
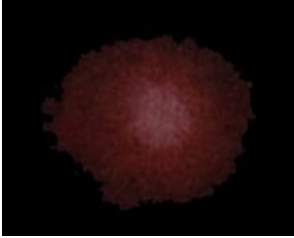




The Beginning and End of the Universe by Gareth Jones

	
1. From nothing an explosion ignites	2. The explosion sends billions of tons of matter into space and it begins to cool
	
3. Galaxies begin to take shape while the universe is still expanding	4. The Universe continues to expand to this day

This “Big bang theory is the accepted theory for the beginning of the universe, but what evidence exists to prove this theory?

Radiation: From 1940 Scientists studied the universe. They realised it must be full of radiation. As the universe grew and cooled so the radiation would have cooled too. An Astronomer, George Gemow worked out what the temperature should be for any year. Two Scientists Armo Penzias and Robert Wilson detected background radiation or cooled radiation and so proved the big bang theory

Expansion: Scientists observed that the planets even today are still moving apart from each other. This can be seen with telescopes, and using this astronomers can work out very accurately the age of our universe.

Red Shift: Receding galaxies change colour (become redder) - this is known as red shift. When a police car siren passes a stationary observer, you can hear the siren change pitch - and the car also changes frequency in colour as well as sound! This colour change is difficult to see with a slow moving vehicle, but is noticeable in receding galaxies.

How can we work out the age of the Universe?

We can work out the age of the universe using the Hubble Constant. This tells us how fast the galaxies are moving apart, and by using this in reverse we can work out when the Universe began. The Universe is 12 billion years old. Before this Scientists could not decide if the Universe was 10 or 20 billion years old.

What is going to happen at the end of the Universe?

The Big Crunch - Some say that so called “dark matter” (non-luminous matter, as yet undiscovered) will cause the Universe to stop expanding and the combined gravitational forces of all the universe cause a massive crunch – the exact opposite of the Big Bang.

Continual Expansion The Universe will continue expanding and get colder and colder as everything moves further apart.