



The Origin of our Solar System and the Earth

**Earth's formation,
along with the other planets,
is projected to have happened
4.6 billion years ago
from a solidified cloud of dust and
gasses left over from the creation of
the Sun.**

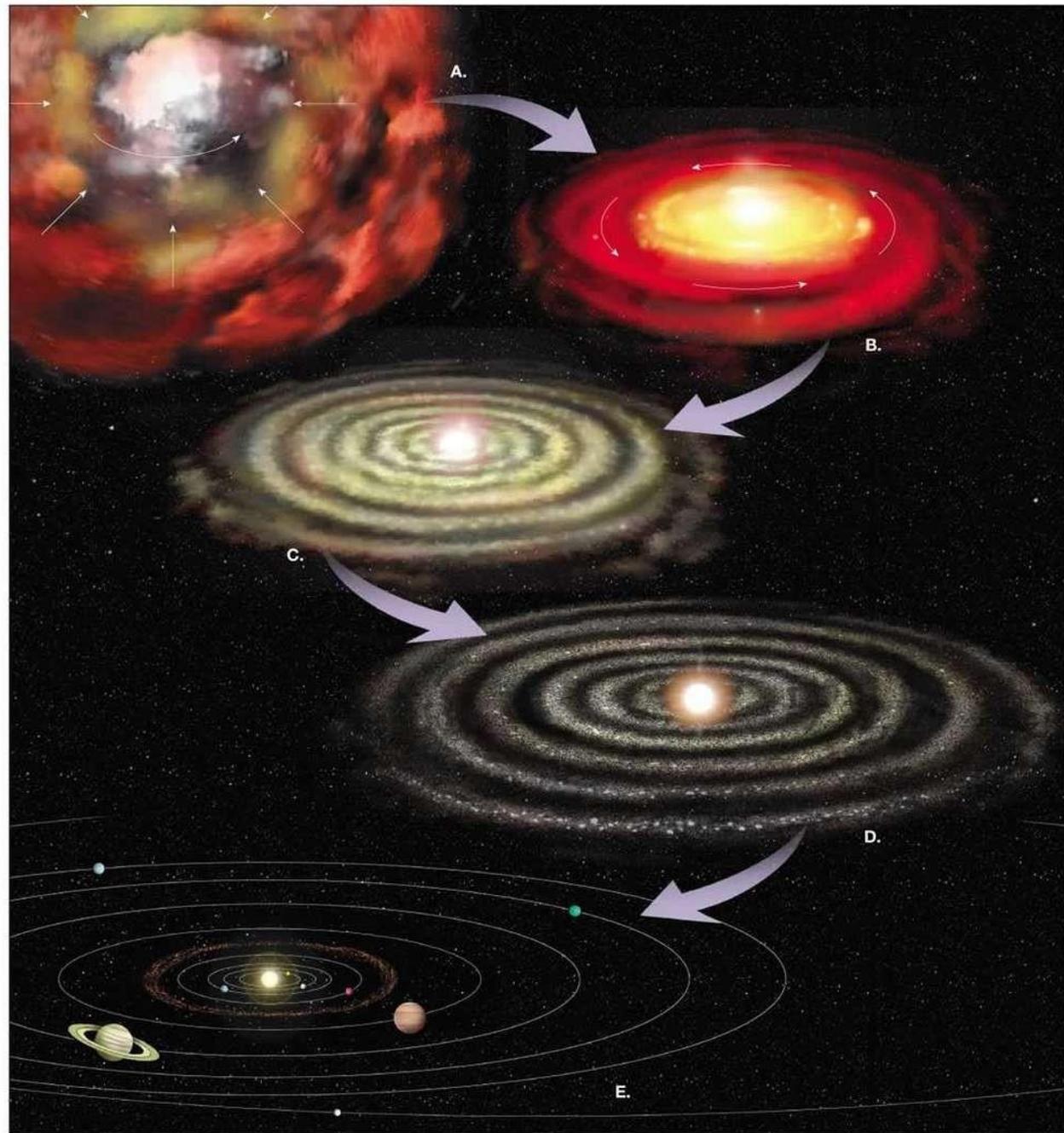
EARTH'S EARLIEST TIME:

THE PRECAMBRIAN

Geological Time Scale

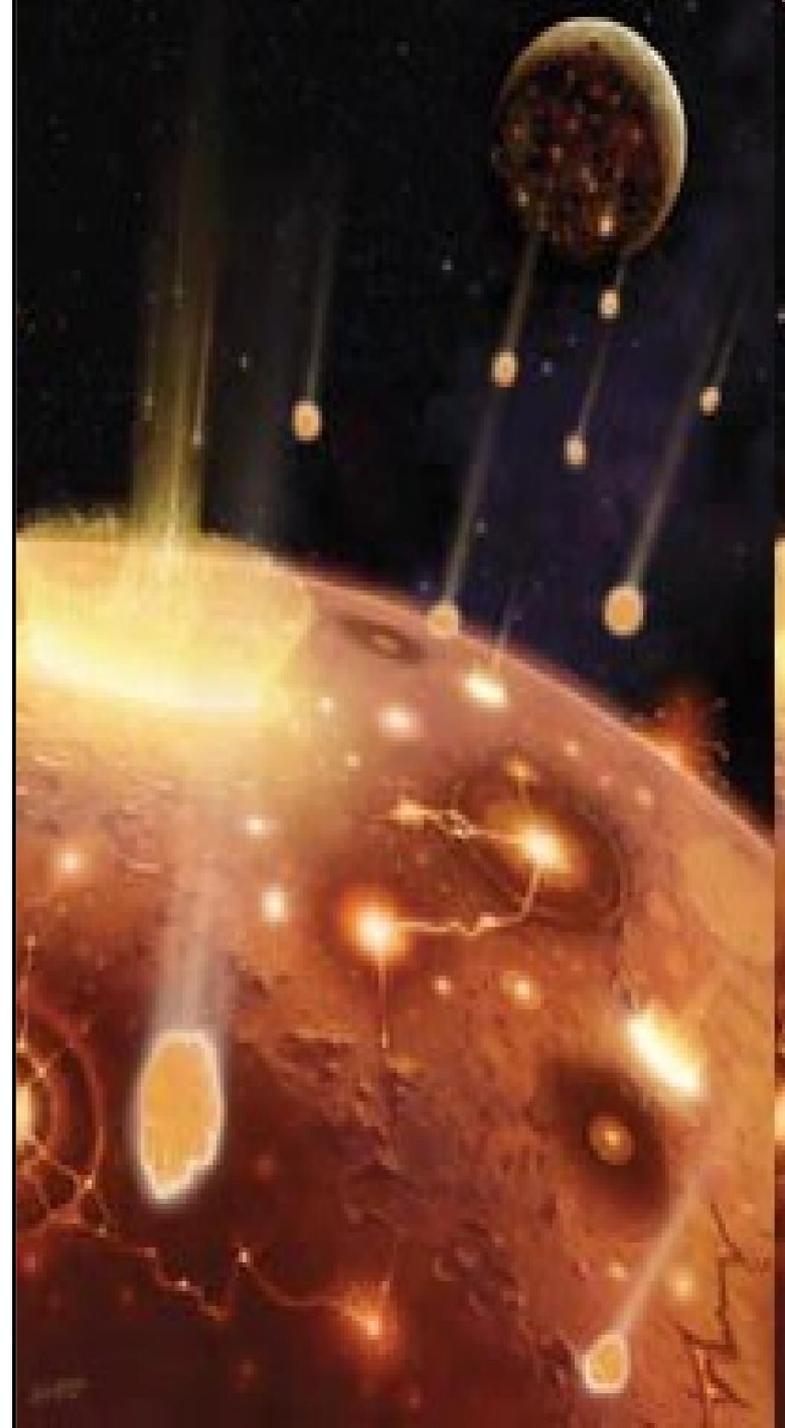
<https://www.britannica.com/science/geology/c-geology#:~:text=The%20geologic%20time%20scale%20is,periods%2C%20epochs%2C%20and%20ages.>

Solar Nebular Hypothesis



The Nebular Theory:

According to this theory a spherical mass of gas was rotating. It may be called as Sun. This nebula was rotating at fast speed. This rotation made outer shell denser and harder so it couldn't keep the pace rapid pace of the central core. These rings thrown out and turns into planets. In start earth and all other planets were in gaseous state and also thrown some rings that condensed into moon.



The Action Theory:

According to this theory Sun was without a family of planet and was going through the space, when another stellar (star) body approached and its gravitational force create tide on the surface is the sun. this tidal activity kept these stars to hit each other. The spiral arms of sun condensed into several other masses that turns into planets.

Chamberlain and Moulton's Theory:

According to this theory, the sun was periodically emitting eruption. A star came nearer it and produced tidal action over and above the eruption already taking place. Eruption arms become spiral and bent down and get separated. This eruption kept going and a bigger one cause formation of planets.

Rotational and Tidal Theory

Rossgunn combines the basic principal of rotational and tidal theories of Laplace and James jeans. At this stage another start came. According to him, a rapidly rotating star reached the breaking point, and both were deformed by tidal action. Then they separated, leaving a mass of tidal protuberance behind. This mass was condensed and the planets were formed.

Sphere of Earth

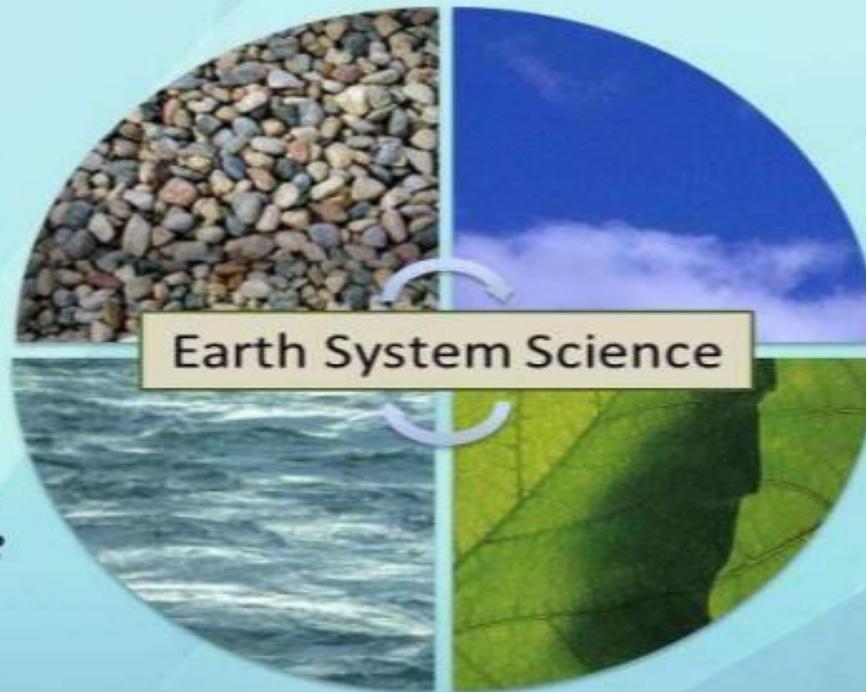
EARTH SPHERES

Lithosphere
solid Earth

Atmosphere
the gases that surround the Earth (its air)

Hydrosphere
all water found on, under, and over the surface of Earth

Biosphere
all life on Earth



Earth System Science

Interaction of the lithosphere, atmosphere, biosphere, and hydrosphere

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The Atmosphere:

Atmosphere, the gas and aerosol envelope that extends from the ocean, land, and ice-covered surface of a planet outward into space. The density of the atmosphere decreases outward, because the gravitational attraction of the planet, which pulls the gases and aerosols (microscopic suspended).

The Lithosphere:

Rigid, rocky outer layer of the Earth, consisting of the crust and the solid outermost layer of the upper mantle. It extends to a depth of about 60 miles (100 km).

The Hydrosphere:

Hydrosphere, discontinuous layer of water at or near Earth's surface. It includes all liquid and frozen surface waters, groundwater held in soil and rock, and atmospheric water vapor.

The Biosphere:

Biosphere, relatively thin life-supporting stratum of Earth's surface, extending from a few kilometers into the atmosphere to the deep-sea vents of the ocean. The biosphere is a global ecosystem composed of living organisms (biota) and the abiotic (nonliving) factors from which they derive energy.

Distribution of Land and Water

The 29% of the Earth's surface is constitutes by land mass and 71% is water.

