The Earth's Beginning

A) 10-35 seconds (about 15 billion years ago): The Big Bang
The universe begins with a cataclysm that generates space and time, as well as all the matter and energy the universe will ever hold. For an incomprehensibly small fraction of a second, the universe is an infinitely dense, hot fireball.

10-6 seconds: The Universe Takes Shape
One millionth of a second after the Big Bang, the universe continues to expand but not nearly so quickly. As it expands, it becomes less dense and cools. The most basic forces in nature become distinct: first gravity, then the strong force, which holds nuclei of atoms together, followed by the weak and electromagnetic forces. By the first second, the universe is made up of fundamental particles and energy: quarks, electrons, photons, neutrinos and less familiar types. These particles smash together to form protons and neutrons.

3 seconds: Formation of Basic Elements
Protons and neutrons come together to form the nuclei of simple elements: hydrogen, helium and lithium. It will take another 300,000 years for electrons to be captured into orbits around these nuclei to form stable atoms.

10,000 years: The Radiation Era
The first major era in the history of the universe is one in which most of the energy is in the form of radiation -- different wavelengths of light, X rays, radio waves and ultraviolet rays. This energy is the remnant of the primordial fireball, and as the universe expands, the waves of radiation are stretched and diluted until today, they make up the faint glow of microwaves which bathe the entire universe.

Birth of Stars and Galaxies
300 million years
Gravity amplifies slight irregularities in the density of the primordial gas. Even as the universe continues to expand rapidly, pockets of gas become more and more dense. Stars ignite within these pockets, and groups of stars become the earliest galaxies. This point is still perhaps 12 to 15 billion years before the present. Most of the basic 109 elements are formed.

Birth of the Sun
5 billion years before the present (BP)
The sun forms within a cloud of gas in a spiral arm of the Milky Way Galaxy. A vast disk of gas and debris that swirls around this new star gives birth to planets, moons, and asteroids .

Pre Cambrian Era
600 million to 4.5 billion years BP
The Earth's crust is developed.
The first mountains are built.
Bacteria and algae were early life forms.

Palaeozoic Era
350 to 600 million years BP
The Age of Fish
The world is covered by many shallow seas.
The first land plants
The first insects

Mesozoic Era
70 to 350 million years BP
The Age of the Dinosaurs
The continent Pangea is formed and began to break up.
The first birds
The first mammals
The first flowering plants

Cenozoic Era
0 to 70 million years BP
The Age of Mammals
Present continents take shape
The Rockies, the Alps, and the Himalayan Mountains were formed.
The first grasses
Modern types of mammals and birds

The Great Ice Age
0 to 2 million years BP
Stone Age Man

Modern Man
0 to 50 000 years BP