NASA’s Psyche Spacecraft Unveils New Perspectives of Earth

Description

NASA's Psyche spacecraft recently passed by Mars, capturing images of the planet from a unique viewpoint. This approach, from the side opposite the Sun, made Mars appear as a thin crescent. The thin Martian atmosphere was visible as sunlight illuminated dust clouds above the planet's rust-coloured surface.

During its flyby on May 15, 2026, Psyche's cameras provided an overhead view of Mars’ southern polar ice cap. Jim Bell, who leads the imager team at Arizona State University, reported that the spacecraft took thousands of images. These observations will assist scientists in calibrating the camera's performance.

Additionally, Psyche's magnetometer might have detected signs of the solar wind interacting with Mars' upper atmosphere or its weak magnetic field. The spacecraft's spectrometers are also set to analyse the chemical makeup of the Martian surface beneath its flight path.

Currently, many other missions are studying Mars, so significant new discoveries from Psyche's data are unlikely. However, these flyby observations will help scientists refine their instruments by comparing them with existing data from other Mars missions.

While seeing a crescent Mars from Earth is impossible, the Psyche mission is expected to yield more significant results in the future. In three years, the spacecraft will approach asteroid Psyche, a large, metal-rich object. This phase will allow Psyche to survey the asteroid for a much longer time than the brief encounter it had with Mars.

Vocabulary List:

1. **atmosphere** //ˈætməsfɪr// (noun): the layer of gases around a planet
2. **flyby** //ˈflaɪˌbaɪ// (noun): a close pass of a spacecraft near a body
3. **calibrating** //ˈkælɪˌbreɪtɪŋ// (verb): adjusting a tool to make results accurate
4. **magnetometer** //ˌmægnəˈtɑmɪtər// (noun): a tool that measures magnetic fields
5. **spectrometers** //spɛkˈtrɑmɪtərz// (noun): tools that show what chemicals are present
6. **interacting** //ˌɪntərˈæktɪŋ// (verb): acting together and affecting each other

Comprehension Questions

Multiple Choice

1. What unique viewpoint did NASA's Psyche spacecraft capture images of Mars from?

   Option: The side opposite the Sun
   Option: The north pole
   Option: The equator
   Option: The surface

2. On what date did Psyche perform its flyby of Mars?

   Option: May 15, 2026
   Option: April 20, 2026
   Option: June 10, 2026
   Option: January 1, 2026

3. What feature of Mars did Psyche's cameras provide an overhead view of?

   Option: Northern polar ice cap
   Option: Southern polar ice cap
   Option: Valles Marineris
   Option: Olympus Mons

4. Who leads the imager team at Arizona State University?

   Option: Elon Musk
   Option: Jim Bell
   Option: Bill Nye
   Option: Carl Sagan

5. What did Psyche's spectrometers analyze?

   Option: Martian atmosphere
   Option: Chemical makeup of the Martian surface
   Option: Magnetic field of Mars
   Option: Dust clouds above Mars

6. What is the expected time frame for Psyche to approach asteroid Psyche?

   Option: In one year
   Option: In two years
   Option: In three years
   Option: In four years

True-False

7. NASA's Psyche spacecraft captured images of Mars during its flyby.

8. Psyche's cameras took millions of images during its flyby of Mars.

9. It is possible to see a crescent Mars from Earth.

10. Psyche's magnetometer detected signs of the solar wind interacting with Mars' upper atmosphere.

11. The Psyche mission's initial encounter with Mars is expected to provide significant new discoveries.

12. Psyche will survey asteroid Psyche for a longer time than its brief encounter with Mars.

Gap-Fill

13. Psyche's cameras took thousands of images during its flyby on May 15, 2026, allowing scientists to _____.

14. NASA's Psyche spacecraft recently passed by Mars, capturing images of the planet from a unique _____.

15. The thin Martian _____ was visible as sunlight illuminated dust clouds above the planet's surface.

16. Currently, many other missions are studying Mars, so significant new discoveries from Psyche's data are _____.

17. Psyche's magnetometer might have detected signs of the solar wind interacting with Mars' weak _____.

18. In three years, the spacecraft will approach asteroid Psyche, a large, metal-rich _____

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Answer

Multiple Choice: 1. The side opposite the Sun 2. May 15, 2026 3. Southern polar ice cap 4. Jim Bell 5. Chemical makeup of the Martian surface 6. In three years
True-False: 7. True 8. False 9. False 10. True 11. False 12. True
Gap-Fill: 13. calibrate the camera's performance 14. viewpoint 15. atmosphere 16. unlikely 17. magnetic field 18. object

Vocabulary quizzes

Multiple Choice (Select the Correct answer for each question.)

1. What phenomenon describes the circular movement of an object around its center?

   Option: Revolution
   Option: Rotation
   Option: Translation
   Option: Orbital path

2. Which term describes something that has never happened before?

   Option: Familiar
   Option: Routine
   Option: Common
   Option: Unprecedented

3. What is the term for the process of distributing something again or differently?

   Option: Allocation
   Option: Redistribution
   Option: Consolidation
   Option: Segregation

4. What unit of measurement is commonly used to quantify large amounts of carbon emissions?

   Option: Kilograms
   Option: Tonnes
   Option: Gigatonnes
   Option: Pounds

5. What type of force attracts two bodies toward each other in physics?

Option: Electromagnetic
Option: Frictional
Option: Gravitational
Option: Nuclear

6. What term refers to the layer of gases surrounding a planet?

Option: Lithosphere
Option: Hydrosphere
Option: Atmosphere
Option: Biosphere

7. What is the name of NASA's spacecraft that performed a close approach to a celestial body?

Option: Orbiter
Option: Probe
Option: Flyby
Option: Lander

8. What is the process of adjusting instruments to ensure accurate results called?

Option: Tuning
Option: Calibrating
Option: Testing
Option: Validating

9. What instrument is used to measure magnetic fields?

Option: Spectrometer
Option: Magnetometer
Option: Barometer
Option: Seismograph

10. What is the basic unit of biological classification?

Option: Genus
Option: Family
Option: Order
Option: Species

Gap-Fill (Fill in the blanks with the correct word from the vocabulary list.)

11. Certain blooms of phytoplankton can produce _____ substances that are harmful to marine life.

12. This fish species has a _____ appearance that sets it apart from others.

13. Some _____ volcanic eruptions have shaped the landscape we see today.

14. The river's _____ contribute to the local ecosystem's health.

15. Regular _____ of ocean temperatures helps scientists understand climate change.

16. _____ life plays a crucial role in nutrient cycling in various ecosystems.

17. Research on the ancient sediment provides new _____ into historical climate patterns.

18. The _____ activity in this region creates fertile soil for agriculture.

19. The species is classified under the _____ Asteraceae.

20. Some toxins produced by certain algae can have _____ effects on marine mammals.

Matching Sentences (Match each definition to the correct word from the vocabulary list.)

21. Phytoplankton are microscopic organisms that perform photosynthesis in aquatic ecosystems.
22. The distribution of species affects biodiversity in ecosystems.
23. Space exploration has provided insights into the origins of our solar system.
24. Climate change is impacting weather patterns around the world.
25. Sediments can provide valuable information about past environmental conditions.
26. Living organisms are constantly interacting with their environment to survive.
27. Monitoring air quality is essential for public health and safety.
28. Catastrophic events, such as tsunamis, can have devastating effects on coastal communities.
29. The annual carbon emissions are measured in gigatonnes to understand their impact on climate change.

30. Genetic studies help us understand the evolutionary relationships between species.

Answer

Multiple Choice: 1. Rotation 2. Unprecedented 3. Redistribution 4. Gigatonnes 5. Gravitational 6. Atmosphere 7. Flyby 8. Calibrating 9. Magnetometer 10. Species
Gap-Fill: 11. toxic 12. distinct 13. ancient 14. outflows 15. monitoring 16. Microbial 17. insights 18. volcanic 19. genus 20. fatal
Matching sentence: 1. phytoplankton 2. distribution 3. exploration 4. climate 5. sediments 6. interacting 7. monitoring 8. catastrophic 9. gigatonnes 10. genetic

CATEGORY

1. Sci/Tech - LEVEL4

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1. B2
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3. esl news
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5. NASA
6. Psyche spacecraft
7. unfamiliar views

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