Environmental Science

Semester A Summary:

This is the first of two courses that comprise Environmental Science. This course offers the student an opportunity to gain an understanding of the concepts fundamental to environmental science. These concepts are keys that will help unlock our abilities to safeguard resources, manage waste, reduce pollution, protect the food chain, adapt to changing fuel needs, and champion our planet on all levels – from the conscientious management of the smallest household to the protection of the largest biospheres.

Semester A Outline

1. **The Methods and Nature of Environmental Science**
    1. Identifying Main Environmental Factors
        - Consider what makes up the environment
        - Learn the main "factors" that are needed to understand the environment in a logical manner
        - Realize the importance of the human factor on the environment
    2. The Scientific Method
        - Learn one method of scientific problem-solving
        - Discover the steps of the scientific method
        - Experiment with the scientific method
    3. Environmental Specialists
        - Learn about the many types of specific specialists
        - Identify which scientists work in various environments
    4. Observation and Record Keeping - Past and Present
        - Explore how different civilizations have recorded the environments around them through the centuries
        - Learn how environmental scientists record their observations
        - Discover ways that you can record information about your own environment
    5. Environmental Accidents and Scientific Methods
        - Discover the challenges scientists face when emergencies occur
        - Realize the effects of accidental contamination on the environment
    6. Biotic versus Abiotic
        - Define and differentiate abiotic and biotic
        - Learn the basic differences between biotic and abiotic objects
    7. Earth Divisions
        - Study the divisions of the Earth and their locations
        - See how each division contributes to the environment
    8. Hierarchy of Biology
        - Discover the way life is organized from the tiniest parts of an organism to the largest forms of life
        - Explore the importance of listing and classifying organisms
    9. Population versus Community

- Gain a better understanding of the differences between population and community
- Learn the names of various groups of animals

10. Biodiversity
    - Explore how life forms adapt to their surroundings
    - Discover how diverse organisms can be
    - Learn about Charles Darwin and his theory of natural selection

2. **Earth's Processes**
    1. Domestic vs. Wild
        - Explore the differences between domestic and wild plants and animals
        - Discover how domestication has improved the way humans live
        - Consider the concept of selective breeding
    2. Environmental Invaders
        - Learn about the delicate balance between organisms and their surroundings
        - Consider the introduction of new life forms in America and how they affect the already existing populations
        - Explore the ways of controlling the effects of new organisms in a community
    3. The Water Cycle
        - Discover the stages of the water cycle
        - Explore how water and the various stages of the water cycle impact everyday life
    4. Acid Rain
        - Learn where acid rain comes from
        - Discover how acid rain affects the environment
        - Consider ways to prevent acid rain in the future
    5. Ground Water Pollution
        - Examine sources of ground pollution
        - Explore the importance of ground water and fresh water
        - Consider how the water we drink is affected by pollution
    6. The Carbon Cycle
        - Learn about the carbon cycle - how carbon is circulated through the environment
        - Discover how carbon relates to people, plants, and animals
        - Explore the processes in plants and animals that use carbon
    7. The "Greenhouse Effect" And Global Warming
        - Gain a better understanding of how the carbon cycle is affected by pollution
        - Discover the role carbon plays in both good and harmful processes on Earth
        - Consider the concepts of global warming and the "greenhouse effect"
    8. Air Pollution
        - Explore how air pollution is affecting every part of the globe
        - Discover the main air pollution issues
        - Consider ways to improve air quality
    9. The Food Chain
        - Learn about the food chain
        - Discover how nature dictates food choices
        - Understand the importance of the food chain
    10. Food Chain Pollution
        - Discover how the food chain is affected by pollution
        - Examine the difficulties of repairing damage to the food chain
        - Realize how invader species can affect the food chain

3. **Final Review and Exam**
    1. Environmental Science A Final Review

2. Environmental Science A Final Exam

Semester B Summary:

This is the second of two courses that comprise Environmental Science. This course offers the student an opportunity to gain an understanding of the concepts fundamental to environmental science. These concepts are keys that will help unlock our abilities to safeguard resources, manage waste, reduce pollution, protect the food chain, adapt to changing fuel needs, and champion our planet on all levels — from the conscientious management of the smallest household to the protection of the largest biospheres.

Semester B Outline

1. **Environmental Science Programs and Policies**
    1. Policies and Agencies
        - Learn about the departments and agencies that the United States has established to monitor specific issues in the environment
        - Discover how the different agencies overlap focus on issues and work together to find solutions to problems in the environment
    2. Recent Policy Changes and Energy Issues
        - Explore the government's new energy legislation and what it means for individuals and companies
        - Consider the supply and demand of energy
        - Discover the advantages and disadvantages of the new laws
    3. Local Environmental Agencies
        - Learn about the Environmental Protection Agency and how it works to make the environment clean and safe
        - Explore the laws that the EPA has developed to prevent further harm to the environment
        - Discover how local government works with the EPA to regulate pollution in cities and towns
    4. International Environmental Concerns
        - Discover environmental problems which affect the planet and its species
        - Explore how deforestation creates even greater problems with global warming
        - Consider the efforts some make to clean up the environment and the lack of effort by others
    5. Environmental Groups and Regulatory Violations
        - Discover various environmental groups that work to improve the environment
        - Explore how environmental groups take different approaches to pollution and its control
    6. Planning Conservation
        - Discover the ways people are saving energy in their homes
        - Consider how older homes can be more energy efficient
    7. Waste Management
        - Learn about the entire process of waste management
        - Explore the different classes of waste processing
    8. Composting
        - Learn about the process of composting biodegradable materials
        - Discover the benefits of composting and how it can help reduce waste in landfills

9. Space Waste
    - Discover the growing problems faced by waste in space
    - Realize the damage space waste can cause
    - Explore methods of cleaning up space waste
10. Transportation Challenges
    - Discover the importance of the trucking industry
    - Consider ways to make trucking transportation safer
    - Learn about the laws that govern the trucking industry

2. **The Effects of Environmental Science Technology**
    1. Standard Electric Energy Production Methods
        - Discover the basic theory of generating electricity
        - Explore different ways to generate electricity
        - Consider ways power plants can harm the environment
        - Describe the role natural resources play in providing raw materials for an industrial society
    2. New Energy Production Methods
        - Explore new designs for safely producing power
        - Discover how energy sources are harnessed to produce power
    3. Fuel Production and Transport Problems
        - Discover the basic steps of oil production
        - Explore how the environment can be effected by oil drilling
    4. United States Agriculture
        - Explore the world's need for farmers
        - Discover the many diverse crops grown in the United States
        - Understand why farmland is being sold and developed into new homes and businesses
        - Consider the need to preserve our nation’s farmlands
    5. Modern Agriculture and New Technology
        - Learn about new technologies in agriculture
        - Discover how these technologies are helping and hurting today’s farmers
        - Explore what can be done to help American farmers keep their land
    6. Less Pesticides and More IPM
        - Discover integrated pest management techniques
        - Explore how using IPM can help save crops in an environmentally-friendly way
    7. Genetically Modified Organisms (GMOs)
        - Compare and consider the pros and cons of genetically altering foods
        - Discover how GMOs are helping to improve the products we buy
        - Explore ways GMOs are helping doctors cure diseases
    8. Grazing and Public Land Management
        - Learn about how the Bureau of Land Management regulates land under its control
        - Explore the reintroduction of wild species into national parks and the impact it has on the existing species
        - Discover the Acts of Congress that protect federal land and the animals living there
    9. New Environmental Uses of Corn
        - Discover why corn is the most important crop in the United States and across the globe
        - Explore the many uses of corn from food to blankets
        - Learn about a more efficient fuel made from corn
    10. It’s All Up to You!

- Review the keywords from this course
- Recap the main ideas of this course
- Consider your role in protecting and preserving the Earth

3. **Final Review and Exam**
    1. Environmental Science B Final Exam Review
    2. Environmental Science B Final Exam

