

Teaching Units for High School Science Developed by

Duke University Graduate Students in Pharmacology 693/694

Master of Arts in Teaching (MAT)

http://sites.duke.edu/rise/duke-courses/pharm-693694/

Daily Lesson Plan

Co	urse Name: AP Environmental Science/AP Biology	⑧ Standard ⑧ Honors ● AP					
Ur	it Title: Ecological Health of the Ellerbe Creek	Day/Date: Day 12 of 16					
W	atershed and its Environmental Implications						
	_						
Re	Relevant NC Standard Course of Study Goal(s):						
•	Bio.2.1 Analyze the interdependence of living organisms with	n their environment.					
•	Bio.2.2 Understand the impact of human activities on the envi	ironment.					
•	• EEn.2.2 Understand how human influences impact the lithosphere.						
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	Specific Lesson Objectives						
Students will understand:							
1.	Interactions among living systems and with their environment	t result in the movement of					
	matter and energy relating to the significance of each to main	tain the health and sustainability					
	of an ecosystem.						
2.	2. Human activities (including population growth, urbanization, pollution, global warming,						
	burning of fossil fuels, habitat destruction, and introduction of non-native species) may						
	impact the environment from one generation to the next.						
3.	3. Humans influence freshwater availability and quality in North Carolina's river basins,						
	wetlands, and tidal environments.						
4.	The diversity of species within an ecosystem may influence the stability of the ecosystem.						
5.	Interactions between and within populations influence pattern	is of species distribution and					
	abundance.						
Sti	idents will know.						
1	How humans modify ecosystems through population growth	technology resource					
1.	consumption and production of waste	teennology, resource					
2	How to interpret data regarding the historical and predicted in	npact on ecosystems and global					
2.	climate change	ipuet on ecosystems and grobal					
3.	That urban development in the North Carolina Piedmont lead	s to habitat destruction and					
	urban runoff						
4.	The effects of pesticides, herbicides, and pharmaceuticals on	freshwater ecosystem health					
5.	Non-point sources of pollution	5					
6.	How biotic and abiotic factors affect biodiversity						
7.	How to evaluate the quality of North Carolina streams (chemi	cal & physical properties and					
	biotic indices)						
Stu	Students will be able to:						
1.	Read and interpret a primary, scientific journal article through	the lens of the scientific					
	method						
2.	Analyze collected scientific data						
3.	Write a scientific research paper that includes the introduction	n, materials and methods, results,					
1	discussion, and literature cited sections						

 Key Vocabulary for this Lesson

 • N/A
 Materials

 • N/A
 Technology Needs

 • Laptop cart

LESSON ACTIVITIES

Opening (Hook, Warm-Up, Anticipatory Set, Review, etc.)

Describe activity to elicit active involvement of students or refer to previous learning: Warm-up – Teacher will guide students through the intricacies of writing the introduction, materials and methods, results, discussion, and literature cited sections of a research paper. Students will learn how to cite using the *Ecology* format.

Procedure: Include all sections that apply to this lesson; combine as necessary.							
Section	Time	What the Teacher will do:	What the Students will do:				
Statement of Objective & Purpose	5 minutes	1. Teacher will provide an overview of the day: students will learn about how to write certain sections of a research paper and be informed how these sections are to be written; students will be assigned to new groups to begin writing their section of the paper	1. Listen				
Input, Modeling, & Check for Understanding	15 minutes	 Teacher will break expert groups up into the new groups of: Introduction, Materials and Methods, Results, and Discussion Teacher will reiterate the structure and importance of each section of an academic journal article Teacher will demonstrate how to cite sources using the <i>Ecology</i> format 	 Students will arrange themselves in their new groups to ensure each section (Introduction, Materials and Methods, Results, and Discussion) has an expert member Students will actively take notes and ask questions 				
Guided Practice	0 minutes	<i>N/A</i>	N/A				

Independent Practice/ Homework	65 minutes	1.	Teacher will spend time with each group to assist groups in the writing of their assigned sections and provide ideas as to how to present information	1.	Students will begin brainstorming and writing their sections of the research paper				
Closing/ Summary	5 minutes	1.	Teacher will ensure all laptops are returned to the cart	1.	Students will return laptops to carts				
		2.	Teacher will assign homework: students should continue writing their paper and creating their section of the literature cited section. They will email the literature cited section to the teacher for review and to concatenate into a single document	2.	For homework, students will continue writing their section of the paper and will email the teacher a copy of their section of the literature cited for review				
Assessment of Student Learning									
How & when will you know that the students have learned this material? Completed student research paper, presentation to Durham City Council									
			Differentiation Strategies*						
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and Methods section.						
How will you adjust aspects of the lesson to accommodate students' LEARNING PROFILES?						
N/A						
How will you adjust aspects of the lesson to accommodate students' INTERESTS?						
N/A						