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**A zeptosecond - the shortest unit of time ever measured - 20th October, 2020**

## **Level 0**

Scientists just measured the shortest unit of time ever. It is a zeptosecond - a trillionth of a billionth of a second. It is a decimal point followed by 20 zeros and then a 1. The scientists used special tools to measure how long it takes a photon to cross a hydrogen molecule. It took 247 zeptoseconds. This is too fast for us to see.

In 1999, a scientist measured how fast molecules change their shape. This was one femtosecond - a millionth of a billionth of one second. One millisecond is a thousandth 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.

## **Level 1**

Today, things are getting shorter. Scientists just measured the shortest unit of time ever recorded. It is a zeptosecond. This is tiny - 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. They used special tools 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 see.

In 1999, a scientist measured the speed at which molecules change their shape. He found this was one femtosecond, which is a millionth of a billionth of one second. 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.

## **Level 2**

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 0.000000000000001 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.

## **Level 3**

In today's world, many things are getting shorter and shorter. Scientists have just measured something incredibly short. They recorded the shortest unit of time ever measured. It is called a zeptosecond. This is a tiny, tiny, tiny fraction of one second. It is a trillionth of a billionth of a second. This is a decimal point followed by 20 zeros and then a 1. The scientists study atomic physics at the Goethe University in Germany. They used special 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 small for the human eye to see, and the time it takes is too fast for humans to sense.

In 1999, Ahmed Zewail, an Egyptian chemist won the Nobel Prize in Chemistry for measuring the speed at which molecules change their shape. He found that one femtosecond equals 0.000000000000001 seconds. This is a decimal point followed by 14 zeros and then a 1, or a millionth of a billionth of one second. The zeptosecond measures things in terms of the speed of light. It is difficult for the human mind to understand these measurements. One millisecond is a thousandth of one second. This is the time for a neuron in the human 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.