



सत्यमेव जयते

संस्कृति मंत्रालय
Ministry of Culture
भारत सरकार
Government of India



Member News

Sci-Mail

October- December
2022

नेहरू विज्ञान केन्द्र

राष्ट्रीय विज्ञान संग्रहालय परिषद् की इकाई,
संस्कृति मंत्रालय, भारत सरकार

Nehru Science Centre

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



From NSC, Mumbai

Dear Members & Science Lovers,

We are proud to share that we celebrated 75 years of Independence in the form of Azadi Ka Amrit Mahotsav with full spirit and enthusiasm getting outstanding responses to all the programmes. A big & sincere thanks for making this a grand success. As a part of this, we completed 75 online quizzes on different topics, 75 live science experiment demonstrations on Facebook with interactive sessions and also 75 Chemistry Facts from day-to-day life with proper explanations. We also collaborated with Nuclear Power Corporation of India Limited (NPCIL) for a campaign with the tagline Nuclear Power: Clean Energy – Green Energy. Centring around this theme, several contests, lectures, interactive sessions with the experts in the field were organised, spreading the basic message that in the current scenario, Nuclear Power is one of the inevitable options to meet the ever-growing energy demand for our north bound population. Several Science shows including water rocket demonstration, Make and Fly Paper Planes workshop, Robotics and Drones workshops, science experiment demonstrations and on the spot quizzes were conducted successfully on various occasions in last quarter.

Nehru Science Centre, as a part of extension education programmes, organised lectures and panel discussion on National Education Policy 2020. Digital Literacy programme for about 500 teachers of Maharashtra was organised in collaboration with an NGO S. R. Dalvi (I) Foundation. In this programme, teachers were empowered to use latest Computers technologies in teaching and learning.

Several commemorative events like Engineers Day, Hindi Pakhwada, World Ozone Day, etc. were also organised successfully. The Regional Level Science Seminar for Mumbai was also conducted in association with the Deputy Director of Education, Mumbai. Considering the National Education Policy 2020 implementation, the Centre organised two teachers training programmes for about 100+ would-be teachers, in which they were exposed to the tools and experiments for making low cost - no cost kits. This was appreciated and found very useful by the participants for explaining concepts. This will probably also motivate them to make their own low cost kits to explain scientific principles in a comprehensive manner.

The International Day of Scientific Culture was also commemorated by organising various programmes and an online exhibitions of Scientific Traditional Toys & experiments reflecting the culture of Science prevalent in ancient times, still continuing in our daily life.

The festival season has started and the good news is that after a long time of COVID19 pandemic, we are now celebrating our festivals in traditional flavours and without much tension of restrictions. Things are returning to normalcy and soon the era of pre-pandemic will be back. Thanks to the warriors, doctors, scientists to fight the pandemic with full scientific spirit and saving millions of lives with timely vaccines and suggested SoPs. The resilience shown by the countrymen had been phenomenal. Let us celebrate our festivals but with cautions as corona has still not completely vanished from the scene. In the last quarter we have got large number of visitors including students and tourists. The science centre is now fully functional and facilities like Simulator, 3D, SoS shows, live science demonstration and high voltage demonstration are attracting visitors in large number keeping our education section busy. Recently in a day we conducted 13 shows of science on a sphere. The new gallery on Aviation and Space is new selfie location. Visitors are always with their camera on and capturing the moments with rockets, satellite models and historic airplanes.

The next quarter is also full of educational activities like science dramas and western India science fair. So Stay tuned and visit us to harness benefits of these.



From NSC, Mumbai

Exhibit at the Centre

What's New?

Riddle it Out!!

Our Science & Technology Heritage

Indian Scientist

Book worth Reading in NSC Library

Creativity

Tree Treasure at NSC

How Things Work?

Upcoming Programmes

Did you know?

In The Last Quarter...

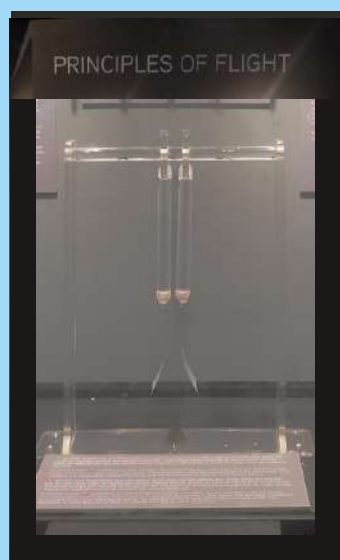
NSC- A Wonderland of Science

Regular Programmes / Activities

General Information

EXHIBIT AT THE CENTRE

PRINCIPLES OF FLIGHT

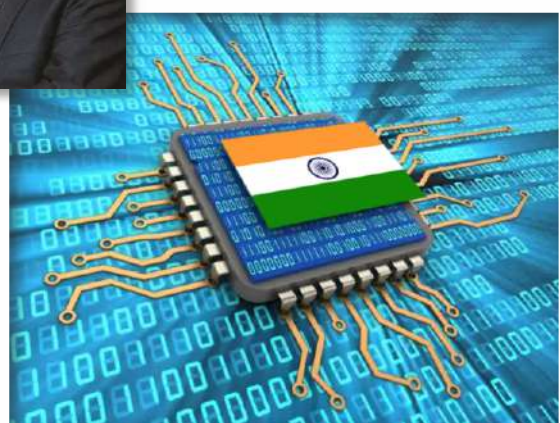


In the recently renovated Hall of Aviation & Space various principles involved in flying an aircraft are demonstrated. The exhibit 'Principles of Flight' demonstrates 'Bernoulli's Principle' in action. Daniel Bernoulli, 18th century Swiss scientist, discovered that as the velocity of a fluid increases, its pressure decreases.

This principle is demonstrated using a venturi tube. In this exhibit visitor has to press the switch to allow air to pass between two freely hung curved strips facing each other. Normally visitor expects that the strips will move away, but finds that the curved strips move closer to each other. This happens because the air moves faster in the narrow gap between the strips. This results in pressure drop between the strips and the surrounding air pushes the curved strips towards each other.

What's New

Vedanta – Foxconn's Semiconductor Plant in India



History:

In 2021 the Indian government launched the production-linked incentive (PLI) scheme, in a landmark decision and sanctioned Rs. 76,000 crore to encourage semiconductor goods manufacturing in India. The scheme was announced in light of inadequate semiconductor chip supply globally due to covid19 pandemic, which affected the sale of goods like cars, phones, and laptops.

Proposal:

This scheme has started showing good results as Taiwanese firm Foxconn ties up with Vedanta to build a chip manufacturing plant in India, on 400 acres of land. While Vedanta is financing the project, Foxconn would assume the role of the technical partner.

The semiconductor business is essential for establishing India as an electronics hub and will attract suppliers and device assemblers to set up a base in India. The investment will create an estimated 1,00,000 job opportunities.

An Indian firm Vedanta is tying up with Foxconn of Taiwan to set up the unit. Vedanta and Foxconn will be setting up semiconductor and display production plants in India.

Vedanta founder and chairman Mr. Anil Agarwal said that "The company will create a hub for manufacturing of Smart Phones, Laptops and TV equipment, which will be a kind of integration of goods. India-made semiconductors will reduce the laptop price significantly".

Project significance:

The project will attract entities across the electronics ecosystem value chain, including manufacturers of sophisticated and sensitive equipment, materials (high purity gases, chemicals, electronic wafers and photomasks), equipment service providers, and put India on the global silicon map.

A complementary value-added business:

Vedanta has a presence in the electronics and technology business through group companies Avanstrate and Sterlite Technologies. Foxconn is the world's largest electronics manufacturer. The semiconductor venture is expected to create 1,00,000 job opportunities in India.

Reference: <https://www.moneycontrol.com/news/business/all-you-need-to-know-about-vedanta-foxconn-semiconductor-plans-in-india-9179291.html>



Riddle it Out!!

1. What Planet has the shortest year?
2. I am animal. I can make loudest sound. Can travel hundreds of kilometer in underwater. Who am I?
3. I can rush, be still, be hot, be cold, and be hard. I can slip through almost anything. What am I?
4. What did one earthquake say to the other?
5. What kind of tree can fit into your hand?

(Send your answers to nscm.edu@gmail.com)

Last date for Sending Answers for riddles is

31st November 2022

Best entry will be suitably awarded

(Please note that the contest is open to student members up to std. X only.)



Our Science & Technology Heritage



Sushruta : The plastic Surgeon

In the Modern era, if you don't like any body part, you can simply go to a plastic surgeon and it is so feasible to modify it with the help of high end technology. But do you know when and who started this?

Sushruta is considered as the father of plastic surgery. He had also written the famous book on surgery 'Sushruta Samhita' in 6th century BCE. He had described over 300 surgical procedures and had further classified human surgery into 8 different categories. Some of his techniques, for example forehead flap rhinoplasty, is being practised almost unchanged even to this day. He had laid down the basic principles of plastic surgery.

The ancient Indian Medical practitioners were divided into two classes: the Shalya-chikitsaka (surgeons) and Kaya-chikitsaka (Physicians). Sushruta was the first surgeon to advocate the practice of operations on inanimate objects.

He devised various experimental modules of the surgical procedures before trying it on humans.

He also developed a variety of surgical instruments which includes over 101 blunt and 20 sharp instruments. He devised his instruments by studying the jaws and beaks of animals and birds. Some of these instruments are for display in this exhibit.

Indian Scientist



Tessy Thomas

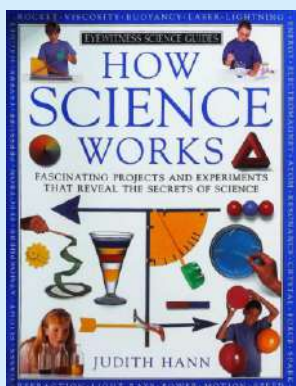
She is known as the 'Missile Woman' of India. Tessy Thomas is a scientist at the Defense Research and Development Organisation (DRDO). She served as the Project Director for the Agni IV and V missiles, making her the first woman to lead missile teams in India. These are intercontinental ballistic missiles that have very high ranges and are capable of carrying nuclear warheads. Dr. Thomas' expertise on the solid propellant systems were critical in the development of the re-entry system of the missile, which helped it withstand great velocities and temperatures of 3,000°C on re-entering the atmosphere.

Dr. Tessy Thomas, distinguished Scientist, has taken over as Director General (Aeronautical Systems, DRDO). She obtained her B.Tech in Electrical Engineering from Calicut University, ME in Guided Missiles from Institute of Armament Technology (now Defense Institute of Advanced Technology), Pune and PhD in Missile Guidance from Jawaharlal Nehru Technological University (JNTU), Hyderabad. She obtained MBA in Operations Management from Indira Gandhi National Open University (IGNOU), New Delhi.

Dr. Thomas has received several prestigious awards for her work, including the 'DRDO Scientist of the Year', in 2008, DRDO Performance Excellence Award for 2011 and 2012, India Today Women of the Year award in 2009, Lal Bahadur Shastri National Award for Excellence in Public Administration in 2012, CNN-IBN Indian of the Year in 2012, Sir Mokshagundam Visvesvaraya Award in 2016, and Outstanding Woman Achiever Award by Women in Science and Engineering (WISE).

Book Worth Reading In Library

HOW SCIENCE WORKS



How Science works: Fascinating projects and experiments that reveal secrets of science by Judith Hann and published by Dorling Kindersley, London. This book is not only for the children but also for the whole family to use and enjoy, which encourages a head start in learning about Science.

It contains number of nice experiments for different children ages. It shows just how much fun and rewarding science can be. It is packed with hundreds of exciting practical experiments and projects designed to be completed at home only with safety. It is full of colour photographs and step-by-step instructions show clearly how to carry out each experiment. Great resource for accessible science fair projects. Colour pictures go over better than the more typical black & white drawings and clear directions means kids will be able to do it solo.



BREAKING THE TENSION

You Will Need:

- 4 matchsticks
- shallow dish of water
- washing-up liquid
- dropper

Procedure:

1. Fill the dish with clean water and allow it to settle so that the surface is completely still. Carefully float the matchsticks on the surface of the water, arranging them into a star-shape as shown below.



2. Using the dropper, add a drop of washing-up liquid to the water in the center of the dish. This breaks the tension there, and the matchsticks are instantly drawn outwards by the stronger surface tension around the edge of the dish.



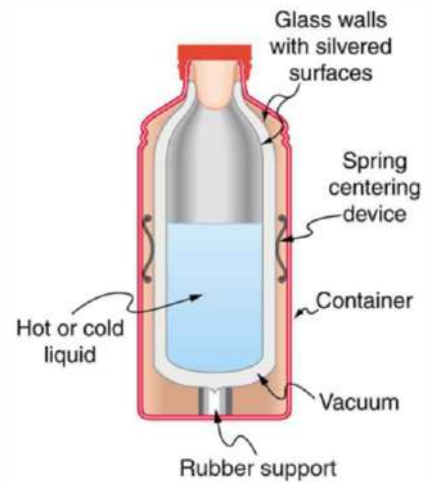
What Happens :

This experiment shows just how effectively detergent breaks surface tension. Floating matchsticks held in position by surface tension are instantly dispersed, when a drop of detergent is added to the water, breaking the tension where the drop falls.



How things work

How does Thermos Flask work?



A thermos keeps things hot not because it generates heat like a radiator, but because it doesn't allow heat to escape. Insulation is the best way to prevent heat from escaping. You can wrap the hot thing up in a material that doesn't conduct heat well. Air is, in fact, a pretty good insulator, which is why Styrofoam keeps things hot. It's full of air. Vacuum has nothing in it to heat up, so heat can't conduct through it. A vacuum is the best insulator of all, and that's the principle behind a thermos. A thermos is a flask with a double-walled container inside it. Air is removed from the space in-between the walls. It was invented by James Dewar in the course of his cryogenic research.

Thermos flasks keep hot liquids hot and cold liquids cold for long hours. As heat always transfers by conduction, convection or radiation, we can control heat transfer from or to a liquid from/to surrounding, if we can control these processes. A thermos consists of a glass vessel with double walls. The space between the walls is vacuum which reduces the heat loss due to conduction and convection. The outer surface of the inner wall and the inner surface of the outer wall are silvered (shining) which help in reducing heat loss due to radiation. The glass vessel is enclosed by a metal or plastic cover for protection against damage. An insulating stopper (cork) is used to close the mouth of the vessel. The vessel is kept over an insulating (cork) pad. It is, therefore, thermally insulated. The combination of a vacuum, the silvered surfaces and insulating material greatly reduces heat transfer by convection, conduction and radiation. Hence, heat does not leave or enter easily and hot liquids remain hot while cold liquids remain cold inside the thermos or flask.

TREE TREASURE AT NSC



BAKULA TREE

Botanical Name: MIMUSOPS ELENGI
Family: SAPOTACEAE

Bakula is a medium sized, umbrella shaped, evergreen canopy tree. Its commonly known as Spanish cherry, medlar, bullet wood etc. As the trees give thick shade and flowers emits fragrance. It is a prized collection of gardens. Its timber is valuable, the fruit is edible. Bakula is also an ayurvedic tree useful in the treatment of headache, toothache, diseases of the oral cavity, poisonous cases, diarrhea and more.

Medicinal uses:

- The powder of the dried flowers or the juice of fresh flowers of Bakula is administered through the nostrils (Nasya Karma) to get relief from headache and sinusitis.
- The decoction prepared from the bark of the tree of Bakula is used for gargling to treat diseases of the oral cavity like gingivitis, looseness of teeth, oral ulcers etc.
- The tender leaves of Bakula or the unripe fruit of the plant is chewed to treat bleeding from the gums and gingivitis.
- The cold infusion of the bark of Bakula is given in a dose of 40-50 ml to treat dysmenorrhea and leucorrhea.
- The Bark decoction is given in a dose of 30-40 ml to treat fever and general delirium.
- In case of insects bite and other small animal bites, the paste of the bark and unripe fruit is applied over the local area to relieve the effect of poison.
- The cold infusion prepared from the dried flower of the plant is given regularly in a dose of 40-50 ml to strengthen the cardiac muscles and is beneficial in person suffering from weak cardiac muscles.
- The cold infusion or decoction of the flowers of Bakula acts like a general tonic.
- Leaves are explained as anti-toxic and used in poisonous conditions by master Sushruta. Its leaves are also used as nasal drops for treatment.

Plant parts used: Bark, flower and fruit.

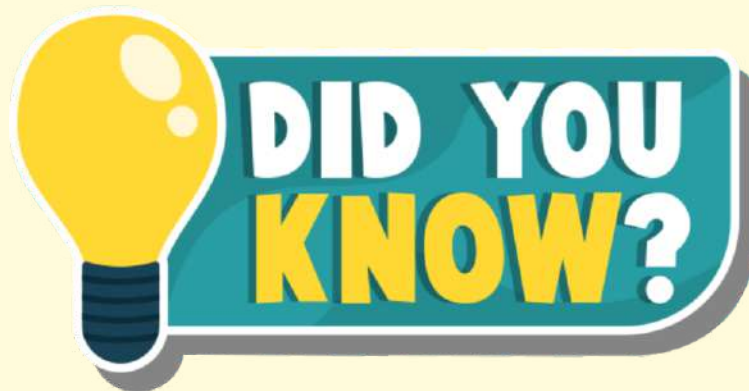
Upcoming Programmes

- World Space Week celebration – October 1 -7, 2022
- Cyber Security Awareness Programme – October 2022
- Innovation Hub (Integrated Science) – October 29 – December 24, 2022 (On Saturdays only)
- Children's Day – November 14, 2022
- International Science Centre & Science Museum Day – November 10, 2022
- Nehru Science Centre Anniversary – November 11, 2022
- Zonal Level Science Drama Contest, West Zone – November 18, 2022
- Constitution Day
- Aviation Day – December 10, 2022
- Western India Science Fair – December 14-16, 2022

For further details and updates

Please visit us at : <https://nehrusciencecentre.gov.in/>





CHEMISTRY FACTS

When you swipe a matchstick how does it make fire?

We know that on rubbing two rough surfaces with each other, heat is generated due to friction. The striking surface of the matchbox has red phosphorus and is also made rough by adding some powdered glass. Potassium chlorate is present on the head of the matchstick. When you rub the head of the matchstick on the striking surface of the matchbox, some heat is generated due to the friction. This heat



can produce fire.

breaks a small part of the red phosphorus chain transforming it into white phosphorus which is highly volatile chemical and ignites in the air. Now due to heat, potassium chlorate releases oxygen through thermal decomposition. The matchstick head also contains some Sulphur which acts as a fuel. When Sulphur, oxygen and heat come together, fire is produced. Hence a matchstick burns on rubbing it on the side of the matchbox. Please note that to generate fire, we need three things - heat, fuel and oxygen. Whenever we bring together fuel, heat and oxygen, we

Why do LPG has strong smell?

LPG mainly contains propane, butane, pentane etc. also called Alkanes. It is liquefied under pressure to produce liquefied petroleum gas. Basically alkanes are colorless and odorless in natural state. So what makes LPG to smell? The smell that you notice when there is a leak is actually the stench of an entirely different agent, called ethyl mercaptan (C_2H_6S). This substance, added to the LPG cylinders when it leaves the main storage terminals, helps to detect its leakage of LPG at the household level in order to save from fire accidents or blasts. LPG is hydrocarbon which changes from gas to liquid under even moderate pressure & normal temperatures. LPG has various uses from household to industries as it has lower pollution level than other fuels at same rate.

**LPG गैस
की गंध
क्यों आती है?**



In The Last Quarter...

July

Kathak Wokrshop

The Centre, on the occasion of the 83rd Birth Anniversary of Dr Puru Dadheech organized the Ashitih Utsav, a Kathak Workshop, in collaboration with the Sangeet Natak Akademi. The Akademi also exhibited its valuable publications on performing arts, particularly of India on 17 July 2022. Around 400 Kathak performers and aspirants participated in this workshop.



Webinar

The Centre, jointly with S. R. Dalvi Foundation, organized an online Webinar on the topic 'Understanding Artificial Intelligence' on Saturday 23rd July, 2022 at 06:00 pm. The webinar was for teachers. Dr. Nayan Bheda, Digital Expert conducted this webinar live on Zoom and simultaneously it was streamed on Facebook page of the Centre with crossposting on the facebook page of NCSM. 2324 teachers joined on the Zoom platform and facebook reach was 1,518

Popular Science Lectures

- Online Lecture was organized on the topic Nuclear Energy & Our Environment on 23rd July, 2022 at 04:30 by Dr. Chandra Mohan Nautiyal, Prog. Consultant, INSA, New Delhi & Former Scientist-in-Charge, C14 Lab, BSIP, Lucknow. A total of 1,085 participants watched the Facebook stream of the Lecture.
- An Offline Lecture will be organized in the Auditorium of the Centre on the topic Nuclear Power an inevitable option by Shri A. K. Jain, Former Chief Engineer Corporate Communication, NPCIL on 30th July, 2022 at 11:00 am. Virtual visitors will be able to join on the Zoom platform and it will also be streamed on the Facebook page of the Centre. A total of 204 students have registered for the offline lecture and 188 participants have registered for the online Zoom Lecture respectively.

Moon Landing Day celebration 2022

- Quiz Contest:
The Online Quiz contest on the topic "Moon" was conducted on 19th July 2022 in online mode. The contest was open for all. Total 40 participants took part in Quiz.
- Chalte Chalte:
On the spot quiz 'Chalte Chalte' was organized for the visitors of the Science Centre. The visitors were asked questions based on the theme "Amazing facts about the moon". visitors who gave the correct answers were given prizes. This quiz was conducted on 19th & 20th of July 2022. 69 Visitors participated in the event.
- Science On Sphere:
The Centre organized a Science on Sphere Show for visitors on the topic "Moon". 70 Visitors participated in the event.
- Science Film Show:
The Centre organized film show for visitors on the topic "Moon". The title of the film was Passage to the Moon & Moon within reach. This was a paid programme. 132 Visitors participated in the events.

In The Last Quarter...

August

SCIENCE FESTIVAL – 75 years of India's Independence

To commemorate the Azadi Ka Amrit Mahotsav (AKAM) 'Science Festival' was organized at the Centre during August 10th to 15th, 2022. Following programmes and activities were organized during this period.

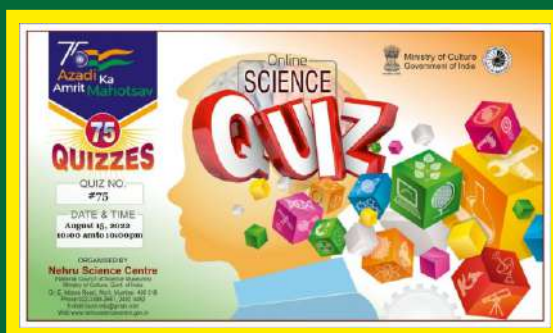
1. Science shows

24 Science shows were conducted from August 10th to 15th, 2022 for the school groups and visitors of the Centre. In all 1,683 students, teachers and visitors participated in these shows.



2. Online science quizzes

From the series of 75 online quizzes which were conducted during the last year, the last 06 quizzes on the topics Nuclear Energy, Animal Science, Bird World, Electronics, Energy, Light and Sight, World Organ Donation Day, Animal Science & Innovations in India were organized from August 01st to 15th, 2022. The quizzes were open for all. In all 7,527 participants attempted these quizzes.



3. Water Rocket demonstration

During the Festival 12 water rocket demonstrations were conducted for the students, teachers and general visitors. 695 participants enjoyed the rocket launching and also understood the underlying scientific concepts.



4. Workshops

To commemorate the Azadi ka Amrit Mahotsav (AKAM) 'Science Festival' was organized at the Centre during August 10th to 15th, 2022. Following programmes and activities were organized during this period.

Following hands-on workshops were organized during the festival:

Make and Fly Paper Planes -

24 Science shows were conducted from August 10th to 15th, 2022 for the school groups and visitors of the Centre. In all 1,683 students, teachers and visitors participated in these shows.



Drones-

Drones workshop was organized on 13th August 2022 at the Centre, wherein the 68 participating students were given exposure to Principles of Flight. They also assembled and flew the drones with the help of Helium balloons. Mr Amit Modi and his team from Techshiksha, an NGO conducted the workshop.



Robotics and Artificial Intelligence -

89 students participated in the workshop & learnt the basics of AI and constructed a Robot. The workshop was organized on 13th August 2022. Mr Amit Modi and his team from Techshiksha, an NGO conducted the workshop.



Learn through Fun for underprivileged students –

290 underprivileged students visited the Centre on 14th & 15th August, 2022. Along with the exposure to the different facilities of the Centre, a workshop on Learn through Fun was organized at the Centre. The students used the science kit given to them and enjoyed making simple science toys.



-Online Workshop on 'Trash to Treasure' for Teachers-

On 14th August 2022 an online workshop on the topic 'Trash to Treasure' was organized for the secondary school teachers. The workshop was conducted by Dr. Anuradha Gupta, a Science Communicator, from Prithvi Innovations, Lucknow. Dr. Gupta explained how one can reduce the waste and convert it to treasure. 76 teachers throughout the country participated in the workshop.

-Soap Bubbles workshop:

The workshop was conducted on 15th August 2022. Participants learnt the science and geometry of the soap bubbles through interesting and amazing hand-on activities. 46 students and parents participated in the workshop.



Remembering Dr Vikram Sarabhai

Nehru Science Centre in collaboration with Space Geeks and Indian Space Industries Exhibitors organized an online Popular Science Lecture on the topic 'Scientific Ballooning in India' on 12th August, 2022 to commemorate the birth anniversary of Dr. Vikram Sarabhai, the Father of the Indian Space Programme. Prof. Devendra Ojha, Senior Professor and Chairperson, TIFR Balloon Facility Committee, Tata Institute of

Fundamental Research, Mumbai delivered the lecture on the Zoom platform. The lecture was streamed on the Facebook page of the Centre as well. 96 participants attended the lecture on the zoom and Facebook reach of the lecture was 1069.

5. Contests

Painting Contest –

the Contest was organized at the Centre on 14th August 2022 for students in 03 different categories. 278 students made the paintings on pre-announced topics



Rangoli Contest –

29 participants registered for the Rangoli contest. The topics were Science / Technology / Environment. The participants beautifully presented the topics through their Rangoli art. The contest was organized on 13th August 2022.



Chalte – Chalte (On the Spot quiz) –

The on the Spot was organized at the Centre for the visitors of the Centre. The questions were based on the scientific achievements of India in post-independence period. 283 visitors participated in the contest. The quizzes were conducted on 13th and 14th August, 2022.



NPCIL Programmes on Nuclear Energy- Clean & Green Energy

Nehru Science Centre Mumbai in collaboration with Nuclear Power Corporation of India Limited (NPCIL) has organized various Popular Science Lectures and Quiz Contest. The Lectures were organized in online and offline mode.

Elocution Contest, Painting Contest, Slogan Writing Contest were also organized and the number of entries received were 25, 77 and 44 respectively

Popular Science Lectures

The Centre organized a Popular Science Lecture on the topic 'Public Concerns about Nuclear Power - Perceptions Vs. Realities' in Hybrid mode on 6th August, 2022 at 11:00 am. The lecture was delivered by Shri S. K. Malhotra, Secretary, Indian Nuclear Society. A total of 280 students attended the offline lecture held in the Auditorium of the Centre, 230 participants joined on Zoom platform and 710 participants watched the Facebook stream of the Lecture. The programme was organized in collaboration with NPCIL, Mumbai



Awareness campaign on Nuclear Power: Clean Energy - Green Energy

Nehru Science Centre, Mumbai in collaboration with the Nuclear Power Corporation of India Limited organised a special awareness campaign on Nuclear Power: Clean Energy - Green Energy as part of AzadikaAmritMahotsav and the iconic week of NPCIL.

In conversation with Dr A P Jayaraman, Nuclear Scientist

Nehru Science Centre, Mumbai in collaboration with the Nuclear Power Corporation of India Limited organised a special awareness campaign on Nuclear Power: Clean Energy - Green Energy as part of AzadikaAmritMahotsav and the iconic week of NPCIL.

Panel Discussion on “The New Education Policy-Impact on Elementary Education to Higher Education

Shri Umesh Kumar Rustagi, Director, NSC, Mumbai was invited by Nav Bharat & MIT-ADT University for a panel discussion on the topic “The New Education Policy-Impact on Elementary Education to Higher Education”. The event was held on 28th August 2022 at Hotel Orchid International, Vile Parle, Mumbai. About 150 people attend the panel discussion.



In The Last Quarter...

September

Teachers' Day

On 05.09.2022, to commemorate the Teachers' Day, the Centre organized a workshop for the teachers from the school for visually impaired students. The participants made simple science and mathematics toys to understand the various principles based on motion, vibration, sound, 2D-3D shapes, fractions etc. 16 teachers participated in this workshop.



Digital Literacy Programme for Teachers:

Nehru Science Centre conducted a Digital Literacy Programme for Teachers in collaboration with S. R. Dalvi (I) Foundation. This was an Online programme, conducted every Saturday from 5.30 pm to 7.00 pm. The registration of teachers was done by S. R. Dalvi (I) Foundation and programme was conducted by the faculty of NSC Mumbai. Throughout September 2022, four sessions were conducted covering following topics:

- 03.09.2022 - Understanding Internet
- 10.09.2022 - Using Working Tools:
- 17.09.2022 - Using Working Tools:
- 24.09.2022 - Using Google Tools:

Teachers Training Programme

02 batches of Teachers' training programme were conducted for the would-be teachers. These trainee teachers were given exposure to the different facilities of the Centre. They also made teaching aids based on Archimedes Principle, Brain model, Electric motor, Pythagoras theorem. A session on Innovative and Out-of-the-Box thinking also was organized for them. First batch was conducted from 12.09.2022 to 16.09.2022 in which 39 trainee teachers participated. In the second batch which was held from 26.09.2022 to 30.09.2022, 68 trainee teachers participated.



Engineers Day (15.09.2022)

To celebrate the Engineers Day, the Centre organized an online event in conversation with Ms. Preeti Manubhai Parekh, daughter of Mr. Manubhai Parekh. Mr. Manubhai Parekh was an innovator who despite being a school drop-out (in class 4) engineered many machines including an airplane by himself indigenously (except the engine of the airplane). 67 students and parents attended the session on Zoom.

World Ozone Day

The Centre organized an online multiple-choice quiz on the topic 'Ozone' on 16.09.2022. The quiz was open for all from 10am to 10pm. In all 633 participants attempted the quiz.

Hands-on Drone Workshop

Nehru Science Centre Mumbai in collaboration with Drona Aviation Mumbai organized a Hands-on Drone Workshop for Innovation Hub members on 25.09.2022. Students were explained working principles of Drones, they were also taught assembling drones, they themselves controlled the drones through their smartphones. 25 members were part of this workshop.

Regional Level Science Seminar

The Dy. Director of Education, Mumbai in collaboration with Nehru Science Centre, Mumbai organized Regional level Science Seminar for Mumbai region on 27.09.2022 at Nehru Science Centre, Mumbai for the students of STD VIIIth to Xth. The objective of the Science Seminar is to inculcate the spirit of scientific enquiry and analytical thinking in the minds of the young students. The topic for this year's seminar is "Basic Sciences for Sustainable Development: Challenges & Prospects". 07 Students from Zonal Level Science Seminar participate at this Regional Level Science Seminar 2022



International Day of Scientific Culture

Culture of a country gets reflected in the toys, games and the practices that are followed in the country. Hence, to commemorate the International Day of Scientific Culture, the Centre organized various programmes on 28.09.2022, 3 events were planned for this occasion

-A workshop on Making traditional toys: This workshop was organized for school students. 67 students participated in the workshop. Students made Paper cracker, Paper clapper, paper wheel (Chakri), Flying butterfly (Moving mechanism), wooden dowel rotor and Damroo. They also learnt about the crude cracker gun.



हिन्दी पखवाड़ा 2022

दिनांक 14 सितम्बर, 2022 अपरान्ह 04.15 बजे हिन्दी पखवाड़ा - 2022 का उद्घाटन मा. उमेश कुमार रुस्तगी, निदेशक, नेहरू विज्ञान केन्द्र, मुम्बई द्वारा किया गया। इस दिन अपरान्ह 04.45 बजे मा. उमेश कुमार रुस्तगी जी ने 'राष्ट्रीय शिक्षा नीति' इस विषय पर व्याख्यान किया जिस में केंद्र के कुल 40 अधिकारियों एवं कर्मचारियों की उपस्थिति थी।

बोलिए अपनी बोली प्रतियोगिता:

दिनांक 16 सितम्बर, 2022 अपरान्ह 03.30 बजे केन्द्र के कर्मचारियों के लिए बोलिए अपनी बोली प्रतियोगिता का आयोजन किया गया जिस में 12 कर्मचारियों एवं अधिकारियों ने भाग लिया।



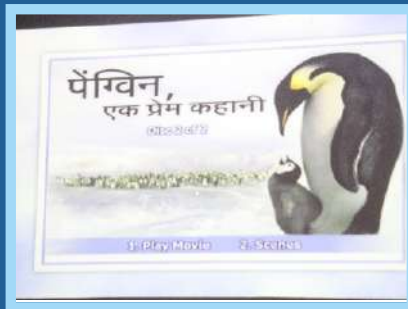
खजाने (पुस्तकों) की खोज प्रतियोगिता:

दिनांक 19 सितम्बर 2022 अपरान्ह 03.30 बजे केन्द्र के कर्मचारियों के लिए केंद्र के ग्रंथालय खजाने (पुस्तकों) की खोज प्रतियोगिता का आयोजन किया गया जिस में 24 कर्मचारियों एवं अधिकारियों ने भाग लिया।



हिन्दी फिल्म शो:

दिनांक 21 सितम्बर 2022 अपरान्ह 04.00 बजे केंद्र के प्रेक्षागृह में 'पेंग्विन एक प्रेम कहानी' नामक हिन्दी फिल्म शो का आयोजन किया गया। कुल 40 अधिकारियों एवं कर्मचारियों ने इस हिन्दी फिल्म शो का लाभ उठाया।



हंसो और हंसाओ प्रतियोगिता:

दिनांक 22 सितम्बर, 2022 अपरान्ह 03.00 बजे केन्द्र के कर्मचारियों के लिए हंसो और हंसाओ प्रतियोगिता का आयोजन किया गया जिस में 20 कर्मचारियों एवं अधिकारियों ने भाग लिया।



हिन्दी कार्यशाला:

दिनांक 23 सितम्बर, 2022 अपरान्ह 03.30 बजे केन्द्र के सभी अधिकारियों एवं कर्मचारियों के लिए राजभाषा हिन्दी एवं तकनीकी सुविधाएँ इस विषय पर ऑनलाइन हिन्दी कार्यशाला का आयोजन किया गया। डॉ. राकेश पराशर, उपनिदेशक, हिन्दी शिक्षण योजना, नई मुंबई द्वारा कार्यालयीन कामकाज में हिन्दी का सरलता से प्रयोग करने पर मार्गदर्शन किया। डॉ. राकेश पराशर जी ने कार्यालयीन कामकाज में अनेक हिन्दी ई-टूल्स के प्रयोग संबंधी केन्द्र के अधिकारियों एवं कर्मचारियों को जानकारी दी। केन्द्र के कुल 30 कर्मचारियों एवं अधिकारियों और केंद्रे के इतर इकाइयों से 40 कर्मचारियों एवं अधिकारियों ने इस ऑनलाइन हिन्दी कार्यशाला का लाभ उठाया।



पढ़ते पढ़ते लिखना सीखो प्रतियोगिता:

दिनांक 26 सितम्बर, 2022 अपरान्ह 03.00 बजे केन्द्र के कर्मचारियों के लिए पढ़ते पढ़ते लिखना सीखो प्रतियोगिता का आयोजन किया गया जिस में 20 कर्मचारियों एवं अधिकारियों ने भाग लिया।



हिन्दी गीत गायन प्रतियोगिता:

दिनांक 27 सितम्बर, 2022 अपरान्ह 03.00 बजे केन्द्र के अधिकारियों एवं कर्मचारियों के लिए हिन्दी गीत गायन प्रतियोगिता का आयोजन किया गया जिस में 10 अधिकारियों एवं कर्मचारियों ने भाग लिया।



अंताक्षरी प्रतियोगिता:

दिनांक 28 सितम्बर, 2022 अपरान्ह 03.30 बजे अंताक्षरी प्रतियोगिता का आयोजन किया गया जिस में केंद्र के सभी अधिकारियों एवं कर्मचारियों ने भाग लिया ।



पखवाड़े का समापन:

दिनांक 29 सितम्बर, 2022 अपरान्ह 03.00 बजे हिन्दी पखवाड़े का समापन किया गया । निदेशक मा. उमेश कुमार रुस्तगी के हाथों पखवाड़े में आयोजित विविध प्रतियोगिताओं के विजेताओं को पुरस्कार प्रदान किए गए । उन्होंने सभी विजेताओं को हार्दिक बधाई दी।

हिन्दी पखवाड़ा के उपलक्ष्य में केंद्र में दिनांक १५.०९.२०२२ को दृष्टि दिव्यांग बच्चों के लिए विज्ञान कार्यशाला का आयोजन किया गया । इस कार्यशाला में उन्हे ध्वनि, गती आदि सिद्धांतों पर आधारित प्रयोग सिखाए गए । ६७ बच्चों ने इस कार्यशाला का लाभ उठाया ।

हिन्दी पखवाड़ा के दौरान दिनांक 14 सितम्बर, 2022 को वंचित बच्चों के लिए हिन्दी में विज्ञान कार्यशाला का आयोजन किया गया । इस कार्यशाला में मनोरंजक विज्ञान पर आधारित प्रयोग दिखाए गए । १७५ बच्चे इस कार्यशाला में सहभागी हुए ।



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://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 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/-
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	Rs.900/-
(Buy Family Ticket to Save & have lot of FUN)	
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.

Follow us on:



“If you fail, never give up. Because fail means First Attempt In Learning.”

- A. P. J. Abdul Kalam



संस्कृति मंत्रालय
Ministry of Culture
भारत सरकार
Government of India



नेहरु विज्ञान केन्द्र

राष्ट्रीय विज्ञान संग्रहालय परिषद् की इकाई,
संस्कृति मंत्रालय, भारत सरकार
डा. ई. मोजेस मार्ग, वर्ली, मुंबई-400 018

Nehru Science Centre

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Ministry of Culture, Govt. of India
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