

Introduction to Natural Resources

Instructional/Task Analysis

Related Information: What the Student Should Know

Application: What the Student Should Be Able to Do

Unit 1: Outdoor Safety and First Aid

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| 1. Terms and definitions | 12. Guidelines for lifting and carrying items safely |
| 2. Basic first-aid procedures for emergency situations | 13. Read wind chill index and water survival charts |
| 3. Contents of a first-aid kit | 14. Interpret portable fire-extinguisher symbols |
| 4. Types of poisonous snakes | 15. Analyze scenarios to determine appropriate safety and first-aid procedures |
| 5. Types of poisonous plants | 16. Interpret material safety data sheets |
| 6. Types of poisonous spiders | 17. Analyze current reports concerning outdoor safety and first aid |
| 7. Safety precautions to take in inclement weather | 18. Demonstrate the Heimlich maneuver for an adult choking victim |
| 8. Components of the fire triangle | 19. Lift a heavy object properly |
| 9. Classes of fires and their definitions | |
| 10. Types of fire extinguishers and classes of fires they were designed to extinguish | |
| 11. Purposes of a material safety data sheet | |

Unit 2: Natural Resources and Conservation

1. Terms and definitions
2. Difference between renewable and nonrenewable natural resources
3. Basic components of the physical environment
4. History of natural resources
5. Importance of natural resources
6. Conflicts in natural resources management
7. Factors which affect natural resources
8. Preservation and conservation of natural resources
9. Preservation activities
10. Conservation activities

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Unit 2: Natural Resources and Conservation (cont.)

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| 11. Categories of solid waste | 20. Report on a current event affecting natural resources |
| 12. Composition of solid waste in a typical municipal landfill | 21. Report on a local natural resource problem |
| 13. Methods of waste disposal | 22. Identify recycling centers in your area |
| 14. Waste reduction activities | 23. Trace route of recyclable products |
| 15. Recyclables and nonrecyclables | 24. Identify occupations in natural resources in your area |
| 16. Federal agencies responsible for natural resources | |
| 17. Types of occupations in natural resources | |
| 18. Ways of getting a job in natural resources | |
| 19. Characteristics of a person working in natural resources | |

Unit 3: Water Resource Management

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| 1. Terms and definitions | 16. Evaluate your source of drinking water |
| 2. History of importance of water in the United States | 17. Survey your area to identify water pollution sources |
| 3. Water distribution | 18. Determine ways to reduce home water consumption |
| 4. Uses of water | 19. Calculate the cost of water |
| 5. Hydrologic (water) cycle | 20. Calculate and draw conclusions from water measurements |
| 6. Surface water | 21. Analyze current reports concerning water resource management |
| 7. Ground water | |
| 8. Relationship between ground water and surface water | |
| 9. Water pollution | |
| 10. Comparison of the environment—1960 and now | |
| 11. Hazardous/toxic waste | |
| 12. Federal legislation for environmental protection of water resources | |
| 13. Watersheds | |
| 14. Water measurements | |
| 15. Career opportunities in water resource management | |

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Unit 4: Land Management

1. Terms and definitions
2. Agricultural and non-agricultural land uses
3. Reasons soil is important
4. How soils are formed
5. Types of rocks
6. Weathering factors
7. Types of soils and ways they are deposited
8. Composition of an average soil
9. Functions of organic matter
10. Major factors that affect land capability classes
11. Horizons of a soil profile
12. Categories of soil texture
13. Categories of soil depth
14. Classes of slope
15. Types of erosion
16. Causes of erosion
17. Effects of erosion
18. Contributors of erosion pollution
19. Classes of erosion
20. Types of soil structure
21. Levels of permeability
22. Classes of surface runoff
23. Land capability classes
24. Soil testing
25. Major and minor plant nutrients
26. Nutrients in a fertilizer analysis
27. Methods of controlling erosion on the farm
28. Methods of controlling non-farm erosion
29. Rangeland management
30. Reclamation of mined lands

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Unit 4: Land Management (cont.)

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| 31. Global Positioning System and Geographic Information systems (GPS) | 38. Determine land capability classes |
| 32. Soil survey reports | 39. Determine fertilizer composition and rates |
| 33. Parts of a conservation plan | 40. Read a soil test report |
| 34. Parts of a land use planning summary | 41. Report on GIS/GPS technology and utilization |
| 35. Stewards of the soil | 42. Read a soil survey map |
| 36. USDA and DOI roles in land management practices | 43. Read a conservation plan map |
| 37. Career opportunities in land management | 44. Complete a land use planning summary |
| | 45. Take a lawn and garden soil sample |

Unit 5: Air Resource Management

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| 1. Terms and definitions | 16. Locate sources of air pollution in your area |
| 2. Composition and percentages of air components (unpolluted) | 17. Write a report on an environmental problem related to air quality |
| 3. Importance of air quality | 18. Maintain a weather log for 10 days |
| 4. Air pollutants and their characteristics and health hazards | 19. Formulate weather forecasts |
| 5. Environmental effects of air pollution | |
| 6. Indoor air pollution | |
| 7. Indoor air pollutants and their characteristics | |
| 8. Clean Air Act Amendments of 1990 | |
| 9. Methods of controlling motor vehicle emissions | |
| 10. Types of pollution control measures that the government may impose on polluters | |
| 11. Methods of controlling pollution from industry and electrical power generating plants | |
| 12. Air quality trends in the United States | |
| 13. Global considerations in air resource management | |
| 14. Factors that cause weather | |
| 15. Career opportunities in air resource management | |

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Unit 6: Energy Resources

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| 1. Terms and definitions | 18. Discuss the effects of our dependence on imported oil |
| 2. Terms used to describe energy conversion | |
| 3. Classifications of energy resources | 19. Compare electricity production from coal and nuclear fuel |
| 4. Coal energy resources | |
| 5. Oil energy resources | 20. Give your opinion on using agricultural products as alternative energy resources |
| 6. Natural gas energy resources | 21. Perform an energy audit of your home |
| 7. Nuclear energy resources | 22. Explore the various factions and viewpoints involved in the use of renewable and nonrenewable resources. |
| 8. Hydropower energy resources | |
| 9. Biomass energy resources | |
| 10. Solar energy resources | |
| 11. Wind energy resources | |
| 12. Geothermal energy resources | |
| 13. U.S. energy reserves | |
| 14. Uses of oil resources in the U.S. | |
| 15. Goals of energy conservation | |
| 16. Ways to conserve energy | |
| 17. Career opportunities related to energy resources | |

Unit 7: Forestry

1. Terms and definitions
2. Forestry
3. Main parts of a tree
4. Parts of the crown
5. Parts of the trunk
6. Types of roots and their functions
7. Ways trees are identified
8. Photosynthesis
9. Growth of a tree
10. Classifications of trees
11. Common uses of trees
12. Benefits of forests to the environment

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Unit 7: Forestry (cont.)

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| 13. Government forestry agencies | 25. Identify local trees |
| 14. Major forest regions of the United States | 26. Determine the age of a tree |
| 15. Types of forest cuttings | 27. Determine uses of wood and wood by-products |
| 16. Ways that tree stands regenerate | 28. Solve cord measurement problems |
| 17. Forest measurements | 29. Analyze areas of conflict in maintaining forests and urban trees |
| 18. Measuring instruments used in forestry | 30. Analyze current reports concerning areas of conflict in forestry |
| 19. Forest enemies | 31. Plant a bareroot tree |
| 20. Causes of fire | 32. Measure diameter of a tree |
| 21. Types of forest fires | 33. Measure merchantable height of a tree |
| 22. Categories of forest fires | |
| 23. Benefits of controlled burns | |
| 24. Career opportunities related to forestry | |

Unit 8: Wildlife Management

1. Terms and definitions
2. Food chain
3. Interconnections in a food web
4. Predator/prey relationship
5. History of wildlife in the United States
6. Federal legislation concerning wildlife
7. Vertebrate and invertebrate wildlife
8. Characteristics of a mammal
9. Small mammals and large mammals
10. Characteristics of fish wildlife
11. Characteristics of birds
12. Major types of birds
13. Characteristics of reptiles
14. Characteristics of amphibians
15. Types of invertebrate wildlife
16. Classifications of wildlife that need protection
17. Dangers to wildlife populations
18. Agricultural practices that support wildlife

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Unit 8: Wildlife Management (cont.)

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| 19. Wildlife activities that may cause damage to agriculture | 25. Explain effects on a food chain when parts are removed |
| 20. Ways to control wildlife damage problems | 26. Create a food web |
| 21. Public wildlife and private lands | 27. Identify wildlife you see in a certain time span |
| 22. Types of private wildlife production areas | 28. Compile a profile of a wildlife species |
| 23. Government agencies involved in wildlife management | 29. Make management decisions concerning a deer herd |
| 24. Career opportunities related to wildlife management | 30. Analyze current reports concerning wildlife management |

Unit 9: Wildlife Habitats

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| 1. Terms and definitions | 16. Lay out and identify ways to improve a local habitat |
| 2. Components of a habitat | 17. Develop a management plan for a farm pond for sport fishing |
| 3. Objectives of wildlife habitat management | 18. Identify ways to improve a wetland habitat |
| 4. Habitat management principles | 19. Determine the carrying capacity of a rangeland habitat |
| 5. Common tools and techniques of habitat improvement | 20. Survey wildlife foods |
| 6. Actions taken to improve wildlife habitats | 21. Survey non-game birds at a feeding station |
| 7. Causes of habitat destruction | 22. Increase hummingbird habitat |
| 8. Types of wildlife habitats | |
| 9. Lakes, ponds, and pothole habitats | |
| 10. River and stream habitats | |
| 11. Wetland habitats | |
| 12. Woodland habitats | |
| 13. Rangeland habitats | |
| 14. Farmland habitats | |
| 15. Urban habitats | |

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Unit 10: Outdoor Recreation

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| 1. Terms and definitions | 11. Interpret graphs on future trends in outdoor recreation |
| 2. Equipment and facilities needed for outdoor recreation activities | 12. Identify outdoor recreation activities and facilities available locally. |
| 3. Skills and licenses needed for outdoor recreation activities | 13. Evaluate a local outdoor recreation site |
| 4. Major factors increasing the demand and participation in outdoor recreation | 14. Make a presentation about an outdoor recreation activity |
| 5. Other factors affecting current and future participation in recreational activities | 15. Plan and design a new outdoor recreation area |
| 6. Considerations when selecting an outdoor recreation area | 16. Give accurate, easy-to-follow directions |
| 7. Reasons why people participate in outdoor recreation | 17. Evaluate conflict resolution scenarios |
| 8. Agencies responsible for public lands, recreation areas, and employment in outdoor recreation | 18. Explore career opportunities in natural resources |
| 9. Employment opportunities in outdoor recreation | |
| 10. Business opportunities in outdoor recreation | |