

Intro to Earth Science

Section I: The Study of Earth Science

Earth science is the study of the Earth and its place in the universe. Earth scientists use several big ideas to guide them. They look at the structure of the Earth's system, Earth's history, and Earth in the solar system. They also look at how forces have changed Earth's surface throughout its history, which includes both constructive and destructive forces. **Constructive forces** shape the Earth's surface by building mountains and landmasses. **Destructive forces** slowly wear away mountains and every other feature on Earth's surface.

A system is a group of parts that work together as a whole. Matter and energy are constantly moving from one part of the Earth system to another. Earth's systems include the atmosphere, lithosphere, cryosphere, hydrosphere, and biosphere. The **atmosphere** is a thin layer of gases that surround our planet. It allows for varied climate or long-term weather conditions. The **lithosphere** is a solid part of the Earth that is made up of rocks, minerals, and other elements not including the ocean. The **hydrosphere** is made up of all the water on Earth's surface, including lakes and oceans, and even the water over its surface like clouds. The hydrosphere is a major force that shapes weather and climate. The **biosphere** is the part of the planet where living things can be found from the upper atmosphere to the bottom of the oceans. The **cryosphere** includes the parts of Earth's surface where water is in solid form. It includes frozen water, sea ice, glaciers, and frozen ground.



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Earth scientists study the sphere on which we live, which includes several branches.

Geology is the study of forces that have shaped Earth. A geologist studies how rocks and minerals form. They study the causes of earthquakes and how volcanoes are formed. Some specialize in the study of soil, and some study rivers and lakes.

Oceanography is the study of everything ocean related, including the chemistry of the ocean water, the ocean floor, and marine organisms. Some scientists study the physical properties of oceans like waves and ocean currents. Others study the composition of ocean water and marine life.

Meteorology is the study of conditions in the atmosphere. A meteorologist looks at weather patterns and uses radars and satellites to predict the weather. **Astronomy** focuses on the solar system, stars, and galaxies. An astronomer uses telescopes and satellites to see things in space. They study planets and the universe as a whole.

Environmental science is the study of the Earth's environment and resources. It looks at the effects people have on the environment and finds ways to minimize the negative effects we have on the environment.