UNIVERSITY HIGH SCHOOL

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June 2, 2025

Welcome 2025-2026 AP Environmental Science Students!

AP Environmental Science is designed to be the equivalent of an Environmental Science course taken during the first year of college. AP Environmental Science is a *full year college level laboratory course*. Students will examine environmental issues from an economic, scientific, sociological and historical point of view. The goal of this 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 and/or preventing them.

The book that we will be using is:
Title: *Environmental Science for AP* Course Fourth Edition* ©2023
Authors: Andrew Friedland; Rick Relyea
ISBN: 9781319409289

For the upcoming school year, we will be using the most recent edition of the textbook. In order for you to complete the summer assignment reading, you will need to check out the Fourth Edition textbooks before summer break. Alternatively, you may wish to purchase your own copy of the textbook. Advantages to purchasing your own copy of the text include: the ability to highlight the text as you actively read, annotating the figures, and retaining the text as a reference for college. The first few weeks of school will be devoted to building on what you learned in your summer reading and the focus will be on sustainability and an introduction to the study of environmental science. You may contact us during the summer at JenniferBartlau@iusd.org or bethjacob@iusd.org if you have any questions.

Summer Assignment: You can find the link to the summer assignment on the UNI homepage. The assignments below will be due on Canvas at the beginning of the school year.

1. Read/study Module 31: Ecological Footprints and 32: Introduction to Sustainability and ***hand write*** an outline/notes. Your outline/notes should be thorough and may include images, definitions, concept maps, questions/thoughts about the text as well as answers the practice questions on pages 360 and 369.
2. **Five Key Global Indicators Current Event** - Please choose 1 current event for each of the following topics: Biological Diversity; Food Production; Average Global Surface Temperature and CO_2 Concentrations; Human Population; and Resource Depletion. Share the links to your five articles and then explain how you chose each of your five articles. Record the required information about your five current events in this document.
3. Go on a **scavenger hunt** to explore important environmental science topics and create a slide show to share with the class first full week of school. This should be fun! (Google Slides)
4. **OPTIONAL:** You will be required to do field work for this course, if you would like, you can complete some of your field hours prior to the beginning of the school year when you have more time. (Google Doc)

We are looking forward to a great year! Enjoy your summer.

Sincerely,

Ms. Jennifer Bartlau and Mrs. Beth Jacob
AP Environmental Science Instructors

Part Two: Five Key Global Indicators Current Event Links

Introduction

AP Environmental Science is a fantastic course for increasing science literacy with regards to the media. An environmental issue is referenced every day in the United States and internationally. Environmental issues are multifaceted and relate to all aspects of each of our lives. Many issues may not touch our lives personally, but are noteworthy human issues such as social crisis or natural disasters. The five articles you choose for this assignment must have a clear connection to Environmental Science. You can preview the Units and Modules in the textbook to get an idea of appropriate topics, or email us.

Current events will be ongoing throughout the year, so you will receive further instructions at the beginning of the year. For now, what you need to do is complete the following table for five current events related to environmental science. Your current event **MUST BE PUBLISHED AFTER JUNE 7, 2025**. This assignment will not be given credit if the current event is from a date prior to that. Your initial introduction to the course content will be Modules 31 and 32 of the textbook so refer to the textbook to connect your current event to the course content. You may also reference the AP Environmental Science CED in order to make content connections.

Articles should be from sources that are science oriented or reputable such as Scientific American, Nature, Discover, and Science. Other appropriate sources include: The New York Times, Washington Post, LA Times, NPR, The Atlantic, Time, Nature, Scientific American Orion Magazine, The Economist, The Wall Street Journal and National Geographic. Please do not choose an article from ScienceDaily.

You can either recreate the table shown below, below or you can go to this link and make a copy of the document linked in the summer assignment letter. Here is the assignment to copy:

Five Key Global Indicators Current Event Links

In the table below, please share five current events/articles published over the summer related to what you read in Modules 31 and 32 using the table found on page 368 of the textbook. While we encourage you to read the articles that you choose to learn about the topic, the purpose of this assignment is to curate five separate articles published over the course of the summer that show evidence of the five key global indicators. Choose one article for each indicator. This will give you a solid base for understanding topics you will be learning through the school year. For each article, share the bibliographic information and describe in detail how you chose the article.

Environmental Indicator	**Include** bibliographic information including the following. Please share the five required components in the format shown below: **1. article title** **2. publication date** **3. author** **4. source/publication** **5. URL link to article**	**Describe** how you chose this article… What process did you use in your search? Explain in some detail.
Biological Diversity (Ecology)		
Food Production (Agriculture)		
Average Global Surface Temperature and CO_2 Concentration (Climate Change and Ocean Acidification)		
Human Population		
Resource Deletion (Energy Use, Waste Management, Water Pollution, Air Pollution)		

Part Three: Summer Scavenger Hunt

Make a Google Slideshow to share what you did/saw this summer related to environmental science. This should be fun! The purpose is for you to start engaging with the content over the summer to better prepare you for the school year. Environmental science is all around you; this project should help you become aware of the fact.

On each slide, be sure to include the following:

1. Label the slide as the category being displayed. (Lithosphere, Species Interactions, Forest, etc.…)
2. Photo of the item with you in it. (Selfie?)
3. Photo caption naming the specific object. (Igneous Rock, Mutualism, Native Tree, etc.…)
4. An explanation as to why you chose the item. How does it relate to environmental science or your current ideas regarding environmental science?
5. Date photo was taken.
6. Location – be specific. (Irvine, California or Arches National Park, Utah)

Choose twenty items from the following list and make a slide for each item you choose. Your slide show will have 21 slides, one slide per item and one cover slide (name, date, and period). Be prepared to show your finished product with the class.

#	*Category/Identification*	*Ideas/Criteria/Guidelines*	*Also Include*
1	**Lithosphere (Plate Tectonics/Rock)**	Igneous rock, sedimentary rock, metamorphic rock, non-native rock, plate tectonics.	Name of Rock/Type of Plate Boundary
2	**Lithosphere (Soil)**	Soil Formation and Erosion, Soil Composition and Properties.	Description of Soil
3	**Hydrosphere**	Ocean, bay, flowing or standing water, watershed, wetland…	Name of water body
4	**Atmosphere**	Clouds, smog, fog, etc.	Name of cloud type or smog type
5	**Biogeochemical Cycles**	Nitrogen, Carbon, Water, Phosphorus	Where the element is, has come from and is going.
6	**Energy Flow**	Carnivore consuming, Herbivore consuming, photosynthesis happening	Names of participating species.
7	**Biodiversity**	Native threatened or endangered animal in its habitat. Non-native animal in its habitat.	Name of species.
8	**Biodiversity**	Non-native plant or animal in its habitat. Invasive Species.	Name of species.
9	**Species Interactions**	Mutualism between two plants, two animals or between a plant and animal. Show an example of two species cooperating.	Name of each species and how each species benefits.
10	**Species Interactions**	Competition, Parasitism, Predation	Name of each species and how they impact each other.
11	**Population Growth**	A human less than 1 year old. A human less than 2 years old. A human less than five years old. A human over 78 years old.	Name of the human and a photo caption.
12	**Forest**	Native tree you can't reach more than one quarter of the way around. Native tree you cannot reach more than halfway around. Non-native tree you cannot reach more than half way around.	Name of species.
13	**Forest**	Image of a forest that is managed. Clear cut or selective logging. Can also be a tree farm or orchard.	Name of Forest/Tree Farm/Harvest Method

14	Biodiversity Preserve	National park system unit. State park system unit. County or city park system unit.	Name of Park
15	Food Crops	Food crop being grown on a farm. Food crop being grown in a garden. Food crop being processed or retailed.	Name of food crop.
16	Agriculture Practice	Pesticides being applied, fertilizer being applied, impact of agricultural practice. Topics include: monoculture, fertilization, mechanization, use of pesticides, IPM, till, no0till, GMO, crop rotation, organic, intercropping, biodynamic.	Name of agricultural practice observed.
17	Meat	Animals being raised for food in a farm or CAFO. Animals being raised for food in a household. Meat being retailed. Animals at a ranch.	Name of animal.
18	Fishing	Commercial fishing operation. Recreational fishing. Fresh fish being retailed.	Name of fish.
19	Water Resources	Agricultural irrigation system. Man-made dam. Man-made reservoir.	How the water you observed is being used.
20	Water Pollution	Wastewater treatment facility. Source of water pollution. Polluted water or solid water pollutant. Can be pathogens, oxygen demanding waste, plant nutrients, organic or inorganic chemicals, sediments, or heavy metals.	Type of water pollution observed.
21	Air Pollution	Stationary, point source emitting pollution. Mobile source emitting pollution. Air pollution without identified source.	Type of air pollution. As specific as possible.
22	Light Pollution or Noise Pollution	Light pollution and/or noise pollution.	Type of pollution and its cause and effect.
23	Renewable Energy	Renewable power generation plant (solar, wind, geothermal…) Renewable residential or commercial generator. Renewably powered appliance.	Type of renewable energy.
24	Electricity	Electricity generation. Power plant, transformer, transmission lines, distribution lines.	Step of electricity generation documented.
25	Water Resources	Water transport system. Water storage system. Water delivery and use.	Where water comes from and where it goes.
26	Fossil Fuels	Fossil fuel production or processing (mine, well, refinery…). Non-gasoline fossil fuel use or retail. Gasoline retail.	Name of fossil fuel.
27	Solid Waste	REDUCING waste generation (instead of reusing, recycling or discarding). REUSING potential waste (instead of recycling or discarding). RECYCLING waste (instead of discarding). COMPOSTING.	Potential waste that is being averted.
28	Urbanization	LEED platinum or gold building. LEED silver or certified building. Other "green" buildings. Example of a building with passive solar design or other form of sustainable design.	Name of or occupants of building. Description of "green" features.
29	Urbanization	New development previously natural habitat. New development on previously rural land. New development on previously urban land. Urban sprawl or urban blight can be used here.	What was the land used for before? What will the land be used for in the future?
30	Transportation	Riding public mass transit. Public mass transit. Private mass transit. Walking. Bicycling.	Destination and ride commentary.
31	Politics and Economics	University building, from which the environment is studied. Community college building from which the environment is	Name of someone who works there, and hopefully a quote

		studied. Commercial or public building from which the environment is worked with.	from him or her about the environment.
32	**Politics and Economics**	Worker in an environment-related profession. Volunteer in environment related work. Environmental aware person.	Name and environmental role of person and a quote from the person.
33	**Beauty**	A non-human "thing" in the environment that you find extraordinarily beautiful.	What it is and why it is beautiful?
34	**Anthropogenic**	Take a picture of something man made.	Comment on the impact of the use of your chosen object on the environment.
35	**Choice/Other.**	Anything relevant to the environment. You can do up to 3 of these based on prior knowledge or information you learn from the textbook or other sources. This can even be a different example for the same criteria.	Relate what you take a picture of to environmental science.

CREDIT

1. Full credit is the expectation. Follow all guidelines, and full credit is easy to achieve.
2. Clarity and quality of imagery is important.
3. Accuracy and thoroughness of documentation are important.
4. Creativity and entertainment value are way better than no creativity or entertainment value; they can compensate for minor deficiencies, but not for major deficiencies.
5. Evidence of trespassing, obstruction of traffic, violation of laws, jeopardizing safety or compromising integrity will cost credit. Photoshopping or other image manipulation to gain advantage constitutes an absolute abandonment of integrity.

SUGGESTIONS

Have fun with it; it's not supposed to be "work."

Build it gradually throughout the summer. Saving it all for the last day would make it "work".

If you have no imaging device, you can borrow one from a friend or family member.

Please email and let me at the beginning of the summer if you do not have access to a camera.

See Examples on the Following Page

SAMPLE SLIDE (From 2021)

Biodiversity

Monarch Butterfly
Corona del Mar, California
July 12, 2021

I love seeing monarch butterflies! I take walks most days and whenever I see a monarch butterfly I pretty much stop and watch him or her fly. This summer I noticed that most of the butterflies were solitary rather than traveling in groups. This particular butterfly was still enough that I was able to take a picture with the butterfly in the background. This relates to environmental science because monarch butterflies are part of biodiversity and also because monarch butterflies are threatened by pesticides, climate change and habitat loss. They are not federally designated as endangered species but it is widely known that the monarch population is in decline. What is so amazing about monarch butterflies is their 2,500 mile migration, traveling 50 miles per day! (info from FWS and WWF websites).

SAMPLE SLIDE (From 2018)

Food Crops

Food crop being grown on a farm.
U-pick blueberries.

Endicott Farms in Mounds, Oklahoma.
June 14, 2018

In June I went to Oklahoma to visit my sister and her family. One afternoon, my sister Kathryn, my nephew William and I drove 20 miles to go to Endicott Farms and pick blueberries. We also got to pick blackberries, but I don't have a picture of those. I chose this picture because I wanted to give an example of food crops that were not being retailed in a grocery store. As our agricultural system has become more industrialized many of us are no longer in touch with how are food is grown, where it is grown, and often, we don't know what it looks like when it is growing. There is an entire chapter (Chapter 11) in APES on food and agriculture.

Part Four (Optional): Get a Head Start on Field Hours

Over the course of the year you will complete 8-12 hours of field work in 4 separate experiences ranging from 1-3 hours each. Typically, this is arranged so that you complete 2 experiences for each semester gradebook. If you would like to get a head start on your experiences you are welcome to do one this summer. Please email us if you have questions about opportunities as many come up. Copy the link below to access the assignment. You will submit your link through Canvas at the beginning of the school year. Here is the Google Doc: LINK

	Category Description
You may select from these categories as many times as you like.	*Open Ocean, Estuary, or Nature Preserve visit*: Whale Watching, Bolsa Chica Wetlands in Huntington Beach, Upper Newport Bay, San Joaquin Marsh in Irvine, Back Bay Science Center, OC Habitats, Davey's Locker. *Environment Related Organizations and Talks*: Audubon House, California Native Plant Society, Irvine Ranch Conservancy, UCI open seminars, Orange County Society of Conservation Biology, Nix Nature Center at Laguna Wilderness Park, The Ecology Center, Shade Tree Nursery, Starr Ranch, Crystal Cove State Park, OC Coastkeeper, Surfrider Foundation. *Job Shadowing in an ES field* *Any type of environmental remediation work.*
Limited to selecting from this category ONLY ONCE.	*Aquariums:* Cabrillo Marine Aquarium/Museum, Sea World San Diego, Steven Birch Aquarium at Scripps Institute of Oceanography, Aquarium of the Pacific, Monterey Bay Aquarium. *Zoos and Rescue Shelters*: Los Angeles, San Diego, or Irvine Regional Park Zoos.
Limited to selecting from this category ONLY ONCE.	*Hiking or Camping*: Anything from local general areas to nearby State or National Parks, **must be accompanied by a docent or volunteer + a visit to the visitors' center**.
Email if you have another idea.	

Following your fieldwork experience you need to submit a **one page (or more)** written summary of your experience describing how it relates to the class and your life. You will use one ongoing document for your fieldwork entries. Use the following checklist to make sure your write up is up to par for submission. **There should be one paragraph each: a description of what you did for field work, how what you participated in relates to what you have learned in class, and finally your own reflection/opinion about what you did for field work. For the reflection, you should include information on interactions with other volunteers or leaders of the organization. When you relate what you did in class, use as many vocabulary words as possible. The write-up will be between one and two pages. Include a picture for evidence. Format**: my name is on my paper, the date of attendance is listed, no larger than size 12 font is used, no larger than 1-inch margins are used, one and a half or double space.

- ✓ **Evidence**: Evidence is attached to or included in your write up. This could be a ticket, a picture of you at the event, confirmation email, etc.
- ✓ **What you learned and did**: Summarize what you did and what you learned at the event.
- ✓ **How it relates to the content**: Give a few clear examples of how the things you learned relate directly to the content of our course. Use of specific vocabulary is recommended here. It would be wise to use sentence frames such as: In APES we learned _____, this experience relates directly to that content because _____.
- ✓ **Personal reflection**: Describe how this experience relates to your own life and experience with nature.

If you do all of the above, you should get full credit on your field hours.

APES 2023-2024 Field Hours Name

Experience	Category Selected	Date of Experience	Time of Experience
Ex.	Aquarium of the Pacific	6/15/2018	10:00 – 1:00
1			
2			
3			
4			

Field Work Experience #1: _____