

Environmental Science: Semester Final Study Guide

** You may bring ONE 3 x 5 index card with notes on it (both sides). Your name MUST be written on the card because it MUST be HANDED IN when you hand in your final. You must also hand in ALL of your old tests. Part of your semester final grade will be based on handing in the old tests. There have been some supplemental readings that have been deleted from the final. Students are responsible for telling me no later than **Fri Dec 12, 2008** if they need an additional copy of the readings that will be on the test. Any requests for readings on Mon Dec 15, 2008 will NOT be honored. The study guides for each chapter contain all of the supplemental readings, so rely on the semester final study guide for an updated list of the required supplemental readings for the semester final. Terms that have an asterisk (*) after them indicate that they were mentioned in a supplemental reading or a PowerPoint presentation. **

On the semester final, you will find:

- Multiple choice
- True/False
- Matching
- Multiple multiple choice
- Short answers

Most of the questions will come from previous test questions. You should definitely study:

- Past tests
- Homework
- Reread sections from the textbook or supplemental readings should you need to refresh your memory
- Quizzes
- Class notes

Detailed study guides from each chapter can be found on my website. Below is a concise list of the information from each chapter that is important to know for the semester final.

Chapter 1 – Environmental Science: A Global Perspective

- Vocabulary
- Global environmental science
- Environmental problems
- Types of resources (renewable and nonrenewable)
- Global perspective
- Roots of environmental problems
- Building a sustainable world
- Types of science
- Scientific method
- Laboratory safety
- Making environmental decisions
- Decision-making model
- Externalized costs*
- Thomas Malthus*
- Population checks*
- Carrying Capacity*
- NIMBY*
- Nineveh*

Chapter 2 – Living Things in Ecosystems

- Vocabulary
- Ecosystem
- Biotic and abiotic factors
- Levels of organization (organism, population, communities ...)
- Niche and habitat
- Five major types of species interactions (predation, competition ...)

- Natural selection, evolution, coevolution, extinction
- Monoculture *
- Red Queen Hypothesis *
- Alien species *

Chapter 3 – How Ecosystems Work

** You do NOT have to know the water, carbon and nitrogen cycles. **

Chapter 5 – Water

- Vocabulary
- Water locations on Earth
- Surface water (Dams, rivers and controversy issues)
- Groundwater, Aquifers
- Water shortage solutions (desalinization, towing, conservation)
- Things you can do to conserve water
- Water pollution
- Point pollution, nonpoint pollution
- Clean Water Act, EPA
- Ocean pollution
- Exxon Valdez *

Chapter 6 – Air

- Vocabulary
- Air pollution
- Primary and secondary air pollutants
- Major air pollutants
- Clean Air Act, EPA
- Sources of air pollution
- Effects on human health
- Indoor air pollution, sick-building syndrome
- Asbestos
- Acid precipitation, acid shock, global cooperation
- Reducing acid rain
- Electric cars * (pg 170 in text)

Chapter 7 – Atmosphere and Climate

- Vocabulary
- Greenhouse effect, greenhouse gases
- Global warming, effects, temperature increase
- Sources of carbon dioxide
- Ozone, ozone hole, effects of thinning
- CFCs, damage caused by, things to reduce
- Global warming hoax *
- Carbon footprint *
- Carbon offsetting *
- An Inconvenient Truth *

Chapter 9 – Food

- Vocabulary
- Malnutrition
- Why people go hungry
- Green revolution *
- Subsistence farming
- Erosion, desertification, salinization
- Sustainable agriculture, low-input farming (organic)
- Pest control, pests
- Pesticides (advantages and disadvantages)
- Biological pest control
- Food irradiation *
- Global food consumption ladder *
- Organic farming, labels, USDA (advantages and disadvantages) *
- GMOs, labels (advantages and disadvantages) *

Chapter 12 – Waste

- Vocabulary
- Solid waste, municipal solid waste
- Biodegradable, nonbiodegradable material
- Disposal methods (landfill, incinerator)
- Leachate and methane
- Dealing with waste problems (produce less, recycle ...)
- Compost
- Paper v. plastic
- Degradable plastics
- Things you can do to reduce waste problems
- Hazardous waste, even at home
- RCRA, Superfund Act
- Love Canal
- Managing hazardous waste (produce less, reuse ...)
- Global waste dumping / NIMBY *

Chapter 11 – Energy, Biofuel and Green Consumerism

- Vocabulary
- Nuclear energy (advantages and disadvantages)
- Nuclear fission and fusion
- Energy conservation
- Things you can do to conserve energy
- Alternative energy sources (solar, wind ...)
- Biofuels, ethanol (advantages and disadvantages) *
- Green consumerism, lite green consumerism *
- Coal *

Examples of multiple multiple choice questions on the semester final.

Circle all answers that are correct.

1. Which of the following are disposal methods of hazardous waste?
 - a. produce less waste, so there is less to dispose
 - b. incinerate it
 - c. deep-well injection
 - d. ocean dumping
 - e. convert it into a neutral or benign substance
2. Which of the following can you do to help reduce the amount of waste?
 - a. eat pre-package meals
 - b. eat take-out every night
 - c. take more napkins than necessary at a fast food joint
 - d. throw out half-used notebooks at the end of the school year
 - e. use plastic and paper bags at the grocery store
3. Which of the following are advantages of GMOS?
 - a. they are more reliable than conventional breeding and farming
 - b. they reduce the need for pesticides
 - c. they may cause allergic reactions

- d. they could be produced in higher yields to feed the growing human population
 - e. they can produce a better tasting produce
4. Which of the following are NOT major air pollutants?
- a. VOC
 - b. ozone
 - c. carbon monoxide
 - d. asbestos
 - e. radioactive waste
5. Which of the following are values that may affect environmental decision-making?
- a. economic
 - b. health
 - c. recreational
 - d. scientific
 - e. environmental

Answers

- 1. a, b, c, e
- 2. none should be circle
- 3. a, b, d, e
- 4. b, d, e
- 5. a, b, c, d, e (all circled)