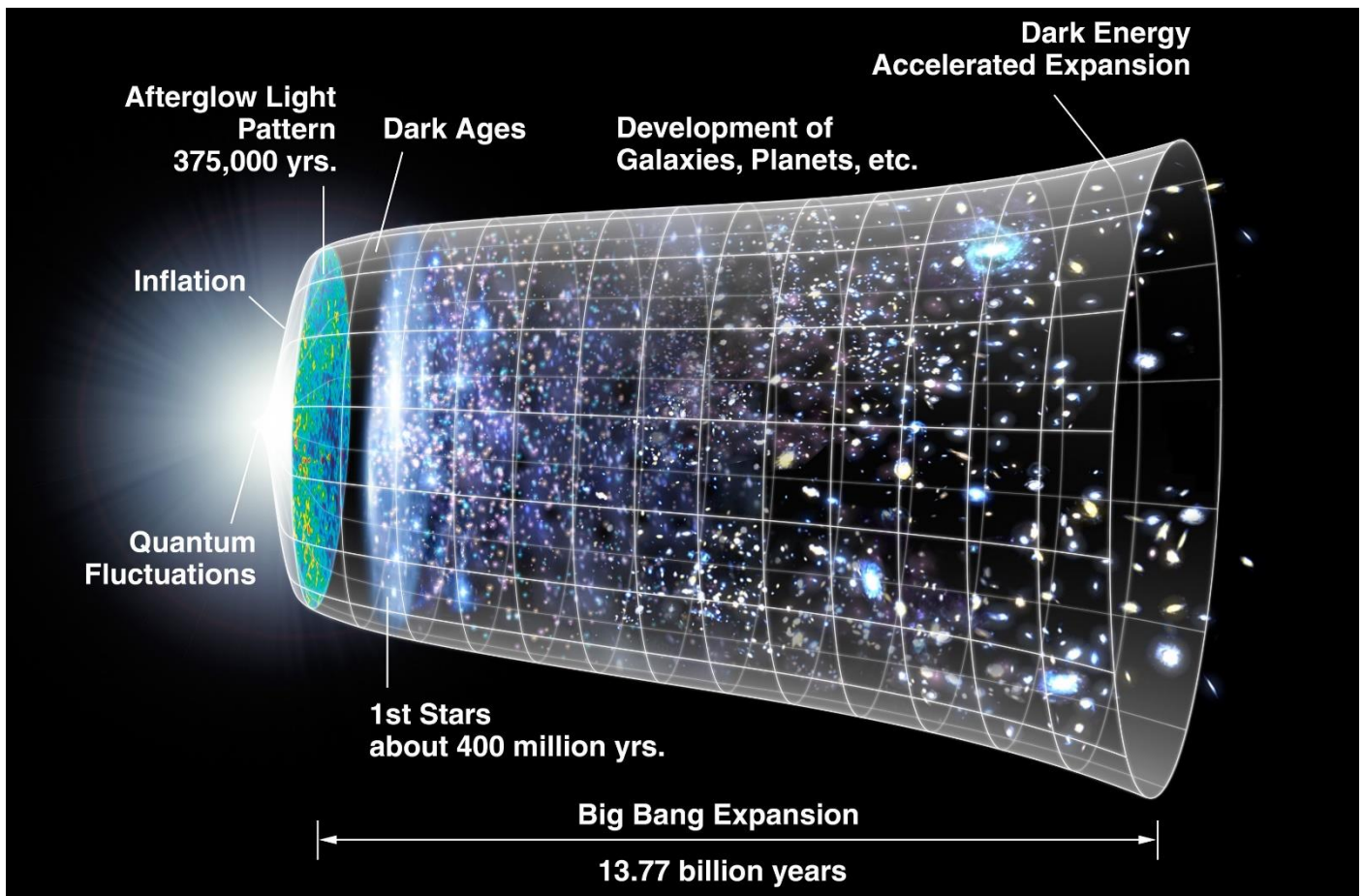


• Introduction:

The Game will start with the big bang expansion or something like that. The player will start the game by clicking on start the game.

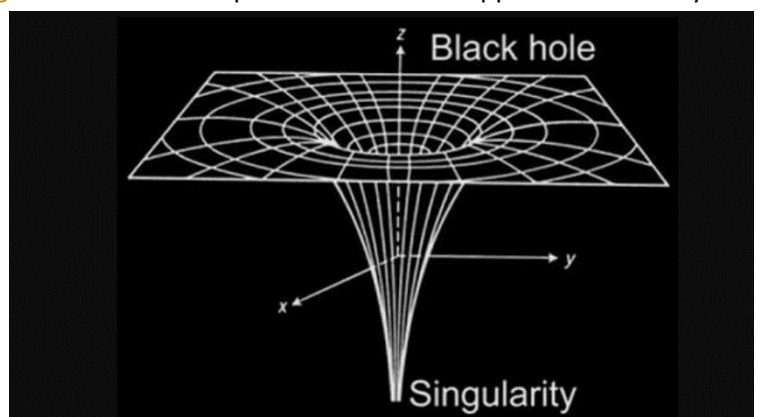


• From the Big Bang to the Stars:

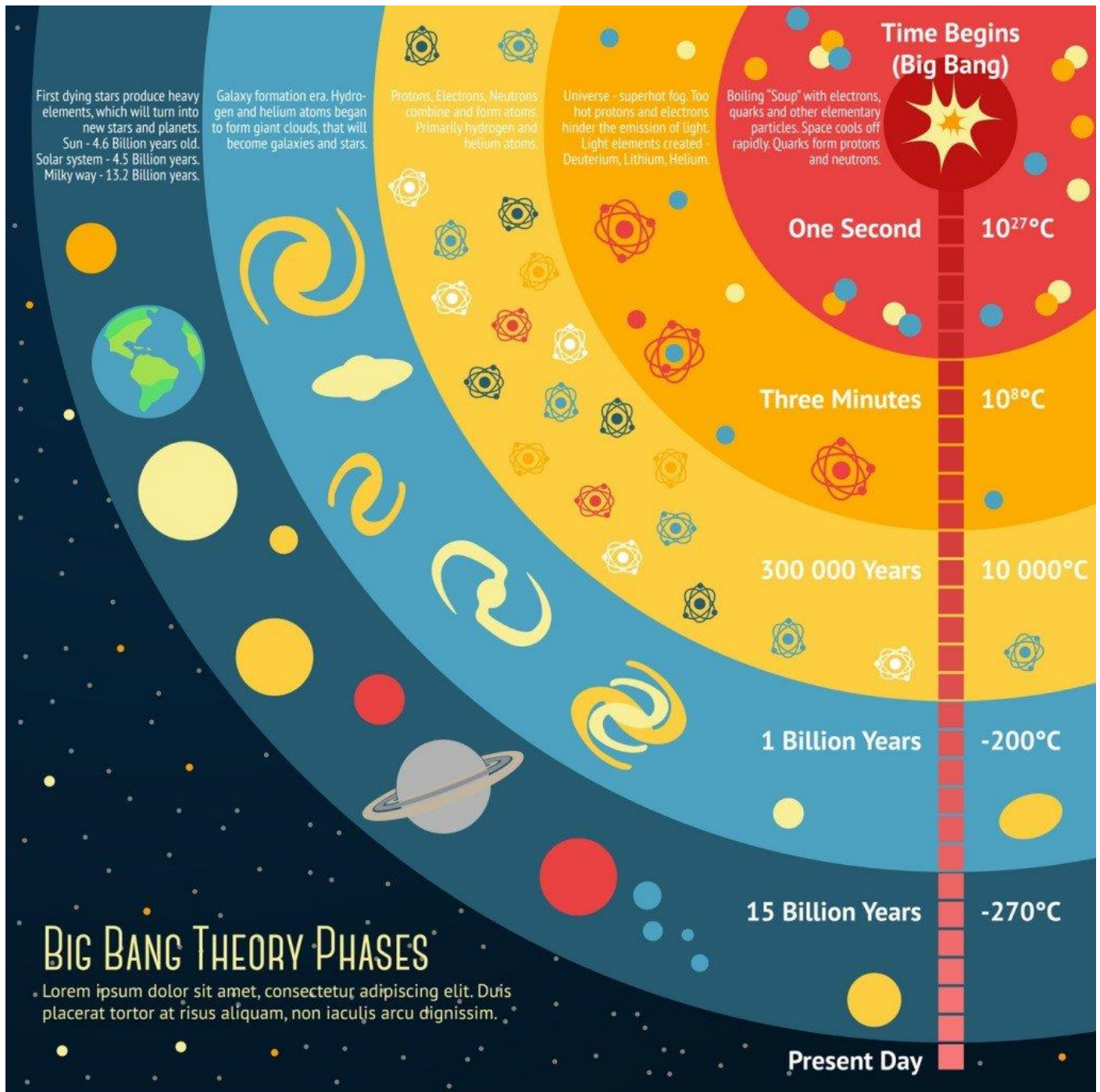
The first thing the player have to do is to make an action to start the universe that means an action to start the big bang which is the beginning of everything with a script showing something like "Let's start the universe".

When the player starts the universe, the game should give him an information about the big bang. Starting first by something like **"And so, from nothing, our universe begins"** then a brief explanation of what happened in the very beginning of the universe and what he has to do to move on. Something like this: **"Congratulations! You created a Universe. Remember your mission is to create Earth and bring life to it. To do that you will need to gather up everything there is every last mote and particle of matter between here and the edge of creation and squeeze it into a spot so infinitesimally compact that it has no dimensions at all. It is known as a singularity"**.

According to renowned scientist Stephen Hawking, all of the matter in the universe was constrained to an extremely tiny space, folded and compressed on top of itself. This was a space of infinite density and temperature, known as a gravitational singularity. It contained literally all the mass of the universe and was a hot dense ball roughly the size of a human head. This mass inflated like a gigantic balloon fast.



The first level of the game should be about the first second of the universe in which gravity and the other forces that govern physics (Electromagnetism, Weak nuclear interaction, Strong nuclear interaction) were created, and since there are 4 known forces, the first level will be divided into 4 Steps.

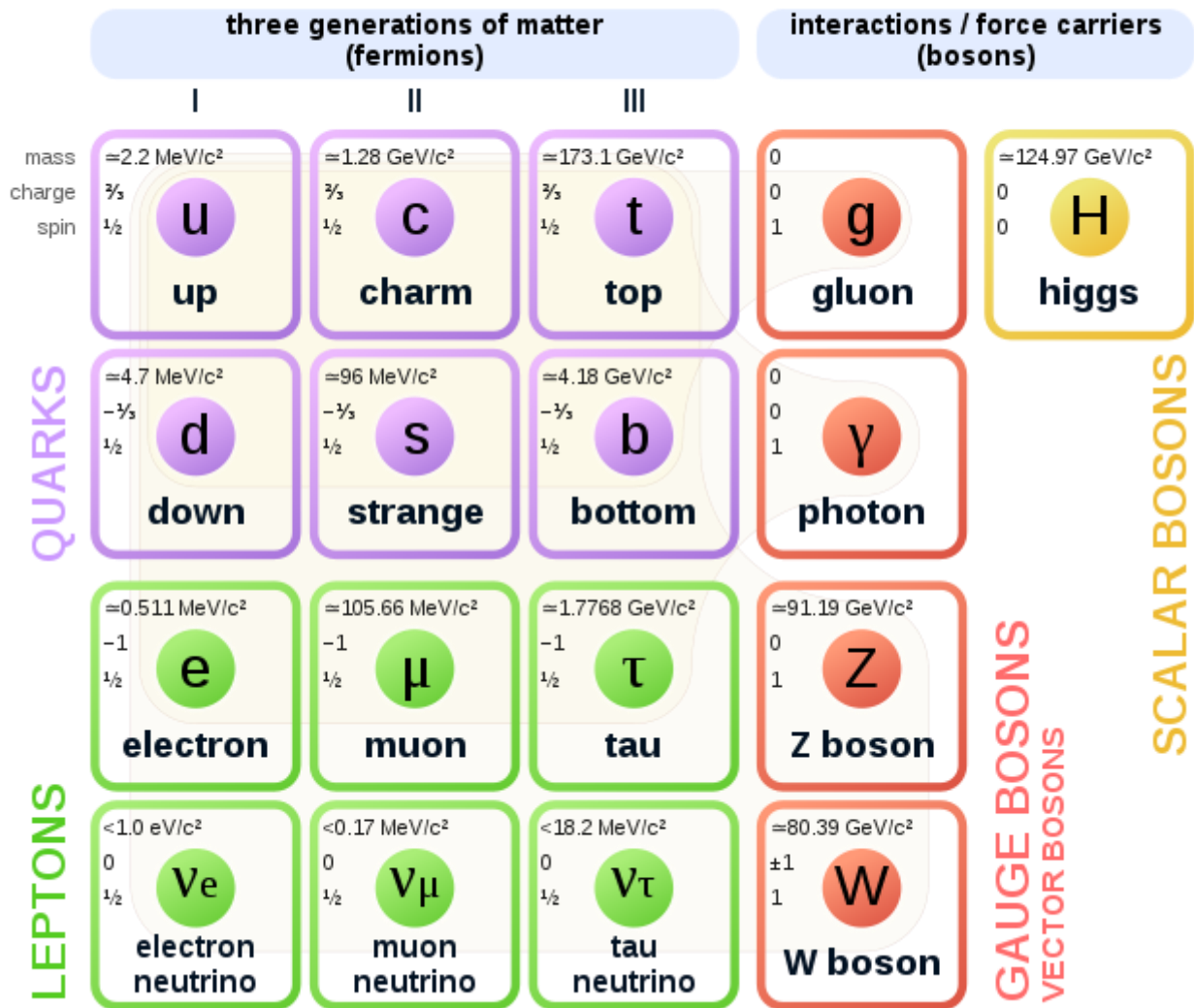


○ Level 1: The creation of the fundamental forces and matter. The very early universe – the first picosecond

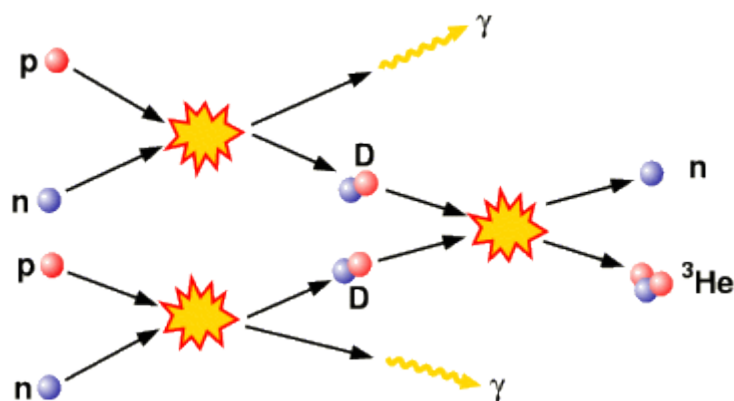
It includes the Planck epoch, during which currently understood laws of physics may not apply; the emergence in stages of the four known fundamental interactions or forces – first gravity, and later the strong, weak and electromagnetic interactions; and the expansion of space itself and supercooling of the still immensely hot universe due to cosmic inflation, which is believed to have been triggered by the separation of the strong and electroweak interaction. Tiny ripples in the universe at this stage are believed to be the basis of large-scale structures that formed much later. Different stages of the very early universe are understood to different extents. The earlier parts are beyond the grasp of practical experiments in particle physics but can be explored through other means.

In the first moments after the Big Bang, the universe was extremely hot and dense. As the universe cooled, conditions became just right to give rise to the building blocks of matter – the quarks and electrons of which we are all made. A few millionths of a second later, quarks aggregated to produce protons and neutrons. Within minutes, these protons and neutrons combined into nuclei. One second after the Big Bang, the universe was filled with neutrons, protons, electrons, anti-electrons, photons and neutrinos. According to NASA, after inflation the growth of the universe continued, but at a slower rate. As space expanded, the universe cooled and matter formed.

Standard Model of Elementary Particles



During the first three minutes of the universe, the light elements were born during a process known as Big Bang nucleosynthesis. Temperatures cooled from 100 nonillion (1032) Kelvin to 1 billion (109) Kelvin, and protons and neutrons collided to make deuterium, an isotope of hydrogen.



- **Level 2: The creation of the first elements.** The early universe, lasting around 377,000 years

It took almost 380,000 years for electrons to be trapped in orbits around nuclei, forming the first atoms. These were mainly helium and hydrogen, which are still by far the most abundant elements in the universe.

Initially, various kinds of subatomic particles are formed in stages. These particles include almost equal amounts of matter and antimatter, so most of it quickly annihilates, leaving a small excess of matter in the universe.

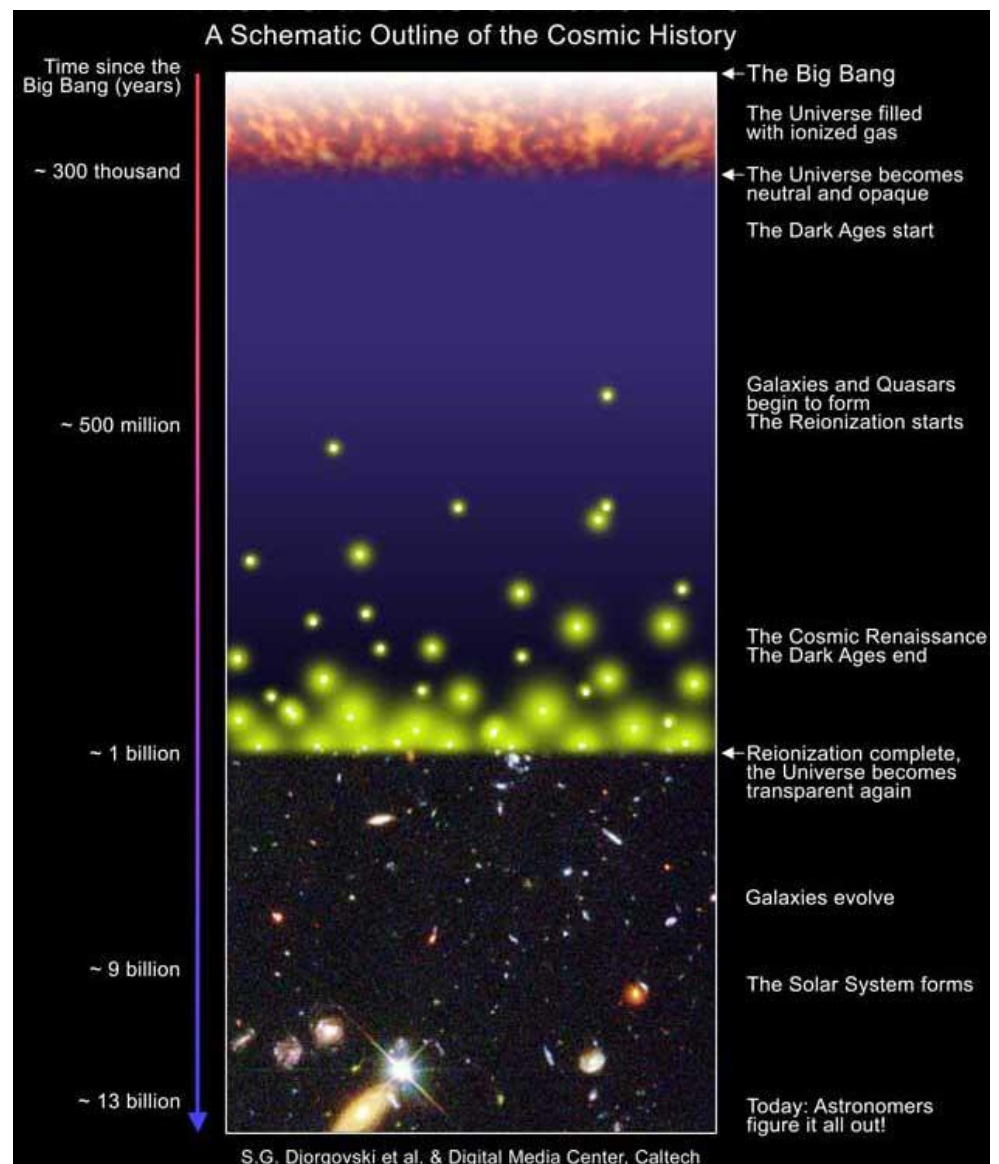
By 20 minutes, the universe is no longer hot enough for fusion, but far too hot for neutral atoms to exist or photons to travel far. It is therefore an opaque plasma. At around 47,000 years, as the universe cools, its behavior begins to be dominated by matter rather than radiation. At about 100,000 years, helium hydride is the first molecule. (Much later, hydrogen and helium hydride react to form molecular hydrogen, the fuel needed for the first stars)

- **Level 3: The creation of stars and the formation of galaxies. Dark Ages and large-scale structure emergence, from 377,000 years until about 1 billion years.**

The Universe becomes transparent to light (photons stop interacting with free electrons) resulting in the formation of the Cosmic Background Radiation. After 1 billion years, the temperature is 20 K and galaxies and stars have begun to form via gravitational contraction of over-densities in the initial Universe.

Galaxies are collections of stars, gas, dust (and dark matter) held together by gravity. Their appearance and composition are shaped over billions of years by interactions with groups of stars and other galaxies. Using supercomputers, scientists can look back in time and simulate how a galaxy may have formed in the early universe and grown into what we see today. Galaxies are thought to begin as small clouds of stars and dust swirling through space.

As other clouds get close, gravity sends these objects careening into one another and knits them into larger spinning packs. Subsequent collisions can sling material toward a galaxy's outskirts, creating extensive spiral arms filled with colonies of stars.



○ Level 4: The universe as it appears today

From 1 billion years, and for about 12.8 billion years, the universe has looked much as it does today. It will continue to appear very similar for many billions of years into the future. The thin disk of our galaxy began to form at about 5 billion years (8.8 bn years ago), and our solar system formed at about 9.2 billion years (4.6 bn years ago), with the earliest traces of life on Earth emerging by about 10.3 billion years (3.5 bn years ago).

From about 9.8 billion years of cosmic time, the slowing expansion of space gradually begins to accelerate under the influence of dark energy, which may be a scalar field throughout our universe. The present-day universe is understood quite well, but beyond about 100 billion years of cosmic time (about 86 billion years in the future), uncertainties in current knowledge mean that we are less sure which path our universe will take.

● The Creation of the Solar System and the Earth-Moon System:

The Second Phase of the game will be about the creation of the solar system and the earth moon system. So, it will be divided into 2 levels.

It should show something like: “Welcome to the second phase of the game. Congratulation first! you created a stable universe. Remember, your mission is to Create Earth and bring life to it. Your job now is to create the solar system that is going to hold Earth. Let our journey BEGIN”.

Our solar system formed about 4.5 billion years ago from a dense cloud of interstellar gas and dust. The cloud collapsed, possibly due to the shockwave of a nearby exploding star, called a supernova. When this dust cloud collapsed, it formed a solar nebula—a spinning, swirling disk of material.

At the center, gravity pulled more and more material in. Eventually the pressure in the core was so great that hydrogen atoms began to combine and form helium, releasing a tremendous amount of energy. With that, our Sun was born, and it eventually amassed more than 99 percent of the available matter.

Matter farther out in the disk was also clumping together. These clumps smashed into one another, forming larger and larger objects. Some of them grew big enough for their gravity to shape them into spheres, becoming planets, dwarf planets and large moons. In other cases, planets did not form: the asteroid belt is made of bits and pieces of the early solar system that could never quite come together into a planet. Other smaller leftover pieces became asteroids, comets, meteoroids, and small, irregular moons.

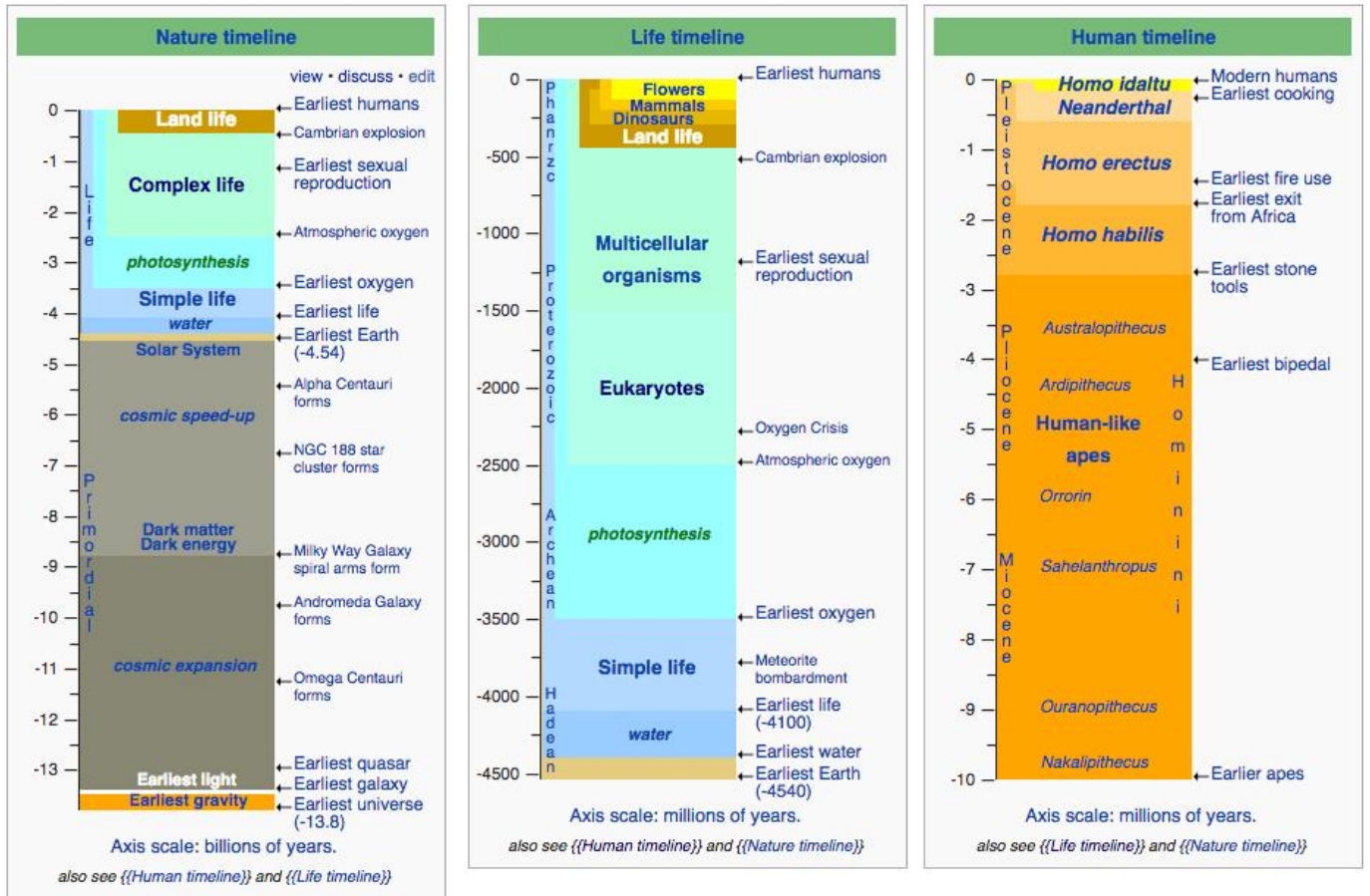
○ Level 1: The Creation of the Solar System:

○ Level 2: The Creation of the Earth-Moon System:

● The Evolution of Earth:

○ Level n:

● END:



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