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Space & Astronomy:

Orbital Missions and Spacecraft

SpaceX's Dragon cargo capsule is set to dock with the International Space Station (ISS) today, completing its CRS-33 resupply mission. The capsule is carrying over 5,000 pounds of food, supplies, and scientific experiments.

A key experiment on board will be testing 3D printing of metal parts and bioprinting tissue in microgravity, technologies that could prove vital for future missions to the Moon and Mars. In addition, the Dragon capsule will perform engine burns to help maintain the ISS's altitude, a task traditionally performed by Russian Progress cargo vehicles.

NASA is also targeting a launch attempt for the TOMEX+ sounding rocket mission today, with a launch window set for 10 p.m. to 3 a.m. EDT.

Celestial Events

The nights of August 24-25 are providing exceptional skywatching opportunities due to a "Black Moon," which is a new moon that creates very dark, star-filled skies. This provides ideal conditions for observing the final act of the Perseid meteor shower, which is still active.

A multi-planet parade is also underway. At dawn, skywatchers can observe a conjunction of Venus and Jupiter. While Venus shines brightly as the "Morning Star," Jupiter is also visible in the east. Other planets, including Mercury, Mars, Saturn, and Neptune, are also visible at various times of the night.

NASA's Astronomy Picture of the Day for August 25, 2025, features a stunning image of a bright meteor streaking across the Pleiades star cluster (M45), captured by chance during a long-exposure photograph.

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MCQS

1. What is the main purpose of the SpaceX Dragon cargo capsule's current mission to the International Space Station?

- A) To perform a spacewalk to repair the ISS.
- B) To test a new solar panel deployment system.
- C) To resupply the station with food, supplies, and scientific experiments.
- D) To transport astronauts to the ISS.

Answer: C) To resupply the station with food, supplies, and scientific experiments.

The news states, "The capsule is carrying over 5,000 pounds of food, supplies, and scientific experiments," as part of its CRS-33 resupply mission.

2. What kind of celestial event is described as a "Black Moon" in the news?

- A) A lunar eclipse that makes the Moon appear black.
- B) A new moon that occurs when the side of the Moon facing Earth is completely unlit, making it invisible.
- C) A phenomenon where the Moon appears unusually dark due to atmospheric conditions.
- D) A rare alignment of planets that blocks moonlight.

Answer: B) A new moon that occurs when the side of the Moon facing Earth is completely unlit, making it invisible.

The text defines a "Black Moon" as a new moon that creates very dark, star-filled skies because it's invisible to observers on Earth.

3. Which of the following planets are visible in a conjunction at dawn, according to the news?

- A) Mars and Saturn
- B) Mercury and Neptune
- C) Venus and Jupiter

D) Uranus and Mercury

Answer: C) Venus and Jupiter

The news mentions that "At dawn, skywatchers can observe a conjunction of Venus and Jupiter."

4. What is the primary purpose of the NASA TOMEX+ sounding rocket mission?

- A) To study the mesopause, a layer of Earth's atmosphere.
- B) To deploy a new weather satellite.
- C) To collect samples from the upper atmosphere.
- D) To test a new rocket propulsion system.

Answer: A) To study the mesopause, a layer of Earth's atmosphere.

According to the provided information, the mission aims to "study the mesopause, one of the most dynamic layers of Earth's atmosphere."

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