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 describe human population growth and its implications. You will describe the factors that lead to unequal distribution of natural resources on Earth. You will explain waste management. You will describe different forms of pollution, and ways to control pollution. You will describe 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.
- Describe the preservation and conservation of wildlife species.
- Describe the causes of the unequal distribution of Earth's resources.
- Describe various reuse and recycling options of resources.
- Describe the effect of pollutants on population.
- Describe the methods for controlling pollution.
- Describe various sources of nonrenewable energy such as crude oil, natural gas, coal, and uranium.

- Describe various sources of renewable energy such as solar energy, wind energy, hydropower, geothermal energy, and biomass.
- Describe the need for environmental policies and their benefits.
- Describe 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 teacher 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.

Course Components and Grading Rubric

The table gives a breakdown of the weight for each component in the course. Weight represents the percentage of the total score coming from each activity.

Course Components	Count	Weight
Pretest. *Pretests are optional assessments, typically designed for credit recovery use. If a student shows mastery of a lesson's objective, the student may be automatically exempted from that lesson in the upcoming unit. Typically, teachers do not choose to employ exemptive pretests for first-time credit courses. Pretests are not included as a component of the student's final grade.*	4	0%
Module. *Each module in this course contains an interactive tutorial and an associated mastery test. Tutorials may include one or more Lesson Activities that constitute tasks associated with the tutorial. The module score comes from a student's score on the mastery test.*	14	20%
Discussion. *Online discussions allow for higher-order thinking about terminal objectives. An online threaded discussion mirrors the educational experience of a classroom discussion. Teachers can initiate a discussion by asking a complex, open-ended question. Students can engage in the discussion by responding both to the question and to the thoughts of others. Each unit in a course has one predefined discussion topic; teachers may add more discussion topics.*	4	12%
Unit Activity. *Unit Activities are at the end a unit and constitute one or more small tasks. Their purpose is to deepen understanding of key unit concepts and tie them together. Each Unit Activity includes a simple rubric. The teacher versions include both a rubric and modeled sample answers. Unit Activities are teacher graded.*	4	20%
Posttest. *The posttest appears at the end of the unit and mirrors the pretest in structure, content, and complexity.*	4	20%
End of Semester Test. *The end of semester test (EOS) appears at the end of the course. Students are delivered a few items from every tutorial in the course in order to assess the major course objectives.*	1	20%
Total	**31**	**100%**

**Teachers may manually adjust these weights if desired, per district grading requirements.*

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 describe 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** *Describe the factors that affect populations.*	Lesson
4 days: 6–9	**Human Population Growth and Land Use** *Describe human population growth and its implications.*	Lesson
4 days: 10–13	**Wildlife Conservation** *Describe 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 describe 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 explain the management of natural resources using various property rights regimes. You will also describe 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** *Explain 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 describe 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** *Describe the effect of pollutants on population.*	Lesson
4 days: 45–48	**Air Pollution** *Describe 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 describe sources of renewable energy. You will describe the need for environmental policies. You will also identify factors that affect 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** *Describe various sources of nonrenewable energy such as crude oil, natural gas, coal, and uranium.*	Lesson
4 days: 65–68	**Renewable Energy Sources** *Describe various sources of renewable energy such as solar energy, wind energy, hydropower, geothermal energy, 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

Course Map

You will achieve course level objectives by completing each lesson's instruction, assignments, and assessments. For a detailed look at how the materials meet these objectives, review the course map for Semester B.