



AP Environmental Science Course Syllabus

Mr. Gibbs Room D308

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Course Description: AP Environmental Science (APES) is a one year course that examines the relationships between earth's systems and the effects of human interactions with these systems. This is an interdisciplinary subject that uses the students' prior knowledge of biology, chemistry, and physics. The topics covered in this course will include:

- Ecology
- Earth systems: weather, basic geology, ocean currents
- Cycling of matter
- Energy flow
- Resource management
- Human population growth and dynamics
- Environmental quality: water, land, and air
- Environment and society: Trade-offs and decision making

Course Objectives: The goal of APES is to provide the students with the knowledge and skills necessary to understand the interrelationships of the natural world, to identify environmental problems both manmade and natural, and to examine solutions to resolving these issues. The following themes serve as the structure for AP Environmental Science.

1. Science is a process providing a methodology for examining and understanding the world.
2. Energy conversions underlie all ecological processes. Energy cannot be created or destroyed. As it flows through a system its quality is degraded.
3. The Earth is one large interconnected system. These systems change over time.
4. Humans alter the natural systems through technology and population growth.
5. Environmental problems and their solutions involve social, cultural and economic factors.
6. Human survival depends on the ability to develop sustainable systems to support the human population.

Student responsibilities: The students are expected to read on their own, do internet research on current environmental issues, write meaningful arguments to support their views on the topics covered in class, participate in class discussions, and complete all assigned projects and reports.

Course Outline:

First Semester

Unit One: Science Essentials

Chemistry (atoms, ions, pH, chemical reactions, isotopes, radioactive decay, properties of water), Biology (photosynthesis, respiration, macromolecules), Physics (electromagnetic radiation, thermodynamics)

Unit Two: Earth's Systems

Basic geology, plate tectonics, atmosphere composition, ocean currents and global climate patterns, nutrient cycling, soil

Unit Three: The Biosphere

Ecosystems, energy transfer, population growth and carrying capacity, community ecology and interspecies interaction, biomes, niches, natural selection, evolution, and extinction

Unit Four: Human Population

Population growth, demographic transitions, age-structure diagrams, poverty, health and disease, zero growth

Second Semester:

Unit Five: Natural Resources and Management

Water resources, land use, conservation, food production, GMOs, forestry, fisheries

Unit Six: Energy Resources

Petroleum, coal, natural gas, hydroelectric, nuclear, alternative sources (wind, solar, geothermal), costs and associated problems, energy efficiency

Unit Seven: Pollution

Water pollution, point/nonpoint sources, air pollution, solid waste, treatment and management, recycling

Unit Eight: Sustainability and the Future

Technology, geoengineering, city planning, the future

Grading: Students grades are based on an accumulation of points earned from tests and quizzes, position papers, lab reports, presentations, and projects.

A = 93% to 100%	B = 83% to 86%	C = 73% to 76%	D = 60% to 66%
A- = 90% to 92%	B- = 80% to 82%	C- = 70% to 72%	F = 59% and below
B+ = 87% to 89%	C+ = 77% to 79%	D+ = 67% to 69%	