

The Big Bang Theory

The development of the universe

(best guesses based on current evidence, much simplified and nothing is to scale)

The rate of inflation slows and the universe is a seething mass of fundamental particles such as quarks and electrons

The beginning of time, space, the universe and everything



0 10^{-40} s 10^{-30} s

The new universe experiences superfast inflation from the size of a nucleus to the size of a grapefruit in a tiny fraction of a second.

With rapid cooling, but still very, very hot, the quarks can join to form protons and neutrons

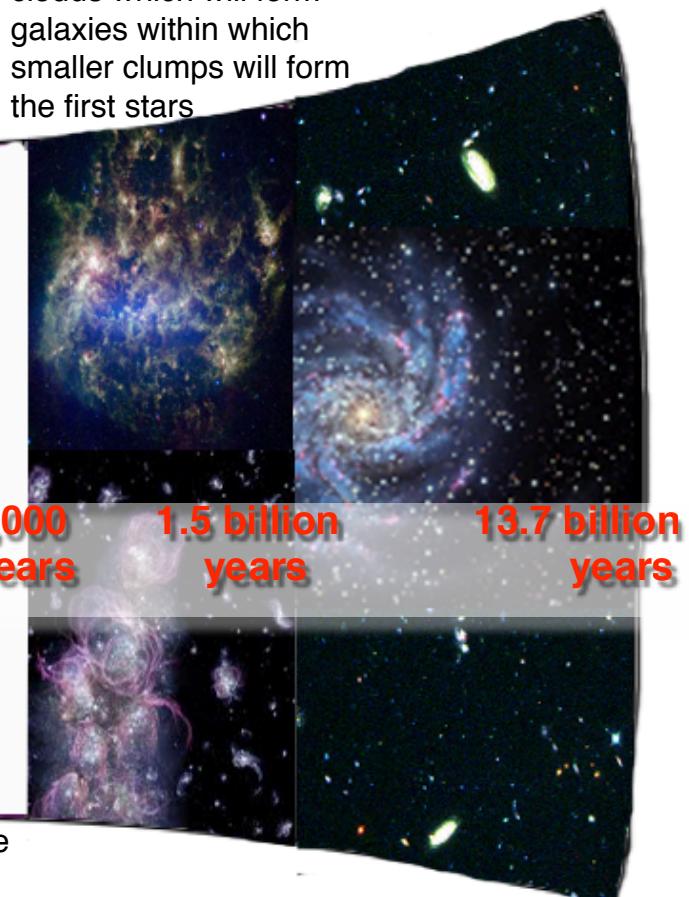
Still too hot for atoms to form the universe is a superhot fog.

Electrons combine with protons and neutrons to form atoms (almost all hydrogen and helium)

The lines between these periods were not sharp; they merged into one another

Small variations in the density of the universe allows gravity to cause the gases to clump together into huge clouds which will form galaxies within which smaller clumps will form the first stars

Expansion of the universe appears to be accelerating



The first huge stars die in supernovae exploding heavy elements into the clouds nearby. The shock waves and the heavy elements kick start the formation of new stars and solar systems.