



Environmental Science Syllabus 2017-2018



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Course Description:

The Environmental Science Georgia Standards of Excellence are designed to continue the student investigations that began in grades K-8. These standards integrate the study of many components of our environment, including the human impact on our planet. Students investigate the flow of energy and cycling of matter within ecosystems, and evaluate types, availability, allocation, and sustainability of energy resources. Instruction will focus on student data collection and analysis from field and laboratory experiences. Some concepts are global; in those cases, interpretation of global data sets from scientific sources is strongly recommended. Chemistry, physics, mathematical, and technological concepts will be integrated throughout the course as we analyze the complex issues concerning the challenges facing our environment. Whenever possible, careers related to environmental science will be emphasized. The Georgia Standards of Excellence can be reviewed at the following website (GSE – <https://www.georgiastandards.org/Georgia-Standards/Pages/Science.aspx>) The Literacy Standards for both Reading and Writing in Science will be incorporated on a daily basis. These standards can be located on the website https://www.georgiastandards.org/Georgia-Standards/Pages/CCGPS_Literacy.aspx .

Syllabus Objectives

| <u>Unit</u> | <u>Unit Title</u> | <u>Standards/Topics/Content</u> | <u>Corresponding Chapters in text</u> | <u>Approximate Time (weeks)</u> |
|-------------|-------------------------------|---|---------------------------------------|---------------------------------|
| 0 | Basic Skills | Course Introduction overview Basic science skills and habits of the mind | 1 | 2 weeks |
| 1 | Understanding the Environment | <p>SEV1. Obtain, evaluate, and communicate information to investigate the flow of energy and cycling of matter within an ecosystem.</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). (<i>Clarification statement:</i> The first and second law of thermodynamics should be used to support the model.)</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>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. (<i>Clarification statement:</i> Consider the diverse aquatic ecosystems across the state such as streams, ponds, coastline, estuaries, and lakes.)</p> | 2, 3, 5,13 | 4 weeks |
| 2 | The Living World | <p>SEV2. Obtain, evaluate, and communicate information to construct explanations of stability and change in Earth's ecosystems.</p> <p>a. Analyze and interpret data related to short-term and long-term natural cyclic fluctuations associated with climate change.</p> <p>(<i>Clarification statement:</i> Short-term examples include but are not limited to El Niño and volcanism. Long-term examples include but are not limited to variations in Earth's orbit such as Milankovitch cycles.)</p> <p>b. Analyze and interpret data to determine how changes in atmospheric chemistry (carbon dioxide and methane) impact the greenhouse effect.</p> | 4-6, 9,15-16 | 9 weeks |

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| | | <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> | | |
| 3 | Human Population and Pollution | <p>SEV3. Obtain, evaluate, and communicate information to evaluate types, availability, allocation, and sustainability of energy resources.</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><i>(Clarification statement: This may include, but is not limited to, the environmental, social, and economic risks and benefits.)</i></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> | 7, 11, 14-17 | 12 weeks |
| 4 | Energy Resource and consumption | <p>SEV4. Obtain, evaluate, and communicate information to analyze human impact on natural resources.</p> <p>a. Construct and revise a claim based on evidence on the effects of human activities on natural resources.</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> | 10-13 | 5 weeks |
| 5 | Sustaining Biodiversity & Human Societies | <p>SEV5. Obtain, evaluate, and communicate information about the effects of human population growth on global ecosystems.</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> | 8,10, 14, 18 | 6 weeks |

Text: *Environmental Science, 11th edition.* By G. T. Miller, Thomson Brooks/Cole, 2006; **Replacement cost: \$89.00 (Class Set)**
Materials (please bring daily to class): See list distributed in class

CLASSROOM RULES:

1. Obey **ALL** school rules.
2. Be polite and respectful always. **Listen when someone else is talking.** Respect other's property.
3. Be prompt, prepared (with required materials), alert and ready to learn. Follow all class/lab procedures.
4. Unacceptable behavior during a lab or class activity will result in a grade of ZERO for that activity.
5. **ABSOLUTELY No food or drinks** during laboratory exercises may be consumed in the classroom.
6. Chromebooks are to be charged daily and **only used when given permission, otherwise use will result in detention.**



CLASSROOM PROCEDURES:

1. Student Responsibility: You are expected to be respectful towards your teacher, classmates and the property of others. Correction of student misconduct will be according to Northview High School and Fulton County policies.

2. Grading Procedure:

Tests/Projects: 30% Labs: 20% Quizzes: 20% Formative Assessments: (Homework /Class-work) 15% Final Exam: 15%

3. Grading Scale: A= 90 and above B= 80-89 C=70-79 F= 69 and below

4. Seating Chart: Every student will be assigned initially a place to sit in the class. Seating assignments may be changed periodically.

5. Tardy Students: Students **must be in their seats** and ready to work when the bell rings.

Students are expected to be in class and ready to begin work **before** the tardy bell sounds. Upon the **first tardy** to any class during a six-week grading period, students will receive a written reprimand. Repeated tardiness to the same class will result in assignment of the following consequences.



- 2nd tardy.....one day private detention with teacher
- 3rd tardyreferral to administrator and two days public detention
- 4th & subsequent tardyreferral to administrator and one day Saturday Opportunity School

Tardies accumulate throughout each six-week grading period. At the start of each new six-week grading period, the tardy count restarts.

6. Leaving the Room: Students must use the time between classes to take care of personal matters. No student may leave the room during the **first & last 10 minutes of class. No lining up at the door before the bell rings.** A pass is ALWAYS required to leave the room.

7. Student Participation: Students are expected to pay attention and contribute to class discussion, activities and labs. This includes taking notes. Be an active learner. Do not be afraid to ask questions! If you don't understand something, please come in for help.

8. Honor Code Policy: As explained in the student handbook, cheating is defined as "the giving or receiving, in any form, information relating to a gradable experience." Violations of the honor code will result in a zero for the assignment, plus an honor code violation form placed in the student's disciplinary file. Read the handbook carefully to fully understand what constitutes a violation. The Honor Code policy will be strictly enforced.

9. Formative Assessments: Homework and Classwork will be assessed regularly. It may be graded based on accuracy or for completion/effort only. Classwork is comprised of activities that we do in class but are not labs. **In addition to assigned homework, students are expected to read during allotted class time in the textbook.**

10. Late Work: All work is due at the beginning of class on the date it is due. Late homework will be accepted for 50% credit up until the unit test date. Labs and projects will be accepted late for a penalty of 10% each day.

11. Make-up Work: **You are responsible for making up all missed work.** You will have 1 day per excused absence day to make up the work. **Labs, tests and quizzes must be scheduled promptly with the teacher upon return.** Pop quizzes do not need to be made-up. **You will have 1 week to make-up any missed labs** unless there are verifiable, extenuating circumstances. Assignments issued prior to the absence, including tests and quizzes scheduled for the day of return, are due upon the student's return. Students who are present for any portion of the school day (i.e. field trip) are expected to turn in all assignments due on that day to receive full credit. An excused absence makes the student eligible to receive full credit for making up the work missed. Extracurricular activities are not an excuse for not having time to do make-ups. Failure to make up a test or lab results in a grade of zero. **Make-up work is to be signed, dated and handed directly to the teacher.**

12. Missed Work: There will be a “Missed Work” binder in the room. I will place a copy of the weekly agenda, listing activities and homework, and any handouts for each day in the binder. **It is your duty to check the binder and get the material (notes, homework, handouts) that you missed.** A good idea is to have a “study buddy” to copy notes from and keep you informed.

13. Quizzes and Tests: Scheduled and “Pop” quizzes will be given to assess the level of student’s understanding. There will be a test after the completion of every chapter or unit. Lab Performance Assessments and projects will be counted as a test or quiz grade.

14. Notebooks: Notebooks will include the syllabus, handouts, notes, labs, class work, homework, and quizzes/tests. Please save **all** your work to study for your cumulative semester and final exam.

15. Lab Experiments: There will be virtual lab experiments and numerous hands-on activities in this course. It is critical that you listen carefully to instructions and perform the labs in a safe and accurate manner. Responsible lab behavior is expected of all students. Lab equipment is shared among all classes, so you will be responsible for paying for the replacement of any lab equipment that you break. Splash goggles and closed-toed shoes are required for labs involving chemical use.



16. Help Sessions: Extra help is available before and after school. Please see your teacher to arrange a mutually agreeable time.

17. Provision for Improving Grades (Opportunities designed to allow students to recover from a low or failing cumulative grade will be allowed when all work required to date has been completed and the student has demonstrated a legitimate effort to meet all course requirements including attendance. Students should contact the teacher concerning recovery opportunities. Teachers are expected to establish a reasonable time period for recovery work to be completed during the semester. All recovery work must be directly related to course objectives and must be completed ten school days prior to the end of the semester. Teachers will determine when and how students with extenuating circumstances may improve their grades.

Recovery Policy

1. Recovery is for students who, despite a conscientious effort and communication with their teachers, have failed to demonstrate satisfactory understanding of course standards. It is not for the student who has been failing for many weeks and then wishes to recover during the final days of the course. Opportunities for students to recover from a 74 or below *cumulative* average will be provided when all work required to date has been completed and the student has demonstrated a legitimate effort to meet all course requirements. *Students who have not attempted to complete all course requirements are not eligible for recovery.*
2. Students may initiate recovery on major assessments starting with the second major assessment of the semester as long as they have made a legitimate effort to meet all course requirements including attendance. Unexcused absences may prevent this opportunity. So that students stay focused on the content at hand and don’t become overwhelmed and fall too far behind, they must initiate recovery on a major assessment within five school days of being informed of the grade on that assessment. Recovery work must be completed within ten school days prior to the end of the semester. The nature and type of recovery assignment is given at the discretion of the teacher.

18. Progress Reports: Progress reports will be issued every six weeks. Parents/guardians may access their children’s assignments, grades, attendance, and discipline records via **Home Access Center**. Please visit www.northviewhigh.com. Your student will receive a code to connect to both Edmodo virtual classroom and the google classroom for weekly assignments.

