

Down to Earth

Correlated Standards by Grade

NGSS=Next Generation Science Standards, ACOS=Alabama Course of Study, GPS=Georgia Performance Standards, GSE=Georgia Standards of Excellence, MSF=Mississippi Science Framework, TASS=Tennessee Academic Standards for Science



Grade 2

NGSS

.2-ESS2-2. Develop a model to represent the shapes and kinds of land and bodies of water in an area.

ACOS

SC.2.9. Create models to identify physical features of Earth.

MSF

TASS

2.ESS2,3, Compare simple maps of different land areas to observe the shapes and kinds of land and water.

2.ESS1,1, Recognize that some of Earth's natural processes are cyclical, while others have a beginning and end. Some events happen quickly, while others occur slowly over time.

GPS

Grade 3

NGSS

3-LS4-1. Analyze and interpret data from fossils to provide evidence of the organisms and environments in which they lived long ago.

ACOS

SC.3.9. Analyze and interpret data from fossils to provide evidence of organisms and the environments in which they lived long ago.

MSF

3.ES.4.A. Recall that soil is made up of various materials.

3.ES.4.G. Explain how fossil records are used to learn about the past, identify characteristics of selected fossils, and describe why they may be found in many places.

TASS

3.ESS1.1. Use data to categorize the planets in the solar system as inner or outer planets according to their physical properties.

GSE

S3E1. Obtain, evaluate, and communicate information about the physical attributes of rocks and soils.

S3E2. Obtain, evaluate, and communicate information on how fossils provide evidence of past organisms.

GPS

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S3E1. Students will investigate the physical attributes of rocks and soils.

S3E2. Students will investigate fossils as evidence of organisms that lived long ago.

Grade 4

NGSS

4-ESS3-1. Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.

ACOS

MSF

4.ES.4.G. Summarize the process that results in deposits of fossil fuels and conclude why fossil fuels are classified as nonrenewable resources.

TASS

4.ESS3.2. Create an argument, using evidence from research, that human activity can affect the land and ocean in positive and/or negative ways.

4.LS2.5. Analyze and interpret data about changes in the environment and describe what mechanisms organisms can use to affect their ability to survive and reproduce.

4.ESS3.1. Obtain and combine information to describe that energy and fuels are derived from natural resources and that some energy and fuel sources are renewable and some are not.

4.ESS1.1. Generate and support a claim with evidence that over long periods of time, erosion and deposition have changed landscapes and created new landforms.

4.ESS2.1. Collect and analyze data from observations to provide evidence that rocks, soils, and sediments are broken into smaller pieces through mechanical weathering.

GSE

GPS

Grade 5

NGSS

5-ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

5-LS1-1. Support an argument that plants get the materials they need for growth chiefly from air and water.

ACOS

SC.5.15. Use a model to represent how any two systems, specifically the atmosphere, biosphere, geosphere, and/or hydrosphere, interact and support life.

SC.5.16. Collect and organize scientific ideas that individuals and communities can use to protect Earth's natural resources and its environment.

SC.5.8. Defend the position that plants obtain materials needed for growth primarily from air and water.

MFS

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- 5.ES.4.D. Describe changes caused by humans on the environment and natural resources and cite evidence from research of ways to conserve natural resources in the United States, including Mississippi.
- 5.ES.4.G. Conclude that the supply of many Earth resources is limited and critique a plan to extend the use of Earth's resources.
- 5.LS.3.E. Give examples of how consumers and producers are related in food chains and food webs.

TASS

5.ESS1.7. Use evidence from the presence and location of fossils to determine the order in which rock strata were formed.

GSE

GPS

Middle School

NGSS

- MS-ESS2-2. Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.
- MS-ESS2-3. Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of past plate tectonics.
- MS-ESS3-4. Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

ACOS

- SC.6.8. Plan and carry out investigations that demonstrate the chemical and physical processes that form rocks and cycle Earth's materials.
- SC.6.9. Use models to explain how the flow of Earth's internal energy drives a cycling of matter between the Earth's surface and deep interior causing plate movements.

MFS

- 6.ESS.4.B. Draw conclusions about the historical processes that contribute to the shaping of planet Earth.
- 7.ESS.4.B. Explain the causes and effects of historical processes shaping the planet Earth.
- 8.ESS.4.B. Describe the cause and effect relationship between the composition of and movement within the Earth's lithosphere.
- 7.ESS.4.D. Conclude why factors, such as lack of resources and climate can limit the growth of populations in specific niches in the ecosystem.

TASS

- 8.ESS2.1. Analyze and interpret data to support the assertion that rapid or gradual geographic changes lead to drastic population changes and extinction events.
- 8.ESS2.4. Gather and evaluate evidence that energy from the earth's interior drives convection cycles within the asthenosphere which creates changes within the lithosphere including plate movements, plate boundaries, and sea-floor spreading.
- 6.ESS3.3. Assess the impacts of human activities on the biosphere including conservation, habitat management, species endangerment, and extinction.
- 6.LS2.3. Draw conclusions about the transfer of energy through a food web and energy pyramid in an ecosystem.

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8.LS4.1. Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change in life forms throughout Earth's history.

6.ESS2.4. Apply scientific principles to design a method to analyze and interpret the impact of humans and other organisms on the hydrologic cycle.

6.ESS3.2. Investigate and compare existing and developing technologies that utilize renewable and alternative energy resources.

GSE

S6E6. Obtain, evaluate, and communicate information about the uses and conservation of various natural resources and how they impact the Earth.

GPS

S6-8CS6. Students will communicate scientific ideas and activities clearly.

S6E6. Students will describe various sources of energy and with their uses and conservation.

High School

NGSS

HS-LS2-5. Develop a model to illustrate the role of photosynthesis and cellular respiration in the cycling of carbon among the biosphere, atmosphere, hydrosphere, and geosphere.

HS-LS2-3. Construct and revise an explanation based on evidence for the cycling of matter and flow of energy in aerobic and anaerobic conditions.

ACOS

ESS.HS.13. Analyze and interpret data of interactions between the hydrologic and rock cycles to explain the mechanical impacts and chemical impacts of Earth materials by water's properties.

ES.HS.14. Analyze cost-benefit ratios of competing solutions for developing, conserving, managing, recycling, and reusing energy and mineral resources to minimize impacts in natural systems.

ES.HS.1 Investigate and analyze the use of nonrenewable energy sources and propose solutions for their impact on the environment.

BIO.HS.6. Analyze and interpret data from investigations to explain the role of products and reactants of photosynthesis and cellular respiration in the cycling of matter and the flow of energy.

ES.HS.2. Use models to illustrate and communicate the role of photosynthesis and cellular respiration as carbon cycles through the biosphere, atmosphere, hydrosphere, and geosphere.

MSF

TASS

BIO1.LS1.9. Create a model of aerobic respiration demonstrating flow of matter and energy out of a cell. Use the model to explain energy transfer mechanisms. Compare aerobic respiration to alternative processes of glucose metabolism.

L.LS1.9. Construct a scientific explanation based on compiled evidence for the processes of photosynthesis, cellular respiration, and anaerobic respiration in the cycling of matter and flow of energy into and out of organisms.

BIO1.LS1.8. Create a model of photosynthesis demonstrating the net flow of matter and energy into a cell. Use a model to explain energy transfer from light energy into stored chemical energy in the product.

ESS.ESS2.6. Make and defend a claim based on evidence to describe the formation and on-going availability of mined resources such as phosphorus, platinum, rare minerals, rare earth elements, and/or fossil fuels.

GSE

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SES3. Obtain, evaluate, and communicate information to explore the actions of water, wind, ice, and gravity as they relate to landscape change.

SB4. Obtain, evaluate, and communicate information to illustrate the organization of interacting systems within single-celled and multi-celled organisms.

SB5. Obtain, evaluate, and communicate information to assess the interdependence of all organisms on one another and their environment.

SPS3. Obtain, evaluate, and communicate information to support the Law of Conservation of Matter.

GPS

SB3. Students will derive the relationship between single-celled and multi-celled organisms and the increasing complexity of systems. A. Explain the cycling of energy through the process of photosynthesis and respiration.

SB4. Students will assess the dependence of all organisms on one another and the flow of energy and matter within their ecosystems.