

THE MITHIBAI CHRONICLES

The Official Newsletter of Mithibai College

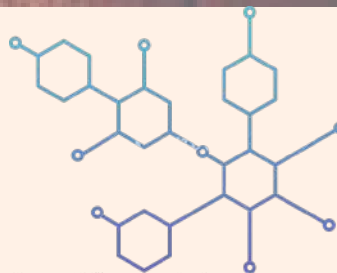
THE SCIENCE SCOOP

Science from the Nation

MORE IN THE FEBRUARY 2022 ISSUE

- National Science Day - 2
- A Guide To Star Gazing - 4
- The Lesser Known Sciences - 6
- We'll Always Find A Way Out - 8
- The Library - 9
- New Arrivals - 11
- Open Access - 14
- The Photo Phactory - 16
- Riddles - 21
- Fun Facts - 22
- Nature Of Science Crossword - 23
- Key Contributors - 25
- Special Thanks - 26

PREFACE



The Mithibai Chronicles, a bi-monthly newsletter is a venture of the Mithibai Readers' Club and the Library of SVKM's Mithibai College, with the support of the Principal, the Vice-Principals, the teaching and the non-teaching staff.

The topic for the February 2022 issue is 'The Science Scoop - Science from the Nation'. As the title suggests, our newsletter is dedicated to science and its sub-fields; including contributions from our peers, juniors and seniors. This newsletter itself, is a celebration of National Science Day.

Happy reading!

NATIONAL SCIENCE DAY

How many times have you imagined a life without science? Would it be comforting and luxurious or would it be tough, short, and incredibly uncomfortable? Life was not the same before humans started using reason and logic behind the primitive working of things around us. It is because of a few inquisitive scientists that we are capable of witnessing the miraculous things happening around us and can give it a name. Some important scientific and cultural discoveries that changed the world include very basic discoveries such as heat, light, and writing, and also later scientific discoveries such as gravity, the theory of evolution, and the theory of relativity.

Over the years, India has been blessed with ingenious and passionate scientists who have made significant discoveries that have shaped the modern world. On 28th February 1928, Sir Chandrasekhara Venkata Raman discovered a phenomenon of scattering of photons which was later known as 'Raman Effect' after his name. After two years in 1930, he got Nobel Prize for this remarkable discovery and this was the first Nobel Prize for India in the field of science. To mark the discovery of his famous phenomenon, National Science Day is celebrated in India each year.

Chandrasekhara Venkata Raman was born in Tiruchchirapalli on 7th November 1888 and was considered a genius since his childhood. After earning a master's degree in physics at Presidency College, University of Madras, He became a professor of physics at the University

Of Calcutta in 1917. In 1921 he made a trip to England, where he met with distinguished British physicists. He returned to Bombay aboard the S.S. Narkunda, leaving England in September 1921. That was when he began contemplating the striking blue colour of the Mediterranean Sea. Lord Rayleigh, who had previously explained the blue colour of the sky as due to elastic scattering of light by molecules in the atmosphere, had suggested that the blue colour of the



NATIONAL SCIENCE DAY

sea was simply a reflection of the sky. Raman wasn't so sure this was the case. He examined the water with a handful of instruments he carried during the trip and became convinced that water molecules could scatter light just as air molecules could. In 1928 he concluded that when a transparent substance is illuminated by a beam of light of one frequency, a small portion of the light emerges at right angles to the original direction, and some of this light is of different frequencies than that of the incident light. These so-called Raman frequencies are the energies associated with transitions between different rotational and vibrational states in the scattering material.

Physicists around the world quickly recognized the importance of the Raman Effect. It provided another verification of the quantum theory and was useful in the study of vibration and rotation of molecules. Within a few years, chemists were commonly using Raman spectroscopy for chemical analysis, and it is still widely used for experiments.

Sir C.V Raman was knighted by the British Government in 1929. He later became director of the Indian Institute of Science and established the Raman Research Institute in Bangalore. India lost him in 1970 but his contributions haven't been forgotten yet.

The basic objective of observation of National Science Day is not only to remember Sir C.V Raman but also to spread the message of the importance of science and its application among the people. National Science Day is

celebrated as one of the main science festivals in India every year to encourage the science enthusiasts of our country as well as popularize Science and Technology among the masses. The contributions made by eminent scientists are the fuel needed to encourage the youth and our upcoming generations in the field of science. National Science Day creates a stage to bring forth not only the good aspects of science but also the developmental issues. Science has been instrumental in equalizing the basic amenities to all the classes, developing cure to life-threatening diseases at lower costs, answering the unasked questions, and in discovering theories beneficial to humans and the world. To create awareness about the importance of science, motivate science enthusiasts, and remember the contributions made by our scientists, we celebrate this day across the nation.

- By Srishti Roy Choudhury,
SY.B.Sc. Biotechnology

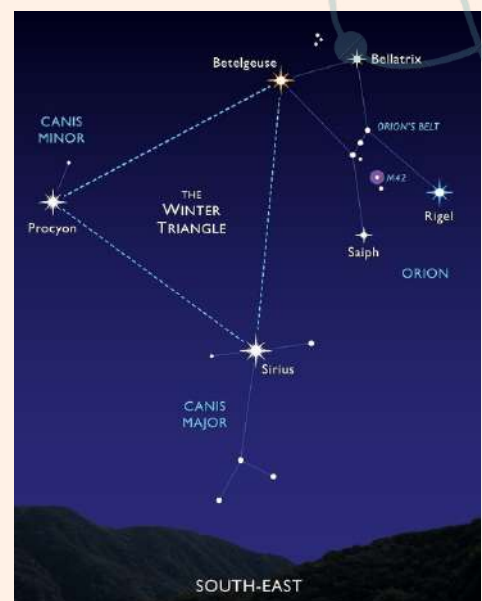
A GUIDE TO STAR GAZING

When we think of space and universe, whirling galaxies with millions of stars, plenty of brightness surrounded by darkness, floating around in zero gravity, fancying about the life of an astronaut are some of the thoughts and imaginations that fill our brains. However, one doesn't need a degree in astrophysics to actually experience the wonders of the space! For me, astronomy has been the most accessible scientific subject; the field of observation is the whole wide sky! No laboratory, no special equipment. The eyes have a good range of power! All one needs is the night sky. That's it. Step out into the dark, look up in the direction of the sky, adjust your eyes to the blackness, and then you'll see...the heavenly bodies that constitute the planets, the stars, and lots more.

In this article, I'd like to share some very basic star gazing tips, after which you shall be ready to navigate the sky yourself! The first point to remember is that as the phases of the moon change every day, the objects visible in the sky change seasonally. So, the stars you see in summers, will not be visible in the winters and vice-versa. I believe most of us have seen numerous stars of varying brightness, but have seldom taken the chance to notice the patterns they make and the constellations they form; something that our ancestors did very well. In fact, many times we may have even mistaken a planet for a star! So how does one differentiate between the two?

The rule of thumb is: stars twinkle and planets don't. Look closely at the object and if you find its brightness to be unchanging, it is a planet.

Now, I shall mention the planets and constellations that you can see tonight or tomorrow morning just before the sunrise (Yes! They're looking at you all the time, from now on you shall look back and wave at them!) and practically for the next 2-3 months, until clouds arrive and separate the Mumbai skies from everything beyond the atmosphere.



A GUIDE TO STAR GAZING

1. Venus: This is the brightest and a very easy figure to spot in the sky. Look to the East (if you attend college in the morning hours, this is the best time to stop at the railway station and look in the east when the sky is dark). A white, shiny spectacle it is.

2. Mars: This one actually looks red and can be spotted in the South-East direction (to the right of Venus) before sunrise. The planet isn't at its brightest right now, so it won't be easy to spot it!

3. Orion (The Hunter) constellation: Look to the South, up in the sky, and try spotting three stars shining close to one another, in a line. This is the Orion belt. On either sides of the belt, at a distance you shall find two stars, such that a human figure can be formed. This is the Orion constellation. You can use the Orion belt to navigate to further stars, for example, go down the line of the belt to find the brightest star of the sky, Sirius. The Winter triangle, an asterism, is another view to not be missed as it shall soon leave the sky.

There is so much more the night space can offer to gaze upon! A website I thoroughly believe in for any astronews is EarthSky (<https://earthsky.org/>). Hoping you have fun exploring the amateur astronomer in you, the sky is never the limit!

- By Muskan Choradia,
SY B.A.



THE LESSER KNOWN SCIENCES

"While taking up science as a stream is unfortunately very highly applauded in the Indian society, it is known only for engineering and medicine for the most part. However, what people don't realize is that science is so much more than diagrams, graphs, tools and scalpels. There are a lot of courses that are usually seen to be quite 'artistic' that are actual courses that can be taken up and degrees that can be earned.

Following are a few of them that one can take up that aren't quite well known... Yet.

1. Geology

A geologist is a person who studies matters and elements on the Earth and other planets, along with the processes that have led to their current state.

2. Blockchain development

A block chain developer is one who empowers digital exchanges by making them more secure. They ensure the privacy and encryption of the users.

3. Fermentation Science

A fermentation scientist is essentially a food researcher who studies the aging cycle of microorganisms. A fermentation scientist is someone who studies fermentation and fermentation only. Unlike what it sounds like, it is a degree more specialized than one in baking or cooking.

4. Auctioneering

Similar to retail, a course in auctioneering can help you boost ones people-pleasing-skills to another level.

5. Floral Management

While making a bouquet sounds like a simple task, it can actually be very daunting. Getting a degree in the same can help one excel at creating beautiful arrangements that make someone's day a little extra special.

6. Metallurgy

Metallurgy helps students understand the chemical, physical and atomic structures and properties of metals and their alloys.



THE LESSER KNOWN SCIENCES

7. Foresight

Although it sounds like a glorified name for a 'psychic', being a 'professional futurist' is a real occupation. While they don't make predictions about the future, they study trends, patterns and changes in a systematic and scientific way to come up with predictions for what might occur in the future and make plans accordingly.

8. Perfumery

Being a degree that takes about 2-4 years to complete, perfumery includes learning about basic formulations, understanding raw materials, fragrance analysis and much more.

Stay tuned to explore more unknown content, brought to you exclusively by The Mithibai Reader's Club!"

- By Het Unadkat,
SY B.A.



WE'LL ALWAYS FIND A WAY OUT

I remember walking home from college in January 2020 and we were at the railway station. We looked at the crowd and thought to ourselves, "We need another plague year!" And God usually never listened to us before but he did this time. Two months later we were in the grip of Covid-19. It's been a year now since and boy what a year it has been. When I take a look back, I tear up and laugh at the same time. Remember the global panic when there were less than 5000 cases? Remember when the first case arrived in our country? Remember when the PM announced a 21 day nation wide lockdown? Remember the grim silence that followed? Remember the panic because people didn't have enough groceries or they were worried about their salaries of the dear ones away from home? Remember how the roads were empty. I remember praying, "God, let one vehicle pass by today, please." How will we get past this? The silence was deafening.

And then it was as if someone sprinkled fairy dust around. Yuval Noah Harari says we are Sapiens. We always find our own survival even if we are the cause of the survival crisis in the first place. And we did. It all started with a simple coffee recipe that took over the social media and before we knew it, the world was on its toes with a hundred different trends, within the confinement of their four walls. In the next two weeks, we found a way to stay connected and moving via various ways, Tiktok, zoom, online payment apps took over. Soon, it wasn't so bad anymore. People embraced this period. As did nature. Dolphins returned to the shores, the sky had a different palette of colors, pollution decreased tremendously.

It was as if Mother Earth could breath again. The silence was almost welcome.

Well look at us now. We have almost grown past this, armed with masks and sanitizers. So cheers to us. Cheers to us for always finding a way out. Cheers to those who made the vaccines. Cheers to those who finally found their purpose. Cheers to those who fought their mental demons. Cheers to those who turned their lives around and cheers to those who didn't. Cheers to us who kept it together. Cheers to us.

- By Krisha Kansara,
SY B.A.



THE LIBRARY

The Jitendra Library of Mithibai College is a grand escape, among many other things. I say this with unabashed confidence, being a student of the college for four years myself, and having experienced all its wonders along with my peers and seniors.

The library is at a perfect nook, the very edge of the main floor, tucked away into a silent, comfortable corner that does not look like it should be able to fit something so astronomical; but to everyone's surprise, it does. It's planned to near perfection, right from the vast front desk, to the very last desk on the floor of the library's study hall. The delightfully clean, soothing colors give it a very distinct emotion, one which is isolated from the typical institutional robotism.

The borrowing desk is always bustling, a long line of students waiting to get copies of reference materials, past papers or mere books for pleasure. The computers placed at the very entrance are almost always occupied; people typing away intently, hoping to find the book they were looking all over for. Almost every time, the needed book is right there, popping up seamlessly in the database.

The repository is a work of art in and of itself; with its tall, organized cases holding books of every genre, expanding on everything and anything under the sun. It's easy to get lost in the maze of identical rows as you navigate the room, stacked to the brim with information, knowledge. The sheer hypnotism of it is enough to have you lost for hours, not feeling the minutes slide by in the slightest. It is always a risk deciding to stop by the library for a

few minutes in between classes, for it never ends up being a quick minute stop.

Walking in to the library, one wouldn't expect to experience what we do at Jitendra Library. One would expect a stern librarian waiting to reprimand, but what we find instead are students and library-goers happily following the regulations; and the familiar, friendly, smiling faces of the librarian and library staff. It's always a pleasant visit, whether you leave with a book or not.

The study hall has a large amount of desks that holds ample accommodation for all.



THE LIBRARY

It caters to all kinds of readers and students, from ones who have stopped by for a good session of studying with friends, to those who work with intense focus on a research paper due in a handful of hours. In a dependable rhythm, people flit in and out, floating to the repository, walking the diameter: glancing into cabinets, pulling out books that catch their eyes. Desk mates will often have their gaze glued to the pages in front of them, a pen twirling between their fingers, a tall bottle of water next to them, sometimes multiple reference books laid open atop the spacious wooden table.

Only the best kind of studying occurs in the library; in the hall full of people. It's a group effort, it's an emotion shared by an entire room, the steady thrum of concentration can rarely be broken. In the quick breaks between studying and reading, you can simply sit back in your seat and breathe. The scent that dances in the air is more than enough to clear your head. It's sweet and heavy, carrying with it the smell of paper both new and old, of ink and the printing press.

Alas, there must come the time for departure. The dreaded act of leaning back against your backrest, stretching out stiff joints, glancing at your wristwatch to reveal a time much later than what you had messaged on your family group as the official end of your library session. Then is the slow gathering of all your material, laid out so conveniently right in front of you, the happily tired exchanges with your table-mates, wordlessly letting them know you'll be taking your leave, silently asking when they'll be done, gently telling them to take care, and finally making a slow, hesitant exit to the outside. The outside, which

seems so much louder than it had when you first entered. The outside, that offers not many smiling faces or shelves stacked with books.

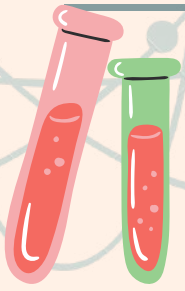
Once you're out of the biometrics, you steal a final glance, assuring yourself that you'll be back the next day, maybe the day after that. But be back, you surely will; and when you are, the Library will stand holding all the same things and more, awaiting your return.

Here's an overview of this grand escape:

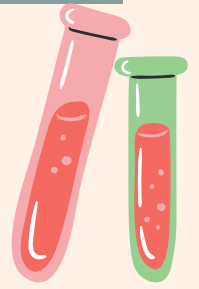
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- By Khadeejah Adam,
SY B.A.

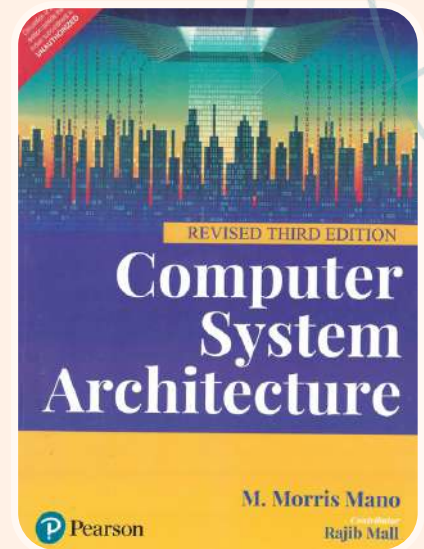
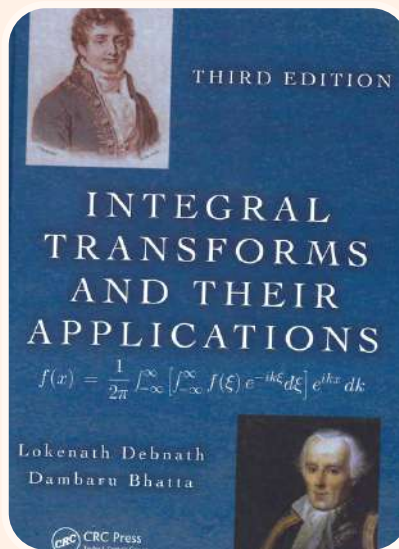
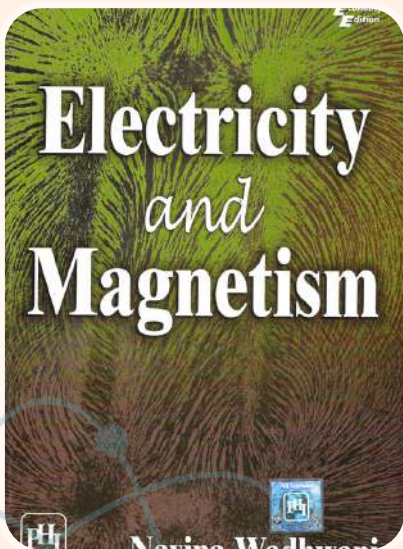
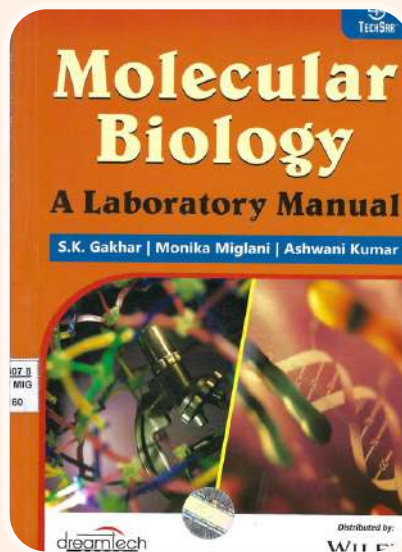
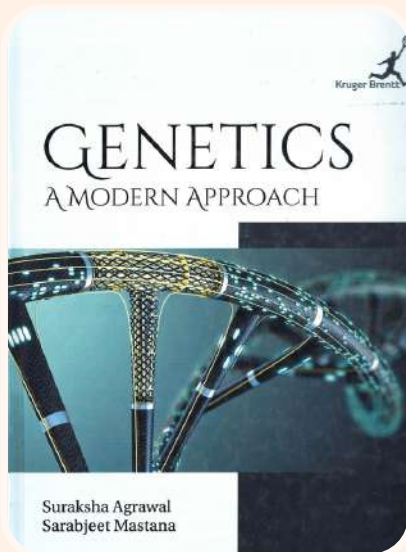


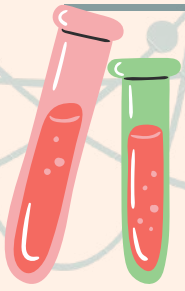


NEW ARRIVALS

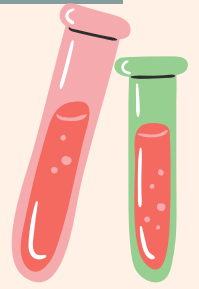


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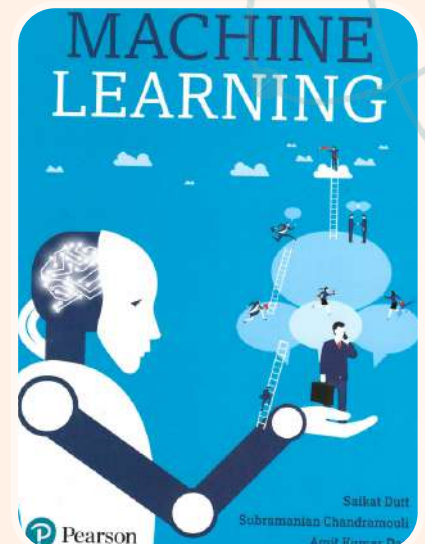
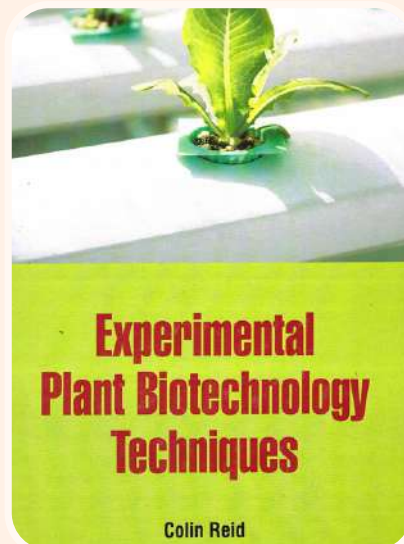
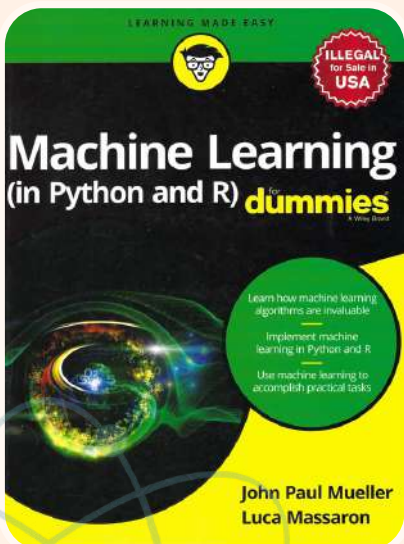
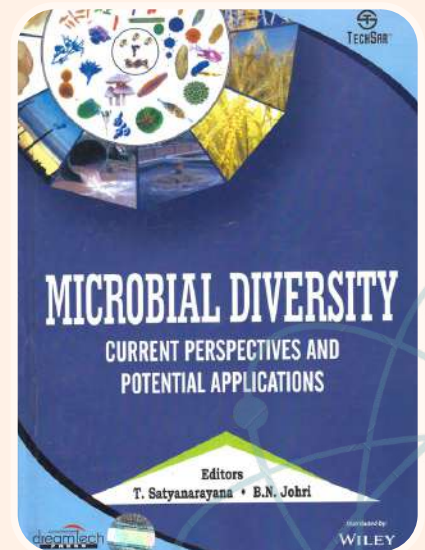
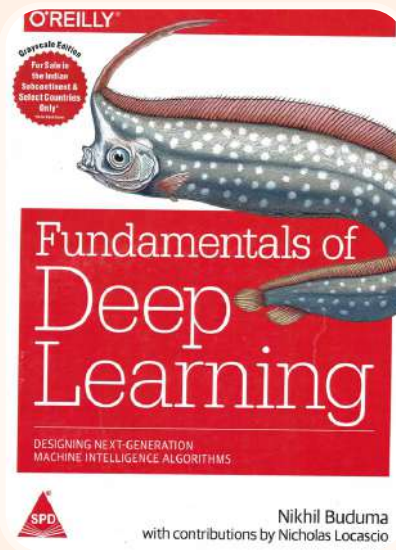
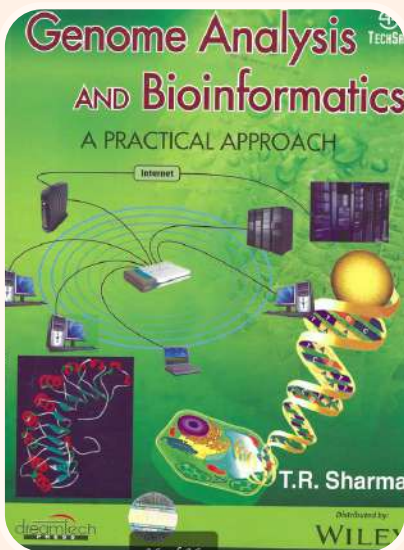




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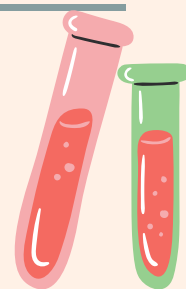


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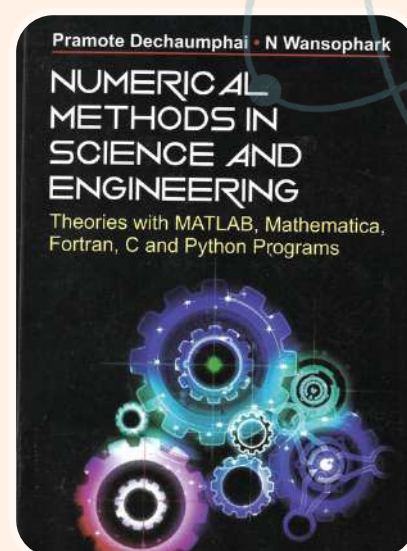
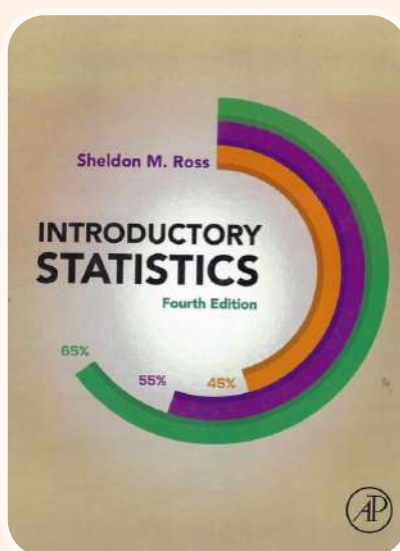
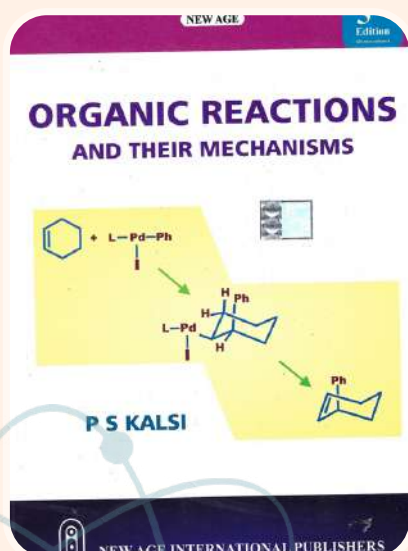
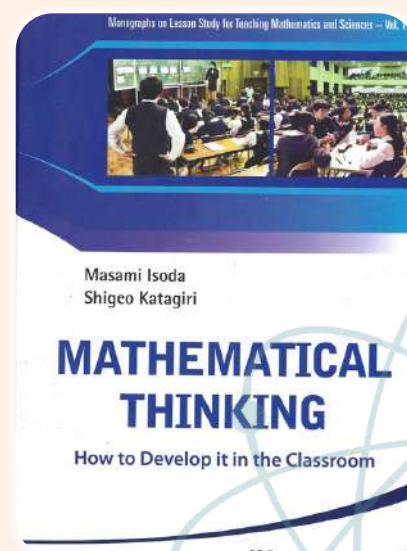
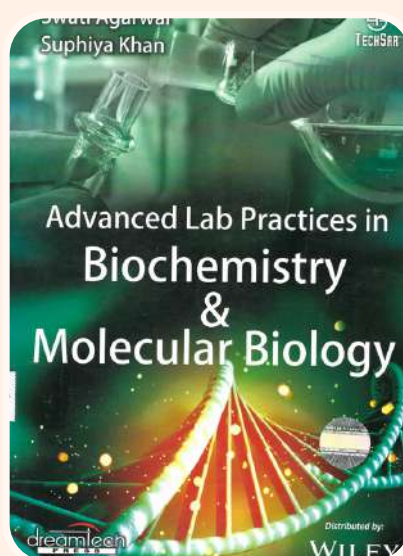
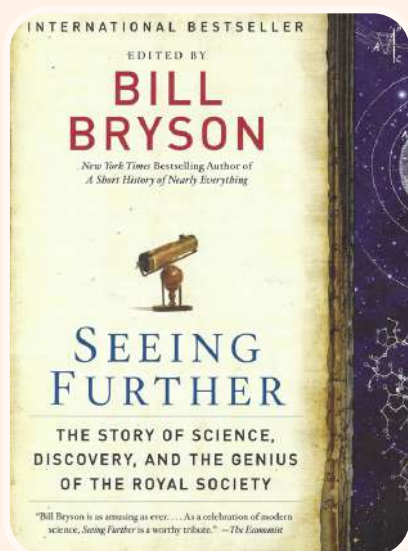




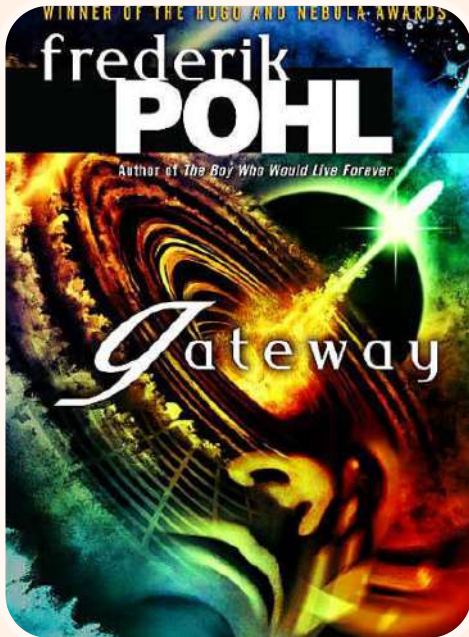
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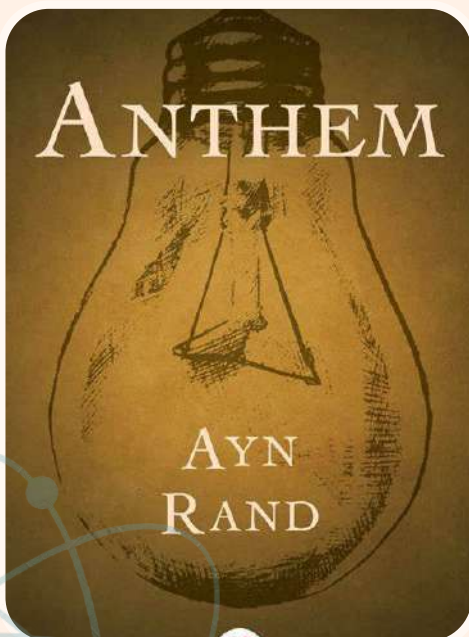
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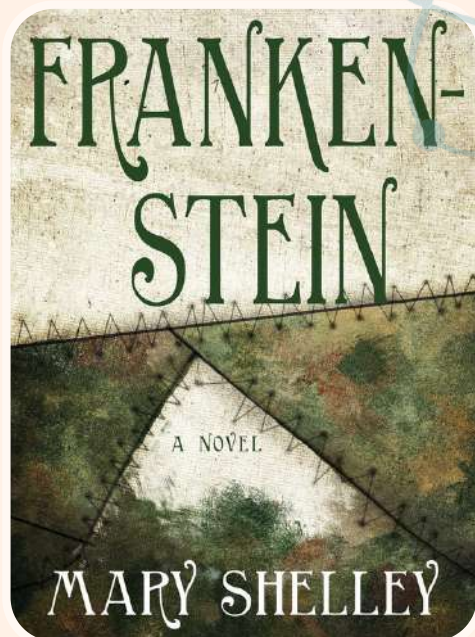
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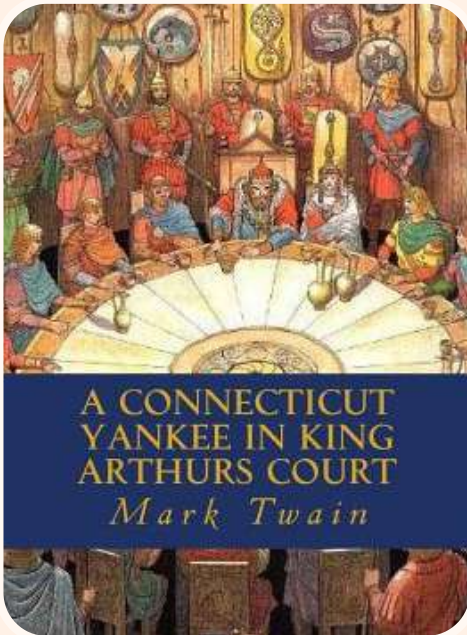


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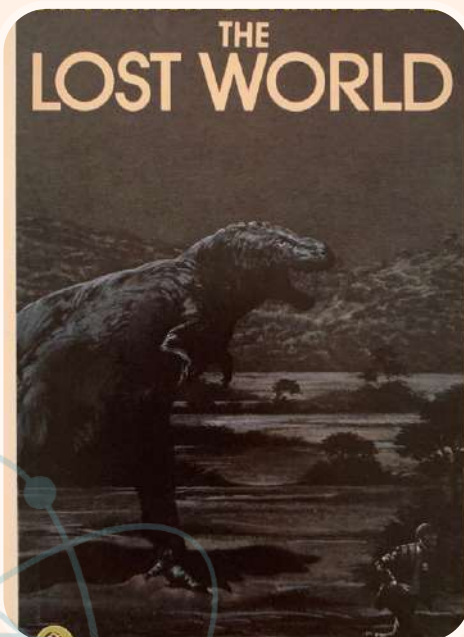
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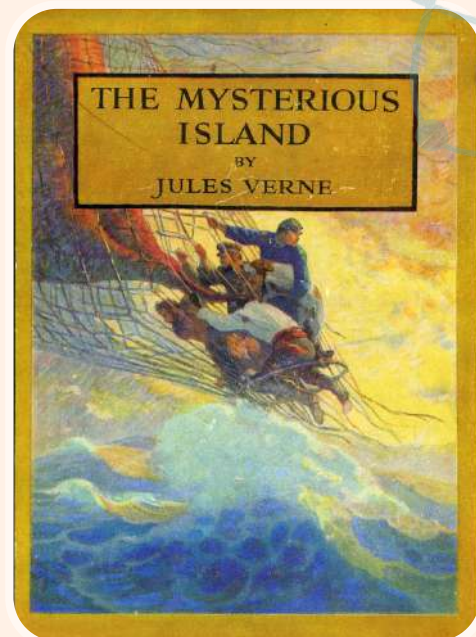
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THE PHOTO PHACTORY



Venus, Jupiter and Antares (a red star in Scorpius constellation) from left to right; and Moon



Venus and Moon snapped before sunrise in Auli, Uttarakhand

- By Muskaan Charodia

THE PHOTO PHACTORY



Lightning over the city lights



The beauty of Nature

- By Kriti Jagirdar

THE PHOTO PHACTORY



The trio of the moon, Jupiter and the stars



Never let darkness cover your light!
- By Kriti Jagirdar

THE PHOTO PHACTORY



- By Rutu Chheda

THE PHOTO PHACTORY



- By Khushi Chothani

RIDDLES



1. What can be measured, but has no length, width, or height?
2. What is full of holes but still holds water?
3. I am a unit of chemical elements, but I can never be trusted. What am I?
4. How did the astronaut serve dinner in outer space?
5. What kind of chemical element hates to be a follower?
6. Cesium and iodine love to watch television together. What is their favorite show?
7. What two periodic elements, when combined, heal?
8. What is black when you buy it, red when you use it, and gray when you throw it away?
9. I am excellent to taste, but horrible to smell. What am I?
10. What four periodic elements, when combined, make up something that terrifies criminals?

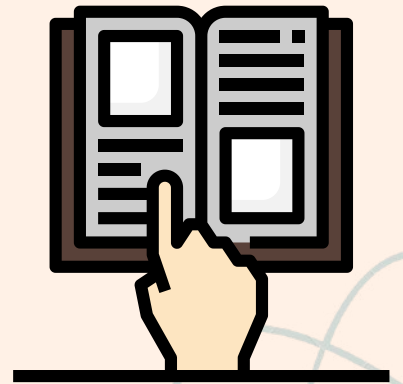
ANSWERS

1. The temperature
2. A sponge
3. An atom, they make up everything
4. On flying saucers
5. Lead
6. CSI
7. Helium and Aluminum (He + Al)
8. Charcoal
9. Tongue
10. Carbon, Oxygen, Phosphorous, and Sulfur (C + O + P + S)



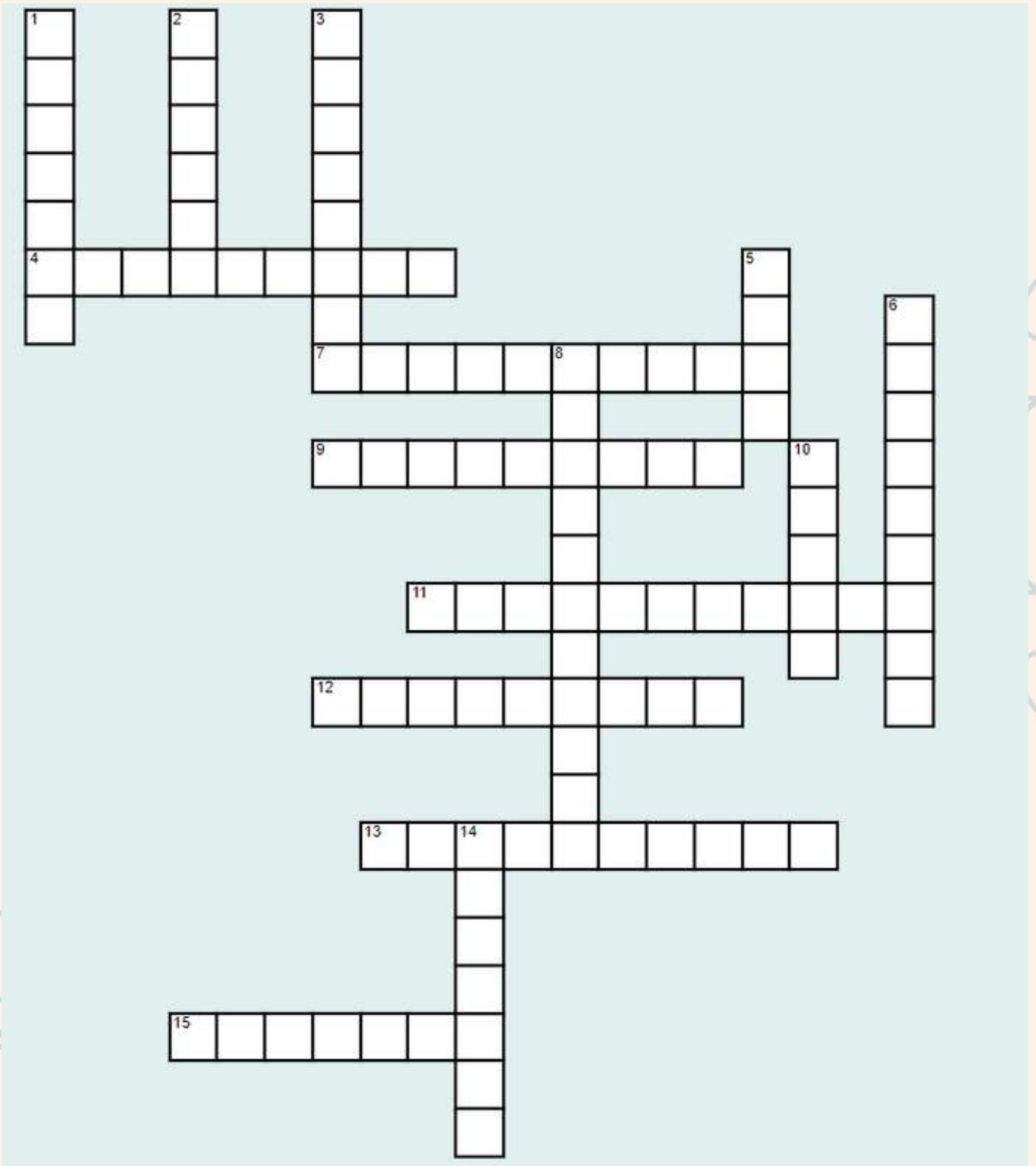
FUN FACTS

- Babies have around 100 more bones than adults.
- The Eiffel Tower can be 15 cm taller during the summer.
- 20% of Earth's oxygen is produced by the Amazon rainforest.
- Hawaii moves 7.5cm closer to Alaska every year.
- In 2.3 billion years it will be too hot for life to exist on Earth.
- Polar bears are nearly undetectable by infrared cameras.
- Stomach acid is strong enough to dissolve stainless steel.
- A cloud can weigh around a million pounds.
- Bananas are radioactive.
- Hot water freezes faster than cold water.
- It's impossible to burp in space.
- In an average lifetime, human skin completely replaces itself 900 times.
- If you took out all the empty space in our atoms, the human race could fit in the volume of a sugar cube.



NATURE OF SCIENCE

CROSSWORD



NATURE OF SCIENCE

ACROSS

- 4 _____ are all of the factors that must stay the same during the experiment.
- 7 After the scientist makes a hypothesis, they perform a(n) _____ to collect data.
- 9 The _____ describes the steps that a scientist will take during the experiment.
- 11 Gathering information using your five senses.
- 12 The _____ variable is the factor that is affected by the independent variable or is being measured.
- 13 A _____ is an educated guess.
- 15 The _____ is the group that is used for comparison.

DOWN

- 1 Method of obtaining knowledge and answering questions about the world around us through experimentation and observation.
- 2 Scientists use their data to make charts and _____ to communicate the results of an experiment
- 3 All claims must be backed up with specific _____.
- 5 The information collected during an experiment is called _____.
- 6 A conclusion made based on observations.
- 8 The _____ variable is the factor in the experiment that is being tested or the part that is changed by the person doing the experiment.
- 10 After collecting and analyzing the data, scientists will make a conclusion or a _____.
- 14 The first step of the scientific method is to identify the _____.

The key for the Nature of Science crossword puzzle:


<https://crosswordhobbyist.com/528518/Nature-of-Science-Crossword-Puzzle>



KEY CONTRIBUTORS



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Misri Nagda
Khadeejah Adam
Kashish



EXPRESSING GRATITUDE TO OUR MENTOR!

Shri Amit Sheth

"Here's to all of you coming back to college and enjoying friendships and extracurricular activities! Here's to learning life skills and making new happy memories. Here's to new experiences!"

SPECIAL THANKS TO

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