

1.1 - Notes

Objectives

- Describe two cultures that contributed to modern scientific study.
- Name the four main branches of Earth science.
- Discuss how Earth scientists help us understand the world around us.

The Scientific Study of Earth

- **Earth science** the scientific study of Earth and the universe around it
- Scientific study of Earth began thousands of years ago with careful observations.
- For many centuries, scientific discoveries were limited to observations of phenomena that could be seen with the unaided eye.
- Earth science assumes that the causes of natural events, or phenomena, can be discovered through observation and experimentation.

Branches of Earth Science

- Scientists have used technology and hard work to build an immense body of knowledge about Earth.
- Most Earth scientists specialize in one of four major areas of study: the solid Earth, the oceans, the atmosphere, and the universe beyond Earth.

Geology

- **geology** the scientific study of the origin, history, and structure of Earth and the processes that shape Earth
- Geology includes many specialized fields of study, such as the study of earthquakes or volcanoes, exploration for natural resources such as coal and oil, and the study of Earth's history through the study of rocks and fossils.

Oceanography

- **oceanography** the scientific study of the ocean, including the properties and movement of ocean water, the characteristics of the ocean floor, and the organisms that live in the ocean
- Like geology, oceanography includes specialized fields. Some oceanographers study ocean water. Others study waves, tides, and ocean currents. Still others study the ocean floor or the organisms that live in the oceans.

Meteorology

- **meteorology** the scientific study of Earth's atmosphere, especially in relation to weather and climate
- Using satellites, radar, and other technologies, meteorologists study the atmospheric conditions that produce weather. They may use this information to prepare weather forecasts.
- Some meteorologists study *climate*, the patterns of weather that occur over long periods of time.

Astronomy

- **astronomy** the scientific study of the universe
- Astronomy is one of the oldest branches of Earth science.
- Modern astronomers use Earth-based and space-based telescopes, as well as other instruments, to study the sun, the moon, the planets, and the universe.

Environmental Science

- Environmental science is a relatively new field of Earth science that involves the study of the ways in which humans interact with their environment.
- Environmental scientists study many issues, such as the use of natural resources, pollution, and the health of plant and animal species on Earth.

The Importance of Earth Science

- Natural forces not only shape Earth but also affect life on Earth. By understanding how natural forces shape our environment, Earth scientists can better predict potential disasters and help save lives and property.
- The work of Earth scientists helps us understand our place in the universe.
- The study of Earth science can help people gain access to Earth's resources, and Earth scientists also strive to help people use those resources wisely.