

Earth Science Bookmark

Processes and Materials of the Geosphere

- Infer geologic events using features and dating techniques.
- Relate geologic features to plate tectonics.
- Describe evolution of scientific consensus and current questions being researched.*

Hydrogeology

- Compare ground and surface water systems.
- Evaluate sustainability of aquifers related to land use decisions.
- Design and conduct an investigation on a the local watershed.*
- Evaluate solutions and careers in hydrogeology.*

Atmosphere and Severe Weather

- Analyze variables to predict severe weather.
- Propose plans to reduce risk of severe weather.*
- Evaluate the uncertainties that limit forecasting precision.*

Oceans, Climate and Climate Change

- Explain the mechanisms that control climate.
- Explain historical climate change.
- Analyze changes in CO₂ and temperature.
- Analyze the assumptions and variables of climate change models.*
- Distinguish observations, hypotheses, laws, and theories in climate change research.*

Understanding Earth Systems Science

- Analyze the interactions of four earth-spheres as they relate to coral reef degradation.
- Track the movement of heat energy through the four spheres using a climatic scenario.
- Explain the Gulf of Mexico dead zone using biogeochemical principles.
- Evaluate the societal trade offs of various renewable and non-renewable resources.*

Astronomy

- Describe the physical nature and history of our galaxy and the universe.
- Describe evidence about galaxy and universe.
- Explain stellar processes of stars.
- Describe how discoveries in astronomy changed societal perspectives.*

*Inquiry, Reflection, and Social Implications.

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Biology Bookmark

Nature of Science / Science Inquiry

- Generate new questions.
- Evaluate scientific conclusions.
- Use models to predict results of inquiry.
- Conduct and design scientific investigations.

Organization of Living Systems

- All organisms are composed of cells .
- Multicellular organisms have cells specialized to carry out specific functions.
- Energy and matter transformations are required to supply cells with basic needs.
- Cells are composed of biomolecules – carbohydrates, fats, proteins and nucleic acids.
- Complex processes provide a stable internal environment through homeostasis.

Interdependence of Living Systems and the Environment

- Photosynthesis and cellular respiration are basic processes that support life.
- Ecosystems are supported by both biotic and abiotic factors.
- Matter is cycled in ecosystems (water, carbon, oxygen and nitrogen).
- Ecosystem stability results from biodiversity.
- Populations fluctuate as organisms interact with other species and the environment.
- Humans have tremendous impact on the environment.

Genetics

- Inherited traits result from genes that are passed from parent to offspring.
- Nucleic acids are biomolecules that contain protein assembly information.
- Cell division results in new cells for an organism as well as genetic information for offspring.
- Genetic variation is essential to biodiversity and population stability.

Evolution and Biodiversity

- Evolution provides a scientific explanation for the history of life on Earth.
- Molecular evidence supports kinship between species.
- Natural selection is the process that results in evolution.

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