**North Kitsap High School AP Environmental Science 2021-2022 Instructor – Dave Mundy 360-396-3135 dmundy@nkschools.org**

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Course Overview: *Welcome to APES!*

Environmental science is an interdisciplinary science that incorporates the fields of biology, ecology, geology, atmospheric sciences, and chemistry, and also integrates the study of environmental issues from a sociological and political perspective. The AP Environmental Science course is designed to provide a broad and comprehensive introduction to the field of environmental science, and to prepare students for the AP test. The course is the equivalent of a college introductory course in environmental science.

By participating in this course, students will:

* Develop an understanding of and appreciation for the Earth’s systems and the interrelationships of the natural world;
* Identify & analyze environmental problems, and examine solutions for resolving or preventing them;
* Demonstrate the ability to apply scientific skills and follow scientific processes;
* Develop collaborative relationships with other APES students.

*This is a rigorous course that requires a significant time commitment!* It is a terminology-intensive subject and the scope of topics that we will cover is broad and comprehensive. To be successful and to be prepared for quizzes, tests, and the AP exam, you should plan on daily homework and review outside of class. There is also a required community service and career exploration component that will entail making connections with individuals in our community and participating in internships.

🌎 ***It is important that you attend class regularly and come to class prepared to learn. Since a large part of class time is spent doing hands-on labs and activities, students are expected to read and take notes for homework on a regular basis.* There is a direct correlation between homework completion and test scores!**

🌏 ***You are responsible for understanding the concepts, and will be assessed on your understanding frequently. If you miss classes or are struggling with understanding concepts, it is imperative that you make arrangements with me as soon as possible to make up work or receive extra help. I am generally available by appointment before and after school, as well as during tutorials. I also encourage you to form student study groups to meet on your own time with your fellow APES students.***

🌍 ***All students are expected to abide by the behavior and lab safety guidelines established by the instructor and by North Kitsap High School.***

Course Text: *LIVING IN THE ENVIRONMENT* (Miller) Supplemental Text: *BIOZONE ENVIRONMENTAL SCIENCE STUDENT WORKBOOK*

Required Materials: 3-ring binder and folders for organizing notes, handouts, reflections, labs, reports, etc.

Composition/lab book

*Students who are considering taking the AP exam in May are strongly encouraged to purchase one or more test review publications, such as The Princeton Review or Barron’s study guides.*

Course Evaluation:

Quiz and test scores – 40%

Major projects, labs and in-class assignments, presentations, reports – 60%

Labs and Field Studies: The class will include weekly lab work and periodic field studies. Some labs will be informal and pre-designed, however one or two labs per quarter will be designed by student lab teams and will culminate in a formal lab report.

Homework, Classwork and Projects: There will be regular homework assignments using both the textbook and the supplemental student workbook (see the attached page for details), as well as additional readings, reviews, videos and research assignments. You are required to use a composition book for specific assignments, and should use a binder for keeping additional work. There will be numerous research projects throughout the year which may entail writing reports, creating presentations and displays, constructing models, or demonstrating understanding using other formats. About once every quarter there will be a project that requires students to give a presentation to their peers. There will be a test based on AP test format at the end of each unit of study, as well as quizzes and practice tests for each unit. Following the AP test in May you’ll focus on a final project until the end of the school year.

Due Dates: Assignments must be submitted on the due date to receive full credit. Assignments turned in within a week of the due date will receive ½ credit. After one week no credit will be given. Assignments missed due to absence must be made up promptly. In general, students will have as many days to make up work following an absence as the number of classes missed. Labs must be made up within one week.

**Major Units of Study, Labs, Projects and Assignments**

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| --- | --- | --- | --- |
| **UNITS OF STUDY** | **Topics** | **Labs** | **Projects & Assignments** |
| INTRODUCTION TO ENVIRONMENTAL SCIENCE AND SUSTAINABILITY (~1 week) | Environmental Problems  Systems, Matter & Energy  Environmental Worldviews  Sustainability | Salinization  Quadrat Sampling  Life in Soil | Ecowalk Scavenger Hunt  Tragedy of the Commons  Ecological Footprint |
| UNIT 1: EARTH’S SYSTEMS  (~4 weeks) | Geology & Plate Tectonics  Atmospheric Science  Global Water Resources  Rocks & Soils | Specific Heat & Climate  Coriolis Effect  Properties of Soils  Rocks & Minerals | Climate Graphs  Earth History Time Scale  Geologic Processes  Water Distribution |
| UNIT 2: ECOLOGY, ECOSYSTEMS, AND POPULATION STUDIES  (~11 weeks) | Biomes & Energy Flow  Biogeochemical Cycles  Population Studies  Investigating Ecosystems | Winogradsky Columns  Primary Productivity  Owl Pellets  Duckweed Populations | Evolution & Biodiversity  Biomes Presentation  Species Interactions  Food Webs & Trophic Levels |
| UNIT 3: GLOBAL RESOURCES (~8 weeks) | Agriculture & Fisheries  Land Management  Energy Resources  Energy Conservation | Renewable Energy Sources  Cookie Mining  Solar Energy Systems  Geothermal Energy | Fossil Fuels  Global Fisheries  Food Awareness Challenge  Pest Management |
| UNIT 4: POLLUTION AND GLOBAL CHANGE (~8 weeks) | Air & Water Pollution  Ozone  Global Climate Change  Conserving Biodiversity | Environmental Pollutants  Acidification  Greenhouse Warming  Particulates & Exhaust | Climate Change  Acidification  Oil Spills  Hydraulic Fracturing |

The AP Test:   
The AP test consists of a 100-item multiple-choice exam that comprises 60% of the student’s score, along with four free response questions that comprise 40% of the student’s score. One of the free response questions will be document-based, and one is likely to include a data set. The following topics are tested in the approximate percentages indicated below:

*· Earth Systems* *and Resources* (10-15%) *· The Living World* (10-15%)

*· Populations* (10-15%) *· Land and Water Use* (10-15%)

*· Energy Resources and Consumption* (10-15%) *· Pollution* (25-30%)

*· Global Change* (10-15%)

**APES COMMUNITY SERVICE PROJECT AND CAREER EXPLORATION**

You are required to arrange a minimum of six hours of environmental service and/or environmental career exploration opportunities. At least three hours must be completed by the end of the first semester. A grade will be given at the end of each semester in the “projects” grading category (equal to about four labs or in-class assignments). These experiences may take on the form of volunteer positions with local environmental organizations or agencies, job-shadowing, or environmental enhancement projects. You will need to document your hours of service and provide verification of participation.

**LIVING IN THE ENVIRONMENT READING GUIDES**

Reading guides for chapters in the textbook that correspond to each unit of study will be assigned throughout the year. Due dates will vary; you will generally have between 1 to 2 weeks to complete the currently assigned reading guide.

**BIOZONE ENVIRONMENTAL SCIENCE STUDENT WORKBOOK**

This supplemental workbook is an ideal companion resource to the APES curriculum, and will be used as the primary (but not only) source of homework assignments for this class. Please familiarize yourself with the layout and features. You will be submitting your workbook each month for scoring, along with a separate composition book that will include additional BIOZONE Workbook-based assignments.

**APES Lab Safety Agreement**

You must assume responsibility for the safety of yourself and your peers. These safety rules will help guide you in protecting yourself and others from injury.

1. **Remember: The science lab is to be used for serious work and mature behavior is necessary at all times.**
2. **Inappropriate behavior will result in removal from the lab and loss of credit.**

**Things to think about before you begin:**

1. Wear the safety equipment provided, such as goggles and aprons.
2. Know what you need to do before you start to work. If you have any questions about the procedures ask for clarification before you begin.
3. Know the location of the safety equipment.
4. Long hair should be tied back.
5. No eating or drinking is allowed in the lab.

**Techniques:**

1. Handle chemicals carefully. Check the labels of all bottles before removing the contents. Do not return unused chemicals to the reagent bottles.
2. Handle combustible materials carefully. Keep them away from open flames.
3. Handle toxic or combustible gases only under the direction of your teacher.
4. When heating a substance in a test tube, do not point the open end at yourself or another person.
5. No unauthorized experiments will be performed.
6. Never taste any chemical substance. Do not use your mouth to pipet anything.
7. Do not pick up hot objects or place them on paper towels. Be cautious when checking to see if they have cooled.
8. Use the wafting technique to determine the odor of a substance.

**What to do if....**

1. Small fires can be smothered with wet paper towels. If clothing should catch fire, smother it with the fire blanket. Above all, do not run.
2. Place broken glass and solid substances in the designated containers. Keep insoluble waste materials out of the sink.
3. If a chemical spill or splash to the eye has taken place, irrigate your eye with water for at least 15 minutes. Start immediately.
4. Report any accident, injury or incorrect procedure to your teacher at once.
5. If you a corrosive chemical on yourself, wash it off immediately with lots of water.
6. Notify your teacher of any major spill and use the proper chemical to neutralize acid or base spills.

**As you finish:**

1. Dispose of chemical solutions in the proper containers. Do not pour them down the sink.
2. Clean and return all materials to their proper place.
3. Be sure the water and gas are off.
4. Wash your hands at the end of each lab period.

**AP ENVIRONMENTAL SCIENCE PARENT/STUDENT CONTRACT Please return this contract no later than Tuesday, 9/7**

The purpose of this contract is to provide information to parents and students and to facilitate students’ success in an academically challenging course. Please read the course syllabus carefully and the list of expectations below, then sign the form at the bottom confirming your understanding and commitment to AP Environmental Science.

Expectations of AP Environmental Science students:

1. I recognize that participation in APES requires me to demonstrate increased student independence and take on a high degree of responsibility.

2. I understand that APES is the equivalent of a college level course and therefore, requires the same amount of work as a college level course (approximately 1 – 2 hours of independent study for each hour of class).

3. I understand the class guidelines and expectations, and the policies established by the instructor pertaining to grading, late work, absences and academic honesty.

4. I understand that in order to cover everything that may appear on the APES exam in May, this course must proceed at a rapid pace. Therefore, I must attend classes and review sessions, and complete all class work to prepare.

5. I recognize that the material covered in APES is extremely challenging. I also recognize that while my grade in this course and the score I receive on the AP exam matter, the amount and quality of knowledge I take from this class to college is most important.

6. I recognize that **I** am responsible for my own learning and success in class, not my parents, teacher, advisor, or friends. I will advocate for myself if I have concerns about my grade or need help with content.

7. I understand that lab safety is of extreme importance and I will abide by all safety rules. I realize that if I am not following procedures I may be removed from the lab and receive a zero with no opportunity to make it up. I also understand that I will be held financially responsible for broken equipment and promise to work with caution.

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**STUDENT**

**I have read, understand, and will abide by the student expectations and the lab safety contract. I have read the course syllabus and confirm my commitment to this class.**

**Student Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Student Signature\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_**

**PARENT/GUARDIAN**

**As a parent/guardian, I understand that my child has enrolled in an Advanced Placement class, and that this is a year-long commitment. I understand by signing this contract, I agree that we have carefully considered all requirements for the Advanced Placement class and we have made an informed decision.**

**Parent/Guardian #1 Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (printed)**

**Parent/Guardian #1 Phone \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Parent/Guardian #1 email \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Parent/Guardian #1 Signature\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date : \_\_\_\_\_\_\_\_\_\_\_**

**Parent/Guardian #2 Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (printed)**

**Parent/Guardian #2 Phone \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Parent/Guardian #2 email \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Parent/Guardian #2 Signature\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date : \_\_\_\_\_\_\_\_\_\_\_**