



संस्कृति मंत्रालय
भारत सरकार
Ministry of Culture
Government of India



नेहरु विज्ञान केन्द्र
राष्ट्रीय विज्ञान संग्रहालय परिषद की इकाई
Nehru Science Centre
A Unit of National Council of Science Museums
Ministry of Culture, Government of India



MEMBER NEWS

SCI-MAIL

APRIL TO JUNE 2024 VOL.28 NO.2



NEHRU SCIENCE CENTRE

(A Unit of National Council of Science Museums)

Ministry of Culture, Govt. of India

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Director's Desk



Dear Members

At the outset let me wish you all, who are going through the examination, the very best. Some of you might have appeared for the board examination and has already done well. Some will appear for Professional college admissions entrance examinations too. We wish you all the very best to do well.

We have inaugurated the internationally designed and developed exhibition Vaccine Injecting hopes. Dr Anil Kakodkar, Former DAE Chairman did the honour by opening the exhibition on 10th February 2024. It will remain open till 28th July 2024.

We, at Nehru Science Centre, express our sincere thanks to you all for visiting us during the year 2023-24 and joining us in our activities and programmes in large numbers. We have achieved all time high visitors, including outreach, touching much beyond the million mark. Even though students number is yet to come before pandemic level, still the number is at par with our expectations. I must congratulate our team especially in the education section for really working hard and putting a great show. Kudos to all the members of Team NSC Mumbai.

Several outreach programmes, with inclusive approach, in various schools and underprivileged students gave us satisfaction to include those also in the mainstream of scientific temper creation. The residential camps for students of remote and tribal areas, in collaboration with Pratham education Society, were well attended by enthusiastic and scientifically eager students. Most of them saw scientific stuff first time in life. The hands-on activities were highly appreciated by these students.

The package tours and SCI-BIRTHDAY facilities were much in demand. The live demonstration of science experiments for all, remained a great attraction for visitors. The motion simulator and Science on a Sphere were also witnessed by a large number of people and students on a regular basis.

And now we are going to announce the schedule of much awaited vacation creative science workshops. Keep a watch on the announcement so that you can book the seat of your choice discipline/s well in time. The wide range of workshops likes Arduino, robotics, astronomy, aeromodelling, model rocketry and basics science etc. will be available for students covering the 3rd to 12th standard. Amazingly you can now book the seat/s online too. So avail this opportunity to spend your summer vacation in a creative way making you learn while having fun. Check it out now.

So far there has been an overwhelming response for family tickets, which are adequately subsidized as compared to normal tickets. Please plan a visit with your family to avail this special tickets as learning is always better in family ambience during the visit.

Thanks to you all for the support and looking forward to more and more frequent visits by our esteemed visitors and members. Please join our community groups and get the information on programmes and activities on priority.

Umesh Kumar Rustagi
Director
Nehru Science Centre
Mumbai

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The Cover page & this edition - Designed by
H. D. Barapatre, Exhibition Officer 'C'

EXHIBIT AT THE CENTRE

ACROBATIC STICK

Discover the most fascinating exhibit in the Science for Children gallery! Watch in awe as a straight-stick effortlessly navigates through curved slits at an angle, showcasing the marvels of mathematics and geometry.

With a simple switch press, visitors can see an attractive demonstration of geometric principles in action. Witness as the straight stick, when rotated parallel to its plane, creates a captivating 3D surface known as a Hyperboloid of revolution, reminiscent of the graceful curvature found in a cane seat. This unique shape allows the stick to rotate seamlessly through the slits, challenging conventional expectations.

Don't miss the opportunity to delve into Hyperboloid Magic and uncover the secrets of shape and space!



WHAT'S NEW?

ISRO achieves yet another success in the RLV Landing Experiment

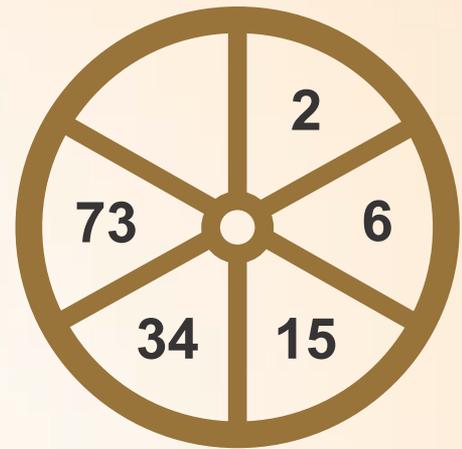
ISRO has achieved a major milestone in the area of Reusable Launch Vehicle (RLV) technology, through the RLV LEX-02 landing experiment, the second of the series, conducted at Aeronautical Test Range (ATR), Chitradurga in Karnataka.

After the RLV-LEX-01 mission was accomplished last year, RLV-LEX-02 demonstrated the autonomous landing capability of RLV from off-nominal initial conditions at release from Helicopter. The RLV was made to undertake more difficult manoeuvres with dispersions, correct both cross-range and downrange and land on the runway in a fully autonomous mode. The winged vehicle, called Pushpak, was lifted by an Indian Airforce Chinook helicopter and was released from 4.5 km altitude. After release at a distance of 4 km from the runway, Pushpak autonomously approached the runway along with cross-range corrections. It landed precisely on the runway and came to a halt using its brake parachute, landing gear brakes and nose wheel steering system.

The mission was accomplished by Vikram Sarabhai Space Centre (VSSC) along with the Liquid Propulsion System Centre (LPSC) and the ISRO Inertial Systems Unit (IISU). Collaboration from various agencies including IAF, ADE, ADRDE and CEMILAC contributed to the success of this mission. Shri S Somanath, Chairman, ISRO / Secretary, DOS, congratulated the team for the flawless execution of this complex mission. On the success of the landing experiment, Director VSSC Dr S Unnikrishnan Nair mentioned that through this repeated success, ISRO could master the terminal phase manoeuvring, landing and energy management in a fully autonomous mode, which is a critical step towards the future Orbital Re-entry mission.



1 Which number is missing from this wheel ?



2 Which number continues the sequence ?

1

5

13

29



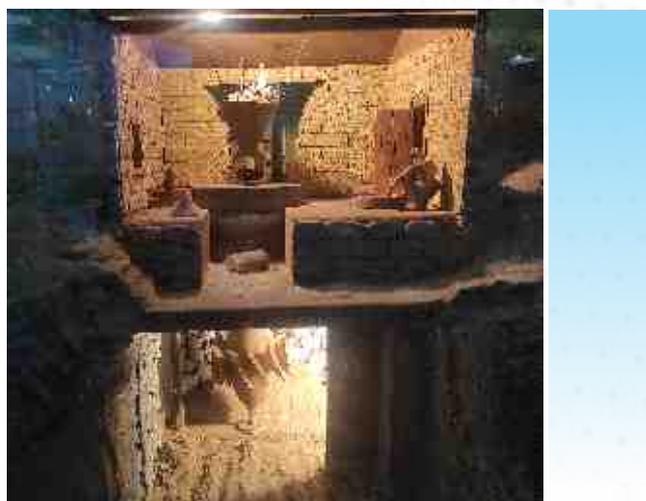
Last date for Sending Answers 15th April 2024
Best entry will be suitably awarded

Note : The contest is open to students up to std. X only

Send your answers to
librarian.nscm@gmail.com



Gharats, traditional Himalayan water mills found predominantly in the northern part of India, stand as enduring symbols of ingenious engineering and sustainable resource utilisation. Originated in the northeast region of India around the 7th century, these mills harness the power of flowing water to grind grains and perform various mechanical tasks, serving as vital economic and cultural assets to their communities, widely used even today.



The working principle of a Gharat is elegantly simple yet remarkably effective. Gharats are set up near rivers or streams. The channel is dug along the river to carry the water up to the mill house. A gradient of 2 to 6 metres is created to build up the water force. Gharat has a big wheel in the water called a paddle wheel. When the water falls on the paddles, it makes the wheel turn. The wheel then spins a shaft connected to a millstone, which grinds grains into flour or performs other tasks like extracting oil or sawing timber.

There are three distinct types of water mills. The first water mill had a vertical wheel with paddles in the stream. Then came the horizontal wheel, connected to a vertical shaft that turned a millstone. Finally, there

was the geared mill, using a vertical water wheel to turn a horizontal shaft. This required advanced knowledge and engineering skill than the first two, but it had greater potential.

There are three distinct types of water mills, vertical wheel, horizontal wheel & the geared mill.



Gharats play a big part in local life and culture. They help communities by providing essential services like milling grains and to earn money. Gharats are the perfect example of sustainable development practices as they have been using renewable energy for a long time, without harming the environment. They are made from local materials and don't need fancy technology. To know more about Gharat, visit 'Our Technology and Heritage' gallery at our science centre.

OUR SCIENCE & TECHNOLOGY HERITAGE

Astronomy in Ancient India



Astronomy, the study of celestial objects and phenomena beyond Earth's atmosphere, has been an integral part of human civilization for millennia. Among the ancient civilizations that made significant contributions to this field, India stands out for its rich and profound astronomical heritage. From the Vedic period to the classical era, Indian astronomers made remarkable advancements, leaving behind a legacy that continues to inspire and influence modern scientific thoughts.

Vedic Astronomy: The roots of Indian astronomy can be traced back to the Vedic period, dating back to around 1500 BCE to 500 BCE. In the Vedas, the oldest scriptures of Hinduism, there are numerous references to astronomical phenomena. The Rigveda, for instance, contains hymns that describe the sun, moon, stars, and their movements, indicating an early interest in understanding the celestial objects. However, it was during the subsequent periods, such as the Vedic Brahmana and the Upanishadic eras, that systematic observations of celestial phenomena began. People closely observed the celestial bodies and developed a rudimentary understanding of astronomical concepts such as the solar and lunar cycles.

Jyotisha: The Science of Light: Jyotisha, often translated as study of light or star was an early form of Indian astronomy. Vedanga Jyotisha, around 600 BCE, focused on precise methods for tracking the motion of celestial bodies using gnomon (sanku), sundial (yantra), and water clock (ghati yantra) for timekeeping, calendrical purposes, predicting eclipses and auspicious times for rituals. Jyotisha laid the foundation for later astronomical developments in India and was closely intertwined with religious and cultural practices.

The Siddhantas: Siddhantic astronomy emerged around the 5th century BCE with the introduction of mathematical techniques for calculating planetary positions and eclipses. During this time, a series of mathematical treatises known as the Siddhantas were composed, laying down the fundamental principles of

Indian astronomy. Aryabhata, Indian mathematician and astronomer, played a pivotal role in this period. His work revolutionized Indian astronomy with its introduction of mathematical concepts such as zero, decimal notation, the use of trigonometry to calculate planetary positions and by introducing the concept of a heliocentric solar system, centuries before it gained acceptance in the West. The Surya Siddhanta, attributed to the ancient sage Maya, dating back to the 4th or 5th century BCE, presents detailed calculations for determining the positions of the sun, moon, and planets, as well as the onset of seasons and the duration of day and night. It also describes the Earth's tilt and its effect on the changing seasons, demonstrating a sophisticated understanding of celestial mechanics. Other notable astronomers of the Siddhantic period include Brahmagupta, Varahamihira, and Bhaskara II. Brahmagupta's Brahmasphutasiddhanta provided significant contributions to arithmetic and algebra, while Varahamihira's Brihat-Samhita covered various subjects, including astronomy, astrology, and meteorology. Bhaskara II's Siddhanta Shiromani further advanced the understanding of planetary motion and introduced the concept of differential calculus.

Astronomical Instruments and Observatories: India was home to several observatories, known as Jantar Mantars. Built by Rajput king Sawai Jai Singh II in the 18th century, these observatories featured large masonry structures with precise geometric alignments. The Jantar Mantars served as centers for astronomical research and played a crucial role in advancing observational astronomy in India.

The legacy of astronomy in ancient India is a testament to the ingenuity and intellectual curiosity of its astronomers. Through meticulous observation, mathematical reasoning, and theoretical speculation, they unravelled the mysteries of the cosmos and left behind a rich legacy that continues to inspire astronomers and scholars to this day.

INDIAN SCIENTIST

The Ingenious Legacy of E. Sreedharan

Elattuvel Sreedharan, fondly known as the Metro Man, has devoted his career to revolutionizing public transportation in India.

Born in 1932 in Karukaputhur, Kerala, Sreedharan's journey commenced from humble beginnings. He pursued his education at Victoria College in Palghat and later graduated with a degree in civil engineering from the Government Engineering College (now JNTUK) in Kakinada, Andhra Pradesh.

Sreedharan's legacy is deeply embedded in his groundbreaking contributions to transportation infrastructure, notably his pivotal role in developing the Delhi Metro and the Konkan Railways. His visionary leadership and engineering prowess have redefined the way millions of people commute, rendering their journeys safer, quicker, and more efficient.

Throughout his distinguished career, Sreedharan has been showered with numerous accolades and honors, both nationally and internationally. He was bestowed with the Padma Shri in 2001 and the esteemed Padma Vibhushan in 2008 for his exceptional societal contributions. Moreover, he received the Chevalier de la Légion d'honneur from the French government in 2005 and was hailed as one of Asia's Heroes by TIME magazine in 2003.

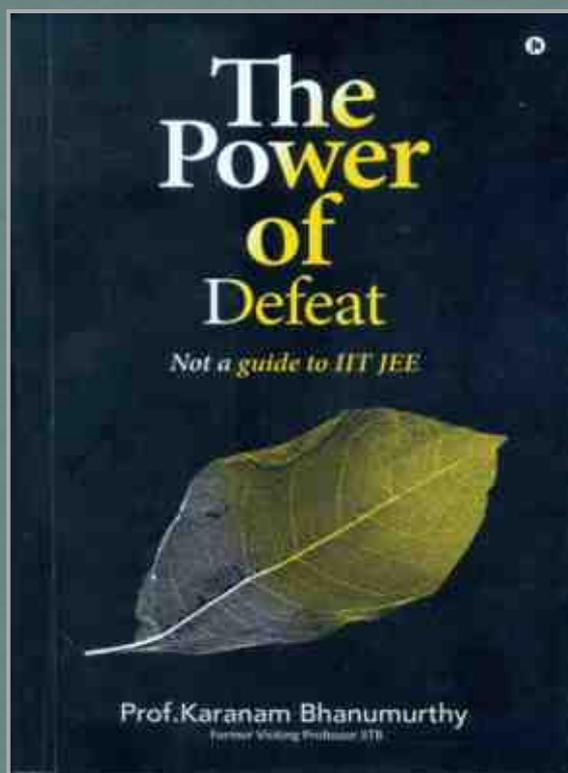


Dr. E. Sreedharan
The Metro Man of India

Even today, at the age of 85, Sreedharan continues to inspire us with his unwavering dedication to sustainable transport solutions. As a member of the United Nations' High-Level Advisory Group on Sustainable Transport, he remains steadfast in his commitment to shaping a brighter future for generations to come.

In essence, E. Sreedharan's life narrative serves as a testament to the potency of dedication, innovation, and perseverance. His pioneering efforts have not only revolutionized India's transportation landscape but have also left an indelible imprint on the global stage.

BOOK WORTH READING IN LIBRARY



The Power of Defeat: Not a Guide to IIT JEE

In "The Power of Defeat," Professor Karanam Bhanumurthy skillfully narrates the journey of Madhav, an aspiring IIT JEE student who triumphs over initial setbacks. The author delves into the challenges faced by students in the competitive environment of IIT JEE coaching institutes in Kota, shedding light on their struggles. Leveraging his past role as a visiting professor at IITB, Bhanumurthy imparts invaluable insights on how to handle failures and turn them into stepping stones for success.

Published by Notion Press, this book transcends the boundaries of a conventional academic guide, offering a multifaceted narrative. It is a compelling read for students grappling with challenges and serves as a valuable resource for parents navigating their children's academic journeys.

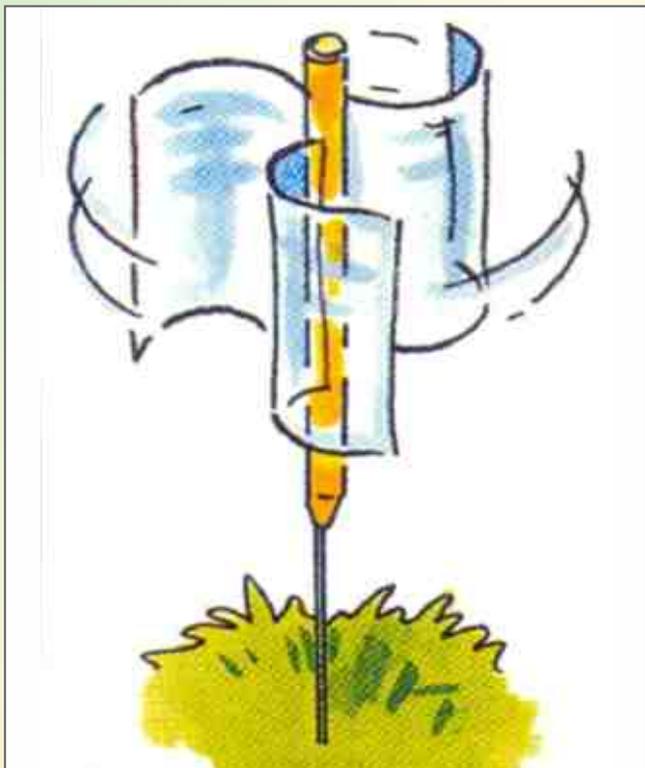




CREATIVITY

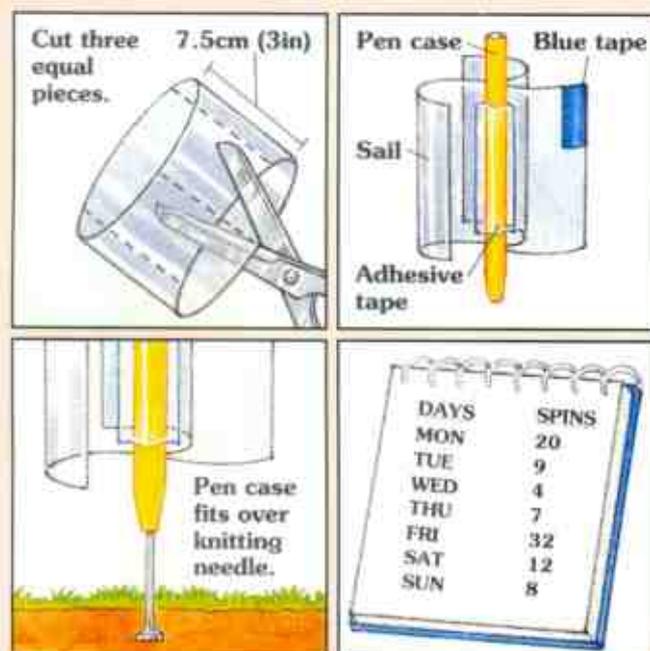
Make a Wind Speedometer

Create a wind speed indicator using a large plastic bottle, scissors, an empty pen case, blue and clear adhesive tape, and a knitting needle.



Instructions for Making:

- Begin by cutting a 7.5 cm (3-inch) segment from the center of the plastic bottle. Divide this segment into three equal parts and ensure they are all trimmed to the same size.
- Affix the plastic sails onto the pen case using tape. Apply blue tape to the upper corner of one sail to facilitate observation as the sail rotates.
- Insert the blunt end of the knitting needle into the ground. Slip the pen case over the end of the needle, allowing it to balance on the needle's tip.
- Daily, monitor the frequency of sail rotations within a designated time frame, such as 30 seconds. Compare these observations day by day.



What Happens?

Have you ever pondered the effect of the wind catching the plastic sails of this simple device, causing them to spin? By tracking these rotations over a set period, you can gauge the wind's speed and witness its variations across successive days. Quite interesting, don't you think?

UPCOMING PROGRAMMES

World Autism Awareness Day - April 2, 2024

Experimental Skill Test- April 21, May 19, June 16, 2024

For more details:

<https://nehrusciencecentre.gov.in/educational-activities/other-events>

World Earth Day - April 22, 2024

Workshop for Science Teachers - April 27 & 28, 2024

Vacation Creative Science Workshops

May 6 - June 2, 2024

For more details:

<https://nehrusciencecentre.gov.in/educational-activities/vacation-cac/>

National Technology Day - May 11, 2024

International Museum Day - May 18, 2024

No Tobacco Day - May 31, 2024

World Environment Day - June 5, 2024



TREE TREASURE AT NSC

CREPE FLOWER TREE OR CRAPE MYRTLE

Botanical Name: **LAGERSTROEMIA INDICA**

Family: **LYTHRACEAE**

The Crepe Flower Tree, scientifically known as *Lagerstroemia indica*, belongs to the Lythraceae family. It's renowned for its vibrant and enduring flowers that bloom in summer. Frost tolerant and preferring full sun, it can grow up to 30 meters. Thriving in various soil types with good drainage, it blossoms from June to fall, making it a popular choice for gardens and street trees.

Used widely in landscaping, it serves as screens, lawn specimens, and shrub borders. Additionally, it attracts songbirds and wrens for nesting. With around 50 species native to Asia and Oceania, *Lagerstroemia indica* is cultivated globally for its ornamental beauty.

Beyond aesthetics, the wood of this tree, ranging from white to light brown, is of high quality, and suitable for furniture and construction. Medicinally, its bark, flowers, and leaves possess purgative

properties, while the root acts as an astringent and diuretic. Decoctions of its flowers are used in treating colds, showcasing its multifaceted utility.



HOW
THINGS
WORK

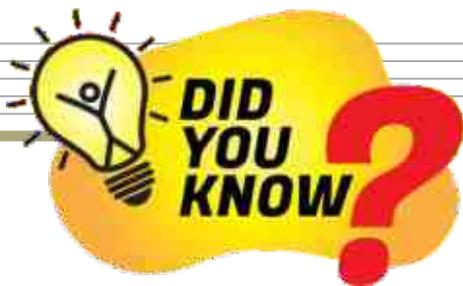
Biometric Security: How Your Body Becomes Your Password

In today's digital world, keeping our information safe is increasingly important. Biometric security offers a unique solution by using parts of our body, like fingerprints or face shapes, instead of passwords or codes to grant access to devices and systems. This works by storing our body information digitally and comparing it whenever we need to access something. It's like having a key that only fits our lock. Biometric security is used in many places, from phones and banks to airports and hospitals, making it harder for someone else to access our information.

The Aadhaar card system in India showcases how biometric security works in practice. Aadhaar cards give people a special ID number linked to their unique body features, like fingerprints and iris scans. This helps verify who we are, making it easier to access government services and benefits. Aadhaar-linked bank accounts also make it simpler for people, especially those without traditional IDs, to do secure transactions. Additionally, Aadhaar cards play a big role in healthcare by keeping our medical records safe

with biometric authentication. They are also used for attendance in offices and colleges, ensuring accurate and secure tracking of attendance records. By using Aadhaar cards in social welfare programs, governments can make sure benefits go to the right people, reducing fraud and misuse. While Aadhaar shows how biometric security can improve efficiency and inclusivity, it's crucial to address concerns about privacy and data security to ensure it's used responsibly and protects everyone's rights.





The Chemistry of the different colours of Blood

Most animals on Earth, including humans, have red blood due to the presence of a protein called Hemoglobin, which binds oxygen and carries it throughout the body. Hemoglobin's red color is attributed to the iron at its center, however, certain marine worms in shallow ocean waters deviate from this norm.

These marine worms utilize different oxygen-binding proteins, resulting in unique blood colors. Some arthropods, for example, have blood containing Hemocyanin, which uses copper in its binding process. When oxygenated, the blood appears blue, and it lacks colour when deoxygenated.

Peanut worms, another type of marine worm, have purple blood due to the presence of Hemerythrin, an oxygen-binding protein distinct from Hemoglobin.

Polychaetes, a different group of marine worms, possess blood with Chlorocruonin, a protein chemically similar to Hemoglobin but using iron for oxygen binding. While concentrated Chlorocruonin appears red, it can appear bright green when diluted. These variations showcase the diverse adaptations in the oxygen-carrying mechanisms of different organisms.

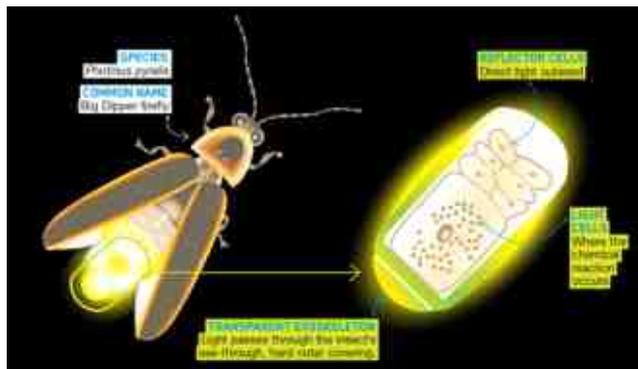
Red	Blue	Green	Violet
HUMANS AND THE MAJORITY OF OTHER VERTEBRATES	SPIDERS, CRUSTACEANS, SOME MOLLUSCS, OCTOPUSES & SQUID	SOME SEGMENTED WORMS; SOME LEECHES, & SOME MARINE WORMS	MARINE WORMS INCLUDING PEANUT WORMS, PENIS WORMS & BRACHIOPODS
HAEMOGLOBIN	HAEMOCYANIN	CHLOROCRUONIN	HAEMERYTHRIN
HAEM & (superoxide) (Fe ²⁺)	HAEMOCYANIN (superoxide) (Cu ²⁺ - histidine residues)	CHLOROCRUONIN (superoxide) (Fe ²⁺)	HAEMERYTHRIN (superoxide) (Fe ²⁺)

Chemistry of fire flies

Fireflies are renowned for their enchanting light displays, a result of a fascinating chemical process known as bioluminescence. In this process, fireflies generate light through a precisely orchestrated reaction within their bodies. This intricate dance involves the combination of oxygen, calcium, adenosine triphosphate (ATP), and the chemical luciferin in the presence of luciferase, a bioluminescent enzyme.

What distinguishes this natural illumination from the glow of a traditional light bulb is its classification as "cold light." Unlike conventional bulbs that emit substantial heat along with light, a firefly's bioluminescence minimizes energy loss in the form of heat. This adaptation is crucial for the firefly's survival, as the light-producing organ would be untenable if it reached the high temperatures associated with artificial lighting sources.

In essence, the magical glow of fireflies is a testament to the efficiency and sophistication of bioluminescence, showcasing nature's ability to produce light with minimal energy expenditure and without compromising the creature's well-being.



IN THE LAST QUARTER

January 2024

Sci-Birthday Celebration

On January 26, 2024, a lively Sci-Birthday event brought together 50 enthusiastic participants for an immersive experience. Exploring galleries, enjoying a captivating 3D show, and experiencing the thrill of a Motion Simulator Ride and mesmerizing demonstrations with Liquid Nitrogen.



Package Tour

In the last quarter Centre hosted 212 package tours, welcoming 20,245 students and teachers. Participants enjoyed guided tours through galleries, captivating Science Odyssey experiences, mesmerizing Science on Sphere shows, and engaging Science Shows



National Science Drama Festival 2023-24

The National Science Drama Festival, hosted by the National Council of Science Museums (NCSM), unfolded its brilliance on January 5th and 6th, 2024. Teams from 10 states converged at the Centre, presenting captivating dramas under the theme 'Science and Technology for the benefit of mankind.'

Renowned actor Shri Mustaq Khan and former Nuclear Scientist Dr A. P. Jayaraman graced the Inaugural Ceremony on January 5th. The festival boasted distinguished panelists and captivating performances, each team displaying their talent for approximately 25 minutes.

A special performance titled 'Evolution of Man' by specially-abled students and a theatre workshop added unique flavors to the festival on January 6th. The event concluded with cash prizes awarded to the Best Actor, Director, and Scriptwriter, alongside encouragement prizes for all participating teams.

With 469 enthusiastic school students attending in person and over 1,256 virtual viewers engaging through social media, the festival left a profound impact, celebrating the union of science and art.



Outreach Programme

The Centre, in collaboration with CSMVS, joined the Kalagodha Arts Festival 2024, offering the 'Astro-Voyage with National Council of Science Museum – Your destination for Astro-Tourism' sky observation program from January 22nd to 26th, 2024. Held at CSMVS premises, visitors enjoyed views of planets like Jupiter, Venus, and Saturn, Mars, the Orion constellation, and the Moon. Attendance varied daily, with a peak of 125 participants on January 26th.



Innovation Hub Sessions

The Centre is organizing sessions for 30 members of the Innovation Hub, which is from 13.01.2024 to 31.01.2024. 03 sessions were conducted during this month. These sessions immerse participants in scientific exploration, offering hands-on experiences across Physics, Chemistry, and Life Sciences. They cultivate curiosity, refine thinking skills, explore scientific apps, and inspire future endeavors.



IN THE LAST QUARTER

February 2024

Marathi – Malayali Ethnic Fest

The Centre, in collaboration with the All Mumbai Malayali Association (AMMA), hosted a dynamic Marathi-Malayali Ethnic Festival from February 2nd to 4th, 2024. The festival featured a series of competitions:

- Painting and written quiz contests on February 2nd with enthusiastic participation.
- Bharatnatyam solo dance performances and Rangoli competitions on February 3rd.
- Patriotic solo singing and Lavani solo dance competitions on February 4th.

A thrilling Koli dance team competition on February 4th. Participants across various age groups showcased their talents and concluded with the distribution of certificates and trophies to the winners.



Annual Inter-School Quiz Grand Finale and Valediction

Nehru Science Centre Mumbai, in collaboration with Rotary Club of Bombay Queen City and Rotary Club of Bombay Pier, concluded the Annual Inter-School Science Quiz Contest, spanning September 2023 to February 2024. This year's edition featured revamped formats for Middle School and High School categories. With over 200 schools participating, the event commenced with a written elimination round in September 2023, followed by oral knockout rounds leading to the finals.

The Middle School finale was held on January 31st, 2024, while the Senior Group finale took place on February 6th, 2024. Rtn. Arun Bhargava, District Governor of Rotary International, District 3141, graced the occasion as Chief Guest, acknowledging the program's enduring success over its 20-year history. The Senior Group finale, facilitated by Quizmaster Mrs. Sowmya Bhattacharya, featured diverse questions covering Science and Technology realms, from centre exhibits to current affairs. The High School finale saw Atomic Energy School no 4 clinch the top spot among 4 participating schools.

With a total of 260 students and 6 teachers in attendance, the finale provided a rewarding experience for all involved, celebrating knowledge and achievement.



Vaccines Injecting Hope Exhibition Unveiled

The Vaccines Injecting Hope Exhibition, launched on February 10, 2024, and running until July 28, 2024, at the Centre, is a collaborative effort by NCSM and international partners. Dr. Anil Kakodkar and esteemed guests inaugurated the event. With 2,877 visitors, including 1,592 women/girl students, since opening, the exhibition aims to spread awareness. Additionally, a Mobile Science Unit has been deployed to remote regions for further outreach.



Mobile Science Exhibition

Vaccines Injecting Hope Mobile Science Exhibition (MSE) toured to various local schools of Thane District and the surrounding regions. The Exhibition has covered 14 sites so far within the Thane district. 11,695 students, teachers and other visitors visited the exhibition.



IN THE LAST QUARTER

February 2024

Inauguration of SIAC, Devrukh

The Science and Innovation Activity Centre in Devrukh was inaugurated on 24.02.2024 by Padmavibhushan Dr. Anil Kakodkar as the Chief Guest. Approximately 720 students, teachers, and other participants attended the programme.



National Science Day 2024

- Online Science Quiz Contest: Three quizzes saw 1,412 participants exploring various science topics, and receiving digital certificates.
- Sky Observation Program: 118 participants observed Jupiter and the Moon, learning Astronomy basics.
- Robotics Workshop: 37 students and 23 parents engaged in building and experimenting with robots.
- Painting Contest: 72 participants showcased creativity on the theme of National Science Day, with prizes awarded.
- Online Video Making Contest: 28 students created engaging videos on scientific concepts, with three outstanding entries awarded.
- Science Demonstration: Liquid Nitrogen Shows captivated 1,087 students at Balmohan Vidyamandir, Dadar, Mumbai.
- Special Events: 856 students enjoyed cryogenic experiments, rocket demonstrations, rapid response quizzes, and creative workshops.
- Popular Science Lecture: Prof. M. N. Vahia's lecture on How to Become a Scientist attracted 380 participants.
- Prize Distribution Ceremony: 17 students were awarded science kits, books, and certificates for their achievements.

The weeklong celebration of National Science Day 2024 showcased the wonders of science and inspired future scientists.



Mobile Science Exhibition: Health and Hygiene

Mobile Science Exhibition (MSE) was organized for the various local school of Solapur District, and the surrounding regions. The Mobile Science Exhibition covered 15 sites this month.



Mobile Science Exhibition: Curriculum Based

The Centre organized a Mobile Science Exhibition (MSE) 'Curriculum Based' in Dhule district. Apart from the exhibition, Science Demonstration Lectures (SDL) & film shows were also organized during the visit. The MSE toured 13 sites of the Dhule district.



Outreach Programme

On 26.02.2024, a Sky Observation Programme was conducted at Billabong International School, Malad, Mumbai engaging 98 students in a sky observation session. Jupiter, the Moon and various deep-sky objects were shown through the telescope.



IN THE LAST QUARTER

March 2024

Mobile Science Exhibition: Vaccines Injecting Hope

Mobile Science Exhibition (MSE) toured to various local schools of Thane and Palghar Districts and the surrounding regions. The Exhibition has covered 28 sites so far within the Thane district. 11,188 students, teachers and other visitors visited the exhibition.



Innovation Hub Sessions

During the month the Centre organized 04 sessions for 27 students enrolled in the Innovation Hub program. These sessions took place on 02.03.2024, 09.03.2024, and included sessions on biotechnology on 16.03.2024 & 17.03.2024. The primary goal of these sessions was to provide practical knowledge and hands-on learning experiences. The Innovation Hub session for the Integrated Science batch January - March 2024 concluded by giving certificates of participation to all members on 17.03.2024.



Experimental Skill Test

The Centre in collaboration with the Bombay Association for Science Education (BASE), conducted the Experimental Skill Test at the Centre on 17.03.2024. 14 students out of 16 registered students appeared for the test. During the test, the students were provided with experimental setups and were expected to conduct experiments under the supervision of experts from the Centre and BASE. The primary objective of this initiative is to evaluate the participant's ability to perform experiments and demonstrate their observational skills.



Women's Day Celebration

- Skin care products workshop: A Workshop on making plant-based skincare products was organized at the Centre on the occasion of International Women's Day on 08.03.2024. The resource person for the workshop was Ms. Maitri Bheda, the founder of Plants Academy. The speaker gave the group a general overview of skincare products during the session, outlining their makeup and principles of operation. Also, the participants were taught how to make soap, Lip balm skin Toner and how to successfully use various other homemade products in daily life. The workshop had 28 participants.
- Make and Take Workshop: A hands-on activity focusing on sound, resilience, and flying objects were organized for the girl students. The Dancing Snake activity explored sound through rhythmic movement, while the Caterpillar session fostered discussions on resilience. In the Rotocopter activity, attendees designed and tested mini-rotocopters, celebrating innovation. 96 girl students participated in the workshop.
- Chalte-Chalte Quiz Competition: A Chalte-Chalte Quiz was organized at the Centre, held across various galleries.



National Oral Health Day

The Centre on 20.03.2024 commemorated National Oral Health Day. An awareness lecture by Dr. Sunali Khanna, Associate Professor at Nair Hospital Dental College, Mumbai, was organized at the Centre on this occasion. The lecture focused on various aspects of oral hygiene, emphasizing the significance of routine check-ups and addressing the prevailing lack of awareness regarding oral health. Dr. Khanna elaborated on the impact of lifestyle changes on oral health and stressed the importance of regular dental examinations. The lecture also included a Question-and-Answer session, encouraging active participation from the audience. A total of 360 students attended the session.



NSC - A Wonderland of Science

Science Park: Full of interactive exhibits on principles of energy, mechanics, perception & relics from the past: railway engines, tram cars, aircraft, electric power generator in park spread over 8 acres in green environment with over 200 species of plants and picnic area for school groups.



Permanent Exhibitions: The main building houses galleries full of exciting, interactive & interesting exhibits on topic relevant to school curriculum and for general public to make them appreciate Science with fun.



- Reception • Science for Children • Sound & Hearing
- Mirror Gallery • Machined to Think • Evolution
- Human and Machine • Our Technology Heritage
- Prehistoric Life • Hall of Nuclear Power
- Hall of Aviation & Space

Regular Programmes / Activities

SCIENCE ODYSSEY



The Science Odyssey facility with 18m dia Spherical Dome & fish eye lens projection system set up at the Centre, is the first of its kind in this region. It provides an opportunity to learn science in an immersive ambience. special shows can be arranged on request.

Now Showing Austrelia's Great Wild North Check our website for updates: <https://nehrusciencecentre.gov.in/>



High Voltage Demonstration

Nehru Science Centre, Mumbai has set up the first of its kind High Voltage Demonstration facility titled '**Sparkling High Voltage Demonstration**' which is now opened for the visitors.

This new facility offers some impressive demonstrations with a 200kV AC transformer, spectacular display of sparks & sounds with a Large TESLA Coil producing up to 1.50 million-volts and many more supporting equipments like Lichtenberg Tree Formation set-up, Jacob's Ladder, Arcing Horns, etc. wherein visitors can see disruptive discharges through air, sliding discharges over a glass plate, the demonstration with Faraday's cage, artificially generated lightning, etc.

Science on a Sphere

The state-of-the-art educational visualisation tool patented by the National Oceanic and Atmospheric Administration (NOAA), USA, is the first of its own kind in the western



part of India. The **Science On a Sphere** provides real time atmospheric and climatic data that is projected on the 1.8 metre Spherical globe. The giant animated sphere appears to be floating in mid-air, and even rotating on its axis. You can see oceans & continents in their actual colours (just as our planet appears from outer space), Tropical rain forests, Currents of the oceans in motion, Moon, Jupiter and Mars. This amazing, cutting-edge technology, the SOS, was invented by NOAA to educate the audience on earth and space systems in a three-dimensional format. This technology is now available worldwide for science centres, museums, educational institutes etc.

3D Science Show

The visitors to the 3D Science Show will experience an out of the world immersive experience in which the near realistic visuals will appear to come out from the static screen right in front of their eyes. The shows would be conducted every hour at the Centre for the general public & school groups.

Science Show

Exciting science demonstrations on Air, Sound, Chemistry is Fun and Fun with Physics etc. are organized regularly at the Centre thrice a day.

Sky Observation Programme

Every Saturday & Sunday after Sunset
(Weather permitting)

Motion Simulator

Motion Simulator is a machine designed to provide a realistic imitation of the controls and operation of a vehicle, aircraft, or other complex systems, mainly used for training purposes. It creates the effect of being in same conditions like driving on a rough road, moving in space etc.

It gives visitors thrilling experience through 3D viewing on a 70" LED monitor. Presently it is screening the film "The Great Wall of China". Here you are guided by a crazy old man with a rocket-powered chariot. It's a 10 minutes thrilling bumpy ride! So don't miss.

Book your date for an exciting experience at Nehru Science Centre, Mumbai

You can book online
Entry Ticket to
Nehru Science Centre

<https://nscm.in/general-ticket/>

Follow the Steps:

1. Book your ticket
2. Go to Cart and confirm it is of correct type
3. Go to Checkout and pay using Net Banking, Credit Card, Debit Card or UPI app

**Book
Online**

Timing

Nehru Science Centre
is open to public every day
including Sundays and
public holidays throughout

Opening hours:
09.30 AM to 06.00 PM

Ticket Counter Timing:
09.30 AM to 05.30 PM

Closed on Holi & Diwali.

ENTRY FEE PER VISITOR TO SCIENCE CENTRE & ITS SPECIAL FACILITIES.

Particulars	Amount
Entry Ticket	
Entry Ticket to Science Centre – General Visitors	Rs.70/-
Entry Ticket to Science Centre – Group of Visitors (15 or more)	Rs.60/-
Entry Ticket to Science Centre – Students in organised group with authority letter	Rs. 20/-
Entry Ticket to Science Centre – Students from Govt./Municipal Schools with authority letter	Rs. 10/-
Entry Ticket to Science Centre – BPL card holders on producing the card	Rs. 5/-
Entry Ticket ONLY to Science Park - General Visitors	Rs.20/-

Special shows

Science Odyssey - General visitors	Rs.80/-
Science Odyssey - Group of Visitors (15 or more)	Rs.70/-
Science Odyssey - Students in organised group with authority letter	Rs.50/-
Science Odyssey - Students from Govt./Municipal Schools with authority	Rs.25/-

Motion Simulator - General visitors	Rs.50/-
Motion Simulator - Group of Visitors (15 or more)	Rs.40/-

3D Science Show / Science on Sphere - General visitors	Rs.30/-
3D Science Show / Science on Sphere - Group of Visitors (15 or more)	Rs.25/-
3D Science Show / Science on Sphere - Students in organised group with authority letter	Rs.20/-
3D Science Show / Science on Sphere - Students from Govt./Municipal Schools with authority letter	Rs.10/-

Science Film Show / Science Demonstration Lecture (on prior booking)	Rs.10/-
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Package ticket for Science Centre & Science Odyssey

Package ticket - General visitors	Rs.130/-
Package ticket - Group of Visitors (15 or more)	Rs.110/-
Package ticket - Students in organised group with authority letter (Non-Member Schools)	Rs.60/-
Package ticket - Students in organised group with authority letter (Member Schools)	Rs.50/-
Package ticket - Students from Govt./Municipal Schools with authority letter	Rs.25/-
Package ticket - Science Centre, 3D show & SOS show for General visitors new.gif	Rs.100/-
Package ticket - Science Centre, Science Odyssey, 3D show & SOS show	
Package ticket - Students in organised group with authority letter (Non-Member Schools)	Rs.90/-
Package ticket - Students in organised group with authority letter (Member Schools)	Rs.75/-
Package ticket - Students from Govt./Municipal Schools with authority letter	Rs.40/-

Family ticket - Science Centre, Science Odyssey, 3D show, SOS show & Motion Simulator. Family of 4 members	Rs.600/-
Family of 6 members (Buy Family Ticket to Save & have lot of FUN)	Rs.900/-

Parking Charges

2 Wheeler	Rs.30/-
4 Wheeler	Rs.50/-

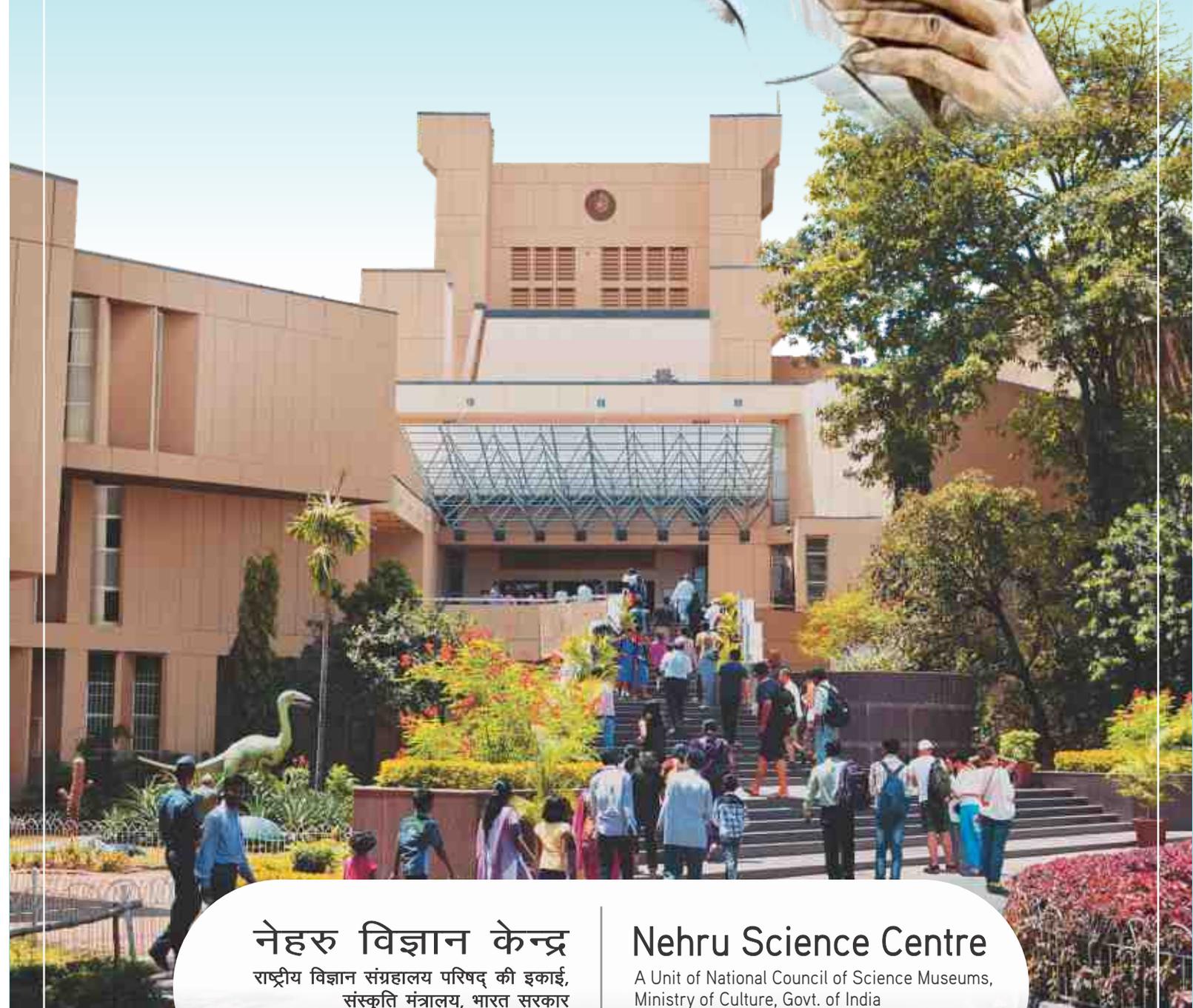
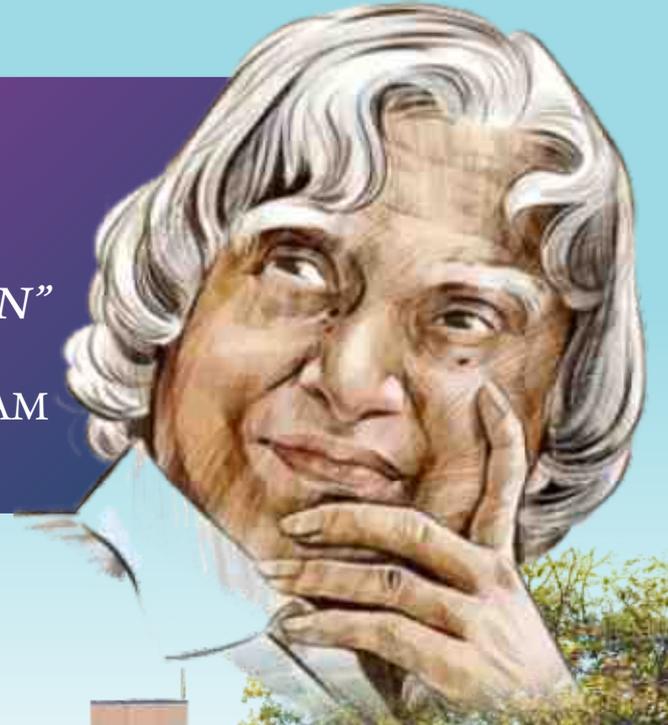
Free Entry only to Science Centre :

Children up to 3.4 feet (102 cm) of height
Defense & Paramilitary forces in uniform
Physically challenged persons and ICOM members

For other facilities visitors have to pay specified fee as per the category.

*“THINKING IS THE CAPITAL,
ENTERPRISE IS THE WAY,
HARD WORK IS THE SOLUTION”*

- DR. APJ ABDUL KALAM



नेहरु विज्ञान केन्द्र

राष्ट्रीय विज्ञान संग्रहालय परिषद् की इकाई,
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Nehru Science Centre

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