

## Environmental Science (Yearlong) Science

Quarter 1		Quarter 2		Quarter 3	Quarter 4																						
Unit 1	Unit 2		Unit 3	Unit 4	Unit 5																						
6 Weeks	3 weeks	3 weeks	6 weeks	9 weeks	9 weeks																						
Ecology	Biological Diversity		Biogeochemical Cycles	Energy Resources	Human Population Impacts																						
<p><b>SEV1. Obtain, evaluate, and communicate information to investigate the flow of energy and cycling of matter within an ecosystem.</b></p> <p>a. Develop and use a model to compare and analyze the levels of biological organization including organisms, populations, communities, ecosystems, and biosphere.</p> <p>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).</p> <p>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.</p>	<p><b>SEV1. Obtain, evaluate, and communicate information to investigate the flow of energy and cycling of matter within an ecosystem.</b></p> <p>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.</p> <p>e. Plan and carry out an investigation of how chemical and physical properties impact aquatic biomes in Georgia.</p> <p><b>SEV2. Obtain, evaluate, and communicate information to construct explanations of stability and change in Earth's ecosystems.</b></p> <p>c. Construct an argument to predict changes in biomass, biodiversity, and complexity within ecosystems, in terms of ecological succession.</p> <p>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.</p>		<p><b>SEV2. Obtain, evaluate, and communicate information to construct explanations of stability and change in Earth's ecosystems.</b></p> <p>a. Analyze and interpret data related to short-term and long-term natural cyclic fluctuations associated with climate change.</p> <p>b. Analyze and interpret data to determine how changes in atmospheric chemistry (carbon dioxide and methane) impact the greenhouse effect.</p>	<p><b>SEV3. Obtain, evaluate, and communicate information to evaluate types, availability, allocation, and sustainability of energy resources.</b></p> <p>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).</p> <p>b. Construct an argument based on data about the risks and benefits of renewable and nonrenewable energy sources.</p> <p>c. Obtain, evaluate, and communicate data to predict the sustainability potential of renewable and non-renewable energy resources.</p> <p>d. Design and defend a sustainable energy plan based on scientific principles for your location.</p> <p><b>SEV4. Obtain, evaluate, and communicate information to analyze human impact on natural resources.</b></p> <p>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.</p> <p>c. Construct an argument to evaluate how human population growth affects food demand and food supply (GMOs, monocultures, desertification, Green Revolution).</p>	<p><b>SEV4. Obtain, evaluate, and communicate information to analyze human impact on natural resources.</b></p> <p>a. Construct and revise a claim based on evidence on the effects of human activities on natural resources.</p> <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Human Activities</th> <th style="text-align: center;">Natural Resources</th> </tr> </thead> <tbody> <tr><td>Agriculture</td><td>Land</td></tr> <tr><td>Forestry</td><td>Water</td></tr> <tr><td>Ranching</td><td>Air</td></tr> <tr><td>Mining</td><td>Organisms</td></tr> <tr><td>Urbanization</td><td></td></tr> <tr><td>Fishing</td><td></td></tr> <tr><td>Water Use</td><td></td></tr> <tr><td>Pollution</td><td></td></tr> <tr><td>Desalination</td><td></td></tr> <tr><td>Waste Water Treatment</td><td></td></tr> </tbody> </table> <p><b>SEV5. Obtain, evaluate, and communicate information about the effects of human population growth on global ecosystems.</b></p> <p>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.</p> <p>b. Analyze and interpret data on global patterns of population growth (fertility and mortality rates) and demographic transitions in developing and developed countries.</p> <p>c. Construct an argument from evidence regarding the ecological effects of human innovations (Agricultural, Industrial, Medical, and Technological Revolutions) on global ecosystems.</p> <p>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.</p>	Human Activities	Natural Resources	Agriculture	Land	Forestry	Water	Ranching	Air	Mining	Organisms	Urbanization		Fishing		Water Use		Pollution		Desalination		Waste Water Treatment	
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Environmental Science  
Science

4 x 4 Block

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