

AP Environmental Science Summer Assignment – 2017-2018

- Check out a textbook from Mrs. Sweeney or Mrs. Carroll in room C-138 by the end of school on Thursday, June 22nd. This book will be formally checked out to you through the school so you are financially responsible for it over the summer. If you are unable to check out a book by June 22nd, please stop by the main office and check it out there.
- Read Chapters 1 and 2 and complete the corresponding study guides provided.
- Answers to study guide questions should be handwritten (unless you have a formal accommodation requiring otherwise) and all work for math problems should be written out including units (no calculators are allowed on the AP Envi Sci Exam).
- The vocabulary sections are optional.
- You will have the opportunity to use these completed study guides on the first unit assessment a few weeks into the school year. This summer assignment is due on the second class period of the school year (August 31/September 1st).

Study guides continue on the next page

Chapter 1 - Studying the State of Our Earth**Instructions**

- Complete this independently and thoughtfully after reading chapter 1.
- You are not required to make flashcards for the vocabulary but it is **HIGHLY** recommended to make flashcards (or make a quizlet account) for each chapter. It may not be necessary to make a flashcard for each term if you are already familiar with it.
- This study guide must be HAND written. (*unless you have an accommodation that indicates that you can use a computer*)

Chapter 1 Vocab

Environment	Ecological Footprint
Environmental Science	Scientific Method
System	Hypothesis
Ecosystem	Null Hypothesis
Biotic	Replication
Abiotic	Sample Size
Environmentalist	Accuracy
Environmental Studies	Precision
Ecosystem Services	Uncertainty
Environmental Indicators	Inductive Reasoning
Sustainability	Deductive Reasoning
Biodiversity	Critical Thinking
Speciation	Theory
Background Extinction Rate	Natural Law
Greenhouse Gases	Control Group
Anthropogenic	Natural Experiment
Development	Environmental Justice
Sustainable Development	
Biophilia	

Chapter 1 Math

Directions: Complete the sample problem below. Some questions will require information from the DO THE MATH sections and you may not be able to complete them without a textbook. You must attempt every part of the questions to receive any credit. You must SHOW ALL WORK and NO CALCULATORS. Seriously!! Please circle your final answer and include units.

Chapter 1

DO THE MATH (p. 7) - please go to p. 7 in your book to help you with this problem!

1 ha = 10,000 m²

How many km² are in 5 ha? (Show ALL your work NEATLY and circle your final answer - include units!!)

Reading Study Guide for the Text

The Mysterious Neuse River Fish Killer

Who:

What:

Where:

When:

Why:

Connection to the chapter (to be answered after reading the chapter):

KEY IDEAS

Define the field of environmental science and discuss its importance.

- 1) Describe the factors that make up an organism's environment?

2) In what ways is the field of environmental studies interdisciplinary?

3) Why is environmental science research important?

Identify ways in which humans have altered and continue to alter our environment.

4) Describe two ways humans change the environment.

5) What is the relationship between the development of technology and environmental impacts?

6) Describe how human development can have an impact on natural systems.

Describe key environmental indicators that help us evaluate the health of the planet.

7) What is an environmental indicator and what does it tell us?

8) Describe how the five global-scale environmental indicators we focus on in this book help us monitor the health of the environment.

Biological diversity -

Food production -

Average global surface temperature -

Human Population -

Resource Depletion -

9) Describe how human activities contribute to the changes in the five global-scale environmental indicators.

Biological diversity -

Food production -

Average global surface temperature -

Human Population -

Resource Depletion -

Define sustainability and explain how it can be measured using the ecological footprint.

10) What is meant by the basic human needs?

11) What does it mean to live sustainably?

12) What does an ecological footprint tell us? Why is it important to calculate?

Explain the scientific method and its application to the study of environmental problems.

13) List the main steps to the scientific method.

14) How do scientists use the scientific method to address environmental problems?

15) What is a hypothesis? What is a null hypothesis?

16) How are controlled and natural experiments different? Why do we need each type?

Describe some of the unique challenges and limitations of environmental science.

17) In what ways is environmental science different from other sciences?

18) Why (or when) is the lack of baseline data a problem in environmental science?

19) What makes environmental systems so complex?

Review **KEY IDEAS REVISITED** (p. 22). In a **different color** than the one you used to answer the questions above, add any information in this section that you did not address in your answers. You can either add the info NEXT to the related question or make a list below.

Chapter 2- Environmental Systems**Instructions**

- Complete this independently and thoughtfully after reading chapter 2.
- You are not required to make flashcards for the vocabulary but it is **HIGHLY** recommended to make flashcards (or make a quizlet account) for each chapter. It may not be necessary to make a flashcard for each term if you are already familiar with it.
- This must be HAND written

Chapter 2 Vocab

Matter	Inorganic Compounds	Chemical Energy
Mass	Organic Compounds	Temperature
Atom	Carbohydrates	First Law of Thermodynamics
Element	Proteins	Second Law of thermodynamics
Molecules	Nucleic Acids	Energy Efficiency
Compounds	DNA	Energy Quality
Isotopes	RNA	Entropy
Radioactive Decay	Lipids	Open System
Half-Life	Cell	Closed System
Surface Tension	Energy	Inputs
Capillary Action	Electromagnetic Radiation	Outputs
Acid	Photons	System Analysis
Base	Joule	Steady State
pH	Power	Negative Feedback Loops
Chemical Reaction	Potential Energy	Positive Feedback Loops
Law of Conservation of Matter	Kinetic Energy	Adaptive Management Plan

Chapter 2 Math

Directions: Complete the sample problem below. Some questions will require information from the DO THE MATH sections and you may not be able to complete them without a textbook. You must attempt every part of the questions to receive any credit. You must SHOW ALL WORK and NO CALCULATORS. Seriously!! Please circle your final answer and include units.

DO THE MATH (p. 38) - *go to P. 38 for help!!!*

You want to compare the energy you would save by purchasing an energy-efficient refrigerator with the energy you would save by driving a more fuel efficient car. Assume that for the amount you would spend on the new refrigerator (\$500), you can make repairs to your car engine that would save you 20 gallons (76 liters) of gasoline per month (1 liter of gasoline contains the energy equivalent of about 10 kWh). Using this information and Table 2.1 (pg. 37), convert the quantities of both gasoline and electricity into joules and compare the energy savings. Which decision would save the most energy? What is the total amount of energy saved choosing this option?

Reading Study Guide for the Text

A Lake of Salt Water, Dust Storms and Endangered Species

Who:

What:

Where:

When:

Why:

Connection to the chapter (to be answered after reading the chapter):

Define systems within the context of environmental science.

- 1) What is an environmental system? Name some examples.

- 2) How do systems vary in scale, and how does a large system include a smaller system?

- 3) What are the largest systems in the Mono Lake ecosystem?

What are some examples of smaller systems within that system?

Explain the components and states of matter.

- 4) Name and describe the three types of chemical bonds.

- 5) Identify the unique properties of water.

In what ways do those properties make life possible on Earth?

- 6) What are the four types of biological molecules and how do they differ from one another? (hint - a table might be helpful!)

Distinguish between various forms of energy and discuss the first and second laws of thermodynamics.

7) What is the difference between power and energy?

Why is it important to know the difference?

8) How do potential energy and kinetic energy differ?

9) What is chemical energy? Give an example.

10) Describe the first and second laws of thermodynamics.

Describe the ways in which ecological systems depend on energy inputs.

11) Provide an example of how organisms convert energy from one form to another.

12) How does energy determine the suitability of an environment for growing food?

Explain how scientists keep track of inputs, outputs, and changes to complex systems.

13) What is an open system? What is a closed system? Give an example of each.

Open system –

Closed system -

14) Why is it important to look at a whole system rather than only at its parts?

15) What is steady state?

What are feedback loops?

Why are they important?

Describe how natural systems change over time and space.

16) Give some examples of environmental conditions that might vary among natural systems.

17) Why is it important to study variations in natural systems over space and time?

Review **KEY IDEAS REVISITED** (p. 48-49). In a **different color** than the one you used to answer the questions above, add any information in this section that you did not address in your answers. You can either add the info NEXT to the related question or make a list below.