



Astronomers Locked Out of X-ray Universe Due to Jammed Door

Description

Just outside his cluttered office, Hiroya Yamaguchi stands in front of a blackboard covered with diagrams and notes related to the X-Ray Imaging and Spectroscopy Mission, known as XRISM. This space telescope, launched on September 6, 2023, carries high expectations following previous issues with JAXA's Suzaku and Hitomi telescopes. Despite these challenges, XRISM has been generating valuable data since its first light in January, uncovering unexpected discoveries.

However, a problem persists with the telescope's aperture door, preventing low-energy X-rays from reaching the detector. While attempts to open the door have failed, discussions are ongoing between NASA and JAXA on the best path forward to operate XRISM. The decision to temporarily operate the spacecraft without opening the door has not been finalized.

X-rays provide a unique perspective on the universe, and XRISM's Resolve instrument offers detailed insights into the atomic and velocity structure of X-ray sources. The closed door poses a dilemma for scientists, limiting access to certain parts of the X-ray universe. Despite this setback, XRISM continues to deliver impressive results at higher energies.

The gate valve issue raises questions about accessing lower-energy X-rays and the potential for future discoveries. While uncertainties loom over the fate of NASA's Chandra mission, the field of X-ray astronomy remains optimistic about the future. XRISM's groundbreaking data opens new possibilities for understanding the cosmos, even as challenges persist in unlocking the telescope's full capabilities. Excitement abounds for the discoveries that lie ahead, showcasing the resilience and innovation of space exploration.

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Vocabulary List:

1. **Cluttered** // (adjective): Filled with scattered things in a disorderly manner.
2. **Aperture** // (noun): An openingsuch as a hole or gap.
3. **Detector** // (noun): A device that detects or identifies something.
4. **Uncover** // (verb): To reveal or make known.
5. **Valuable** // (adjective): Of great worth or importance.
6. **Resilience** // (noun): The ability to recover from difficulties or setbacks.

Vocabulary quizzes

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

1. What is the main goal of expanding a business?
Option: Increasing market share
Option: Reducing costs
Option: Maintaining status quo
Option: Avoiding competition
2. Which term best describes having a wide range of options to choose from?
Option: Uniformity
Option: Consistency
Option: Diversity
Option: Monotony
3. What trait enables individuals to bounce back from adversity?
Option: Apathy
Option: Stubbornness
Option: Resilience
Option: Complacency
4. What does the term "prevalence" refer to?
Option: Uniqueness
Option: Commonality



- Option: Irregularity
- Option: Scarce nature

5. What does the composition of a substance refer to?

- Option: Texture
- Option: Temperature
- Option: Color
- Option: Ingredients

6. What does an aperture control in a camera?

- Option: Focusing
- Option: Exposure
- Option: Color
- Option: Shutter speed

7. Which word best describes a disorganized and messy space?

- Option: Neat
- Option: Tidy
- Option: Cluttered
- Option: Minimalist

8. What design concept combines elements from the past in a modern context?

- Option: Minimalist
- Option: Contemporary
- Option: Retro-style
- Option: Futuristic

9. What is a business undertaking that involves risk and uncertainty called?

- Option: Safe bet
- Option: Guaranteed venture
- Option: High reward
- Option: Venture

10. What type of fashion or design is so appealing that it catches everyone's attention?

- Option: Unnoticed
- Option: Ordinary
- Option: Head-turning
- Option: Inconspicuous

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



11. _____ disks are formed around young stars during planetary system formation.
12. Her outfit was so _____ and stylish that she caught everyone's attention.
13. The vastness of the universe is truly _____ leaving us in awe of its size.
14. Time is the most _____ resource we have; use it wisely.
15. Their _____ friendship stood the test of time lasting over several decades.
16. Listening to that old song brought back _____ memories of my childhood.
17. The new sports car had a _____ design that made it aerodynamic and visually appealing.
18. The scientist used a special _____ to measure the radiation levels in the environment.
19. Through their research they hoped to _____ the hidden truths of ancient civilizations.
20. She always manages to look _____ no matter the occasion.

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

21. A student may use a to assist in exam preparation and review.
22. A list of frequently asked questions and their answers is commonly known as a(n) .
23. research focuses on planets outside our solar system.
24. To completely involve oneself in a subject or activity is to in it.
25. A range of different types or forms of something is referred to as .
26. The kitchen floor was covered in due to lack of cleaning.
27. She has a and elegant sense of fashion that is admired by many.
28. Her stunning dress was so glamorous and eye-catching truly .



29. The messy and room needed a thorough cleaning and organizing session.

30. The future of the company looked as layoffs were announced.

Answer

Multiple Choice: 1. Increasing market share 2. Diversity 3. Resilience 4. Commonality 5. Ingredients 6. Exposure 7. Cluttered 8. Retro-style 9. Venture 10. Head-turning

Gap-Fill: 11. Protoplanetary 12. chic 13. immense 14. valuable 15. enduring 16. nostalgic 17. sleek 18. detector 19. uncover 20. stylish

Matching sentence: 1. study guide 2. FAQ 3. exoplanetary 4. immerse 5. variety 6. grime 7. chic 8. head-turning 9. cluttered 10. grim

CATEGORY

1. Sci/Tech - LEVEL5

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