

NEXT GENERATION SCIENCE STANDARDS
TOPICS BY GRADE LEVEL
EARTH SCIENCE
6TH GRADE

SPACE SYSTEMS

- Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons.
- Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.
- Analyze and interpret data to determine scale properties of objects in the solar system.

HISTORY OF EARTH

- Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history.
- Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.
- Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions.

EARTH'S SYSTEMS

- Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.
- Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.
- Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.

WEATHER AND CLIMATE

- Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions.
- Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.
- Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.

HUMAN IMPACTS

- Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.
- Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.

ENGINEERING DESIGN

- Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
- Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
- Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.
- Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

**Go to www.nextgenscience.org for Clarification Statements, Science and Engineering Practices, Disciplinary Core Ideas and Cross Cutting Concepts for each topic listed above. You will also find all of the connections to the Common Core for both ELA/Literacy and Mathematics.