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WHAT ARE ASTEROIDS?



- Asteroids, sometimes called **minor planets**, are the **rocky remnants of material leftover from the formation of the solar system** and its planets approximately 4.6 billion years ago.
- They **orbit the Sun** in highly flattened, or "elliptical" circles, often rotating erratically, tumbling and falling through space.
- The **majority of asteroids** originate from the **main asteroid belt**, a region **between the orbits of Mars and Jupiter**.
- Asteroids are found in other places, too. For example, **some asteroids are found in the orbital path of planets**.
- Asteroids are **also found in the Kuiper Belt**, a region of icy bodies that orbit the sun beyond Neptune.
- Although asteroids orbit the Sun like planets, they are much **smaller than planets**.
- There are also **binary (double) asteroids**, in which two rocky bodies of roughly equal size orbit each other, as well as **triple asteroid systems**.

International Asteroid Discovery Project (IADP):

- It is a program **affiliated with NASA's International Astronomical Search Collaboration (IASC)**.
 - It is a **citizen science program** which lets **participants discover asteroids** by using software and datasets.
 - The citizen-scientists can make original astronomical discoveries and participate in hands-on astronomy.
 - The **participants are provided with datasets from IASC**, which they have to download. Calibrating them on **Astronomica Software**, they then have to look for asteroids.
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ANNUAL STATUS OF EDUCATION REPORT (ASER) 2024

After a prolonged decline due to learning losses during the COVID-19 pandemic, there has now been a modest recovery in foundational literacy and numeracy (FLN) among school students, according to the ASER 2024, released recently.



• It is an annual citizen-led survey that provides reliable estimates of children's schooling and learning levels in rural India.

- It is published by the **Pratham**, an NGO, and the survey has been conducted every year since 2005.
- In 2016, ASER switched to an **alternate-year model** where the 'basic' ASER is conducted in all rural districts of the country every other year rather than annually.
- In the gap years, a smaller survey (typically 1-2 districts per state) focuses on other age groups and domains.
- The '**basic**' ASER survey tracks enrollment for children **aged 3-16** and assesses basic reading and arithmetic of children aged 5-16.
- ASER is a **household-based** rather than school-based survey.
 - This design enables all children to be included those who have never been to school or have dropped out; those who are in government schools, private schools, religious, or other types of schools; and those who are absent from school on the day of the assessment.

Highlights of ASER 2024:

- During the pandemic years, there was a big jump in **government school enrolment**, with the proportion of 6–14-year-old children enrolled in government schools rising from 65.6 percent in 2018 to **72.9 per cent in 2022**. This number is back to **66.8 percent in 2024**.
- **Private school enrolment** has been **steadily rising since 2006 in rural India**.

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- The proportion of 6-14-year-olds enrolled in private schools rose from 18.7 percent in 2006 to **30.8 percent in 2014 and stayed at that level in 2018.**
- The report also noted that not only has there been a **full recovery from the pandemic-induced learning loss**, the learning levels in the primary grades are higher than past levels in some cases.
 - The **percentage of Class 3 children who can perform at least subtraction at the basic arithmetic level** was **33.7% in 2024**, up from 25.9% in 2022 and higher than the pre-pandemic rate of 28.2% in 2018.
 - While private schools saw a rise of about 4 percent, government schools saw a sharper 7 percent surge in this field.
 - The percentage of **Class 5 children who can now read a text at the Class 2 level** was **44.8% in 2024**, up from 38.5% in 2022 and nearly matching the 2018 rate of 44.2%.
 - However, this percentage has not yet reached pre-pandemic levels at private schools; in 2024, it was 59.3%, up from 56.8% in 2022, but still less than 65.1% in 2018.
- **More than 82 percent of children in the 14-16 age group know how to use a smartphone**, but only 57 percent of them use it for educational purposes.
- The data in the report shows that **both teacher and student attendance in government elementary schools has increased.**
 - From 72.4% in 2018 to 73% in 2022 to 75.9% in 2024, the average student attendance rose.
 - Meanwhile, from 85.1% in 2018, the average teacher attendance rose to 86.8% in 2022 and 87.5% in 2024.

In pre-primary schools for children aged 5, Karnataka, Gujarat, Maharashtra, Kerala, and Nagaland are among the states with enrollment rates above 90%.



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LEZIM DANCE



- It is a folk dance from Maharashtra.
- It gets its name after a musical **instrument** - a **unique wooden stick**, with **jingling cymbals** attached to it that the dancers carry while performing the dance. The dance is accompanied by a **dhol or dhalgi** (small dhol).
- Lezim is a kind of musical instrument which was traditionally used in all folk dances but today it is **primarily used in Ganesha procession**.
- Lezim dance is a **rigorous physical exercise** in which the formations are in twos and fours and sometimes even a circle.
- There are **no winds or string instruments** accompanying it, often there is no song accompaniment either, but sometimes, a song can be sung.

Who was Chhatrapati Sambhaji Maharaj?

- He was the eldest son of Chhatrapati Shivaji Maharaj.
- He came to power following a bloody succession battle with his half-brother Rajaram in 1681.
- The **Mughal emperor Aurangzeb** (1618-1707) was his contemporary whose plan to extend the Mughal empire towards the Deccan often resulted in clashes with the Marathas.

DEEPSEEK: THE AI DISRUPTOR RESHAPING THE INDUSTRY

IT TOOK ONLY \$5.6MN TO CREATE	
> Founded in May 2023 by Liang Wenfeng, who also founded and runs a hedge fund called High-Flyer	> The AI model sidetracks questions on itself and Chinese politics
> DeepSeek's headquarters is in the Chinese city of Hangzhou	> DeepSeek's first AI model — launched in Nov 2023 — was called DeepSeek Coder
> Paid access to its new model reportedly comes at 3% of what OpenAI charges	> DeepSeek became #1 downloaded free app on Apple App Store, displacing ChatGPT which, though, has higher total downloads

DeepSeek: A New Chatbot Rival to ChatGPT

- DeepSeek is a free AI-powered chatbot that functions similarly to ChatGPT. It can perform various tasks, though its effectiveness compared to rivals remains debated.

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- **Performance and Efficiency**
 - DeepSeek's R1 model is reportedly as powerful as OpenAI's o1, excelling in mathematics and coding.
 - It is a "reasoning" model that processes responses incrementally, using less memory and reducing operational costs.
- **Cost-Effective AI Development**
 - DeepSeek claims to have trained its model for just \$6 million, significantly lower than the over \$100 million OpenAI spent on GPT-4.
 - The company's founder reportedly stockpiled Nvidia A100 chips—banned from export to China since 2022—pairing them with cheaper chips to develop the AI.
- **Security Challenges and Outages**
 - After becoming the most-downloaded free app on Apple's U.S. App Store, DeepSeek faced large-scale cyberattacks, forcing temporary registration limits.
 - The company also experienced website outages.
- **DeepSeek's Cost-Effective Advantage**
 - DeepSeek's AI models, DeepSeek-V3 and DeepSeek-R1, have received praise from Silicon Valley executives and engineers.
 - The company claims its models match OpenAI and Meta's best AI systems while being significantly cheaper to use.

The AI Race: A Strategic Moment for India

- PM Modi's upcoming participation in the AI summit in Paris highlights India's need to carefully assess the implications of the escalating AI competition between the US and China, especially following the release of DeepSeek R1.
- **The DeepSeek-Sputnik Parallel**
 - DeepSeek R1's release is being compared to the Soviet Union's launch of Sputnik in 1957, which shocked the US and spurred an intense space race.

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- Similarly, DeepSeek has intensified the technological rivalry between the US and China, setting a new frontier for great power competition.
- **India's Strategic Role in Global AI Governance**
 - India must avoid past mistakes, such as being sidelined in the global nuclear governance framework, by clearly defining its AI strategy.
 - Delhi has the opportunity to shape global AI governance rather than remain a passive participant.
- **Conclusion**
 - The AI race presents both challenges and opportunities for India. By leveraging partnerships, investing in innovation, and ensuring strategic clarity, India can play a pivotal role in the evolving AI landscape.

SEBI'S WHEN-LISTED MECHANISM

When-Listed Platform

- This platform will facilitate trading of shares between IPO allotment and official listing, addressing concerns around unregulated markets.
- **Reducing Grey Market Activity**
 - The grey market involves unofficial, unregulated trading of IPO shares based on demand and supply before listing. It operates in cash with no actual delivery of shares.
 - Many retail investors use grey market premiums to evaluate IPO investments.
- **Addressing Grey and Kerb Trading**
 - SEBI aims to eliminate **grey and kerb trading** during the T+3 period (time from IPO closure to listing) by introducing a regulated alternative.
 - Grey market trading and kerb trading both refer to buying and selling shares outside official stock exchanges.
 - This usually happens before a company's shares are officially listed after an IPO.

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- Investors trade these shares at a grey market premium based on demand.
- The term "kerb trading" comes from the idea of trading on the street, highlighting its unofficial nature.
- It emphasized that this platform would formalize trading already happening unofficially, providing a transparent, regulated system.
- **Collaboration with Stock Exchanges**
 - SEBI is working with stock exchanges to implement this platform, aiming to provide investors a safe and formal way to trade shares during the pre-listing period.

Benefits of the “When-Listed” Facility for Investors

- **Regulated Trading:**
 - Investors who have received IPO allotment can sell their entitlement in a regulated market, instead of the unregulated grey market.
 - Sebi aims to eliminate the informal grey market trading and allow formal trading through an official platform.
- **Reducing Market Volatility:**
 - The grey market is seen as a source of volatility and distorted market sentiments.
 - The new platform will help control market instability by ensuring all trading is monitored by the regulator.
- **Protecting Retail Investors:**
 - Market participants suggest that Sebi should address grey market activity starting from the IPO announcement to safeguard retail investors' interests.

Current timeline for listing of shares

- Currently, after an IPO bidding closes, shares must be listed on stock exchanges within three working days (T+3). Shares are allotted on T+1 day.
- In the gap between allotment and listing, investors engage in grey market trading.
- Sebi aims to reduce this pre-listing grey market activity.

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WHAT ARE HARMFUL ALGAL BLOOMS (HABS)?



- Certain environmental conditions in water bodies can **intensify algae growth**, causing algal blooms.
- The excessive algal growth **becomes visible** to the naked eye and **can be green, blue-green, red, or brown**, depending on the type of algae.
- Algal blooms can **happen in fresh, marine (salt), and brackish** (a mixture of fresh and salt) **water**.
- **Not all algal blooms are harmful**. Most blooms are beneficial because the tiny plants are food for animals in the ocean.
- Blooms with the potential to **harm aquatic ecosystems** and human health are **referred to as HABS**.

Why do HABS occur?

- Certain environmental conditions, such as **warmer water temperatures** in the summer and **excessive nutrients from fertilizers or sewage** waste brought by runoff, trigger HABS.
- Many different types of algae can cause HABS. However, three types—**cyanobacteria, dinoflagellates and diatoms**—**cause most blooms** that make people and animals sick.

What are impacts from HABS?

- HABS can **produce toxins** which can result in acute or chronic disease in most vertebrates, depending on the type of toxin and amount of toxin absorbed.
- They can damage the environment by **depleting the oxygen in the water**, which can kill fish and other living creatures.
- HABS that **bloom near the water surface** can also **block sunlight** from reaching organisms deeper in the water.

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ASIAN WATERBIRD CENSUS



As per the Asian Waterbird Census-2025, a record number of 39,725 birds belonging to 106 species have been sighted in the Coringa Wildlife Sanctuary and adjoining wetlands.

- It is a citizen-science programme that supports the conservation and management of **wetlands and waterbirds worldwide**.
- It is conducted annually to monitor the population of waterbirds in the Asian region, and is part of the global **International Waterbird Census (IWC)**, coordinated by the **Wetland International**.
- It was **initiated in 1987** and has grown rapidly to cover major region of Asia, from Afghanistan eastwards to Japan, Southeast Asia and Australasia.
 - The census thus covers the entire **East Asian – Australasian** Flyway and a large part of the **Central Asian** Flyway.
- In India, it is conducted under the aegis of the **Bombay Natural History Society (BNHS)** and the **Wildlife Institute of India (WII)** in early January.

What is Bombay Natural History Society?

- It is a **Non-Governmental Organisation** in India, engaged in conservation and biodiversity research.
 - It has been designated as a '**Scientific and Industrial Research Organisation**' by the Department of Science and Technology. It is the partner of BirdLife International in India.
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