

Lesson A1–3

Understanding Human Demands on Natural Resources

Unit A. Natural Resources

Problem Area I. Introduction to Natural Resources

Lesson 3. Understanding Human Demands on Natural Resources

New Mexico Content Standard:

Pathway Strand: Natural Resources and Environmental Systems

Standard: I: Recognize importance of resource and human interrelations to conduct management activities in natural habitats.

Benchmark: I-A: Identify resource management components to establish relationships in natural resource systems.

Performance Standard: 3. Identify impacts by humans on natural resources.

Student Learning Objectives. Instruction in this lesson should result in students achieving the following objectives:

1. Explain how humans use natural resources.
2. Describe human population trends.
3. Identify the urban and rural impacts of natural resource use.
4. Explain the impact of recycling and reusing resources.

List of Resources. The following resources may be useful in teaching this lesson:

Recommended Resources. One of the following resources should be selected to accompany the lesson:

Porter, Lynn, et al. *Environmental Science and Technology*. 2nd Edition. Upper Saddle River, New Jersey: Prentice Hall Interstate, 2003. (Textbook and Activity Manual, Chapter 5)

Arms, Karen. *Environmental Science*. New York: Holt, Rinehart and Winston, 1996. (Textbook, Chapter 2)

Other Resources. The following resources will be useful to students and teachers:

Turk, Jonathan and Amos Turk. *Environmental Science*. 3rd Edition. New York: CBS College Publishing, 1984.

Stutzenbaker, Charles D. et al. *Wildlife Management Science and Technology*. 2nd Edition. Upper Saddle River, New Jersey: Prentice Hall Interstate, 2003.

Lee, Jasper. *Natural Resources and Environmental Technology*. Danville, Illinois: Interstate Publishers, Inc., 2000.

List of Equipment, Tools, Supplies, and Facilities

Writing surface
Overhead projector
Transparencies from attached masters
Copies of student lab sheets

Terms. The following terms are presented in this lesson (shown in bold italics):

Consumptive use
Demographics
Demography
Land-use planning
Non-consumptive use
Population
Recycling
Reusing
Sustainability
Zoning

Interest Approach. Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and student situations. A possible approach is included here.

Have students write down the number of people in their immediate family. Next, they need to count the number of aunts, uncles, cousins, and grandparents they have. They should add this to the number of people in their immediate family. Ask the students what they came up with. Some will have higher numbers than others, ask them to explain why. Next, have them think about what would happen if they all had to live in one house. Have them consider the amount of room that many people would take up and how much food and water they'd need. Explain that the demands would exceed the amount of resources available.

Summary of Content and Teaching Strategies

Objective 1: Explain how humans use natural resources.

Anticipated Problem: How do humans use natural resources?

- I. Humans use natural resources to help meet their three basic needs. The three basic needs of humans are food, clothing, and shelter. The use of natural resources to meet these needs is in two forms, consumptive use and non-consumptive use.
 - A. **Consumptive use** is using a natural resource so that the amount used no longer exists. Each time that resource is used, its supply is reduced. An example of consumptive use is hunting. Once that animal is killed and removed from the wild, it no longer exists.
 - B. **Non-consumptive use** is using a natural resource without reducing its supply. An example of non-consumptive use is watching wildlife. It is possible to enjoy the beauty of the wildlife without killing or removing it from the wild. It is being used for enjoyment, not being consumed.

Use TM: A1–3A to review this objective. Ask students to think about the natural resources they've consumed in the past 24 hours in order to meet their own needs.

Objective 2: Describe the human population trends.

Anticipated Problem: What are the human population trends?

- II. **Population** is the number of people in a given area. Changes in the population of an area occur over time as an area develops. The population of the earth is currently 6 billion people. That number is predicted to nearly double over the next 50 years. **Demography** is the study of the human population. It is studied by people called social scientists. **Demographics** are the data collected about the human population.

Use the diagram on TM: A1–3B to review the estimated population growth trends through 2050.

Objective 3: Identify the urban and rural impacts of natural resource use.

Anticipated Problem: What are the urban and rural impacts of natural resource use?

- III. Virtually all human activities impact natural resources. From the use of water to bathe to the use of animals for food, natural resource use is unavoidable. The difference in impact between urban and rural areas is determined by their population density. People live closer together in urban areas. Therefore, urban areas have a more dense population.
- A. In order to use land in the best possible way, people depend on land-use planning. **Land-use planning** is deciding how land will be used. The plan developed should include guidelines on how to use the land for agricultural, commercial, and residential areas. The goal of land-use planning should be to help preserve agricultural and wildlife areas. Zoning may be necessary to keep areas from being used in ways that are not planned for. **Zoning** is setting aside certain areas of land for specified use.
- B. In order to protect our resources, urban and rural areas must work together. Urban areas rely on rural areas to provide them with quality water, a consistent food supply, and materials to build their homes. Rural areas depend on urban areas to do their best to keep the environment clean and healthy.

Use TM: A1–3C to review the terms covered in this objective.

Objective 4: Explain the impact of recycling and reusing natural resources.

Anticipated Problem: What is the impact of recycling and reusing natural resources?

- IV. The demand for natural resources can be reduced if we recycle the ones we currently use. Trees, minerals, and water are examples of natural resources that can be recycled and reused. Following through with these practices can ensure the sustainability of natural resources. **Sustainability** is going about life so that resources are available for future generations to use.
- A. **Recycling** is using a product or the materials to make a product again. Aluminum, iron, plastic, paper, and glass are examples of items that can be recycled. Items can be recycled at recycling centers.
- B. **Reusing** is using a product again and again without re-manufacturing. Examples of re-using a product include using grocery store bags as lunch sacks and refilling plastic water bottle with tap water to drink or to use as a watering can.

Use TM: A1–3D to review recycling and reusing covered. Assign students to go home tonight and look for containers that can be recycled. The recycling symbol can be found on the bottom of most plastic containers. Also, they can look at items packaged in cardboard boxes. Many times the label will say that the package was produced using X percent recycled materials.

Review/Summary. To review and summarize the information in this lesson, have the students define the terms and answer the anticipated questions.

Application. To apply the objectives in this lesson, use LS: A1–3A Natural Resources in Our Community.

Evaluation. Use the following sample test to evaluate the students' comprehension of the objectives covered in this lesson.

Answers to Sample Test:

Part One: Matching

1 = a, 2 = c, 3 = b, 4 = d

Part Two: Completion

1. Land-use planning
2. Population
3. Zoning

Part Three: Short Answer

Recycling is using a product or the materials to make a product again, reusing is using a product again and again without re-manufacturing.

Test

Lesson A1–3: Understanding Human Demands on Natural Resources

Part One: Matching

Instructions. Match the term with the correct response. Write the letter of the term by the definition.

- | | |
|--------------------|------------------------|
| a. consumptive use | b. non-consumptive use |
| c. demography | d. demographics |

- _____ 1. Using a natural resource so that the amount used no longer exists.
- _____ 2. The study of the human population.
- _____ 3. Using a natural resource without reducing its supply.
- _____ 4. The data collected about the human population.

Part Two: Completion

Instructions. Provide the word or words to complete the following statements.

1. _____ is deciding how land will be used.
2. _____ is the number of people in a given area.
3. _____ is setting aside certain areas of land for specified use.

Part Three: Short Answer

Instructions. Provide information to answer the following question.

Explain the difference between recycling and reusing.

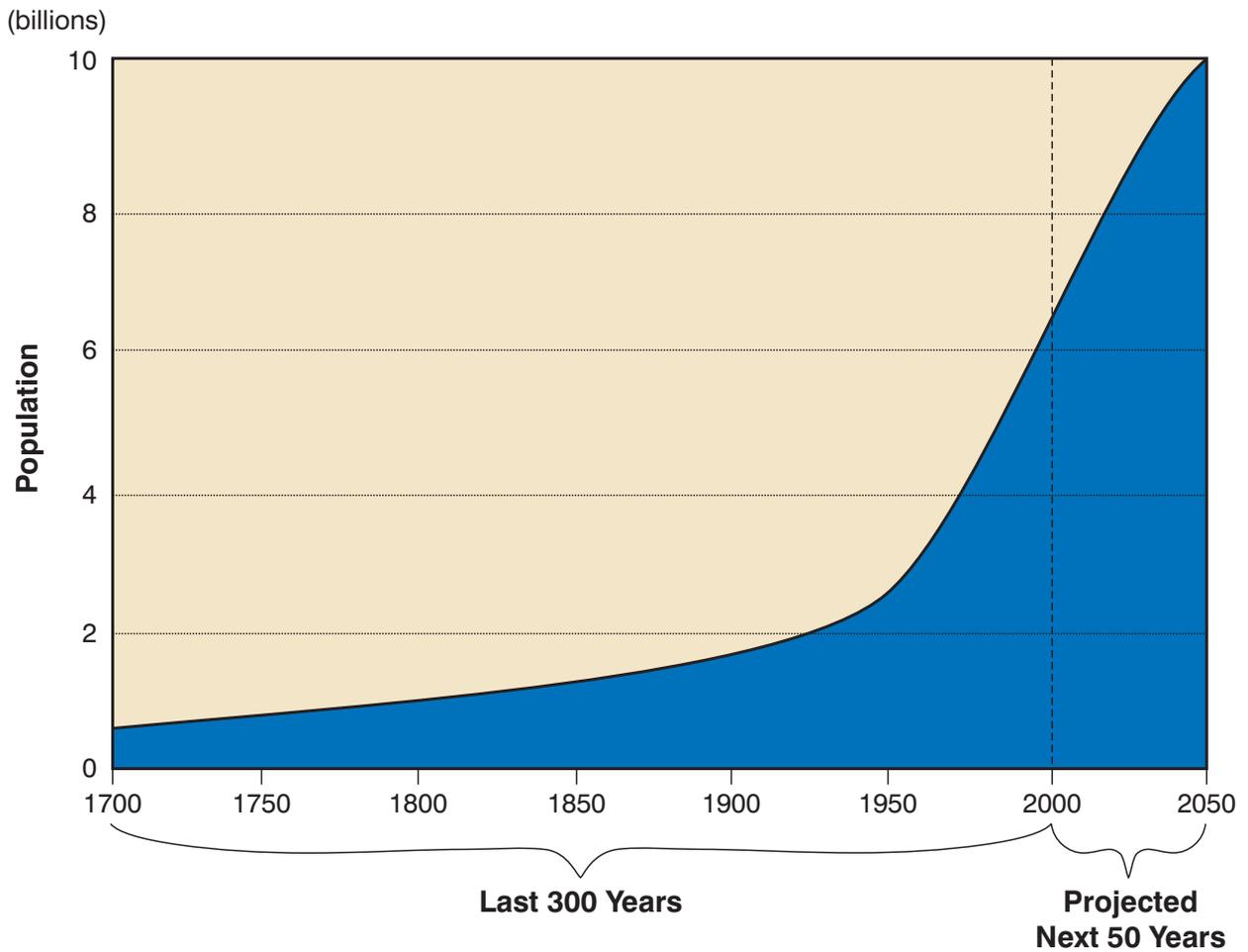
THREE BASIC HUMAN NEEDS

- ◆ **Food**
- ◆ **Clothing**
- ◆ **Shelter**

TWO TYPES OF RESOURCE USE

- ◆ **Consumptive**
- ◆ **Non-consumptive**

WORLD POPULATION GROWTH



TERMS FOR REVIEW

- ◆ **Land-use planning: deciding how land will be used**
- ◆ **Zoning: setting aside certain areas of land for specified use**

TERMS FOR REVIEW

- ◆ **Recycling: using a product or the materials to make a product again**
- ◆ **Reusing: using a product again and again without re-manufacturing**

Lab Sheet

Natural Resources in Our Community

Instructions:

1. Identify a natural resource related problem in our community.
2. Use the Internet, phone interviews, personal interviews, research newspaper articles, and use other methods of investigation to determine how this problem is affecting individuals in the community and the community as a whole.
3. Come up with ideas as to how to solve or lessen this problem.
4. Type a one page paper with your findings.
5. This assignment is due on _____.