

## Passion of Space

Space has existed before every known existence... existed. It may have been there even before the Big Bang. The complex colors and lights make up the stars, suns and planets of our universe.

### Chapter 1: The Beginning.

<https://www.space.com/25126-big-bang-theory.html>

<https://philosophersview.com/big-bang-theory/>

[https://en.wikipedia.org/wiki/Eternal\\_inflation](https://en.wikipedia.org/wiki/Eternal_inflation)

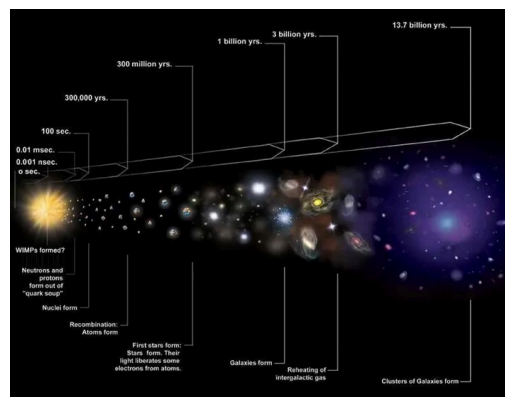
<https://www.universetoday.com/38195/oscillating-universe-theory/>

<https://www.wonderopolis.org/wonder/What-is-the-Big-Crunch-Theory#:~:text=The%20Big%20Crunch%20Theory%20says,will%20shrink%20and%20heat%20up.>

Let's start from the beginning.

Space is theorized to have started when the Big Bang happened. Before that, it was a void with nothingness. The Big Bang is the "leading explanation of how the universe began." It is theorized that the Big Bang started as "an infinitely hot and dense single point that inflated and stretched" into the still-expanding cosmos we know today.

Currently, scientists only understand the Big Bang as mathematical formulas and models.



Friedmann Equation:

$$\left(\frac{\partial a(t)}{\partial t}\right)^2 = \left(a^2 \Omega_r + \frac{\Omega_r}{a^2} + \frac{\Omega_m}{a}\right) + \Omega_c$$

Take square roots of both sides:

$$\frac{\partial a(t)}{\partial t} = \sqrt{\left(a^2 \Omega_r + \frac{\Omega_r}{a^2} + \frac{\Omega_m}{a}\right) + \Omega_c}$$

Integrate left side:

$$\int \frac{\partial t(a)}{\partial a} da = t(a)$$

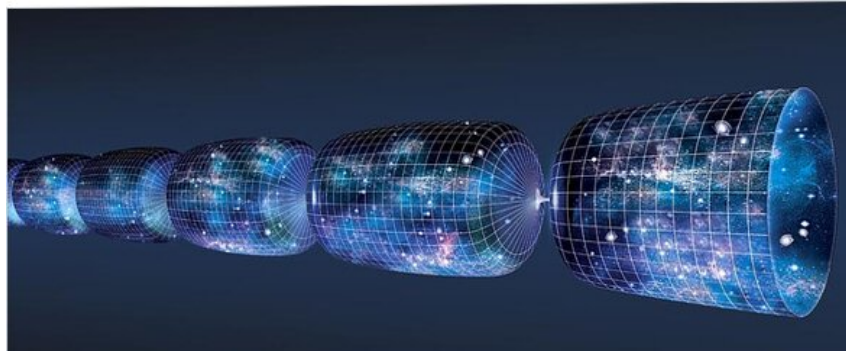
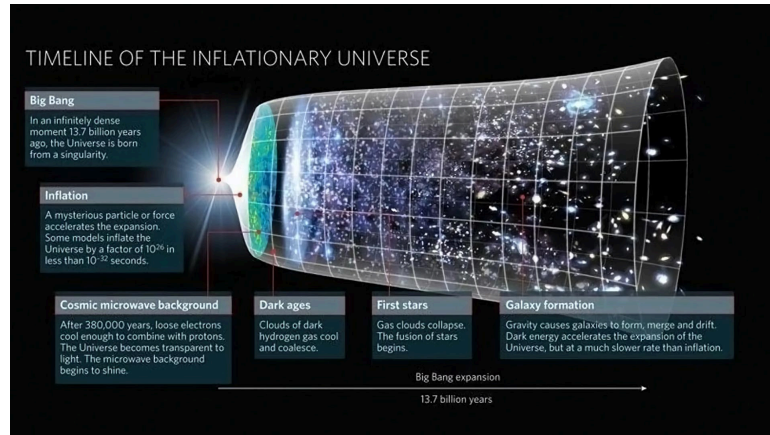
Integral of right side:

$$\int \frac{1}{\sqrt{\left(\frac{\Omega_m}{a(t)} + \frac{\Omega_r}{a(t)^2} + a(t)^2 \Omega_r\right) + \Omega_c}} da$$

Therefore:

$$t(a) = \int \frac{1}{\sqrt{\left(\frac{\Omega_m}{a(t)} + \frac{\Omega_r}{a(t)^2} + a(t)^2 \Omega_r\right) + \Omega_c}} da$$

Majority of scientists do believe this theory. But, there are other theories, such as: an Eternal Inflation or an Oscillating Universe theories.



Short summary of both of those theories.

The Eternal Inflation theory is an expansion of the Big Bang theory, where the universe's inflationary phase will last forever. Which produces, hypothetically, an infinite multiverse.

The Oscillating Universe theory is "a cosmological model that combines both the Big Bang and the Big Crunch as part of a cyclical event." Which means, our universe exists between a Big Bang and a Big Crunch, therefore, can be part of a possible series of universes.

(BTW the Big Crunch is where the universe will stop growing and then shrink into itself.)

Personally, I do like the theory of the Big Crunch. Because, just like how history repeats, so will the universe.