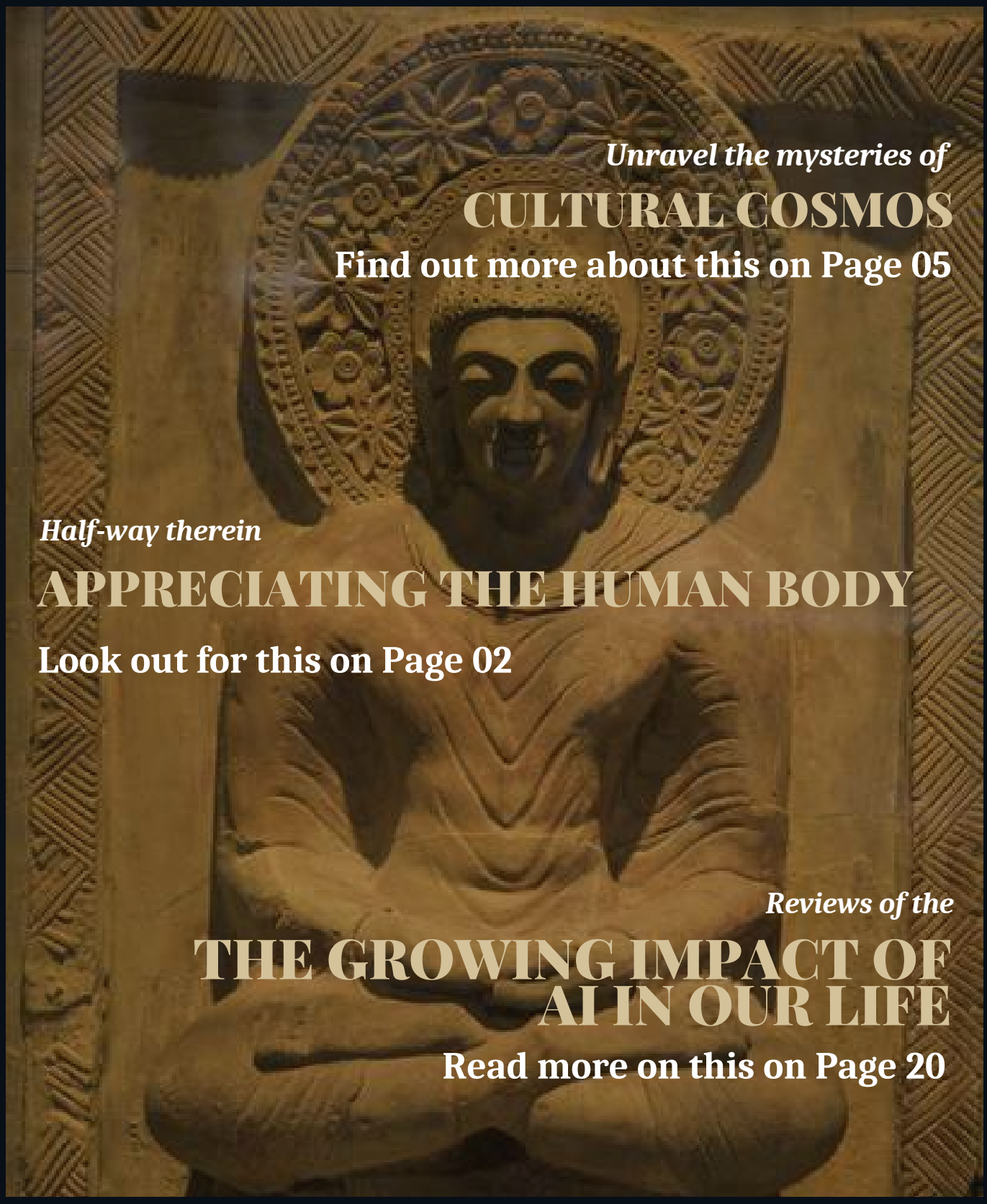
JUNE 2023 | ISSUE NO. 6

KARYOUS



Unravel the mysteries of

CULTURAL COSMOS

Find out more about this on Page 05

Half-way therein

APPRECIATING THE HUMAN BODY

Look out for this on Page 02

Reviews of the

THE GROWING IMPACT OF AI IN OUR LIFE

Read more on this on Page 20

"The Universe is made of stories, not of atoms."

- Muriel Rukeyser

EDITOR'S NOTE

It gives me great pleasure to introduce the Sixth Edition of KaryoUS- The Science Magazine . This magazine is the product of a collaborative effort of students across 6 Shiv Nadar Institutions- Shiv Nadar School Faridabad, Noida and Gurgaon, Vidyagyan Bulandshahr and Sitapur, and Shiv Nadar University, Greater Noida.

For this edition, we have compiled a collection of various facts and knowledge on the topic 'Indian Mythology and the Science Behind It', which is delivered through snippets of news, articles and book reviews. Along with that, you will find the latest news in all fields of science, and also get to know about the various STEM programmes that Karyous has undertaken recently.

Just a reminder that KaryoUS releases every quarter, so you know when to expect the next issue. Every issue has a new theme, so you can look forward to a vast variety of topics to read articles about.

We sincerely hope that you all enjoy reading this, as much as we enjoyed collaboratively creating it. For future editions we look forward to greater contributions on various topics from all of you, including faculty members. This will help us reach the full potential of the project. With this, we continue persevering to spread facts and knowledge in a medium that is accessible to all.

Thank You!
Team KaryoUS

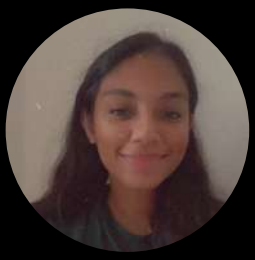
Written by Suhana Gupta

MEET THE TEAM

"The fundamental reason for publishing the Science magazine "KaryoUS" is to integrate and share the scientific ideas from a diverse set of students, age groups and in the process, bring about scientific awareness among inquisitive minds. I hope the readers will appreciate our sincere endeavour. I sincerely thank the editorial Team (students and faculties from SNS, Vidyagyan, and SNU) for their valuable contribution in bringing out the most informative maiden edition."

- Mrs. Vinita Sharat, Coordinator STEAM/Science, Shiv Nadar School

Coordinating School - Shiv Nadar School, Faridabad



Suhana Gupta
Grade 12 (Lead Student Editor)

Lead Teacher
Ms. Sakshi Ganotra

Teacher Editor
Ms. Mitu Majumdar

Shiv Nadar Institute of Eminence

Sneha Chaurasia
B.A. Research Sociology
Class of 2024

Teacher Representative
Ms. Vinnie Mathur

Shiv Nadar School, Noida

Nirali Singh
Grade 12

Teacher Representative
Ms. Karishma Sharma

Other Team Members
Angad Singh Marwaha , Praneel Munshi and Sunishka Singh

Shiv Nadar School, Gurgaon

Tamanna Chandna
Grade 12

Teacher Representative
Mr. Manoj Kathuria

Vidyagyan School, Bulandshahr

Himanshi Dubey
Grade 12

Teacher Representative
Mr. Gulfam Ahmed

Other Team Members
Saumya Chauhan, Gaurav Yadav, Aditi, Sachin and Sejal

Vidyagyan School, Sitapur

Piyush Gupta
Grade 10

Raj Dwivedi
Grade 11

Vivekanand
Grade 11

Teacher Representative
Dr. Mayank Agnihotri

KARYOUS EDITION 6

NARAYAN NARAYAN'- THE STORY OF TELEPORTATION

By AYAAN ABBOTT, Shiv Nadar School Gurgaon

Teleportation is the transfer of matter and energy from one point to another instantly without transversing or changing the physical space between them. This has always intrigued the modern man. There are mentions of teleportation in various Hindu scriptures and mythological tales. Teleportation was famously used by a devotee of Lord Vishnu, named Narad Muni. Narad Muni was a messenger to all gods. Narad Muni had a 'Veena' in his hand and used to spread the teachings of various gods around the world. Lord Vishnu is also known by the name Narayan. Whenever Narad Muni wanted to go from one place to another, he just had to call out Lord Vishnu's name twice. This instantly teleported Narad Muni in a fraction of a second.

Devotees of Hindu saints were very familiar with the miracle of teleportation even before western science fiction stories were published. Lord Krishna himself had executed teleportation many times, according to Bhagavatham (a Sanskrit book on Lord Krishna's life story). Krishna appeared at hundreds of places at once with the Gopika girls. When his classmate, Sudama, met him on a friendly visit, Krishna transferred a lot of wealth, building, and dresses through teleportation to him.

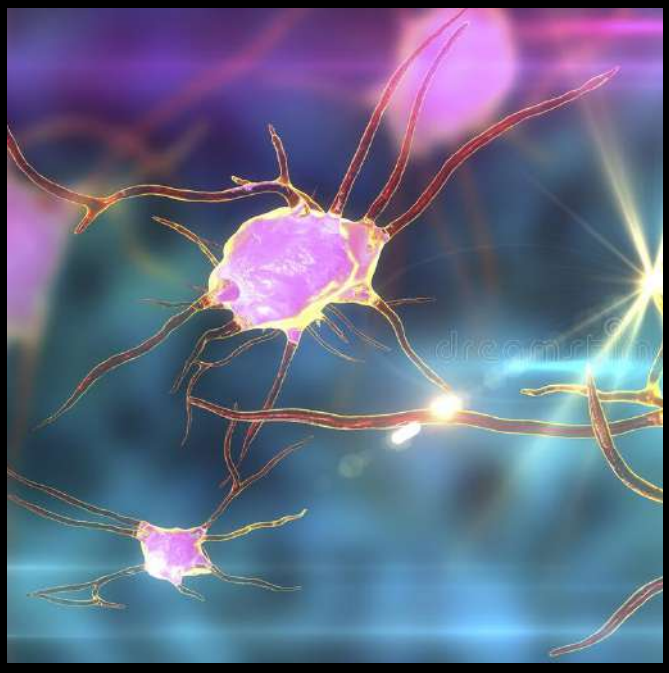
While the ancient writings mention the use of teleportation by several gods and goddesses, the mechanism, technology, or method used to teleport from one place to another is not mentioned in them. It has been left to the imagination and minds of us common people to find out the way to use this technique of traveling instantly.

Today, scientists also agree that teleportation is possible in the modern world. After a lot of research in labs, inventors and scientists together have discovered a way in which humans like us can teleport. They say that the process is based on the phenomenon of transferring our body into a series of waves and transferring those waves from one place to another without any physical contact. This method of teleportation has not been verified or tested until now. In my opinion, this method of teleportation is risky and may not be suitable for the human body. Common people also don't have enough technology or money to actually carry out this method on a daily basis. So, teleportation is still not an accessible method for traveling to people today. However, scientists are working hard to find out the way people can teleport easily, just like they did in ancient times.

APPRECIATING THE HUMAN BODY

By Shiv Nadar School Faridabad

From single microscopic cells to a whole working structure that keeps us alive today, the human body is a sight to behold. Over millions of years, the human body has undergone numerous changes that have transformed it into what it is today. Macroscopic or microscopic, our bodies have every little bit to perform every little function that affects us in daily life. The chemical reactions take place in our brain and release endorphins resulting in us being happy, or the receptors in our brain sending signals so that one of our muscles is stimulated producing reflexes. These are all examples of how efficient our body is. It is a mystery, how all these complex, intricate, and fine parts come together to form a living, breathing being.



One example that demonstrates the complexities of the human body would be the nervous system. The nervous system transmits between the brain and the rest of our body which makes it responsible for controlling the ability to see, think, move, breathe, and more. Our body performs all these tasks in a blink of an eye. While reading this article, your nervous system would have gotten electrical signals from the photoreceptors located in your eyes. It would have converted the signals into fully functioning words that one would be able to comprehend. All of this would have happened without you even knowing it happened in the first place. This alone shows the efficiency and speed of our brain and body.

Untangling and understanding the human body was and is one of the hardest tasks to accomplish. While plenty is left to uncover about the human body, substantial and invaluable contributions have been made to the advancement of medical science. Back from the first surgery in 6500 B.C. where people would drill or cut a hole through the skull to expose the brain to the advancements being made in oncology, or the making of the Covid-19 vaccine. Unthinkable technology has been built to treat problems that decades ago would have been beyond belief. For instance, inserting a machine inside the heart to regulate its function or editing genes to prevent life-threatening diseases such as cancer is a novel discovery.

School of Fine Art, History of Art and Cultural Studies, University of Leeds

The human body has been and will be one of the most beautiful yet mysterious machines ever. Due to the diligence and perseverance of those in the scientific field, numerous discoveries and advancements have been made which have changed the way we think and behave, as well as have a notable impact in the medical field. While we have acquired a great deal of knowledge, there is still a lot that we do not know. It is a very big accomplishment to have come this far. Just the thought of editing genes to prevent cancer, building technology or coming up with drugs to treat cancer, and having thousands of ways to treat and prevent different diseases. So far, with the development and advancement of technology as well as resources, the future of medical science will continue to progress, especially in the field of oncology and genetic disease the way the research is coming along. The most curious one could be wondering how one small, microscopic cell that is not even visible to the naked eye, ends up creating a whole process, the functioning body that continues to grow and develop all to keep us, or itself alive. One single cell, responsible for such a big, complex structure is unfathomable at one point. Imagine every little process or reaction that is taking place inside our body comes together to make sure that, in the end, we are breathing and alive.

AMAZING FACTS ABOUT INDIAN MYTHOLOGY AND THE SCIENCE BEHIND

By **Anushka Malik,** Shiv Nadar School Faridabad

Have you ever wondered why Indian people do " Namaste" when they meet someone? There is a scientific reason behind the "Namaskar" in Indian mythology. Joining both hands ensures touching the tips of all the fingers together, which are linked to pressure points in the eyes, ears, and mind. Pressing them together is said to activate these, helping us remember that person for a long time.

In India, for worshiping the god or goddess people go to the temple, and when they enter the temple, they ring the bell, but why? This is because the sound of it is said to clear our minds and help us stay sharp, keeping our full concentration on devotion. Moreover, these bells are made in such a way that the sound they produce creates unity in the left and right parts of our brains. The duration of the bell echo is ideal for activating all the seven healing centers of our body, clearing us of negativity.

Most often in Hindu culture when anyone sleeps with their head pointing north, they are suggested to sleep with their heads pointing towards the other direction as the human body has its own magnetic field, while the earth is a giant magnet. When you sleep with your head pointing north, your body's magnetic field becomes asymmetrical to the Earth's, causing problems related to blood pressure since your heart needs to work harder in order to overcome this.

You must have observed Indian people not eating specific types of foods on some days. This is their fasting. But why do they keep fast, have you ever thought about this? Since Ayurveda sees the basic cause of many diseases as the accumulation of toxic materials in the digestive system. Regular cleaning of toxic materials keeps one healthy. By fasting, the digestive organs get rest and all body mechanisms are cleaned and corrected.
Why do women wear bangles in Indian mythology? There is a very simple scientific reason behind this which is that bangles cause constant friction with the wrist which increases the blood circulation level, Furthermore, the electricity passing out through the outer skin is again reverted to one's own body because of the ringed shape bangles.
These are some of the amazing facts about the science behind Indian Mythology.

CULTURAL COSMOS

By **Raj Dwivedi,** Vidyagyan School Sitapur

Cosmos is the multiplex and spick and span composition of bodies. We define cosmos in every aspect possible e.g. spirituality, religiously, philosophically, and sometimes as a complete form of nature. The term cosmos is often used in the context to a particular space-time continuum within a postulated multiverse.

In theology, the cosmos is referred to as the heavenly bodies such as the sun, the moon, and the stars. The concept of the cosmos has played a very important role in Christendom since its very inception. It was heavily used in the New Testament. (It occurs more than 180 times!) Eastern and western thoughts deferred greatly in their understanding of space and the organization of the cosmos in the early years. The Chinese saw the cosmos as empty, infinite, and intertwined with the earth whereas the Europeans were deeply influenced by the views of Ancient Greeks. They believed that cosmos was divided into multiple planes, which were finite and filled with air.

The only fact that the Chinese, European and other ancient societies agreed upon was that the cosmos was essentially a group of celestial bodies observed beyond the earth. This understanding formed the basis for astrology, which in due course of time affected art, architecture, myths, and science.

Indians had different views on the cosmos. They believed in a cyclic universe and others believed that time is endless and space is infinite. Indian scholars believed that there are three types of spaces – psychological, physical, and infinite.

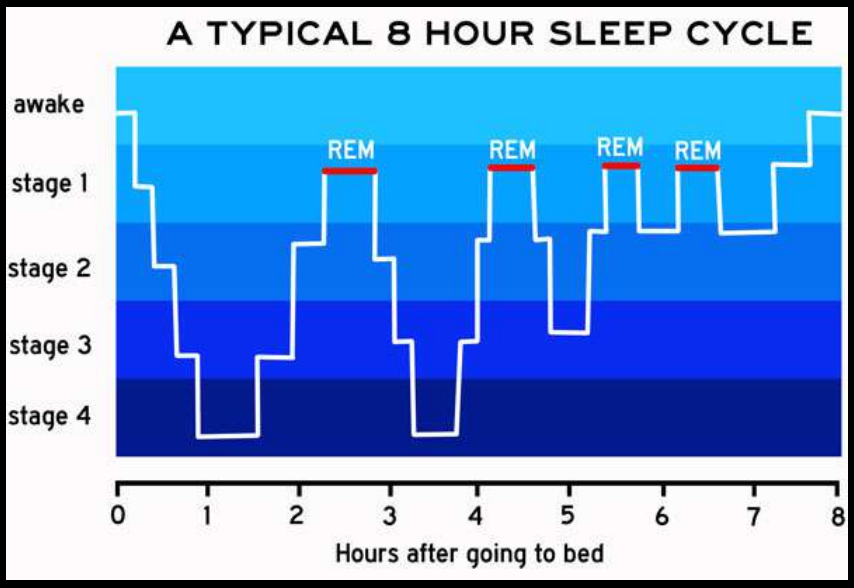
There is a lot that has been discovered, lots, and many things that are too discovered about this ever-changing cosmos. Every discovery about the cosmos links us to our source of existence.

THE ANCIENT INDIAN SLEEP CYCLE

By **Akshaj Khetarpal**, Shiv Nadar School Gurgaon

In the ancient world, sleep was an important part of life. Many civilizations understood its significance. Even, scientists like Galileo Galilei and Albert Einstein emphasised on its relation with the birth of ideas and thoughts.

In India, it has been known since many millenia that regularity in following a schedule is the key to keep the mind and body in sync. We, Indians, had developed multiple schedules which were enforced on the common people using godly and fictitious stories for their benefit. One of the many schedules is the "Indian Sleep Cycle", also known as "Brahma Muhuruta". It translates to "The Creator's Time".



According to it, we should sleep for at least 8 hours and wake up during the period 1 hr 36 mins before sunrise and 48 mins before sunrise. The science behind it is that it is the time when the surroundings are quiet. The last REM or Rapid Eye Movement cycle ends, which is a deep state of sleep, in which dreams are fabricated. These cycles become longer and longer after each cycle. When we wake up, and start our day early, it gives some time to the brain to process and relate the metaphorical warning like lucid dreams to the real life.

This cycle benefits our mind, body, social and work life by giving us time for self-care and understanding ourselves. It also reboots the circadian sleep clock which is the periodic 24-hour biological cycle. The human brain looks as if it is bound by the laws of nature and science but it might be a different universe altogether that needs maintenance for proper functioning.

MAHABHARATA: THE STORY VS SCIENCE

By SreeLaasya.B, Shiv Nadar School Gurgaon

Mythological stories are usually seen as history or even fiction by people but there is a certain science to it that has some surprising results that have been recently discovered. The Mahabharata is one of the most well-known and celebrated stories of India, fabled for its unique twist on justice and the teachings of hindu dharma. The general overview of the story is about how 5 brothers face injustice by their family and the great war against their cousins that teaches them "and us!" how our actions must be judged by the situation. The story is a philosophy for many but there are some parts of the story that science contradicts. The evidence of this war is very much there but how it all went down isn't exactly clear. Let's try to decode this together, shall we?

Swords and weapons? Or more?

The Mahabharata has been reviewed by historians and many others when the news of recent discoveries of green glass and many radioactive samples were said to be found at certain excavation sites in India relating to the Kurukshetra war. Let's get into the science behind it, Green glass is said to form when sand melts at very high temperatures, common in **nuclear explosions.** So if you are thinking what I am, did nuclear technology evolve back in 200 BCE? If not, what could have caused such an explosion and who was involved?

Another point to consider is the death toll of the war. In total, it amounted to around 166 crores in a matter of just 18 days, this doesn't seem to be possible considering the type of weapons they had so there must have been a way to quickly eliminate the masses. The devastation found at the site of Mohenjo Daro compares exactly to Nagasaki - ergo, nuclear weapons? We're just speculating here, nothing is stated.

The birth of the Kauravas

When I was younger, I used the existence of the 100 Kauravas as a reason to believe that the Mahabharata was just a folktale and if you still do the same, I have something that should change that perspective of yours! As per Dr. B.G. Matapurkar, the Kauravas "were products of technology that modern science has not even developed yet". As per the details of the Mahabharata, the Kauravas were created by splitting a single embryo into 100 parts and growing in a separate container. He says,"they not only knew about test-tube babies and embryo splitting but also had the technology to grow human fetuses outside the human body".

Ramsethu - a bridge or a masterpiece?

The Ram Sethu is termed to be an 'engineering masterpiece'. Looking at it in a scientific POV, the bridge wasn't just created by writing lord Ram's name on it but after careful observation of it, it was found that multiple engineering methods and techniques were used to create this bridge, that too in 5 days by a workforce of millions of Vanaras.

Conclusion

I guess not everything in the book is given in its true form and a few of the important details were missed. Many questions arose in my mind as I was writing this but I guess they'll have to stay unanswered unless science finds cold hard evidence or someone time travels to tell us the truth about what actually happened in the Mahabharata that led to the Kurukshetra war. If you have reached till the end, thanks a lot for reading my findings on the relation between science and mythology!

THE LIFE CYCLE OF STARS

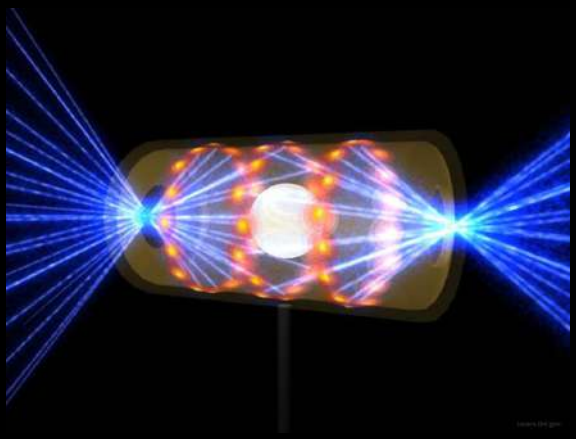
By **Alok Yadav**, VidyGyan School Siatpur

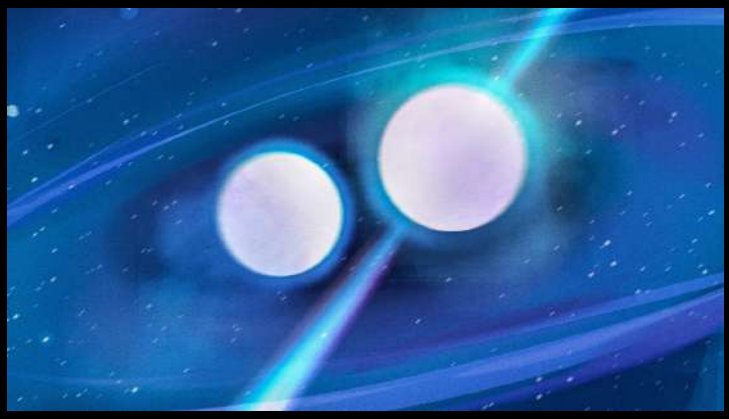
Everything which takes birth must die, whether a big organism like blue whale or microorganism like bacteria. No one can deny the truth of death. And every living organism has some life cycle. In the junior classes we have read about the life cycles of many organisms like frog, fish, butterfly, but have you read about the life cycle of a non-living thing? No. So, we are going to get informed about the life cycle of a star.

When we step out under the open sky during the night, we see a mighty, marvelous, and magnificent view of stars. While watching those views of night sky, a question comes to our mind. “How stars are formed?” When we ask this question to our grandparents, then they say that anyone who die becomes a star in the sky. We do not know whether they are right or not. But let us know what science has to say about this.

According to science the mass of a star determines its life span. The life cycle of a star decreases with increasing mass. The amount of substance present in a star's nebula, the enormous cloud of gas and dust from which it emerged, determines the star's mass. Over time, gravity draws the hydrogen gas in the nebula together, and it starts to spin. As it spins fast, the gas heats up and develops into a protostar. Eventually, the temperature rises to 15,000,000° and nuclear fusion begins in the cloud's core. The cloud starts to shine brilliantly, shrinks somewhat, and stabilizes itself. For millions to billions of years to come, it will continue to shine at this stage as a main sequence star. This is the stage of our sun is at right now.

As the main sequence star glows hydrogen in its core is converted in helium by nuclear fusion. When hydrogen supply in the core begins to run out and the star is no longer generating heat by nuclear fusion. The core become unstable and contracts. The outer shell of star which is still mostly hydrogen starts to expand. As it expands, it cools and glows red. The star has now reached the red giant phase. It is red because it is cooler than it was in the main sequence star stage and it is a giant because the outer shell has expanded outward. In the core of the red giant, helium fuses into carbon. All stars evolve the same way up to the red giant phase. The amount of mass a star has determines which of the following life cycle paths it will take from there.





For low-mass stars, after the helium has fused into carbon, the core collapses again. As the core collapses, the outer layers of the star are expelled. A planetary nebula is formed by the outer layers. The core remains as a white dwarf and eventually cools to become a black dwarf.

On the right of the illustration is the life cycle of a massive star (10 times or more the size of our Sun). Like low-mass stars, high-mass stars are born in nebulae and evolve and live in the Main Sequence. However, their life cycles start to differ after the red giant phase. A massive star will undergo a supernova explosion. If the remnant of the explosion is 1.4 to about 3 times as massive as our Sun, it will become a neutron star. The core of a massive star that has more than roughly 3 times the mass of our Sun after the explosion will do something quite different. The force of gravity overcomes the nuclear forces which keep protons and neutrons from combining. The core is thus swallowed by its own gravity. It has now become a black hole which readily attracts any matter and energy that comes near it.

I hope you all liked to know about the life cycle of a star and you will be interested to know many other life cycles of non-living thing. So, keep exploring and keep learning.

TALES FROM THE MAHABHARATA AND THE SCIENCE BEHIND IT

By **Apramey Sarin,** Shiv Nadar School Faridabad

At some point in our lives, we all must have watched the epic tale of Mahabharata where the Pandavas & Kauravas fought in Kurushetra. It's considered one of the most epic battles in the history of India.
In this article, I am going to share some of the tales from Mahabharata and the Science behind it.
TALE I: "Bhima Visits Nagaloka"
How poisoned and drowned Bhima got back to life after getting bitten by several poisonous snakes?

The five sons of Pandu and the 100 sons of Dhritarashtra grew up in mirth and merriment at Hastinapura. Bhima excelled them all in physical prowess and hence Duryodhana was jealous of him.
Duryodhana and his brothers planned to throw Bhima into the Ganges, imprison Arjuna and Yudhishthira, and then seize the kingdom and rule it. So Duryodhana went with his brothers and the Pandavas for a swim in the Ganges in Gurukul.
After the sports, they ate food and slept in their tents after being exhausted. Bhima's kheer had been poisoned by Duryodhana, so after eating it he fainted and then Duryodhana slyly rolled him into a carpet and threw him into a river and he drowned. Then, poisonous water snakes bit his body yet Bhima came out of the river alive!!
SCIENCE:
The poison used by Duryodhana was a vegetable poison named Kaalkoot, as it was the most toxic poison back then. Vegetable poisons were called “Sthavar Visha” whereas the poisons produced by animals were called “Jangam Visha”. In this case, the Jangam Visha was snake venom, which was injected inside Bhima through several snake bites. In the Vedas, it is written that the gati(action) of Sthavar Visha and Jangam Visha are opposite in nature.
Hence,
“The poisonous food Bhima had taken was counteracted by the snake poison and he came to no harm.”
Tale 2: "Krishna and Ashwathama"
How can a Brahmastra be stopped?

During the war, when Ashwathama accidentally killed Draupadi's five sons for the Pandavas, the Pandavas and Krishna wanted revenge. So, they went to search for him and found him at Sage Vyas's Ashram. Aswathama, to protect himself, attacked them with a Brahmastra and then Krishna also asked Arjun to launch a Brahmastra back towards him which he did. Had those two collided, the earth would've exploded, so Sage Vyas decided to stop both of them with a Brahmadhanda.

SCIENCE:
Brahmastra is quite identical to the modern nuclear weaponry
To stop a Brahmastra you need a Brahmadhand. And in the modern day, a Cadmium rod is used in a nuclear reactor to keep the fission reaction under control.
"A Cadimum rod absorbs excess neutrons and reduces the rate of fission reaction in a nuclear weapon in the same way a Brahmadhanda is used to stop the destructive effects of a Brahmastra."
Hence, Brahmadhanda= Cadmium rod
Brahmastra= Nuclear Weapon
Effect of Brahmastra= Nuclear fission reaction

Tale 3: "Abhimanyu and the Chakravyuh trap"
How did brave Abhimanyu die in the Chakravyuh trap?
Abhimanyu was the son of Arjun and Subadhara and the nephew of Krishna. He was a very brave warrior. While in Subadhara's womb, he heard Arjun telling Subadhara the techniques of the Chakravyuh but unfortunately halfway through, Subadhara fell asleep so Arjun stopped telling her the techniques. Hence, Abhimanyu only got to hear how to get in a Chakravyuh but not how to come out. He never got the opportunity to learn how to come out and this is the reason for his death in the Mahabharata. Abhimanyu was going to enter the Chakravyuh with the Pandavas right behind him, but the moment he entered, a Kaurava closed the Chakravyuh so that the Pandavas couldn't enter. This cost Abhimanyu's life as his chariot wheel broke down and at that moment all the Kauravas attacked him at once and killed him.

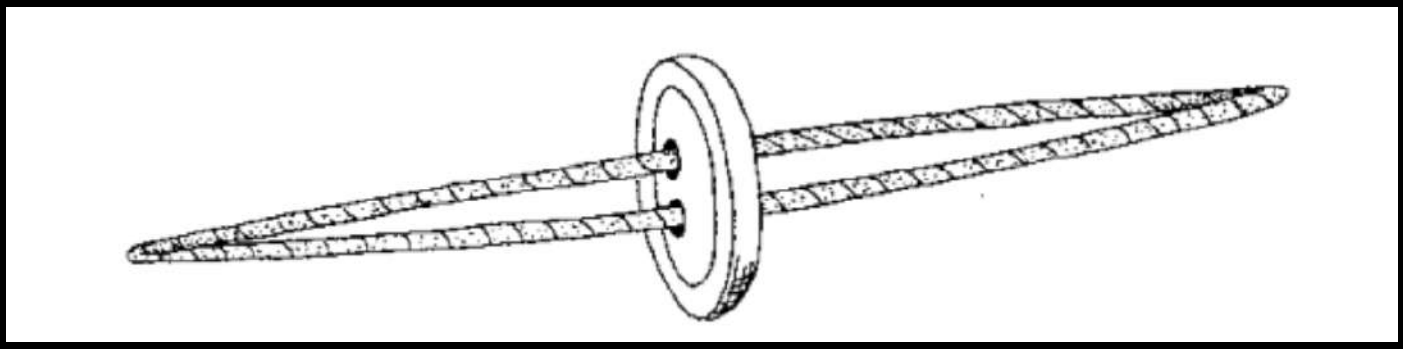
Science:
Scientist Annie Murphy Paul has devoted her life to studying foetal origins, a field that measures how the outside world influences the developing baby's physical, mental and even emotional well-being for the rest of its life. She has given a TED Talk which reveals the significance of this field of study emphasizing the fact that the foetal journey is just as important as early childhood in shaping the personality of the child. Her book, ‘Origins’ talks about what we learn even before we are born. Hence,"Abhimanyu learnt only how to get in a Chakravyuh as, in the womb, he could only listen to the part until his mother was awake."

TOY...ING WITH SCIENCE!

By **Rishabh Burman,** Shiv Nadar School Faridabad

As children, we have all played with toys that have amused, enamored, fascinated, and awed us with their workings. Simple toys, from wind-up clocks to springing frogs, are the most brilliant examples of fundamental scientific concepts.

In this article, we will look at one such toy known as a "button toy," which has been around forever!



HOW A BUTTON TOY WORKS

To play with this toy, place one finger on each end of the loop and twirl the button until the string twists. Once the string has been twisted, jerking both fingers away from the button causes the toy to move. The string unwinds before winding back up in the opposite direction. Once you've mastered the motion, you can keep it up for a long time. It may not sound like much fun, but the button toy is more addictive than you would want to admit!

THE ‘TECHNOLOGY’ BEHIND THE TOY

When the string is wound up, it stores potential energy, an energy that can be converted to motion at some time in the future. When you jerk on the string, the potential energy is converted to motion, or, to be precise, kinetic energy: that is, the button spins in the other direction. Once the string has unwound, the button continues spinning, and the kinetic energy begins changing back into potential energy.

FROM MAGICAL MERRIMENT TO MALADIES

- Malaria is a disease caused by a parasite. The parasite is spread to humans through the bites of infected mosquitoes. In 2020, there were estimated 241 million cases of malaria worldwide.
- The estimated number of malaria deaths stood at almost ¾ of a million in 2020.
- The WHO African Region carries up to 95% of malaria cases and 96% of malaria deaths worldwide. Children under 5 accounted for about 80% of all malaria deaths in the Region.

Detecting malaria-infected blood cells are extremely difficult since only a few out of the millions of red blood cells in a single drop of blood become infected. In order to diagnose malaria, centrifuges must be used.

THE CENTRIFUGE

A **centrifuge is a machine used to separate various components of a fluid** by using centrifugal force. Spinning the fluid at high speed within a container separates fluids of different densities. Denser substances and particles move outward and materials whose densities are lesser are displaced and moved to the center.

Why is the centrifuge important?

Centrifuges are used to **separate DNA, cells, and viruses** which is why they are used a lot in science.

Why are centrifuges not feasible?

Centrifuges cost thousands of dollars and run on electricity. Many clinics around the world can’t afford these powerful spinners which is why they can’t perform a lot of tests.

WAIT…WHY DID WE TALK ABOUT THE BUTTON TOY?

Legend has it that Newton discovered ‘gravity’ when an apple fell on his head. So, it shouldn’t be surprising to know that this same ‘toy’ has inspired one of the most innovative scientific innovations.

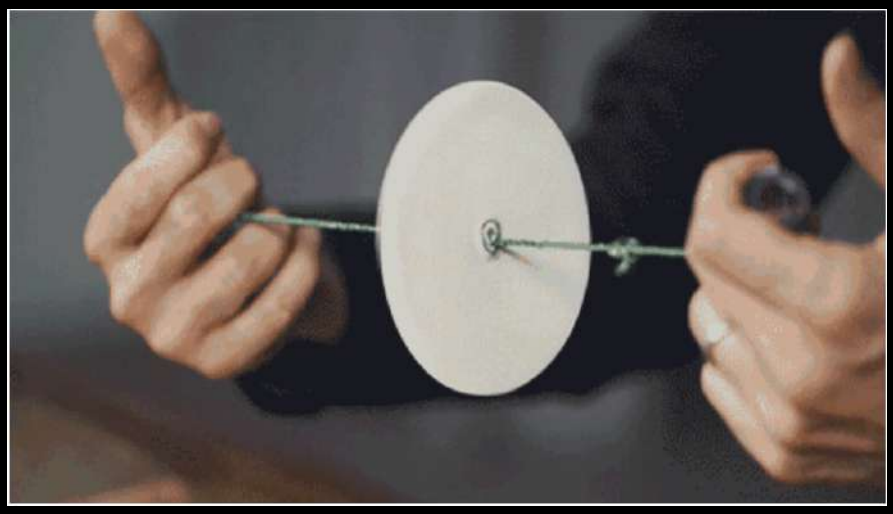
DR. MANU PRAKASH - The Paperfuge

Stanford bioengineer, Dr. Prakash decided to take it upon himself to find a solution to help save the lives of the millions of people who fall victim to diseases like malaria and HIV because of a lack of proper medical infrastructure.

Paperfuge, like the piece of lab equipment it's named for, the centrifuge - can spin blood samples at thousands of revolutions per minute. But unlike a centrifuge, the Paperfuge doesn't need electricity, complicated machinery, expensive replacement parts, or even much money to operate.

Inspired by the design of a millennia-old button toy, the Paperfuge is a hand-powered centrifuge made of paper, string, and plastic that can whip blood samples in circles at up to 125,000 rpm. That’s enough speed to separate plasma from a blood sample (a standard diagnostic procedure) in 90 seconds. To compare, a StatSpin MP centrifuge---the kind of commercial centrifuge that one can find in diagnostic and research labs around the world--tops out at 15,800 rpm and can take up to two minutes to perform a plasma separation.

Every paperfuge has two discs, stuck together by bits of Velcro which sandwich and hold two sealed drinking straws. To spin some liquid, you need to inject it into thin plastic tubes and load these into the straws. This is all it takes to detect the killer parasites, all it takes to save another life!



The importance of nurturing the childish excitement that science affords us is immense. So, the next time your parents throw a fit seeing you take apart your new toy, tell them that it is all for a good cause!!!

SCIENCE IN MYTHS

By Poorav Chandna , Shiv Nadar School Faridabad

Indian Mythology and How did it start?
Most Indian myths and legends have been derived from two of its epic poems, Mahabharata and Ramayana, as well as from the ancient Hindu texts, Puranas. The spellbinding stories in these books excite, enthrall and frighten readers at the same time.

SCIENCE IN MYTHS
Strange Narrations in Mahabharata
Certain narrations in Mahabharata defy any rational explanations.

Some examples are explanations about flying vehicles (Vimanas), Arjuna's travels in a flying chariot across the Himalayas, his visit to the Deva territories (ancient alien base-camp in Tibet?), his battle with the Nivata Kavachas (men in space suits?), Salwa's attack on the city of Dwaraka in a flying city named Saubha, the triple space-cities of Asuras that revolved around Earth in three circular orbits that were destroyed by Siva using a single projectile weapon, and many more.

Nuclear weapons

A few excerpts from the Mahabharata have caused doubts in the minds of historians, indicating the possibility of nuclear weapons being used in the Mahabharata war or post-war. This fire of suspicion has further been fueled by the recent discoveries of green glass and many radioactive samples in certain excavations, in India, which were associated with the Mahabharata war. Green glass is said to form when sand melts at very high temperatures prevalent in Nuclear Explosions.

An example of cloning

In Srimad Bhagavatam, it has been mentioned that when His Excellency Nimi was dead, the seers by the process of Mantha, (perhaps, human cloning in modern idioms) created a new baby from his dead body. The baby was called Janaka, as it was out of (mantha) cloning of his father. It was called Videha, as it was born out of a non-sexual process. As the baby was born out of a process of mantha it was called Mithila and his kingdom was also named Mithila. In another episode when Sita and Rama's son "Lava" was lost, Valmiki produced "Kusha" from grass, which is analogous to cloning. Again, the cloning he did was far more advanced than the cloning techniques of today. "Raktabij" is another similar citing, where every drop of his blood on earth produced his "Adult clone".

Embryo transfer and the birth of Balrama

Embryo transfer is done today as In Vitro Fertilization (IVF) or Zygote Intrafallopian Transfer (ZIFT) and in both processes' the embryo is developed outside the womb and then placed inside. When Kansa had killed six fetuses of Devaki and she got pregnant for the seventh time, the transfer of the fetus was arranged by Vishnu. He ordered Yogamaya to take out the fetus of Devaki and place it in the womb of Rohini, another wife of Vasudeva who then resided in the house of Nanda in Gokul.

Abhimanyu, A warrior in the womb

In Mahabharatha, when Subhadra was pregnant, Arjun told her the secret of entering the chakravyuh. When he was explaining the exit procedure, Subhadra fell asleep. Hence Abhimanyu learned the entrance procedure while in Subhadra's womb but did not learn the exit strategy. There was a time when people criticized this concept. But modern science says that it is very much possible. In his book "Right Brain Education in Infancy" Dr. Makoto Shichida, says, the right brain is active during gestation.

Live Telecast

As Dhritarashtra was blind but wanted to know what was happening at the battlefield, Krishna gifted Sanjay with "Dibya Drishti", so that he could see a “Live Telecast” of “Kurukshetra” and describe that to Dhritarashtra. “Dibya Drishti” is analogous to the modern television set in the sense that Krishna could not give it directly to Dhritarashtra but needed Sanjay.

Time Travel

If we look into ancient texts, we can find several references to time traveling. In Hindu mythology, there is the story of King Raivata Kakudmi who travels to meet the creator Brahma. Even if this trip didn’t last long, when Kakudmi returned to Earth, 108 yugas had passed on Earth, and it is thought that each yuga represents about 4 million years. The explanation Brahma gave to Kakudmi is that time runs differently in different planes of existence.

Distance of Earth from the Sun

Two lines of “Hanuman Chalisa" computes the distance of earth from sun with great simplicity and that too quiet accurately - जुग सहस्त्र योजन पर भानु, लील्यो ताहि मधुर फल जानू (Jug Sahastra Yojan Par Bhanu, Lilyo Tahi madhur fal jaanun). This means that Sun (Bhanu) is at a distance of Jug Sahastra Yojan (जुग सहस्त्र योजन- Distance Unit in Hindi.

INDIAN FOLKLORE AND TRADITION

By Samarth Kalra, Shiv Nadar School Noida

Even before the concept of modern sciences (performed by learned men in labs) came into the picture, scientific ideas in Indian mythology had been prevalent. There are many examples through which this can be proved, including the construction of huge temples in Thanjavur by ancient Indians or some classical examples like “Invention of Zero '' and “Discovery of Pushpaka Vimana”.

Mythology deals with legends on one hand and on other hand, mythology is related to truths and is based on proofs behind underlined principles. Now the question arises: how do mythology and science complement each other? The only simple difference between mythology and science is that mythology deals with the study of myths while science deals with the systematic analysis of knowledge through experiment.

In science, we study physical, organic, and inorganic elements of nature, and in mythology, we study characters that may have existed even prior to the existence of the human race. Some of the characters of mythology include God (s), Supernatural forces, and even human beings. It has also been proven to the extent that mythology played a very crucial role in the invention of science.

Mythology deals with primordial happenings and on the other hand science is related to concrete truths and proves an important difference between these 2 terms. Mythology can also argue with things that never happened while on the other hand, science cannot be argued without any significant proven base. It is a fact that every scientific truth is based on exercise while mythology is not as it is based on narration.

THE GROWING IMPACT OF AI IN OUR LIFE

By Yuvraj Verma, VidyaGyan School Sitapur

Artificial intelligence (AI) development has greatly increased in recent years. AI is now a necessary component of our existence, and it is having an exponentially greater impact on how we live. It is expected that AI will spread more widely in the upcoming years and significantly impact how we live. Healthcare, transportation, and entertainment are just a few areas of our lives where AI has already found its way into. Rapid disease diagnosis is made possible by AI, and patient-specific medical care can be provided.

AI can be applied to transportation to lessen traffic and streamline vehicle routes. AI may be utilized in the entertainment industry to develop more immersive experiences and offer tailored recommendations.

It's anticipated that AI will become much more prevalent shortly. AI-driven automation will proliferate, enabling computers to carry out formerly human-only jobs like data analysis, customer service, and product development. AI-driven autonomous vehicles will be widely used on our roads, and AI-powered robots will be able to assist in production. There are countless options. AI will also significantly impact our lives in terms of ease and personalization.

Based on a user's preferences and behavior, AI-enabled applications and services will be able to offer customized experiences. AI-enabled chatbots will be able to offer personalized customer care and make recommendations for goods and services based on the user's requirements. AI-driven automation will also improve the convenience of our lives by enabling machines to complete repetitive activities swiftly and effectively. Our social lives will be impacted by AI. Artificial intelligence-powered chatbots and virtual assistants will be able to converse with us more naturally.

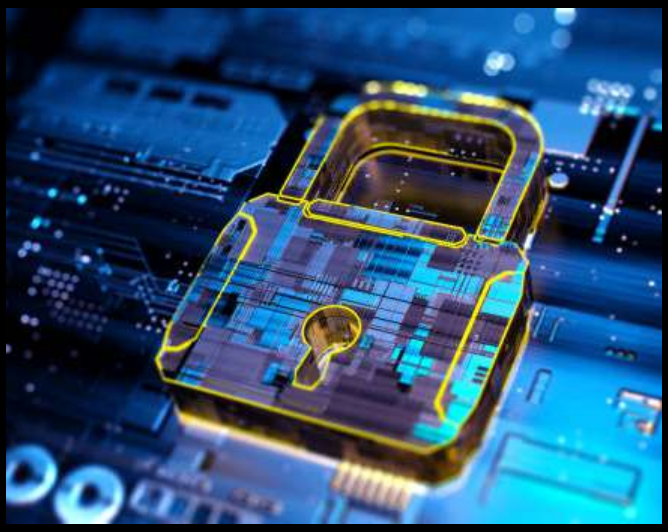
We will be able to make better decisions thanks to the information that AI-driven analytics will be able to give us about our behavior. In conclusion, AI has already reached its apex and will continue to permeate our lives. AI will significantly alter the way we live, work, and play while also enabling us to design more convenient and individualized experiences.AI that will be an integral part of our lives for many years to come.

CYBER - SECURITY

By **Udayaditya,** VidyaGyan School Sitapur

The technique of defending computers, networks, programmes, and data from online threats is known as cyber security. These assaults typically try to gain access to, alter, or delete sensitive data, demand money from users, or obstruct regular corporate operations. Cyber security has become a crucial concern for companies, organisations, and people as a result of the development of the internet and the rise in the usage of electronic devices. The risk of cyber security assaults is constant and comes in numerous shapes and sizes.

Malware, or malicious software intended to disrupt, harm, or gain unauthorised access to a computer system, is one of the most popular types of attack. Malware frequently takes the form of viruses, worms, Trojan horses, spyware, and ransomware.



Other forms of attack include phishing, which is when attackers send fake emails in an attempt to steal sensitive information or spread malware, and denial of service (DoS) attacks, which are attempts to make a machine or network resource unavailable to its intended users. Fortunately, there are many steps organizations and individuals can take to protect themselves from cyber security threats. One of the most important steps is to ensure that all computer systems and software are kept up to date and patched against known security vulnerabilities. Frequently updating operating systems, web browsers, programs, and plugins are included in this. In order to safeguard their networks from external threats, enterprises should also have a strong firewall and intrusion detection system in place.

Employee education on recommended practices for cyber security is a crucial additional step. They will learn how to spot phishing emails, spot suspicious activities, and reply appropriately, as well as how to safely store and exchange sensitive data.

Organizations should also have a thorough cybersecurity policy in place that details the precautions staff members should take to guarantee the security of the company's data and systems. Last but not least, businesses should spend money on cyber security tools like antivirus software, two-factor authentication, data encryption, and endpoint security.

These solutions can assist in defending against malicious attacks as well as in spotting and handling irregular activities. In conclusion, cyber security is a problem that both businesses and individuals must address. Organizations can lessen their chance of becoming a target of a cyber attack by taking the required precautions to safeguard their systems and data. Organizations can further ensure that their data and systems are secure by training staff members on cyber security best practises and investing in cyber security solutions.

SHIV NADAR IOE NASA HUMAN EXPLORATION ROVER CHALLENGE

Faculty Advisor: Prof. Aakash Sinha
Student Safety Officer: Saayan Gupta and Mrinal Tiwari
Team Lead: Rudransh Gupta

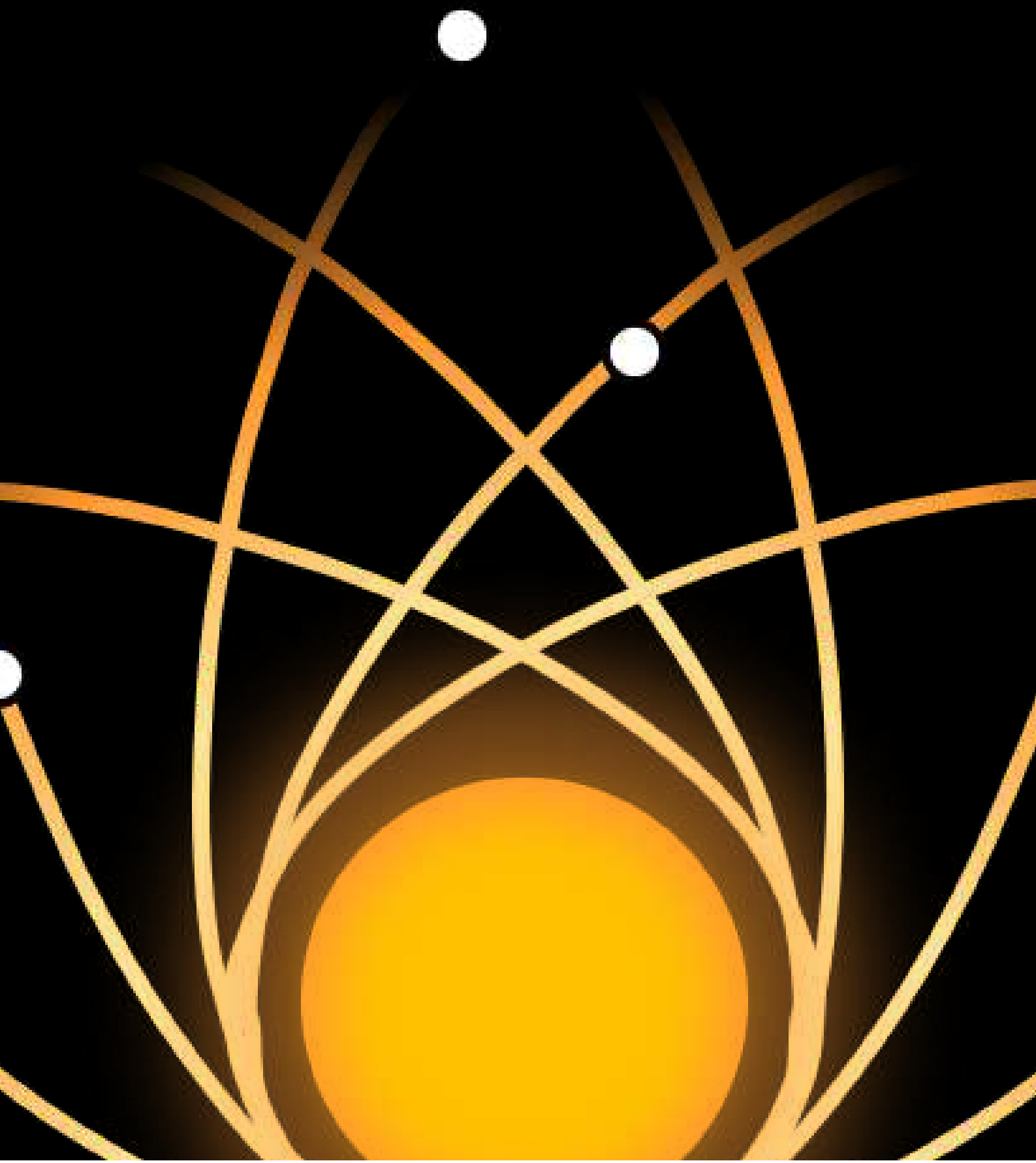
We are so thrilled to share that team Roboyantriki's proposal from Shiv Nadar IOE has been accepted at **National Aeronautics and Space Administration (NASA)** for the **Human Exploration Rover Challenge** for the first time.

The team had a very very strict deadline and also went through a couple of sleepless nights. The team ideated and completed the proposal in **just two days** whereas most teams worked for 2 months. We're glad to secure a spot amongst the selected proposals in the very first attempt. The team is thankful to **Vinnie ma'am** for identifying and sharing this opportunity.

The **NASA Human Exploration Rover Challenge**, also referred to as the **Great Moonbuggy Race**, is an annual competition for students to design, build, and race human-powered, collapsible vehicles over simulated lunar/Martian terrain. Some of the designs created by participating teams in the past have even been utilized by NASA on the Apollo Lunar program.

The final event would be held at **NASA, U.S. Space & Rocket Center, Huntsville, Alabama, April 2023**. Final event winners in the past have been awarded trips to NASA launch sites to witness space launches and training workshops in space technology by NASA.

We look forward to the rest of our NASA HERC journey, and marching ever closer to making that dream a reality. We aim to make the **Shiv Nadar IoE flag** soar high in international lands in this endeavor.



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JUNE 2023 EDITION