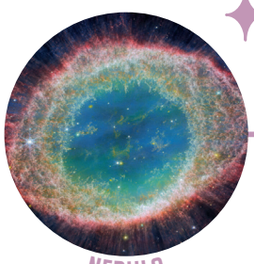


AD ASTRA

THE LIFE OF A STAR

The night sky. So dark, cold and empty. But if you find yourself far away from the city madness and dare to look up, you would realize that it is not empty at all. Tiny, shiny dots begin to appear as your eyes adapt to the darkness. Stars brighten the emptiness of outer space and their light seems eternal. Well, for us, it is, since our lives are immensely shorter than the life of a star. But have you ever wondered what living that long would be like? No? Well, let me take you through the life journey of a star.

READY? AD ASTRAAA



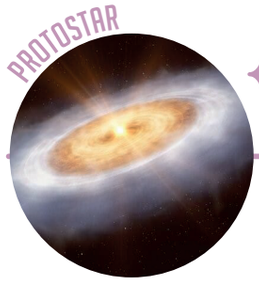
We begin our journey in the womb of stars, which is called a **nebula**. Nebulae are huge clouds of gas and dust that collapse under their own gravity. Denser regions attract more matter towards the core. This process is known as accretion and self-amplifies until the cloud heats up and becomes a **protostar**.

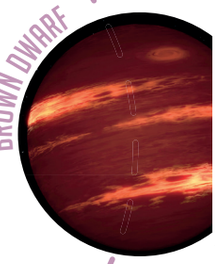
In the core of the protostar, matter is compressed and reaches very high temperatures. Elevated density and temperature stimulate nuclear fusion, which produces light. This is called **stellar ignition** and can be seen as the star's birth (but instead of a few hours, it lasts for 500,000 years, which must be painful for the mother). However, not all protostars will make it: only a core temperature of 10 million K will allow efficient fusion of H into He, thus ensuring the star's survival. As Darwin teaches us: life is a struggle and only some can survive. In this case, may the hottest among us win ;)

However, being hot is not the whole story. You also need to be massive: generally speaking, stars below 0.08 solar masses will not make it and they will become **brown dwarfs** or failed stars. Hey but don't worry, failed stars also shine bright for a few million years!!

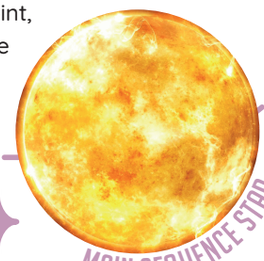
On the other hand, protostars that are sufficiently hot and massive to ensure a steady nuclear fusion will become **main sequence stars**. These do not collapse under their own gravity because the energy from the core generates an outward pressure that counterbalances gravitational attraction. Despite the name "main sequence", these stars are not homologated and without personality. Instead, they have different spectral types (based on temperature, mass, size, brightness) which translate into different colors. These are: blue (O), light-blue (B), blue-white (A), white(ish) (F), white-yellow (G), orange-red (K) and red (M).

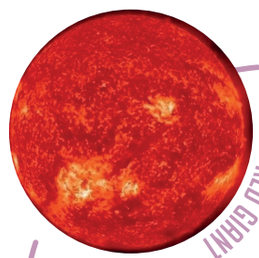
We can picture a main sequence star like an "adult star" with its life figured out and continuing to do its job: shining. However, stars also get old and tired and eventually die. The lifespan of a star depends on its mass: the more massive the star, the shorter it lives because it consumes H faster. So, being hot and massive may help you in the beginning to start shining, but it reduces your time as a big bright star.



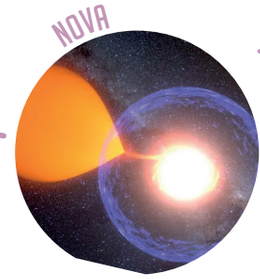


When the star's fuel runs out, nuclear fusion ceases and there is no force to counterbalance gravity. The star collapses and the core becomes hotter and hotter, eventually pushing outwards the outer layers. The star has overworked itself and now is the time to retire as a **red giant**. At this point, the core becomes more unstable and different fates await our red giants based on their mass.





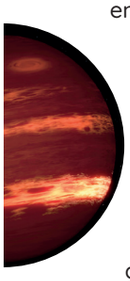
Average stars (up to 1.4 solar masses) continue to eject the outer layers until the core is exposed. These become hot, but small, **white dwarfs**. They don't collapse further because fast moving electrons in the core create a counterbalanced pressure to gravity. White dwarfs will eventually cool down and fade away. Sad :(



ALESSIA PALAZZO

If the star's mass exceeds 1.4 solar masses, the electrons cannot generate enough pressure to fight gravitational attraction. If the star is part of a binary system, gravity will pull in closeby materials and gas (H) from the companion star. When enough H has accumulated on the surface, the outer layers explode in a burst of nuclear fusion. This causes the white dwarf to brighten and expel materials. After a few days, the glowing fades away and the cycle starts again. The periodic increase in brightness followed by fading is characteristic of **novae** and caused by the explosion of their outer layers.

If the star is even more massive, it attracts more matter and eventually the core collapses and explodes completely. This results in a **supernova**. The collapse of the core of a star releases an unimaginable amount of energy and the light emitted may outshine an entire galaxy. However, in a galaxy, a supernova explosion occurs on average "only" once every 100 years.



After a supernova explosion, there are different scenarios. If the mass of the star is between 1.4 and 3 solar masses, the core will collapse until protons and electrons combine into neutrons. This results in incredibly dense **neutron stars**. They have strong magnetic fields that accelerate particles into beams of electromagnetic radiation and, if they are spinning, these beams will reach us at regular intervals. This is known as a **pulsar**.

You all know what comes next. If the mass of the core exceeds 3 solar masses, the star will collapse into everyone's favorite: a **black hole**. This is a region of spacetime with infinite density, where gravity is so strong that nothing can escape, not even light. But black holes are not as scary as you might think. They do not swallow everything they encounter like a cosmic vacuum cleaner. If you maintain the proper distance (further from the event horizon), a black hole is not any different from other massive objects.

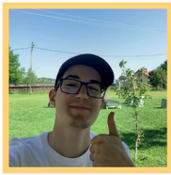
But wait a second, if black holes absorb all electromagnetic radiation, how can we see them? How do we know about their existence? Black holes are detected because of their powerful gravitational field, which attracts materials from nearby stars and forms an accretion disk. This contains hot gas that emits X-rays or gamma rays which we can detect.

> FUN FACT: A NICE MNEMONIC TO REMEMBER SPECTRAL TYPES IS: OH, BE A FINE GIRL/GUY AND KISS ME!

P.S. This is not the actual death of a star because black holes evaporate through **Hawking radiation,** the theoretical evaporation of a black hole. Without getting too much into incomprehensible physics, basically quantum weirdness leads to the production of pair-particles (a particle + its antiparticle) and one of the two crosses the event horizon. Then, to justify the existence of the companion, the black hole loses energy as Hawking radiation.

So, is this the end of the story? Not entirely, because "what goes around comes around". The dust and debris left after a nova or supernova explosion contains heavy metals that mix with interstellar dust. These heavier elements are recycled by the next generation of stars or are used to form other celestial objects like planets and asteroids. Some of this stellar waste also created our Earth and organic molecules which eventually became life. In the end, we are all just stardust.

LEY LINES



FILIP MANDA

LEY LINES: A SPIRITUAL MAP?

Not a lot of people are familiar with the concept of ley lines. Ley lines or "leys" consist of linear connections between locations of historical importance, landmarks, and environmental sites. Ley lines are much like the geographical coordinate system, the lines regarding longitude and latitude. However, ley lines don't occur in parametric intervals like longitude and latitude do. Instead, they connect different landmarks from all over the world, usually converging in historical sites or natural wonder landmarks. These sites of 'convergence' are usually regarded as 'pockets' of supernatural energy, where individuals become closer to the stars, as well as their own inner selves. The concept of ley lines was originally developed in the early 20th century, more specifically around the 1920s. Alfred Watkins portrayed the concept in his book, "The Old Straight Track", claiming that historically ancient cultures drew out 'paths', much like trade routes, between locations where landmarks were to be built. However, this theory was not accepted by the official British archaeologists, since Watkins was an amateur archaeologist and a supernatural aficionado. Interestingly though, Watkins discovered that leys connect strange phenomena, like burial mounds, prehistoric sites, standing stones, and others. To this extent, he further theorised that ley lines didn't only constitute an 'index' of built landmarks, but an ancient navigational system started to be linked to spirituality and to the internal energy of the planet, connecting the timeline of Earth: the past, present, and future.

Going further through time around the 1960s, different writers like Matthew Johnson or Tony Wedd revisited Watkins' theory, but not many achieved much public following. However, this changed drastically with the release of "The View Over Atlantis", by John Michell, in 1969. A gathering of ley line enthusiasts gathered to form the "Ley Hunter's Club". With the release of John Michell's book, the club saw a substantial uproar in popularity and more ley enthusiasts sought to map out the British landscape. In his book, Michell connected ley lines to the Chinese concept "lung mei" energy lines, which translate to "Dragon paths". In ancient Chinese culture, these lines represent the "veins of the Dragon current" which are all connected to the "Dragon heart" energy core. Following this publication, throughout the 1970s, the transition towards a more spiritual approach to ley lines also took place. Ley lines

Of course, as with any theory, there exist believers, as well as sceptics. Though disapproval from official British archaeologists had always been present, only after the creation of the Ley Hunter's Club did they begin to formally engage the movement. In 1983, the first official work "Ley Lines in Question" was published, where Tom Williamson and Liz Bellamy tackled key components in theories regarding ley lines. One of the more prominent examinations of the theory was that, since the lines were straight, they could not have represented valuable trade routes or a navigation system. Many ley lines passed through vast mountain ranges or bodies of water and thus did not constitute likely logical routes for trade during those times. Another key point that was addressed was that ley locations or stores of energy which were part of a ley line, usually existed throughout long time periods. It could have been more than probable that, even if you draw a line by chance, it would pass through more than one landmark, from more than one time period. For example, many ley lines contained both prehistoric sites and modern landmarks passing through the same ley, but this could have occurred due to environmental factors or geographical positions.

One might make the assumption that ley lines are as imaginary as lines of longitude and latitude. Or one might make the assumption that, in the span of thousands of years of evolution, lines connecting landmarks were bound to appear. As for the supernatural aspect of ley lines, they do seem to connect many of the great wonders of today's age. From Stonehenge, the Pyramids, and the Chichen Itza, to the Great Wall of China, but also to Abbie and Starbucks; definitely sounds like a spiritual map to me!

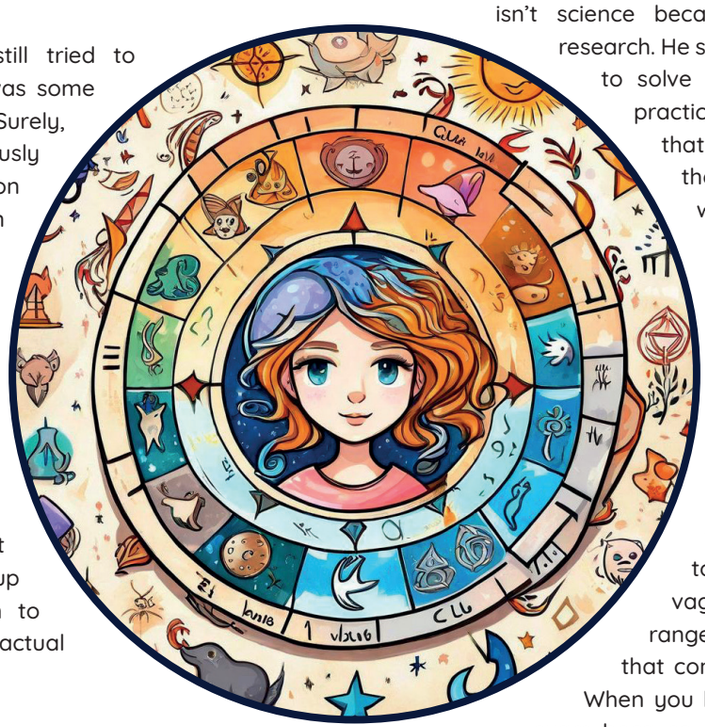
MARIT'S MYTHBUSTERS

ASTROLOGY IS TRUE...!

They say knowledge is power, but what if this knowledge is total nonsense? When you fall on your tailbone, you won't get blind and when you get a jellyfish sting, please don't pee on it. You will be surprised how many biological misconceptions are rooted in your mind and that of others. In our rubric 'Marit's Mythbusters', I will debunk common myths that many of you believe to be true.

During puberty, my identity crises (yes, plural) led to me doing numerous personality tests and more than one birth chart analysis. I was fascinated by my moon sign being in Libra and how that influenced my personality and behavior. Not to mention that it was so reassuring to do a 'Leo thing' or to read from a random WordPress website that I was indeed kind and loyal.

As a twenty-something, I still tried to convince myself that there was some scientific basis in astrology. Surely, people born in July consciously witnessed another season first than someone born in December. Right?



I must disappoint myself (and you, maybe?). Astrology really isn't a science. At least, according to prestigious and wise philosophers, who spend a lot of time racking their brains on the big, big question 'What is science?'. And they came up with more than one reason to disregard astrology as an actual science.

First of all, there is no proposed mechanism of action. How do celestial bodies influence our simple human ones? Some research found segmental correlations between lunar tidal cycles and bipolar mood cycles (which means the correlation was stronger in certain lunar phases). Proposed mechanisms can be gravitational forces or moonlight intensity. However, there has been no attempt to explain how the position of the stars and planets at birth determines our fate or personality.

Second, we consult another famous philosopher of science, Thomas Kuhn. He argues that astrology is a pseudoscience because it is non-empirical. This means that the processes of how astrology works cannot be observed or measured, which we can do in, for example, chemistry.

Another critical philosopher, Paul Thagard, said that astrology isn't science because astrologers do not do research. He stated that 'they had no puzzles to solve and therefore no science to practice'. In addition, he mentioned that astrologers often acted as if the foundations of astrology are well established, when in reality, alternative theories explain some phenomena better, such as confirmation bias or the Barnum/Forer effect.

The Barnum/Forer effect is what often occurs in horoscopes; it is when people feel like a piece of text was specifically tailored to them, when in reality, it is just vague enough to apply to a large range of people. Not to mention, that confirmation bias is a real thing. When you believe you will mess up your exam because mercury is in retrograde, you probably will.

So again, I'm sorry to say that being born in June doesn't make you an emotional being, it's just part of your personality.

The mystic nature of astrology combined with numerous cultures using it for centuries creates a human interest that persists. There is something fascinating about the universe surrounding us and all its celestial bodies in it. Maybe astrology is just a way for humans to connect these impressive planets and stars to ourselves.

Everything, to make us feel a little less small than we are.

MARIT BONNE

HOROS

AQUARIUS
(JAN 20 - FEB 18)

DON'T FORGET TO STAY HYDRATED! DRINK THOSE SIX GLASSES OF WATER EVERYDAY! YOUR AQUARIUS ENERGY ALWAYS BRINGS A FUN AND OPEN-MINDED VIBE TO ANY SITUATION. YOUR BRILLIANT MIND CONSTANTLY RACES WITH NEW IDEAS AND INSIGHTS, AND YOUR QUIRKY PERSONALITY INVITES OTHERS TO JOIN IN ON THE FUN. SO TAKE A MOMENT TO DRINK SOME WATER AND KEEP THAT CREATIVE ROLLERCOASTER GOING. LOVE YOU!

Avoid: Boring lectures
Colour: Electric blue

PISCES
(FEB 19 - MAR 20)

WHETHER YOU ARE SWIMMING THROUGH A SEA OF WORK OR JUST TRYING TO AVOID DROWNING IN AN OCEAN OF EMOTIONS, REMEMBER: BREATHE IN, BREATHE OUT, AND LET IT GO. THIS MONTH, THE UNIVERSE SUGGESTS YOU TAKE A BREAK FROM REALITY AND DIVE INTO THE FANTASTIC WORLD OF DAYDREAMS. ALSO MAKE SURE TO LOOK OUT FOR A SWEET SCORPIO THAT YOU CAN SOLVE SOME MURDERS WITH.

Avoid: Ladders
Colour: Turquoise

GEMINI
(MAY 21 - JUN 20)

WORKING WITH YOUR TWO PERSONALITIES, THE HARD-WORKING ONE AND THE EASILY DISTRACTED ONE, CAN BE CHALLENGING! BUT YOU'LL EXCEL AT MULTITASKING, JUGGLING TASKS LIKE A CAFFEINATED OCTOPUS IN A PRODUCTIVITY SEMINAR. JUST DON'T MISPLACE THE IMPORTANT ITEMS AMIDST THE CHAOS, LIKE YOUR SENSE OF PURPOSE. ALSO, A CUTE ARIES WITH PRETTY EYES WILL CATCH YOUR ATTENTION (SPOILER ALERT: IT'S SHREK).

Avoid: Cheesy pickup lines
Colour: Lemon yellow

ARIES
(MAR 21 - APR 19)

BEWARE OF THE WHIRLWIND THAT YOU ARE. YOUR ENERGY LEVELS ARE SO HIGH THAT EVEN YOUR COFFEE NEEDS A BREAK FROM YOU. BEFORE YOU DECIDE TO CONQUER THE WORLD BEFORE BREAKFAST, REMEMBER THAT EVEN SUPERHEROES NEED A GOOD STRATEGY. THE UNIVERSE SUGGESTS THAT YOU TRY OUT A NEW SPORT THIS MONTH TO BLOW OFF SOME STEAM. A LIBRA WILL ROCK YOUR WORLD, SO GET OUT THERE AND KEEP AN OPEN MIND.

Avoid: Cafeïne or stimulatory drugs
Colour: Red (duh)

TAURUS
(APR 20 - MAY 20)

AVOID RED THIS MONTH. EVEN IF YOU'RE COLORBLIND. THIS MONTH, THE STARS SUGGEST YOU APPROACH CHALLENGES WITH THE COMPOSURE OF A SLOTH ON A YOGA MAT. TAKE YOUR TIME AND, IF ANYONE RUSHES YOU, STARE AT THEM BLANKLY UNTIL THEY GET THE HINT. ALSO, YOU MIGHT BE TEMPTED TO ORGANISE YOUR PENS BY COLOUR OR DEMAND A MORE ERGONOMIC CHAIR. YOU WILL LIKELY GET IN A FIGHT WITH SAGITTARIUS.

Avoid: Impulse purchases
Colour: Anything but red

CANCER
(JUN 21 - JUL 22)

LOVE IS IN THE AIR! SELF-LOVE, THAT IS. PLEASE TAKE A BREAK FROM CARING FOR OTHERS EVERY NOW AND THEN AND INDULGE IN A BIT OF SELF-LOVE. TRY A FACE-MASK MAYBE? FURTHERMORE, YOUR INTUITION IS YOUR SUPERPOWER. YOU CAN READ BETWEEN THE LINES LIKE A DETECTIVE SOLVING A MURDER MYSTERY. HOWEVER, DON'T LET YOUR EMOTIONAL RADAR GO INTO OVERDRIVE; NOT EVERY SILENCE IS A HIDDEN MESSAGE.

Avoid: Going into parent mode
Colour: Silver

SCOPE

LEO
(JUL 23 - AUG 22)

CALM YOUR FIERY ASS DOWN! PLEASE GIVE YOURSELF SOME REST. WE ARE WORRIED. SO TELL EVERYONE NO, GET SOME FANCY TEA, AND CURL UP UNDER A BLANKET. NAVIGATE THIS MONTH WITH THE GRACE OF A CAT ON A ROOMBA, AND REMEMBER, SLOW AND STEADY WINS THE RACE. EVEN IF THE RACE IS JUST GETTING THROUGH MONDAY. SHINE ON, BUT REMEMBER: EVEN THE SUN TAKES A BREAK TO LET THE MOON HAVE ITS MOMENT.

Avoid: Roombas
Colour: Gold

VIRGO
(AUG 23 - SEP 22)

YOU MAY FIND YOURSELF ORGANISING WITH PRECISION AND CARE. YOU'RE ALL ABOUT EFFICIENCY, FROM COLOUR-CODING YOUR SOCK DRAWER TO ALPHABETISING YOUR SPICE RACK. BUT DON'T FORGET TO TAKE SOME TIME TO ENJOY LIFE WITH FRIENDS AND LET LOOSE A LITTLE BIT. YOUR GROUNDED NATURE AND QUEST FOR NEW EXPERIENCES MAKE YOU A RELIABLE AND ADVENTUROUS FRIEND. LET YOUR ORGANISATIONAL SKILLS SHINE!

Avoid: Imperfect pumpkins
Colour: Rich browns

SAGITTARIUS
(NOV 22 - DEC 21)

GET READY FOR A WILD RIDE. YOUR OPTIMISM WILL BE OFF THE CHARTS, TACKLING EVERY PROJECT WITH SUPERHERO ENERGY. EXPLORE IDEAS WITH FRIENDS, BUT TONE DOWN YOUR ADVENTUROUS SPIRIT DURING CANDLELIT DINNERS. YOU ARE SO CHARMING, EVEN CUPID MIGHT ASK FOR DATING ADVICE. EMBRACE YOUR INNER EXPLORER, AND GO ON A SPONTANEOUS ROAD TRIP. WHO NEEDS DIRECTIONS?

Avoid: Monotonous routines
Colour: Purple

LIBRA
(SEP 23 - OCT 22)

THIS MONTH BRINGS YOU A COSMIC DANCE OF BALANCE AND INDECISION. WITH TOUGH CHOICES LIKE PIZZA OR SUSHI BECOMING A COMMON THEME. YOUR CHARMING CHARISMA SHINES IN EVERY INTERACTION. SADLY, WORK FEELS LIKE A CHORE, AND DAYDREAMING IS TEMPTING. REMEMBER TO STAY GROUNDED AND FOCUSED BEFORE THE BOSS CATCHES YOU OFF-GUARD. MAINTAIN YOUR BALANCE AND MAKE THE RIGHT CHOICES.

Avoid: Romance novels
Colour: Lavender

SCORPIO
(OCT 23 - NOV 21)

EMBRACE YOUR SCORPIO POWERS THIS MONTH, AND LET YOUR MYSTERIOUS CHARM SHINE. USING YOUR DETECTIVE SKILLS, YOU MAY INVESTIGATE WHO TOOK THE LAST PIECE OF CHOCOLATE. STILL, REMEMBER TO LOWER THE INTENSITY WHEN SHARING YOUR EMOTIONS WITH OTHERS. YOUR PASSION AND EMOTIONS CAN TRANSFORM EVERY RELATIONSHIP. STAY WARM AND ENJOY THIS MONTH'S INTENSE MYSTERY VIBES.

Avoid: The chocolate thief
Colour: Maroon

CAPRICORN
(DEC 22 - JAN 19)

YOUR AMBITIOUS ENERGY WILL BE UNMATCHED. EVEN YOUR TO-DO LIST WILL BE EXHAUSTED JUST BY LOOKING AT ITSELF. DON'T FORGET TO TAKE BREAKS. CAFFEINE CAN ONLY DO SO MUCH. YOUR PRACTICAL APPROACH TOWARDS LIFE MAY IMPACT YOUR ROMANTIC LIFE: SCHEDULING ROMANTIC DINNERS OR CUDDLE SESSIONS. JUST REMEMBER TO ENJOY THE MOMENT AND LOOSEN THE TIE A BIT. HAPPY GOAL-CRUSHING!

Avoid: Isolation mode
Colour: Forest green













V.I.P. SEATS


PAPARAZCIE

ASTRAHARMONY

NAVIGATING CIRCADIAN MEDICINE, AYURVEDA, AND CHINESE MEDICINE

MICHELLE BERENDSEN is

Astra, the stars in the sky, are always present, yet we take them for granted. Similarly, our body's daily rhythms affect our health differently, but we do not often consider them. Circadian rhythms are not new and have been present for centuries in Ayurveda practices and Chinese medicine. However, it is only in recent years that the Western community has started to take notice of this concept, leading to a new medical approach called circadian medicine.

Most studies in the last 10-20 years have focused on human circadian rhythms and biological and physiological functions. These studies have been independent of daily behavioural cycles or external stressors. The studies were limited to the acute effects on the performance of systems, such as reduced cognitive performance following shift work and sleep deprivation. Less is known about the long-term health effects of circadian disturbances. But, the latest research confirmed that long-term disturbance affects the risk for obesity, digestive disorders, sleep and mood disorders, and cardiac diseases. The study has shown that perturbed circadian rest-activity rhythms predict future incidents, cognitive impairment, and dementia even in healthy people.

The circadian system regulates rhythms through neural and hormonal pathways that interact with stimuli like light and temperature. Due to emergent behavior, individual circadian clocks and their integrative behavior pose a significant challenge in chronobiology research. The individual circadian clocks arise from the body, organs, and external factors. The SCN (Super Chiasmatic Nucleus) is the most essential circadian clock of the body, which regulates all the other circadian rhythms by directly receiving information from the eyes and influences the homeostasis of different organs based on the light observed. The SCN can affect heart rate and motor activity regulations over a broad time scale of up to 24 hours.

The field of circadian biology is rapidly advancing our understanding of the rhythms that occur in biology at all levels. These biological rhythms represent a novel model of balance and homeostasis, which anticipated to impact medical practices significantly. For example, Circadian rhythms are already used in cancer treatment when applying specific daily treatments. Still, the origin of circadian rhythms for health benefits is a practice which has been done for ages and is still actively used in Ayurveda practices and Chinese medicine.

Ayurveda practices believe that a perfect balance between the natural elements and the human body should be maintained for a healthy state of living by following certain principles. The principles of Ayurveda focus on Prakriti and their tri doshas. Each individual has a unique balance that affects their response to medications, environmental conditions, and diet. This helps to understand the inter-individual differences in reactions towards therapies and treatments. This way of practice is now being observed if it will help within the limitations of Western medicine. For example, there is a need for personalised therapies and reducing side effects of treatments.

In addition, the 'Organ Clock' is a valuable tool in Chinese medicine to understand why people have trouble sleeping and how it affects their lives. Chinese medicine believes energy or qi flows through the body's meridians and organs in a 24-hour cycle. The qi is vital every two hours within a particular organ and recovers the energy for its functions within the body, following its circadian rhythm. In Chinese medicine, disharmony in the physical body is believed to be linked to the emotional state. This disharmony is easily visible during sleep. Waking up simultaneously every night can be a signal from your body that you are emotionally out of balance. Circadian rhythms have been used for centuries for our benefit. They will influence and hopefully improve our healthcare system, hoping for better treatments and a decrease in chronic illnesses.

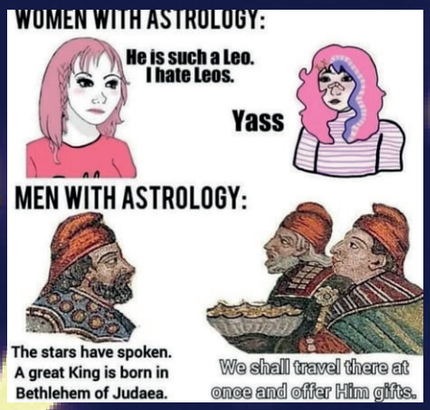
MEMES

Horoscope: You're probably breathing right now

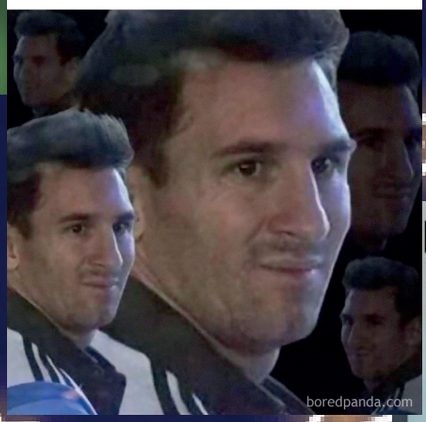
People:

"No one could've predicted this."

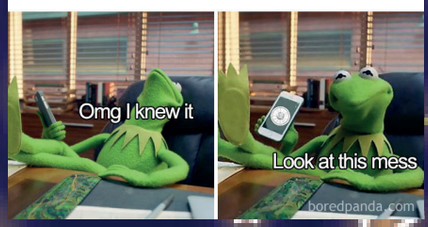
Astrology girls:



When a girl tells you she's acting the way she's acting because of her zodiac sign

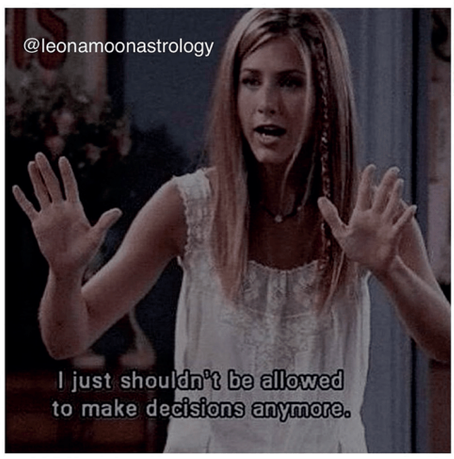


Me looking at the current astrology to confirm my mood swings



When the person you like is into astrology and they tell you that your signs don't match

Nobody:
Libra Season:

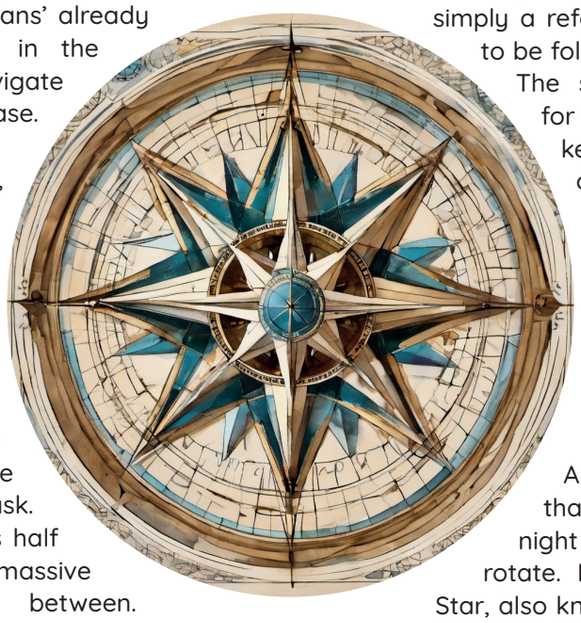


When you're on a blind date and she mentions her zodiac sign and crystal collection

SAILING BY STARLIGHT

NAVIGATING THE SEA ALONGSIDE THE STARS

When European explorers first arrived in Oceania in the 16th century, they found that humanity's great age of exploration in the Pacific had already ended some 500 years ago. People who we now collectively refer to as 'Polynesians' already inhabited every single island in the Pacific Ocean, and could navigate between them with relative ease.



What's more impressive, though, is that they accomplished this with the same tools and technology as the people who first invented agriculture. Unlike the Europeans, they had no maps, sextants, compasses, or any form of writing. Even if you did have all these tools, navigating the Pacific Ocean was a daunting task. At its widest, it stretches across half the earth, and islands in this massive expanse are few and far between. *So, how did people without modern navigational tools manage to find their way across the Pacific?*

Star Paths

Polynesian navigation is complex, and precise methods depend highly on the route, the culture of origin, and personal preferences. One thing we do know for certain, though, is that the stars played a crucial role in navigation. Seasoned navigators would remember the location of hundreds of stars, as well as the constellations they belonged to. This way, they could travel a route between two islands by following a 'star path'.

An individual star can be referenced to a point on the horizon right below it, if it is low enough in the night sky. By following this point, a navigator can sail to a destination. These are known as 'guiding stars'. However, as the earth rotates, their location in the night sky appears to shift. Thus, the bearing of a guiding star is maintained until a new one rises or sets in the same place. The old guiding star is then discarded, and the new star now serves as a reference point. In this way, a navigator can follow a succession of stars to travel in a straight line. Such a succession of guiding stars is called a star path. However, a problem with this method is that stars don't rise and set at the same time every day. This means that a star path that works in June is useless in December. So, navigators had to learn several star paths for the same destination at different times of the year.

The Star Compass

While star paths between islands work incredibly well, memorising a star path for every possible route between islands is nearly impossible. However, a star path is simply a referencing tool, and doesn't need to be followed in front of a boat to work. The same star path can be used for multiple different routes by keeping it behind, or to the side of a vessel to arrive at different destinations. Two star paths that don't directly point anywhere could also be cross-referenced to create a new route. In this way, a navigator can create a more complex navigational tool: a 'star compass'.

A star compass uses the fact that there are two points in the night sky around which all stars rotate. In the north, this is the North Star, also known as Polaris. In the south, this point can be found using Crux, the Southern Cross constellation. Together, these points can either be seen or deduced from anywhere in the Pacific Ocean, and form the north and south points on the star compass.

As stars shift along the night sky, they will eventually cross the meridian. This is an imaginary line from north to south directly overhead. When two stars cross the meridian at the same time, they can be remembered as a 'meridian pair'. This way, they can be used to determine north and south even when the stars that normally signify these directions aren't visible.

VIOLET SCHULTE

The other directions can be the rising or setting points of stars or entire constellations. By remembering the rising and setting points of stars in the night sky relative to each other, a navigator can determine in which direction they're sailing. For instance, the star Betelgeuse rises roughly in the east. So, if a navigator notices this star rising on their right, they know that to be east, and they will know they are sailing north.

Navigating During the Day

Skilled navigators would remember the positions of over 200 stars on their star compass. In addition, star compasses would need to be kept up to date to account for the shifting positions of stars throughout the year. However, despite all this intensive studying of the night sky, even the most skilled navigator can't get by on knowledge of the stars alone. This is because, as you probably know, stars aren't visible during the day. Luckily, some other celestial bodies can be used instead.

The most obvious one is the sun. In the morning and evening, the sun is close enough to the horizon to be used in the same way as a guiding star. Navigators can then also place the rising and setting points of the sun on their star compass. Besides the sun, the moon can also be used in much the same way. Lastly, certain planets can sometimes also be seen during the day. Mercury, Venus, Mars, Jupiter, and Saturn can all be seen with the naked eye, and are used just like stars for navigation.

Can you do this too?

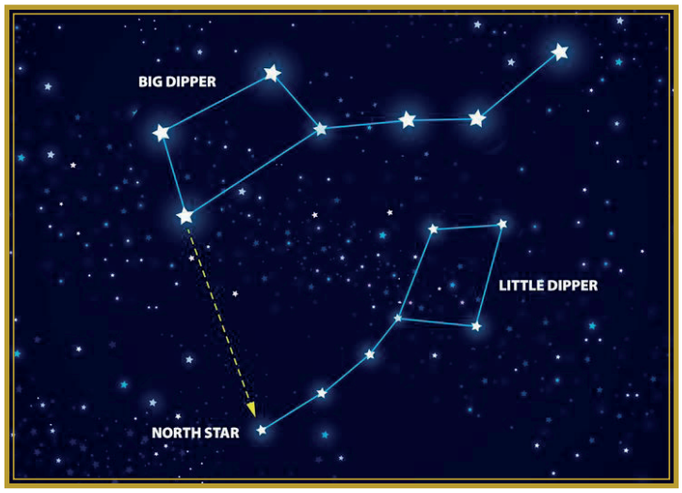
Of course you can! Simply devote decades of your life to memorising every point in the night sky, and make sure to adjust your routes for the time of year. In the (unlikely) scenario that you don't have the time to do all that, here's a quick guide to the basics:

1. Try to find the North Star! It forms the tip of the handle of the Little Dipper constellation. With it, you can determine roughly in which direction you're going. Towards the North Star is north, and away from it is south. If it's on your right, you're going west, and if it's on your left, you're going east.

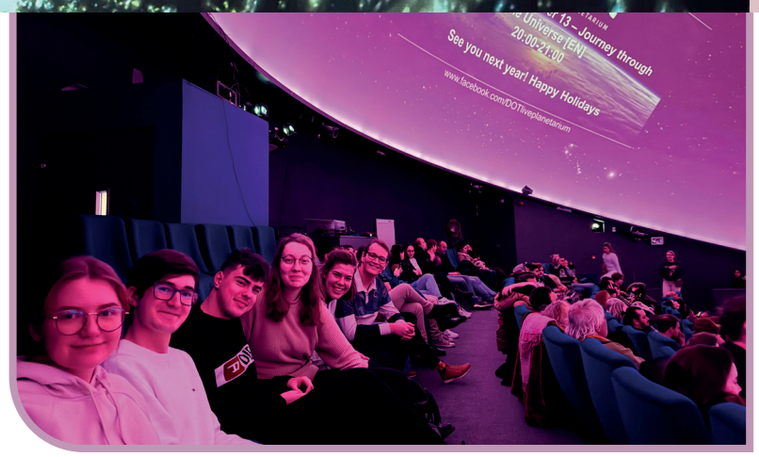
2. If you're unsure which star is the North Star, try to find the Big Dipper first. This is the constellation that looks a bit like a saucepan or a ladle. It consists of a line of stars connecting to a cup-like shape. The two stars on the edge of this cup, opposite the handle, are your pointers.

3. Start with the star on the bottom of the cup, follow an imaginary line through the other pointer star, and keep going until you come across a fairly bright star. This should be the North Star! You can confirm this by checking if you can see the Little Dipper constellation star with it.

4. Sometimes the weather is cloudy, you're not outside to look at the stars, or you can't find the North Star for any other reason. If you can't find a guiding light in the stars, maybe look for a guiding light on your phone and just stick to using Google Maps!



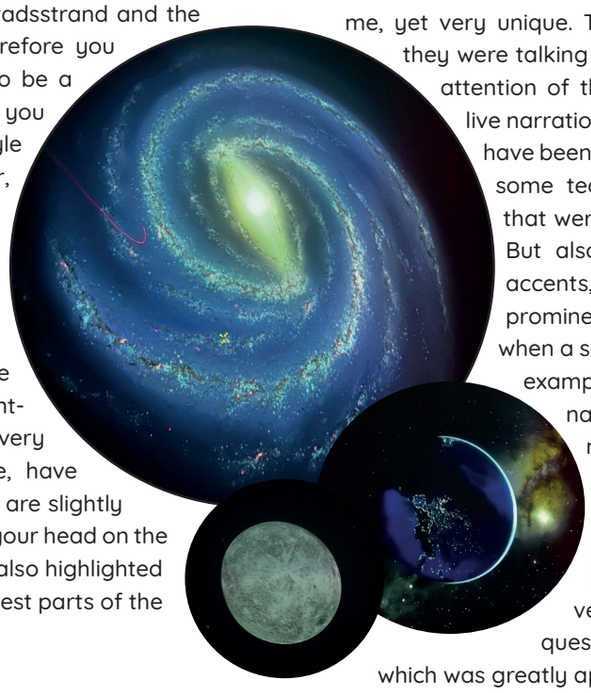
REVIEWING... DOT : LIVE PLANETARIUM



For this Astra-themed review we wanted to travel to space, to look at the stars, walk on the moon, and tell you all about our otherworldly adventure. However, as Idun couldn't subsidise a trip to the moon with SpaceX just yet, we had to settle for the next best thing, which was visiting the live planetarium from DOT Groningen. Therefore, our most critical lifeliners gathered on a starry evening next to Stadsstrand and visited the live planetarium show 'Journey through the universe' at DOT. So let's go through all the ins-and-outs of this experience and let the review guide you in your next Wednesday afternoon activity.

The accessibility

Before getting into the show itself, you'll have to get there. Which is the easiest thing ever. Everyone knows DOT, whether you've been there before or not, you for sure have seen the big white ping pong ball between the Stadsstrand and the UMCG. It's hard to miss the dome, therefore you don't need Google Maps, which I find to be a pro. Once you arrive at the building, you enter a very cute and comfy cafe-style restaurant. This is looking great, however, as we have not tried the food we won't make any recommendations along those lines. Passing by the restaurant you walk up towards the dome entrance. You are faced with a cinema-like room, shaped circular; the room is round, the screen is a 360 degree dome, and crescent-moon-shaped rows of seats. Very, very, very comfortable seats, they are soft, wide, have incredibly much space for your legs, and are slightly tilted backward so you can lie down with your head on the backrest. The seats were for this reason also highlighted by our panel of reviewers as one of the best parts of the experience.



The set-up

Once seated, the show can begin. And this was the moment when I realised my own ignorance, as I apparently did not know what a live planetarium meant. Unlike what I thought, there is no narrated movie playing, but instead, there are two astronomy students narrating the visuals live.The two girls first kindly introduced themselves to the audience, after which they continued to narrate the entire show through the use of immersive slideshow-like animations. This was unexpected for me, yet very unique. The girls knew very well what they were talking about and really captured the attention of the audience. A downside to a live narration is that at times the flow could have been smoother. Here and there were some technical issues with the sound that were luckily resolved very quickly. But also their own speech patterns, accents, and fluff words become more prominent when people talk live, versus when a scripted recording is played. For example, Violet pointed out that the narrators tended to undersell the magnitude of things by stating 'that's nice' or 'pretty cool' at things we would arguably find mindblowingly awesome. Nonetheless, the girls were very sweet and available for questions and chit-chat afterwards, which was greatly appreciated by the lifeliners.

The content

Starting on earth, we slowly zoomed out and passed the moon, our solar system, the Milky Way, and even went to further exoplanets in the universe. Along the way we got accompanying fun facts to enlighten us about the magic of the universe. This order made it really easy to follow along and made the hour pass without noticing. Time flies when you're having fun! Although we were highly concentrated on the story, Marit pointed out that some of the information they provided was already known by most, but that she still learned some new interesting facts. This was agreed upon by Gintare, who pointed out that hardcore astronomy lovers might find the provided information not detailed enough, but for a more general interested audience, it is very informative and fascinating. The visuals are beautifully

Every day, we have to make hundreds of little choices. Some affect our future, and some don't. We want to make your life easier by taking away the stress you face when making insignificant choices. We gather our most qualified and opinionated members to review for you! This edition we took on the hard task of tasting a classic Dutch treat. Buckle up and get ready for Lifeline's iconic review!

CECILE BRUIL

"A VERY RELAXING EXPERIENCE" -VIOLET

"A VERY IMMERSIVE SHOW" -CECILE

animated, really making you feel like you're floating through the stars from planet to planet. Sometimes with some aggressive comets, Filip noticed the stars and rocks that fly with rapid speed right next to your face. These jumpscares keep you on your toes, which is great because the seat comfort lends itself a bit too well for an afternoon nap.

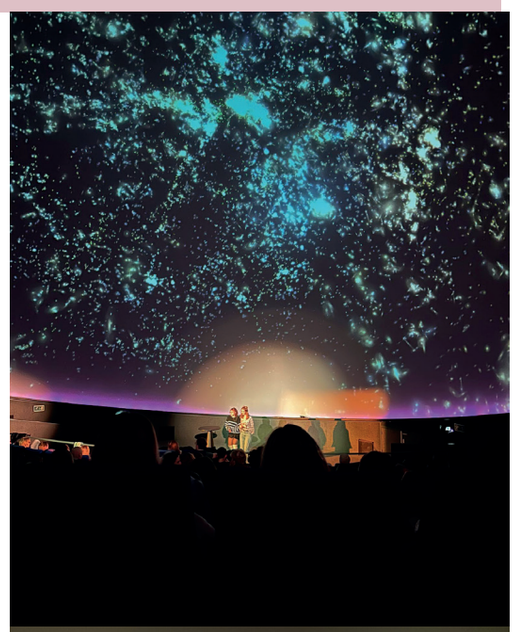
The cost

The entire show takes about 50 minutes, with some time at the end to approach the narrators for further questions. For this hour of entertainment, they ask a general admission fee of €7,50 per person. There are no special student tickets to make it cheaper. In general, the lifeline panel found the price to be just right, but we agreed that it definitely should not get more expensive. It's a decent price for an evening out, gaining knowledge, and having a unique experience with friends.

When the main narrator, who fittingly had space buns in her hair, told us about upcoming shows, which are themed more around exoplanets and stuff further away from our Milky Way, we were intrigued and some of us showed interest in revisiting DOT once the new shows are out, which proves the repeatability of this activity to definitely be present.

Concluding thoughts

All in all we really liked this experience, it was a fun night out with a unique experience where we even learned something new. Rating this show therefore resulted in an almost unanimous score of four out of five stars. So if you have been living in Groningen for years or just a couple of months and have never visited the big white dome, definitely give it a shot! Look at the website to find the show you find most interesting and gather some friends for a guaranteed fun evening.



-RAZVAN

"WE LITERALLY TRAVELLED THROUGH SPACE" -GINTARE

"THIS WOULD BE AMAZING STONED" -MARIT

"VERY COMFY SEATS" -FILIP

BAS EN Z'N BEESTJES

BEASTS BY BAS

BAS VAN BOEKHOLT

Since the dawn of time, people have looked up at the night sky, making up stories about different constellations they saw. I am no astronomer, but the one constellation I am always able to recognize, as long as I am in the Northern Hemisphere, relates to the Beestje of this edition. This animal is so special that it not only gets a place among the stars but even has both the North and South Pole named after them. This edition, let me introduce you to Ursa Major, better known as the great bear!

Bears are carnivoran mammals belonging to the family of Ursidae, which consists of only eight species. Their habitat ranges from the cold North Pole going all the way down the Americas to the northern border of Argentina. Their global habitat carefully ignores Africa but stretches as far south as the equator with the sun bear in Indonesia. The reason they were able to range so far is their flexibility in both diet and lifestyle. One of their main strategies is a sort of hibernation, called "torpor", which can last up to seven months. In this torpor state the bears can stay in the same position for over a month. Other mammals would lose bone matter through osteoporosis, but not the bears; they are able to reuse the calcium in their bones, staying as strong as they were before winter. During this sleep, they don't eat, drink, urinate or even defecate. To stop these last two bodily functions, they turn their urine into protein and block their colon with an anal plug made of poo, hair, and "filling material". The only thing that does come out of their body is a young bear cub, as female bears are known to give birth in their sleep. Luckily, they will quickly wake up from the loud growls of their offspring. Their offspring are extremely small and - not counting some marsupial species - bears have the smallest offspring compared to their adult body size. The panda is the most extreme case, having cubs that are only 1/900th of its adult body size. For comparison, that would be like us humans getting a baby smaller than the size of one die.

One of the most famous species of bears is the giant panda, which is an enigma by itself. Some of their anatomy is adapted specifically for living primarily on bamboo, giving them an elongated wrist bone, which they use as a thumb. However, their digestive system is still that of a meat-devouring carnivore and is not made to break down the cellular walls of bamboo. That is why pandas need to eat all day long and then spend the rest of that day lying down to digest it. Additionally, this diet gives them a sort of chronic diarrhoea, so one panda can go "number two" up to forty times a day. This apparent contrast makes it difficult for researchers to explain why the panda ever switched to a vegetarian lifestyle in the first place. However, one recent study gives a possible explanation. They found that pandas lost the gene that makes them taste umami, making raw meat less tasteful and, therefore, plants more delicious.

Pandas are not the only ones with a picky food preference. Only very hungry brown bears will eat a whole salmon. They usually only pick out the good stuff: brains, skin and, of course, the eggs. However, polar bears are even weirder, where they seem to go wild for toothpaste. There have been known cases where one polar bear ransacked whole expeditions just for a tube of Colgate. While this does help their teeth, their lifestyle is not good for their liver. If you ever get offered, never accept a piece of polar bear liver. It contains so much vitamin A that a pound can kill you and smaller quantities will likely give you a headache, hair loss, and massive diarrhoea. Moreover, these white giants are actually not white at all. Their skin is black and their fur is hollow and see-through. It is only through the refraction of light in their hollow transparent hairs that they appear white. To make things even more confusing, there are actually white bears, but they are black bears. In British Columbia, there is a population of black bears of which 10-25% actually have white fur. On top of that, there have been recent hybridizations with grizzlies which are aptly named Grolar or Pizzly bears. If that isn't a great word for Scrabble, I don't know.

All in all, bears are amazing. They show the breadth and flexibility evolution has to offer, all within one family, with each family member having their own particular kink. The spectacled bear, for example, has an elongated lip to suck up termites and ants, and polar bears are technically recognized as marine mammals. And then you have the twin brown and black bears, which for one you have to play dead, but for the other, you have to stand up and make noise. Wherever bears live, they are a force to be reckoned with. Maybe that is why Zeus put them in the heavens: to remind us humans that while we might feel invincible, there is always someone above us to watch out for.

COLORING PAGE

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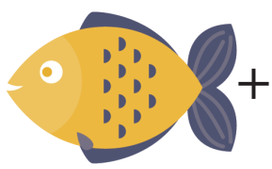
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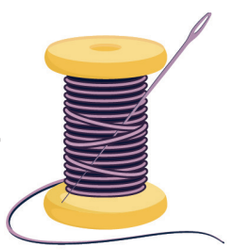

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The previous Iduzzle was won by **Gosse Meijberg**. Congratulations! They have won a marvelous prize, which they are very happy with! Would you like to be mentioned here in the next Lifeline? Please submit your answer to the Iduzzle to redactie@idun.nl before March 15th.

Answer to Iduzzle 73: Sometimes it takes a good fall to really know where you stand