Syllabus

Environmental Science, Semester B

Course Overview

This one-semester course is intended to introduce you to the concepts and processes of environmental science. This course has 14 lessons organized into four units, plus four Unit Activities. Each lesson contains one or more Lesson Activities.

In Environmental Science, Semester B, you will learn about the factors that affect populations. You will explore human population growth and its implications. You will describe the factors that lead to unequal distribution of natural resources on Earth. You will discuss waste management. You will describe different forms of pollution, and explore ways to control pollution. You will explore various nonrenewable and renewable energy sources. Further, you will learn about benefits of environmental policies and identify factors that affect sustainable development.

Your teacher will grade your work on the Unit Activities, and you will grade your work on the Lesson Activities by comparing them with the given sample responses. The Unit Activities (submitted to the teacher) and the Lesson Activities (self-checked) are major components of this course. There are other assessment components, namely the mastery test questions that feature along with the lesson; the pre- and post-test questions that come at the beginning and end of the unit, respectively; and an end-of-semester test. All of these tests are a combination of simple multiple-choice questions and technology-enhanced (TE) questions.

Course Goals

By the end of this course, you will be able to do the following:

- Describe human population growth and its implications.
- Discuss the preservation and conservation of wildlife species.
- Explain the causes of the unequal distribution of Earth's resources.
- Describe various reuse and recycling options for resources.
- Discuss the effect of pollutants on population.
- Describe the methods to control pollution.
- Describe sources of nonrenewable energy such as crude oil, natural gas, coal, and uranium.
- Describe sources of renewable energy such as solar energy, wind energy, hydropower, geothermal energy, and biomass.

- Discuss the need for environmental policies and their benefits.
- Discuss how environmental quality affects the quality of life.

General Skills

To participate in this course, you should be able to do the following:

- complete basic operations with word-processing software such as Microsoft Word or Google Docs
- complete basic operations with presentation software such as Microsoft PowerPoint or Google Docs presentation
- perform online research using various search engines and library databases
- communicate through email and participate in discussion boards

For a complete list of general skills that are required for participation in online courses, refer to the Prerequisites section of the Plato Student Orientation document, found at the beginning of this course.

Credit Value

Environmental Science, Semester B is a 0.5-credit course.

Course Materials

- computer with Internet connection and speakers or headphones
- scanner
- printer
- digital camera/video camera
- Microsoft Word or equivalent
- Microsoft PowerPoint or equivalent

Course Pacing Guide

This course description and pacing guide is intended to help you keep on schedule with your work. Note that your course instructor may modify the schedule to meet the specific needs of your class. For Unit Activity 1, you can do fieldwork (visiting a wildlife site) if possible, or you can research online. Fieldwork is required for Unit Activities 2 and 3. This will involve field visit to a

resource/waste site and air/water pollution site. Unit Activity 4 involves both fieldwork (visiting a place where sustainability practice is followed) and research work.

Unit 1: Population and Wildlife Conservation

Summary

In this unit, you will learn about the main limiting factors in the growth of an organism's population. You will learn about the history of human population growth and explore the concept of demographic transition. Further, you will learn about the changes in land use in response to population growth. You will also learn about the importance of wildlife and identify threats to wildlife.

Day	**Activity/***Objective*	Type
1 day: 1	**Syllabus and Plato Student Orientation** *Review the Plato Student Orientation and Course Syllabus at the beginning of this course.*	Course Orientation
4 days: 2–5	**Understanding Populations** *Discuss the factors that affect populations.*	Lesson
4 days: 6–9	**Human Population Growth and Land Use** *Explore human population growth and its implications.*	Lesson
4 days: 10–13	**Wildlife Conservation** *Discuss the preservation and conservation of wildlife species.*	Lesson
1 day: 14	**Para Jumble**	Game
5 days: 15–19	**Unit Activity and Discussion—Unit 1**	Unit Activity Discussion
1 day: 20	**Posttest—Unit 1**	Assessment

Unit 2: Resource and Waste Management

Summary

In this unit, you will explore how geography, government, and climate of a place affect resource distribution. You will learn how economic development of a country depends on its natural resources. You will discuss the management of natural resources using various property rights regimes. You will also explore different types of solid waste and technologies for waste management, such as cogeneration plants.

Day	**Activity/***Objective*	Type
4 days: 21–24	**Resources Inequality** *Describe the causes of the unequal distribution of Earth's resources.*	Lesson
4 days: 25–28	**Natural Resource Management** *Discuss the management of natural resources using various property rights regimes.*	Lesson
4 days: 29–32	**Waste Management** *Describe various reuse and recycling options of resources.*	Lesson
1 day: 33	**Space Jumble**	Game
6 days: 34–39	**Unit Activity and Discussion—Unit 2**	Unit Activity Discussion
1 day: 40	**Posttest—Unit 2**	Assessment

Unit 3: Pollution and Pollution Control

Summary

In this unit, you will learn about different forms of pollution. You will identify point and nonpoint sources of contamination and describe factors that determine the severity of a pollutant. You will describe the effects of pollution on human health and the environment. You will describe the reasons for ozone layer depletion. You will discuss the causes and effects of acid rain. You will describe the greenhouse effect. You will also describe the ways to control air, water, and soil pollution at their sources.

Day	**Activity/***Objective*	Type
4 days: 41–44	**Pollution** *Explore the effect of pollutants on population.*	Lesson
4 days: 45–48	**Air Pollution** *Discuss the effect of air pollution on the global environment.*	Lesson
4 days: 49–52	**Pollution Control** *Describe the methods for controlling pollution.*	Lesson
1 day: 53	**Para Jumble**	Game
6 days: 54–59	**Unit Activity and Discussion—Unit 3**	Unit Activity Discussion
1 day: 60	**Posttest—Unit 3**	Assessment

Unit 4: Energy Sources and Sustainable Development

Summary

In this unit, you will learn about the advantages and disadvantages of nonrenewable energy sources. You will also explore sources of renewable energy. You will describe the need for environmental policies. You will also explore sustainable development, and learn about sustainable living as a way to reduce consumption of natural resources and protect the environment. Finally, you will describe how quality of life depends on the environment.

Day	**Activity/***Objective*	Type
4 days: 61–64	**Nonrenewable Energy Sources** *Explore sources of nonrenewable energy such as crude oil, natural gas, coal, and uranium.*	Lesson
4 days: 65–68	**Renewable Energy Sources** *Explore sources of renewable energy such as solar energy, wind energy, hydropower, geothermal, and biomass.*	Lesson
4 days: 69–72	**Environmental Policies** *Describe the need for environmental policies and their benefits.*	Lesson
4 days: 73–76	**Sustainable Development** *Identify factors that affect sustainable development.*	Lesson
4 days: 77–80	**Environmental Quality** *Describe how environmental quality affects the quality of life.*	Lesson
1 day: 81	**Thwack-A-Mole**	Game
6 days: 82–87	**Unit Activity and Discussion—Unit 4**	Unit Activity Discussion
1 day: 88	**Posttest—Unit 4**	Assessment

Day	**Activity/***Objective*	Type
1 day: 89	**Semester Review**	
1 day: 90	**End-of-Semester Exam**	Assessment