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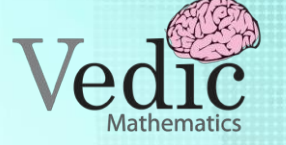
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Space & Astronomy:

Celestial Events and Observational Highlights

Perseid Meteor Shower Peak: The Perseid meteor shower, one of the most popular and reliable annual meteor showers, has reached its peak on the night of August 12-13. While a bright waning gibbous Moon is interfering with viewing conditions and washing out many of the fainter meteors, stargazers can still expect to see some brighter "fireballs" and longer-lasting streaks of light. The shower is caused by Earth passing through the debris trail of Comet Swift-Tuttle.

Rare Venus-Jupiter Conjunction: A special treat for early risers, a rare planetary conjunction of Venus and Jupiter is visible in the pre-dawn sky. The two brightest planets are appearing remarkably close, less than one degree apart, in the constellation Gemini. This close alignment is an excellent opportunity for both casual observers and those with binoculars or telescopes.

The Wild Duck Cluster: On the night of August 13, the Wild Duck Cluster (M11), an open star cluster in the constellation Scutum, is flying overhead. This is a great target for beginners, as it can be easily spotted with binoculars or a small telescope.

The Dumbbell Nebula: Also visible in the night sky is the Dumbbell Nebula (M27), a planetary nebula that offers a glimpse into the future of our own Sun.

Space Science and Missions

Juno Spacecraft and Interstellar Object: NASA's Juno spacecraft, which is currently orbiting Jupiter, could potentially be redirected to intercept the interstellar object 3I/ATLAS. This would require a maneuver to bring Juno from its orbit to intercept the object's path in March 2026.

Comet Water Discovery: Scientists have made a discovery about the water vapor in a comet located beyond Neptune's orbit, which could provide new clues about how water arrived on Earth.

Europa Clipper Radar Test: The Europa Clipper mission has successfully tested its radar instrument during a flyby of Mars, showing the kind of detailed imagery it will be able to capture once it reaches Jupiter's moon Europa.

Planetary Defense: NASA has confirmed that two massive asteroids, (2025 OJ1) and (2019 CO1), that passed by Earth on August 8, 2025, posed no collision threat. The events highlight the dynamic environment of near-Earth space and the importance of planetary defense.

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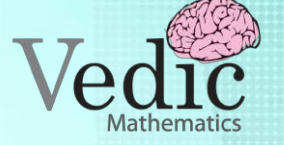
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MCQS

1. What is the primary cause of the Perseid meteor shower?

- a) Debris from the asteroid belt
- b) The gravitational pull of Jupiter
- c) Earth passing through the debris trail of Comet Swift-Tuttle
- d) A collision between two comets

Answer: c) Earth passing through the debris trail of Comet Swift-Tuttle

The article states, "The shower is caused by Earth passing through the debris trail of Comet Swift-Tuttle."

2. Why are viewing conditions for the Perseid meteor shower less than ideal this year?

- a) A solar eclipse is occurring

- b) The shower's peak is not happening at night
- c) A bright waning gibbous Moon is present
- d) The Earth's orbit is far from the comet's debris trail

Answer: c) A bright waning gibbous Moon is present

The provided text mentions that "a bright waning gibbous Moon is interfering with viewing conditions and washing out many of the fainter meteors."

3. What two planets are involved in the rare conjunction visible in the pre-dawn sky?

- a) Mars and Saturn
- b) Mercury and Venus
- c) Jupiter and Venus
- d) Jupiter and Saturn

Answer: c) Jupiter and Venus

The article highlights "a rare planetary conjunction of Venus and Jupiter is visible in the pre-dawn sky."

4. What is the common name for the star cluster M11?

- a) The Dumbbell Nebula
- b) The Wild Duck Cluster
- c) The Pleiades
- d) The Orion Nebula

Answer: b) The Wild Duck Cluster

The text identifies M11 as "The Wild Duck Cluster."

5. What type of celestial object is the Dumbbell Nebula (M27)?

- a) A galaxy
- b) A planetary nebula
- c) An open star cluster
- d) A black hole

Answer: b) A planetary nebula





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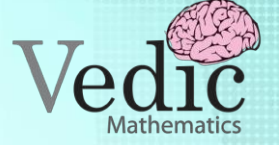
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The news states that the Dumbbell Nebula (M27) is a "planetary nebula that offers a glimpse into the future of our own Sun."

6. Which NASA mission has successfully tested its radar instrument during a flyby of Mars?

- a) Juno
- b) Europa Clipper
- c) Hubble
- d) James Webb

Answer: b) Europa Clipper

The text indicates that the "Europa Clipper mission has successfully tested its radar instrument during a flyby of Mars."

7. What is the proposed new mission for the Juno spacecraft?

- a) To study the rings of Saturn
- b) To explore a comet beyond Neptune's orbit
- c) To intercept the interstellar object 3I/ATLAS
- d) To conduct a flyby of Pluto

Answer: c) To intercept the interstellar object 3I/ATLAS

The provided text states that Juno "could potentially be redirected to intercept the interstellar object 3I/ATLAS."

8. What was the focus of the discovery made by scientists about a comet beyond Neptune's orbit?

- a) Its gravitational influence on other planets
- b) Its unique composition of solid rock
- c) Its potential to harbor life
- d) Its water vapor, which could provide clues about water on Earth

Answer: d) Its water vapor, which could provide clues about water on Earth

The news reports that scientists have made a discovery about "the water vapor in a comet...

which could provide new clues about how water arrived on Earth."

9. Why did NASA issue a statement about the asteroids (2025 OJ1) and (2019 CO1)?

- a) They are planning a mission to both asteroids.
- b) They were confirmed to be on a collision course with Earth.
- c) They were making a close approach to Earth but posed no collision threat.
- d) They were discovered for the first time on that date.

Answer: c) They were making a close approach to Earth but posed no collision threat.

The text says that NASA "confirmed that two massive asteroids... that passed by Earth on August 8, 2025, posed no collision threat."

10. What is the significance of the two asteroids that passed by Earth on August 8, 2025?

- a) They were the largest asteroids ever discovered.
- b) They were confirmed to be the source of the Perseid meteor shower.
- c) They highlight the importance of planetary defense and the dynamic environment of near-Earth space.
- d) They are believed to be dormant alien spacecraft.

Answer: c) They highlight the importance of planetary defense and the dynamic environment of near-Earth space.

The article concludes that the asteroids' close passes "highlight the dynamic environment of near-Earth space and the importance of planetary defense."





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