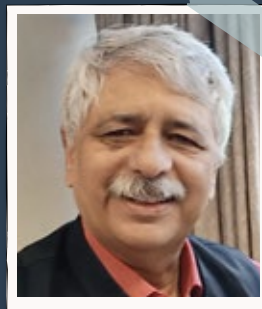


Scientists on Life and Learning:

What was your first ever AHA moment in astronomy?

My father was an engineer with the Geological Survey of India. Much of my childhood was spent in the jungles of India. I vividly remember a sky filled with stars; seeing the Milky Way was nothing out of the ordinary. I don't recall the exact date, only that it was the winter of 1979. My parents and I had been invited to the Kavalur Observatory with Professor Gokhale, a solar physicist, as special guests of Dr. Vainu Bappu, then Director of the Indian Institute of Astrophysics (IIA). Close to midnight, we ascended to the observation floor. Jupiter stood nearly overhead, and Saturn was above the eastern horizon. I'll never forget what happened next. Through a custom-fitted, high-resolution eyepiece on the giant 40-inch telescope, I saw the bands of Jupiter and Saturn, with Saturn encircled by its magnificent rings, and they almost looked as if they were rotating. I wanted to observe more. Two years later, I walked through the gates of the IIA—not as a guest, but as a member of the staff.



Arvind Paranjpye
Director, Nehru Planetarium

Today's Attraction ★

Nehru Planetarium, Discovery of India and Museum

Today leaders will visit the Nehru Planetarium, a prominent centre for astronomy education and outreach, commissioned in 1977. Over the decades, it has become a vibrant hub for scientific discussions, lectures, and public engagement around celestial events. Also included in the experience is the Discovery of India exhibition, which spans around 100,000 sq. ft., and brings to life India's rich cultural, scientific, and political heritage through photographs, dioramas, and replicas. Lastly, you will also visit the famed Chhatrapati Shivaji Maharaj Vastu Sangrahalaya (Museum).

Image Credit: Nehru Centre Website Gallery



Weather Forecast

Max: 29°C / 84.2°F
MIN: 24°C / 75.2°F
Mumbai

Generally cloudy sky with heavy rain

Source: India Meteorological Department

Today's Programme

Students

08:30 hrs - 13:00 hrs

Data Analysis Exam

Venue: Grand Ballroom

18:00 hrs - 20:30 hrs

Group Competition

Venue: Grand & Powai Ballrooms



Leaders

09:30 hrs - 12:30 hrs

Visit to Nehru Planetarium & Discovery of India

13:30 hrs - 19:00 hrs

Excursion to CSM Museum



The Jantar Mantar: Precision in Stone

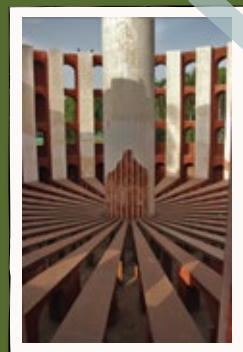
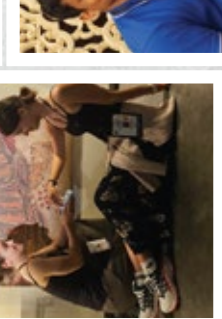
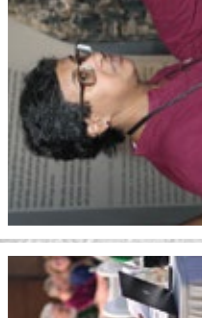
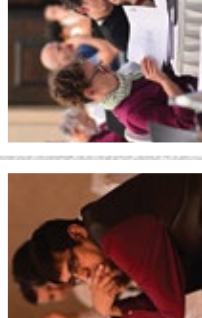
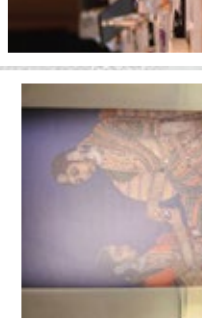


Image Credit: Wikimedia Commons/
AKS.9955/ CC 4.0

The Jantar Mantar observatories, constructed in the 18th century by Maharajah Sawai Jai Singh II of Jaipur, are among the most iconic representations of pre-telescopic Indian astronomy.

There are five Jantar Mantar observatories in India, one each in Jaipur, Delhi, Ujjain, Varanasi and Mathura. These massive architectural instruments served a greater purpose than mere symbolism—they were instruments that helped compile astronomical tables, and to predict the times and movements of celestial bodies with surprisingly high precision. For instance, solar altitudes as well as declinations were calculated with accuracy of a few arc seconds using the *Rama Yantra* and *Jai Prakash Yantra* that were made for all the sites. It gave precise local time with an accuracy of less than a second and stellar positions with an error of a few arc seconds.

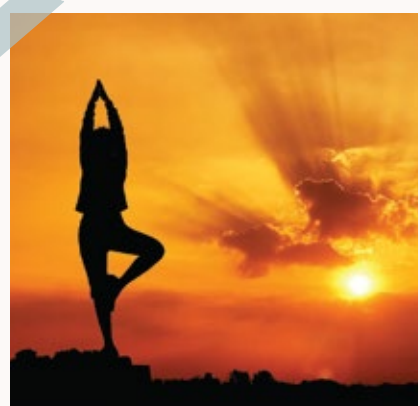
Recent calibration efforts reveal that the accuracy of these instruments may be comparable to or even better than that of contemporary European devices. From the Delhi site, measurement deviations as small as one arc-minute have been noted in systematic observations. The Jantar Mantar observatories represent an enormous, easily accessible, and mathematically complex scientific architecture. These public observatories serve as tools for civic education as well as professional calculation.





Yoga: Much More Than Twisting and Turning!

Image Credit: Wikimedia Commons/ Yoganritam/ CC 4.0



When we hear the word 'Yoga', what comes to most of our minds is some exquisite twisting and turning of the body! Though it is now practiced in many parts of the world as a form of exercise, there is much more to it. It is a holistic, multifaceted practice that originated in ancient India, with deeper spiritual and metaphysical underpinnings. The word 'Yoga' has its roots in Sanskrit, meaning 'to join,' 'to unite,' or 'to yoke.' The practice encompasses physical postures, breathing techniques, and meditation, aimed at uniting the body and the mind. In recognition of its benefits for physical and mental well-being, the United Nations declared 21st June as the International Day of Yoga in 2015. It is now part of UNESCO's list of Intangible Cultural Heritage elements. Products and processes of a culture are windows into the character and history of its people. Yoga stands out in this regard—and also in its capability to transcend boundaries.

In Their Own Words



I have met some of my friends from the IPhO here, but I have also made so many new friends! They have great knowledge about astronomy and are experienced in sky observation, and I respect them for that.

Kento Kakutani
(Contestant, Japan)

I was selected for the Astronomy Olympiad camp when I was a student, and this is my first time working as a grader. The experience has been fun but also tiring, as I feel a bit sleep-deprived due to the amount of work!

Vivek Menon
(Member, Academic Team)

We have learnt a lot about the Indian space missions and astronomy-related projects in the last few days. All of it is really fascinating for us. We've definitely made a lot of friends, and we've played many games with our peers.

Contestants of the UK Team

We really enjoyed the butter chicken, naan, and lots of tasty dishes from the hotel menu. We don't miss anything from home because we're here to explore and enjoy India. At the museum, we found the mummy exhibition fascinating and loved seeing relics from such an ancient time.

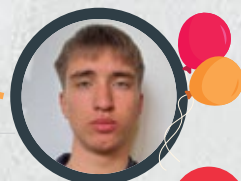
Contestants of the United Arab Emirates Team

I am looking forward to the group competitions because I saw that there's a very interesting theme. It seems like the groups will enjoy it and have a positive experience. Not only will they learn something new, but there will also be a sense of achievement and community.

Håkon Dahle
(Leader, Norway)

HAPPY BIRTHDAY!

Daniel Mardari
(Contestant, Moldova)



This is my first time in India, and my first impression of Mumbai is that it's a city full of hustle and bustle. There's so much movement and so many people in the streets. The weather is pleasant and enjoyable.

Khanh Hoang
(Contestant, Vietnam)

The museum had so many interesting exhibits and such rich cultural displays from South Asian, Chinese, and Japanese cultures. We learned a lot about other religions and cultures. It was really insightful!

Aldric Benalan and Rohan Raghu
(Contestants, United States of America)

I thought the exam was good—it was critical, scientific, and physics-heavy, which I enjoyed.

Hossein Soltani
(Contestant, Iran)

This has been a nice experience for me—I got to meet new people in this event. It was good to see how students have used different approaches to solve the problems in the exam.

Aratrika Ghosh
(Member, Academic Team)

This is the third Olympiad that I am part of. It's always nice to be part of these competitions, as I get to learn something new every time. The questions were really innovative and tested both the practical and theoretical knowledge of students.

Vinita Suresh Navalkar
(Member, Academic Team)

Feature

Caroline Herschel

(16 March, 1750 - 9 January, 1848)

Caroline was once expected to spend her life cleaning and cooking. But when she moved to England with her brother William, a musician who turned into an astronomer, Caroline's life shot off like a comet. She helped him polish telescope mirrors, record observations, and do the endless math that astronomy demands.



Image Credit: Wikimedia Commons/Public Domain

Soon, Caroline started scanning the skies herself. In 1786, she discovered her first comet, and the world noticed. Over her career, she discovered eight comets. She became the "first woman to discover a comet" and had her findings published by the Royal Society.

Caroline also organised the known stars. She expanded John Flamsteed's star catalog, adding precise positions for thousands of stars. Her catalog included over 500 "new nebulae and clusters". Her hard work didn't go unnoticed. In 1787, she became the "first woman in England to be paid for scientific work". Later, she received the "Royal Astronomical Society's Gold Medal" at a time when women rarely even stepped into scientific societies.

So next time you look up at the night sky, remember Caroline proved that it doesn't matter where you start, just stay focused!

Giveaway Alert!



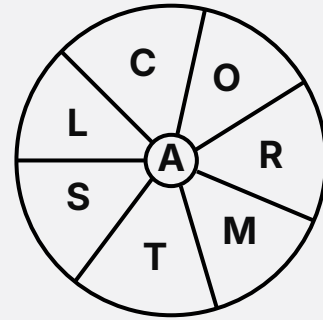
If you've cracked all the **brain teasers from Issues 1 to 5 of nakshatra**, reach out to the newsletter team with your responses, when you see them next! **There will be prizes for the fastest to respond with the right answers**. The giveaway is open to all contestants, leaders, local volunteers, student guides, and the organising team. **Don't miss out—grab your prize today!**

Offbeat Intel

Did you guys catch this stunning architectural feature yesterday at the University of Mumbai's Convocation Hall? It's stained glass panels depict the 12 zodiac signs.



Starry Anagrams



Find terms related to astronomy (scientific, historical, or classical) using **only the letters** featured in the circle- **A, O, R, M, T, S, L and C**

- Each word **must be** 3 to 8 letters long.
- Each word **must contain** the central letter A.
- You can only use the letters featured in this circle.
- You **cannot repeat** the usage of any letter.
- Only standard English words related to astronomy are allowed—popular or proper nouns may be included.
- No acronyms, non-standard jargon or abbreviations allowed.

Scoring: 1 point for each valid word. If you make more than 8 words, each additional word is worth 2 points! If you make more than 12 words, each additional word is worth 3 points! **So, what's your score?**

Answer to yesterday's Celestial Collaboration Quest

False, False, True, False, False, True

By the way, have you figured out where the cryptic code might be hidden?



Hot Takes for a Hotter Earth

Look deep into nature, and then you will understand everything better.



The moon was feeling moody—guess it was going through a phase.

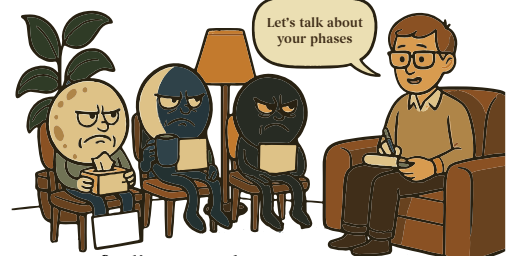


Image by: Dev Verma

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