



# Breakthrough: Physicists Develop Time Quasicrystal Inside Diamond

## Description

A new type of time crystal may be a big deal in science. Physicists used lasers on a diamond to make what they think is the first real time quasicrystal. This could help with quantum research and tech.

Time crystals are special because they have patterns that don't repeat like other materials. They move in a way that isn't controlled by outside forces. This could lead to new discoveries in physics.

To make a time crystal, scientists knocked some carbon atoms out of a diamond lattice, creating a nitrogen-vacancy center. By using microwave pulses, they were able to create a time quasicrystal with unique patterns that repeated for a short time.

This new phase of matter has many potential uses, like in measurement and quantum computing. It may take a while before we can use time crystals in everyday life, but it's an exciting step forward in science.

## Vocabulary List:

1. **Quasicrystal** /'kwāzē,kris(t)l/ (noun): A structure that exhibits a form of order but does not repeat periodically unlike traditional crystals.
2. **Lattice** /'lætɪs/ (noun): A regular repeated arrangement of atoms in a material.
3. **Nitrogen-vacancy** /'naɪtrədʒən 'vækənsi/ (noun): A type of defect in a diamond crystal where a nitrogen atom replaces a carbon atom and creates a vacancy.
4. **Microwave** /'maɪ.krə.weɪv/ (noun): A form of electromagnetic radiation with wavelengths in the range of about one millimeter to thirty centimeters.
5. **Potential** /pə'tenʃəl/ (adjective): Having or showing the capacity to become something in the future.
6. **Discoveries** /dɪs'kʌv.ər.ɪz/ (noun): The act of finding or uncovering something that was previously unknown.

## Vocabulary quizzes

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

1. What provides a sense of release or relief from stress or pain?

Option: Strain  
Option: Ingesting  
Option: Alertness  
Option: Health



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2. What are small plastic pieces less than five millimeters long?
- Option: Quality
  - Option: Microplastics
  - Option: Boost
  - Option: Activity
3. What is the presence of harmful substances in the environment?
- Option: Concern
  - Option: Pollution
  - Option: Potential
  - Option: Contribute
4. At what point do nitrogen-vacancy centers get formed in diamonds?
- Option: Wisely
  - Option: Formed
  - Option: Boost
  - Option: Activity
5. What is the state of being fully awake and able to think clearly?
- Option: Groggy
  - Option: Alertness
  - Option: Relieve
  - Option: Persistent
6. What is the regular geometrical arrangement of points in space?
- Option: Quality
  - Option: Lattice
  - Option: Boost
  - Option: Activity
7. What is water or other liquid diffused in a small quantity as vapor or within a solid?
- Option: Health
  - Option: Moisture
  - Option: Activity
  - Option: Concentration
8. What term describes something that is not clear or sharply defined?
- Option: Blurry
  - Option: Ingesting
  - Option: Quality
  - Option: Concern



9. Which word means to do something with good judgment or sense?

- Option: Wisely
- Option: Relief
- Option: Groggy
- Option: Concentration

10. Which word is used to describe the condition of being active?

- Option: Health
- Option: Moisture
- Option: Activity
- Option: Concern

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

11. Persistent exposure to loud noise can cause \_\_\_\_\_ on the ears.
12. \_\_\_\_\_ microplastics through contaminated water can pose serious health risks.
13. Artificial intelligence has the potential to enhance the \_\_\_\_\_ of healthcare services.
14. After a long flight she felt \_\_\_\_\_ and unfocused.
15. Yoga and meditation can help improve mental \_\_\_\_\_ and focus.
16. Researchers are investigating the \_\_\_\_\_ of quasicrystals for various applications.
17. Regular exercise can provide a natural \_\_\_\_\_ to energy levels.
18. Maintaining proper hydration levels is essential for good \_\_\_\_\_.
19. The children engaged in various outdoor \_\_\_\_\_ to stay active.
20. Practicing \_\_\_\_\_ eating can help individuals make healthier food choices.

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

21. Concerns regarding plastic waste and industrial emissions have raised awareness about environmental .

22. Scientific in the field of medicine have led to advancements in treatments for various diseases.



23. After a good night's sleep she woke up feeling and ready for the day ahead.
24. Volunteers regularly their time and skills to help those in need within the community.
25. The fire alarm rang prompting everyone to be and evacuate the building.
26. The new technology shows great for revolutionizing the way we communicate.
27. The unique properties of a lattice structure have intrigued researchers for decades.
28. The arrangement of atoms in a crystal forms a repeating pattern.
29. The centers in diamonds play a crucial role in quantum sensing applications.
30. Cooking food using a oven is a convenient and time-saving method.

## Answer

**Multiple Choice:** 1. Health 2. Microplastics 3. Pollution 4. Formed 5. Alertness 6. Lattice 7. Moisture 8. Blurry 9. Wisely 10. Activity

**Gap-Fill:** 11. strain 12. Ingesting 13. quality 14. groggy 15. concentration 16. potential 17. boost 18. health 19. activity 20. mindful

**Matching sentence:** 1. pollution 2. discoveries 3. refreshed 4. contribute 5. alert 6. potential 7. quasicrystal 8. lattice 9. nitrogen-vacancy 10. microwave

## CATEGORY

1. Health - LEVEL2

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