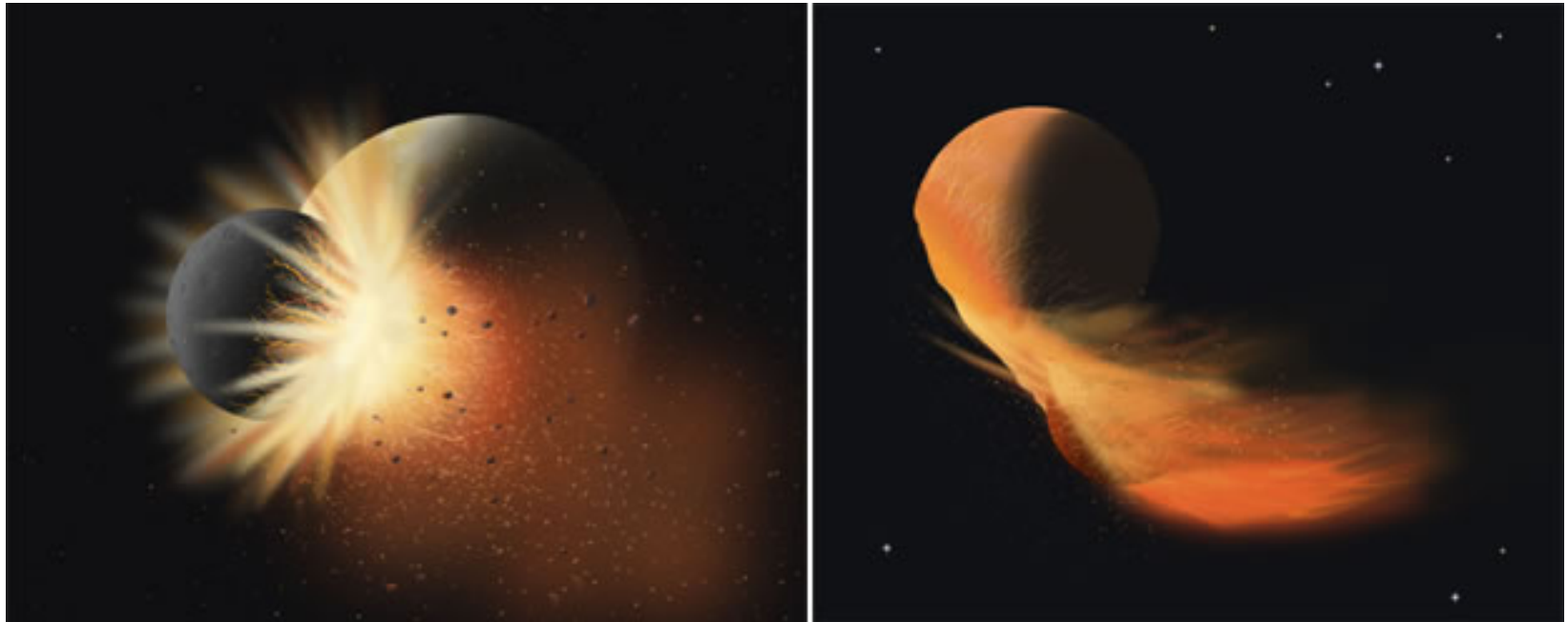




moonless Earth

Far back in history, 4.5 billion years ago, Earth did not have a Moon. The Earth itself had formed only recently. The young moonless Earth was a very different place. Much – perhaps all – of its surface was molten, there was no ocean or mountains or things living on it. Instead of a blue-green planet, Earth was glowing red with rivers and seas of lava.



Giant Impact!

For millions of years, Earth and another small planetary body orbited the Sun in the same region of our solar system.

The small planetary body's orbit brought it across Earth's path and they collided. The small planetary body smashed into Earth at twenty-five thousand miles per hour and plunged toward Earth's core. The energy of the impact disintegrated the small planetary body and melted Earth's outer layers. Shattered pieces of the outer layers of Earth and the small body were thrown into space. That debris was the beginning of our Moon.



Formation of Earth's Moon

Sections of the Earth's outer layers (mantle), together with debris from the small planetary body, were thrown into orbit around the Earth. For a time, Earth had a ring around it. Over a short time — perhaps a hundred years or less — the ring of gas, dust, and molten rock clumped. The pieces collided, and if they collided slowly enough, they stuck together. The clumps later grew massive enough to attract debris (through gravitational attraction). All the clumps and dust grew into our Moon.