First National Space Day

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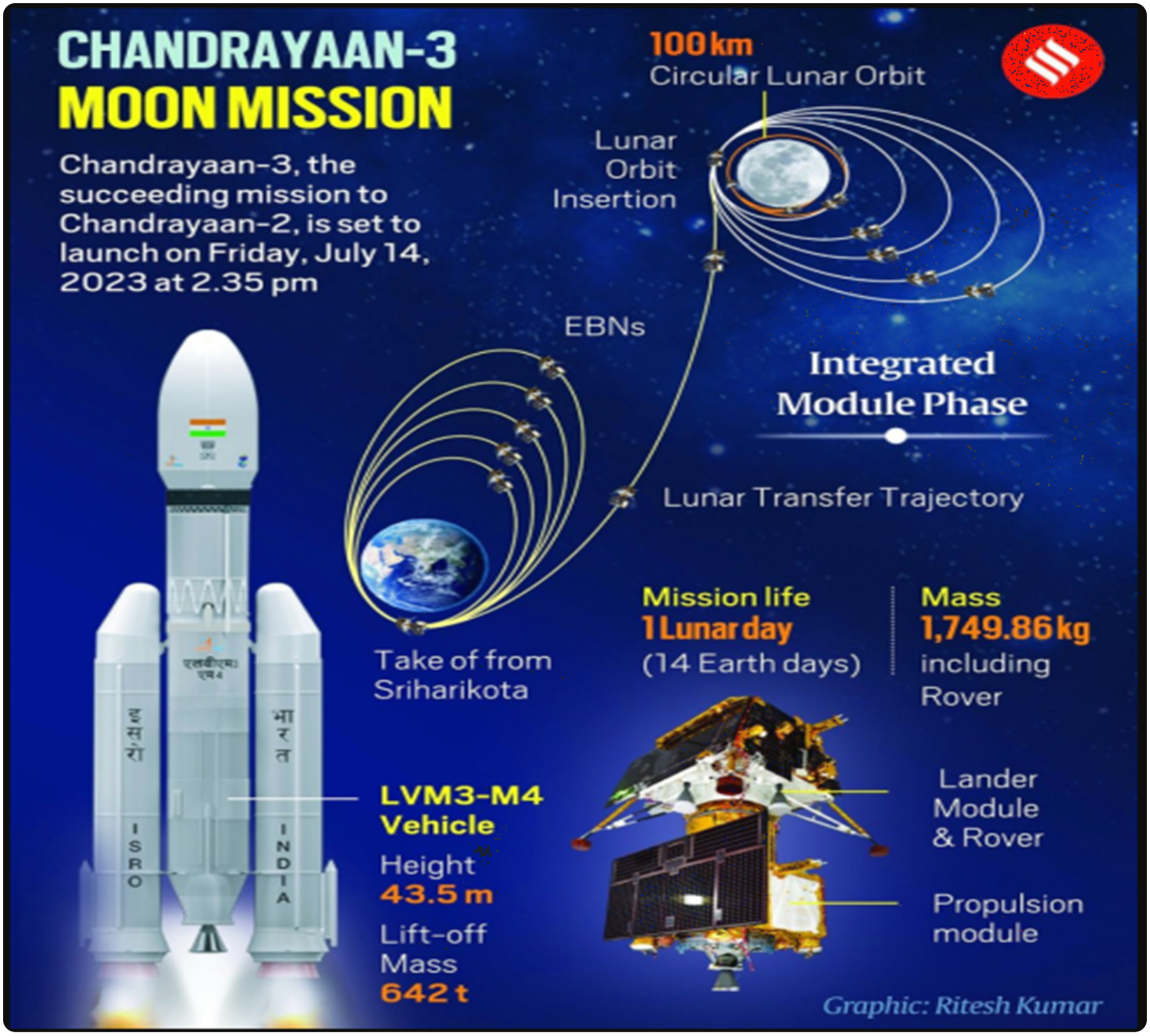
Context:

India to celebrate its **First National Space Day**, ***marking the anniversary of Chandraayan-3's historic moon landing.***

About:

The Indian government officially designated ***August 23 as National Space Day*** in recognition of this significant accomplishment, reflecting India's expanding capabilities in space exploration and highlighting the vital role of space science and technology in national development.

- The ***Chandrayaan-3 mission, launched from the Satish Dhawan Space Centre in Sriharikota***, Andhra Pradesh, achieved a safe and ***soft landing of the Vikram Lander on the Moon's surface***.
- This achievement ***signifies a historic milestone for the nation***, as India became "**only the fourth country globally to successfully land a rover on the Moon"** and the "**first to do so in the southern polar region"**.
- Accompanied by the ***Pragyaan Rover, the Vikram Lander touched down at a site*** designated as '***Shiv Shakti.'***
- Following the successful landing, the Pragyaan Rover was deployed, further advancing India's exploration efforts on the lunar surface.
- **The theme for National Space Day 2024** is "Touching Lives while Touching the Moon: India's Space Saga,".
- It highlighting the broader impact of space exploration on society and emphasising how advancements in space technology can enhance the quality of life on Earth.
- The day aims to engage the public and inspire future generations to pursue careers in ***science, technology, engineering, and mathematics (STEM).***
- National Space Day serves not only as a celebration of India's achievements in space but also as a platform to promote awareness and education about the importance of space exploration.



About Chandraayan-3 Mission:

Chandrayaan-3is India's third lunar mission and ***second attempt at achieving a soft landing on the moon's surface.***

On July 14, 2023, Chandrayaan-3took off from the Satish Dhawan Space Centre in Sriharikota. The spacecraft seamlessly entered lunar orbit on August 5, 2023. The historic moment unfolded when the lander made a successful touchdown near the Lunar south pole on Aug 23, 2023.

- **Mission Objectives :**
- To **demonstrate Safe and Soft Landing** on Lunar Surface
- To **demonstrate Rover roving** on the moon and
- To **conduct in-sitscientific experiments**.
- **Components**:
- Chandrayaan-3 is a ***three-component mission*** consisting of a ***Propulsion Module, a Lander Module, and a Rover Module.***

- **The Propulsion Module :**It will carry the lander and rover configuration till 100 km lunar orbit.This propulsion module has***Spectro-polarimetry of Habitable Planet Earth (SHAPE)***payload to study the spectral and Polari metric measurements of Earth from the lunar orbit.
- **The Lander Module**: ***The Lander Module (Vikram)*** is carrying a scientific payload that includes a suite of instruments to study the lunar surface and atmosphere***Chandra's Surface Thermophysical Experiment (ChaSTE)***to measure the thermal conductivity and temperature;***Instrument for Lunar Seismic Activity (ILSA)***for measuring the seismicity around the landing site;***Langmuir Probe (LP)***to estimate the plasma density and its variations. A passive***Laser Retroreflector Array***from NASA is accommodated for lunar laser ranging studies.
- **The Rover Module:**The ***Rover Module(Pragyan)*** is carrying a suite of instruments to study the lunar surface and subsurface which includes***Alpha Particle X-ray Spectrometer (APXS)***and***Laser Induced Breakdown Spectroscopy (LIBS)***for deriving the elemental composition in the vicinity of landing site.

- **Major Findings**:
- **Lunar Surface Temperature Surprise:** Chandra's Surface Thermophysical Experiment (ChaSTE) ***measured temperatures reaching 70 degrees Celsius***, surprising scientists who expected temperatures between 20 to 30 degrees Celsius.
- **Lunar Surface Elements Confirmed:** ***The Laser-Induced Breakdown Spectroscopy instrument onboard 'Pragyan' rover confirmed the presence of Sulphur on the lunar surface*** near the south pole.Elements such as Aluminum, Calcium, Iron, Chromium, Titanium, Manganese, Silicon, and Oxygen were also detected.