Unit 1: Introduction to Earth Systems
Parent Guide

Earth Systems- the study of the Earth as it has changed over time- is a multifaceted course in that it crosses many curriculums: Geology, Meteorology, Oceanography, Astronomy, and Environmental Science. Generally a teacher will break up the course into units that deal with each of the above sciences on their own. However, when one takes a closer look at the course, they will realize that these individual courses are intertwined and depend upon each other; thus the reason to call it Earth Systems.

The first unit is meant to allow the students to gain their footing and begin to build on their foundational knowledge from previously taught sciences. Starting at the beginning, the teacher will explain: the sciences that make up Earth Systems, the interactions of the spheres, and the explanation that the Earth is a SYSTEM. The Earth's place in the Solar System will be addressed in Unit 2.

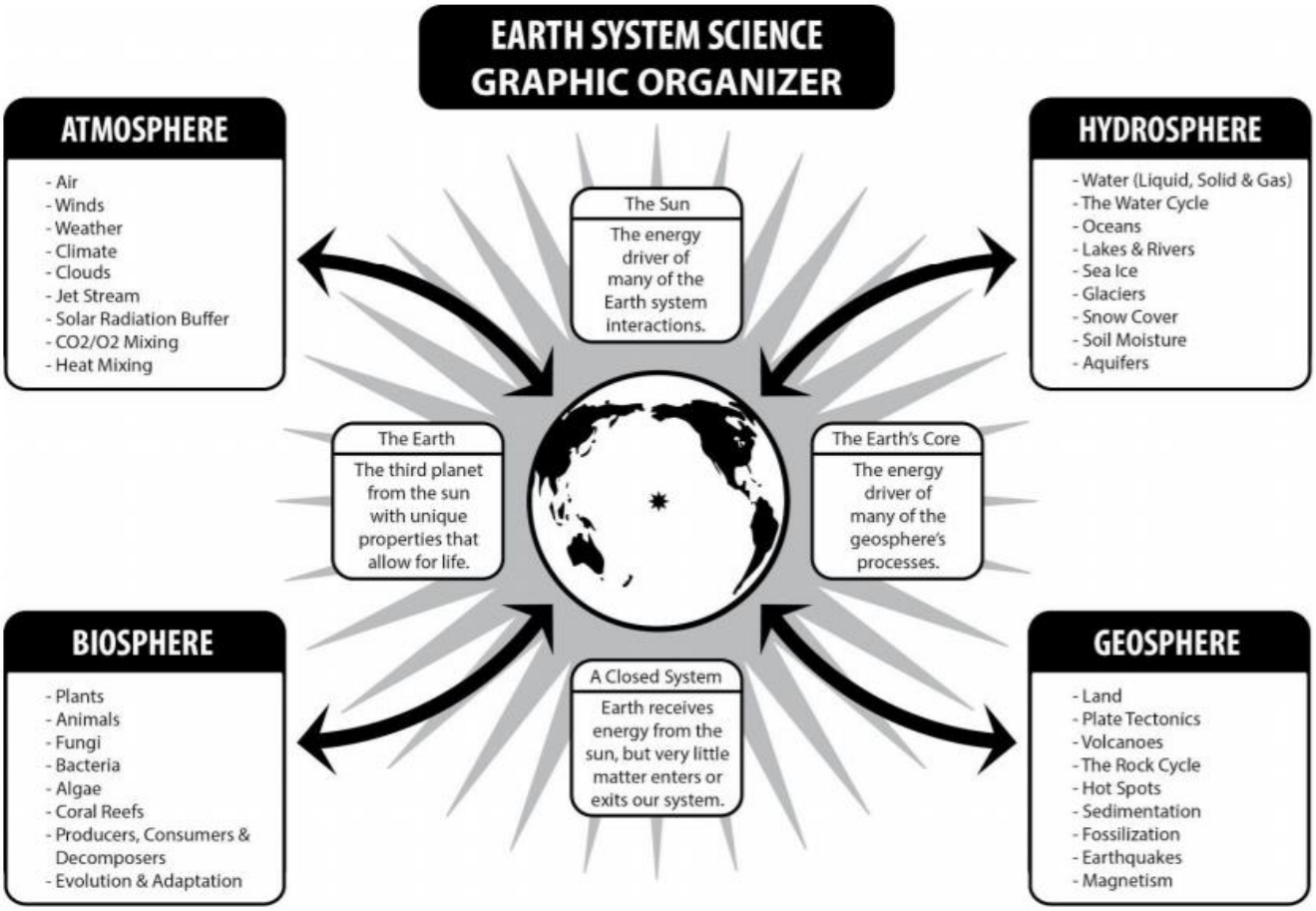
- ***Earth systems*** is the name for all the sciences that collectively seek to understand Earth and its neighbors in space. It includes ***geology, meteorology, oceanography, astronomy, and environmental science.*** Geology is traditionally divided into two broad areas—***physical*** and ***historical.***

- Earth's physical environment is traditionally divided into three major parts: the solid Earth or ***geosphere***; the water portion of our planet, the ***hydrosphere***; and Earth's gaseous envelope, the ***atmosphere***. In addition, the ***biosphere***, the totality of life on Earth, interacts with each of the three physical realms and is an equally integral part of Earth.

- Although each of Earth's four spheres can be studied separately, they are all related in a complex and continuously interacting whole that we call the ***Earth system***. ***Earth system science*** uses an interdisciplinary approach to integrate the knowledge of several academic fields in the study of our planet and its global environmental problems.

- A ***system*** is a group of interacting parts that form a complex whole. ***Closed systems*** are those in which energy moves freely in and out, but matter does not enter or leave the system. In an ***open system***, both energy and matter flow into and out of the system.

EARTH SYSTEM SCIENCE GRAPHIC ORGANIZER



Earth system science is the study of the relationships between air, land, life, and water, *in all its forms*, on our planet. Earth system scientists work to understand these interconnected systems.