

NATURAL RESOURCES AND ECOLOGY SYSTEMS

Time Frame	SOL Objective/ Competency	Essential Understandings/Questions	Essential Knowledge/Skills
<p>1st Quarter (First 4½ Weeks)</p>	<p>History and Social Science CE.3, CE.4, GOVT.3, GOVT.11, GOVT.17, VUS.14</p> <p>English 6.2, 7.1, 7.2, 10.1</p> <p>English 6.5, 6.6, 6.7, 7.6, 7.8, 7.9, 8.6, 8.7, 8.8, 9.4, 9.6, 9.7, 10.4, 10.7, 10.8, 10.9, 11.4, 11.8, 11.9, 12.4, 12.7</p> <p>History and Social Science GOVT.16, GOVT.17, VUS.15</p>	<p>DEMONSTRATE WORKPLACE READINESS SKILL:PERSONAL QUALITIES AND PEOPLE SKILLS, PROFESSIONAL KNOWLEDGE AND SKILLS</p> <p>Providing Leadership</p>	<p>Demonstrate positive work ethic</p> <p>Demonstrate integrity.</p> <p>Demonstrate teamwork skills.</p> <p>Demonstrate self-representation skills.</p> <p>Demonstrate diversity awareness</p> <p>Demonstrate conflict-resolution skills.</p> <p>Demonstrate creativity and resourcefulness</p> <p>Demonstrate effective speaking and listening skills</p> <p>Demonstrate effective reading and writing skills.</p> <p>Demonstrate critical-thinking and problem-solving skills</p> <p>Demonstrate healthy behaviors and safety skills.</p> <p>Demonstrate an understanding of workplace organizations, systems, and climates.</p> <p>Demonstrate lifelong-learning skills.</p> <p>Demonstrate job-acquisition and advancement skills.</p> <p>Demonstrate time-, task-, and resource-management skills.</p> <p>Demonstrate proficiency with technologies common to a specific occupation.</p> <p>Demonstrate information technology skills.</p> <p>Demonstrate an understanding of Internet use and security issues.</p> <p>Demonstrate telecommunications skills.</p> <p>Demonstrate understanding of Future Farmers of America (FFA).</p> <p>Explain FFA awards programs for environmental management.</p> <p>Highlight the accomplishments of an environmental organization or a conservationist.</p>

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<p>2nd Quarter (Second 4½ Weeks)</p>	<p>Mathematics PS.8 English 9.4, 10.4, 11.4, 12.4</p> <p>History and Social Science GOVT.18, 16, .17</p> <p>English 9.4, 10.4, 11.4, 12.4,</p> <p>Science BIO.8, .9, ES.12</p>	<p>EXAMINING ALL ASPECTS OF INDUSTRY</p> <p>ADDRESSING ELEMENTS OF STUDENT LIFE</p> <p>ENTERING A CAREER IN THE NATURAL RESOURCES FIELD</p> <p>UNDERSTANDING BASIC ENVIRONMENT MANAGEMENT</p>	<p>Examine aspects of planning within an industry/organization.</p> <p>Examine aspects of management within an industry/organization.</p> <p>Examine aspects of financial responsibility within an industry/organization</p> <p>Examine technical and production skills required of workers within an industry/organization.</p> <p>Examine principles of technology that underlie an industry/organization.</p> <p>Examine labor issues related to an industry/organization.</p> <p>Examine community issues related to an industry/organization.</p> <p>Examine health, safety, and environmental issues related to an industry/organization.</p> <p>Identify the purposes and goals of the student organization</p> <p>Explain the benefits and responsibilities of membership in the student organization as a student and in professional/civic organizations as an adult.</p> <p>Demonstrate leadership skills through participation in student organization activities, such as meetings, programs, and projects.</p> <p>Identify Internet safety issues and procedures for complying with acceptable use standards</p> <p>Analyze environmental and natural resources industry careers and related employment opportunity</p> <p>Complete a job application and résumé.</p> <p>Demonstrate communication skills.</p> <p>Define basic terminology related to natural resources, ecology, and environmental sciences</p> <p>Describe current environmental issues.</p> <p>Explain the role of biodiversity in ecosystem stability and the effects of latitude on species</p>

			diversity. Explain the process of species differentiation.
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3rd Quarter (Third 4½ Weeks)	<p>Science ES.12</p> <p>English 11.7</p> <p>Science ES.1, ES.9, ES.8, ES.7,</p> <p>Science BIO.9, ES.7</p>	<p>Protecting the Environment--Air and Noise</p> <p>Protecting the Environment—Soil</p> <p>Protecting the Environment--Water</p>	<p>Describe the composition of the atmosphere.</p> <p>Explain sources and effects of acid rain.</p> <p>Describe the effects of air pollutants on the environment.</p> <p>Identify sources of air pollution in the community.</p> <p>Explain the effects of greenhouse gases.</p> <p>Explore the possible effects of global warming and ozone depletion on agriculture</p> <p>Define <i>soil</i> in terms of origin and materials content.</p> <p>Evaluate soil texture.</p> <p>Classify soils by using a soil taxonomy system.</p> <p>Demonstrate procedure for testing soil pH.</p> <p>Collect soil samples.</p> <p>Analyze soil samples to identify composition</p> <p>Make nutrient recommendations based on soil sampling results.</p> <p>Identify procedures for improving the soil.</p> <p>Describe water erosion and its effects on agricultural production and the environment.</p> <p>Explain the Virginia Erosion and Sediment Control Law, Regulations, and Certification Regulations</p> <p>Test soil for water percolation.</p> <p>Identify practices to control soil erosion.</p> <p>Describe land-use planning</p> <p>Describe characteristics of water and the hydrologic cycle</p> <p>Identify characteristics of a watershed.</p> <p>Develop a watershed-management plan</p> <p>Describe the sources of water for</p>

			<p>home, industrial, and agricultural uses.</p> <p>Identify current government legislation that relates to water quality</p> <p>Define <i>point source pollution</i> and <i>non-point source pollution</i></p> <p>Identify major water pollutants and their effects on the environment, including agricultural production.</p> <p>Select the best method for a given area to control water pollution</p> <p>Define <i>eutrophication</i> and its relationship to nutrient-rich waters.</p> <p>Identify best management practices for various water resource issues.</p> <p>Describe water-use planning.</p> <p>Examine methods of solid waste management and toxic waste management.</p>
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4th Quarter (Last 4½ Weeks)	<p>Science BIO.5, BIO.9, ES.7, BIO.1,</p> <p>Mathematics G.2</p> <p>English 11.1</p>	<p>Managing Forest Resources</p> <p>Managing Wildlife Resources</p> <p>Managing Fisheries Resources</p> <p>Exploring Renewable Energy Resources</p>	<p>Describe the major types of forests</p> <p>Identify trees native to Virginia.</p> <p>Identify common diseases of trees and their impact on forestry practices</p> <p>Identify common pests of trees and their impact on forestry practices.</p> <p>Identify forest products</p> <p>Use various methods of measuring wood and the volume of pulpwood</p> <p>Locate markets for forest products.</p> <p>Estimate the volume of standing timber on a given tract.</p> <p>Determine the value of standing timber on a given tract.</p> <p>Describe different methods of harvesting trees and the equipment needed</p> <p>Demonstrate safety in the operation of tree equipment</p> <p>Describe advantages and disadvantages of forest harvesting methods.</p> <p>Identify the latest tree-care practices.</p>

			<p>Develop a forest-management plan.</p> <p>Describe forest fire prevention and suppression techniques</p> <p>Describe common wildlife species.</p> <p>Inventory wildlife in a given area.</p> <p>Identify the habitat requirements of wildlife</p> <p>Describe the wildlife predator-prey relationship.</p> <p>Describe wildlife habitats, game management practices, and factors that affect wildlife species.</p> <p>Describe fisheries and aquaculture.</p> <p>Describe the different aquatic zones.</p> <p>Describe common fish and aquatic species in a given area.</p> <p>Describe inventory/sampling methodologies.</p> <p>Describe the differences between renewable and non-renewable energy resources.</p> <p>Describe alternative fuels.</p> <p>Explain the global economic impact of energy utilization or depletion.</p> <p>Describe various alternative energy sources.</p>
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