

LUCY MISSION

NASA's Lucy spacecraft successfully completed its first flyby of an asteroid named Dinkinesh.



About Lucy Mission:

- It is a first-of-its-kind mission of NASA that will explore Jupiter's elusive Trojan asteroids.
- It was successfully launched on October 16, 2021, from the Kennedy Space Centre in Florida, US.
- Over its 12-year mission, Lucy will explore a record-breaking number of asteroids: it will fly by two in the belt of asteroids that circle the Sun between the orbits of Mars and Jupiter, and then 10 Trojans, which includes five asteroid targets and the satellites of three of those.
- Lucy will also fly by Earth three times to get a push from its gravity, making it the first spacecraft to return to the vicinity of Earth from the outer solar system.
- The spacecraft carries two infrared spectrometers and four cameras.

What are Trojan Asteroids?

- Asteroids that share an orbit with a planet but are located at the leading (L4) and trailing (L5) Lagrangian points are known as Trojan asteroids.
- These asteroids occupy a stable Lagrangian point in a planet's orbit around the Sun.
- They are some of the oldest remnants from the formation of our solar system 5 billion years ago.
- There are currently over 4,800 known Trojan asteroids associated with Jupiter.
- They orbit the Sun in two loose groups: one group leading ahead of Jupiter in its orbit, the other trailing behind at the same distance from the Sun as Jupiter.

What is a Lagrange point?

- Lagrange Points are **positions in space** where the **gravitational forces of a two-body system** like the Sun and the Earth **produce enhanced regions of attraction and repulsion.**
 - Lagrange Points are **positions where the gravitational pull of two large masses precisely equals the centripetal force** required for a small object to move with them.
 - These can be used by spacecraft to **reduce fuel consumption** needed to remain in position.
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BIOSPHERE RESERVES

Biosphere Reserves (BR)

- BR is an **international designation by UNESCO for representative parts of natural and cultural landscapes** extending over large area of terrestrial or coastal/marine ecosystems or a combination thereof.
- These are '**Science for Sustainability support sites**' designated to reconcile the conservation of biodiversity, the quest for economic and social development and maintenance of associated cultural values.
- Biosphere reserves **receive support from various UN entities** (such as the UNDP, UNEP), and the International Union for Conservation of Nature (IUCN).
- As per UNESCO's records, **there are presently 748 biosphere reserves spread across 134 nations**, which includes **22 sites that cross national borders, fostering cooperation among neighbouring countries.**
- These reserves have a **positive influence on the lives of over 250 million individuals in 134 countries, with as many as 12 million of them located within India.**

Regulation of Biosphere Reserves

- **Strictly Protected Core Zone**
 - **At the centre of every biosphere reserve, there is a core zone** that is subjected to strict protection.
 - This core zone **serves as a habitat for various plant and animal species while safeguarding the overall ecosystem** by preserving water, soil, air quality, and the entire biota.

- **Buffer Zone**

- Surrounding the core zone, there is a buffer areawhere people coexist with nature in a harmonious manner.
- This zone also serves as a laboratory for scientists to conduct research on natural phenomena and as a platform for training and education purposes.
- **Outermost (Transition) Zone:** The outermost edge is the transition zone where communities practise socio-culturally and ecologically sustainable human activities.

Significance of Biosphere Reserves

- **Vital for the Future of Our Planet**
- **Provide Home to Unique and Endangered Species**
- **Provide Opportunity for Sustainable Economic Development**
- **Crucial in Fight Against Climate Change**

DUDHWA TIGER RESERVE

UP Civil Aviation Department is working on a proposal to introduce chopper services from the state capital to Dudhwa Tiger Reserve (DTR).



About Dudhwa Tiger Reserve:

- It is located on the Indo-Nepal border in the district of Lakhimpur-Kheri in Uttar Pradesh.
- It includes Dudhwa National Park and two nearby sanctuaries, Kishanpur and Katerniaghat.
- It was established in 1988 and covers an area of 1,284 square kilometres.
- It is a typical Tarai-Bhabar habitat of the upper Gangetic Plains Biogeographic province.
- **Rivers:** The Sharda River flows by the Kishanpur WL Sanctuary, the Geruwa River flows through the Katerniaghat WL Sanctuary, and the Suheli and Mohana streams flow in the Dudhwa National Park, all of which are tributaries of the mighty Ghagra River.

- **Flora:** The vegetation is of the **North Indian Moist Deciduous type**, containing some of the **finest examples of Sal forests** (*Shorea robusta*) in India, as well as the most extensive **tracts of moist grasslands** that remain in this region.
 - **Fauna:** It is home to a large number of rare and endangered species, which include the **Tiger, Leopard cat, Sloth bear, rhinos** (One horn), Hispid hare, Elephants, Black deer, Swamp deer, etc.
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ARTIFICIAL INTELLIGENCE SAFETY SUMMIT 2023

Why in the News?

- The UK hosted a major Artificial Intelligence (AI) summit, bringing together political leaders and tech experts to discuss both the promise and potential perils of this rapidly advancing technology.

About Artificial Intelligence:

- Artificial intelligence (AI) is the **ability of a computer or a robot controlled by a computer to do tasks that are usually done by humans because they require human intelligence and discernment.**
- The term is frequently applied to the project of developing systems endowed with the intellectual processes characteristic of humans, such as the ability to reason, discover meaning, generalize, or learn from past experience.
- AI algorithms are trained using large datasets so that they can identify patterns, make predictions and recommend actions, much like a human would, just faster and better.
- Latest and popular examples of AI algorithms (known as **AI Chatbots**) are OpenAI's ChatGPT, Google's Bard, Microsoft's Bing Chat, etc.

Concerns w.r.t. AI Chatbots & Response by Major Countries:

- The concerns lie under three broad categories:
 - Privacy,
 - System bias, and
 - Violation of intellectual property rights

- Currently, governments do not have any policy tools to halt work in AI development.
- If left unchecked, it can start infringing on – and ultimately take control of – people’s lives.
- Businesses across industries are increasingly deploying AI to analyse preferences and personalize user experiences, boost productivity, and fight fraud.
 - For example, ChatGPT Plus, has already been integrated by **Snapchat**, **UnrealEngine** and **Shopify** in their applications.
- This growing use of AI has already transformed the way the global economy works and how businesses interact with their consumers.
 - However, in some cases it is also beginning to infringe on people’s privacy.
- Recently, **US President Joe Biden issued an executive order aimed at safeguarding against threats posed by AI**, and exerting oversight over safety benchmarks used by companies to evaluate generative AI bots.
- In fact, policymakers across countries have increased regulatory scrutiny of generative AI tools, especially after ChatGPT’s launch.
- On the other end of the spectrum, **China over the last year came out with some of the world’s first nationally binding regulations targeting specific types of algorithms and AI.**
- Currently, there are no specific laws in India with regard to regulating AI.
 - Ministry of Electronics and information Technology (MEITY), is the executive agency for AI-related strategies and had constituted committees to bring in a policy framework for AI.

WHAT IS MAYAN CIVILIZATION?

Archaeologists in Mexico recently unearthed the remains of a circular temple that may have been built in honour of the Maya serpent deity Kukulcán.



About Mayan Civilization:

- The Maya are probably the best-known of the **classical civilizations of Mesoamerica.**
- **Originating in the Yucatán Peninsula around 2600 B.C.**, they rose to prominence around A.D. 250 in **present-day southern Mexico, Guatemala, northern Belize, and western Honduras.**

- Building on the inherited inventions and ideas of earlier civilizations, the Maya **developed astronomy, calendrical systems, and hieroglyphic writing.**
- The Maya were noted as well for elaborate and **highly decorated ceremonial architecture**, including **temple-pyramids, palaces, and observatories, all built without metal tools.**
- They were also **skilled farmers**, clearing large sections of tropical rainforest and, where groundwater was scarce, building sizable underground reservoirs for the storage of rainwater.
- The Maya were equally **skilled as weavers and potters** and cleared routes through jungles and swamps to foster extensive trade networks with distant peoples.
- The Maya **made paper from the inner bark of wild fig trees** and **wrote their hieroglyphs on books** made from this paper. Those **books are called codices.**
- Their **society consisted of many independent states**, each with a rural farming community and large urban sites built around ceremonial centres. It **started to decline around A.D. 900.**

Where is the Yucatan Peninsula?

- The Yucatan Peninsula is **Mexico's southeastern projection, extending into the Atlantic Ocean.**
- It **separates the Gulf of Mexico to the north and west and the Caribbean Sea to the east.**

What is meant by Mesoamerica?

- It refers to a **geographical and cultural area** which **extends from central Mexico down through Central America**, including the territory, which is now made up of the countries of Guatemala, Belize, Honduras, and El Salvador.

UNESCO NAMES KOZHIKODE 'CITY OF LITERATURE'

Why in news?

- The city of Kozhikode in Kerala was added in UNESCO's Creative Cities Network (UCCN).
- Gwalior from Madhya Pradesh was also among the 55 new cities to join the network.
- These cities have been handpicked to **represent seven creative fields** — crafts and folk arts, design, film, gastronomy, literature, media arts, and music.

- Kozhikode was included in the category of literature and Gwalior in the category of music.

UNESCO

• About

- UNESCO stands for **United Nations Educational, Scientific and Cultural Organization**
- It is **specialized agency of the United Nations (UN)**.
- The constitution, which entered into force in 1946, called for the promotion of international collaboration in education, science, and culture.
- The agency's **permanent headquarters are in Paris, France**.
- **Parent Organisation** - United Nations Economic and Social Council

• Goal

- The primary goals of UNESCO are to contribute to peace and security by promoting collaboration among nations through education, science, and culture, and to promote sustainable development and intercultural dialogue.
- UNESCO believes that these areas are crucial for building a more just, peaceful, and inclusive world.

• key areas of focus

- **Education:** UNESCO promotes quality education for all, advocating for access to education, improving teacher training, and fostering global citizenship.
- **Natural Sciences:** UNESCO supports scientific research and the application of science to address global challenges, such as climate change, biodiversity loss, and sustainable development.
- **Culture:** UNESCO works to safeguard and promote cultural heritage, both tangible and intangible, including monuments, sites, traditions, and languages.
 - It also fosters cultural diversity and intercultural dialogue.
- **Communication and Information:** UNESCO promotes freedom of expression, media development, and access to information.
 - It aims to foster a free, independent, and pluralistic media environment.

- UNESCO designates and maintains a list of World Heritage Sites, which are places of outstanding universal value that deserve protection for future generations.

Kozhikode's literary tradition

- The first Malayalam novel **Kundalatha** was born in Kozhikode in 1887. It was authored by Appu Nedungadi.
- Several illustrious writers like S K Pottekkatt, Vaikom Muhammad Basheer, Uroob, Thikkodiyar, NN Kakkad, P Valsala, Akbar Kakkattil, Punathil Kunjabdulla and MT Vasudevan Nair have brought laurels for Kozhikode.
- The city has also produced many film and theatre professionals in the last half a century.

FINANCIAL ACTION TASK FORCE

What is the Financial Action Task Force (FATF)?

Financial Action Task Force (FATF)	
<p>What is FATF ?</p> <p>The Financial Action Task Force is an intergovernmental organisation founded to develop policies to combat money laundering. The initiative to set up FATF was taken by G-7 group.</p>	<p>What are its functions</p> <ul style="list-style-type: none"> • Promote policies that can combat global money laundering. • Promoting measures to tackle terror financing. • It maintains a list of countries that are non-compliant to the rules of the organisation.
<p>Significance of FATF</p> <p>The FATF blacklist itself acts as a benchmark for international sanctions. It prevents state sponsored terrorism as well as illegal money laundering. The organisation brings uniform standards for global transactions.</p>	<p>Black List :</p> <p>It is issued to list countries which are found to non-cooperative in the global fight against money laundering and terrorist financing.</p> <p>Grey List :</p> <p>It serves as a warning for countries to be compliant to the directions else face risk of blacklisting.</p>

- It is an **intergovernmental** organisation founded in **1989** to develop policies to combat **money laundering** and its mandate was expanded to include **terror financing** in 2001.

It operates from Organisation for Economic Cooperation and Development (OECD) headquarters in **Paris** and its plenary/ decision-making body meets three times per year.

- **It has 39 members including India** (became observer in 2006 and a full time member in 2010) and two regional organisations - the EU and GCC (Gulf cooperation council).
- FATF's mandate -
 - **Recognises the need to continue to lead decisive, coordinated and effective global action** to counter the threats of the abuse of the financial system by criminals and terrorists, and
 - **Strengthens its capacity** to respond to these threats that all countries face.
- **The FATF conducts peer reviews** of each member on an ongoing basis to assess levels of implementation of the FATF Recommendations.

- It provides an **in-depth description** and analysis of each country's system for preventing criminal abuse of the financial system.
 - **India is currently under the FATF review.** It last underwent a similar review in **2013** where it was found that India had reached a satisfactory level of compliance.
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ELEPHANTA CAVES

A team of researchers recently discovered two rock-cut Shaivite temple caves older than Elephanta near Rajapur, Ratnagiri.



About Elephanta Caves:

- It is a specimen of **rock-cut art and architecture** from the times of **mediaeval India**.
 - The Elephanta Caves are **located in Western India** on **Elephanta Island** (otherwise known as the Island of Gharapuri), about **7 km from Mumbai's** mainland shore.
 - The rock-cut Elephanta Caves were **constructed in the mid-5th to 6th centuries AD**, and **most of them are dedicated to Lord Shiva**.
 - There are **two groups of caves** on the site of the Elephanta Caves, the **first is a large group of five Hindu caves**, and the **second is a smaller group of two Buddhist caves**.
 - The caves are **hewn from solid basalt rock**. Except for a few exceptions, **much of the artwork is defaced** and damaged.
 - The caves are an expression of art, and a number of **important images are sculpted here**, which include **'Trimurti'** or three-headed Shiva, **'Gangadhar'**, which is a manifestation of the river Ganga as she descends to the earth, and **'Ardhnareshwar'**, which is a representation of Shiva and Parvati in the same body.
 - It is a **UNESCO World Heritage Site**.
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