
Biologists Create Revolutionary Tree of Life Using 1.8 Billion Genetic Code Letters

Description

Scientists have unveiled a groundbreaking tree of life using an impressive 1.8 billion letters of genetic code. In a recent study published in *Nature* by an international team of 279 scientists, including experts from the University of Michigan, new insights into the flowering plant tree of life have emerged.

Through the analysis of 1.8 billion letters of genetic code from over 9,500 species, covering nearly 8,000 known flowering plant genera, researchers have shed light on the evolutionary history of these plants on Earth. Led by the Royal Botanic Gardens, Kew, the study aims to aid in the identification of new species, refine plant classification, discover medicinal compounds, and combat climate change and biodiversity loss.

This milestone project, involving 138 organizations worldwide, was powered by advanced genetic sequencing techniques. The data generated allows for the study of more than 800 species never before sequenced and offers crucial insights into plant evolution.

Despite the enormous data volume requiring 18 years on a single computer to process, the study was a major step towards creating a tree of life for all 330,000 known flowering plant species. The project not only enriched our understanding of plant evolution but also paved the way for future botanical discoveries.

The study's co-lead author, Tom Carruthers from U-M, emphasized the significance of the findings in unraveling the evolutionary history of flowering plants. This extensive tree of life provides a strong foundation for future studies and applications in the field of plant science.

Vocabulary List:

1. **Unveiled** // (verb): Revealed for the first time disclosed
2. **Groundbreaking** // (adjective): Innovative pioneering groundbreaking
3. **Genetic Code** // (noun): The sequence of nucleotide bases in DNA or RNA that determines the order of amino acids in a protein
4. **Insights** // (noun): A deep understanding or perception of a topic
5. **Evolutionary** // (adjective): Related to evolution involving gradual development or change
6. **Biodiversity** // (noun): The variety and variability of life forms in a particular habitat

Vocabulary quizzes

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

1. Which term describes a significant innovation or discovery?

- Option: Revolutionary
- Option: Groundbreaking
- Option: Milestone
- Option: Adaptation

2. Which term means a sudden and large increase?

- Option: Peak
- Option: Concurrent
- Option: Surge
- Option: Resurgence

3. Which term refers to the DNA sequence within living organisms?

- Option: Evolutionary
- Option: Biodiversity
- Option: Genetic Code
- Option: Insights

4. Which term means to cause enthusiasm or eagerness?

- Option: Anticipating
- Option: Imminent
- Option: Excite
- Option: Novas

5. What term describes something widely recognized and established as a symbol?

- Option: Dormant
- Option: Iconic
- Option: Showcased
- Option: Homage

6. What type of imaging uses electromagnetic radiation to see inside objects?

- Option: Atom
- Option: Imaging
- Option: X-rays
- Option: Revolutionary

7. Which term means revealed or made visible for the first time?

- Option: Captivate
- Option: Unveiled
- Option: Groundbreaking

Option: Insights

8. What term pertains to the sky or the heavens?

Option: Eruption

Option: Celestial

Option: Thermonuclear

Option: Novas

9. Which term indicates a deficiency or absence of something?

Option: Surge

Option: Lacking

Option: Adaptation

Option: Milestone

10. Which term means about to happen or occur soon?

Option: Excite

Option: Imminent

Option: Anticipating

Option: Eruption

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

11. The invention of the internet was a _____ breakthrough in technology.

12. Living organisms undergo _____ to survive in changing environments.

13. The two events happened _____ without any delay.

14. The art exhibition paid _____ to the works of classical painters.

15. There has been a _____ of interest in vinyl records in recent years.

16. Fans were eagerly _____ the release of the new album.

17. Astronomers observed the explosion of several _____ in the galaxy.

18. The Sun produces energy through _____ reactions in its core.

19. The research team made a _____ discovery in the field of medicine.

20. The volcanic _____ was visible from miles away.

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

21. The new technology had the potential to transform the industry completely.
22. The magician's performance was so engaging that it held the audience spellbound.
23. The hospital invested in state-of-the-art equipment for clearer medical
24. The athlete's performance reached its maximum level during the championship.
25. The Eiffel Tower is considered one of the most recognizable landmarks in the world.
26. The fashion designer their latest collection at the prestigious event.
27. Conservation efforts aim to protect the variety of life forms and ecosystems promoting
28. The scientist focused on studying the behavior of particles in the experiment.
29. The sudden in demand caught the company by surprise.
30. The volcano had been for centuries before showing any signs of activity.

Answer

Multiple Choice: 1. Groundbreaking 2. Surge 3. Genetic Code 4. Excite 5. Iconic 6. X-rays 7. Unveiled
8. Celestial 9. Lacking 10. Imminent

Gap-Fill: 11. Revolutionary 12. Adaptation 13. Concurrent 14. Homage 15. Resurgence 16. Anticipating
17. Novas 18. Thermonuclear 19. Groundbreaking 20. Eruption

Matching sentence: 1. Revolutionary 2. Captivate 3. Imaging 4. Peak 5. Iconic 6. Showcased 7. Biodiversity
8. Atomic 9. Surge 10. Dormant

CATEGORY

1. Sci/Tech - LEVEL6

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