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Member News  
**Sci-Mail**  
October to December 2023  
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Sci-Mail October to December 2023



# From NSC, Mumbai

Dear Members,

Let me first congratulate all of you for the great success of Indian Space Missions i.e. Chandrayaan-3 & Aditya-L1. This was a great occasion for all Indians to celebrate the milestone of achievements by ISRO and to bring all Indians together for the feat. We had organized live sessions for these events, which got an overwhelming response from our visitors as well as the online audience.

Nehru Science Centre also had an opportunity to host a book launch event on 05.08.2023 in respect of Dr. R. Chidambaram, Former Chairman of Atomic Energy Commission and renowned Nuclear Scientist of India. Dr Chidambaram has compiled his experience, journey about the development of the Department of Atomic Energy (DAE) including the Pokhran Blasts in the book titled India Rising: Memoir of a Scientist. During the event, we came to know several aspects of policies & discussions at the highest level to take the 3-phase Nuclear Programme of India forward. Dr. Chidambaram himself shared several inside stories which were quite interesting and mesmerising. Many of these perhaps will never be in the public domain otherwise.

The Science Centre once again has started the workshop keeping in mind the learning concepts in family set up - 'Science ke Fun-day: A Day of Family Science Fun', where they get a unique experience while doing experiments with their kids. We commemorated International Moon Day, World Ozone Day, Engineers' Day by organizing a series of activities, competitions, etc., which were participated by a large number of students and general visitors.

We celebrated 77<sup>th</sup> Independence Day also with full flavours by organizing various events as described briefly on the inside pages of this magazine. The programme - Experimental Skill Tests is also going on very well, which is in conformity with New Education Policy. These tests are helping students to learn how to do experiments, a skill which at present is missing from school curriculum.

I am also glad to share with you all that Sci-Birthday Celebration is much in demand nowadays by parents in order to give an altogether new experience to the children participating in such parties. Recently we have created an air-conditioned facility also, on demand from the parents. Now, it is much more comfortable.

For Homemakers, we organized workshops to make their own Plant-Based Skin Care Products, which was liked by all the participants. The Centre was also able to reach out lakhs of students through its Mobile Science Exhibition Programme especially in urban and rural areas of Pune. These events have the potential to bring the rural populace into the mainstream of scientific temper.

Please watch the list of upcoming programmes and be ready to participate in these events. We are likely to have a hectic schedule during the next quarter. Hope to see you all in the Science Centre in one or more of these events.

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## ഗൃഹകർമ്മം AT THE CENTRE

### Scientific Sculpture of Dr. A. P. J. Abdul Kalam



Step into the world of wonders at the Nehru Science Centre in Mumbai, where a captivating scientific sculpture pays tribute to the visionary Dr. A. P. J. Abdul Kalam. This masterpiece is not just a static figure; it's a mesmerizing optical illusion in the form of art. As you approach, Dr. Kalam's face appears to follow your every move, a testament to the power of perspective. Despite its stillness, your brain interprets it as if it's in motion, creating a magnetic attraction that draws you in. Walk beside it, you'll feel the gaze of this remarkable figure following you, leaving you in awe of the captivating fusion of science and art. An unforgettable experience awaits you at the Science Centre.

# WHAT'S NEW?

## The Aditya-L1 mission by the Indian Space Research Organization (ISRO)



The Aditya-L1 mission is a solar observatory mission by the Indian Space Research Organization (ISRO). The mission aims to study the Sun's behaviour by orbiting around the Lagrange point 1 (L1) of the Sun-Earth system. L1 is a balanced gravitational location between the Earth and the Sun. The Aditya-L1 mission is named after the Sun's core.

### The Aditya-L1 mission has seven payloads, including:

- High Energy L1 Orbiting X-ray Spectrometer (HEL1OS)
- Aditya Solar wind Particle Experiment (ASPEX)
- Plasma Analyser Package For Aditya (PAPA)

The Aditya-L1 mission has been in an elliptical orbit of 235 km by 19,500 km. On September 15, 2023, the Aditya-L1 performed its fourth Earth-bound maneuver, raising its original orbit to a 256 km (159 mi) into 121,973 km (75,791 mi) orbit.

### Science Objectives:

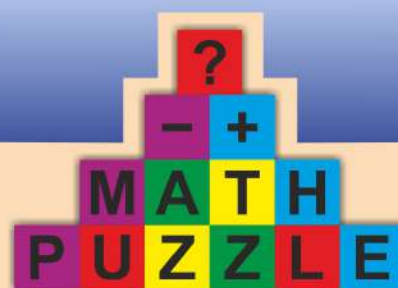
The major science objectives of Aditya-L1 mission are:

- Study of Solar upper atmospheric (chromosphere and corona) dynamics.
- Study of chromospheric and coronal heating, physics of the partially ionized plasma, initiation of the coronal mass ejections, and flares
- Observe the in-situ particle and plasma environment providing data for the study of particle dynamics from the Sun.
- Physics of solar corona and its heating mechanism.
- Diagnostics of the coronal and coronal loops plasma: Temperature, velocity and density.
- Development, dynamics and origin of CMEs.
- Identify the sequence of processes that occur at multiple layers (chromosphere, base and extended corona) which eventually leads to solar eruptive events.
- Magnetic field topology and magnetic field measurements in the solar corona.
- Drivers for space weather (origin, composition and dynamics of solar wind).

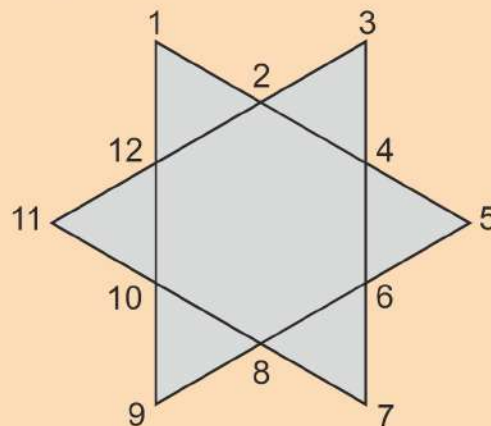
**The mission is expected to last for 5.2 years.**

### ISRO link for more information:

[https://www.isro.gov.in/Aditya\\_L1.html](https://www.isro.gov.in/Aditya_L1.html)



## Starry Numerical Puzzle - Star Gazing



Challenge your mind with the six-pointed star puzzle! With six lines and 12 vertices, can you arrange the numbers 1 to 12 so that each line adds up to 26?

Send your answers to  
[librarian.nscm@gmail.com](mailto:librarian.nscm@gmail.com)

The last date for Sending Answer is 15<sup>th</sup> Nov. 2023.  
Best entry will be suitably awarded

### Note :

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

## UPCOMING PROGRAMMES

1. World Space Week – October 4-10, 2023
2. Science ke Funday: October 15, 2023
3. Experimental Skill Test: October 21, 2023
4. Metal Ions Symposium – October 28-29, 2023
5. National Unity Day: October 31, 2023
6. International Science Centre and Science Museum Day – November 10, 2023
7. NSC Anniversary Day – November 11, 2023
8. Zonal Level Science Drama Festival: November 24-25, 2023
9. Aviation Day – December 9, 2023
10. Western India Science Fair: December 13-16, 2023
11. National Mathematics Day – December 22, 2023



### The Indus Valley Civilization: An Ancient Marvel



The Indus Valley Civilization, stands as one of the world's most intriguing ancient civilizations, shrouded in mystery and splendour. Flourishing in the fertile Indus Valley around 3300 BCE to 1300 BCE, it is a testament to human ingenuity, urban planning, and cultural sophistication. The remarkable achievements, lifestyle, and decline of the Indus Valley Civilization still puzzle archaeologists and historians.

Situated in what is now modern-day Pakistan and northwest India, the Indus Valley Civilization extended across a vast area encompassing present-day Punjab, Sindh, and parts of Gujarat and Rajasthan. Its fertile plains were nourished by the Indus River, which flowed through the heart of the civilization, providing the

essential water source for agriculture.

The hallmark of the Indus Valley Civilization was its impressive urban centres, such as Harappa and Mohenjo-daro. These cities exhibited an extraordinary level of planning and organization. Streets were laid out in a grid pattern, with efficient drainage systems to manage waste and sewage. Multi-story houses were made of standardized bricks, presence of public baths and granaries showcased their architectural prowess.

One of the key factors contributing to the prosperity of this civilization was its extensive trade network. The Indus Valley people engaged in trade not only within their region but also with distant lands, like Mesopotamia, Oman etc. Archaeological evidence reveals seals and artifacts from distant regions, suggesting a well-connected trade system. They thrived on a robust agricultural economy. The people cultivated crops such as wheat, barley, and cotton. Their trade networks likely facilitated the exchange of goods such as textiles, pottery, and even luxury items like precious stones.

The society of the Harappa Civilization is not fully understood due to the lack of deciphered written records. However, archaeological findings provide some insights. The society of the Indus Valley Civilization is believed to have been stratified, with evidence of distinct social classes. Religion played a significant role in their

lives, as evidenced by the presence of elaborate, well-planned temples and figurines depicting deities. The "Pashupati Seal" with its horned figure is one of the iconic artifacts linked to their religious beliefs. The presence of female figurines hints at the importance of women in their culture.

The reasons for the decline of the Indus Valley Civilization remain a subject of debate among scholars. Various theories propose factors such as climate change, environmental degradation, or the influx of Indo-Aryans as potential causes. Regardless of the exact reason, the civilization gradually declined and ultimately disappeared.

The Indus Valley Civilization stands as a testament to the heights of human achievement in the ancient world and has left an enduring legacy. Its urban planning and architectural achievements are still admired today. Many questions still persist, including the enigma of its written language, the reasons behind its decline, and the nature of its complex society. Ongoing archaeological excavations and advancements in deciphering the Indus script may one day unravel these mysteries. Its rich history reminds us of the enduring allure of the past and the enduring quest for knowledge about our ancient ancestors.





## G. N. RAMACHANDRAN (1922-2001)



G. N. Ramachandran was born on October 8, 1922, in Ernakulam, Kerala. He obtained his M.Sc. and Ph.D. degrees, under the guidance of Sir C. V. Raman in 1947. He pursued a second Ph.D. at the Cavendish Laboratory, Cambridge. Ramachandran started his career as an Assistant Professor at the Indian Institute of Science and later became the Head of the Physics Department at Madras University at the young age of 30.

His groundbreaking work included research on the structure of collagen, a fibrous protein found in skin, bone, and tendon. In 1954, based on limited data available at the time, he, along with Gopinath Kartha, proposed the triple-helix structure for biomolecules. Ramachandran made significant contributions to X-ray crystallography, including work on anomalous dispersion, new Fourier synthesis methods, and X-ray intensity statistics. His 1971 paper with A.V. Lakshminarayanan on three-dimensional image reconstruction had important applications in Computer Assisted Tomography.

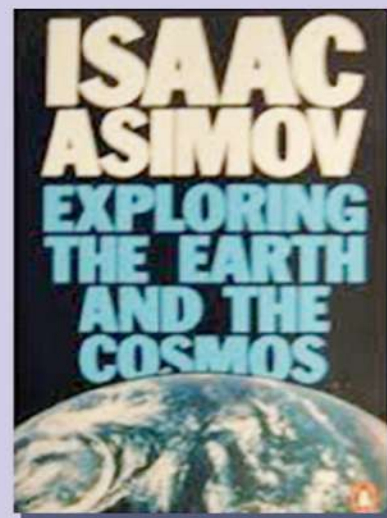
In 1971, he established the Molecular Biophysics Unit at the Indian Institute of Science, Bangalore, which remains a major research centre today. Ramachandran was elected as a Fellow of the Royal Society in 1977 and received the Shanti Swarup Bhatnagar Award. He was also honoured with the prestigious Ewald Prize by the International Union of Crystallography, an award given only once every three years.

## Book Worth Reading In Library

### Exploring the Earth and Cosmos

"Exploring the Earth and Cosmos" by Isaac Asimov is a mind-blowing journey through the wonders of science and space. The book delves into various scientific fields, from astronomy to geology, and biology to physics, offering a comprehensive overview of how human knowledge has evolved over the centuries. Asimov's clear and engaging writing style makes complex concepts accessible, making it an excellent resource for young readers looking to expand their understanding of the natural world. One of the book's features is how it seamlessly weaves together the past, present, and future of scientific exploration. Asimov's predictions about future discoveries, made long before many of them actually occurred, add an element of excitement and anticipation.

Asimov's clear explanations and engaging storytelling make complex topics easy to understand. This book is a must-read for young students who are curious about the world around them. It's a brilliant introduction to the wonders of science and a reminder that the pursuit of knowledge knows no bounds. So, grab a copy, set out on an intellectual adventure, and prepare to be amazed!



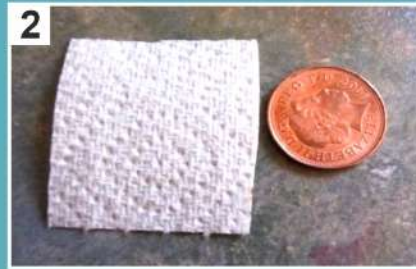


**CREATIVITY**

## Coin Popper



**1** Put an empty half-litre water bottle in the freezer for about an hour to cool.



**2** Cut a small square of tissue paper and put it on top of the 2 Rs Coin.



**3** Pour a little water over the tissue to stick it to the coin.



**4** Without removing the bottle from the freezer, place the coin on top of the bottle, tissue side down, to seal as a lid.

5. Leave for half an hour

6. Take out the bottle and curl around the top of the bottle with your hands to warm it up!

7. Watch the magic!

### WHY DOES THIS WORK?

We assume we have put an empty bottle inside the freezer, but of course, it is actually full of air which is a mixture of gases containing nitrogen, oxygen and carbon dioxide, amongst others. As the gas cools, it shrinks, lowering the pressure, but because the lid is off, more air can enter the bottle from the freezer. Once you placed the coin lid on, you have sealed the top. As the air inside warms up again from your hands, it expands and forces more pressure on the inside of the bottle and the lid, compared to outside the bottle. It creates enough pressure to break the seal and pop the lid!

# TREE TREASURE AT NSC



## The Mighty Mango Tree

Botanical Name: *MANGIFERA INDICA*  
Family: ANACARDIACEAE

Mango, often dubbed the "King of Fruits," proudly stands as India's national fruit. This tropical delight thrives in regions around the world, with mango trees soaring to heights exceeding 100 feet and donning canopies that stretch over 35 feet.

### Mango Leaves: A Natural Remedy

Mango leaves, an often overlooked part of this majestic tree, offer a treasure trove of health benefits:

**Diabetes Management:** Mango leaves play a pivotal role in regulating diabetes, lowering blood pressure, and promoting a sense of calm.

**Combatting Stones and Respiratory Issues:** They've been used to treat gallstones, kidney stones, respiratory problems, and even dysentery.

**Ear Ache Relief:** Mango leaves also serve as a remedy for earaches, making them a versatile natural healer.

### The Fruitful Mango

The most coveted part of the mango tree is, undoubtedly, its luscious fruit, a sweet and juicy delight with therapeutic properties. Here's how indulging in a mango a day can contribute to your well-being:

**Preventing Anemia:** Mango's rich iron content, coupled with its vitamin C, aids in boosting iron levels and absorption.

**Enhancing Digestion:** High fiber and polyphenol content make mango an ally in combating constipation and inflammation of the bowels.

**Weight Gain:** Mango paired with milk, as per Ayurveda, is a nourishing combo for those striving to gain weight.

**Immunity Boost:** In addition to vitamin C, mangoes contain folate, zinc, and vitamin B6, bolstering the immune system.

**Better Vision:** The vibrant yellow hue of mango pulp owes its existence to carotenoids, which promote improved eyesight.

**Heart Health:** Selenium and B6 found in mangoes are vital for a healthy heart, as low selenium levels are linked to heart disease.

**Blood Pressure Control:** Mango leaf extracts have antihypertensive properties, making mango leaf tea a remedy for lowering blood pressure.

**Diabetes Control:** Tender mango leaves, especially those with a pink or purple hue, are rich in tannins and anthocyanins, offering help in managing diabetes.

**Oral Health:** Mango leaves can tackle oral hygiene problems. Boil old mango leaves, add some salt, and rinse your mouth with the resulting water for improved gum health and fresher breath.

**Antioxidant Power:** Mango tree leaves are packed with antioxidants and vitamin C, guarding the body against oxidative damage.

**Stomach Cleanser:** Soak mango leaves in warm water overnight, and consume this water on an empty stomach for a refreshing detox.

### Utilizing Every Part of the Mango Tree

Beyond its delicious fruit, the mango tree offers additional remedies:

**Mango Bark:** The powdered form of dried mango bark provides relief from diarrhea.

**Mango Gum:** Apply the gum from the mango tree's bark to treat cracked feet and areas affected by scabies.

**Mango Sap:** The juice obtained from mango branches soothes bee stings.

**Mango Seed:** Mango seed extract is a versatile remedy, used for skin care (sunburns, stretch marks, scars, and wrinkles) and as a hair moisturizer. Consumed, it aids in weight loss and reduces obesity.

The mango tree truly stands as a remarkable gift, offering not just delicious fruit but also a plethora of health benefits from its leaves, bark, gum, sap, and seeds. Incorporate this tropical wonder into your life to savour its many advantages.

(Source: information obtained from Wikipedia, [plantinfo.co.za](http://plantinfo.co.za) and other related websites)



## How things work

### The Role of Wi-Fi Routers in Keeping Us Connected



In today's digital age, Wi-Fi routers have become an essential part of our lives, ensuring seamless internet connectivity for various devices. These devices function as traffic controllers, facilitating communication between our gadgets and the internet, offering a glimpse into the backbone of our connected world.

Wi-Fi routers use radio frequencies to enable internet access for our devices. Inside the router, tiny antennas transmit and receive data, sending signals that our devices can understand. Different antenna types optimize signal coverage and strength.

One crucial function of routers is Network Address Translation (NAT), allowing multiple devices to share a single public IP address while enhancing security and efficient address use. Routers also manage data packets, ensuring they reach their intended destinations without congestion.

Think of the internet as a vast highway, and your router as the traffic controller. It ensures data, like cars on the highway, goes where it should and protects your information with secret codes.

Currently, routers empower us to watch movies, play games, and connect with friends. In the future, they will become faster and support more devices like smart fridges and cars, further enhancing our connected and convenient lives.

Wi-Fi routers are the unsung heroes of our connected world, enabling devices that keep us informed, entertained, and connected. The next time you connect to Wi-Fi, remember the router silently working to keep you connected to the vast world of the internet.

# Did You Know?



## Brewing Science: The Chemistry of Coffee and Tea

Coffee and tea are popular beverages that have been enjoyed for centuries. These drinks are derived from plants that belong to the evergreen family and are cultivated as shrubs. The taste and aroma of both coffee and tea are influenced by a variety of factors such as soil conditions, moisture, and surrounding vegetation.

One key component that both drinks have in common is caffeine, a naturally occurring chemical that provides stimulation. Caffeine is a methyl xanthine that delivers a characteristic bitter taste and famous stimulant effect by blocking the action of adenosine hormone, natural tiredness triggers in the brain.

In addition to caffeine, both coffee and tea are made from dried parts of the plant. For coffee, it is the roasted seeds of the coffee plant, and for tea, it is the leaves of the tea plant. Both drinks are prepared in similar ways, with the plant material being steeped in hot water.

Overall, coffee and tea share many similarities in terms of their chemistry and preparation. These popular beverages have a long history of being enjoyed for their taste and stimulating effects.



## Snow and Salt Chemistry



The chemistry of snow and salt is a fascinating topic that helps us understand how salt affects the freezing and melting of snow and ice. When salt is added to water, it dissolves easily and forms particles that affect the physical properties of the water. The more salt is added to water, the more the boiling point of water rises, depending on the number of particles that are formed in solution.

Interestingly, the elevation in boiling point of a solvent is inversely proportional to its freezing point. When salt is added to water, the freezing point of water keeps on lowering as more and more particles are added until the point when salt stops getting dissolved. This is the principle on which salt is used for melting the ice & snow and also for keeping them from re-freezing.

This effect is known as depression in freezing point, and it is caused by the compound yielding more ions into a solution of water. As a result, the freezing point of water is lowered more. This scientific narrative helps us understand how the chemistry of snow & salt works, and how salt is used to melt and prevent snow & ice from re-freezing.



JULY

In The Last Quarter...

2023

### Empowering Educators: Teachers' Training Program



A 5-day programme at the Centre (ended 01.07.23) enhanced the skills of 58 trainee teachers from Gokhale Education Society's Education College. They gained expertise in interactive teaching on topics like Pi ( $\pi$ ), circle area, Pythagorean Theorem, brain model, Archimedes principle, and Foldscope. Enriching science education for young minds!



### Inspirational Talk by Innovator Dr. Sanjeev Patwardhan



On 01.07.23, the Science Centre hosted Dr. Patwardhan, a renowned inventor in photomicrography. His innovative technology produces sharp, enlarged microscope images effortlessly. During the talk, he showcased the intricate world of plant cells. 58 B.Ed. and 30 Innovation Hub students were privileged to meet this brilliant inventor.



### World Population Day: Knowledge & Awareness

On 11.07.23, the Centre hosted a series of engaging events to promote awareness about population-related issues:

**Online Quiz Contest:** 484 participants tested their knowledge.

**Open House Quiz:** 45 visitors joined in the learning fun!"

JULY

In The Last Quarter...

2023

### International Moon Day

On July 20th and 21st, 2023, the Centre hosted a two-day celebration of International Moon Day. The event aimed to pay tribute to lunar exploration and educate students and visitors about space science.

Here are the highlights:

Insightful Online Lecture by Smt. Megala S.: Renowned ISRO Scientist Smt. Megala S. delivered an enlightening online lecture on lunar exploration, space missions, and their significance. The live-streamed talk on the Center's Facebook page reached a wide audience, with 1638 viewers by July 28, 2023.



### Online and Offline Quiz Competition: Film Show and Open House Quiz:



An engaging quiz competition conducted both online and offline, successfully captivated the interest of 188 students in grades 6 and above, promoting their enthusiasm for space science learning. Furthermore, an enthralling Moon-themed film screening and an open house quiz drew the active participation of 523 students, with prizes awarded to winners.

### Science Ke Funday: Sparks Family Interest in Science



On July 23, 2023, the Centre hosted "Science Ke Funday," an event that drew 16 families (comprising 64 participants) to ignite a passion for science within family units. The event showcased interactive exhibits, hands-on experiments, demonstrations, and captivating shows. Its aim was to foster family bonds while exploring the captivating world of science.



### Game Design Workshops: Elevate Your Skills!

#### Level 1 Workshop (July 22 - August 19, 2023):

The Centre hosted a five-day workshop covering graphic design, digital poster design, mobile screens, 3D modelling, and Blender use. Fifteen students gained valuable skills for success in video game animation and design.

#### Level 2 Workshop:

On July 14, 2023, the centre hosted a Level 2 workshop exclusively for Level 1 graduates. We are delighted to announce that eight students completed the advanced game design course.

**Online Chandrayan-3 Lunar Mission Session: Sheds Light on Space Exploration**



The Centre recently conducted a live session to commemorate the Chandrayan-3 lunar mission launch. This event, featuring expert speakers and interactive Q&A sessions, educated the public on India's ambitious space programmes. With 945 participants from diverse locations, the online session fostered widespread engagement in space research and exploration.

**Hands-On Learning: Experimental Skill Test 2023**



In partnership with the Bombay Association for Science Education (BASE), the Centre hosted an Experimental Skill Test on July 22, 2023. Twenty students, grades 8 to 12, undertook experiments with provided setups, supervised by expert mentors from the Centre and BASE. This event assessed their practical skills and observation abilities. Those who qualified, got certificates also.



**Teacher Workshop: Enhancing Science Education**

The Centre, in collaboration with BASE, successfully conducted a teacher workshop on July 29, 2023. This initiative empowered twenty dedicated educators with innovative teaching methods and hands-on experiment ideas, with the aim of raising the standard of science education and fostering a passion for science among future generations of scientists in the region.



AUGUST

In The Last Quarter...

2023

### Sci-Birthday Fun: August 2023 Highlights!



Exploring Galleries, 3D Shows, SOS Displays, Motion Simulators, Liquid Nitrogen Fun and More!



### Plant-Based Skin Care Workshop: A Green & Healthy Approach!

The Centre hosted a 3-day workshop (18.08.23 - 20.08.23) promoting eco-friendly beauty routines, DIY skin care, and sustainability. Discover skin-friendly plants and create personalized products!

### Book Launch: 'India Rising: Memoir of a Scientist'



Dr. R. Chidambaram's inspiring journey was unveiled on 05.08.2023, attended by esteemed guests.



### Science ke Fun-day: A Day of Family Science Fun on 06.08.23

Families immerse in interactive exhibits, hands-on experiments, and more at the Centre, making science an enjoyable experience for everyone!



## 77th Independence Day Celebration: Uniting in Patriotism & Knowledge

The Centre marked India's 77th Independence Day with an array of spirited events:

- Pledge ceremony & cultural performances on 14.08.23
- Tiranga March & Flag Hoisting on 15.08.23
- Tricolour Rangoli, Tiranga Quiz, and Selfie contests
- Open House Quiz for visitors

These activities fostered unity, patriotism, and a love for learning!



## Chandrayaan 3 Soft Landing: A Historic Milestone in Space Exploration

A historic moment at the Centre on 23.08.23, with 600 participants witnessing the lunar touchdown. Activities included:

- Paper Model of Chandrayaan 3
- Science on a Sphere Shows
- Expert Lecture by Prof. M. N. Vahia
- Live Telecast from ISRO's Mission Control.

Enthusiastic attendees celebrated this feat of space exploration, with over 630 people present to witness the Chandrayaan 3's historic soft landing.



## Bringing Science to Schools: Mobile Exhibitions in Pune and Pimpri Chinchwad Districts.

The Centre's Mobile Science Exhibitions reach govt. schools, promoting 'Health and Hygiene' and 'Curriculum-Based' science education across 31 sites in the region.



SEPT.

In The Last Quarter...

2023

### Annual Inter-School Science Quiz 2023

The prestigious quiz competition, in collaboration with Rotary Clubs, witnessed 140 schools and 560 students showcasing their knowledge and quiz-solving skills. With the attendance of 20 Rotary Club members and 950 enthusiastic attendees, the event was a grand success.



### Aditya-L1 Launch Celebration

To mark the historic launch of India's Aditya-L1 mission to the sun on 02.09.2023, the Centre hosted a special exhibition. This ongoing exhibition offers deep insights into the mission's significance and scientific goals. The launch was live-streamed for 113 online viewers, while 120 excited attendees witnessed it in person. The event added to India's space exploration journey's pride and excitement.

Moreover, the Centre provided hands-on activities, engaging 77 participants in a deeper exploration of the solar system and the mission's scientific aspects.



### Teachers' Day Celebration

On 05.09.2023, the Centre hosted an online session featuring Simple Experiments as teaching aids to celebrate Teachers' Day. The event received an overwhelming response, with approximately 5.8K viewers on YouTube and 100 participants on Zoom.

### Regional Science Seminar

Collaborating with the Office of Dy. Director of Education, Mumbai region, the Centre hosted the Regional Science Seminar as part of the National Science Seminar on 06.09.2023. This year's topic: 'Millets: Super Food or Diet Fad?' Nine participants from five Mumbai zones shared their insights, with 247 students in attendance.



SEPT.

In The Last Quarter...

2023

### Science Film Fest with SONY BBC Earth



From 13.09.2023 to 15.09.2023, the Centre hosted an exciting Science Film Fest in collaboration with Sony BBC Earth. Five captivating film shows entertained and educated 1127 students over three days.



### Engineers Day Celebration

On 15.09.2023, we celebrated Engineers Day with an exciting online quiz in honor of Bharat Ratna Shri M. Visvesvaraya. 250 participants joined in, tackling questions on engineering and the life of Shri M. Visvesvaraya. Everyone received a digital certificate for their participation.

### World Ozone Day

On 16.09.2023, we celebrated World Ozone Day with a captivating online quiz open to all. 303 participants demonstrated their passion for environmental conservation, diving into questions about the ozone layer's vital role.

### International Day of Scientific Culture

On 28.09.2023, we celebrated International Day of Scientific Culture by organizing the 'Science and Miracle' show in hybrid mode to promote scientific temper and culture.



## 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: Journey to Space**

Check our website for updates:  
<https://nehrusciencesciencecentre.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 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

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  
the year

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
<b>Entry Ticket to Science Centre Only</b>	
• General Visitors	Rs.70/-
• Group of Visitors (15 or more)	Rs.60/-
• Students in organised group with authority letter	Rs. 20/-
• Students from Govt./Municipal Schools with authority letter	Rs. 10/-
• BPL card holders on producing the card	Rs. 5/-
<b>Entry Ticket ONLY to Science Park - General Visitors</b>	Rs.20/-
<b>Special shows - Science Odyssey</b>	
• General visitors	Rs.80/-
• Group of Visitors (15 or more)	Rs.70/-
• Students in organised group with authority letter	Rs.50/-
• Students from Govt./Municipal Schools with authority	Rs.25/-
<b>Motion Simulator Ride</b>	
• General visitors	Rs.50/-
• Group of Visitors (15 or more)	Rs.40/-
<b>3D Science Show / Science on Sphere</b>	
• General visitors	Rs.30/-
• Group of Visitors (15 or more)	Rs.25/-
• Students in organised group with authority letter	Rs.20/-
• Students from Govt./Municipal Schools with authority letter	Rs.10/-
<b>Science Film Show / Science Demonstration Lecture (on prior booking)</b>	Rs.10/-
<b>Package ticket for Science Centre &amp; Science Odyssey</b>	
• General visitors	Rs.130/-
• Group of Visitors (15 or more)	Rs.110/-
• Students in organised group with authority letter (Non-Member Schools)	Rs.60/-
• Students in organised group with authority letter (Member Schools)	Rs.50/-
• Students from Govt./Municipal Schools with authority letter	Rs.25/-
<b>Special Packages</b>	
• Science Centre, 3D show & SOS show for General visitors (Science Centre, Science Odyssey, Sparkling High Voltage, 3D show & SOS show)	Rs.100/-
• Students in organised group with authority letter (Non-Member Schools)	Rs.90/-
• Students in organised group with authority letter (Member Schools)	Rs.75/-
• Students from Govt./Municipal Schools with authority letter	Rs.40/-
<b>Family Packages</b>	
Science Centre, Science Odyssey, Sparkling High Voltage, 3D show, SOS show & Motion Simulator Ride.	
• Family of 4 members	Rs.600/-
• Family of 6 members	Rs.900/-
<b>(Buy Family Ticket to Save &amp; have lot of FUN)</b>	
<b>Parking Charges</b>	
2 Wheeler	Rs.30/-
4 Wheeler	Rs.50/-
<b>Free Entry only to Science Centre :</b>	
Children up to 3.4 feet (102 cm) of height	
Defense & Paramilitary forces in uniform	
Physically challenged persons and ICOM members	
<b>For other facilities visitors have to pay specified fee as per the category.</b>	



“To succeed in your mission,  
you must have single-minded devotion to your goal.”

- Dr. A. P. J. Abdul Kalam



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

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