



The total solar eclipse in April will have a longer duration than the one in 2017.

Description

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CNN

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On April 8, the spectacle of a [total solar eclipse](#) will enthrall onlookers in Mexico and North America. This celestial spectacle—a rarity in these parts—marks the first time such a phenomenon has graced the skies since the nearly seven year hiatus. To experience its return again, stargazers will have to wait until 2044.

Total solar eclipses yield an impressive sight as the moon, in its orbital trajectory, positions itself between the Earth and the Sun, entirely shield the solar disk. However, despite sharing a common phenomenon, slight variations of these events make each unique.

This April's eclipse shares its path with the [previous occurrence on August 21, 2017](#). Nonetheless, despite the similarities in routes, albeit in reverse and encompassing a wider scope, discernable disparities between the two render [the 2024 astronomical play worth anticipation](#). One crucial factor that distinguishes this year's spectacle is the demographic set to witness this heavenly marvel.

[NASA estimates](#) posit that the 2017 eclipse captivated 215 million adult spectators across the US, both directly and through various virtual platforms.

"This year's total solar eclipse, visible in all its glory or partially to the entire American nation, encompasses an accessibility that's unprecedented, making it the most democratic eclipse the country has witnessed in a generation," gushed Nicola Fox, associate administrator for NASA's Science Mission Directorate, in her recent [statement](#).

As the path of totality - locales where observers can witness the moon's umbral shadow completely swallowing the sun - is set to be wider, it ensures a larger audience for the 2024 eclipse. During the 2017 total solar eclipse, the moon's greater distance from Earth engendered a relatively narrow path of totality, stretching approximately between 62 to 71 miles (100 to 114 kilometers).

With the moon cosier to Earth during this year's event, the umbra of the moon is anticipated to shadow a broader path across North America, expanding its range from about 108 to 122 miles (174 to 196 kilometers).

Furthermore, the trajectory of the 2024 eclipse closely aligns with many densely populated areas and major cities, unlike its predecessor. With only 12 million within the totality path in 2017, the 2024 eclipse extends its coverage to approximately 32 million, with 150 million residing within 200 miles (322 kilometers) of the

path.

Bill Ingalls/NASA

This composite image illustrates the progression of a partial solar eclipse above Ross Lake in Northern Cascades National Park in Washington on August 21, 2017.

Persons residing outside the totality path can still marvel at the partial solar eclipse where the moon merely yokes a fraction of the sun. An astounding 99% of the US populace, incorporating regions of Hawaii and Alaska, will afford the spectacle of at least a partial solar eclipse without necessitating any vehicular movement.

Due to the moon's proximity to Earth, observers will enjoy an extended duration of totality this April, surpassing that of 2017. The totality phase, which is notably fleeting during an eclipse, varies depending on the observation location. Onlookers in proximity to the midpoint of the path are anticipated to bask in the most extended totality, with its extent tapering off closer to the path's periphery.

In 2017, the fortunate onlookers who enjoyed the lengthiest totality duration were treated to a spectacle lasting for two minutes and 42 seconds in Carbondale, Illinois.

This year, however, for those who venture around 25 minutes northwest of Torreón, Mexico, they will be compensated with the coveted longest totality lasting an extraordinary four minutes and 28 seconds. Even spectators across Texas extending up north to Economy, Indiana, can anticipate a totality exceeding four minutes. Even when the eclipse makes its Canadian passage, viewers will still be awed by a totality duration of 3 minutes and 21 seconds.

According to the [Guinness Book of World Records](#), the longest totality in recorded history clocked at a remarkable seven minutes and 8 seconds on June 20, 1955, occurring to the west of the Philippines.

Keen to envisage what this impending eclipse holds for you? Utilize our [interactive map](#) to determine your position within the path. Don't neglect to [acquire a pair of eclipse glasses](#) to ensure a safe observation of this celestial event.

While the avid stargazers perceive the eclipse as a celestial treat, scientists view the event as a window offering unique perspectives to study the sun. April's eclipse will provide researchers with a [special vista of the sun](#) during one of its most dynamic periods, contiguously termed the solar maximum.

The sun undergoes a rhythmic 11-year cycle commensurate with its magnetic-field flip that yields heightened solar activity. In 2017, the eclipse transpired as the sun crept towards solar minimum, a phase denoting decreased solar activity.

[Forecasts predict that the solar maximum](#), the pinnacle of solar magnetic field activity, will befall later this year. Scientists await with bated breath the vivid features akin to loops, streamers, and radiant curls anticipated to adorn the sun's scorching, outer atmosphere, known as the corona, when the moon's shadow obscures the solar surface during the ensuing eclipse. The corona, albeit fainter than the sun's radiant surface, is notably discernable during an eclipse, bestowing researchers with amplified observational details.

Simultaneously, the plausibility of witnessing a Coronal Mass Ejection (CME), a monumental eruption extruding material from the sun's surface, cannot be discounted during the eclipse.

Several experiments, scheduled for launch on [NASA's WB-57 high-altitude research aircraft](#) during the eclipse, aim to meticulously study the corona. They aspire to capture never-seen-before details about its structure across an array of light wavelengths.

Vocabulary List:

1. **Enrol** // (verb): To sign up for a program or service.
2. **Renowned** // (adjective): Famous or well-known.
3. **Suffused** // (adjective): Filled with or spreading through.
4. **Celestial** // (adjective): Relating to the sky or outer space.
5. **Entail** // (verb): To involve or include as a necessary step.
6. **Anticipation** // (noun): The act of looking forward to something.

Vocabulary quizzes

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

1. What term describes objects related to outer space or the heavens?

Option: Astronomical
Option: Supernatural
Option: Terrestrial
Option: Molecular

2. Which term describes something involving or causing great damage or suffering?

Option: Miraculous
Option: Benevolent
Option: Catastrophic
Option: Fortuitous

3. Which term describes strong desires to achieve something or reach a goal?

Option: Indifference
Option: Resignation
Option: Contentment
Option: Ambitions

4. What term refers to the capability of working successfully or being effective?



Option: Imperative
Option: Unreliable
Option: Viability
Option: Incapacitated

5. What term means involving something as a necessary part or consequence?

Option: Omitting
Option: Disregarding
Option: Neglecting
Option: Entailing

6. Which term means attractive or tempting especially in a provocative way?

Option: Repulsive
Option: Gorgeous
Option: Intriguing
Option: Enticing

7. Which term describes something likely to develop positively or successfully?

Option: Diminishing
Option: Doubtful
Option: Misguided
Option: Promising

8. Which term means strong and healthy; vigorous?

Option: Fragile
Option: Robust
Option: Delicate
Option: Frail

9. What term refers to the extreme scale seriousness or extent of something perceived as bad or morally wrong?

Option: Smallness
Option: Triviality
Option: Enormity
Option: Moderation

10. Which term describes cautiousness and wisdom in handling practical matters?

Option: Foolishness
Option: Rashness
Option: Impulsiveness
Option: Prudence

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

11. The caterpillar was _____ into a butterfly.

12. The sunrise _____ the sky with beautiful hues of orange and pink.

13. The treasure was hidden deep within the _____ of the ancient ruins.

14. The young entrepreneur had a _____ future ahead in the tech industry.

15. The new _____ exhibition at the museum attracted visitors from far and wide.

16. His contract was _____ prematurely due to breach of company policies.

17. The company was _____ in the competitive market unable to find a niche.

18. Students need to _____ in the course before the semester begins.

19. The medicine had a _____ effect on alleviating the patient's pain.

20. Launching a successful business will _____ a significant amount of hard work.

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

21. Some ancient cultures believed that the movements of the stars and planets were guided by forces.
22. study the universe its celestial bodies and the phenomena that occur in space.
23. focus on understanding the fundamental principles that govern matter energy space and time.
24. The national debt reached over one dollars a staggering amount.
25. The novel had an plot that captivated readers until the very end.
26. The artist was for her innovative sculptures that challenged traditional art forms.
27. is the scientific study of prehistoric life through the examination of fossils.
28. As a wine she could discern the subtlest flavors and aromas in different vintages.



29. The tsunami caused damage to the coastal town leaving devastation in its wake.

30. The of the issue became clear as more people voiced their concerns.

Answer

Multiple Choice: 1. Astronomical 2. Catastrophic 3. Ambitions 4. Viability 5. Entailing 6. Enticing 7. Promising 8. Robust 9. Enormity 10. Prudence

Gap-Fill: 11. metamorphosing 12. suffused 13. recesses 14. promising 15. museographical 16. terminated 17. floundering 18. enrol 19. potent 20. entail

Matching sentence: 1. celestial 2. astronomers 3. physicists 4. trillion 5. enthralling 6. renowned 7. paleontology 8. connoisseur 9. catastrophic 10. salience

CATEGORY

1. Sci/Tech - LEVEL6

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Author

aimeeyoung99