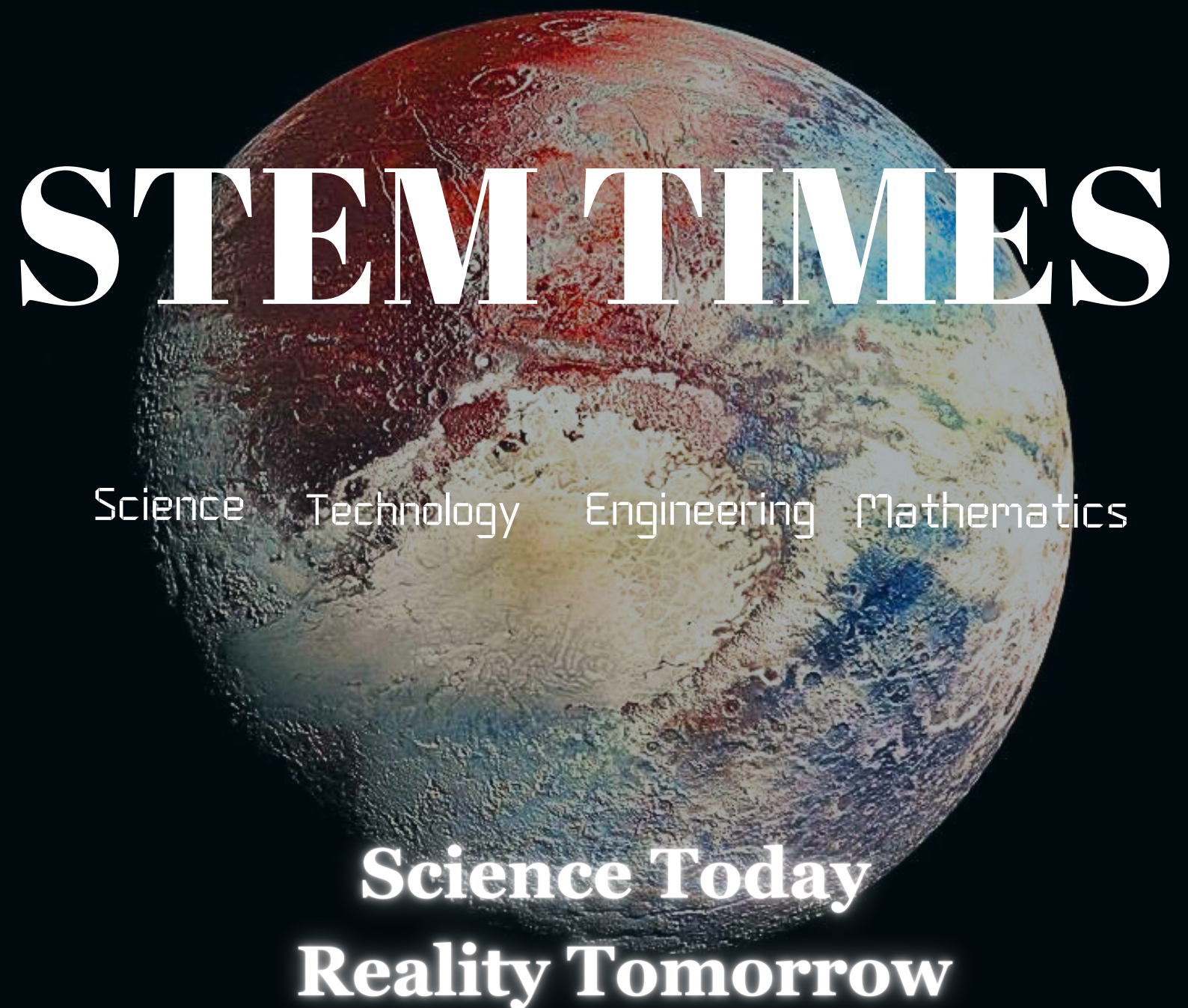
Volume: 1

Science and Mathematics Club
St. Agnes Loreto Day School



STEM TIMES

Science Technology Engineering Mathematics

Science Today
Reality Tomorrow

The STEM Times

Welcome to STEM Times, where curiosity meets discovery! In this edition, dive into captivating articles that unravel the wonders of science and technology. The blogs mentioned in this volume tell us about the various activities and programs which the Science Club has been a part of. Let's keep igniting curiosity and fostering a passion for STEM together!

About the club

This Club develops in the children the ability to understand the scientific principles and link them to everyday life through various experiments, models and projects. The girls are made aware of the environment and are encouraged to preserve and take care of it. The girls are introduced to easy and quick methods of calculation through Vedic mathematics, puzzles and mind stretchers. This provides them with analytical ability and mental clarity. The Science Club organises an Annual Inter School Competition 'SWIP'.

CLUB MISTRESSES

- MISS L. DUTTA
- MISS V. JAYASWAL
- MISS A. KAUR
- MISS M. KAUR
- MISS A. GHOSH

CLUB BEARERS

- PRESIDENT : AKSHARA MISRA
- VICE PRESIDENT : MISHIKA SEHGAL
- JOINT SECRETARY : SNIGDHA PANDEY
- JOINT SECRETARY : KUHU GUPTA

PRESIDENT'S ADDRESS

"In the dance of atoms and the symphony of galaxies, science unveils the profound poetry of existence. Embrace the equations, but let philosophy be the conductor of your cosmic curiosity." Being a member of the science club is akin to embarking on a thrilling expedition into the realms of curiosity and wonder. Each club meeting is not just a gathering; it is an intellectual adventure that unfolds with the promise of unveiling the mysteries of the universe, one hypothesis at a time.

As I reflect on my four-year journey in the science club, I can't help but marvel at the growth, laughter and unforgettable moments that have shaped my experience. From starting out as a secretary to becoming the club president, it has been an incredible journey that I will always cherish.

"Are you sure you're in the right club?" or "Do you even know science?" these are the questions you might hear if you are a humanities student opting for science.

When I first joined the science club, I felt like a fish out of water, or maybe a humanities student in a petri dish. People looked at me like I had just discovered fire.

But here's the secret that people didn't know: I joined the science club not because I was lost, but because I found something utterly captivating about the world of beakers, test tubes, and making models.

I would be remiss not to express my heartfelt gratitude to our school and our principal for providing the platform for this scientific extravaganza. It's this institution that nurtured our curiosity, fueled our passion for science, and allowed us to turn every classroom into a mini laboratory of wonders. Thank you for believing in the power of curiosity and for giving us the wings to explore the uncharted territories of knowledge.

Our scientific journey would not have been possible without the unwavering support of our club teachers. We extend our heartfelt gratitude to these tireless educators who patiently endured our quirky hypothesis, chuckled at our science-themed puns, and skillfully transformed any mishap into a memorable experience. We are truly grateful for your guidance and mentorship. Thank you for being the guiding stars in our scientific journey.

Thank you, science club, for proving that passion knows no boundaries - not even the imaginary line between the humanities and the sciences.

Akshara Misra

AKSHARA MISRA
PRESIDENT OF SCIENCE CLUB
ST.AGNES LORETO DAY SCHOOL

ARTICLES

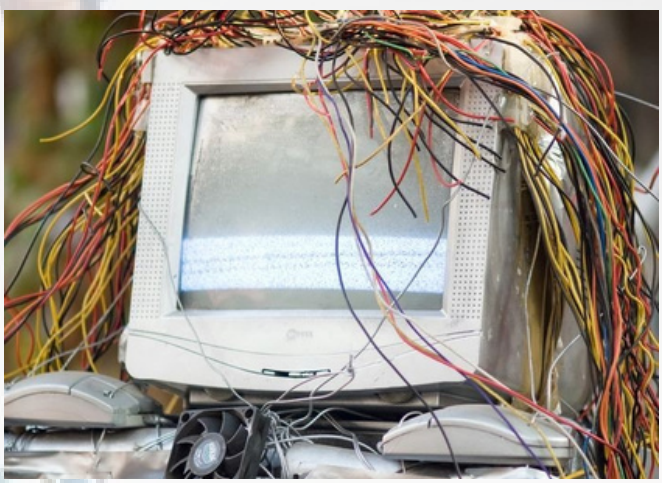
E- WASTE

Advancements in the field of science and Technology brought about revolution in the 18th century and information and communication in the 20th century. It enormously changed our way of living, our society, our economy and our industry. Among the other kinds of pollution that humanity is facing nowadays, e-waste has become a prominent one.

E-waste or electronic waste is the waste produced by IT and telecommunication companies. Today, a growing amount of e-waste is not considered to be products that have stopped working or become obsolete, in fact, technology is advancing towards us at such a dizzying speed that a lot of electronic devices that still work fine are also considered dangerous. Think of the many VCR players that got replaced when DVD players hit the market and now the DVD players are getting replaced by Blu-ray players.While above ground, modern electronics are safe to use and be around.

However, most electronics contain some form of toxic materials, including beryllium, cadmium, mercury and lead which pose serious environmental risks to our soil, water, air and wildlife. Workers aiming to recover valuable materials such as copper and gold are at risk of exposure to over 1,000 harmful substances. For an expectant mother, exposure to toxic e-waste can affect the health and development of her unborn child for the rest of its life.

For the recycling of e-waste, India heavily depends on the unorganized sector as only a handful of organized e-waste recycling facilities have been established . Over 95% of the e-waste is treated and processed in the majority of urban slums of the country, where untrained workers carry out the dangerous procedures without personal protective equipment.



Authors~

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VOLUME 1

CARBON FOOTPRINT

A carbon footprint is the total amount of greenhouse gases including CO_2 and CH_4 that are generated by our actions. It corresponds to the whole amount of greenhouse gases(GHG) produced to directly and indirectly, support a person's lifestyle and activities. Carbon footprints are usually measured in equivalent tons of CO_2, during the period of a year, and they can be associated with an individual, organisation, a product event among others.Reducing your footprint is important as it mitigates the effects of global climate change, improves public health, boosts global economy and maintains biodiversity.

There are many causes which play a significant role in increasing our carbon footprint. Burning of fossil fuels is the major one. In fact, any activity to fulfill human needs requires energy that releases CO_2 .Before the industrial revolution whatever CO_2 was produced by humans was absorbed by surrounding trees. But now due to the increase in the deforestation all around the world we hardly have a large number of trees for CO_2 absorption, which will ultimately lead to our end. Apart from industries and fossil fuels, air travel as well as the type of food we consume has an effect on our carbon footprint.

Now let us have a look on the steps which one should follow to reduce his carbon footprint. We should select energy efficient products with an "A" label (EU energy label). We should turn our "thermostat" to 78 in summers and 67 in winters. Apart from these driving efficiency, using the acceleration lightly, staying near the speed limit will give you great results. "Recycling and composting" are also the major steps that everyone should follow. We are on the verge of destroying ourselves by our greed . It is shocking that we humans emit more carbon dioxide than volcanoes. Organizations like "CARBON FOOTPRINT PROJECTS" are pursuing to estimate our contribution to the climate change.

Authors~

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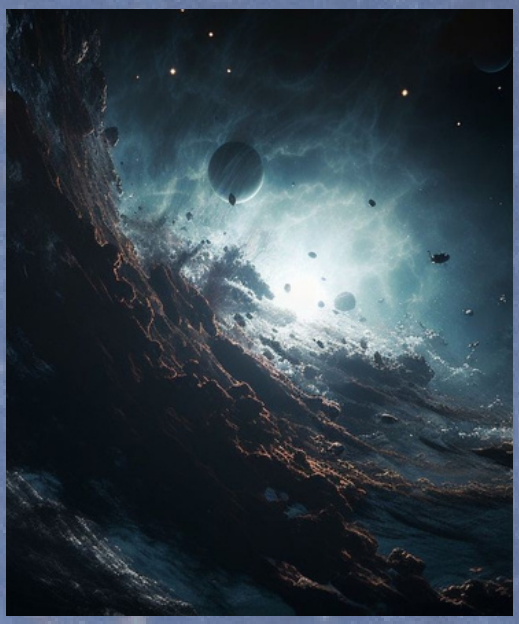
VOLUME 1

DARK MATTER

We are pretty sure of the existence of dark matter,but still to find out what dark matter is and how it exactly works.Dark matter is a subject that gives us goosebumps, thinking about the fact that it is yet to be discovered. The Discovery of dark matter and dark energy would give us a better picture of the universe and how it exactly works. Here are some facts about dark matter. The substance of dark matter doesn't interact with light and that is why dark matter is invisible. Though dark matter cannot be seen, it can be felt for its powerful cosmic impact. It is predicted that the powerful impact of dark matter binds the galaxies together. According to some research, dark matter might be cold in nature. Also, there is a high probability that dark matter might not have any actual existence.

Well, let's take a deeper dive into the dark matter, and let's find out what is so dark about it.Dark matter may be defined as a form of matter that is considered to be approximately 95 percent of the matter of the universe. After several scientific studies, it is assumed that dark matters are about 27% of its total mass-energy density or about 2.241×10 −27 kg/ m 3 . In this article, we are going to discuss dark matter theory, it's meaning, and its discovery in detail.There are several observations to imply the presence of dark matter such as gravitational effects. Until and unless more matter is present beyond our observations, they are not explained by accepted theories of gravity. Dark matters are substances that do not absorb, reflect or emit light and hence they are not visible. Dark matter is a non-interacting substance, and this is what makes it dark and mysterious. It is considered that about 5 percent of the universe is known to us. The rest 95 percent includes about 27 percent of dark matter and 68 percentage of dark energy.



Authors~

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BLOGS · BLOGS · BLOGS

INTER-SCHOOL SCIENCE EXHIBITION

The students of the Science Club participated in an Interschool Science Exhibition, which was held at Loreto Convent Intermediate College, on 25th August, 2023. The students presented a model, which displayed the significance of the Solar Energy with the help of floating photo-voltaic cells. These cells utilised the solar energy by converting it into electricity, which was further supplied to the power station for its efficient use. This electricity from the power station was supplied to a fictitious city and an adjacent village, which was clearly displayed by the model.

There were students of three other schools as well , who displayed there models too . Their presentation was also brilliant, it provided us a lot of knowledge . We realised that it wasn't just about memorizing textbooks or learning theories but also about exploring the magic of the world we live in. We are very thankful to our Principal and the teachers who mentored us , without them our model's presentation wouldn't have been a success. Their care and support was commendable.

>>> EXCURSIONS <<<

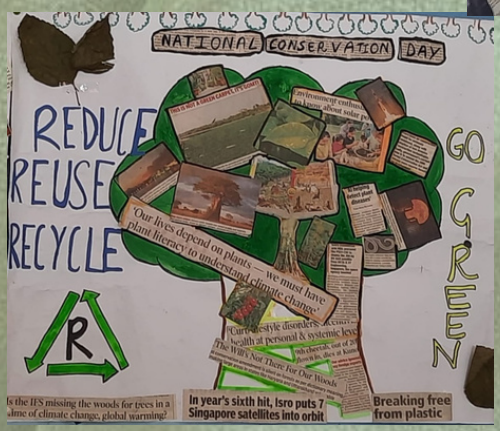
THE REGIONAL SCIENCE CENTRE

The members of our club had an exemplary visit to the REGIONAL SCIENCE CENTRE of LUCKNOW in March , 2023. Visiting the science center was an immersive journey into the wonders of scientific discovery. The interactive exhibits captivated our curiosity, allowing us to explore various branches of science in a hands-on way. From awe-inspiring displays of space exploration to engaging experiments demonstrating fundamental physics principles, the center provided a dynamic and educational experience. Students were left with a heightened appreciation for science, inspired by the practical applications of what they have learnt making the visit both informative and enjoyable.

NATIONAL CONSERVATION DAY

BEST OUT OF WASTE

On the occasion of ' THE NATIONAL CONSERVATION DAY ' a Best Out of Waste activity was held in our club on 5th August , 2023. It was a vibrant display of creativity and environmental awareness. Students enthusiastically participated in the activity, turning everyday discarded newspapers and sheets into imaginative collages . The activity showcased the students' talent and ingenuity. Not only did it provide a platform for artistic expression, but it also emphasized the importance of recycling and upcycling to create a more sustainable future. The activity fostered a sense of responsibility towards the environment while making learning enjoyable and hands-on for the students.



MINI - EXHIBITION

In March, 2023 the students of the club organised a captivating mini exhibition that showcased the incredible talents and creativity of our students. The students presented various innovative models and experiments such as - Hydraulic Garage, Smart Sensor Stick, Drone and many more. The exhibition not only fostered a sense of pride among the participants but also provided a platform for the entire school community to appreciate and celebrate the diverse skills and interests within our student body. It was a wonderful opportunity for everyone to come together and witness the rich tapestry of talent that our school nurtures.

>>> ADASTRA <<<

SWIP

On 14th October the 4th day of Ad Astra the Science and mathematics club organised SWIP (scientific world of imagination and power). InnoVenture, the flagship competition for classes 11th and 12th, provided a platform for budding scientists and inventors to showcase their ingenuity. The participants had to make a model or experiment showcasing it's importance in real life and also providing new sustainable ideas ranging from cutting-edge technological innovations to environmentally sustainable solutions. The diversity of ideas and the depth of research reflected the passion and dedication of the participants.
Simultaneously, the second competition The Brainiacs (science quiz) for classes 9th and 10th added a competitive edge to the event. The questions covered a broad spectrum of scientific disciplines, challenging the students' knowledge and problem-solving skills. It was impressive to witness the enthusiasm and quick thinking displayed by the young minds as they vied for the coveted title of quiz champions.

Our school bagged 2nd position in InnoVenture by showcasing our model which focused mainly on establishing an environment-friendly modern city that works on achieving the zero carbon footprint aim by 2050. The main star of our model was the floating solar panels that not only require less surface area but also prohibit excess water evaporation.

The event not only celebrated academic excellence but also encouraged collaboration and exchange of ideas among schools. Ad Astra's commitment to fostering a love for science was accomplished, making it a memorable and enriching experience for all participants.

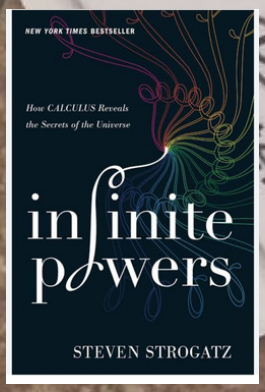
On this auspicious day , a special appearance was made by the esteemed judges, Mr. Milind Raj and Mrs. Anuradha Gupta. Mr Milind Raj has made significant contributions in life saving technology and flying rescue systems and also designed World Class Robots. Mrs Anuradha Gupta is the Founder and General Secretary of Prithvi innovations and has been honoured with many awards and honours, mainly for her unparallel passion, dedication, consistent efforts, out of the box ideas.

The arbiter of the quiz was Mrs Smita Pande whose, area of study is Sustainability/ESG reporting. She has a work experience of 15 years in the areas of Branch Operations and Team Management.

VOLUME 1

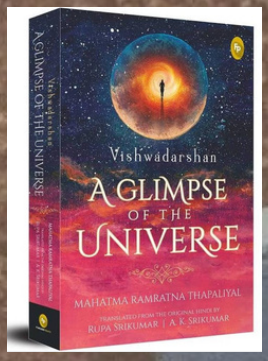
RECOMMENDATIONS

BOOKS :

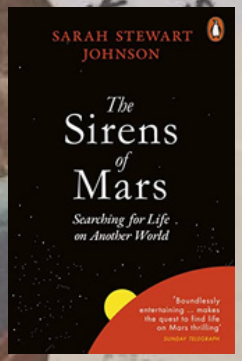


Infinite Powers

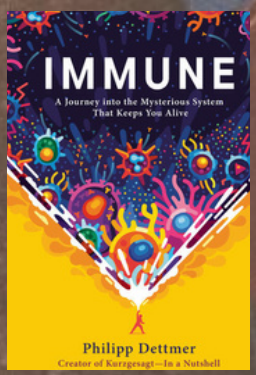
Breath



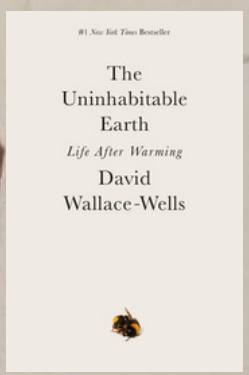
A Glimpse of The Universe



The Sirens of Mars



Immune



The Uninhabital Earth

MOVIES :

Interstellar

Wall-e

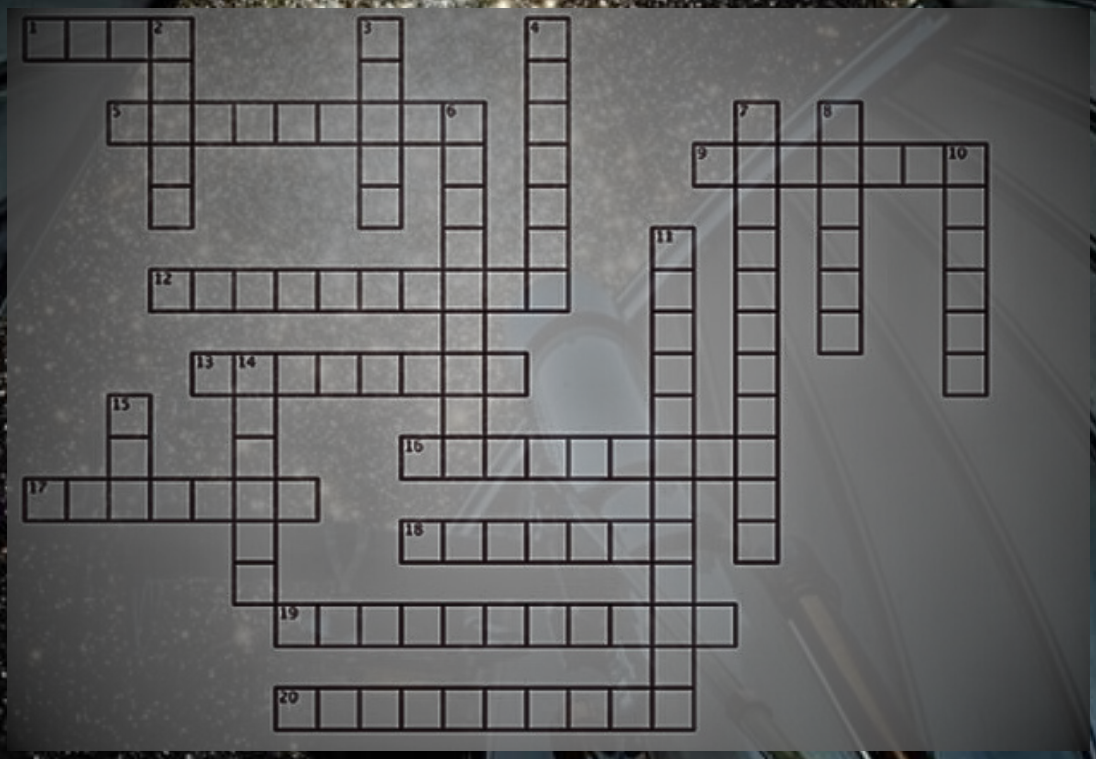
Martian

Arrival

Geostorm

Deep Impact

CROSSWORD



ACROSS

1. Supernova energy and gas clouds collide to form a _____ .

5. An exploding star emitting vast amounts of energy is called a _____ .

9. Earth's primordial atmosphere was made from this vapour- _____ .

12. Least dense layer of the Earth is _____ .

13. About 1.5 billion years ago the atmosphere cooled sufficiently to form what type of precipitation?

16. Nickel and iron form this part of the Earth's interior. It is _____ .

17. Force that causes accretion is _____ .

18. Term used to describe the amount of matter in an object is called _____ .

19. Small bodies that orbited the Sun during the formation formation of the planets are _____.

20. Objects that come from space and reach the Earth's surface are called _____.

DOWN

2. Name of Earth's outer solid layer is _____.

3. Atmospheric layer responsible for preventing harmful radiation from reaching the Earth is _____.

4. Earth's second atmosphere is composed mainly of this gas. The gas is _____.

6. An increase in a planet's size by gradual external addition or fusion is called _____.

7. The outer part of the Earth consisting of the crust and upper mantle is called _____.

8. The inner core of the Earth is in this state of matter, which is _____.

10. An immense cloud of mainly hydrogen gas and dust in interstellar space is named as _____.

11. The age of the solar system is approximately 14.3 _____.

14. Name of a meteor impact is _____.

15. Abbreviation for 'millions of years ago _____.

St. Agnes' Loreto Day School

Intellect is Patience

Crossword Hints :

1. Supernova
2. Disc
3. Nebula
4. Planetismal
5. Accretion
6. Gravity
7. Meteorites
8. Inner Core
9. Crust
10. Methane
11. Crater
12. Atmosphere
13. Lithosphere
14. Silicon
15. Density
16. Liquid
17. Acid Rain
18. Ozone
19. Mya
20. Billion Years