Science: Environmental Science

RESOURCES AND RESOURCE MANAGEMENT

1a Identify factors (e.g., human activity, population size, types of crops grown) that affect sustainable development in Louisiana. LC-HS-EVS1-1A

1b Identify factors (e.g., human activity, population size, types of crops grown) that affect natural resource management in Louisiana. LC-HS-EVS1-1B

2a Identify the effectiveness of management practices for one of Louisiana's natural resources related to social factors over the past 50 years. LC-HS-EVS1-2A

2b Identify the effectiveness of management practices for one of Louisiana's natural resources related to economic factors over the past 50 years. LC-HS-EVS1-2B

2c Identify the effectiveness of management practices for one of Louisiana's natural resources related to technological factors over the past 50 years. LC-HS-EVS1-2C

2d Identify the effectiveness of management practices for one of Louisiana's natural resources related to political factors over the past 50 years. LC-HS-EVS1-2D

3a Identify the risk-benefit values of implemented actions using data for selected environmental issues. LC-HS-EVS1-3A

3b Identify the risk-benefit values of implemented practices using data for selected environmental issues. LC-HS-ESV1-3B

ENVIRONMENTAL AWARENESS AND PROTECTION

1a Use data or qualitative scientific and technical information to evaluate a solution to limit a non-point source pollution (e.g., land or urban runoff, abandoned mines) into state waterways. LC-HS-EVS2-1A

2a Recognize the relationship between pollution and its effect on an organism's population size. LC-HS-EVS2-2A

2b Predict the effects that pollution as a limiting factor has on an organism’s population density using a model (e.g., mathematical, diagrams, simulations). LC-HS-EVS2-2B

3a Evaluate evidence supporting an argument regarding negative impacts of introduced organisms (e.g., zebra mussel, fire ant, nutria) have on Louisiana's native species. LC-HS-EVS2-3A

PERSONAL RESPONSIBILITIES	**1**	**Evaluate evidence supporting the positive consequences of using disposable resources versus reusable resources.** LC-HS-EVS3-1
	2	**Evaluate evidence supporting the negative consequences of using disposable resources versus reusable resources.** LC-HS-EVS3-2
EARTH'S SYSTEMS	**2a**	**Identify relationships, using a model, of how the Earth's surface is a complex and dynamic set of interconnected systems (i.e., geosphere, hydrosphere, atmosphere, and biosphere).** LC-HS-ESS2-2A
	4a	**Identify different causes of climate change and results of those changes with respect to the Earth's surface temperatures, precipitation patterns or sea levels over a wide range of temporal and spatial scales using a model.** LC-HS-ESS2-4A
	5a	**Identify a connection between the properties of water and its effects on Earth materials.** LC-HS-ESS2-5A
	5b	**Investigate the effects of water on Earth materials and/or surface processes.** LC-HS-ESS2-5B
	6a	**Use a model of photosynthesis to identify that carbon is exchanged between living and nonliving systems.** LC-HS-ESS2-6A
	6b	**Use a model of cellular respiration to identify that carbon is exchanged between living and nonliving systems.** LC-HS-ESS2-6B
	6c	**Develop and/or use a quantitative model to identify relative amount of and/or the rate at which carbon is transferred among hydrosphere, atmosphere, geosphere, and biosphere.** LC-HS-ESS2-6C
HUMAN SUSTAINABILITY	**1a**	**Explain the relationship between human activity (e.g., population size, where humans live, types of crops grown) and changes in the amounts of natural resources using evidence.** LC-HS-ESS3-1A
	1b	**Explain the relationship between human activity (e.g., population size, where humans live, types of crops grown) and changes in the occurrence of natural hazards using evidence.** LC-HS-ESS3-1B
	2a	**Identify a solution that demonstrates the most preferred cost-benefit ratios for developing, managing, and utilizing energy and mineral resources (i.e., conservation, recycling, and reuse of resources).** LC-HS-ESS3-2A
	2b	**Compare design solutions for developing, managing, and/or utilizing energy or mineral resources.** LC-HS-ESS3-2B
	3	**Use numerical data to determine the effects of a conservation strategy to manage natural resources and to sustain human society and plant and animal life.** LC-HS-ESS3-3

	4a Connect a technological solution (e.g., wet scrubber; baghouse) to its outcome (e.g., clean air) and its outcome to the human activity impact that it is reducing (e.g., air pollution). LC-HS-ESS3-4A
	6a Use representations to describe the relationships among Earth systems and how those relationships are being modified due to human activity (e.g., increase in atmospheric carbon dioxide, increase in ocean acidification, effects on organisms in the ocean (coral reef), carbon cycle of the ocean, possible effects on marine populations). LC-HS-ESS3-6A
ECOSYSTEMS: INTERACTIONS, ENERGY AND DYNAMIC	**1a** Recognize that the carrying capacities of ecosystems are related to the availability of living and nonliving resources and challenges (e.g., predation, competition, disease). LC-HS-LS2-1A
	1b Use a graphical representation to identify carrying capacities in ecosystems as limits to the numbers of organisms or populations they can support. LC-HS-LS2-1B
	4a Use a graphical or mathematical representation to identify the changes in the amount of matter as it travels through a food web. LC-HS-LS2-4A
	4b Use a graphical or mathematical representation to identify the changes in the amount of energy as it travels through a food web. LC-HS-LS2-4B
	6a Use evidence to identify how modest biological or physical changes versus extreme changes affect stability and change (e.g., number and types of organisms) in ecosystems. HS-LS2-LS2-6A
	6b Evaluate explanations of how living things in an ecosystem are affected by changes in the environment (e.g., changes to the food supply, climate change, or the introduction of predators). HS-LS2-LS-6B
	6c Evaluate explanations of how interactions in ecosystems maintain relatively stable conditions, but changing conditions may result in a new ecosystem. HS-LS2-LS-6C
	7a Describe how people can help protect the Earth's environment and biodiversity (e.g., preserving ecosystems) and how a human activity would threaten Earth's environment and biodiversity (e.g., pollution, damaging habitats, over hunting). LC-HS-LS2-7A
	7b Evaluate or refine a solution to changes in an ecosystem (biodiversity) resulting from a human activity. LC-HS-LS2-7B