



# NASA Discovers Record-Breaking Planetary System: Speeding Through Space

## Description

In the center of the Milky Way, 24,000 light-years from Earth, a strange pair of objects is moving very fast through space.

Scientists believe these objects are a fast star and its planet. If confirmed, they would be the fastest exoplanet system known.

Stars in the Milky Way usually move at a few hundred thousand miles per hour, but these objects are moving at least 1.2 million miles per hour, much faster.

Astronomer Sean Terry said the star has a planet orbiting it, making it a super-Neptune system. This would be the first planet found with a high-speed star.

Scientists found these objects in 2011 using data from Microlensing Observations in Astrophysics. Gravitational microlensing helped in observing their movement.

Research in 2011 showed one object is 2,300 times more massive than the other, but their actual mass is still unknown.

Further studies using data from Keck Observatory and the Gaia satellite indicate these objects are a star system 24,000 light-years away. The star's speed is more than double that of our sun.

The study was published in The Astronomical Journal.

## Vocabulary List:

1. **Exoplanet** /'ɛk.səʊ.plæn.ɪt/ (noun): A planet that orbits a star outside the solar system.
2. **Microlensing** /'maɪ.krəʊ.lɛn.zɪŋ/ (noun): A gravitational lensing effect that allows for the observation of distant astronomical objects.
3. **Massive** /'mæs.ɪv/ (adjective): Of considerable size extent or capacity.
4. **Observations** /əb'zɜːr.veɪ.ʃənz/ (noun): The action or process of closely monitoring or watching something.
5. **Gravitational** /,græv.ɪ'teɪ.ʃən.əl/ (adjective): Relating to or denoting the force of attraction between masses.
6. **Orbiting** /'ɔːr.bɪt.ɪŋ/ (verb): Moving around another object in a circular or elliptical path.

## Comprehension Questions



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## Multiple Choice

1. Where are the strange pair of objects located in the Milky Way?
  - Option: 24,000 light-years away from Earth
  - Option: Near Earth's orbit
  - Option: At the center of the Earth
  - Option: In a neighboring galaxy
  
2. What do scientists believe the objects moving fast through space are?
  - Option: A fast star and its planet
  - Option: A comet and an asteroid
  - Option: A spaceship and an alien
  - Option: Two colliding galaxies
  
3. How fast are the objects moving compared to typical stars in the Milky Way?
  - Option: At least 1.2 million miles per hour
  - Option: A few hundred thousand miles per hour
  - Option: Over 3 million miles per hour
  - Option: Less than 100 thousand miles per hour
  
4. What type of system is the star and its planet believed to be?
  - Option: Super-Neptune system
  - Option: Binary star system
  - Option: Solar system
  - Option: Black hole system
  
5. How were these objects discovered in 2011?
  - Option: Using data from Microlensing Observations in Astrophysics
  - Option: By direct observation with a telescope
  - Option: Through a radio transmission
  - Option: By analyzing meteorite samples
  
6. What is the star's speed compared to our sun according to the studies?
  - Option: More than double
  - Option: Less than half
  - Option: Equal to
  - Option: Four times faster



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### True-False

7. The objects moving through space are the slowest recorded in the Milky Way.
8. The star and planet system was discovered using the Hubble Space Telescope.
9. The mass of both objects in the system is accurately known.
10. The study of these objects was published in Nature magazine.
11. The objects were found orbiting a supermassive black hole in the Milky Way center.
12. Gravitational microlensing was a key method used to study the movement of the objects.

### Gap-Fill

13. The objects were found in the center of the Milky Way, 24,000 light-years away from Earth. The star is more than double the speed of our sun. Further studies using data from Keck Observatory and the Gaia satellite indicate these objects are a star system 24,000 light-years away. The star's speed is more than double that of our sun. The study was published in \_\_\_\_\_.
14. One object discovered in 2011 is 2,300 times more massive than the other, but their actual mass is still \_\_\_\_\_.
15. Astronomer Sean Terry mentioned that the star has a planet orbiting it, creating a super-Neptune system. This would be the first planet found with a high-speed \_\_\_\_\_.
16. Scientists believe the strange pair of objects are a fast star and its planet. If confirmed, they would be the fastest \_\_\_\_\_ system known.
17. Stars in the Milky Way typically move at a few hundred thousand miles per hour, but these objects are



moving at least 1.2 million miles per hour, much \_\_\_\_\_.

18. Research in 2011 showed one object is 2,300 times more massive than the other, but their actual mass is still \_\_\_\_\_.

## Answer

**Multiple Choice:** 1. 24,000 light-years away from Earth 2. A fast star and its planet 3. At least 1.2 million miles per hour 4. Super-Neptune system 5. Using data from Microlensing Observations in Astrophysics 6. More than double

**True-False:** 7. False 8. False 9. False 10. False 11. False 12. True

**Gap-Fill:** 13. The Astronomical Journal 14. unknown 15. star 16. exoplanet 17. faster

## Vocabulary quizzes

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

1. Which disease is characterized by memory loss and cognitive decline?

- Option: Alzheimer's
- Option: Oxygen
- Option: Activity
- Option: Evolution

2. What type of planet orbits a star outside of our solar system?

- Option: Research
- Option: Exoplanet
- Option: Astronomers
- Option: Oxygen

3. What force keeps planets in orbit around stars?

- Option: Toxins
- Option: Gravitational
- Option: Pollution
- Option: Poisonous

4. What process causes fruits to become mature and ready to eat?

- Option: Ripens
- Option: Chemicals



- Option: Toxins
- Option: Astronomers

5. Which type of cancer originates in glandular tissue?

- Option: Evolution
- Option: Adenocarcinoma
- Option: Tobacco
- Option: Activity

6. Which term describes something with large mass or size?

- Option: Domestication
- Option: Chemicals
- Option: Massive
- Option: Evolved

7. What is the process of taking in oxygen and expelling carbon dioxide called?

- Option: Breathing
- Option: Research
- Option: Promising
- Option: Observations

8. What is collected and analyzed to gain information?

- Option: Identifying
- Option: Data
- Option: Strategies
- Option: Ripens

9. What process describes the gradual development of something over time?

- Option: Evolution
- Option: Microlensing
- Option: Significant
- Option: Activity

10. Which substances are harmful and can cause adverse effects when present in the body?

- Option: Toxins
- Option: Intermediate-mass
- Option: Research
- Option: Breathing

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



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11. Scientists conduct \_\_\_\_\_ to discover new findings.
  12. The new treatment shows great \_\_\_\_\_ in curing the disease.
  13. The \_\_\_\_\_ of animals led to changes in their behavior and genetics.
  14. Some \_\_\_\_\_ in the environment can be harmful to human health.
  15. \_\_\_\_\_ study celestial objects and phenomena in the universe.
  16. Efforts are being made to reduce \_\_\_\_\_ levels in major cities.
  17. The new discovery will have a \_\_\_\_\_ impact on the field of medicine.
  18. Businesses need effective \_\_\_\_\_ to achieve success in the market.
  19. Scientists make detailed \_\_\_\_\_ to understand natural phenomena.
  20. The \_\_\_\_\_ force between planets keeps them in their orbits.

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



21. Species have over time to adapt to their environments.
22. is a technique used by astronomers to discover distant planets.
23. key characteristics is important in classifying different species.
24. Astronomers use various methods to detect new beyond our solar system.
25. Regular physical is important for maintaining good health.
26. Some plants produce substances to deter herbivores from eating them.
27. The new drug has shown results in early trials.
28. Living organisms require for respiration and survival.
29. Long-term use of products can lead to serious health issues.
30. Stars with have properties between low-mass and high-mass stars.

## Answer

**Multiple Choice:** 1. Alzheimer's 2. Exoplanet 3. Gravitational 4. Ripens 5. Adenocarcinoma 6. Massive 7. Breathing 8. Data 9. Evolution 10. Toxins

**Gap-Fill:** 11. Research 12. Promise 13. Domestication 14. Chemicals 15. Astronomers 16. Pollution 17. Significant 18. Strategies 19. Observations 20. Gravitational

**Matching sentence:** 1. Evolved 2. Microlensing 3. Identifying 4. Exoplanet 5. Activity 6. Poisonous 7. Promising 8. Oxygen 9. Tobacco 10. Intermediate-mass

## CATEGORY

1. Health - LEVEL2

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