

*This version of modern science's origin story pulls together and summarizes a great body of historical and scientific information.*

In the beginning, as far as we know, there was nothing. There was just darkness. Suddenly, from a single point, all the energy in the Universe burst forth. Since that moment 13.8 billion years ago, the Universe has been expanding — and cooling down as it gets bigger.

Gradually energy cooled enough to become matter. One electron could stay in orbit around one proton to become an atom of hydrogen. Great clouds of hydrogen atoms swirled around space. Then gravity pulled some atoms so close together that they began to burn as stars. Stars swirled together in giant clusters called galaxies; now there are galaxies numbering in the billions.

After each star burned up all its matter, it died in a huge explosion. The explosion generated so much heat that some atoms fused. As they joined together, they got more and more complex, forming many different elements, including gold and silver.

One giant star, our mother star, exploded and scattered clouds of gas containing all the elements needed to form living beings. About 5 billion years ago, gravity pulled these atoms into a new star: our Sun. The leftover pieces of matter stuck to each other and formed eight planets, which revolve around the Sun.

The third planet out, Earth, became our home. It was the perfect size — not too big, not too small — and the perfect distance from the Sun. If it had been too far it would be too cold to support life. Too close, and our planet would be too warm. A thin crust formed over Earth's hot interior, and the temperature was just right for water to form on parts of the surface. Gradually the chemicals in the water formed inside of membranes and got more complex until one-celled living things appeared, able to keep themselves alive and reproduce.

For 3 billion years these one-celled creatures reproduced almost exactly, but not quite. They gradually changed in response to their environment.

But they also changed their environment. They learned to burn fuel from the Sun, and they released oxygen into the atmosphere. The oxygen formed an ozone layer around Earth that protected life from the sun's rays.

## Creatures with many cells form

Eventually cells stuck together to form creatures with many cells. Plants and animals came out of the sea and onto land. They became more and more complex and aware, until about 100,000 years ago, more beings evolved from a shared ancestor with the species of apes.

Humans could talk in symbols and sing, dance, draw, and cooperate more than the other animals could. Humans learned to write and to collect their learning together so that it kept expanding. Humans increased in skills and in numbers. In some places, there were many people and too few big animals.

Then humans learned to grow their own food and herd their domestic animals. Some animals learned to cooperate with humans. They found new sources of food and animals helped them do work. This led to people living in larger and larger groups. These groups developed into cities and empires, using more and more of the resources of Earth. Humans collaborated and learned collectively in many ways; they traveled, traded, and exchanged inventions. They created vast civilizations of astonishing beauty and complexity.

Humans were always looking for more energy for their use. About 200 years ago, we learned to use the energy from coal. This hard rock, which we burn for energy, came from trees that grew more than 300,000 years ago, then were buried underground. Humans learned to burn oil — remains of tiny animals like plankton and algae buried long ago under the sea. As we burned these fossil fuels, the gases they released ascended into the atmosphere. The human need for more and more energy began to change the climate quickly.

Now humans are in a difficult situation — our population is increasing rapidly, fossil fuels are running out, we are pushing many plants and other animals into extinction. As a result, we are changing the climate. What are we humans going to do next?