

Breaking News English.com

Ready-to-Use English Lessons by Sean Banville

**"1,000 IDEAS & ACTIVITIES
FOR LANGUAGE TEACHERS"**

breakingnewsenglish.com/book.html

**Thousands more free lessons
from Sean's other websites**

www.freeeslmaterials.com/sean_banville_lessons.html

Level 2 – 20th October, 2020

A zeptosecond - the shortest unit of time ever measured

FREE online quizzes, mp3 listening and more for this lesson here:

<https://breakingnewsenglish.com/2010/201020-zeptosecond-2.html>

Contents

The Reading	2
Phrase Matching	3
Listening Gap Fill	4
No Spaces	5
Survey	6
Writing and Speaking	7
Writing	8

Please try Levels 0, 1 and 3. They are (a little) harder.

Twitter



twitter.com/SeanBanville

Facebook



www.facebook.com/pages/BreakingNewsEnglish/155625444452176

THE READING

From <https://breakingnewsenglish.com/2010/201020-zeptosecond-2.html>

Today, many things are getting shorter. Scientists have just measured something very short. They recorded the shortest unit of time ever measured - a zeptosecond. This is a tiny, tiny fraction of one second - a trillionth of a billionth of a second. It is a decimal point followed by 20 zeros and then a 1. The scientists study atomic physics at the Goethe University. They used high-tech equipment to measure how long it takes a photon to cross a hydrogen molecule. The scientists said it took 247 zeptoseconds for this to happen. This is too fast for humans to sense or see.

In 1999, an Egyptian won the Nobel Prize in Chemistry for measuring the speed at which molecules change their shape. He found that one femtosecond equals 0.0000000000000001 seconds, or a millionth of a billionth of one second. The zeptosecond measures things in terms of the speed of light. One millisecond is a thousandth of one second. This is the time it takes a neuron in our brain to fire. One nanosecond is one billionth of one second. The shortest unit of time it may be possible to measure is one Planck. This is a decimal point followed by 44 zeros and a 1.

Sources: <https://interestingengineering.com/new-smallest-time-measurement-how-long-it-takes-a-photon-to-cross-a-hydrogen-molecule>
<https://www.livescience.com/zeptosecond-shortest-time-unit-measured.html>
[https://en.wikipedia.org/wiki/Orders_of_magnitude_\(time\)](https://en.wikipedia.org/wiki/Orders_of_magnitude_(time))

PHRASE MATCHING

From <https://breakingnewsenglish.com/2010/201020-septosecond-2.html>

PARAGRAPH ONE:

- | | |
|---------------------------------|--------------------|
| 1. many things are getting | a. of a second |
| 2. the shortest unit of time | b. this to happen |
| 3. a trillionth of a billionth | c. ever measured |
| 4. The scientists study | d. to sense or see |
| 5. They used high-tech | e. molecule |
| 6. a hydrogen | f. shorter |
| 7. it took 247 zeptoseconds for | g. equipment |
| 8. This is too fast for humans | h. atomic physics |

PARAGRAPH TWO:

- | | |
|---------------------------------------|------------------|
| 1. molecules change | a. light |
| 2. a millionth of a | b. point |
| 3. the speed of | c. one second |
| 4. One millisecond is a thousandth of | d. and a 1 |
| 5. One nanosecond is one billionth | e. their shape |
| 6. it may be possible | f. of one second |
| 7. This is a decimal | g. billionth |
| 8. followed by 44 zeros | h. to measure |

LISTEN AND FILL IN THE GAPS

From <https://breakingnewsenglish.com/2010/201020-zeptosecond-2.html>

Today, many (1) _____ shorter. Scientists have just measured something very short. They recorded the shortest unit (2) _____ measured - a zeptosecond. This is a tiny, (3) _____ one second - a trillionth of a billionth of a second. It is a decimal point followed by 20 zeros and then a 1. The (4) _____ physics at the Goethe University. They used high-tech equipment to measure how long it takes a photon (5) _____ hydrogen molecule. The scientists said it took 247 zeptoseconds for this to happen. This is too fast for humans to (6) _____.

In 1999, an Egyptian won the Nobel Prize in Chemistry for (7) _____ at which molecules change their shape. He found that one femtosecond equals 0.0000000000000001 seconds, or (8) _____ a billionth of one second. The zeptosecond measures things in terms of the (9) _____. One millisecond is a thousandth of one second. This is the (10) _____ a neuron in our brain to fire. One nanosecond is one billionth of one second. The shortest (11) _____ it may be possible to measure is one Planck. This is (12) _____ followed by 44 zeros and a 1.

PUT A SLASH (/) WHERE THE SPACES ARE

From <https://breakingnewsenglish.com/2010/201020-zeptosecond-2.html>

Today, many things are getting shorter. Scientists have just measured something very short. They recorded the shortest unit of time ever measured - a zeptosecond. This is a tiny, tiny fraction of one second - a trillionth of a billionth of a second. It is a decimal point followed by 20 zeros and then a 1. The scientists study atomic physics at the Goethe University. They use high-tech equipment to measure how long it takes a photon to cross a hydrogen molecule. The scientists said it took 247 zeptoseconds for this to happen. This is too fast for human to sense or see. In 1999, an Egyptian won the Nobel Prize in Chemistry for measuring the speed at which molecules change their shape. He found that one femtosecond equals 0.000000000000000001 seconds, or a millionth of a billionth of a second. The zeptosecond measures things in terms of the speed of light. One millisecond is a thousandth of a second. This is the time it takes a neuron in our brain to fire. One nanosecond is one billionth of a second. The shortest unit of time it may be possible to measure is one Planck. This is a decimal point followed by 44 zeros and a 1.

ONE ZEPTOSECOND SURVEY

From <https://breakingnewsenglish.com/2010/201020-septosecond-4.html>

Write five GOOD questions about one zeptosecond in the table. Do this in pairs. Each student must write the questions on his / her own paper. When you have finished, interview other students. Write down their answers.

	STUDENT 1 _____	STUDENT 2 _____	STUDENT 3 _____
Q.1.			
Q.2.			
Q.3.			
Q.4.			
Q.5.			

- Now return to your original partner and share and talk about what you found out. Change partners often.
- Make mini-presentations to other groups on your findings.

WRITE QUESTIONS & ASK YOUR PARTNER(S)

Student A: Do not show these to your speaking partner(s).

a) _____

b) _____

c) _____

d) _____

e) _____

f) _____

A zeptosecond - the shortest unit of time ever measured - 20th October, 2020
More free lessons at breakingnewsenglish.com

WRITE QUESTIONS & ASK YOUR PARTNER(S)

Student B: Do not show these to your speaking partner(s).

a) _____

b) _____

c) _____

d) _____

e) _____

f) _____

