**APES Study Guide**

**Unit 1: INTRODUCTION TO ENVIRONMENTAL SCIENCE**

*DUE: Due on day of unit test.*

*Directions:**Answer each question in complete sentences.* ***Must be handwritten in order to receive credit.***

**Textbook Reference:**

Chapter 1 – Environmental Problems, Their Causes, and Sustainability

Chapter 2.1 – Science

Chapter 5.3 – Population Control

Chapter 25 – Environmental Worldviews, Ethics, & Sustainability

Supplement 1 – Scientific Measurements

Supplement 5 – Environmental History

**Outside Reading:**

Easter’s End

Tragedy of the Commons

**Study Guide Questions (SGQ):**

*Directions:**Answer each question in your own words as you read through the text. Answers must be handwritten.*

Chapter 1

1. What is sustainability and why should we care about it?
2. What are the four principles that nature has used to sustain itself for 3.5 billion years, and how can we use these principles to live more sustainably?
3. Describe how we can degrade natural capital and how finding solutions to environmental problems involves making trade-offs. Explain why individuals matter in dealing with the environmental problems we face.
4. Distinguish between more-developed countries and less-developed countries and give an example of a high-income, a middle income and a low-income country.
5. Define and give three examples of environmental degradation (natural capital degradation).
6. What is the tragedy of the commons?
7. Compare the total and per capita ecological footprint s of the United States and China.
8. Use the ecological footprint concept to explain how we are living unsustainably in the US.
9. What is the IPAT model for estimating our environmental impact?
10. Explain how we can use this model (IPAT) to estimate the impacts of the human populations in less-developed countries and more developed countries.
11. Describe three major cultural changes that have occurred since humans were hunter-gatherers.
12. Identify four basic causes of the environmental problems that we face today.
13. Describe the past, current, and projected exponential growth of the world’s human population.

Chapter 2.1

1. Describe the steps involved in the scientific process.
2. Explain why scientific theories are not to be taken lightly and why people often use the term “theory” incorrectly.

Chapter 5.3

1. Describe four variables that govern changes in population size and write an equation showing how they interact.
2. Distinguish between the environmental resistance and the carrying capacity of an environment, and use these concepts to explain why there are always limits to population growth in nature.
3. Define and give an example of a population crash.
4. Explain how change in species population is calculated.
5. Explain why humans are not exempt from nature’s population controls. Describe the exploding white-tailed deer population problem in the United States and discuss options for dealing with it.

Chapter 25

1. Distinguished between the four main worldviews and explain how human impact is approached in each.
2. What issues have arisen in deciding which species to protect from extinction as a result of human activities?
3. What are the six guidelines for how we, as a society, can live more sustainably?

Supplement 5

1. Explain the different environmental views over the course of history.
2. List and detail the contributions of the major key players that have impacted environmentalism.

**Vocabulary:**

*Directions: Review key vocabulary, words may appear in quizzes and/or tests. You are not required to write the definitions but are encouraged to review.*

Chapter 1

* biodiversity
* biodegradable pollutants
* developed countries
* developing countries
* ecological footprint
* ecological tipping point
* economic development
* economic growth
* environment
* environmental degradation
* environmental ethics
* environmental science
* environmentally sustainable society
* exponential growth
* gross domestic product (GDP)
* input pollution control
* less-developed countries
* more-developed countries
* natural capital
* natural income
* natural resources
* natural services
* non-degradable pollutants
* nonpoint sources
* nonrenewable resources
* output pollution control
* per capita ecological footprint
* per capita GDP
* perpetual resource
* point sources
* pollution
* pollution cleanup
* pollution prevention
* poverty
* recycling
* renewable resource
* resource
* reuse
* sustainability
* sustainable yield

Chapter 2

* data
* deductive reasoning
* frontier science
* inductive reasoning
* model
* paradigm shift
* peer review
* reliable science
* science
* scientific hypothesis
* scientific (natural) law
* scientific theory

Chapter 5

* population dynamics
* age structure
* biotic potential
* intrinsic rate of increase (r)
* environmental resistance
* exponential growth
* carrying capacity (K)
* Logistic growth
* Reproductive lag time
* K-selected species
* r-selected species
* population density

Chapter 25

* environmental worldviews
* environmental ethics
* planetary management worldview
* stewardship view
* environmental wisdom worldview
* deep ecology *worldview*