

# What is time?

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The concept of time is self-evident. An hour consists of a certain number of minutes, a day of hours and a year of days. But we rarely think about the fundamental nature of time.

Time is passing non-stop, and we follow it with clocks and calendars. Yet we cannot study it with a microscope or experiment with it. And it still keeps passing. We just cannot say what exactly happens when time passes.

Time is represented through change, such as the circular motion of the moon around the earth. The passing of time is indeed closely connected to the concept of space.

According to the general theory of relativity, space, or the universe, emerged in the Big Bang some 13.7 billion years ago. Before that, all matter was packed into an extremely tiny dot. That dot also contained the matter that later came to be the sun, the earth and the moon – the heavenly bodies that tell us about the passing of time.

Before the Big Bang, there was no space or time.

“In the theory of relativity, the concept of time begins with the Big Bang the same way as parallels of latitude begin at the North Pole. You cannot go further north than the North Pole,” says Kari Enqvist, Professor of Cosmology.

One of the most peculiar qualities of time is the fact that it is measured by motion and it also becomes evident through motion.

According to the general theory of relativity, the development of space may result in the collapse of the universe. All matter would shrink into a tiny dot again, which would end the concept of time as we know it.

“Latest observations, however, do not support the idea of collapse, rather inter-galactic distances grow at a rapid pace,” Enqvist says.

Source: University of Helsinki

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