Oceans Theme Standards Connections

Next Generation Science Standards (Performance Expectations)

Kindergarten

From Molecules to Organisms: Structures and Processes	K-LS1-1	Use observations to describe patterns of what plants and animals (including humans) need to survive.
Earth's Systems	K-ESS2-2	Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.
Earth and Human Activity	K-ESS3-1	Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.
	K-ESS3-3	Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.

Grade 1

From Molecules to Organisms: Structures and Processes	1-LS1-1	Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.
	1-LS1-2	Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.
Heredity: Inheritance and Variation of Traits	1-LS3-1	Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.

Grade 2

Biological Evolution: Unity and Diversity	2-LS4-1	Make observations of plants and animals to compare the diversity of life in different habitats.
Earth's Systems	2-ESS2-1	Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.
	2-ESS2-2	Develop a model to represent the shapes and kinds of land and bodies of water in an area.
	2-ESS2-3	Obtain information to identify where water is found on Earth and that it can be solid or liquid.

Grade 3

From Molecules to Organisms: Structures and Processes	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.
Ecosystems: Interactions, Energy, and Dynamics	3-LS2-1	Construct an argument that some animals form groups that help members survive.
Biological Evolution:	3-LS4-2	Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.

Unity and Diversity	3-LS4-3	Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.
	3-LS4-4	Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.
Earth's Systems	3-ESS2-2	Obtain and combine information to describe climates in different regions of the world

Grade 4

Earth and Human Activity	4-ESS3-1	Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.
	4-ESS3-2	Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.

Grade 5

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

Grades 6-8

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

MS-LS2 Ecosystems: Interactions, Energy, and Dynamics	MS-LS2-1	Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.
	MS-LS2-2	Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.
	MS-LS2-3	Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.
	MS-LS2-4	Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.
	MS-LS2-5	Evaluate competing design solutions for maintaining biodiversity and ecosystem services.*

MS-ESS2 Earth's Systems	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 the past plate motions.
	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-ESS2-6.	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.

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	MS-LS2-5	Evaluate competing design solutions for maintaining biodiversity and ecosystem services.*

Grades 9-12

Human Impacts	HS-ESS3-1	Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.
	HS-ESS3-2	Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.
	HS-ESS3-4	Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.

21st Century Skills (Student Outcomes)

Core Subjects

Cluster	Indicator Statement
Environmental literacy	Demonstrate knowledge and understanding of the environment and the circumstances and conditions affecting it, particularly as relates to air, climate, land, food, energy, water and ecosystems
	Investigate and analyze environmental issues, and make accurate conclusions about effective solutions
	Take individual and collective action towards addressing environmental Challenges (e.g., participating in global actions, designing solutions that inspire action on environmental issues)

http://oceanliteracy.wp2.coexploration.org/ocean-literacy-framework/national-science-education-standards/