Georgia Science

Environmental Science

Adopted 2016

Obtain, evaluate, and communicate information to investigate the flow of energy and cycling of matter within an ecosystem. SEV1	**a.** **Develop and use a model to compare and analyze the levels of biological organization including organisms, populations, communities, ecosystems, and biosphere.** SEV1.A
	b. **Develop and use a model based on the Laws of Thermodynamics to predict energy transfers throughout an ecosystem (food chains, food webs, and trophic levels).** SEV1.B
	c. **Analyze and interpret data to construct an argument of the necessity of biogeochemical cycles (hydrologic, nitrogen, phosphorus, oxygen, and carbon) to support a sustainable ecosystem.** SEV1.C
	d. **Evaluate claims, evidence, and reasoning of the relationship between the physical factors (e.g., insolation, proximity to coastline, topography) and organismal adaptations within terrestrial biomes.** SEV1.D
	e. **Plan and carry out an investigation of how chemical and physical properties impact aquatic biomes in Georgia.** SEV1.E
Obtain, evaluate, and communicate information to construct explanations of stability and change in Earth's ecosystems. SEV2	**a.** **Analyze and interpret data related to short-term and long-term natural cyclic fluctuations associated with climate change.** SEV2.A
	b. **Analyze and interpret data to determine how changes in atmospheric chemistry (carbon dioxide and methane) impact the greenhouse effect.** SEV2.B
	c. **Construct an argument to predict changes in biomass, biodiversity, and complexity within ecosystems, in terms of ecological succession.** SEV2.C
	d. **Construct an argument to support a claim about the value of biodiversity in ecosystem resilience including keystone, invasive, native, endemic, indicator, and endangered species.** SEV2.D
Obtain, evaluate, and communicate information to evaluate types, availability, allocation, and su: res	**a.** **Analyze and interpret data to communicate information on the origin and consumption of renewable forms of energy (wind, solar, geothermal, biofuel, and tidal) and non-renewable energy sources (fossil fuels and nuclear energy).** SEV3.A
	b. **Construct an argument based on data about the risks and benefits of renewable and nonrenewable energy sources.** SEV3.B

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	c. Obtain, evaluate, and communicate data to predict the sustainability potential of renewable and non-renewable energy resources. SEV3.C
	d. Design and defend a sustainable energy plan based on scientific principles for your location. SEV3.D
Obtain, evaluate, and communicate information to analyze human impact on natural resources. SEV4	**a.** Construct and revise a claim based on evidence on the effects of human activities on natural resources. - Human Activities - Agriculture - Forestry - Ranching - Mining - Water - Urbanization - Fishing - Water use - Pollution - Desalination - Waste water treatment - Natural Resources - Land - Water - Air - Organisms SEV4.A
	b. Design, evaluate, and refine solutions to reduce human impact on the environment including, but not limited to, smog, ozone depletion, urbanization, and ocean acidification. SEV4.B
	c. Construct an argument to evaluate how human population growth affects food demand and food supply (GMOs, monocultures, desertification, Green Revolution). SEV4.C
Obtain, evaluate, and communicate information about the effects of human population growth on global ecosystems. SEV5	**a.** Construct explanations about the relationship between the quality of life and human impact on the environment in terms of population growth, education, and gross national product. SEV5.A
	b. Analyze and interpret data on global patterns of population growth (fertility and mortality rates) and demographic transitions in developing and developed countries. SEV5.B
	c. Construct an argument from evidence regarding the ecological effects of human innovations (Agricultural, Industrial, Medical, and Technological Revolutions) on global ecosystems. SEV5.C
	d. Design and defend a sustainability plan to reduce your individual contribution to environmental impacts, taking into account how market forces and societal demands (including political, legal, social, and economic) influence personal choices. SEV5.D