

"It ain't the things we know that cause all the trouble; it's the things we think we know that ain't so."

~ Will Rogers

OVERVIEW

The environment makes headlines almost everyday. What's true? What's known? What's unknown? It's my goal that by the end of this class you will be able to critically evaluate the news, apply sustainable practices to your daily living, and enjoy nature a little bit more.

TEXTBOOK

Withgott, Jay, and Scott Brennan. *Environment: The Science Behind the Stories, AP Edition. 3rd ed.* San Francisco: Pearson, 2008.

PREREQUISITE

You need to have completed the following: Algebra 1 and two years of a lab science (ex: Biology and Chemistry) with a B or better.

ATTENDANCE/TARDIES

Students miss a great deal when we have discussions and activities. We will typically have one lab day per week. It is difficult to make up many of these and so attendance is a very important part of success. Students are responsible for having their absences excused. OHS attendance and tardy policies will be followed; check your student handbook. Students not in their seat and/or prepared to work at the bell are tardy.

MAKE-UP WORK

Work missed during excused absences can be made up within the number of days absent. For example, if you are out 3 days, you have 3 days after you return to make up the work you missed. Quizzes will be made up at the teacher's discretion. **Students are responsible for getting their assignments on their own time.** Come see me before/after school, check the class website, or email me.

GRADING

Homework – Includes the following:

- Classwork – begun in class, sometimes finished at home
- Work began and completed at home – this will, at times, be online work. If this will be a problem for you please let me know right away.
- Environmental Current Events – eight per semester. Each will include a written and oral summary of an environmental topic/problem/risk. Sources include the newspaper, internet, radio, TV, and periodicals. You must include a copy of the article if available or a proper MLA citation, a 2 paragraph summary and one paragraph with your opinion of the controversy and/or how it could affect your health or wellbeing.
- Field journal – a spiral bound notebook that documents the scientific principles and disciplines observed in class activities, labs, and field work. This will also include an analysis and interpretation of the data. At times, this analysis will include mathematical calculations.

Notebooks –All written work, tests, quizzes, lab reports, a spiral-bound field journal, this course outline, etc...needs to be kept.

Community Service -- students are required to perform 5 hours of **supervised, pre-approved, and Biology-related** community service each semester. Opportunities will be posted online as they arise. A separate form must be completed by Jan and June.

Field trips – Environmental science involves the outdoors. There will be both required and optional field trips. The only way a student can make up a required field trip (regardless of whether or not the absence was excused) will be to participate in an optional field trip.

Term Project - 1st semester: Scientific research project on an environmental topic. All work must be written using appropriate grammar, sentence and paragraph structure, spelling, lab format, be typed and include appropriate MLA citations. Use scientific terms as much as possible. Just saying "*I thought it was interesting.*" or "*I didn't like it.*" Is not acceptable. All of these things must be done for a grade of 80%. If you want a higher grade, you need to do something extra, something above the norm. Date due: Nov. 15. Research can be on soil temperature, wind, leaf color, water quality, object distribution, etc. See the class website for project ideas and examples, or extend a lab we did in class.

- 2nd semester: Environmentally Friendly Change: as a class or an individual, students will initiate an environmentally friendly change in their school or community. Each individual must submit a report explaining your part, the grade you think you deserve on this and why (ideas:wagreenschools.org).

Grading -- Grades will be assigned based on the percentage of possible points that are actually earned as follows: (A+ and D- do not exist)

A = 93-100%	B+ = 87-89%	C+ = 77-79%	D+ = 67-69%
A- = 90-92%	B = 83-86%	C = 73-76%	D = 60-66%
	B- = 80-82%	C- = 70-72%	F = < 60%

Graded assignments will include: tests, quizzes, projects, and field trips (40%), homework, field journal, lab reports, current events (50%), community service (5%), and project (5%). (Extra credit will be offered, but may not make up more than 10% of your grade.)

Written assignments -- for full credit, all written assignments should be:

- * properly labeled (title, name, date) and formatted.
- * on time -- **latework will be accepted up to one week after the Unit Test, however there will be a penalty of up to half credit.**
- * on 8.5" X 11" ruled, 3 hole paper, not torn, and legibly written in pencil or ink (black or blue), or typed.

BEHAVIOR

Students are expected to exhibit behavior appropriate for OHS students -- to cooperate, participate, take responsibility, and demonstrate **RESPECT** toward others. This includes compliance with laboratory safety rules. The OHS discipline policy will be followed for students not in compliance.

Outside behavior:

- Unless otherwise directed, use trails and paths; take care not to disturb or alter habitat.
- Walk quietly...listen to the sounds around you.
- Dress appropriately.
- Take only pictures, leave only footprints (don't remove plants or plant parts, refill all holes, turn back over all rocks, take out trash – your own or others')
- Don't disturb other classes.
- Transition quickly and quietly.

CHEATING/PLAGIARISM POLICY

Any student found attempting to take credit for another's work will be dealt with per the OHS policy regarding cheating. Incorrectly grading another's assignment is cheating...both parties will be held responsible. If you see a problem while grading, please email or tell me so you will not be held responsible. Plagiarism is the theft of ideas – changing words around doesn't make it yours. Proper citation is important!!

EXTRA HELP

I am available for extra help before and after school, but please make an appointment on the appointment calendar to ensure this.

MISCELLANEOUS

Drinks in spill-proof containers are OK during classroom lessons, but NOT DURING LABS. Food and gum are not allowed at anytime. Personal electronics may NOT be used or visible during anytime in the class. Violations will result in study hall. Passing time is for bathroom breaks. You will only be allowed two passes per semester to use the restrooms, so plan accordingly.

WELCOME TO AP ENVIRONMENTAL SCIENCE!!

GENERAL OUTLINE

First semester:

- * Matter, energy and cycles (2 wks)
- * Biological communities, evol., succession (2)
- * Biodiversity (1)
- * Biomes (1)
- * Population Biology and human population (3)
- * Toxicology and pests (3)
- * Silent Spring (1)
- * Food, agriculture and soil (2)
- * Land use: forests & grasslands (2)
- * Preservation (1)

Second semester:

- * The Good Rain (1)
- * Water use & management (1.5)
- * Water, air and noise pollution (1.5)
- * Solid and toxic waste (1)
- * Ecological economics, policy and law (2)
- * Earth Science (1)
- * Weather, climate, climate change & project (4)
- * Conventional energy (1)
- * Renewable energy (2)
- * Urbanization & sustainability (2)

In addition to the above, the following field trips will be either optional or required, depending on funding and scheduling: water quality monitoring at local streams, Nisqually Wildlife Refuge, Wolfhaven, Thurston County Waste Management, Near shore, TransAlta Centralia Mine, LOTT wastewater, native plant garden

AP Environmental Science (APES)

1. Go to
<https://register.pearsoncmg.com/reg/include/consent.jsp?originalDest=/reg/register/reg1.jsp?productID=34534&isCourseProd=no>
2. Follow the prompts to set up an account. The access code is: SSNAST-CINHK-SULCI-MEWED-TRAWL-ADOWA
3. Join class # CM293401. When you log out, bookmark the page...this will be very helpful next time you want to log in!
4. Read and take notes on the assigned chapters (use either the online book, or I can check one out to you).
5. Take the chapter quiz and write the score on the top of your notes.
6. Answer the Comprehension questions at the end of the chapter.
7. If you have time, I also suggest watching the online animations, doing the “graph it” activities, and practicing with the flashcards.
8. Turn in your work on the day of the test. (See below for an *approximate* calendar)

Matter/energy/cycles – chapters 4 & 7 – Sept. 27

Communities, evolution, succession, Biodiversity – chapter 5 & 11 – Oct. 18

Biomes – chapter 6 - Oct. 28

Population – chapter 8 – Nov. 15

Toxicology – chapter 14 – Dec. 5

Silent Spring – chapter 1 – Dec. 9

Food, agriculture, soil – chapters 9 & 10 – Jan. 6

Land use: forests & grasslands, preservation – chapter 12 & 15 – Jan. 30

The Good Rain – chapters 13 & 23 – Feb. 10

Water use and management – chapter 16 – Feb. 24

Water, air, and noise pollution – chapter 17 – Mar. 1

Solid and toxic waste – chapter 22 – Mar. 16

Ecological economics, policy, and law – chapters 2 & 3 – Mar. 23

Earth Science, weather, and climate – chapter 18 – Mar. 30

Conventional and renewable energy – chapters 19, 20, and 21 – Apr. 25

My study partner is _____ their phone number is _____

Guidelines for Lab Reports

Following is a rubric that may be helpful for your first term project. Not all labs will fit this format neatly, you may have to improvise.

Student	Criteria
Y N	<u>INVESTIGATIVE QUESTION</u> : General, no prediction (ex: How does ___ affect ___?" <input type="checkbox"/>
Y N	<u>HYPOTHESIS</u> : Prediction: an expected, observable outcome; "If ___ then ___ because ___..." <input type="checkbox"/>
Y N	<u>MATERIALS</u> : Be specific, what do you need for this experiment? <input type="checkbox"/>
Y N	<u>PROCEDURES</u> : Numbered and logical steps: Enough detail so that anyone could pick up your lab and perform the steps <input type="checkbox"/>
Y N	Three controlled variables: things kept the "same" throughout the entire lab <input type="checkbox"/>
Y N	Record measurements: how often are measurements "recorded"? <input type="checkbox"/>
Y N	Repeated trials: more than one trial is planned to measure the resp. variable <input type="checkbox"/>
Y N	Safety requirements: check MSDS folder for any chemicals used; are there any other safety precautions that should be considered? <input type="checkbox"/>
Y N	<u>DATA</u> : Organized into a table, graph, or chart (make sure the data or drawings are properly identified with the appropriate labels and units) <input type="checkbox"/>
Y N	<u>CONCLUSION</u> : "Based on the data": include high and low averages or data from the investigation to support your conclusion; use numbers <input type="checkbox"/>
Y N	Answer the Investigative Question or describe whether your prediction/hypothesis was supported or refuted <input type="checkbox"/>
Y N	Address concerns about the quality or validity of the investigation (be sure to address any errors or unanticipated results here) <input type="checkbox"/>
Y N	Application: how would you apply these results to a human problem? <input type="checkbox"/>
1 2 3 4	Overall quality: Neatness, format, concise, no "it's" <input type="checkbox"/>

Dear Parent/Guardian,

EXTRA CREDIT

Let me introduce myself. My name is Heidi Kirk and I am your student's teacher this year. I look forward to making this an interesting and fun year, full of learning. I have found that family expectations and actions have a huge impact on the learning success of students. Helpful parents/guardians provide a quiet place and a set time for homework, monitor grade reports and homework (see www.kirkbio.com), and encourage thinking and reasoning about everyday events.

I would like to invite you to open house Wednesday, Sept. 21 so we can meet face to face.

I would also like you to discuss the following questions with your student and email me the answers (hkirk@osd.wednet.edu). I will then put your address on my mass emailing list so we can better stay in touch.

Thanks,

Student name & period:

Student strengths:

Student interests:

Learning goals:

Anything unique about home life (optional):

Purpose:

Science is a hands-on laboratory class. You will be doing many laboratory activities which require the use of hazardous chemicals. Safety in the classroom is the #1 priority for students, teachers and parents. To ensure a safe science classroom, a list of rules has been developed and provided to you in this student safety contract. They must be followed at all times. Two copies of the contract are provided. One copy is to be signed by both you and a parent/guardian. The other is to be kept in your science notebook as a constant reminder of safety rules.

General Guidelines:

1. Conduct yourself in a responsible manner at all times in the laboratory.
2. Follow all written and verbal instructions carefully. If you do not understand a direction or part of the procedure, ask the instructor before proceeding.
3. Never work alone. No student may work in the laboratory without an instructor present.
4. When first entering a science room, do not touch any equipment, chemicals, or materials in the laboratory until you are instructed to do so.
5. Do not eat, drink or chew gum. Do not use laboratory glassware as containers for food or beverage.
6. Perform only those experiments authorized by your instructor. Never do anything in the laboratory that is not called for in the laboratory procedures or by your instructor. Carefully follow all directions, both written and oral. Unauthorized experiments are prohibited.
7. Be prepared for your work in the laboratory. Read all procedures thoroughly before entering the laboratory. Never fool around in the laboratory. Horseplay, practical jokes, and pranks are dangerous and prohibited.
8. Observe good housekeeping practices. Work areas should be kept clean and tidy at all times. Bring only your laboratory instructions, worksheets, and/or reports to the lab area. Other materials (books, purses, backpacks) should be stored in the classroom area.
9. Keep aisles clear and your chair pushed under your desk.
10. Know the locations and operating procedures of all the safety equipment including the first aid kit, the eye wash station, safety shower, fire extinguisher, and fire blanket. Know where the fire alarm and exits are located.
11. Always work in a well ventilated area. Use the fume hood when working with volatile substances or poisonous vapors. Never place your head into the fume hood.
12. Be alert and proceed with caution at all times in the laboratory. Notify the instructor immediately of any unsafe conditions you observe.
13. Dispose of all chemical waste properly. Never mix chemicals in sink drains. Sinks are to be used only for water and solutions designated by the instructor. Solid chemicals, metals, matches, filter paper, and all other insoluble materials are to be disposed of in proper waste containers, not in the sink. Check the label of all waste containers twice before adding your chemical waste to the container.
14. Labels and equipment instructions must be read carefully before use. Set up and use the prescribed apparatus as directed in the laboratory instructions or by your instructor.
15. Keep hands away from face, eyes, mouth, and body while using chemicals or preserved specimen. Wash your hands with soap and water after performing all experiments. Clean (with detergent), rinse, and wipe dry all work surfaces (including the sink) and apparatuses at the end of the experiment. Return all equipment clean and in working order to the proper storage area.
16. Experiments must be personally monitored at all times. You will be assigned a laboratory station at which to work. Do not

wander around the room, distract other students, or interfere with the laboratory experiments of others.

17. Students are never permitted in the science storage rooms or preparation areas unless given specific permission by their instructor.
18. Know what to do if there is a fire drill during a laboratory period; containers must be closed, gas valves turned off, fumehoods turned off, and any electrical equipment turned off.
19. Handle all living organisms used in a laboratory activity in a humane manner. Preserved biological materials are to be treated with respect and disposed of properly.
20. When using knives and other sharp instruments, always carry the points and tips pointing down. Always cut away from your body. Never try to catch falling sharp instruments. Grasp sharp instruments only by the handles.

Clothing:

21. Any time chemicals, heat or glassware are used, students will wear laboratory goggles. There will be no exceptions!
22. Contact lenses should not be worn in the laboratory unless you have permission by your instructor.
23. Dress properly during laboratory activities. Long hair, dangling jewelry, and loose/baggy clothing are a hazard in the laboratory. Long hair must be tied back, and dangling jewelry and loose/baggy clothing secured. Shoes must completely cover the foot; no sandals are allowed.
24. Long pants are required for lab work and natural fibers are suggested.

Accidents and Injuries:

25. Report any accidents (spill, breakage etc.) or injury (cut, burn, etc.) to the instructor immediately, no matter how trivial it may appear.
26. If you or your lab partner are hurt immediately yell out "code one, code one" to get the instructor's attention.
27. If a chemical should splash in your eyes or on your skin, immediately flush with running water from the eye wash station or safety shower for at least 20 minutes. Notify the instructor immediately. When mercury thermometers are broken, mercury must not be touched. Notify the instructor.

Handling Chemicals:

28. All chemicals in the laboratory are to be considered dangerous. Do not touch, taste, or smell any chemicals unless instructed to do so. The proper technique to smell chemicals will be demonstrated.
29. Check the label on chemical bottles twice before removing any of the contents. Take only as much as you need.
30. Never return unused chemicals to their original containers.
31. Never use mouth suction to fill a pipette. Use a rubber bulb or pipette bulb.
32. When transferring reagents from one container to another, hold the containers away from your body.
33. Acids must be handled with extreme care. You will be shown the proper method for diluting strong acids. Always add acid to water, swirl or stir the solution, and be careful of the heat produced, particularly with sulfuric acid.
34. Handle flammable hazardous liquids over a pan to contain spills. Never dispense flammable liquids anywhere near a source of flame or heat.
35. Take great care when transferring acids and other chemicals from one part of the laboratory to another. Hold them securely and walk carefully.

Handling Glassware and Equipment:

36. Carry glass tubing, especially long pieces, in a vertical position to minimize the likelihood of breakage or injury.

37. Never handle broken glass with your bare hands. Use a brush and a dustpan to clean up broken glass. Place broken or waste glass in the designated broken glass container.
38. Inserting and removing glass tubing from rubber stoppers can be dangerous. Always lubricate glassware (tubing, thistle tubes, thermometers, etc.) before attempting to insert it into a stopper. Always protect your hands with towels or cotton gloves when inserting glass tubing, or removing it from, a rubber stopper. If a piece of glassware becomes "frozen" in a stopper, take it to your instructor for removal.
39. Fill the wash bottles only with distilled water and use only as intended, ex. rinsing glassware, or adding water to a container.
40. When removing an electrical plug from its socket, grip the plug, not the electrical cord. Hands must be completely dry before touching an electrical switch, plug, or outlet.
41. Examine the glassware before each use. Never use chipped or cracked glassware. Never use dirty glassware.
42. Report damaged electrical equipment immediately. Look for things such as frayed cords, exposed wires, and loose connections. Do not use damaged electrical equipment.
43. If you do not understand how to use a piece of equipment, ask the instructor for help.
44. Do not immerse hot glassware in cold water, it may shatter.

Heating Substances:

45. Exercise extreme caution when using a gas burner. Take care that hair, clothing, and hands are a safe distance from the flame at all times. Do not put any substance into the flame unless specifically instructed to do so. Never reach over an exposed flame. Light gas (or alcohol) burners only as instructed by the teacher.
46. Never leave a lit burner unattended. Never leave anything that is being heated or is visibly reacting unattended. Always turn the burner or hot plate off when not in use.
47. You will be instructed in the proper method of heating and boiling liquids in test tubes. Do not point the open end of a test tube being heated at yourself or any one else.
48. Heated metals and glass remain hot for a long time. They should be set aside to cool and only be picked up with caution. Use tongs or heat protective gloves if necessary.
49. Never look into a container that is being heated.
50. Do not place hot apparatuses directly on the laboratory desk. Always use an insulating pad. Allow plenty of time for hot apparatuses to cool before touching.
51. When bending glass, allow time for the glass to cool before handling. Hot and cold glass have the same visual appearance. Determine if an object is hot by bringing the back of your hand close to it prior to grasping it.

Questions:

Do you wear contact lenses? yes ___ no ___

Are you color blind? yes ___ no ___

Do you have any allergies? yes ___ no ___

If yes, please list: _____

Agreement:

I, _____ (student's name) have read and agree to follow all of the safety rules set forth in this contract. I realize that I must obey these rules to ensure my own safety, and that of my fellow students and instructors. I will cooperate to the fullest extent with my instructor and fellow students to maintain a safe lab environment. I will always closely follow the oral and written instructions provided by the instructor. I am aware that any violation of this safety contract that results in unsafe conduct in the laboratory or misbehaviour on my part, may result in being removed from the laboratory, study hall, receiving a failing grade, and/or dismissal from the course.

Student Name (print)

Student Signature

Date

Period

Dear Parent or Guardian:

We feel that you should be informed regarding the school's effort to create and maintain a safe science classroom/laboratory environment. With the cooperation of the instructors, parents, and students, a safety instruction program can eliminate, prevent, and correct possible hazards. You should be aware of the safety instructions your son/daughter will receive before engaging in any laboratory work. Please read the list of safety rules above. No student will be permitted to perform laboratory activities unless this contract is signed by both student and parent/guardian and is on file with the teacher. Your signature on this contract indicates that you have read this Student Safety Contract, are aware of the measures taken to insure the safety of your student in the science laboratory, and will instruct your son/daughter to uphold his/her agreement to follow these rules and procedures in the laboratory.

Parent Name (print)

Parent Signature

Date

Olympia School District #111
Student Trip Permission Slip

My child _____ has my permission to travel and participate in a field trip to _____
(name)

_____ on _____. The trip is planned to
(location) (date)

depart at _____ and return at approximately _____. If this is
(time) (time)

permission for my child to participate in a school activity which has frequent or repeating trips, I grant this permission to cover trips related to Environmental Science for the 2011-2012
(activity) (year)
school year.

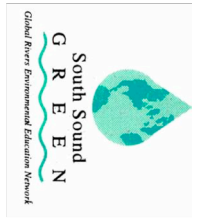
I have reviewed the itinerary and rules concerning this trip or activity and give permission for my child to participate. I expressly recognize that my child is responsible for his/her behavior and that all school rules of conduct apply while participating. Further, I indemnify and hold the Olympia School District harmless from any claim not resulting from the fault of the District.

Date: _____ Signed: _____

(Staff to attach full itinerary to this slip for each trip) Approved: July 26, 1997

Itinerary will be available online before the trip.

It is OK/ It is not OK for my student to carpool with another student driver.



**Health Information and Liability/Photo Waiver
South Sound GREEN/Thurston Conservation District**

In consideration of participation in South Sound GREEN field projects and events (such as monitoring, educational field trips, senior project research or service, other action projects, training events and Student GREEN Congress), sponsored by South Sound GREEN (Thurston Conservation District), I hereby for myself, my heirs, executors, assigns, and personal representatives, forever waive and release any and all claims for damages I now or may have, whether now known or unknown, against Thurston Conservation District, its elected officials, employees, agents, volunteer workers, and private landowners, for any injuries suffered in connection or arising out of participation in said activities.

PLEASE PRINT

Date _____ Phone Number (_____) _____

Participant's Name _____

Street _____

City _____ Zip Code _____

Parent/Guardian name (if under 18) _____

Phone: Day (_____) Evening (_____) Cell Phone (_____)

Emergency Contact _____ Relationship _____

Day Phone (_____) _____

Signature of Parent/Guardian _____

(Required for participants under 18 years of age.)

Please complete the health information below:

Check any allergies and list treatment:

Animals _____ Hay Fever/pollen _____

Insect Stings _____ Food (list) _____

Medicine/drugs (list) _____ Other allergies (list) _____

Photo/Publicity waiver

I give my permission to be photographed or videotaped and to have my child or children herein named, to be photographed with the understanding that the pictures may be used for South Sound GREEN/Thurston Conservation District publications and related publicity, including airing of programs on Thurston Community Television (channel 3). I understand that neither the child herein named, nor I shall receive any compensation for such use of photographs or footage.

Please initial ONE of the two lines below:

- You may use my or my child's photograph for South Sound GREEN publications and related publicity.
OR _____ (Initial here)

- You may NOT use my or my child's photograph for South Sound GREEN publications and related publicity. _____ (Initial here)