



Unlocking Earth's Magnetic Flip: The Brunhes–Matuyama Reversal Explained

Description

You may think compasses always point to the north pole, but they do not always do that. The magnetic north and the geographic north are not the same. The Earth's magnetic field can change. It can flip over many years. For example, during the Brunhes–Matuyama reversal, the magnetic north was near the equator.

Most people do not worry about the Earth's magnetic field. It usually protects the Earth from particles from the Sun and creates beautiful lights in the sky called auroras. But the magnetic field is not always stable.

In the last 200 years, the Earth's magnetic field has weakened by about 9 percent. However, it is still stronger than it was for the last 100,000 years. The magnetic north pole has moved more than 600 miles (1,100 kilometers) since it was found in 1831. It now moves faster, about 34 miles (55 kilometers) each year.

The magnetic poles can flip randomly over thousands of years. The last full flip was about 780,000 years ago. During such flips, the magnetic field can become much weaker. Despite these changes, scientists are still studying how the magnetic field behaves today.

Vocabulary List:

1. **Compass** /'kʌm.pəs/ (noun): An instrument for determining direction relative to the Earth's magnetic poles.
2. **Magnetic** /mæɡ'nɛt.ɪk/ (adjective): Relating to the force of magnetism or the magnetic field of the Earth.
3. **Reversal** /rɪ'vɜː.səl/ (noun): The action of reversing something or the state of being reversed.
4. **Auroras** /ə'ɔː.rə/ (noun): Natural light displays in the sky typically seen in high-latitude regions.
5. **Weakened** /'wiː.kənd/ (verb): Made or became less strong or powerful.
6. **Stable** /'steɪ.bəl/ (adjective): Not likely to change or fail; firmly established.

Comprehension Questions

Multiple Choice

1. What is one reason why compasses may not always point to the north pole?

Option: The magnetic north pole moves over time



- Option: Compasses are not accurate
- Option: The Earth spins too fast
- Option: The magnetic field is controlled by humans

2. What can the Earth's magnetic field protect from?

- Option: Alien invasions
- Option: Particles from the Sun
- Option: Earthquakes
- Option: Tornadoes

3. How much has the Earth's magnetic field weakened in the last 200 years?

- Option: 5 percent
- Option: 9 percent
- Option: 15 percent
- Option: 20 percent

4. How fast is the magnetic north pole currently moving each year?

- Option: 15 miles
- Option: 24 kilometers
- Option: 34 miles
- Option: 45 kilometers

5. When was the last full flip of the magnetic poles?

- Option: 780,000 years ago
- Option: 500 years ago
- Option: 1,000 years ago
- Option: 100,000 years ago

6. What impact can magnetic pole flips have on the magnetic field?

- Option: No impact
- Option: Strengthening the field
- Option: Weakening the field
- Option: Creating more auroras

True-False

7. Compasses always point to the geographic north pole. True or False?



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8. The Earth's magnetic field has been stable for the last 100,000 years. True or False?
 9. The Earth's magnetic field protects from particles from the Sun. True or False?
 10. The speed of the movement of the magnetic north pole has decreased over time. True or False?
 11. Scientists fully understand the behavior of the Earth's magnetic field today. True or False?
 12. The Brunhes–Matuyama reversal caused the magnetic north pole to move closer to the equator. True or False?

Gap-Fill

13. The Earth's magnetic field has weakened by about _____ percent in the last 200 years.
14. The magnetic north pole has moved more than _____ miles since 1831.
15. The last full flip of the magnetic poles occurred approximately _____ years ago.
16. Currently, the magnetic north pole moves about _____ miles each year.
17. Scientists are still studying how the magnetic field behaves _____.
18. Despite the changes in the magnetic field, the Earth's magnetic field _____.

Answer

Multiple Choice: 1. The magnetic north pole moves over time 2. Particles from the Sun 3. 9 percent 4. 34 miles 5. 780,000 years ago 6. Weakening the field

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

Gap-Fill: 13. 9 14. 600 15. 780,000 16. 34 17. today 18. is not always stable

Vocabulary quizzes

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



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1. What type of products are typically restored to like-new condition before being resold?
 - Option: Brand new
 - Option: Used
 - Option: Defective
 - Option: Irreplaceable

 2. What is a large-scale musical work for orchestra and voices typically on a religious theme?
 - Option: Opera
 - Option: Sonata
 - Option: Concerto
 - Option: Symphony

 3. Which field of biology focuses on the study of heredity and variation in organisms?
 - Option: Botany
 - Option: Ecology
 - Option: Astrophysics
 - Option: Genetics

 4. Which holiday is celebrated on December 25th each year?
 - Option: Thanksgiving
 - Option: Halloween
 - Option: Easter
 - Option: Christmas

 5. Which of the following is a reduction in the usual price of an item?
 - Option: Markup
 - Option: Premium
 - Option: Discount
 - Option: Tax

 6. What natural light display in the Earth's sky predominantly seen in high-latitude regions?
 - Option: Lightning
 - Option: Sunset
 - Option: Rainbow
 - Option: Aurora

 7. What is the process of transporting goods from a source location to a predefined destination?
 - Option: Production
 - Option: Delivery
 - Option: Manufacturing
 - Option: Packaging



8. Which term describes something firmly established and not likely to change quickly or significantly?

Option: Fluctuating

Option: Volatile

Option: Stagnant

Option: Stable

9. What is the act of calling off or terminating something?

Option: Initiation

Option: Delay

Option: Extension

Option: Cancellation

10. Which term is used to describe difficulties or challenges that need to be resolved?

Option: Solutions

Option: Problems

Option: Improvements

Option: Achievements

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

11. The store is having a _____ on all winter clothing.

12. The company always puts its _____ first by providing excellent service.

13. The package was _____ to the wrong address.

14. He _____ for arriving late to the meeting.

15. The storm _____ the structure of the old building.

16. The complex instructions left him _____ about what to do next.

17. She carefully considered all her _____ before making a decision.

18. You need to _____ if you want to catch the last train.

19. He had to _____ for his mistake during the presentation.

20. The new layout of the website left users feeling _____.



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

21. The intricate details of the art piece left the viewers totally intrigued.
22. The outstanding performance received thunderous applause from the audience.
23. The powerful words of the speaker drew the audience in like a magnet.
24. The sudden change in policy led to a complete reversal of fortunes for the company.
25. After the misunderstanding she sincerely said sorry for the confusion.
26. She used a voucher to get a discounted price on her purchase.
27. During the clearance sale all items were offered at reduced prices.
28. The complex math problem left the students puzzled and uncertain.
29. The steady financial growth of the company indicated a secure and consistent future.
30. In a rush to leave he quickly packed his bags and ran out the door.

Answer

Multiple Choice: 1. Used 2. Opera 3. Genetics 4. Christmas 5. Discount 6. Aurora 7. Delivery 8. Stable 9. Cancellation 10. Problems

Gap-Fill: 11. sale 12. customers 13. delivered 14. apologized 15. weakened 16. confused 17. options 18. hurry 19. apologize 20. confused

Matching sentence: 1. Fascinated 2. Ovarions 3. Magnetic 4. Reversal 5. Apologized 6. Coupon 7. Discounts 8. Confused 9. Stable 10. Hurried

CATEGORY

1. Sci/Tech - LEVEL1

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