Subject Forth Science		Timefrome Needed for Completion, 16 days	
Subject: Earth Science		Timetrame Needed for Completion: To days	
Grade Level: 9			
Unit Title: Environmental Studies		Grading Period: 2 <sup>nd</sup> Nine Weeks	
Big Idea/Theme: Environmental Studies			
Understandings:			
• Explain how the lithosphere, hydrosphere, and atmosphere individually and collectively affect the biosphere.			
• Evaluate human behaviors in terms of how likely they are to ensure the ability to live sustainably on Earth.			
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Essential Skills/Vocabulary: (bold	Objectives:		
words are essential vocabulary)	EEn.2.7.1		
EEn.2.7.1 Explain how abiotic and	• Explain how biotic and abiotic factors determine biome classification		
biotic factors interact to	(temperature, rainfall, altitude, type of plant, latitude, type of animals).		
create the various biomes in	Compare impacts of biotic and abiotic factors on biodiversity.		
North Carolina.	• Match landforms and soils (and their change over time) to biomes.		
EEn.2.7.2 Explain why biodiversity is			
important to the biosphere.	EEn.2.7.2		
EEn.2.7.3 Explain how human	• Define the biosphere as all life on Earth.		
activities impact the	• Explain biodiversity as including genetic variation within populations		
biosphere.	and variation of populations within ecosystems that makeup the		
EEn.2.8.1 Evaluate alternative energy	biosphere.		
technologies for use in	• Infer the relationship between environmental conditions and plants and		
North Carolina.	animals that makeup live within various biomes that comprise the		
EEn.2.8.2 Critique conventional and	biosphere.		
sustainable agriculture and	• Explain the global impact of loss of biodiversity.		
aquaculture practices in			
terms of their	EEn.2.7.3		
environmental impacts.	• Explain effects of human population growth, habitat alteration,		
EEn.2.8.3 Explain the effects of	introduction of invasive species, pollution and overharvesting on		
uncontrolled population	various plant and animal species in NC.		
growth on the Earth's	• Explain effects of invasive nonnative species (plant or animal) on an		
resources.	NC ecosystem.		
EEn.2.8.4 Evaluate the concept of	• Summarize ways to mitigate human impact on	the biosphere	
"reduce, reuse, recycle" in			
terms of impact on natural	EEn.2.8.1		
resources.	• Critique the benefits, costs and environmental impact of various		
	alternative sources of energy for North Carolina	(solar, wind, biofuels,	
	nuclear fusion, fuel cells, wave power, geothern	nal).	
<b>Essential Questions:</b>	• Evaluate which sources of alternative energy m	ay work best in different	
How do human activities	parts of the state and why.		
affect the biosphere?	• Extension: Examine for region, country, contir	ent, hemisphere, and world.	
• How do the biomes in NC			

depend on human behavior? EEn

- What is the impact of the loss of biodiversity?
- Why is mitigating human impact on the environment so important?
- What human behaviors must change in order for us to live sustainably on earth?

EEn.2.8.2 • Critique the advantages and disadvantages of traditional

- agriculture/aquaculture techniques and compare with sustainable agriculture/aquaculture techniques. Include the economics and environmental impacts in this comparison.
- Judge potential impact of sustainable techniques on environmental quality (include magnitude, duration, frequency).

## EEn.2.8.3

- Explain carrying capacity.
- Infer limiting factors to human population growth.
- Summarize the impacts of a growing population on the natural resources in North Carolina

## EEn.2.8.4

- Explain how ecological footprints exist at the personal level and extend to larger scales.
- Evaluate personal choices in terms of impacts on availability of natural resources and environmental quality; relate this to ecological footprints on various scales.
- Evaluate the impact of implementing change that adheres to the
- "reduce, reuse, recycle" philosophy (e.g. through case studies, data collection/analysis, model development, etc.).

Note: Link to EEn.2.8.1 regarding alternative energy technologies.

<b>Resources Needed:</b>	Suggested Activities:	
<b>Environmental Science Textbook</b>	Cornell notes	
www.phschool.com (Cjk-9999)	Create NC Biome Postcards	
www.SciLinks.org	Biodiversity Dilemma Activity: http://ufdc.ufl.edu/UF00074644/00001/1j	
www.wiseowl.org	Writing Prompt: What is the global impact of loss of biodiversity?	
SAS Curriculum Pathways	Writing Prompt: What are the impacts of a growing population on North Carolina's natural resources.	
www.Learn360.com	Create PSA concerning the overharvesting of a plant species in NC.	
http://www.nclark.net/Diversity	Quizzes	
	Alien Invasion: http://www.enviroliteracy.org/pdf/materials/1248.pdf	
http://www.enature.com/home/	Writing prompt: What can be done to reduce the human impact on the biosphere?	
	Socratic Seminar-Alternative Energy Sources	
http://www.mobot.org/MOBOT/Res	The Lorax and Sustainable Development Activity http://www.tpwd.state.tx.us/learning/resources/activities/lorax.pht	
earch/unseengarden/matrix1.shtml	Write a position paper on conventional and sustainable agriculture and aquaculture practices in terms of their	
	environmental impacts.	
http://www.sms.si.edu/IRLSpec/i	Create a Prezi that critiques the benefits, costs, and environmental impact of various alternative energy sources for N	
ndex.htm	Carolina.	
http://maps.massgis.state.ma.us/	Alternative Energy Sources video (Learn 360)	
Biodiversity/BiodiversityDays.htm	BioDaVersity video http://www.countdown2010.net/daversity/	
	English Ivy Land Plant or Deadly Killer Activity	
	http://www.pbs.org/americanfieldguide/teachers/non_native/non_native_unit.html#1	
	Conduct an Earth System analysis of a natural disaster and present your findings in a powerpoint.	

Notes: Webquest can be found at phschool.com