

AP Exam Tips – Environmental Science

Multiple Choice Hints

One hundred questions – use #2 pencil

Only 50% of questions correct = a 3 on the exam!

Scoring 80–100% on multiple choice and get a 5

The answers are NEVER “all of the above” or “none of the above”

Always guess! Score = # correct (no longer do they take off 1/4 for wrong answer)

Essay Hints

Four questions – use black ball point pen

one document reading (ex. Read this article and explain X),

one evaluation of data set (ex. Interpret this data chart and explain Y),

two synthesis of base knowledge (ex. Design an experiment to test Z)

Read the question! Read the question! Read the question!

Write an essay. Answer in sentence form, NO points awarded for lists/outlines

Only write on the pink section that will be graded, don't worry about the green sheet that is returned to the school

If asked to describe three things, for example, only the first three answers provided will be graded – don't waste time putting down extra answers

Show every step in calculations, no calculators allowed.

Be specific, no penalties for wrong statement, only positive points for correct one

No points for rewording the question.

Pay close attention to verbs in the question (describe, compare, graph, calculate)

Define and/or explain any terms you use; just throwing in buzzwords doesn't work

Don't use acronyms

Answer the question parts in the order called for and label them “a”, “b”, etc., as they are labeled in the question. It is best not to skip around.

Write clearly and neatly. Points cannot be awarded if handwriting is illegible.

Be sure to include the obvious (ex. light is necessary for photosynthesis). No detail is too small.

If questions ask you to indicate the relationship between two or more concepts and you do not know the relationship, at least tell what you do know about them individually

The test is written to be hard. The national average for the essay section will be about 50% correct. It is very likely that you will not know everything. This is expected, but it is likely that you do know something about each essay, so relax and do the best you can. Write thorough answers.

If you are asked to design an experiment, be sure to:

Identify hypothesis, independent variable(s), dependent variable(s)

describe methods in detail, describe how data will be collected and analyzed

If you are asked to graph, be sure to:

Set up the independent variable on the x-axis and the dependent variable on the y-axis, marking the axes in equal increments, label axes and title

Spelling does not count, however, very poor spelling and grammar hurt your chances

Make an effort on every question. Don't Quit.

Know major laws, soil triangle, tropo/strato ozone, wastewater treatment, age structure diagrams, bioaccumulation, nutrient cycles, natural selection, biomes, point/nonpoint source pollution, renewable/nonrenewable energy sources, biodiversity, and every thing else about environmental science!

Get a good night sleep and eat a healthy snack before the test. Good Luck!

Check out <http://www.collegeboard.com/ap/students/envsci/index.html>
(linked from Mr. Rush's website) for much more information

APES Topic Outline

I. Earth Systems and Resources (10-15%)

- A. Earth Science Concepts (Geologic time scale; plate tectonics, earthquakes, volcanism; seasons; solar intensity and latitude)
- B. The Atmosphere (Composition; structure; weather and climate; atmospheric circulation and the Coriolis Effect; atmosphere-ocean interactions; ENSO)
- C. Global Water Resources and Use (Freshwater/saltwater; ocean circulation; agricultural, industrial, and domestic use; surface and groundwater issues; global problems; conservation)
- D. Soil and Soil Dynamics (Rock cycle; formation; composition; physical and chemical properties; main soil types; erosion and other soil problems; soil conservation)

II. The Living World (10-15%)

- A. Ecosystem Structure (Biological populations and communities; ecological niches; interactions among species; keystone species; species diversity and edge effects; major terrestrial and aquatic biomes)
- B. Energy Flow (Photosynthesis and cellular respiration; food webs and trophic levels; ecological pyramids)
- C. Ecosystem Diversity (Biodiversity; natural selection; evolution; ecosystem services)
- D. Natural Ecosystem Change (Climate shifts; species movement; ecological succession)
- E. Natural Biogeochemical Cycles (Carbon, nitrogen, phosphorus, sulfur, water, conservation of matter)

III. Population (10-15%)

- A. Population Biology Concepts (Population ecology; carrying capacity; reproductive strategies; survivorship)
- B. Human Population
 - 1. Human population dynamics (Historical population sizes; distribution; fertility rates; growth rates and doubling times; demographic transition; age-structure diagrams)
 - 2. Population size (Strategies for sustainability; case studies; national policies)
 - 3. Impacts of population growth (Hunger; disease; economic effects; resource use; habitat destruction)

IV. Land and Water Use (10-15%)

- A. Agriculture
 - 1. Feeding a growing population (Human nutritional requirements; types of agriculture; Green Revolution; genetic engineering and crop production; deforestation; irrigation; sustainable agriculture)
 - 2. Controlling pests (Types of pesticides; costs and benefits of pesticide use; integrated pest management; relevant laws)
- B. Forestry (Tree plantations; old growth forests; forest fires; forest management; national forests)
- C. Rangelands (Overgrazing; deforestation; desertification; rangeland management; federal rangelands)
- D. Other Land Use
 - 1. Urban land development (Planned development; suburban sprawl; urbanization)
 - 2. Transportation infrastructure (Federal highway system; canals and channels; roadless areas; ecosystem impacts)
 - 3. Public and federal lands (Management; wilderness areas; national parks; wildlife refuges; forests; wetlands)
 - 4. Land conservation options (Preservation; remediation; mitigation; restoration)
 - 5. Sustainable land-use strategies
- E. Mining (Mineral formation; extraction; global reserves; relevant laws and treaties)
- F. Fishing (Fishing techniques; overfishing; aquaculture; relevant laws and treaties)
- G. Global Economics (Globalization; World Bank; Tragedy of the Commons; relevant laws and treaties)

V. Energy Resources and Consumption (10-15%)

A. Energy Concepts (Energy forms; power; units; conversions; Laws of Thermodynamics)

B. Energy Consumption

1. History (Industrial Revolution; exponential growth; energy crisis)

2. Present global energy use

3. Future energy needs

C. Fossil Fuel Resources and Use

(Formation of coal, oil, and natural gas; extraction/purification methods; world reserves and global demand; synfuels; environmental advantages/disadvantages of sources)

D. Nuclear Energy (Nuclear fission process; nuclear fuel; electricity production; nuclear reactor types; environmental advantages/disadvantages; safety issues; radiation and human health; radioactive wastes; nuclear fusion)

E. Hydroelectric Power (Dams; flood control; salmon; silting; other impacts)

F. Energy Conservation (Energy efficiency; CAFE standards; hybrid electric vehicles; mass transit)

G. Renewable Energy (Solar energy; solar electricity; hydrogen fuel cells; biomass; wind energy; small-scale hydroelectric; ocean waves and tidal energy; geothermal; environmental advantages/disadvantages)

VI. Pollution (25-30%)

A. Pollution Types

1. Air pollution (Sources-primary and secondary; major air pollutants; measurement units; smog; acid deposition-causes and effects; heat islands and temperature inversions; indoor air pollution; remediation and reduction strategies; Clean Air Act and other relevant laws)

2. Noise pollution (Sources; effects; control measures)

3. Water pollution (Types; sources, causes, and effects; cultural eutrophication; groundwater pollution; maintaining water quality; water purification; sewage treatment/septic systems; Clean Water Act and other relevant laws)

4. Solid waste (Types; disposal; reduction)

B. Impacts on the Environment and Human Health

1. Hazards to human health (Environmental risk analysis; acute and chronic effects; dose response relationships; air pollutants; smoking and other risks)

2. Hazardous chemicals in the environment (Types of hazardous waste; treatment/disposal of hazardous waste; cleanup of contaminated sites; biomagnification; relevant laws)

C. Economic Impacts (Cost-benefit analysis; externalities; marginal costs; sustainability)

VII. Global Change (10-15%)

A. Stratospheric Ozone (Formation of stratospheric ozone; ultraviolet radiation; causes of ozone depletion; effects of ozone depletion; strategies for reducing ozone depletion; relevant laws and treaties)

B. Global Warming (Greenhouse gases and the greenhouse effect; impacts and consequences of global warming; reducing climate change; relevant laws and treaties)

C. Loss of Biodiversity

1. Habitat loss; overuse; pollution; introduced species; endangered and extinct species

2. Maintenance through conservation

3. Relevant laws and treaties