

Volume 2

ST. AGNES' LORETO DAY SCHOOL
The Science and Mathematics Club



2024-2025

STEMS TIMES



Science

Technology

Engineering

Mathematics

SCIENCE

Reality Tomorrow

TODAY

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CLUB MISTRESS' ADDRESS



It brings me great pride and excitement to present the second volume of our Science Club's newsletter- STEM Times. This edition reflects the continued dedication, enthusiasm, and curiosity of our young scientists who have worked tirelessly to explore, learn, and innovate. Through experiments, discussions, and competitions, they have shown the power of collaboration and the beauty of scientific discovery.

I am delighted to witness the growth of each member and the impact of the activities we undertake. Whether it's delving into environmental conservation, embracing advancements in technology, or understanding the principles that govern our world, our Science Club remains a beacon for learning and inspiration. This newsletter encapsulates the essence of our journey and highlights the achievements and insights gained over recent months.

Congratulations to the editorial team and contributors who have brought this edition to life with such dedication. Let this volume inspire us all to keep exploring the wonders of science and to encourage even more participation in the events to come.

Ms. L. Dutta
Science Club Mistress

PRESIDENT'S ADDRESS



“Somewhere, something incredible is waiting to be known. The vastness is bearable only through love and wonder, for each discovery brings us closer to understanding our place in the cosmos.” – Carl Sagan

As the President of the Science Club, I'm overwhelmed with nostalgia and excitement while I write this address. Looking back to my journey, which began in 9th grade, it's incredible to see how much the club has evolved. From being a new member fascinated by the endless possibilities of science, to serving as the Vice President last year, and now leading as the President, I've had the privilege of experiencing our club's transformation from various perspectives.

The Science Club is not just a gathering of like-minded students; it's a space where we are encouraged to question, experiment, and collaborate. Over the past four years, I've witnessed the many ways in which each of the members contribute to making our club unique. Whether it's through our discussions on groundbreaking scientific discoveries, the hands-on experiments we all look forward to or the events and competitions that challenge us to think outside the box, every activity has been a testament to the creativity and passion that defines our club. We've grown from tackling basic experiments to diving into projects that address real-world issues like sustainability, robotics, and even some physics and chemistry challenges that still leave us scratching our heads. And that's the beauty of this club: it's not about finding all the answers but rather the thrill of exploring together.

I would like to extend a heartfelt gratitude to our Principal Miss Bunny, whose constant support and encouragement for our club's activities have been invaluable. A special thanks to our Club Teachers, whose guidance, mentorship, and encouragement have been instrumental in our growth. And now to my club members, I encourage each one of you to make the most of these opportunities. This club is built by all of us, and it is our collective curiosity, hard work, and passion that will drive it forward.

Let us continue to foster a spirit of curiosity, resilience, and teamwork. Here's to a year of discovery, growth, and memories that will last long after we leave these red walls.

Mishika Sehgal

Mishika Sehgal
President, Science Club
St. Agnes' Loreto Day School



•ARTICLES•

Not only do we live among the stars, the stars live within us

TIME TRAVEL : THEORY OR REALITY ?

One of the most intriguing theories ever produced in the domain of Science: Time Travel. But is it truly just a theory or something more than that? Firstly, the real question that arises is: What exactly is Time Travel? It has been defined as a 'hypothetical' activity of travelling into either the past or the future. This theory has been the most popular of all scientific theories and is widely recognized both in philosophy and science fiction. Though it has been said that it is physically impossible for our bodies to travel through time, yet this concept finds mention almost everywhere.

In the Hindu Mythology, the Vishnu Purana mentions the story of a king who travels to heaven to meet the creator Brahma. He was shocked to learn that many ages have passed on Earth. There has also been a mention in the scriptures of a particular sage Shri Kak Bhusundi who is believed to have seen the Ramayana eleven times and the Mahabharata sixteen times, which further relates to the concept of not just Time Travel but also Parallel universes. Some scientists have suggested that Time Travel requires suitable geometries of spacetime or specific types of motions in space which, if possible, could allow us to travel through time. Fabio Costa, a physicist at Nordic Institute for Theoretical Physics has explained that this theory was created by a simple scenario written in the beginning of the 20th century. This scenario involved a massive long cylinder that spun fast in the manner of straw rolled between our palms and it twisted spacetime along with it. The theory that this object could act as a time machine allowing us to travel through time found accordance only in the latter half of the 20th century after scientists had discovered a phenomenon called 'closed time like curves'. 'Closed time-like curve' describes the trajectory of hypothetical observers who while travelling forward in time from their own perspective, at some point will find themselves at the same place and time where they started which further gives rise to the concept of loops.

Now, whether this theory is feasible or not, still remains a truly interesting question because this concept not just finds relevance in the field of science but is also acknowledged in the field of Philosophy. Philosophers have argued that the past and future exist in the real sense and also change what has already occurred or will occur in the present. The biggest obstruction that has been offered to this theory till today has been that of the grandfather paradox.



To understand what a paradox is in simple terms, think of it like this: A person travels back in time, kills their grandfather which prevents the existence of their father or mother and hence their own. This concept of paradox has caused a lot of confusion of whether it is actually supporting the idea of time or contradicting it. I guess this too remains a question with a large number of possibilities. To finally acknowledge the elephant in the room, considering all the possibilities I myself have come to the conclusion that as of NOW this theory merely remains just that: a theory. To prove it otherwise we will need a greater number of observations and logical explanations keeping in mind that this theory has given rise to a greater number of questions than answers.

Aashni Chaturvedi

12-C

ANTIMATTER

Something that's not matter-

Imagine a universe where up is down, left is right and positive is negative well that's antimatter for you. Antimatter, a type of matter composed of antiparticles, which have the same mass as particles of ordinary matter but opposite charges and quantum properties. When antimatter comes into contact with matter, the two annihilate or destroy each other, releasing enormous energy in the form of gamma rays or other particles. Examples include: Positron (antielectron): Same mass as an electron but with a positive charge.

British physicist Paul Dirac produced a more complicated wave equation that revealed the electron's true character. First, it predicted that electrons had spin, which could be right- or left-handed. The second was that the electron could have a range of negative as well as positive energies. This concept predicted the existence of a positively charged electron -or positron; when an electron met a positron, they would annihilate according to Einstein's equation $E=mc^2$ generating gamma rays in the process ,the concept of antimatter was born. Now why is antimatter important? Well, it could be the most powerful fuel known to humanity. For one trip to mars you only need antimatter equal to one thousandth part of a cadbury gem and the trip would only take you a couple of weeks phenomenal right.

Arushi Gupta

12-C

AI & MATHEMATICS: COLLABORATION AND SUBSTITUTION

"AI and mathematics are harmonious partners, orchestrating the symphony of intelligence in the digital age". The relationship between Artificial Intelligence and mathematics is fundamental and symbiotic. Mathematics serves as the bedrock upon which AI algorithms and systems are built, enabling machines to learn, reason, and make decisions. From the algorithms powering intelligent systems to the mathematical models underpinning their behaviour, mathematics is woven into the fabric of artificial intelligence. The application of mathematics in AI is fundamental to the development and success of intelligent systems. Mathematics provides the tools and concepts necessary for AI algorithms to process data, learn patterns, and make informed decisions. As AI continues to evolve and shape our world, the synergy between mathematics and AI will remain crucial, unlocking new frontiers and possibilities for innovation. Concepts from linear algebra, calculus, probability theory, and statistics are essential for developing machine learning algorithms. These algorithms use mathematical equations and functions to identify patterns, make predictions, and classify information.

Calculus plays a crucial role in optimizing AI models. Techniques such as gradient descent and backpropagation utilize calculus to minimize errors and adjust the parameters of machine learning models by harnessing the power of mathematics. AI has the potential to transform industries, solve complex problems, and enhance our daily lives in remarkable ways. With this context, do you think automated systems are taking over the manual power of mathematics? The answer is yet to be explored, but according to well-known scientists "It is important to go through various spheres of automated learning programs." The divide between mathematicians and AI is mainly related to the new paradigm imposed on symbolic AI in the last decade. Non-symbolic AI, or connectionist AI, replaces rigorous logic with statistical processing based on deep learning through neural networks. It works more like our own minds do, through principles and patterns born of learning, and therefore its processes are less comprehensible—less mathematical.

This is the basis of Big Language Models such as ChatGPT, but also of systems such as AlphaGo from DeepMind (a subsidiary of Google's parent company). According to Heule, it is in this field of non-symbolic AI that mathematicians have not yet exploited the full potential of AI. But systems are now moving in this direction. DeepMind's AlphaTensor is inventing new algorithms to solve complex mathematical calculations. Minerva is a chatbot created by Google to solve mathematical problems. It works like ChatGPT, taking questions and answering them by combining natural language with mathematical notation. But Minerva has its limitations, inherent in the way non-symbolic AI works compared to symbolic AI.

According to its creators, Ethan Dyer and Guy Gur-Ari, "the model's answers cannot be automatically verified. Even when the final answer is known and can be verified, the model can arrive at a correct final answer using incorrect reasoning steps, which cannot be automatically detected." Minerva makes childish mistakes, such as cancelling a square root on one side of the equation with the roots added in the other term. She has not yet learned that this cannot be done. Now we understand where the problem lies, the algorithms lack creativity. But while AI tools can already prove theorems, and are beginning to tackle the toughest mathematical problems, mathematicians are not yet worried about their jobs. The reason, as Ellenberg recalled, was predicted by the French polymath Henri Poincaré at the beginning of the 20th century, when he said that it was impossible "to attempt to replace the mathematician's free initiative by a mechanical process of any kind." In more contemporary terms, for mathematician Chris Budd of the University Bath, "Mathematics is a creative activity, and perhaps it is a lack of creativity that stops machine learning algorithms from doing deep mathematics." In other words, the experts point out that the mathematician brings something different: not just the answers, but the questions; this requires a capacity for abstraction that AI does not yet possess.

As Horgan explained, applied mathematics and its useful applications, can be handled by machines, but a different case is that of theoretical mathematics, which discovers the order of the universe.

In other words, the experts point out that the mathematician brings something different not just the answers, but the questions; this requires a capacity for abstraction that AI does not yet possess. As Horgan explained, applied mathematics, and its useful applications can be handled by machines, but a different case is that of theoretical mathematics, which discovers the order of the universe.

Jeetika Rastogi

11C

EVOLUTION: AN INCREDIBLE PHENOMENON

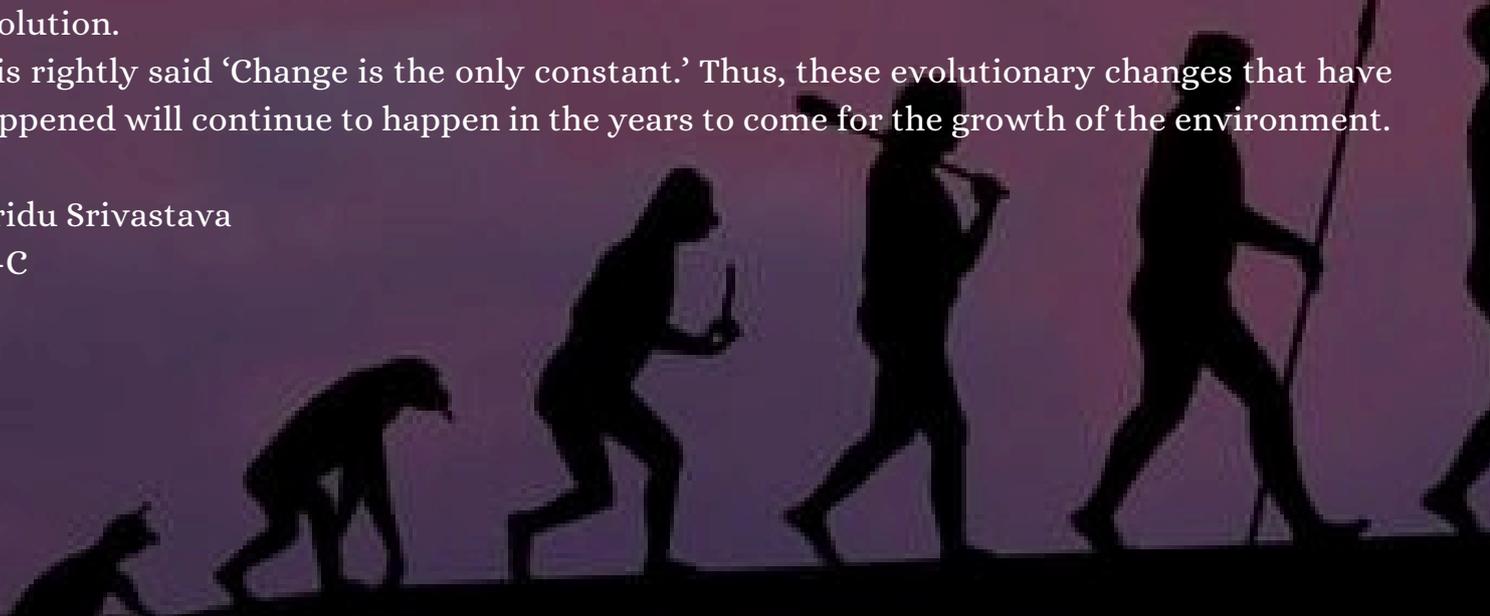
Evolution- a term with a simple meaning but complex understanding. Every man is aware about the changes that have taken place from time to time, yet no one is completely sure of it. A change never happens all of a sudden instead it is a gradual phenomenon. Ever since the Universe was created in accordance with the Big Bang Theory, it has undergone enormous changes and is still under the effect. Evolution is a dynamic process which has been continuous over billions of years. Each specie present on Earth today has evolved from time immemorial.

Evolution is a process which proves that destruction is not the end, it is the beginning of a new life- the explosion that happened billions of years ago gave birth to fantastical Cosmos, which is beyond measure. The plants evolved, the animals came into existence, the nature illuminated the Earth with its magical brilliance- a phenomenon indeed beyond comprehension. The evolution of animals into man is an incident attributed to complete perfection. The thoughtful construction of human body and senses is like a fantasy, completely mesmerizing!

The man has developed to be the most intelligent species known on Earth, he has tried to study the various aspects of Evolution and deduced certain conclusions. Therefore, the development of scientific aptitude and complex brain development is attributed to evolution.

It is rightly said 'Change is the only constant.' Thus, these evolutionary changes that have happened will continue to happen in the years to come for the growth of the environment.

Mridu Srivastava
12-C



BRAIN FLEX: NEUROPLASTICITY UNLEASHED

Neuroplasticity refers to the brain's ability to reorganize itself by forming new neural connections. This concept has transformed our understanding of the brain, particularly in the last few decades, showing that the brain remains adaptable throughout life. Neuroplasticity, the brain's remarkable ability to reorganize itself, underpins our capacity to learn, remember, and recover from injury. When we learn new skills or knowledge, neural connections strengthen, forming new pathways. Similarly, if part of the brain is damaged, neuroplasticity allows for rerouting of functions to undamaged areas. This adaptability occurs throughout life, from infancy to old age, shaping our experiences and behaviors.

The brain's remarkable adaptability, fuels advancements across various domains. In education, it underscores the importance of repetition, engagement, and feedback for optimal learning outcomes. In rehabilitation, techniques like constraint-induced movement therapy utilize neuroplasticity to restore motor function in stroke or brain injury patients. Cognitive training programs leverage neuroplasticity to enhance memory, attention, and problem-solving skills. Furthermore, in mental health, therapies like cognitive-behavioral therapy (CBT) tap into neuroplasticity to rewire maladaptive thought patterns, offering hope for improved well-being.

This unveils the brain's dynamic nature, showcasing its capacity for adaptation and growth. By harnessing neuroplasticity, we can unlock new avenues for learning, recovery, and cognitive enhancement, paving the way for a brighter future in neuroscience and mental health.

Avika Patel

11-C

EXOPLANETS

In the vast expanse of the universe, beyond the familiar planets of our solar system, a dazzling array of alien worlds has captured the imagination of scientists and the public alike. Exoplanets, short for "extrasolar planets", are planets that orbit around stars other than our Sun. These distant worlds are like the planets in our own solar system, but they orbit around different stars, sometimes in far-off galaxies. These come in all shapes and sizes. Some are rocky like the Earth, while others are big balls of gases like Jupiter. Some are scorching hot, while others are freezing cold. There are even exoplanets that orbit two stars!

Thanks to advances in technology! Astronomers have been able to detect the presence of exoplanets by observing the effects they have on their host stars. One of the most popular methods is the transit method, which detects the slight dip in brightness that occurs when a planet passes in front of its star.

Since the first confirmed detection of an exoplanet around a main-sequence star, 51 Pegasi in 1995, thousands more have been discovered, revealing a diverse and fascinating array of worlds. In recent years, some of the most exciting discoveries have included the detection of potentially habitable exoplanets, meaning that they are located in the "Goldilocks zone" around their star, where conditions are just right for liquid water and the possibility of life. One of the most exciting aspects of exoplanets is the possibility that they could harbour extraterrestrial life.

Gargi Agarwal

11-C

NUCLEAR ENERGY- BOON OR BANE

Nuclear energy is the energy that is released in significant amounts in processes that affect atomic nuclei, the dense core of atoms. Methods of releasing nuclear energy are: controlled nuclear fission or nuclear fusion. Today nuclear energy is used worldwide in generating electricity, for industrial processes, medical fields and many more. But, is nuclear energy the only alternative that could be used to fulfill the above-mentioned applications?

Nuclear energy is awfully hazardous to our biosphere. Nuclear energy is released when the nucleus of a highly radioactive element such as uranium-235 absorbs an extra neutron and quickly breaks into two parts. Each time the nucleus of a U-235 splits, it releases two or three neutrons thereby creating a chain reaction which results in release of large amount of energy in the form of heat and radiation.

This is termed as nuclear energy which is indeed bane to our ecosystem.

Nuclear energy is extensively used worldwide as nuclear bombs and weapons. Atomic bombings in Hiroshima, Nagasaki, Gaza, Ukraine had created a threat to life in these places. Millions of people lost their lives, a great number of people were injured, destruction was at its peak and its harmful radiations lead to severe health problems and the deadliest mutations in the genes. These radiations last for hundreds of years. Terrorists may use it to create weapons which could be a great risk to the entire world. The waste produced by nuclear reactors such as used reactor fuel and uranium mill tailings are extremely hazardous. Uranium which is highly used in nuclear processes is non-renewable and expensive.

The leakage of radioactive materials can lead to catastrophic accidents.

Despite this, the International Atomic Energy Agency (IAEA) has estimated the increase in global nuclear energy from 390 GWe in 2021 to 479 GWe by 2030. Many alternatives such as solar energy, hydroelectric energy, bioenergy, etc could be used in place of nuclear energy. Growth in technology should not be a danger to human survival instead it should be a boon from all perspectives of our surroundings

Tanzeela Zakir

12-C

QUANTUM BIOLOGY: UNLOCKING THE MYSTERIES OF LIFE AT THE SUBATOMIC LEVEL

Quantum biology is an exciting new field of science that studies how the principles of quantum mechanics, typically associated with very small particles like electrons and photons, apply to biological systems. While quantum physics usually focuses on the behavior of atoms and subatomic particles, recent research suggests that some biological processes may also depend on these strange and unexpected rules.

One of the most fascinating examples of quantum biology is photosynthesis, the process by which plants convert sunlight into energy. In a plant's cells, sunlight is absorbed by special molecules, and this light energy is transferred through a network of proteins to be used in creating chemical energy. Studies suggest that this energy transfer may involve "quantum superposition," a phenomenon where particles exist in multiple states at once. This allows light energy to follow the most efficient path, helping plants to use sunlight with very little loss of energy.

Another example of quantum biology can be found in bird navigation. Some species of migratory birds, like robins, are believed to navigate using the Earth's magnetic field. Researchers think that quantum entanglement, where particles remain connected even over long distances, might help these birds sense the magnetic field. Special proteins in their eyes may interact with the Earth's magnetic field through quantum processes, giving them a sort of internal compass.

Quantum biology also studies how enzymes, which are proteins that speed up chemical reactions in the body, may work through quantum tunneling. Normally, chemical reactions require a certain amount of energy to occur, but in some cases, particles like electrons seem to "tunnel" through energy barriers without using that energy. This ability to bypass energy requirements makes certain biological reactions happen much more quickly than they would if they followed the rules of classical physics.

Although still a young field, quantum biology holds great potential for revolutionizing science and medicine. For example, understanding the quantum mechanisms behind photosynthesis could lead to the development of more efficient solar cells. Additionally, studying how quantum tunneling works in enzymes could help scientists design better drugs or improve medical treatments by targeting the precise quantum processes happening in the body.

However, quantum biology also faces challenges. Quantum effects are usually observed in isolated, cold environments, while biological systems are warm and chaotic. How these delicate quantum processes survive and function in the complex and noisy environment of living cells remains an area of ongoing research.

In conclusion, quantum biology opens up a fascinating intersection between two seemingly unrelated fields—biology and quantum physics. Scientists are uncovering new ways to understand life's most fundamental processes. Though still in its early stages, quantum biology could pave the way for breakthroughs in areas like energy efficiency, medicine, and even our understanding of consciousness.

Snigdha Pandey

11-C

The Mathematics Behind Our Favourite Sports: Unlocking the Secrets of Winning Strategies

Sports and mathematics may seem like unlikely bedfellows, but behind every thrilling game and championship victory lies a hidden world of numbers, patterns, and probabilities. From the arc of a basketball shot to the trajectory of a soccer ball, mathematics plays a crucial role in shaping the strategies and outcomes of our favorite sports.

Let's start with the game of basketball. Have you ever wondered why players aim for a certain angle when shooting a free throw or a three- pointer? It turns out that there's a mathematical explanation behind it. By calculating the optimal angle and trajectory, players can maximize their chances of scoring while minimizing the margin of error. From geometry to calculus, the principles of mathematics are at work every time a player takes a shot.

Moving on to soccer, the world's most popular sport, mathematics plays a vital role in understanding the dynamics of the game. Whether it's predicting the path of a ball in flight or analyzing player movements on the field, mathematics provides valuable insights into strategy and tactics. In fact, many professional soccer teams employ statisticians and data analysts to crunch numbers and identify patterns that can give them a competitive edge.

But it's not just individual sports where mathematics shines. In team sports like football and baseball, mathematical models are used to optimize player performance, devise winning strategies, and even predict the outcome of games. From probability theory to game theory, mathematicians and statisticians are constantly developing new tools and techniques to help teams gain a competitive advantage.

Beyond the field of play, mathematics also plays a crucial role in sports broadcasting and analysis. Through advanced statistical analysis and data visualization techniques, analysts can break down games in real-time, providing viewers with a deeper understanding of the action unfolding before them. Whether it's tracking player movements or assessing the impact of different strategies, mathematics enhances our appreciation of the game.

In conclusion, the relationship between mathematics and sports is a fascinating and multifaceted one. From the precision of a basketball shot to the complexity of a football play, mathematics permeates every aspect of our favourite sports. By understanding the mathematical principles at work, we can gain a greater appreciation for the beauty and complexity of the games we love to watch and play.

Aadya Kalra
10-A





Galileo's Sonnets.



POLARIS

As the midnight approaches,
The stars in your eyes become more vibrant,
Like the north star which coaxes,
You to find your way beyond heavens.

Glowing the brightest, tilts never the slightest,
The affixed halted star of the galaxy,
Ruling the north, passionate and earnest,
Polaris, as named by Astronomy.

A star of hope, striking resemblance of eternity,
A light illuminating the darkest depths,
The tainted sky by the hands of humanity,
As aged by legends and myths.

Polaris, as the name goes,
Far yet the closest to the celestial luck,
Desperate for its sole goal,
To stay fixed as the world gets plucked.

The irradiation of your times to come,
Is the determination of the farthest spark,
Life of the twinkling heaven's pearl,
Is truly a rare permanent mark.

Veiled by the elusive space,
Yet embellished by enriching wise,
As the other stars make haste,
Polaris sits with a vanity smile.

Zunaira Khan

11-A

COSMIC ALCHEMY

In the crucible of stars, elements
ignite, fusion dances,
weaving from day to night, hydrogen
whisper secrets to the void, galaxies
spin, their cosmic dreams deployed.
Gravity orchestrates, no steps forget.
Black holes hum a gravitational tune,
Einstein's equation, a celestial rune.
Microscopes reveal unseen realms,
cells
divide, life's intricate helms. Chemical
bonds, a molecular
waltz, atoms entwine in nature's grand
pulse.
So let us marvel at this scientific art,
where curiosity ignites
and wonders impart. In the alchemy of
knowledge, we find our place, a
universe of questions, waiting for
embrace.

Samriddhi Bajpai
11-C

A COSMIC MONSTER

A cosmic monster, a gaping maw,
Where matter's sucked, a cosmic law.
No light escapes, a hidden sphere,
A universe within, a hidden fear.

Imagine a place where time stands still,
Where gravity's immense, a cosmic thrill.
A black hole, a theoretical creation,
A cosmic anomaly, a mind-bending sensation.

The opposite of a white hole, a cosmic counterpart,
Where matter's devoured, a cosmic start.
Scientists ponder, their minds ablaze,
With theories and questions, endless days.

Could black holes exist, a cosmic truth,
Or are they just figments, a cosmic youth?
Some believe they could be portals, a cosmic gate,
To other dimensions, a cosmic fate.

Perhaps they're remnants, of a dying star,
Or perhaps they're something, from afar.
Whatever they are, these cosmic wonders,
They spark our curiosity, like cosmic blenders.
So let us explore, this cosmic maze,
And unravel the secrets, of black holes' ways.

Saumishthaa Rawat

11-C

SIGHTFUL SCIENCE

There is darkness, there is light
But what matters the most is the sight.
The vision of logic is hard to get,
But trust me it's worth all the wait.

Explaining science is a little crazy,
But once you get it all gets easy.
Newton's law might be tricky,
But the marks it carries makes us greedy.
Mugging up science is not the way,
But what matters is the wait.

Trust me dear there is only one way
And that is to stay.
Once you get the core concepts,
Everything becomes a piece of cake.
So trust me now and better get started,
Before it gets too late...

Gareema Saxena

9-A

ECHOES IN A DIGITAL DANCE

In circuits, codes, and silken strands,
A realm of light and glass expands.
Machines converse in silent clicks,
Their pulses hum with data's tricks.

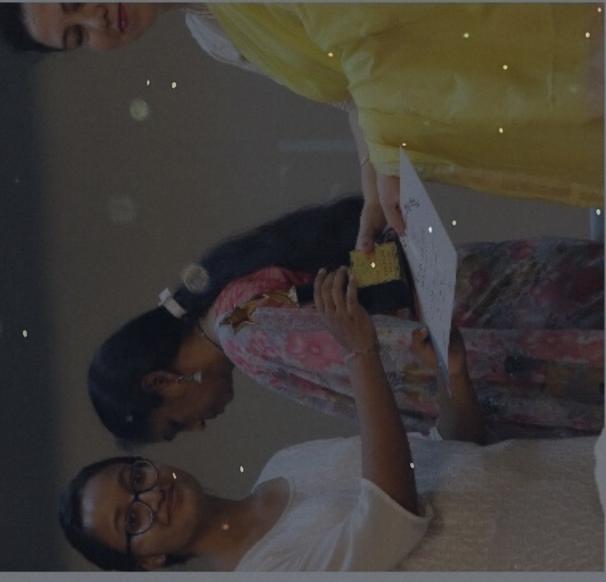
A dance of bits through cyberspace,
Where time and distance lose their place.
Infinite knowledge at our hands,
As virtual voices understand.

From silicon, we conjure dreams,
In pixels, paint our vibrant schemes.
Each innovation, bright and bold,
Unfolds new worlds for us to hold.

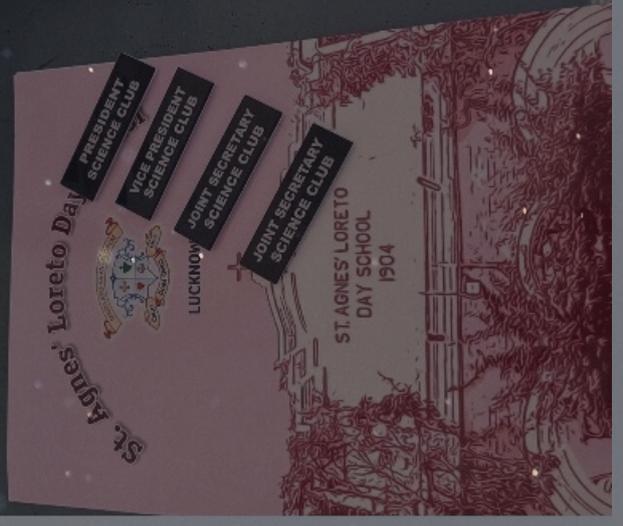
Yet, in this gleaming, wired domain,
A shadow lurks, a subtle strain.
For as we forge ahead in haste,
We must remember what we've placed.

Connection thrives through fiber's thread,
Yet face-to-face grows faint, instead.
In screens, we seek each other's eyes,
While nature's splendor fades and sighs.

So let us blend the old with new,
With wisdom, guide our tech breakthrough.
For in this dance of byte and breath,
Balance holds the key to tech's true depth.



AWARDS BUBAL BEE CAP



AMUL MILK PLANT

-Churning Out the Goodness! -

Science Club rendered this great experience to us on February 19th, 2024 by taking us to the Banas Dairy manufacturing unit located near Sultanpur Road, Lucknow where Amul is built. If we talk about milk, cheese, butter, and ice cream, Amul has played a central role in India's culture for a long time.

Our students were warmly welcomed by the Amul team, who briefed us on the factory's history, safety protocols, and what to expect during the tour. We donned our hairnets and stepped into the world of milk processing.

The first stop was the milk processing unit, where we saw massive tanks storing millions of liters of milk. The guide explained the entire process, from milk collection to pasteurization, standardization and packaging. It was impressive to see the precision and care taken at every stage.

Next, we visited the cheese and butter-making units, from curdling to shaping, and even got to taste some freshly made cheese!

The butter-making process was equally fascinating, with massive churners whipping up tons of creamy goodness.

Who wouldn't love this part of the tour? We explored the ice cream and chocolate-making units, where we saw an array of flavors being crafted. From classic vanilla to innovative flavors, every step was a delight.

As our visit draws to its end, we felt grateful for the opportunity to witness the dedication and hard work that goes into making Amul's iconic products. The Banas Factory's commitment to quality, hygiene, and sustainability impressed us deeply. An unforgettable experience with toothsome scoops of ice cream given by the Banas Dairy Team made this visit an evergreen memory for us.

If you ever get a chance to visit the Amul factory, grab it! It's an unforgettable experience that will leave you with a new appreciation for the dairy delights we enjoy every day.

Les Ailes de Papier

-Aiming for the Heights-

13th April 2024, was the date when the 1st activity of our new club session was held, which was solely based on the principles of aerodynamics-aerodynamics, branch of physics that deals with the motion of air and other gaseous fluids and with the forces acting on bodies passing through such a fluid. Aerodynamics seeks, in particular, to explain the principles governing the flight of aircraft, rockets, and missiles. The club was divided into 4 groups with each having to make a unique plane model which exclusively focused on the following principles – thrust, drag, lift, weight.

Teams were provided with a timelapse of 15 minutes, where in they were expected to construct the model and explain its working. The names of the planes constructed by the groups A, B, C and D were Sky Cruiser, F16, Concorde Fusilege and Suzan respectively. Construction of each plane mastered dehydral angle, gravity, thrust, Bernoulli's theorem etc.

It showcased the creativity and critical thinking of students. Students enthusiastically participated in the activity by making planes out of paper. It displayed innovative minds and curiosity of students.

The team whose plane had the longest flight time was declared as the winner and was rewarded with a prize. Group D with the model of Suzan bagged the prize.

AD-ASTRA 2024

-Reaching Out to the Stars-

On 30th July 2024, the second day of Ad Astra, the science and mathematics club of our school organised an interschool event SWIP (Scientific World of Imagination and Power). The Brainiacs(Science Quiz) was organised for the students of classes 11 and 12. This exciting science quiz tested students' knowledge in various fields like physics, biology, and chemistry. Teams competed with enthusiasm, showcasing their scientific prowess. The competition fostered teamwork, encouraged curiosity, and inspired a love for learning, making it a memorable and enriching experience for all participants. The two participants from our school Arushi Gupta and Mridu Srivastava, students of class 12 bagged the 3rd position in the competition. The quiz master, Mr.K.D.Singh an esteemed science educator, marked his appearance with a dynamic and engaging presence. His insightful contributions not only challenged the students but also fostered a deeper understanding of scientific concepts, making the event both educational and enjoyable.

The second competition for the day was - Scientific Gridlock, a Crossword Conundrum, for the students of classes 9 and 10. The Competition was a thrilling display of wordplay and teamwork, the event saw students to come together to test their vocabulary and problem-solving skills. Teams competed across rounds, tackling challenging clues and racing against the clock. The atmosphere was electric as participants collaborated, discussed strategies, and pieced together their answers. The competition not only sharpened language skills but also encouraged critical thinking and cooperation. Our school bagged the 1st position in the competition with Zainab Syed and Lavanya Jayaswal as the two participants.

Science Sleuths

-The Scientific Treasure Hunt-

Imagine living your 'student of the year life' in school. Doesn't that sound like a blast? Well, something similar unfolded at our school recently. The science club organized a thrilling event on October 5, 2024, where students competed for a special prize and aimed to showcase their skills over their peers.

Let's dive into a thrilling adventure happening right within our school premises! This year's treasure hunt was set to be a remarkable journey filled with teamwork, innovation, and a touch of enigma.

Participants collaborated in groups to unravel hidden clues spread across the campus, tackle puzzles, and unveil the mysteries concealed within our school environment. Through this journey, not only did we unearth hidden gems but also formed new bonds and cherished unforgettable moments.

Clues and riddles that stumped even the teachers. Two groups had 15 minutes to cleverly conceal the riddles throughout the school, while the other two had 40 minutes to search for the clues and unlock the path to a mysterious prize. Every room, from the music room to the garden, and every class, from physics lab to the weird lectures that caused students to nod off from sheer boredom, became a place for games.

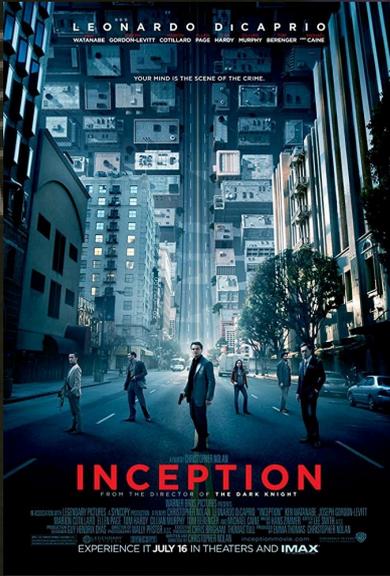
Confusion sparked and quickly transformed into annoyance as the teams struggled to uncover the correct solution. Eventually, after what seemed like an endless amount of time, one team successfully solved the enigmatic puzzle.

The groups learnt a lot about teamwork during the hunt. The students were able to develop better organizational skills and learn how to effectively plan their searches. They understood the importance of perseverance and staying motivated, which ultimately leads to a feeling of success and resolve.

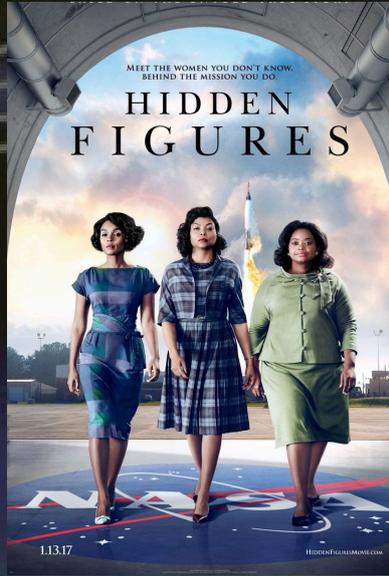
A satellite view of Earth's atmosphere, showing a complex pattern of clouds and weather systems. The image is dominated by a large, swirling storm system in the lower-left quadrant, with a dark, dense core. To its right, a series of smaller, more organized cloud bands stretch across the middle of the frame. The upper-right portion of the image shows a more diffuse, lighter-colored cloud layer. The overall color palette is a mix of dark blues, greys, and light blues, with some white highlights where the clouds are most dense. The text "Recommendations" is overlaid on the top right of the image, following the curve of the Earth's horizon.

Recommendations

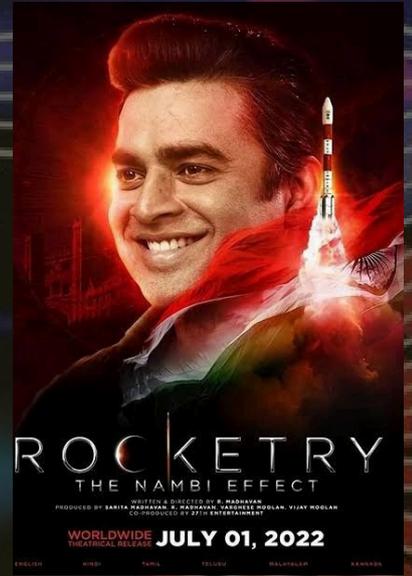
- Cosmic Cinephiles -



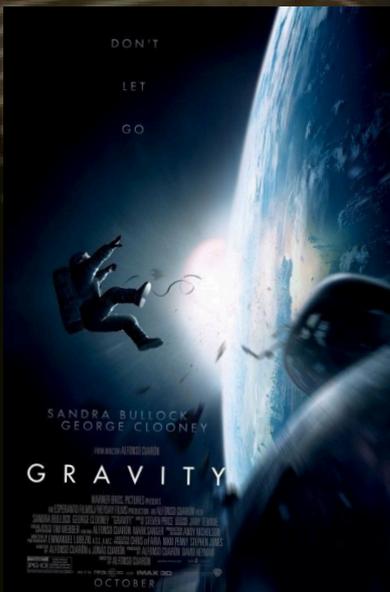
**INCEPTION
(NETFLIX)**



**HIDDEN FIGURES
(DISNEY+HOTSTAR)**



**ROCKETRY: THE NAMBI EFFECT
(JIO CINEMA)**



**GRAVITY
(AMAZON PRIME VIDEO)**

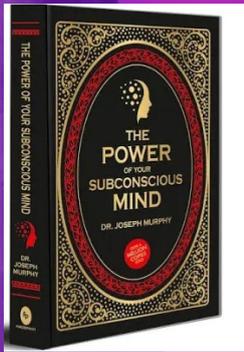


**ALIEN
(DISNEY+HOTSTAR)**



**CONTACT
(AMAZON PRIME VIDEO)**

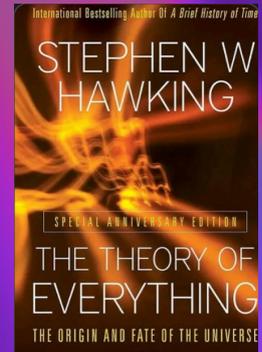
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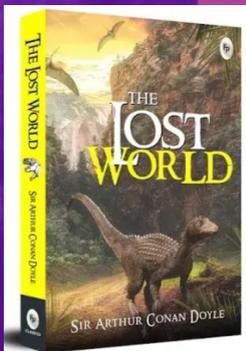
The Power of Subconscious Mind
(self-help)



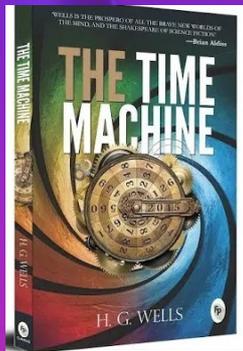
Recursion
(thriller•sci-fi)



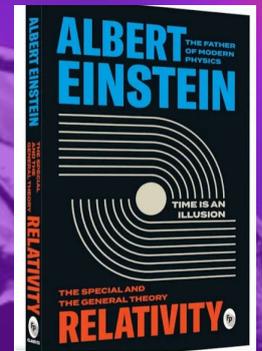
The Theory of Everything
(cosmic understanding)



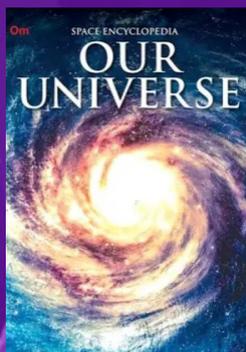
The Lost World
(sci-fi•action)



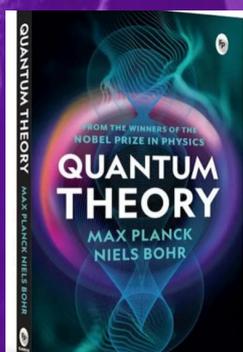
The Time Machine
(sci-fi)



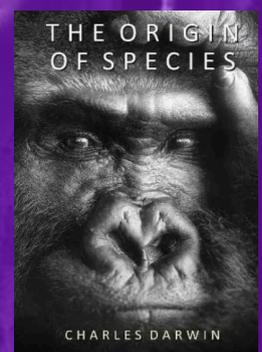
Albert Einstein: The Special and
The General Theory of Relativity
(non-
fiction•physics•classics•philosophy)



Our Universe
(space encyclopedia)



Quantum Theory
(science•quantum theory)



The Origin of Species
(science•history•non-fiction)

Intellect is Patience



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