संस्कृति मंत्रालय
भारत सरकार
Ministry of Culture
Government of India

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

Azadi Ka Amrit Mahotsav

MEMBER NEWS

SCI-MAIL

JANUARY TO MARCH - 2024 VOL. 27 NO. 1

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 Reader,

Greetings from Nehru Science Centre!
Wish you all a very happy, healthy & prosperous New Year.

We have sincerely attempted to make our SCI-MAIL's new editions much more attractive, rich in content and more activity oriented, thereby, making it more participatory also. We are really glad to know that our efforts were appreciated by our readers and expressed desire to subscribe to it for schools, even though it is free for all. Our team of content creators for this quarterly magazine are really inspired after reading the compliments. A hearty thanks to all who appreciated and inspired our team. Let me add here once again that please feel free to share it or recommend it further to download from our website. We are further glad to share with you all that a few writers have expressed the desire to contribute to the magazine. In fact we have included one in this issue already for our esteemed readers. We are looking forward for more of these contributions.

Nehru Science Centre Mumbai (NSCM) really had a hectic schedule in the last quarter on the fronts of activities and extension education programmes. World Space Week in which students got the opportunity to participate in various programmes like Chalte-Chalte Quiz, Treasure hunt, Online Quiz Contest, Open House Quiz, etc. was celebrated with full flavour complementing our recent successes in space sciences. There were wonderful water rocket demonstrations and popular science lectures by eminent personalities like Professor Anil Bharadwaj, Director, Physical Research Laboratory, Ahmedabad and Dr. Syed Maqbool Ahmed, A Payload Scientist involved in Vikram Lander Mission. Our esteemed audience also got the opportunity to interact with the Russian Cosmonaut, Mr. Denis Vladimirovich Matveev, in online mode.

The zonal Science Drama Festival was also held at NSCM in which the CID serial famed ACP Pradyuman played by the eminent Indian actor Shri Shivaji Satam was the chief guest. The participants were overwhelmed with joy while seeing and interacting with the famous actor.

NSCM also got an opportunity to showcase its programme and activities at Science City, Ahmedabad on special invitation. Team, Nehru Science Centre Mumbai performed demonstrations including Liquid Nitrogen show during National Convention of Chemistry Teachers, while the Director, NSCM delivered lecture on "Sustainable Development – Our Future".

Another special week celebration on Chemistry was observed at the Centre during which Popular Science Lectures by Dr. D. V. Prabhu, Chairman, Bombay Association for Science Education (BASE) and Dr. A. P. Jayaraman, Chairman, National Centre for Science Communicators delivered respectively on "In the Wonderland of Chemistry' and 'Chemistry: From Alchemy to Modern Marvels". Special demonstrations on chemistry were also held and amazingly, some of the experiments were done by visitors themselves.

Our outreach activities, a skill test, package tours and Sci-Birthday celebrations were also much in demand. In the last quarter NSC witnessed a huge rush of visitors. Thanks for that.

Umesh Kumar Rustagi
Director
Nehru Science Centre, Mumbai

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EXHIBIT AT THE CENTRE

THE GIANT LEVER

"Give me a place to stand, and a lever long enough, and I will move the world"

Once said the renowned Greek Philosopher Archimedes. What he meant to demonstrate was the power of a lever and the mechanical advantage it generated. The GIANT LEVER exhibit at children science Park of the Nehru Science Centre showcases the fundamental principles of leverage, as excellently articulated by Archimedes.

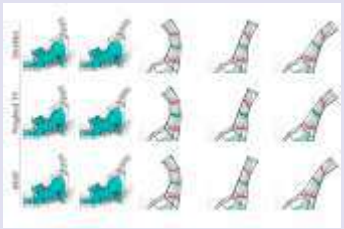
A lever, kind of a simple machine yet powerful tool, relies on effort and a fulcrum to lift or move heavy objects. Visitors can experience this concept personally by gripping one arm of the lever, connected by a knotted rope, and effortlessly lifting a real heavy car suspended at the other end. The exhibit illustrates the mathematical relationship between the lengths of the lever arms and the forces applied, emphasizing the mechanical advantage gained. **Try it! If not the Earth as claimed by Archimedes, you can lift at least a car. And that's really a great feeling!!!**

WHAT'S NEW?

AI-ANIMATION

AI to help artists improve animation

Artists who bring to life heroes and villains in animated movies and video games could also have more control over their animations, thanks to the new AI technique introduced by MIT researchers.



When an artist animates a 2D or 3D character, one common technique is to surround the complex shape of the character with a simpler set of points connected by line segments or triangles, called a cage. The animator drags these points to move and deform the character inside the cage. The key technical problem is to determine how the character moves when the cage is modified; this motion is determined by the design of a particular barycentric coordinate function.

The MIT researchers sought a general approach that allows artists to have a say in designing or choosing among smoothness energies for any shape. Then the artist could preview the deformation and choose the smoothness energy that looks best to their taste.

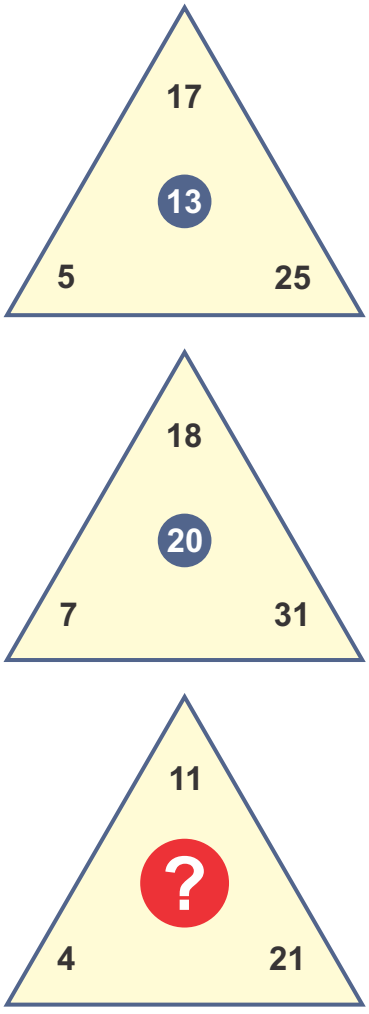
The method generates mathematical functions known as barycentric coordinates, which define how 2D and 3D shapes can bend, stretch, and move through space. For example, an artist using their tool could choose functions that make the motions of a 3D animals fit their vision for the "look" of the animated feline.

Using their method, an artist could try one function, look at the final animation, and then tweak the coordinates to generate different motions until they arrive at an animation that looks the way they want.

For Detail article follow link -
https://news.mit.edu/2023/flexible-solution-help-artists-improve-animation-1220

MATH PUZZLE

Place the correct number in the middle of the third triangle



Send your answers to librarian.nscm@gmail.com

CONGRATS..

to Mast. Aniruddha A Vibhute, Std. X, a student from Shri Yogi Prabhunath Maharaj Madhymik Vidyalay, Panhala, Kolhapur, for winning our math puzzle contest in Vol. 26 _No. 4

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

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

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THE IRON PILLAR OF DELHI

Delhi, our capital city, has a long and rich heritage. The Qutab Complex (where the Qutab Minar is located) holds a special attraction, it houses India's unique technological marvel, a remarkable ancient artefact, and metallurgical pride, the Delhi Iron Pillar. Believed to have been erected in the 4th century CE, during the Gupta Empire, the iron pillar stands as a testament to the advanced and exceptional metallurgical expertise of ancient Indian craftsmen.

Key features of the Iron Pillar of Delhi include:

- **Material and Composition:** The Iron Pillar is made primarily of wrought iron, with a height of about 7.2 meters and a weight estimated at over six tons. It stands as one of the world's foremost examples of ancient iron working.

- **Inscriptions:** The pillar bears inscriptions in Sanskrit, written in the Brahmi script. These inscriptions are attributed to King Chandra, a ruler of the Gupta dynasty, and provide historical and religious information.
- **Rust Resistance:** Despite irons being exposed to the elements for over 1,600 years, the pillar has not rusted or corroded. The reason behind this rust-free wonder lies in the high-quality iron used in its construction, which contains phosphorus. The phosphorus content protects the iron from rusting by forming a thin protective layer of iron oxide that prevents further corrosion.
- **Architectural Significance:** The Iron Pillar is thought to have been a part of a larger structure, possibly a Hindu or Jain temple. Its preservation and resistance to corrosion have made it an important archaeological and metallurgical curiosity.
- **Cultural and Historical Symbolism:** The Iron Pillar holds cultural and historical significance as it provides insights into ancient Indian metallurgical prowess and craftsmanship. It is considered an engineering marvel and a symbol of India's rich technological heritage.
- **Tourist Attraction:** The Iron Pillar, located in the Qutub Minar Complex, is a popular tourist attraction, drawing visitors from around the world who marvel at its historical significance, unique features, and the mystery of its rust-resistant nature.

While the Iron Pillar of Delhi continues to intrigue researchers and historians, its exact purpose and the methods employed in its construction remain subjects of scholarly debate. Nevertheless, it is a remarkable example of India's rich science and technology heritage. The pillar is a testament to the exceptional knowledge and skills of ancient Indian metallurgists, who were able to produce iron of such high quality that it could withstand the test of time. Its rust-free existence is a testament to the knowledge of ancient Indian scientists in the fields of chemistry, metallurgy, and materials science.

Nehru Science Centre also has a replica of the Iron Pillar of Delhi, installed in its science park, allowing visitors to explore its architectural marvels.

INDIAN SCIENTIST

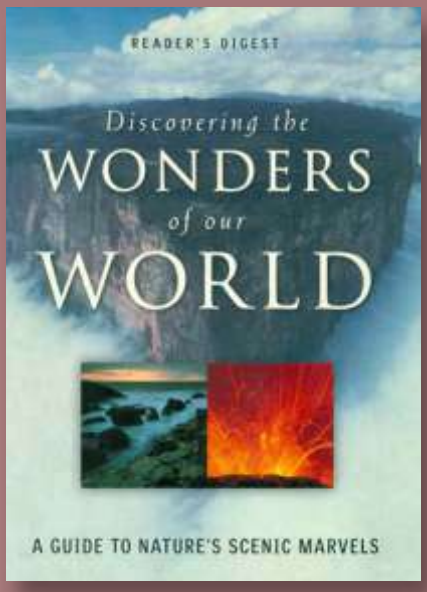
SUBRAMANIAN KALYANARAMAN

Subramanian Kalyanaraman, born on January 1, 1934, in Tiruchirapalli, a city in the south Indian state of Tamil Nadu, is a distinguished Indian neurosurgeon with a remarkable career. He pursued his education at the National High School, Tiruchirapalli, St. Joseph's College, Tiruchirappalli, Stanley Medical College, University of Madras, and the Royal College of Surgeons of Edinburgh.

Renowned for his pioneering techniques in stereotactic surgery, Kalyanaraman served as the former head of the Department of Neurosurgery at Apollo Hospitals in Chennai. Throughout his illustrious career, he has been associated with notable institutions such as Western General Hospital, Madras Medical College, Sooriya Hospital in Chennai, and Anuradha Clinic.

In acknowledgement of his outstanding contributions to Medical Sciences, Kalyanaraman was honoured with the prestigious Shanti Swarup Bhatnagar Prize for Science and Technology by the Council of Scientific and Industrial Research in 1969. This award stands as one of the highest distinctions in Indian science, reflecting the impact and significance of his work in the field of neurosurgery.

His exceptional contributions have earned him widespread respect and recognition, with several prestigious awards, including the 2003 Acharya Seva Ratnam Award, the 2007 MNT Lifetime Achievement Award, the 2008 Chetas Chikitsa Chintamani Award, the 2009 For the Sake of Honor Award, the 2010 Param Acharya Award, the 2012 Sri G. K. Subramaniya Iyer Award, and the 2013 IMA Kodambakkam Lifetime Achievement Award. Subramanian Kalyanaraman's dedication and achievements have left an indelible mark on the field of neurosurgery.



BOOK WORTH READING IN LIBRARY

"Discovering the Wonders of our World: A Guide to Nature's Scenic Marvels" by Reader's Digest is a captivating exploration of the beauty that surrounds us. This fantastic book is a must-read for students with an interest in global and local nature. The stunning photographs capture the essence of natural marvels, while the informative text provides a wealth of knowledge. Beyond being a visual feast, this guide serves as both an educational resource and a source of motivation for readers to appreciate and protect the wonders of our planet. "Discovering the Wonders of our World" is a treasure trove of inspiration and knowledge, making it an indispensable addition to any student's library.

Create your own Phenakistoscope

Explore the early magic of motion with the Phenakistoscope, Joseph Plateau's 1851 invention. Spin a disc adorned with images and slits in front of a mirror to witness captivating animations.

You will need:

- Phenakistoscope template (disc and animation)
- Glue • Mirror
- Pencil with eraser
- Tack pin • Cutter

Steps:

1. Paste the printout of the dial template on a sturdy board sheet. The sheet needs to stay stiff while spinning the disc.

2. Cut out the outer boundary of the template.

3. Cut out the slits in the disc, ensuring that the slots are nice and evenly cut and have the same diameter.

4. Push a tack pin through the center into the eraser on a pencil.

5. To use the Phenakistoscope, place the disc facing the mirror and look inside the slots while rotating the disc. Thanks to the slots, you can see the looped animation.

Explanation

To grasp the Phenakistoscope's workings, delve into animation theory. Achieving the illusion of movement requires the brain to perceive at least 10 frames per second. Merely displaying frames sequentially won't suffice; the trick is to show, hide, and reveal frames rapidly. The Phenakistoscope employs slots in its disc to conceal frames, and them, creating a seamless animated experience.

UPCOMMING PROGRAMMES

- National Science Drama - 5th & 6th janeuary 2024
- Astro-Voyage with NSCM at CSMVS/Kala Ghoda Festival - Jan 22-26 2024
- Marathi Malayali Ethnic Festival - February 2024
- Exhibition Vaccines Injecting Hope - 10th February 2024
- Annual Inter School Science Quiz - February 2024
- International Woman's Day - 8 March 2024
- World Water Day - 22 March 2024

TREE TREASURE AT NSC

Indian Almond or Malabar Almond Tree

Botanical Name: TERMINALIA CATAPPA

Family: COMBRETACEAE

Indian almond tree is also known as the sea almond, tropical almond, false kamani, country almond, beach almond, and Malabar almond etc.This beautiful popular garden tree is native to Asia and commonly cultivated for ornamental, particularly along streets in the tropics. It can reach up to 115 feet and produces corky and light fruit. Interestingly, this tree changes with age. In older Indian almond trees, the crown is flatter, making the tree look vase-like. Indian almond trees have 6- to 10-inch long glossy dark green leaves and white to greenish distinct male and female flowers. The wood is sometimes cultivated for its redness. Previously, it was used in Polynesia for making canoes. The fruits hold an edible, almond-like kernel. It is highly acidic, however, and can stain cars, roads, and sidewalks.

Leaves and barks of Indian almond trees are widely used in humans as a traditional medicine to treat hepatitis, dermatosis, oral infections and intestinal ailments in children and adults. Decoction of the leaves is used to treat indigestion, furred tongue, bronchitis and tuberculosis.

Source: Information obtained from Wikipedia and other related websites

HOW THINGS WORK

Spinning Science

Exploring the Magic Inside Washing Machines

Alva J. Fisher's pioneering electric-powered washing machine, patented in the early 20th century, laid the foundation for modern laundry appliances. Despite its simple appearance, this household marvel executes a meticulous job. It cleans the dirty clothes using cleverly designed moves, leveraging the forces of nature. Upon initiation, the washing machine fills its tub, combining water and detergent, setting the stage for the cleansing ritual. As the drum commences its agitating motion, centripetal force emerges as a pivotal player.

This inward-pulling force directs clothes toward the centre of the spinning drum, causing them to collide with each other and the water. These repeated collisions aid in dislodging dirt particles from the fabric fibres, enhancing the cleansing process. Concurrently, centrifugal force steps into action during the spin cycle. As the drum rotates rapidly, this outward-pushing force propels water outwards through the clothes. The forceful expulsion of water helps expel dirt and detergent residue from the fabrics, ensuring a thorough rinse. Newton's laws of motion play a crucial role in the washing machine's operation, particularly regarding the drum's movements and interactions with the laundry load. These laws guide the drum's motion during the wash cycle, facilitating the collision between clothes and water.

The combined effects of centripetal and centrifugal forces, coupled with fluid dynamics, suspends dirt particles within the water, effectively carrying them away from the clothes. In essence, the washing machine's two Special Forces: centripetal and centrifugal, alongside fluid dynamics principles, guided by scientific laws, work together to clean clothes effectively without harming them. Engineers harness these forces to design washing machines that efficiently clean clothes while minimising damage to fabrics. It's the clever use of these forces that ensures your clothes come out fresh and ready to wear after each wash.

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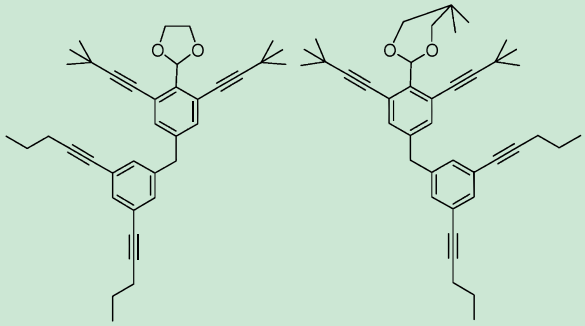
THE CHEMISTRY BEHIND FRUIT'S AROMA & FLAVOUR

Fruit ripening is a complex biochemical process that involves changes in the fruit's texture, color, aroma, and flavor. This process is governed by various chemical reactions that take place within the fruit's cells and tissues. The chemistry of fruit ripening is a fascinating area of study that has important implications for agriculture, food science, and nutrition.

One of the key players in fruit ripening is ethylene, a gaseous hormone that is produced naturally by the fruit. Ethylene acts as a signal molecule that triggers a cascade of biochemical events leading to the ripening process. When the fruit reaches a certain stage of maturity, the production of ethylene increases, which in turn activates genes that control the ripening process.

Other chemical compounds also play important roles in fruit ripening. For example, sugars such as glucose and fructose accumulate in the fruit during ripening, leading to an increase in sweetness. Acids such as citric acid and malic acid are also broken down, leading to a decrease in sourness. Moreover, the breakdown of starches into simple sugars is a key factor in the ripening of some fruits, such as bananas and apples.

THE CREATIVE CHEMISTRY OF NANOPUTIANS



Nano technology has opened up a world of possibilities in material science, electronics, medicine, and many other fields. One of the most fascinating areas of research is the creation of nano scale structures that mimic biological systems or human-made devices. Among these structures, NanoPutians stand out as an artistic and functional marvel.

NanoPutians are anthropomorphic molecules that have captured the imagination of scientists and artists alike. These tiny structures, only a few nanometers in size, have been designed to resemble miniature humanoid figures, complete with arms, legs, and even facial features.

The creation of NanoPutians is a remarkable feat of engineering, as scientists must carefully manipulate the properties of each molecular component to ensure that the final structure is both stable and functional. Once assembled, these structures have the potential to be used in a wide range of applications, including as sensors, drug delivery vehicles, and even miniature machines.

In conclusion the world of NanoPutians is a fascinating one, offering both scientific and artistic opportunities. As researchers continue to explore the potential of these anthropomorphic molecules, it is clear that they will play an increasingly important role in shaping the future of nano science and technology.

Can Plants Cry

- Dr. Rita Singh Majumdar

Yes, Plants like Human beings also cry if you hurt them or forced them to survive under some stress condition. The same unbelievable incident has been reported and published in a renowned American journal “Cell”, that if you do not give sufficient water to your plants, they scream and emit some varying high pitched “air-borne” ultrasonic sound waves that other living creatures can hear, but not human beings.

Do you know how plants are important for our lives? There is a common saying that “one tree, one life” and not only that if you plant a tree you get cold air for free. Do you know that during COVID-19 pandemic period, when there was an acute scarcity of oxygen, many people in the village areas used to spend their daytimes lying under big shady banyan trees just to have pure oxygen? Plants absorb CO_2 and release Oxygen during their photosynthesis (the process by which plants prepare their own food using sunlight, water, and carbon dioxide to create oxygen and energy in the form of sugar). Tree plantation is vital to increase the green cover of the earth.

Not only Oxygen, trees provide us fruits, foods, flowers and vegetables containing chlorophyll pigments that are required by all living beings and also provide fibres like cotton, jute, wood & timber, oil, spices, perfumes, etc. Tree plantation is also vital to ensure that birds

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and many animals such as koala bears, sloths, orangutan, and tree frogs, etc. that live on trees have a home. Therefore, undoubtedly plants are important for the survival of living organisms.

Interestingly, from the ancient Vedic religion, Hindus have a deep faith and feeling of respect or admiration towards the nature and believe trees are the origin of life. Therefore, plantation holds high religious significance in Hinduism. There are many important plants name that are mentioned in Hindu mythology. They are very common to India. The sacred plants are the Bel, coconut (fruits), Kusha grass, leaf like Tulsi, betal leaf (paan), banana; flowers like Lotus, Champaka, China rose, etc are also sacred. Moreover, almost all plants have some medicinal value, as for example in India Tulsi (*Occimum sanctum*) is cultivated for religious and traditional medicine purposes and Mint plant (*Mentha piperita*) is for essential oil "Menthol".

Unfortunately, even after knowing its importance, people sometimes unnecessarily cut down trees. Of course for urbanization and for development, deforestation becomes necessary for us, but at the same time Scientists also have discovered that plants emit high-frequency sounds when they are under stressed condition. According to some new experiments and studies, scientists were successful in recording the popping noises of some plants (like tomato and tobacco) make when they were dehydrated purposely or trying to keep them under some other stress. But the sounds are so high-pitched that human cannot hear.

Plants can perceive light, scent, touch, wind, even gravity, and are able to respond to sounds, too. Unlike human beings, though plants do not have ears, even then they can respond to sound. It has been scientifically proved that the sound waves stimulate the plant's cells and these stimulated cells encourage the nutrients to move throughout the plant body, thus helping to promote new growth and also strengthen their immune systems. Not only that, studies also shows that plant seems to have a specific taste for music, such as some plants have taste in different styles of music like roses in particular seems to love violin music, some plants shows increase in growth while playing classical or jazz music, while harsher metal sounds induce some stress. It may be because of the vibration of metal music and its harsh sound is not beneficial for plants growth. These harsh sounds create some sort of stress to the plant. In the same way if you cut down the plants, or their growing branches or leaves, etc they feel it which we always ignore. Therefore, remember that we should protect the plant, and never will hurt them.

Dr. Rita Singh Majumdar
Professor (Retired)
Head Department of Biotechnology School of Engineering & Technology
Sharda University Greater Noida, UP.
Email: majumdar.rita@gmail.com

Sci-Birthdays Blast with Hands-On Fun!

Dates: 14.10.2023 & 15.10.2023 (50 & 30 participants.) Exciting sessions: Galleries exploration, 3D & SOS shows, Motion simulator ride, Liquid Nitrogen demo.

Centre's Swachatta Campaign: A Resounding Success!

Embracing the spirit of cleanliness, the Centre executed a dynamic Special Campaign for Institutionalizing Swachatta, leaving an indelible mark on our surroundings. Through consistent Shramdaan efforts, our dedicated team diligently maintained cleanliness across the Campus, ensuring a spotless environment. A vibrant Painting Contest on 15.10.2023, with themes ranging from 'Swachha Bharat' to 'Green City, Clean City,' engaged 125 students, each leaving their artistic imprint. The Chalte Chalte Quiz, conducted from 21.10.2023 to 25.10.2023, witnessed 79 enthusiastic participants answering questions about cleanliness, earning instant recognition. Our Film Screening initiative from 01.10.2023 to 31.10.2023, featuring impactful short films, garnered daily audiences of around 200 visitors, promoting the cause of cleanliness. The 'Drop Your Slogan Contest' collected a whopping 115 slogans, echoing the public's commitment to Swachhata. Street plays, Nukkad Natak, and an Online Quiz Contest further enriched the campaign, engaging and inspiring over 500 participants. A special mention goes to the Waste to Art Workshop on 22.10.2023, where 22 students showcased creativity by crafting art from waste materials.

Chilling Wonders: Show on Matter at Low Temperature

On 18.10.2023 a special show was organized for a college group of more than 150 students at the Auditorium of the Centre. Students witnessed the thrilling behaviour of matter at extremely low temperatures and enjoyed it at its best.

Innovation Hub Sessions

The Centre is organizing sessions for 16 members of the Innovation Hub, which is from 14.10.2023, to 30.12.2023. 03 sessions were conducted during thismonth. These sessions encompassed a foundational understanding of Discovery,

World Space Week Extravaganza!

In an awe-inspiring celebration of World Space Week, the Centre orchestrated a stellar lineup of events that left participants starstruck. Video clips showcasing the glory of Indian space missions, including Chandrayaan 1, 2, 3, and the Mars Mission, mesmerized around 150 visitors daily. The excitement continued with the Chalte Chalte Quiz on 04.10.2023, where 40 eager participants tested their space knowledge and won instant prizes. Renowned scientist Professor Anil Bharadwaj took us on a cosmic journey in an online Popular Science Lecture on Indian planetary missions, attracting 305 viewers. Dr. Syed Maqbool Ahmed added to the cosmic odyssey with insights into the planning and execution of the Vikram Lander mission, engaging 356 viewers. An Online Quiz on Aviation and Space drew 187 participants, while a gripping Treasure Hunt challenged 80 students to identify exhibits in the Hall of Aviation and Space gallery. A Water Rocket Making Workshop and Demonstration, along with an Open House Quiz, added the perfect thrust to the celebrations, engaging students, teachers, and general visitors alike.

Online lecture cum Interaction session on 'Meet the Cosmonaut'

Centre, in collaboration with the Russian Centre for Science and Culture, Mumbai, orchestrated a captivating online lecture cum interaction session on 'Meet the Cosmonaut' on October 20, 2023. The star of the event was Mr. Denis Vladimirovich Matveev, a Test Cosmonaut from the Roscosmos cosmonaut squad, who shared riveting tales from his 195-day flight, detailing four spacewalks totaling 26 hours and 8 minutes. The session witnessed active participation from 56 eager attendees on Zoom. Mr. Denis engaged in insightful discussions, addressing challenges and triumphs, leaving the audience enthralled.

International Symposium on Metalions 2023 (28.10.2023 and 29.10.2023)

In collaboration with the International

Association of DentoMaxilloFacial Radiology (IADMFR), Asian Academy for Oral and Maxillo-Facial Radiology, and the Society for Cancer Research and Communication, VELMENI, the Centre organized the 18th International Symposium on Metalions on 28.10.2023 and 29.10.2023. This hybrid event, both online and offline, drew 85 national and international delegates. The participants presented their research presentations and papers as part of this symposium.






Experimental Skill Test

In a collaborative effort with the Bombay Association for Science Education (BASE), the Centre hosted a transformative Experimental Skill Test on October 21, 2023. Nine enthusiastic participants from grades 8 to12 engaged in hands-on experiments, showcasing their scientific competency under the expert supervision of both Centre and BASE professionals.


Mobile Science Exhibition

The Centre brought science directly to the doorsteps of Pimpri Chinchwad district's government schools with a Curriculum-Based Mobile Science Exhibition (MSE). Beyond the exhibition, students are immersed in engaging Science Demonstration Lectures, Workshops, and captivating film shows throughout the month.




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Package Tour

In the last quarter Centre hosted 77 package tours, welcoming 10,020 students and teachers. Participants enjoyed guided tours through galleries, captivating Science Odyssey experiences, mesmerizing Science on Sphere shows, and engaging Science Shows.

Vigilance Awareness Week 2023

The Centre witnessed a cascade of engaging activities. On 01.11.2023, a heart felt Poem Recitation program resonated with the theme "भ्रष्टाचार का विरोध करें; राष्ट्र के प्रति समर्पित रहें" as 8 Officers/Staff members shared their dedication. The momentum continued with an enlightening Interaction Session on 02.11.2023, featuring Mrs. Manisha Zende, Astt. Commissioner of Police, Anti-Corruption Bureau (ACB) Mumbai, emphasizing ethical conduct and national dedication, attended by 43 Officers/Staff members. A vibrant Slogan Writing Contest on 04.11.2023 echoed the theme 'Say no to corruption; commit to the Nation,' collecting 25 impactful slogans. An exciting Quiz Contest on 05.11.2023 engaged 84 visitor reinforcing the spirit of Vigilance Awareness.

Chemistry Week Celebration

From November 5th to 11th, the Centre ignited a chemical spark with its Chemistry Week Celebration, delving into the wonders of chemistry through a variety of engaging programs. Daily Chemistry Demonstrations at 11:30 am captivated 2035 visitors. Online Popular Science Lectures, including "In the Wonderland of Chemistry" by Dr. D. V. Prabhu and "Chemistry: From Alchemy to Modern Marvels" by Dr A. P. Jayaraman, garnered participation from 46 Zoom attendees and reached an audience of 1134 and 1536 on Facebook and YouTube, respectively. A hands-on session on November 7th immersed 476 students in redox reactions, acid-base experiments, and more, while an online Chemistry Workshop on November 8th showcased practical applications. Online Chemistry Demonstrations on November 9th reached 116 live participants and 1,267 online viewers. The celebration concluded with an engaging Open House Quiz on November 10th, where 156 participants showcased their chemistry knowledge, with 10 deserving winners receiving certificates.

Commemorating C.V. Raman's 135th Birthday

On 07.11.2023, 147 students actively participated in a quiz organized to honour the 135th Birth Anniversary of the esteemed scientist

135th Birth Anniversary of the esteemed scientist C.V. Raman. This engaging event not only paid tribute to Raman's legacy but also served as an educational platform for students to immerse themselves in the celebrated scientist's achievements.

Centre's Anniversary and Science Museum Day

In a jubilant celebration, the Centre marked its 38th Anniversary on 11th November 2023, coupled with International Science Centre and Science Museum Day on 10th November 2023. The festivities featured a mesmerizing Supercool Show with liquid nitrogen experiments, engaging 456 visitors over two days. Vibrational Voyage explored sound and vibration principles, captivating 376 participants, while In the Absence of Air delved into low-pressure environments, fascinating 765 visitors. Aqua Thrust revealed the secrets of water rockets to 897 enthralled participants, and Make and Take Sessions at the Museum Building's Main Gate empowered 874 attendees.

AI Workshop

The Centre, in collaboration with Myracle.io, Germany, hosted an online workshop titled 'Future Creator's AI Adventures' on November 10th, 2023. This workshop, delving into artificial intelligence, engaged 17 students in an insightful journey exploring AI's future possibilities and innovations.

Children's Day Celebration

To commemorate Children's Day on November 14 2023, the Centre arranged a vibrant Make and Take Science Toys Session, enthusiastically attended by 1556 children and their parents, the event was a delightful blend of creativity and scientific exploration.

Science Workshop for Seva Sahayog Foundation

On 21.11.2023, a dynamic Physics and Chemistry workshop captivated 30 teachers from Seva Sahayog Foundation. Focused on engaging demonstrations in chemistry, air pressure, sound, and more, this session went beyond theory with hands-on activities, enhancing the educators' grasp of scientific principles.

National Science Drama 2023 (Western Zone)

The Western Zonal Contest of the National Science Drama Festival, a flagship event for NCSM, unfolded at the Centre with teams from five states presented their acts under the theme 'Science and Technology for the benefit of mankind.' Each school team showcased their talents, witnessed by a total of 310 audience members. Renowned actor Shri Shivaji Satam graced the occasion as the Chief Guest, and the panel of evaluators, including Shri Shivdas Ghodke, Smt. Aparna Dharmadhikari, and Shri Nilay Vaidya, not only assessed the drama performances but also shared their experiences and praised NCSM and NSCM efforts to connect people with science through dramas. Two winning teams from this zonal level will advance to the National Drama Festival.










Launch of New Film

On 29.11.2023, the Centre premiered the large format film, 'Australia's Great Wild North: The Wildest Place You've Ever Seen.' The event was graced by the esteemed Ms. Majell Hind, Consul-General of Australia, with the notable presence of Mr. Joel Adsett, Vice Consul of Australia, and Ms. Aliya Elariss, Public Diplomacy Manager of Australia. Adding youthful exuberance, 210 students from M. D. College, Parel, and Saraswati Vidyamandir, Mumbai, were captivated at the inaugural function.


Innovation Hub Sessions

Four captivating Innovation Hub sessions on 04.11.2023, 11.11.2023, 18.11.2023, and 25.11.2023, a total of 17 individuals immersed themselves in intriguing topics. The Air Pressure Activities session unveiled the mysteries of atmospheric and low pressure, providing captivating insights into air pressure dynamics. Led by Dr. Sanjay Gokarn, the Disaster Management session equipped participants with self-protection strategies during disasters. The Biology Session delved into the intricate anatomy of flowers, germinated pollens, and microscopic observations of stomata and plant cells. Tod Fod Jod brought hands-on excitement, encouraging participants to disassemble and reassemble machines. 'Meet the Scientist' featured Shri A. P. Jayaraman, fostering direct interaction, insightful questions, and career advice in the realm of science. Every session promises a journey of discovery and curiosity!


Sci-Birthday Celebration

Sci-Birthday Celebration on 02.12.2023 featured gallery tours, a 3D show, Motion Simulator Ride, and hands-on activities, including a Liquid Nitrogen demonstration for groups of 50 and 30 participants.

Outreach Programme

The Outreach Programme for the month included a series of impactful events at different locations. At Reliance Foundation School in Nagothane, Raigad District, on December 1, 2023, two science demonstrations were organized, featuring experimental physics, chemistry, and a special Supercool Liquid Nitrogen show for English and Marathi students, with a total audience of 567. On December 5, 2023, Dr. Antonio da Silva School in Dadar witnessed a demonstration on Matter at Low Temperature for 238 students. The Center actively participated in the 58th All India Marathi Science Conference at Navi Mumbai on December 9 and 10, showcasing 05 engaging activities, 10 science exhibits, and attracting 1,265 visitors. On December 19, 2023, an impactful Liquid Nitrogen demonstration at Aspee Vidyalaya in Uchat, Palghar District, drew an audience of approximately 450. The month concluded with a Science Show and Hands-on Activities at Balika Residential School in Jawhar, Palghar District, on December 26, 2023, attended by 204 students and 4 teachers.

Aviation Day

The Aviation Day event, held in collaboration with the Aeronautical Society of India, Mumbai Branch, and the Indian Women Pilots Association on 09.12.2023 at the Centre, commemorated Bharat Ratna Shri JRD Tata's inaugural flight. The contests included Aviation Quiz, Elocution, and Essay Contests, engaging participants with welcome kits. The Aviation Quiz had 164 students from 48 schools, with the winning team receiving the Boeing Rotating Shield. The Elocution Contest focused on aviation growth and AI, with 47 students participating, and the winning school receiving the Airbus Rotating Shield. The Essay Contest, involving 16 students, covered airspace challenges and Air India post-acquisition, awarding the JRD TATA Memorial Trust Rotating Shield to the winning school. A drone demonstration by Aman Aviations captivated 227 participants, 52 teachers, and 36 parents. Chief Guest Mr. R. K. Patra, an Aviation Journalist, added prestige to the occasion.


Mobile Science Exhibition

The Mobile Science Exhibition (MSE) attracted around 3,500 students and the public from K.S.B. Patil Vidyalaya in Angar, Taluka: Mohol, District: Solapur, and nearby areas. The exhibition covered six sites in the Solapur district. Additionally, it visited Mhadhymik Vidhyalay in Khurde BK Tal, Shindhkeda, Dist: Dhule, touring six sites in Dhule district.


Astronomy Workshop for Pratham Education Foundation

The Astronomy Workshop held for Pratham Education Foundation on December 19th and 20th, 2023, proved highly enriching for 36 students. The first day included breakfast, registration, and hands-on Moon exploration. The second day featured a Science on a Sphere Show, constellation and Sun exploration, gallery visits, a Science Odyssey show, Telescope handling, Rocket projectile activities, and an exploration of the Expansion of the universe. The immersive two-day program, along with a Sky observation session on December 22nd, introduced students to various aspects of astronomy, fostering a deep passion for space science. The workshop concluded with certificate distribution, marking a successful engagement in diverse astronomical experiences.


National Mathematics Day Celebration

The National Mathematics Day celebration at the Centre from December 20th to 22nd, 2023, featured diverse activities. A stimulating online math quiz, a workshop on teaching aids, and a contest showcasing innovative teaching methods were highlights. The 'Mathematics through Origami' workshop for 6th to 10th-grade students merged creativity and math principles. The Math Ladder Challenge and "Fun with Mathematics" exhibition engaged visitors in intriguing puzzles and interactive displays. On-the-spot quizzes on both days tested participants' mathematical prowess.


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/

follow us on : 91-8591196887

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 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

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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/-
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.

"Dream is not that which you see while sleeping it is something that does not let you sleep."

- A. P. J. Abdul Kalam

नेहरु विज्ञान केन्द्र

राष्ट्रीय विज्ञान संग्रहालय परिषद् की इकाई,
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Nehru Science Centre

A Unit of National Council of Science Museums, Ministry of Culture, Govt. of India

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