

City-Killing Asteroid Risk Drops to 0.001%: ScienceAlert

Description

According to the European Space Agency, the likelihood of a football field-sized asteroid smashing into Earth in 2032 has drastically decreased to a mere 0.001 percent. Just a week ago, this asteroid had set a nerve-wracking record with NASA giving it a 3.1 percent probability of impact and the ESA estimating it at 2.8 percent. However, relief swept over the planetary defense community as recent observations from telescopes worldwide significantly reduced the uncertainty surrounding the potential impact zone.

In light of this new data, the ESA confirmed that the threat level on the Torino Impact Hazard Scale now stands at zero, down from last week's level three. The asteroid in question, named 2024 YR4, was initially spotted in December and measures between 40-90 meters in diameter, making it a credible menace to any city it may have struck.

While the projected collision date was December 22, 2032, it is now highly probable that the asteroid will pass by Earth harmlessly. Nevertheless, the James Webb Space Telescope will continue to monitor its trajectory in the coming months, as precaution remains essential in ensuring Earth's safety.

Experts have emphasized that even if the asteroid had posed an imminent threat, technological advancements have equipped Earth with the means to defend itself. Notably, NASA's DART mission effectively altered an asteroid's course in 2022 through a controlled impact, showcasing our growing capabilities in planetary defense.

Reflecting on this near miss, Richard Moissl of the ESA regarded the asteroid's observation and subsequent risk assessment as an enlightening experience. He highlighted the need for continued improvement in detection methods, mentioning upcoming projects like the Vera Rubin and Flyeye telescopes, as well as Europe's NEOMIR early warning mission.

The scenario evokes memories of the 2004 scare surrounding Apophis, a similar-sized asteroid that was eventually averted following enhanced observations. Overall, the trajectory of asteroid 2024 YR4 serves as a stark reminder of the unpredictable nature of space and the importance of proactive planetary defense measures.

Vocabulary List:

1. **Asteroid** /'æs.tə.roid/ (noun): A small rocky body orbiting the sun typically found between Mars and Jupiter.
2. **Trajectory** /trə'dʒek.təri/ (noun): The path followed by a projectile or an object moving through space.
3. **Impact** /'ɪm.pækt/ (noun): The action of one object coming forcibly into contact with another.
4. **Probability** /,prɒb.ə'bɪl.ɪ.ti/ (noun): The likelihood or chance of an event occurring.
5. **Hazard** /'hæz.ərd/ (noun): A danger or risk.

6. **Observations** /,ɒb.zə'veɪ.ʃənz/ (noun): The action or process of observing something or someone to gain information.

Comprehension Questions

Multiple Choice

1. What was the initial probability of the football field-sized asteroid hitting Earth in 2032 according to NASA?

- Option: 2.8 percent
- Option: 0.001 percent
- Option: 3.1 percent
- Option: Zero percent

2. What is the name of the asteroid that was initially spotted in December and measured between 40-90 meters in diameter?

- Option: 2022 JT7
- Option: 2024 YR4
- Option: 2018 KP3
- Option: 2025 ZX1

3. Which telescope will continue to monitor the trajectory of the asteroid in the coming months?

- Option: Hubble Space Telescope
- Option: James Webb Space Telescope
- Option: Kepler Space Telescope
- Option: Spitzer Space Telescope

4. What mission by NASA altered an asteroid's course in 2022 through a controlled impact?

- Option: HERA
- Option: DART
- Option: ORISIS-REx
- Option: Voyager

5. Which upcoming project for detection methods was mentioned by Richard Moissl from the ESA?

- Option: Hubble Expansion
- Option: NEOMIR
- Option: Quantum Scope

Option: Sky Watcher

6. What was the threat level on the Torino Impact Hazard Scale before the recent decrease?

Option: Level Zero

Option: Level One

Option: Level Two

Option: Level Three

True-False

7. The asteroid 2024 YR4 was first spotted in October.

8. The ESA estimated the impact probability of the asteroid at 2.8 percent initially.

9. Richard Moissl from the ESA mentioned the Flyeye telescope in his discussion of detection methods.

10. The DART mission by NASA showcased the defense capabilities against an asteroid impact.

11. The projected collision date of the asteroid was December 22, 2033.

12. The Vera Rubin telescope is an upcoming project for early warning missions in space defense.

Gap-Fill

13. The likelihood of the football field-sized asteroid hitting Earth in 2032 drastically decreased to a mere

_____ percent.

14. The asteroid in question, 2024 YR4, was initially spotted in _____.

15. The projected collision date of the asteroid was December 22, _____.

16. Richard Moissl of the ESA highlighted the need for continued improvement in detection methods,

mentioning upcoming projects like the Vera Rubin and _____ telescopes.

17. The scenario evokes memories of the 2004 scare surrounding _____, a similar-sized

asteroid that was eventually averted following enhanced observations.

18. The trajectory of asteroid 2024 YR4 serves as a stark reminder of the unpredictable nature of space and the importance of proactive _____ measures.

Answer

Multiple Choice: 1. 3.1 percent 2. 2024 YR4 3. James Webb Space Telescope 4. DART 5. NEOMIR 6. Level Three

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

Gap-Fill: 13. 0.001 14. December 15. 2032 16. Flyeye 17. Apophis 18. planetary defense

Vocabulary quizzes

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

1. What is a chronic disease that affects the central nervous system?

Option: Parkinson's Disease

Option: Alzheimer's Disease

Option: Multiple Sclerosis

Option: Diabetes

2. What is the body's response to injury or infection characterized by redness swelling and pain?

Option: Fever

Option: Inflammation

Option: Fatigue

Option: Insomnia

3. Which term describes the ability to recover quickly from difficult conditions?

Option: Vulnerable

Option: Fragile

Option: Resilient

Option: Brittle

4. What is a small rocky body orbiting the sun?

Option: Asteroid

Option: Comet

Option: Meteoroid



Option: Planet

5. What is the effect or influence of one thing on another?

Option: Collision

Option: Impact

Option: Interaction

Option: Communication

6. Which term describes the seriousness of a disease or injury?

Option: Mildness

Option: Severity

Option: Moderation

Option: Gentleness

7. What type of organism benefits at the expense of another organism?

Option: Predator

Option: Prey

Option: Parasite

Option: Host

8. Which term is used to describe objects in the sky such as stars and planets?

Option: Terrestrial

Option: Celestial

Option: Subterranean

Option: Aerial

9. What are pieces of information obtained through the senses or instruments?

Option: Predictions

Option: Conclusions

Option: Observations

Option: Assumptions

10. Which term refers to the great size or extent of something?

Option: Magnitude

Option: Minuteness

Option: Petiteness

Option: Immensity

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

11. The _____ of the gut plays a significant role in overall health.

12. _____ is the quality of continuing to do something despite difficulties.

13. The feeling of excitement about something that is going to happen is called _____.

14. The path followed by a projectile flying or an object moving under the action of given forces is termed as _____.

15. A _____ is a potential source of danger risk or harm.

16. The sudden bursting out or release of something is known as an _____.

17. The arrangement in a straight line or in correct relative positions of different components is called _____.

18. _____ is the likelihood of something happening or being the case.

19. A _____ is a remarkable occurrence or situation that can be observed and studied.

20. The process of growth or increase typically by the gradual accumulation of additional layers or matter is called _____.

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

21. is a type of beneficial bacteria found in the gut microbiome.
22. is a genus of bacteria associated with gut health and mucus production.
23. refers to a situation where organisms such as parasites or pests overwhelm a host.
24. A amount of evidence supports the theory of climate change.
25. Individuals with weakened immune systems are more to infections.
26. bodies like stars and planets are visible in the night sky.
27. The projectile followed a curved towards its target.
28. Scientists spend hours the behavior of animals in their natural habitats.



29. Rain snow sleet and hail are examples of in the water cycle.

30. The economic recession had a lasting on the country's workforce.

Answer

Multiple Choice: 1. Multiple Sclerosis 2. Inflammation 3. Resilient 4. Asteroid 5. Impact 6. Severity 7. Parasite 8. Celestial 9. Observations 10. Magnitude

Gap-Fill: 11. microbiome 12. Perseverance 13. Anticipation 14. trajectory 15. hazard 16. eruption 17. alignment 18. Probability 19. phenomenon 20. accretion

Matching sentence: 1. Bifidobacterium 2. Akkermansia 3. Infestation 4. Substantial 5. Susceptible 6. Celestial 7. Trajectory 8. Observing 9. Precipitation 10. Impact

CATEGORY

1. Health - LEVEL5

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