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Space & Astronomy:

Observational Astronomy & Planetary Science

Moon Phase and Visibility: The moon is in a Waning Gibbous phase, at about 60% illumination. It is day 21 of the lunar cycle, and the moon's visibility will continue to decrease as it approaches the New Moon.

Planetary Conjunctions:

Mars and Spica: The planet Mars is in close proximity to the star Spica in the constellation Virgo. They are visible in the evening sky shortly after sunset.

Mercury: Mercury is in a superior conjunction with the sun, making it invisible to observers on Earth.

Jupiter and Venus: Both Jupiter and Venus are visible in the morning sky. Jupiter, at a much brighter magnitude, is positioned near the star Pollux, while Venus is a prominent object in the eastern sky.

Asteroid Flyby: Asteroid 2025 QV9, a 100-foot-wide near-Earth object, had a close but safe flyby on September 10. While not a threat, its passage highlights the importance of continuous monitoring programs for asteroids.

Space Missions & Discoveries

NASA Mars Rover Findings: NASA's Perseverance and Curiosity rovers have discovered a rock sample called "Sapphire Canyon" on Mars. The sample contains chemical signatures that could potentially indicate past biological reactions. While not definitive proof

of life, the findings from this and other samples from river deltas and lakebeds strengthen the evidence that Mars was once a habitable planet.

Rogue Black Hole Discovery: Astronomers have detected a rogue intermediate-mass black hole. This black hole, which is not at the center of its galaxy, is blasting out jets of energy more than 3,000 light-years from its home galaxy.

Progress 93 Cargo Mission: The unpiloted Progress 93 spacecraft, launched by Roscosmos, is scheduled to dock autonomously with the International Space Station (ISS) on September 13. The cargo craft is carrying about three tons of food, fuel, and supplies for the Expedition 73 crew.

ISRO's SSLV Technology Transfer: ISRO (Indian Space Research Organisation) has signed a technology transfer agreement with Hindustan Aeronautics Limited (HAL) for the commercialization of its Small Satellite Launch Vehicle (SSLV) technology. This marks a major step in India's space sector reforms to meet the growing demand for small satellite launch services.

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D) European Space Agency (ESA)

Answer: C) NASA

The report specifies that NASA's Perseverance and Curiosity rovers were responsible for discovering the "Sapphire Canyon" rock sample on Mars.

3: What is the purpose of the unpiloted Progress 93 spacecraft that is scheduled to dock with the International Space Station (ISS)?

- A) To transport new crew members to the ISS.
- B) To conduct a spacewalk and repair external modules.
- C) To carry about three tons of food, fuel, and supplies for the crew.
- D) To return scientific experiments to Earth.

Answer: C) To carry about three tons of food, fuel, and supplies for the crew.

The news states that the Progress 93 cargo craft is carrying "about three tons of food, fuel, and supplies" for the crew aboard the International Space Station.

4: What major step has ISRO taken to commercialize its Small Satellite Launch Vehicle (SSLV) technology?

- A) It has launched a new, more powerful version of the SSLV.
- B) It has signed a technology transfer agreement with Hindustan Aeronautics Limited (HAL).
- C) It has opened a new manufacturing facility for SSLVs.
- D) It has secured international contracts for future SSLV launches.

Answer: B) It has signed a technology transfer agreement with Hindustan Aeronautics Limited (HAL).

The report indicates that ISRO has signed a technology transfer agreement with Hindustan

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MCQS

1: Which celestial bodies are visible in the morning sky on September 13, 2025?

- A) Mars and Spica
- B) Mercury and Venus
- C) Jupiter and Venus
- D) Mars and Jupiter

Answer: C) Jupiter and Venus

The news report states that both Jupiter and Venus are visible in the morning sky, with Jupiter positioned near the star Pollux.

2: Which space agency's rovers discovered the "Sapphire Canyon" rock sample on Mars, which contains chemical signatures that could indicate past biological reactions?

- A) Roscosmos
- B) ISRO
- C) NASA





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Aeronautics Limited (HAL) for the commercialization of its SSLV technology, marking a key reform in India's space sector.

5: What is a "rogue black hole," as mentioned in the news report?

- A) A black hole that is at the center of its galaxy.
- B) A black hole that is at the edge of the universe.
- C) A black hole that is not at the center of its galaxy and is blasting out jets of energy.
- D) A black hole that has stopped growing and is no longer active.

Answer: C) A black hole that is not at the center of its galaxy and is blasting out jets of energy. The news report defines a rogue black hole as one that is "not at the center of its galaxy" and is "blasting out jets of energy."



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