

# Advanced Placement Environmental Science

## Summer Assignment



**Welcome to AP Environmental Science! This course is designed to be the equivalent of a one-semester, introductory college course in environmental science.** This course will follow the NC Standard Course of Study: <http://www.dpi.state.nc.us/curriculum/science/scos/2004/>

The goal of the AP Environmental Science course is to provide students with the scientific principles, concepts and methodologies required to understand the interrelationships of the natural world, to identify and analyze environmental problems both natural and human-made, to evaluate the relative risks associated with these problems and to examine alternative solutions for resolving or preventing them. Because it is designed to be a course in environmental science rather than environmental studies, the **AP Environmental Science course includes a strong laboratory and field investigation component.** The goal of this component is to compliment the classroom portion of the course by allowing the students to learn about the environment through firsthand observation.

**\*All students taking AP classes are encouraged to take the AP exam in that subject area.** The AP Environmental Science Exam is three hours long and is divided equally in time between a multiple-choice section and a free-response section. The use of calculators is NOT allowed on the exam. Classroom tests administered throughout the school year will be based on the format and difficulty of past AP exams. **All unit tests are 90 minutes long and include 50 multiple choice questions and 1 to 2 free response items, to mimic the AP exam.**

**The following assignments must be completed over the summer.** These assignments are designed to help you prepare for a successful semester in AP Environmental Science. All assignments are due upon the first day of your return to school, regardless of the semester in which you will take the course. You may turn them in to my mail box (B. Little) or to room 3612. If you need assistance over the summer, please contact me at [blittle1@wcpss.net](mailto:blittle1@wcpss.net).

### Part 1: Key Points and Vocabulary Assignment (lab grade)

You will be given a unit sheet listing the key points and relevant vocabulary for each unit in APES. Over the summer, we would like you to begin this process by defining the vocabulary listed below and completing an outline of each of the key points. The key points and vocabulary for the summer assignment review concepts that you must be familiar with before beginning the course. For some key points, a diagram is best. For others you may choose to outline, define or write a short summary. While the layout is up to you, all key points must be addressed. Throughout the course, you will receive several key points and vocabulary assignments. It is recommended that you decide on a format that works best for you, and stick with it throughout the course. This compilation of key points and vocabulary will be important for unit tests in class, and will also provide a study guide for the AP exam in May.

Vocabulary	Key Points
Hypothesis	The scientific method
Theory	Positive and negative feedback loops
Law	Building blocks of matter (atoms, molecules, elements, ions, isotopes, compounds)
Inductive reasoning	mixtures, protons, neutrons, electrons)
Deductive reasoning	The pH scale
System	High quality vs. low quality energy
Synergy	High quality vs. low quality matter
Biotic	Kinetic vs. potential energy
Abiotic	Electromagnetic radiation and wavelength
Ecosystem	The laws of thermodynamics
Biome	Food chains, food webs, trophic pyramids and relevant vocabulary.
Species	Plate tectonics, 3 boundary types and activity at boundaries
Population	The hydrologic cycle
Sustainability	Layers of the atmosphere and atmospheric composition
BMP (best management practices)	Major biomes and general characteristics
Degradable	
Biodegradable	
Persistence	

**Part 2: Field Notebook (lab grade)**

In class, you will need a composition book divided into three sections (outdoor observations, eco-column evaluations and laboratory exercises). Over the summer, we would like you to begin the outdoor observation section of the notebook. Evaluate the area in which you live. If you live in a single family home, please use your yard. If you live in a townhouse or apartment complex, please choose an area close to your home (green space or a commons area). If you will be away from home for a large portion of the summer, use the space in which you will be staying. Begin each of the topics on a separate page in the book, and continue for at least two pages. While you will primarily write your responses, please consider using sketches and diagrams to augment your observations. For each entry, please be sure to record the following:

- Date
- Time
- Current Weather Conditions

You will need to evaluate your environment for each of the following topics:

Topic to be addressed:	Suggestions for discussion and evaluation:
Abiotic Factors of the Environment	streams, rivers, ponds, lakes, bedrock in the area, soil characteristics, climate data for the area, precipitation, temperature, etc... discuss all abiotic components of the environment and how they will impact the biotic components of the ecosystem BE SPECIFIC
Mapping	find, print (or copy) and insert into your book the following maps of your area: topographic, watershed, satellite image(google earth)... discuss the placement of your environment within the larger environment (county, state, country, continent, world) BE SPECIFIC
Biotic Factors of the Environment	plants, animals, insects, etc... identify at least 10 organisms (you may also want to sketch them) and discuss all biotic components of the ecosystem and how they are impacted by the human involvement within the ecosystem, BE SPECIFIC
Human Interaction within the Environment	buildings, permanent structures, driveways, walking paths, etc... discuss the human interaction within the environment and how they impact the biotic and abiotic components of the environment as a whole, BE SPECIFIC
Sustainability	water usage, energy usage, construction materials, etc... discuss how you and your family can be more sustainable, BE SPECIFIC

\*Please turn in the entire notebook with your summer assignment, it will be returned to you for use when you begin the class.

**Part 3: Environmental Science Based Community Service (test grade - in combination with class assignment)**

For the course, you will need to accumulate 20 hours of environmental science based community service. The successful completion of two specific assignments in class will count as 2 of the 20 required hours. Five of the required hours should be completed as part of the APES Summer Assignment, and 5 hours will be required of you each quarter. You may use up to 10 hours of school based service (recycling, environmental club, guest speakers, etc...), and will need to connect your service to environmental science.

Please use the following as a template for documentation of all of your hours:

<b>Activity:</b>		<b>Location:</b>	
<b>Supervisor:</b>		<b>Dates:</b>	
<b>Hours of Service:</b>	<b>Proof:</b>		
<b>Connection to APES: (200 words)</b>			