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Space & Astronomy:

Celestial Events and Skywatching

Today is a Last Quarter Moon, which occurred at 1:12 a.m. EDT. This moon phase is visible in the early morning sky. The Moon will also be making some close passes by other celestial objects. It will pass about 5 degrees north of Uranus later in the day and appear 7 degrees above Jupiter in the early morning sky. This makes for great skywatching opportunities. Additionally, dwarf planet 1 Ceres reaches its stationary point in the constellation Cetus.

Another significant astronomical event is a shadow transit of Titan across Saturn. This is a chance for observers with telescopes to witness the moon's shadow moving across the face of the ringed planet.

Recent Discoveries and Missions

Interstellar Object 3I/ATLAS: NASA's Hubble Space Telescope has confirmed that the interstellar object 3I/ATLAS is the fastest one ever recorded, traveling at a speed of 130,000 miles per hour (209,000 km/h). This comet, now confirmed to be a chunk of ice and dust, is estimated to be around 8 billion years old—roughly twice the age of our own solar system. This ancient cosmic relic is providing valuable data on the early universe.

Superclouds and Star Formation: Astronomers have used data from the Gaia spacecraft to create a detailed 3D map of interstellar dust and hydrogen. This mapping has revealed seven colossal superclouds near our solar system. These structures, some stretching thousands of light-years in length, appear to play a

foundational role in star formation, as most known stellar nurseries are located within them.

Puffy Exoplanet: A giant planet, TOI-6894b, has been discovered orbiting a tiny red dwarf star. This finding challenges conventional planet formation theories, as the star is the smallest known to host such a large gas giant. The planet has a radius larger than Saturn but only half its mass, suggesting it has an incredibly "puffy" atmosphere. The James Webb Space Telescope is expected to study its unique atmosphere, which may contain methane.

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MCQS

Q1. According to the news, what is the speed of the interstellar object 3I/ATLAS, the fastest one ever recorded?

- A. 130,000 miles per hour (209,000 km/h)
- B. 8 billion miles per hour (12.8 billion km/h)
- C. 130,000 km/h (80,000 miles per hour)
- D. 209,000 miles per hour (336,000 km/h)

Answer: A

The text explicitly states that the interstellar object 3I/ATLAS is traveling at a speed of "130,000 miles per hour (209,000 km/h)."

Q2. The newly discovered "puffy exoplanet," TOI-6894b, challenges planet formation theories because of its unique characteristics. What are these characteristics?

- A. It is an ice giant with a mass greater than Jupiter.
- B. It is a rocky planet orbiting a massive blue star.
- C. It is a giant planet with a radius larger than Saturn, but only half its mass, orbiting a tiny red dwarf star.
- D. It is a gas giant with a solid core.

Answer: C

The news states that the discovery of TOI-6894b challenges theories because it is a "giant planet... with a radius larger than Saturn but only half its mass," and it is orbiting a "tiny red dwarf star."

Q3. What is the astronomical event known as a "shadow transit"?

- A. A comet passing in front of a star.
- B. A moon's shadow moving across the face of its parent planet.
- C. A planet passing through an asteroid belt.
- D. The alignment of three or more celestial bodies.

Answer: B

The news defines a "shadow transit of Titan across Saturn" as a chance to "witness the moon's shadow moving across the face of the ringed planet."

Q4. What foundational role do the seven "superclouds" discovered by the Gaia spacecraft appear to play?

- A. They are responsible for generating magnetic fields in our galaxy.
- B. They act as nurseries for planet formation.
- C. They play a foundational role in star formation.
- D. They are composed of dark matter and dark energy.

Answer: C





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The news states that these colossal superclouds "appear to play a foundational role in star formation, as most known stellar nurseries are located within them."

Q5. In which constellation does the dwarf planet 1 Ceres reach its stationary point?

- A. Orion
- B. Cetus
- C. Andromeda
- D. Pegasus

Answer: B

The news mentions that the dwarf planet "1 Ceres reaches its stationary point in the constellation Cetus."

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