



HAF LONG GOVT. COLLEGE

DEPARTMENT OF ZOOLOGY

THE LIVING WORLD

EDITION - II
DEC 2024

A MAGAZINE ON LIFE CHRONICLES



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E-MAGAZINE EDITION-II

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Dear Readers,

Welcome to the second edition of our e-magazine! We are thrilled to bring you a collection of engaging stories, insightful articles, and creative expressions. This edition reflects the talent, passion, and dedication of our contributors, and we hope it inspires and resonates with you.

Happy reading!

Warm regards,

The Editorial Team



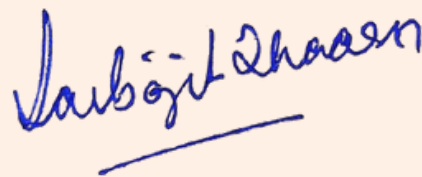
Message from the Advisor

I want to feature on the importance of consistency in achieving success. Often we focus on grand goals and forget that small, consistent efforts lead to significant outcomes.

Its okay to stumble but always get back up and continue
Consistency lays the foundation for progress. Growth is not about perfection, its about persistence.

Together, we can explore ways to overcome challenges and search our fullest potential.

My best wishes..



**Dr Sarbojit Thaosen(Principal i/c)
Advisor
E - Magazine
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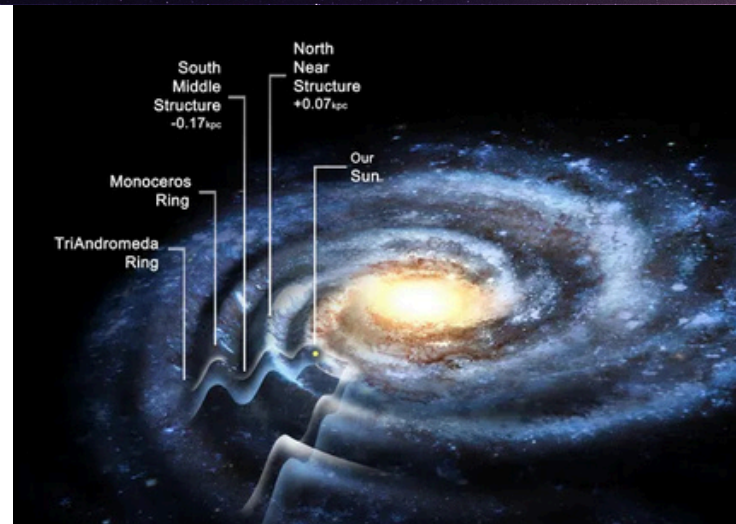
IS THERE A 'CLEAN' FUTURE?

What is a 'clean' future? This means production of energy without polluting the environment. Can this be done with nuclear power? Although nuclear power is clean, it can be dangerous to the environment. A clean future also means that we should use and manage the natural resources of the Earth wisely.

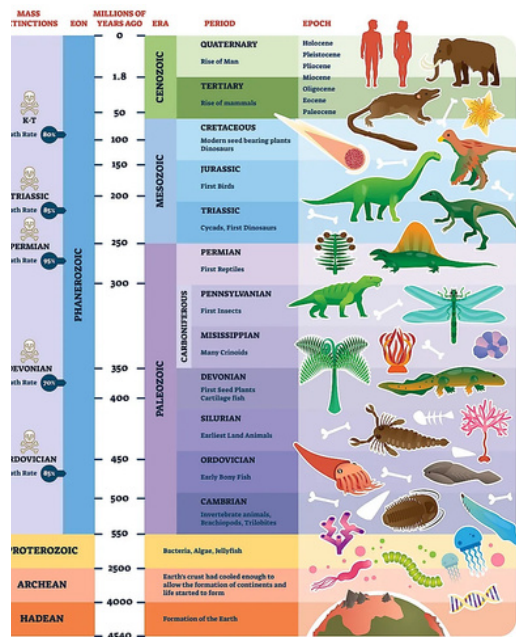
Our Earth in the Universe

ALL ABOUT OUTER SPACE AND THE EARTH

Wonders all around: Many natural phenomena occurring in the depths of outer space and on the Earth fascinate us. Red, glowing lava streams erupt from volcanoes. Earthquakes make the ground tremble and shake. Cyclones sweep over oceans and land, causing untold suffering to human beings and animals. The Earth is the only planet in our Solar system that has life on it. We have not yet visited the other planets, but have sent remote - controlled probs to explore them. Our Solar system is a small part of the Milky way, which in turn is a small part of a much larger universe



Milky way Galaxy with our Sun marked on it



WHAT ARE THE DIFFERENT PERIODS IN THE EARTH'S HISTORY?

After the 'Archeozoic' period of the Precambrian era, which lasted till about 550 million years ago, came the Paleozoic era. This era is subdivided into Cambrian, Ordovician, Silurian, Devonian, Carboniferous and Permian periods. In the Cambrian period, different types of organisms lived in the sea. the first land plants appeared in the Ordovician period. This fact can be proved with the help of fossils. The Mesozoic or the 'medieval age of the Earth', which is classified into the Triassic, Jurassic, and Cretaceous periods, began around 250 million years ago. The first mammal, as well as the dinosaurs, first appeared in the Triassic period. At the end of the Cretaceous period, the dinosaurs became extinct. Man evolved in the late Cenozoic period, which started 65 million years ago.

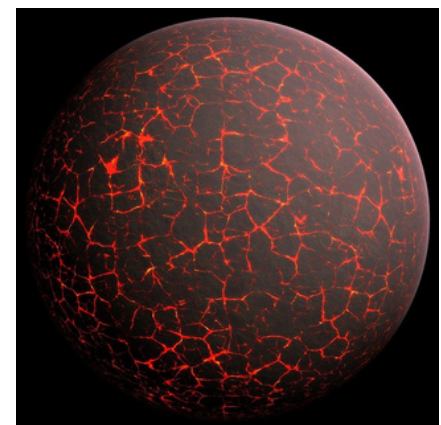
Did you know that...

Water is present on other planets as water vapour or ice, but not in its liquid form?

the sun rises 16 times in 24 hours at the International Space Station (ISS)?

FORMATION OF THE EARTH

The first eon in Earth's history, the Hadean, begins with the Earth's formation and is followed by the Archean eon at 3.8 Ga. The oldest rocks found on Earth date to about 4.0 Ga, and the oldest detrital zircon crystals in rocks to about 4.4 Ga, soon after the formation of the Earth's crust and the Earth itself. The giant impact hypothesis for the Moon's formation states that shortly after formation of an initial crust, the proto-Earth was impacted by a smaller protoplanet, which ejected part of the mantle and crust into space and created the Moon. From crater counts on other celestial bodies, it is inferred that a period of intense meteorite impacts, called the Late Heavy Bombardment, began about 4.1 Ga, and concluded around 3.8 Ga, at the end of the Hadean. In addition, volcanism was severe due to the large heat flow and geothermal gradient. Nevertheless, detrital zircon crystals dated to 4.4 Ga show evidence of having undergone contact with liquid water, suggesting that the Earth already had oceans or seas at that time. By the beginning of the Archean, the Earth had cooled significantly. Present life forms could not have survived at Earth's surface, because the Archean atmosphere lacked oxygen hence had no ozone layer to block ultraviolet light. Nevertheless, it is believed that primordial life began to evolve by the early Archean, with candidate fossils dated to around 3.5 Ga. Some scientists even speculate that life could have begun during the early Hadean, as far back as 4.4 Ga, surviving the possible Late Heavy Bombardment period in hydrothermal vents below the Earth's surface.



Artist's conception of Hadean eon Earth, when it was much hotter and inhospitable to all forms of life.



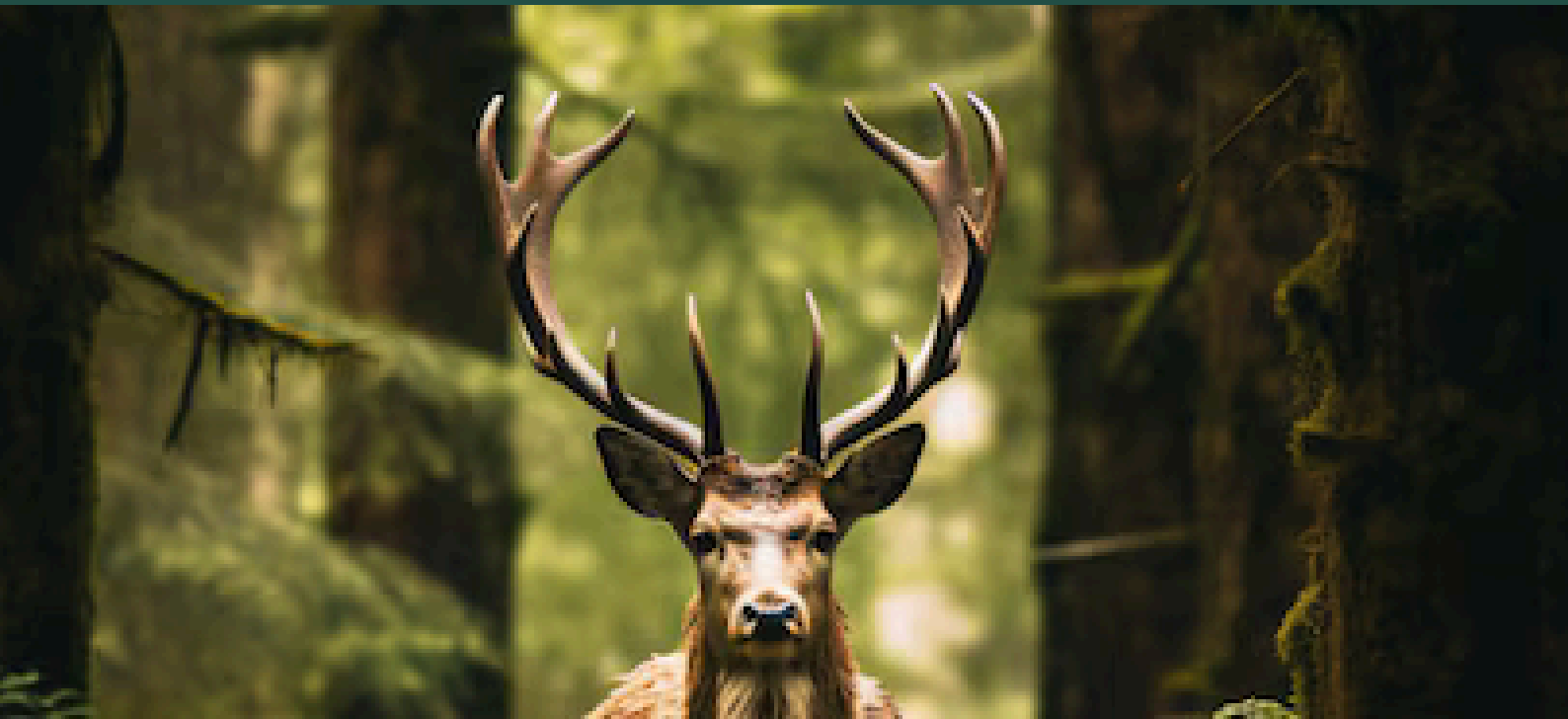
Long exposure photography can capture the movement of stars in the night sky

Did you know that...

There is a term known as 'light pollution'? It refers to the artificial lights of the cities that illuminate the night sky and create difficulties for the astronomers in studying the night sky.

OUR PRECIOUS ENVIRONMENT

PLANTS & ANIMALS IN OUR ENVIRONMENT



OUR TOP PICKS

Article by- Emiyanga Rymbai
TDC 6th Sem



Kim Aikawa / W

• SURVIVAL OF THE FITTEST

"Survival of the fittest" is a concept integral to Charles Darwin's theory of evolution by natural selection, though the phrase was coined by Herbert Spencer. It describes how organisms better adapted to their environment are more likely to survive, reproduce, and pass on their traits to future generations. Within any population, natural variations occur due to genetic differences. Certain traits provide advantages, such as better camouflage or resistance to harsh conditions, enabling those individuals to outcompete others in the struggle for resources like food and shelter. Over generations, these advantageous traits become more common, leading to evolutionary changes.

Fitness in this context refers to an organism's ability to survive and reproduce successfully, rather than physical strength. For example, during the Industrial Revolution, dark-colored peppered moths became dominant as they blended better with soot-darkened trees, avoiding predators. Similarly, giraffes with longer necks could access higher foliage during food shortages, ensuring their survival and reproduction.

Darwin's theory emphasizes the dynamic relationship between organisms and their environments. It explains how species evolve and adapt over time, driven by competition, variation, and inheritance. While misunderstood at times, "survival of the fittest" does not imply aggression but reproductive success. Modern evolutionary biology builds on Darwin's work, highlighting its role as a foundation for understanding the diversity and adaptability of life on Earth.

OUR PRECIOUS ENVIRONMENT



SAFEGUARDING OUR ENVIRONMENT

Saving the environment is crucial for the well-being of our planet and future generations. Simple actions at the individual and community levels can make a significant difference. Reducing waste by recycling, composting, and avoiding single-use plastics helps minimize pollution and conserves natural resources. Opting for reusable items and properly managing waste can drastically reduce environmental damage.

Conserving energy is another vital step. Switching to renewable energy sources like solar or wind power, using energy-efficient appliances, and turning off unused devices reduces greenhouse gas emissions. These actions, combined with insulating homes and using public transport, can lower our carbon footprint.

Protecting green spaces and planting trees are key to combating deforestation and preserving biodiversity. Trees absorb carbon dioxide, provide oxygen, and support countless species. Water conservation is equally important—fixing leaks, using efficient irrigation systems, and practicing rainwater harvesting are practical steps.

Awareness and education play a critical role in environmental protection. Sharing knowledge about sustainability encourages collective action, while advocating for green policies pushes governments and industries to prioritize the planet. With small changes in daily habits and support for broader reforms, we can work together to save the environment and build a sustainable future.



THE RED QUEEN

HYPOTHESIS

BY HAOMINLUN CHONGLOI, TDC 6TH SEM



EVOLUTIONARY ARMS RACES IN NATURE

The natural world is a complex catenary of life, constantly interwoven through competition and evolution. From the various theories describing evolutionary dynamics, the Red Queen Hypothesis, regarding the perpetual "arms race" between species, is particularly intriguing. Coined by evolutionary biologist Leigh Van Valen in 1973, the concept gets its name from Lewis Carroll's

In essence, the Red Queen Hypothesis proposes that species are under continuous selection, not just for making an advance, but, more generally, for maintaining a current level of fitness in relation to (co-)evolving competitors within their ecosystem. When the world around us is constantly different, it is not possible to just stay put.

THE CORE PRINCIPLES OF THE HYPOTHESIS

The Red Queen Hypothesis outlines two of the most basic features of evolutionary dynamics:

Coevolutionary Interactions: A make of species will interact directly or indirectly with another organism, e.g., predator/prey, parasites/hosts, competition for resources. These interactions drive reciprocal adaptations—as one species adapts, the other must also evolve to keep pace.



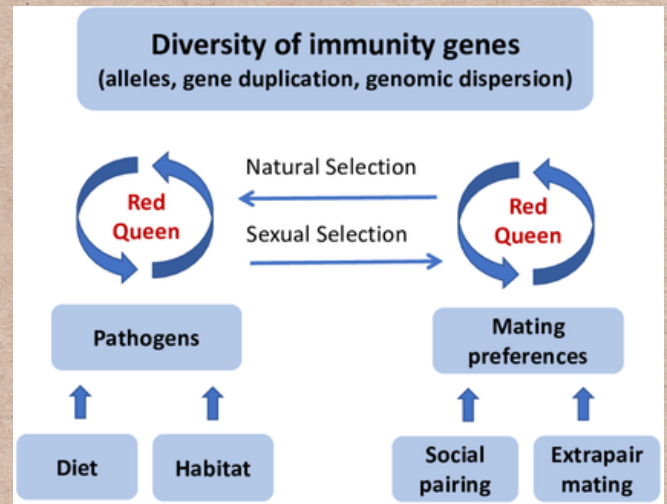
Environmental Change: Not even when no direct biotic interaction takes place, the environmental conditions are not static. Changing climate, changing habitats and geological events continually alter the context they live in, for which adaptation is an ongoing requirement.

EXAMPLES OF RED QUEEN DYNAMICS IN NATURE

Predator-Prey Relationships: The interactions between predators and their prey exemplify the Red Queen Hypothesis. On the other hand, if a quicker predator paces the evolution of its faster prey. As a result, the predator may evolve improved stealth or more effective hunting tactics. This process of mutual adaptation continues to confine both genomes in an evolutionary arms race.

Host-Parasite Coevolution: Host organisms and parasite(s) may be the most striking example of Red Queen dynamics. Parasites evolve mechanisms to evade or suppress the host's immune system, while hosts develop more sophisticated immune responses. This back-and-forth interaction fuels rapid evolution in both groups.

Sexual Reproduction: Part of the hypothesis has also been used to account for the conservation of sexual reproduction. In the presence of parasitic challenges, sexual reproduction acts as a means through which genetic diversity can be achieved in order to keep hosts ahead of parasites as they continuously evolve.



IMPLICATIONS FOR BIODIVERSITY AND EXTINCTION

The Red Queen Hypothesis highlights evolutionary reversibility and the instability of evolutionary equilibrium. Species that move too slowly to adapt effectively to the changing ecological interactions or environment are at greater risk of extinction. This viewpoint provides a window on the high turnover seen in the fossil record, in which populations of extant taxa are replaced over time with descendants of those extinct taxa.

Moreover, the hypothesis highlights the interconnectedness of ecosystems. Evolutionary modifications of one species can extend to the food web, changing the evolutionary course of other species more than expected. This interconnectedness stresses the need for protecting biodiversity in order to assure ecological resilience.

PREDATOR-PREY DYNAMICS





FORCES OF NATURE



THE POWER OF WIND AND WATER

Wind and water are dynamic forces of nature that sculpt landscapes and influence weather patterns. Wind carries seeds across distances, aiding in plant reproduction, while also driving powerful storms. Water, in its many forms—rivers, oceans, and rainfall—sustains life, shapes valleys, and powers hydroelectric energy.

THE ENERGY OF EARTH

Forces within the Earth, like tectonic activity and volcanic eruptions, constantly reshape the planet. Earthquakes form mountains and create new land, while volcanic eruptions enrich the soil with nutrients. These processes, though destructive at times, are crucial for the planet's evolution.

Article by - Udhai Routh
TDC 6th Sem

THE BALANCE OF LIGHT AND HEAT

The Sun, as the primary source of light and heat, governs life on Earth. Solar energy drives photosynthesis, powers weather systems, and regulates climates, ensuring the survival of plants, animals, and humans. It influences the water cycle by causing evaporation and precipitation, sustaining life on the planet.

Additionally, the Sun's warmth helps maintain Earth's habitable temperatures, creating a delicate balance essential for ecosystems to thrive. Without the Sun's energy, weather patterns would cease, and life as we know it would not exist. This force highlights how interconnected and dependent all life forms are on nature's balance.



Human body

HOW IT WORKS?

The human body is a fascinating and intricate system, where every part works in harmony to sustain life. At its core, the brain acts as the control center, sending signals through the nervous system to coordinate actions, thoughts, and responses.

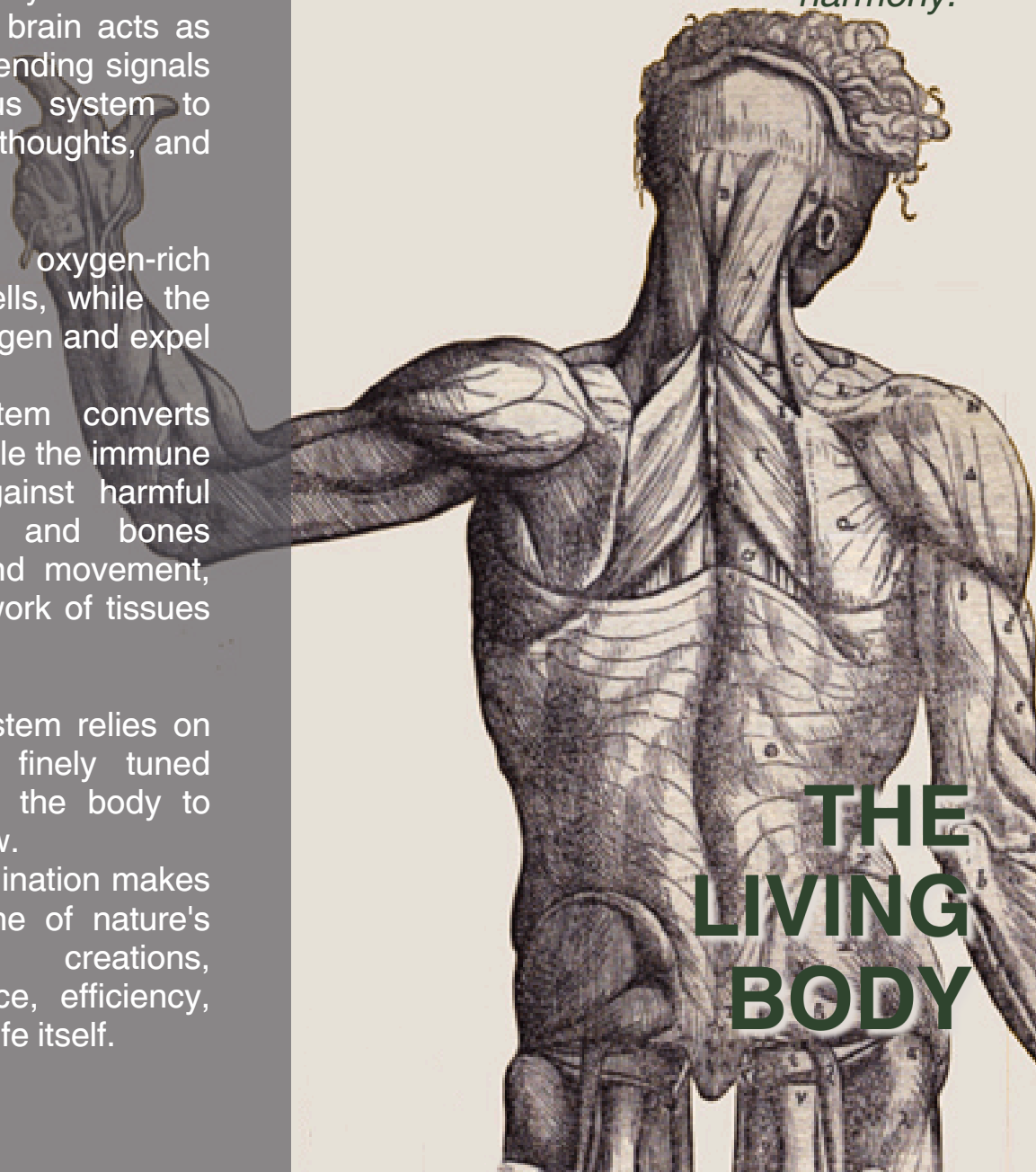
The heart pumps oxygen-rich blood to nourish cells, while the lungs supply the oxygen and expel carbon dioxide.

The digestive system converts food into energy, while the immune system defends against harmful invaders. Muscles and bones provide structure and movement, supported by a network of tissues and joints.

Each organ and system relies on others, creating a finely tuned balance that allows the body to adapt, heal, and grow.

This seamless coordination makes the human body one of nature's most remarkable creations, showcasing resilience, efficiency, and the brilliance of life itself.

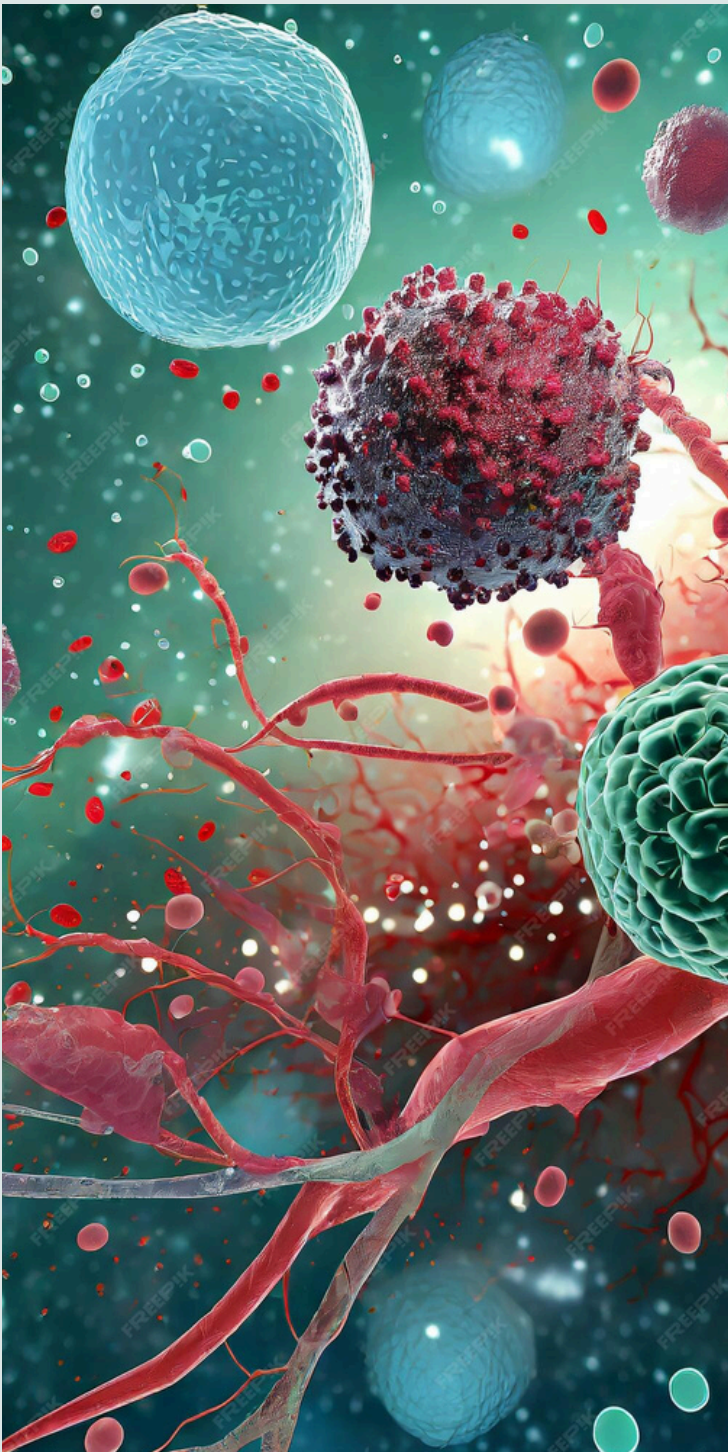
"The human body is nature's finest machine, where the brain commands, the heart powers, and every part works in perfect harmony."



THE LIVING BODY

MICROORGANISM

LIFE IN THE MINIATURE WORLD



A POEM BY -

Binita Devi, TDC 6th Sem

Microorganism: The Hidden World

Beneath our feet, in every breath,
A secret world of life and death.
So small, they're hidden from our sight,
Yet they dance in shadows, out of light.

In every droplet, every grain,
They thrive in silence, breaking chains.
A spark of life where none is seen,
The builders of the unseen green.

They feast on decay, they heal the land,
Unseen hands that help life stand.
In the air, the water, deep inside,
They thrive where secrets like to hide.

Their world is vast, yet soft and still,
A reminder of nature's will.
For in their tiny, secret place,
They hold the power to shape our space.

So though they're small and hard to find,
They teach us all to look, unwind.
For in the hidden, there's much to see—
Life's true strength is in what we can't yet be.