

Aquatic Adventures

Correlated Standards by Grade

Grade 2

NGSS

2-LS4-1. Make observations of plants and animals to compare the diversity of life in different habitats.

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

ACOS

SC.2.7. Obtain information from literature and other media to illustrate that there are many different kinds of living things and that they exist in different places on land and in water.

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

MSF

2.LS.3. Develop and demonstrate an understanding of the characteristics, structures, cycles, and environments of organisms.

2.I.1. Develop abilities necessary to conduct scientific investigations.

TASS

2.LS2.2. Predict what happens to animals when the environment changes.

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

2.ETS1,1. Define a simple problem that can be solved through the development of a new or improved object or tool by asking questions, making observations, and gather accurate information about a situation people want to change.

GPS

S2CS1. Students will be aware of the importance of curiosity, honesty, openness, and skepticism in science and will exhibit these traits in their own efforts to understand how the world works.

S2CS4. Students will use the ideas of system, model, change, and scale in exploring scientific and technological matters.

S2CS5. Students will communicate scientific ideas and activities clearly.

S2CS6. Students will be familiar with the character of scientific knowledge and how it is achieved.

S2CS7. Students will understand the important features of the process of scientific inquiry.

Grade 3

NGSS

3-LS1-1. Develop models to describe that organisms have unique and diverse life cycles but all have in common, birth, growth, reproduction, and death.

3-LS3-2. Use evidence to support the explanation that traits can be influenced by the environment.

ACOS

SC.3.6. Create representations to explain the unique and diverse life cycles of organisms other than humans, including commonalities such as birth, growth, reproduction, and death.

SC.3.8. Engage in argument from evidence to justify that traits can be influenced by the environment.

MSF

3.LS.3. Describe the characteristics, structures, life cycles, and environments of organisms. A, Research and explain diverse life forms live in different environments and the structures that serve different functions in their survival.

3.I.1. Apply concepts involved in a scientific investigation.

TASS

3.LS1.1. Analyze the internal and external structures that aquatic land animals and plants have to support survival, growth, behavior, and reproduction.

3.ESS2.1. Explain the cycle of water on Earth.

GSE

S3L2. Obtain, evaluate, and communicate information about the effects of pollution and humans on the environment.

S3L1. Obtain, evaluate, and communicate information about the similarities and differences between plants, animals, and habitats found within geographic regions.

GPS

S3L1. Students will investigate the habitats of different organisms and the dependence of organisms on their habitat.

S3L2. Students will recognize the effects of pollution and humans on the environment.

S3CS1. Students will be aware of the importance of curiosity, honesty, openness, and skepticism in science and will exhibit these traits in their own efforts to understand how the world works.

S3CS4. Students will use ideas of system, model, change, and scale in exploring scientific and technological matters.

S3CS5. Students will communicate scientific ideas and activities clearly.

S3CS6. Students will question scientific claims and arguments effectively.

S3CS7. Students will be familiar with the character of scientific knowledge and how it is achieved.

S3CS8. Students will understand the important features of the process of scientific inquiry.

Grade 4

NGSS

4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

ACOS

SC.4.9. Examine evidence to support an argument that the internal and external structures of plants and animals function to support survival, growth, behavior, and reproduction.

MSF

4.LS.3.C. Compare characteristics of organisms, including growth and development, reproduction, acquisition and use of energy, and response to environment.

4.I.1. Explain and use skills necessary to conduct scientific inquiry.

TASS

4.LS2.1. Support an argument with evidence that plants get the materials they need for growth and reproduction chiefly through a process in which they use carbon dioxide from the air, water, and energy from the sun to produce sugars, plant materials, and waste (oxygen); and that this process is called photosynthesis.

4.LS2.4. Develop and use models to determine the effects of introducing a species to, or removing a species from, an ecosystem and how either one can damage the balance of an ecosystem.

4.ETS2.2. Determine the effectiveness of multiple solutions to a design problem given the criteria and the constraints.

GSE

S4E3. Obtain, evaluate, and communicate information to demonstrate the water cycle.

GPS

S4E3. Students will differentiate between the states of water and how they relate to the water cycle.

S4L1. Students will describe the roles of organisms and the flow of energy within an ecosystem.

S4CS1. Students will be aware of the importance of curiosity, honesty, openness, and skepticism in science and will exhibit these traits in their own efforts to understand how the world works.

S4CS4. Students will use ideas of system, model, change, and scale in exploring scientific and technological matters.

S4CS5. Students will communicate scientific ideas and activities clearly.

S4CS6. Students will question scientific claims and arguments effectively.

S4CS7. Students will be familiar with the character of scientific knowledge and how it is achieved.

S4CS8. Students will understand the important features of the process of scientific inquiry.

Grade 5

NGSS

5-PS3-1. Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.

5-ESS2-2. Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.

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.

MFS

5.LS.3.B. Research and classify the organization of living things.

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.I.1. Develop and demonstrate an understanding of scientific inquiry using process skills.

GSE

S5L1. Obtain, evaluate, and communicate information to group organisms using scientific classification procedures.

S5L2. Obtain, evaluate, and communicate information showing that some characteristics of organisms are inherited and other characteristics are acquired.

GPS

S5L1. Students will classify organisms into groups and relate how they determined the groups with how and why scientists use classification.

S5CS1. Students will be aware of the importance of curiosity, honesty, openness, and skepticism in science and will exhibit these traits in their own efforts to understand how the world works.

S5CS4. Students will use ideas of system, model, change, and scale in exploring scientific and technological matters.

S5CS5. Students will communicate scientific ideas and activities clearly.

S5CS6. Students will question scientific claims and arguments effectively.

S5CS7. Students will be familiar with the character of scientific knowledge and how it is achieved.

S5CS8. Students will understand the important features of the process of scientific inquiry.

Middle School

NGSS

MS-LS1-4. Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively.

MS-LS2-2. Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.

MS-LS1-6. Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms.

MS-ESS2-4. Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.

MS-ESS3-3. Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.

ACOS

SC.7.10. Use evidence and scientific reasoning to explain how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of both animals and plants.

SC.7.5. Examine the cycling of matter between abiotic and biotic parts of ecosystems to explain the flow of energy and the conservation of matter.

SC.7.8. Construct an explanation to predict patterns of interactions in different ecosystems in terms of the relationships between and among organisms.

SC.6.16. Implement scientific principles to design processes for monitoring and minimizing human impact on the environment.

MFS

6.LS.3.D. Describe and summarize how an egg and sperm unite in the reproduction of angiosperms and gymnosperms. 6.LS.3.A. Describe and predict interactions (among and within populations) and the effects of these interactions on population growth that include the effects on available resources.

8.LS.3.E. Explain energy flow in a specified system.

8.ESS.4.C. Examine weather forecasting and describe how meteorologists use atmospheric features and technology to predict the weather.

- 6.I.1. Conduct a scientific investigation utilizing appropriate process skills.
- 7.LS.3.A. Assess how an organism's chances for survival are influenced by adaptations to its environment.
- 8.LS.3.A. Analyze how adaptations to a particular environment can increase an organism's survival and reproduction and relate organisms and their ecological niches to evolutionary change and extinction.
- 8.ESS.4.D. Research the importance of the conservation of renewable and nonrenewable resources, including Mississippi, and justify methods that might be useful in decreasing the human impact on global warming.

TASS

- 7.LS1.6. Develop an argument based on empirical evidence and scientific reasoning to explain how behavioral and structural adaptations in animals and plants affect the probability of survival and reproductive success.
- 6.LS2.3. Draw conclusions about the transfer of energy through a food web and energy pyramid in an ecosystem.
- 6.LS4.2. Design a possible solution for maintaining biodiversity of ecosystems while still providing necessary human resources without disrupting environmental equilibrium.
- 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

- S7L1. Obtain, evaluate, and communicate information to investigate the diversity of living organisms and how they can be compared scientifically.
- S7L4. Obtain, evaluate, and communicate information to examine the interdependence of organisms with one another and their environments.
- S6E4. Obtain, evaluate, and communicate information about how the sun, land, and water affect climate and weather. a. Analyze and interpret data to compare and contrast the composition of Earth's atmospheric layers and greenhouse gases.
- S6E3. Obtain, evaluate, and communicate information to recognize the significant role of water in Earth processes. b. Plan and carry out an investigation to illustrate the role of sun's energy in atmospheric conditions that lead to the cycling of water.

GPS

- S6E3. Students will recognize the significant role of water in earth processes.
- S6-8CS1. Students will be aware of the importance of curiosity, honesty, openness, and skepticism in science and will exhibit these traits in their own efforts to understand how the world works.
- S6-8CS5. Students will use ideas of system, model, change, and scale in exploring scientific and technological matters.
- S6-8CS6. Students will communicate scientific ideas and activities clearly.
- S6-8CS7. Students will question scientific claims and arguments effectively.
- S6-8CS8. Students will be familiar with the character of scientific knowledge and how it is achieved.
- S6-8CS9. Students will understand the important features of the process of scientific inquiry.
- S7L4. Students will examine the dependence of organisms on one another and their environments.

S7L1. Students will investigate the diversity of living organisms and how they can be compared scientifically.

High School

NGSS

HS-LS2-7. Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.

HS-LS2-6. Evaluate the claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem.

ACOS

ES.HS.6. Obtain, evaluate, and communicate information to describe how human activity may affect biodiversity and genetic variation of organisms, including threatened and endangered species.

ES.HS.4. Engage in argument from evidence to evaluate how biological or physical changes within ecosystems affect the number and types of organisms, and that changing conditions may result in a new or altered ecosystem.

BIO.HS.7. Develop and use models to illustrate examples of ecological hierarchy levels, including biosphere, biome, ecosystem, community, population, and organism.

MSF

HS.Bot.4.D. Research factors that might influence or alter plant stability and propose actions that may reduce the negative impacts of human activity.

HS.ESS.3. Discuss the impact of human activities on the environment, conservation activities, and efforts to maintain and restore ecosystems.

HS.B.3. Investigate and explain how organisms interact with their environment.

HS.Zoo.3. Differentiate among animal life cycles, behaviors, adaptations, and relationships.

HS.I.1. Apply inquiry-based and problem-solving processes and skills to scientific investigations.

TASS

BIO1.LS2.5. Analyze examples of ecological succession, identifying and explaining the order of events responsible for the formation of a new ecosystem in response to extreme fluctuations in environmental conditions or catastrophic events.

GSE

SEV1. Obtain, evaluate, and communicate information to investigate the flow of energy and cycling of matter within an ecosystem.

GPS

SG5. Students will apply geologic knowledge to the use of resources in the Earth and the control of human impacts on Earth's systems.

SBO4. Students will explore the defense systems of plants and recognize the impact of plant diseases on the biosphere.

SCSh1. Students will evaluate the importance of curiosity, honesty, openness, and skepticism in science.

SCSh3. Students will identify and investigate problems scientifically.