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Working of Sensex

Context: *Adani Ports and Special Economic Zone Ltd (APSEZ) will be the first Adani Group company to join the Sensex, replacing Wipro on June 24.*

What is the Sensex at the BSE?

- Launched in 1986, the Sensex is the oldest and most tracked bellwether index in India.
- Measures the performance of the 30 largest, most liquid, and financially sound companies across key sectors listed at BSE Ltd.
- Includes companies like Reliance Industries, ICICI Bank, and ITC Ltd.
- Represents the broader Indian equity marketplace.
- Despite consisting of only 30 stocks, the Sensex influences investor decisions widely.
- As of May 24, the total market capitalisation of BSE-listed firms was Rs 419.99 lakh crore.

Comparison Between Sensex and Nifty

- Both are tools to measure the domestic market's performance.
- Sensex tracks 30 stocks; Nifty tracks 50.
- Nifty 50 is a broad-based index started in November 1995, including companies like Adani Enterprises, Bajaj Finance, and Coal India.
- The market capitalisation of NSE firms was Rs 416.04 lakh crore as of May 24.

Company Selection Criteria for Sensex

- **Listing History:** Must have a minimum six-month listing history at BSE and should have traded every trading day during this period.
- **Derivative Contract:** Must have a derivative contract.
- **Market Cap:** Among the top 75 companies based on average three-month float or total market cap, with a minimum free-float market cap of 0.50%.
- **Liquidity:** The cumulative weight of the three-month average daily value traded (ADVT) is calculated, and any prospective constituents with a total ADVT weight greater than 98% are excluded
- The Sensex is reconstituted biannually, in June and December.

PRIMARY VS. SECONDARY MARKET

Basis	Primary Market	Secondary Market
Meaning	Offers security for the first time.	Offers trading of already issued securities
Another name	New issue market (NIM).	Aftermarket or share market.
Type of product	Mainly include IPO and FPO	Shares, warrants, derivatives and more.
Purchase type	Direct Purchases from Co.	Trading between Investors.
Frequency of selling	Once	As many as possible
Parties involved	Company and the investors.	investors buy and sell among themselves.
Beneficiary	Company	Investor
How to identify investment?	Investors primarily rely on prospectus and word-of-mouth publicity.	Several tools such as price to earnings (P/E), price to book (P/B), price to sales (P/S) and more.
Intermediary	Underwriters	Brokers.
Purpose	To raise capital for expansion and diversification, etc.	Trading and thereby availing Liquidity to Investors.
Price	The company sells the shares to the investors at a fixed price.	Demand Supply discovers the price.
Presence	No organization set up.	Geographical setup and organizational presence.
Rules and Regulations	The company issuing securities goes through a lot of regulation and due diligence.	Investors and brokers follows the rules set by the exchange and the governing agencies.

Zero Debris Charter

Context: *Twelve nations recently signed the Zero Debris Charter at the ESA/EU Space* Council to make space activities debris neutral by 2030.

- **Purpose:** Written by and for the global space community to shape a global consensus on space sustainability.
- **Goal:** Aim to become debris neutral in space by 2030.
- **Launch:** Unveiled at the ESA Space Summit in Seville in November 2023.
- **Scope:** Emphasises gathering a wide array of space entities to set ambitious and measurable space debris mitigation and remediation targets.
- **Participants:** Austria, Belgium, Cyprus, Estonia, Germany, Lithuania, Poland, Portugal, Romania, Slovakia, Sweden, and the United Kingdom, along with the European Space Agency as an International Organisation (IGO).
- **Kessler Syndrome:** A potential scenario where one satellite's debris impacts another, causing a chain reaction that could obliterate all orbiting objects in low Earth orbit (LEO) and create a thick cloud of fast-moving debris.

Face to Face Centres
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Space Debris

- **Definition:** Non-functional, artificial objects, including fragments, in Earth orbit or re-entering Earth's atmosphere.
- **Tracking:** Monitored by radar and optical detectors.
- **Human-Made Debris:** Dominates over the natural meteoroid environment.
- **Quantity:** ESA estimates over one million pieces larger than one cm in Earth orbit, each capable of causing catastrophic damage.
- **Risks:** Without action, the growing debris population poses increasing hazards to satellites and astronauts, potentially rendering some orbits unusable.

India's Efforts to Mitigate Space Debris

- **Debris-Free Space Missions (DFSM) by 2030:** ISRO aims to ensure future missions are designed to be debris-free by 2030 using advanced technologies and practices.
- **System for Safe & Sustainable Space Operations Management (IS4OM):** Enhances the safety and sustainability of space operations through better tracking and management.
- **Project NETRA:** ISRO's initiative for tracking and analysing space objects, providing critical data for collision avoidance and debris mitigation.
- **Space Situational Awareness Control Centre (SSACC):** Protects ISRO's assets from collisions with inactive satellites, orbiting objects, and near-Earth asteroids.
- **Zero Debris Milestone:** ISRO's PSLV-C58/XPoSat mission achieved zero debris in Earth's orbit.

International Efforts to Mitigate Zero Debris

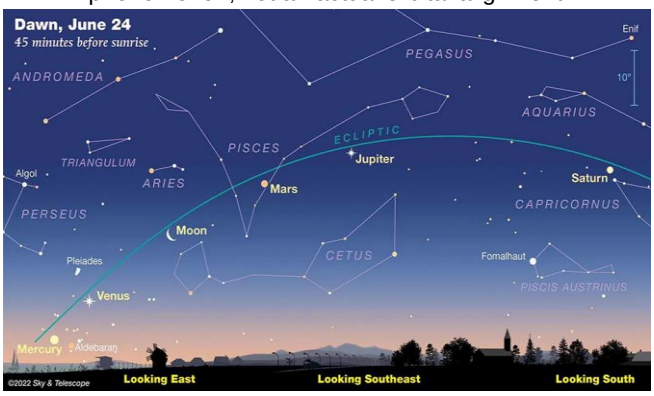
- **Regulations:** No specific international laws for debris in LEO; adherence to Space Debris Mitigation Guidelines 2002, endorsed by the UN in 2007.
- **Efforts by Various Space Agencies:**
- **USA:** NASA's orbital debris program since 1979.
- **Japan:** Commercial Removal of Debris Demonstration (CRD2).
- **China:** Debris removal through spacecraft with solar sails.

Planet Parade 2024

Context: *Six planets are aligning for a rare cosmic event known as a planet parade, set to captivate all stargazers on June 3.*

What is Planetary Alignment?

- **Definition:** A rare positioning of planets in the solar system where they appear to be in a straight line.
- **Illusion:** This event is more of an illusion than an actual perspective, creating the appearance of alignment from Earth's viewpoint.
- **Conjunction:** NASA refers to the phenomenon of planets coming close together in the sky as a conjunction.
- **Alignment:** When all planets appear close to the sun in a straight line, it is called an alignment.
- **Planets Involved:** The alignment involves Mercury, Mars, Jupiter, Saturn, Uranus, and Neptune.
- **Visual Alignment:** The alignment is a visual phenomenon, not an actual orbital alignment.



Why is Planet Parade Happening?

- **Natural Phenomenon:** The planets' elliptical orbits around the sun cause them to appear aligned from Earth's perspective.
- **Special Event:** The alignment of six planets is rare and notable compared to more frequent alignments of two or three planets.
- **Appearance:** The planets won't be perfectly aligned but will appear in a straight line, with some slightly above or below others due to their positions.

Additional Information

- **Aurora Borealis Visibility:** Recently visible across the world, including parts of India.
- **Solar Flares and Auroras:** Captured by Chandrayaan-2 orbiter and Aditya-L1, according to ISRO.
- **Tools for Observation:** An app Starwalk helps spot the planet parade at specific locations.

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NEWS IN BETWEEN THE LINES

Vivekananda Rock Memorial

Recently, Prime Minister of India announced his two-day visit to Kanniyakumari starting May 30 to meditate at the Vivekananda Rock Memorial.

About the Vivekananda Rock Memorial:

- The Vivekananda Rock Memorial is **situated on a small rocky island off the coast of Kanyakumari,** Tamil Nadu, at the southernmost tip of the Indian subcontinent.
- The memorial was **inaugurated in 1970** and was built to honour **Swami Vivekananda**, one of **India's most revered spiritual leaders** and **philosophers**.
- It commemorates the visit of Swami Vivekananda to the rock in December **1892**, where he meditated and attained enlightenment before attending the **Parliament of the World's Religions in Chicago in 1893.**
- The memorial consists of two main structures: the **Vivekananda Mandapam**, which includes a meditation hall (Dhyana Mandapam) and an assembly hall (Sabha Mandapam) and the **Shripada Mandapam**, marking the footprint of the Virgin Goddess believed to have blessed the rock.

Krishna River

Recently, two fishermen ventured into the western canal of Prakasam Barrage, situated on the Krishna River in Vijayawada, in pursuit of fish.

About the Krishna River:

- The Krishna River **originates from the Mahabaleshwar region** in the **Western Ghats in Maharashtra.**
- It flows through the states of **Maharashtra**, **Karnataka** and **Andhra Pradesh** before emptying into the **Bay of Bengal**.
- It is the second-largest east-flowing river of the Peninsula.
- The major right-bank tributaries of the Krishna River include **Venna**, **Koyna**, **Panchganga**, **Dudhganga**, **Ghataprabha**, **Malaprabha**, and **Tungabhadra**, while the major left-bank tributaries include **Bhima**, Dindi, **Peddavagu**, Halia, **Musi**, **Paleru**, and **Munneru**.
- Several important dams and reservoirs are built on the Krishna River, including the **Nagarjuna Sagar Dam** (one of the world's largest masonry dams), **Srisailam Dam**, and **Almatti Dam**.
- The **Krishna Water Disputes Tribunal** (KWDT) has been constituted to resolve water-sharing disputes among the states of Maharashtra, Karnataka, Andhra Pradesh, and Telangana.

Carbon Fiber

Recently, Vice-President of India emphasized the strategic significance of technological advancement for national security during his visit to the National Aerospace Limited (NAL) in Bengaluru, where he laid the foundation stone for the Centre for Carbon Fiber and Prepregs.

About Carbon Fiber:

- Carbon fiber is **lightweight**, strong **materials** made of tightly **woven carbon atom strand** that has many exceptional mechanical properties.
- It is also known as **graphite fiber** and is **polymer**.
- It **possesses high tensile strength**, **stiffness**, **low density, high chemical resistance**, **high temperature tolerance**, electrical conductivity and **low thermal** expansion.
- It is used in many industries, including **aerospace**, **automotive**, **sporting goods**, **civil engineering** and **military**.
- It is often combined with other materials to form a composite, such as **carbon-fiber-reinforced polymer**, which is very rigid and has a high strength-to-weight ratio.
- It is more expensive than similar fiber like **glass**, **basalt** or **plastic**.
- It can also **cause galvanic corrosion** when in contact with metals.

World Dhole Day

About Dholes:

- Dholes (Cuon alpinus) are also known as the **Asiatic Wild Dog** or **Indian Wild Dog**.
- They are apex predators in forest ecosystems and are most genetically **similar to African wild dogs**.
- In Kannada, they are **called 'thola,'** which **means 'wolf.'**
- They are found in the forests of the **Western Ghats**, **Eastern Ghats**, **Central India** and **Northeast India.**
- They prefer dense forests and grasslands but can also inhabit **agro-forests** like **coffee** and **tea plantations**.
- They are lean and lithe, about the size of a German shepherd, with **auburn fur, black bushy tails**, **amber eyes** and **upright**, **rounded ears**.
- Dholes are **endangered** in IUCN list and are **protected under Schedule II of the Wildlife Protection Act, 1972.**
- The first Dhole conservation breeding center was established in **2014** at the **Indira Gandhi Zoological Park in Visakhapatnam.**

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Personality in News
Vinayak Damodar Savarkar

Today, the Prime Minister of India paid tribute to great freedom fighter Veer Savarkar on his birth anniversary.

Vinayak Damodar Savarkar (28 May 1883-26 February 1966)

Vinayak Damodar Savarkar, an Indian politician, freedom fighter and writer was born at Bhagur village near Nashik in **Maharashtra**.

Contributions:

- Founded by Vinayak Damodar Savarkar and his brother Ganesh Damodar Savarkar in **1904**, the **Abhinav Bharat Society** aimed to promote revolutionary activities.
- Savarkar was associated with **India House**, **founded by Shyamji Kishan Verma** in **1905** in London, which aimed to foster nationalist sentiments among Indian students abroad.
- Established by Savarkar in London in **1906**, the **Free India Society** was inspired by the ideals of Italian nationalist Giuseppe Mazzini.
- Veer Savarkar authored several influential works, including "**Joseph Mazzini** - Biography and Politics" and "**The Indian War of Independence (about the Indian rebellion of 1857)**."

Honour:

- In recognition of his contributions, the airport at **Port Blair, Andaman and Nicobar's capital, was named Veer Savarkar International Airport**.

Ethical Values: Integrity, Patriotism, Leadership, Courage, etc.

Place in News
Papua New Guinea

Recently, a Papua New Guinea government official informed the United Nations and formally asked for international help for a devastating landslip that occurred, burying over 2,000 people alive.

Papua New Guinea (Capital: Port Moresby)

Location: Papua New Guinea is an **island country** situated between the Coral Sea and the South Pacific Ocean in the south-western Pacific Ocean.

Boundaries: Papua New Guinea shares its border with **Solomon Islands** (East), **Indonesia** (West) and **Australia** (South).

Physical Features:

- The **Sepik River is the longest river on** the island of New Guinea and the second largest in Oceania by discharge volume.
- **Mount Wilhelm**, nestled in the Bismarck Range, stands as Papua New Guinea's highest peak.
- The country has active volcanoes, with **around 60%** of them being active.
- Papua New Guinea has a **tropical climate**.
- The country has many minerals, including **gold**, **copper**, **silver**, nickel and cobalt.

POINTS TO PONDER

- Which country introduced the world's first 100% biodegradable pen? **– India**
- How many Great Indian Bustards were recorded during the yearly waterhole survey in Rajasthan's National Desert Park? **– 64**
- What celestial body is Gliese 12 b, a recent topic of discussion? **– An Earthsized exoplanet**
- On which date is 'World Thyroid Day' commemorated each year? **– May 25th**
- In which state can Sathyamangalam Tiger Reserve, recently making headlines, be found? **– Tamil Nadu**