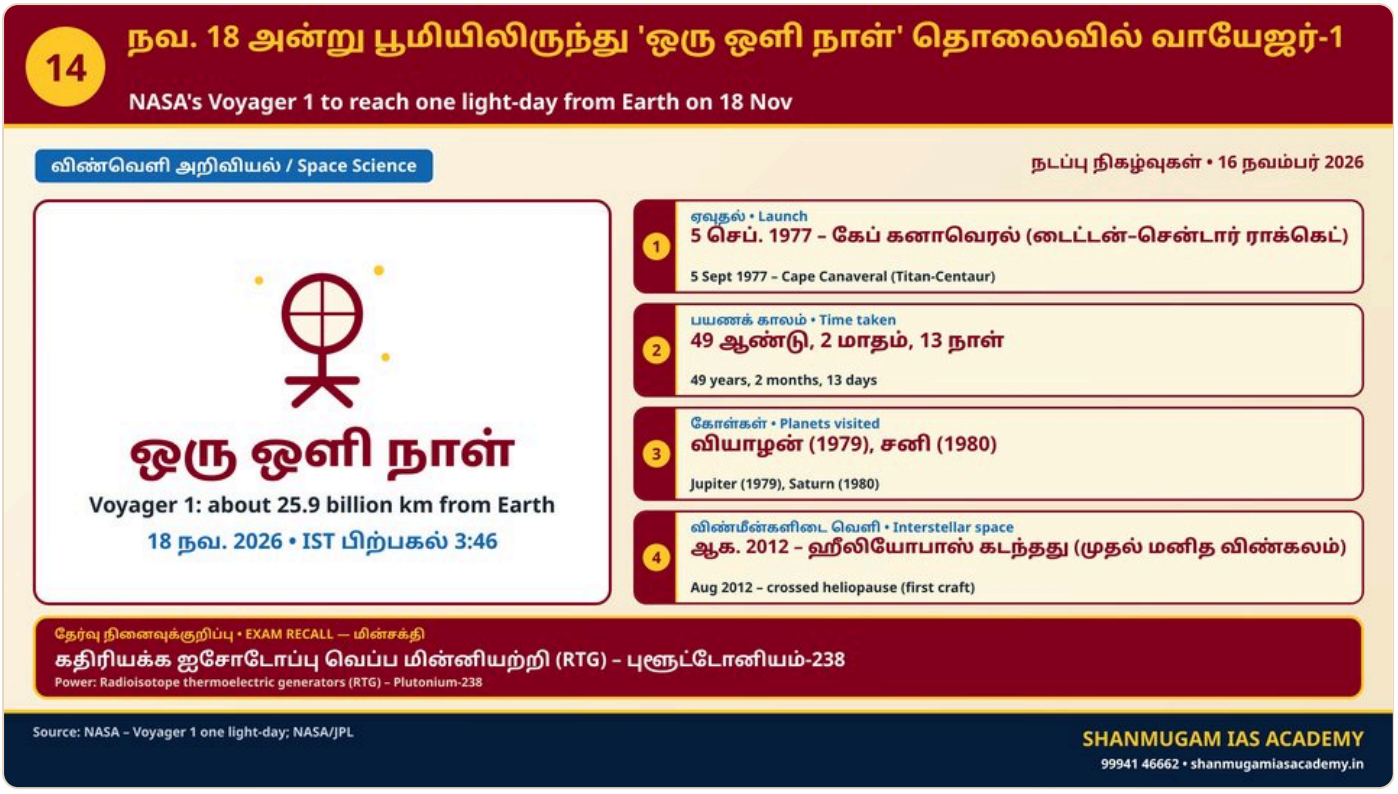
NASA's Voyager 1 to reach one light-day from Earth on 18 Nov

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News

NASA has calculated that Voyager 1, launched in 1977, will reach one light-day from Earth at 10:16:07 UTC (3:46 p.m. IST) on 18 November 2026. A light-day is the distance light travels in 24 hours – about 25.9 billion km, or roughly 173 astronomical units. That means a command sent from Earth will take a day to reach the craft and its reply another day to come back. Voyager 1 has taken 49 years, 2 months and 13 days to get this far; it is the most distant human-made object. It flew past Jupiter in 1979 and Saturn in 1980, and in August 2012 it crossed the heliopause – the edge of the solar wind's bubble – becoming the first spacecraft to enter interstellar space. Most of its instruments have been switched off to save power; the Low-Energy Charged Particle instrument was turned off in April 2026. Its twin, Voyager 2, is expected to reach one light-day in November 2035; NASA has announced a 'Shine Bright' event on 17 November to mark the milestone.

Key facts for the exam

Point	Details
Milestone	18 Nov 2026, 10:16:07 UTC (3:46 p.m. IST) – one light-day
One light-day	About 25.9 billion km ≈ 173 AU
Launch	5 Sept 1977 – Cape Canaveral (Titan-Centaur)
Time taken	49 years, 2 months, 13 days

Point	Details
Planets visited	Jupiter (1979), Saturn (1980)
Interstellar space	Aug 2012 – crossed heliopause (first craft)
Power	Radioisotope thermoelectric generators (RTG) – Plutonium-238
Golden Record	Earth's sounds, images, music – committee led by Carl Sagan
Voyager 2	Expected to reach one light-day in Nov 2035

Background

- Units of distance: Light travels about 3 lakh km per second. One astronomical unit (AU) = mean Earth–Sun distance ≈ 150 million km; sunlight takes about 8 min 20 s to reach Earth. One light-year ≈ 9.46 trillion km – a unit of distance, not time. A parsec ≈ 3.26 light-years. A light-day is just 1/365 of a light-year; the nearest star, Proxima Centauri, is 4.24 light-years away.
- Voyager mission: Voyager 2 (20 Aug) and Voyager 1 (5 Sept) were launched in 1977, using a planetary alignment that occurs once in 176 years for a 'Grand Tour'. Voyager 2 is the only craft to have flown past all four giant planets (Jupiter, Saturn, Uranus, Neptune). Voyager 1 studied Saturn's moon Titan closely; its 1990 'Pale Blue Dot' image of Earth is famous.
- Heliosphere: The solar wind – a stream of charged particles from the Sun – blows a bubble (the heliosphere) around the solar system; the heliopause is where it meets the interstellar medium. The Oort Cloud, at the edge of the Sun's gravitational reach, lies much farther; Voyager will need thousands of years to cross it.
- Technology: Solar panels are useless so far from the Sun, so Voyager runs on RTGs that turn heat from decaying plutonium-238 into electricity; power drops by about 4 watts a year. Contact is through NASA's Deep Space Network – Goldstone (USA), Madrid (Spain) and Canberra (Australia). The Golden Record carries the Hindustani song 'Jaat Kahan Ho' (Raga Bhairavi) by Kesarbai Kerkar.

Tamil Nadu link: India studies the Sun and the solar wind – the very wind Voyager has left behind – through Aditya-L1 (2023) at the Sun–Earth L1 point; its project director Nigar Shaji is from Sengottai in Tenkasi district. Chandrayaan-1 project director Mylswamy Annadurai (Coimbatore), Chandrayaan-2 project director M. Vanitha and Chandrayaan-3 project director P. Veeramuthuvel (Villupuram) are also from Tamil Nadu.

Frequently asked questions

What is this news about?

NASA has calculated that Voyager 1, launched in 1977, will reach one light-day from Earth at 10:16:07 UTC (3:46 p.m. IST) on 18 November 2026. A light-day is the distance light travels in 24 hours – about 25.9 billion km, or roughly 173 astronomical units.

What are the key facts to remember for the exam?

Milestone: 18 Nov 2026, 10:16:07 UTC (3:46 p.m. IST) – one light-day; One light-day: About 25.9 billion km ≈ 173 AU; Launch: 5 Sept 1977 – Cape Canaveral (Titan-Centaur); Time taken: 49 years, 2 months, 13 days.

What is the background to this news?

Units of distance: Light travels about 3 lakh km per second. One astronomical unit (AU) = mean Earth–Sun distance ≈ 150 million km; sunlight takes about 8 min 20 s to reach Earth.

Practice questions (with answers)

1. Roughly how far is 'one light-day', the distance Voyager 1 is about to reach from Earth?

A) 150 million km

B) 9.46 trillion km

C) 25.9 billion km

D) 3.84 lakh km

Answer: C – Explanation: Light's 24-hour journey ≈ 25.9 billion km. 150 million km is 1 AU, 9.46 trillion km a light-year, 3.84 lakh km the Moon's distance.

2. What does the 'heliopause', crossed by Voyager 1 in 2012, mark?

A) Edge of magnetosphere

B) Start of asteroid belt

C) End of the Oort Cloud

D) Where solar wind ends

Answer: D – Explanation: Where the solar wind meets the interstellar medium. The Oort Cloud lies much farther; the asteroid belt is between Mars and Jupiter.

3. The RTGs that power the Voyagers, where sunlight is too weak, use the decay heat of which radioactive element?

A) Uranium-235

B) Plutonium-238

C) Thorium-232

D) Cobalt-60

Answer: B – Explanation: Plutonium-238 – its decay heat is turned into electricity by thermocouples. Nuclear reactors split uranium-235 instead.

4. Which Indian singer's 'Jaat Kahan Ho' is on the Golden Record carried by the Voyager spacecraft?

A) M.S. Subbulakshmi

B) Kesarbai Kerkar

C) Lata Mangeshkar

D) Gangubai Hangal

Answer: B – Explanation: Kesarbai Kerkar (Jaipur-Atrauli gharana) – Raga Bhairavi. Carl Sagan chaired the committee that chose the record's contents.

5. Nigar Shaji, project director of Aditya-L1, India's first solar mission, hails from which town in Tamil Nadu?

A) Kanyakumari

B) Tirunelveli

C) Courtallam

D) Sengottai

Answer: D – Explanation: Sengottai (Tenkasi district). Aditya-L1 (launched 2 Sept 2023) studies the Sun and solar wind from the Sun–Earth L1 point.

Sources: NASA – science.nasa.gov/mission/voyager/voyager-1/voyager-1-what-is-a-light-day/; NASA news release 'NASA invites media, public to join Voyager 1 one light-day activities' (nasa.gov); NASA JPL Golden Record; ISRO (Aditya-L1 page); The Hindu / Deccan Herald (Nigar Shaji). © Shanmugam IAS Academy.