



May 2017

Welcome to AP Environmental Science (APES)!

The main piece of your summer assignment is to read the first two chapters of your APES book using the attached reading guide. Not finishing these assignments is not an acceptable excuse to drop the course, so start early and start off the year right! In addition, if you have finished those two chapters and want to read ahead to make your year easier, let me know and I will get you more chapter assignments to do.

The first two chapter readings are due the first full day of school.

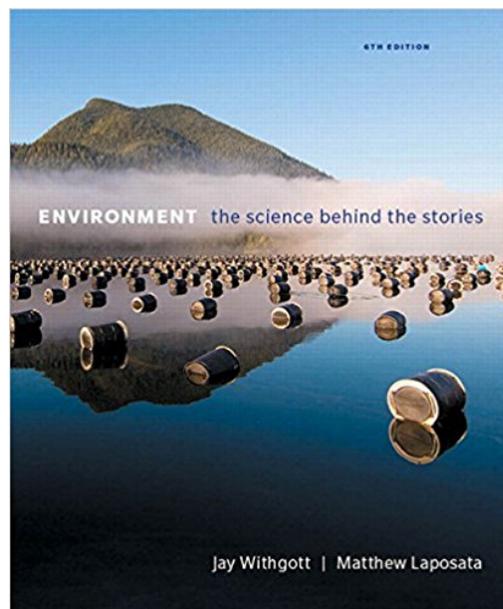
You can buy the book online from anywhere you like. The used copies are quite inexpensive right now as there is a new edition out (\$30 on Amazon). If you buy from a former student, please make sure that it does not have highlighting in it as that will just confuse you as you read. Please note that the book will change next year so you will not be able to sell your book to others. . If you are not able to buy the book for any reason, please contact me and we can see what we can work out.

**What you need to do now:**

1. Send me an email confirming that you are in the class from your school email account.
2. Get the book, “Environment, The Science Behind the Stories” by Withgott et al. **SIXTH EDITION**

-Get the book used. The page numbers might not be the between hard and softbound books, but I think that you can make it work once you figure out how many pages they are off from each other.

- Right now, used books are going for about \$70 on Amazon, so do your research and do not overpay!
- Ebook edition would be fine.
- Rental ends up being more expensive for two semesters and you cannot write in the book.



**What you need to do soon:**

3. Start your summer reading. Please do not wait until the night before the assignment is due to start reading the book. I cannot retain that much information in one night and I imagine that you cannot either. Don't waste your time; spread out your reading.
4. If you have finished those two chapters and want to read ahead, let me know and I will get you more chapter assignments to do.

I am looking forward to working with you,

Geoffrey Brinker  
[gbrinker@lps.k12.co.us](mailto:gbrinker@lps.k12.co.us)

**HHS AP Environmental Science**  
**Chapter 1: An Introduction to Environmental Science**  
**Framed Vocabulary and Notes**

To keep in mind for all chapters:

**1. Incorporate case studies and current events somehow...**

Case studies are the tools that you will use to be successful on class as well as AP Exams.

Environmental science is based on the world around us and you **MUST** have examples and data to back up your technical knowledge.

**2. Use the following six overall Themes in Environmental Science as an organizational framework:**

1. Human population growth is a major contributor to environmental problems.
2. Sustainability: unsustainable use/consumption of resources must be transformed into sustainable use
3. A global perspective to solving environmental issues. Environmentalism is not right or left. It is our and our kids' future. Local decisions have global impacts.
4. Dealing with the consequences of urbanization and industrial development.
5. Interconnections of People and Nature: Change in one leads to change in the other.
6. Incorporating values into our scientific decisions.

**3. Efficient and organized systems for collecting and organizing information is paramount.**

Part of an AP class is learning how to efficiently and effectively extract information from a text. I will model one possible set up for you in this chapter, but soon you will have to create or choose an organized system that works for you.

**4. Pacing is imperative**

If a person does not pace oneself and do a little every day, then s/he will be unsuccessful in retaining the information. Make a goal of reading eight to ten pages a night from the book and/or answering 8-10 questions.

So, on we go to this specific assignment.

**Studying Model One: Vocabulary and Concept Question Columns**

**There is no need to write your answers in three columns, just as long as you cover each section.**

For the first column: Using not the glossary, but rather the text, write a definition for the vocabulary words listed. Remember, a definition often includes what something is as well as what it does. It can also include examples, connections to other concepts, or its importance to environmental science.

\*The point that I am trying to make is this: It is not enough to just copy down the definition from the glossary or web; you need to understand both what it means as well as its connection to the rest of the material.

For the second column: Use the text to answer the following questions. In future assignments, if questions are not provided, one approach would be to take notes on each section listed and then generate a question. Well-formed and thoughtful questions may then be used on the unit tests.

For the third column: As you are reading, put stars next to the figures and examples that you believe are quite important. Then make a list of the important figures and examples along with a description of what they show. Figures are important because they provide a great summary of important concepts as one begins to review for a test. In this case, I have underlined the important figures to give you an idea of what important.

Vocabulary Terms	Concept Questions and Notes	Important Figures and what they show
<p>* Particularly important</p> <ul style="list-style-type: none"> <li>• Environment</li> <li>• environmental science</li> <li>• natural resources</li> <li>• * renewable natural resources (include examples)</li> <li>• * nonrenewable natural resources (include examples)</li> <li>• *Ecosystem services</li> <li>• industrial revolution</li> <li>• agricultural revolution</li> <li>• * fossil fuels</li> <li>• Garrett Hardin and the Tragedy of the Commons</li> <li>• ecological footprint</li> <li>• *overshoot</li> <li>• environmentalism</li> <li>• Descriptive science</li> <li>• Hypothesis-driven science</li> <li>• *Manipulative Experiment (and its difference from a...</li> <li>• *Natural Experiment</li> <li>• Correlation</li> <li>• peer review</li> <li>• theory</li> <li>• paradigm</li> <li>• *sustainability</li> </ul>	<ol style="list-style-type: none"> <li>1. Figure 1.6 If you were entering into the field of Environmental Science, which of the disciplines listed would be the route you would choose into the field?</li> <li>2. What is one paradigm (environmental or not) that you apply to your daily life?</li> <li>3. Do the Calculating Ecological Footprints on page 19. You will need to show me your completed table and questions. We will do the footprint calculator as a separate assignment, but you can get the data collection out of the way now and print your results if you like.</li> </ol>	<p>Figure 1.1  Figure 1.3  Figure 1.4  Figure 1.5  Case study pg.8-9  Figure 1.10  Figure 1.12</p>

**HHS AP Environmental Science**  
**Chapter 2: Earth's Physical Systems: Matter, Energy, and Geology**  
**Framed Vocabulary and Notes**

To keep in mind for all chapters:

**1. Incorporate case studies and current events somehow...**

**2. Use the six overall Themes in Environmental Science as an organizational framework:**

**3. Efficient and organized systems for collecting and organizing information is paramount.**

Part of an AP class is learning how to efficiently and effectively extract information from a text. I will model one possible set up for you in this chapter, but soon you will have to create or choose an organized system that works for you.

**4. Pacing is imperative**

If a person does not pace oneself and do a little every day, then s/he will be unsuccessful in retaining the information. Make a goal of reading eight to ten pages a night from the book and/or answering 8-10 questions.

So, on we go to this specific assignment.

**Studying Model Two: Vocabulary and Sticky Note Summaries**

**There is no need to write your answers in three columns, just as long as you cover each section.**

For the first column: Using the glossary, text, and other sources, write a definition for the vocabulary words listed. Remember, a definition often includes what something is as well as what it does. It can also include examples, connections to other concepts, or its importance to environmental science. You may make flash cards for this section.

\*The point that I am trying to make is this: It is not enough to just copy down the definition from the glossary or web; you need to understand both what it means as well as its connection to the rest of the material.

For the second column: Drawing out important information from the text is more involved than just writing down the bold words and looking them up in an online dictionary. Part of reading is learning to draw out important ideas from the text. For **each section in blue** summarize the section in one short blurb on a sticky note. Stick it over the section as you read it. **Do not** just write down the vocab or the blue topic heading: **What other information is in this section that I did not yet cover with the figures and vocab?** Then, if you like, go back and type each heading into a document with your summary transcribed below each if you feel that would be easier to study from.

For the third column: As you are reading, put stars next to the figures and examples that you believe are quite important. Then make a list of the important figures and examples along with a description of what they show. Figures are important because they provide a great summary of important concepts as one begins to review for a test. In this case, I have selected the important figures to give you an idea of what's important.

Vocabulary Terms	Sticky Note summaries	Important Figures and what they show
<p>* Particularly important</p> <p>You may need to refer back to your Biology notes in order to fully answer these vocab terms.</p> <ul style="list-style-type: none"> <li>• Chemistry and its role in Environmental Science</li> <li>• Matter</li> <li>• Element</li> <li>• *Law of Conservation of Matter</li> <li>• Carbon and its importance to life</li> <li>• Nitrogen and its importance to life</li> <li>• Hydrogen and its importance to life</li> <li>• Oxygen and its importance to life</li> <li>• Basic elemental structure (of atoms)</li> <li>• Isotopes</li> <li>• Radioactive</li> <li>• Half life</li> <li>• Ions</li> <li>• Molecules</li> <li>• Compounds</li> <li>• Covalent bond</li> <li>• Hydrogen bond</li> <li>• Ionic bond</li> <li>• Acidic</li> <li>• Basic</li> <li>• *pH</li> <li>• *Organic compounds</li> <li>• Inorganic compounds</li> <li>• *Hydrocarbons</li> <li>• *Plastics</li> <li>• *Methane</li> <li>• Natural gas</li> <li>• Polymers</li> <li>• Macromolecules</li> <li>• Proteins</li> <li>• Protein folding</li> <li>• Nucleic acids</li> <li>• Carbohydrates</li> <li>• Four types of lipids</li> </ul> <ul style="list-style-type: none"> <li>• *Energy</li> <li>• *Potential energy</li> <li>• *Kinetic energy</li> <li>• *Chemical energy</li> <li>• **First law of thermodynamics</li> <li>• Second law of thermodynamics</li> <li>• *Energy conversion efficiency</li> <li>• Autotrophs/primary producers</li> <li>• Photosynthesis</li> <li>• Equation for photosynthesis</li> <li>• Photosynthesis happens in more organisms than just plants</li> <li>• Chemosynthesis</li> </ul>	<ol style="list-style-type: none"> <li>1. Do the sticky-note summaries note taking model as described above.</li> </ol> <p><b>Additional questions to answer</b></p> <ol style="list-style-type: none"> <li>2. Explain the importance of water and why its atomic structure is so important to the existence of life. (How does each of its properties help life exist on Earth?)</li> <li>3. What is one reason hazardous materials clean-up is so costly?</li> <li>4. Discuss a few reasons why some people refuse to believe that there is a connection between fracking and earthquakes in the Midwest.</li> <li>5. Calculating Ecological Footprints pg. 45. I will need to see your completed table and questions.</li> </ol>	<p>Central case pg. 21  Figure 2.3  Box pg 24-25  Figure 2.5  Figure 2.9  Figure 2.12  Figure 2.13  Figure 2.14  Figure 2.15  Figure 2.18  Table 2.2  Figure 2.19  Figure 2.20  Box pg. 40-41  Box pg. 43</p>

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| <ul style="list-style-type: none"> <li>• Equation for chemosynthesis</li> <li>• Heterotrophs/consumers</li> <li>• Cellular Respiration</li> <li>• Equation for cellular respiration</li> <br/> <li>• Magma</li> <li>• Hydrothermal vents</li> <li>• Geology</li> <li>• *Mantle</li> <li>• *Lithosphere</li> <li>• Asthenosphere</li> <li>• *Crust</li> <li>• *Plate tectonics</li> <li>• Pangea</li> <li>• *Three types of plate boundaries <ul style="list-style-type: none"> <li>○ Divergent</li> <li>○ Convergent</li> <li>○ Transform</li> </ul> </li> <li>• Subduction</li> <li>• Ring of fire</li> <li>• Continental collision</li> <li>• Rock</li> <li>• Mineral</li> <li>• Rock cycle</li> <li>• Lava</li> <li>• Three types of rocks <ul style="list-style-type: none"> <li>○ Igneous</li> <li>○ Sedimentary</li> <li>○ Metamorphic</li> </ul> </li> <li>• Earthquake</li> <li>• Volcano</li> <li>• *Interplate or volcanic hotspot</li> <li>• Landslide</li> <li>• Mass wasting</li> <li>• Tsunami</li> <li>• Fukushima and why it is important to know about.</li> </ul> |  |  |
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