

Course Title: Urban Forestry

Unit: 1	Career Opportunities
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Content Standard(s) and Depth of Knowledge Level(s):	<p>Students will:</p> <ol style="list-style-type: none"> 1. Describe career opportunities in urban forest management.
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Learning Objective(s) and Depth of Knowledge Level(s):	<p>Students will:</p> <ol style="list-style-type: none"> 1. Identify available jobs in urban forestry. 2. Describe the duties associated with available jobs. 3. Discuss educational requirements for available jobs in urban forestry. 4. Compare benefits of available jobs in urban forestry.
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Essential Question(s):	<p>What criteria should a student use in selecting a career path? What resources are available to students conducting a job search?</p>
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Content Knowledge	Suggested Instructional Activities Rigor & Relevance Framework (Quadrant)	Suggested Materials, Equipment and Technology Resources
<p>I. Careers</p> <ol style="list-style-type: none"> A. Define work B. Employee benefits <ol style="list-style-type: none"> 1. Insurance <ol style="list-style-type: none"> a. Major Medical b. Dental c. Vision 2. Retirement plans <ol style="list-style-type: none"> a. 401K b. Stock options 	<p>Research paper Job applications Cover letter Résumé Mock job interview</p>	<p>PowerPoint Presentation Computer Multimedia projector Internet access Sample job application</p>

Unit Assessment:	Tests, performance tasks, demonstrations, teacher observations
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Unit/Course CTSO Activity:	The content enforces leadership skills through career exploration. Participate in the FFA Forestry Career Development Event.
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Unit/Course Culminating Product:	The students will become hireable citizens after gaining the knowledge of careers.
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Course/Program Credential(s): <input type="checkbox"/> Credential <input type="checkbox"/> Certificate <input type="checkbox"/> Postsecondary Degree <input checked="" type="checkbox"/> University Degree <input type="checkbox"/> Other:
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Course Title: Urban Forestry

Unit: 2	Safety
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Content Standard(s) and Depth of Knowledge Level(s):	<p>Students will:</p> <ol style="list-style-type: none"> 2. Identify arborist safety standards including International Society of Arboriculture (ISA) regulations.
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Learning Objective(s) and Depth of Knowledge Level(s):	<p>Students will:</p> <ol style="list-style-type: none"> 1. Identify potential hazards in urban forestry. 2. Identify safety equipment used in urban forest management.
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Essential Question(s):	<p>What are some of the hazards faced by individuals working in urban forestry? What is some of the safety equipment used by urban foresters?</p>
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Content Knowledge	Suggested Instructional Activities Rigor & Relevance Framework (Quadrant)	Suggested Materials, Equipment and Technology Resources
<p>I. Safety</p> <p>A. Potential hazards</p> <ol style="list-style-type: none"> 1. Topographical 2. Falling branches 3. Stinging insects 4. Venomous spiders 5. Venomous snakes 6. Poisonous plants <p>B. Safety equipment</p> <ol style="list-style-type: none"> 1. Hardhat 2. Safety Glasses 3. Long-sleeved shirts 4. Heavy trousers or chaps 5. High-top Boots 6. First Aid Kits 	<p>PowerPoint Presentations</p> <p>Virtual field trip using safety videos</p>	<p>LCD Projector</p> <p>Computer</p> <p>Whiteboards</p> <p>DVD/VCR Player</p> <p>Safety videos</p> <p>Textbook</p>

Unit Assessment:	Participation in class discussion, participation in shop hazard identification, and safety test (100% mastery)
Unit/Course CTSO Activity:	Incorporate safety practices into student's SAE project. Participate in the FFA Forestry Career Development Event.
Unit/Course Culminating Product:	Students will master shop safety by identifying mock safety hazards in the shop and by passing the safety portion of the lesson with a 100 on the shop safety test.
Course/Program Credential(s): <input checked="" type="checkbox"/> Credential <input type="checkbox"/> Certificate <input type="checkbox"/> Postsecondary Degree <input checked="" type="checkbox"/> University Degree <input type="checkbox"/> Other:	

Course Title: Urban Forestry

Unit: 3	Climbing and Rigging
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<p>Content Standard(s) and Depth of Knowledge Level(s):</p>	<p>Students will:</p> <ol style="list-style-type: none"> 3. Describe climbing equipment used by arborists, including saddles, lanyards, snaps, and ascenders. <ul style="list-style-type: none"> • Demonstrating various types of knots and hitches used by arborists • Comparing types of ropes used by arborists 4. Compare rigging techniques used by arborists. <ul style="list-style-type: none"> Examples: rope positioning, false crotch, speed lining • Explaining tensile strength, working loads, and shock loads of ropes used by arborists • Identifying rigging equipment used by arborists <ul style="list-style-type: none"> Examples: carabiners, slings, block and tackle, figure-eight descenders, lowering devices 5. Identify tree-climbing techniques.
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<p>Learning Objective(s) and Depth of Knowledge Level(s):</p>	<p>Students will:</p> <ol style="list-style-type: none"> 1. Explain the functions of the various parts of a tree. 2. Explain tree taxonomy. 3. Identify major species of trees and their characteristics.
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<p>Essential Question(s):</p>	<p>What are the major parts of a tree and their functions? How are trees classified? What are the major species of trees and their characteristics?</p>
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Content Knowledge	Suggested Instructional Activities Rigor & Relevance Framework (Quadrant)	Suggested Materials, Equipment and Technology Resources
<p>I. Climbing and Rigging</p> <p style="padding-left: 20px;">A. Climbing equipment</p> <ol style="list-style-type: none"> 1. Saddles 2. Lanyards 3. Snaps 4. Ascenders 5. Ropes and knots <p style="padding-left: 20px;">B. Rigging techniques</p> <ol style="list-style-type: none"> 1. Rope positioning 2. False crotch 	<p>Lecture Demonstration Collaborative learning</p>	<p>Writing surface LCD projector Computer Saddles Lanyards Snaps Ascenders Climbing rope Whiteboard Carabiners</p>

<ul style="list-style-type: none"> 3. Speed lining C. Rigging equipment <ul style="list-style-type: none"> 1. Carabiners 2. Slings 3. Block and tackle 4. Figure-eight descenders 5. Lowering devices D. Identifying tree climbing techniques 		<ul style="list-style-type: none"> Slings Block and tackle Figure-eight descenders Lowering devices
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Unit Assessment:	Identification tests, participation in discussion, teacher observation, performance evaluation
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Unit/Course CTSO Activity:	Participate in the Forestry Career Development Event (CDE) and Supervised Agricultural Experiences in Forestry.
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Unit/Course Culminating Product:	Students will develop a collage of leaf samples from the available trees on the CDE.
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Course/Program Credential(s): <input type="checkbox"/> Credential <input type="checkbox"/> Certificate <input type="checkbox"/> Postsecondary Degree <input checked="" type="checkbox"/> University Degree <input type="checkbox"/> Other:

Course Title: Urban Forestry

Unit: 4	Urban Tree Management
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<p>Content Standard(s) and Depth of Knowledge Level(s):</p>	<p>Students will:</p> <ol style="list-style-type: none"> 6. Compare management strategies for urban forests. 7. Compare tree removal methods. 8. Explain reasons for cabling and bracing a tree. <ul style="list-style-type: none"> • Describing the equipment needed for cabling and bracing a tree • Demonstrating tree cabling and bracing techniques 9. Explain reasons for tree pruning. <ul style="list-style-type: none"> • Demonstrating tree pruning cuts • Identifying the appropriate time for pruning trees • Identifying types of tree pruning tools 10. Design a landscape plan for a wooded environment. <ul style="list-style-type: none"> • Describing skills needed in wooded landscaping
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<p>Learning Objective(s) and Depth of Knowledge Level(s):</p>	<p>Students will:</p> <ol style="list-style-type: none"> 1. Describe management strategies for the urban forest. 2. Describe methods for removing trees from urban areas. 3. Describe why cabling and bracing is needed. 4. Describe techniques used in cabling and bracing. 5. Describe the equipment used in cabling and bracing. 6. Explain tree pruning. 7. Describe tree pruning techniques and methods. 8. Identify common pruning tools. 9. Create a landscape plan for an urban forest area.
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<p>Essential Question(s):</p>	<p>What are the management strategies for urban forestry? What are some methods for removing trees in urban areas? What are the major species of trees and their characteristics? Why is cabling and bracing needed? What equipment and techniques are used for cabling and bracing? Why does a tree need pruning? What are pruning techniques and methods? What are some common pruning tools? How do I describe a landscape plan for the wooded environment?</p>
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Content Knowledge	Suggested Instructional Activities Rigor &	Suggested Materials, Equipment and
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	Relevance Framework (Quadrant)	Technology Resources
<p>I. Urban Tree Management</p> <p>A. Management strategy goals</p> <ol style="list-style-type: none"> 1. Establish and maintain maximum tree cover. 2. Maintain trees in a healthy condition through good cultural practices. 3. Establish and maintain an optimal level of age and species diversity. 4. Promote conservation of tree resources. 5. Select, situate, and maintain street trees appropriately to maximize benefits and minimize hazard, nuisance, hardscape damage, and maintenance costs. 6. Centralize tree management under a person with the necessary expertise. 7. Promote efficient and cost-effective management of the urban forest. 8. Foster community support for the local urban forestry program and encourage good tree management on privately owned properties. 9. Facilitate the resolution of tree-related conflicts between citizens. <p>B. Tree removal methods</p> <ol style="list-style-type: none"> 1. Felling 2. Transplanting 3. Climbing and cutting in sections <p>C. Cabling and bracing</p> <ol style="list-style-type: none"> 1. Reasons 	<p>PowerPoint Presentation</p> <p>Visual aids</p> <p>Demonstrations</p> <p>Guided practices</p> <p>Collaborative learning</p> <p>Virtual field trip using videos</p>	<p>Writing surface</p> <p>LCD projector</p> <p>Computer</p> <p>Pictures</p> <p>Whiteboard</p> <p>Textbooks</p> <p>Chainsaw</p> <p>Axe</p> <p>Truck for removal</p> <p>PPE</p> <p>Cables</p> <p>Braces</p> <p>VCR/DVD player</p> <p>Trees that need pruning</p> <p>Lopping shears</p> <p>Pruning Pole saw</p>

<ul style="list-style-type: none"> 2. Equipment 3. Techniques 4. Methods <p>D. Pruning</p> <ul style="list-style-type: none"> 1. Techniques 2. Time of year 3. Equipment 		
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Unit Assessment:	Tests, participation in discussion, teacher observation, performance evaluation
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Unit/Course CTSO Activity:	Participate in the Forestry Career Development Event (CDE) and Supervised Agricultural Experiences in Forestry.
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Unit/Course Culminating Product:	Students will understand urban management objectives, urban tree removal methods. Students will be able to cable and brace, and prune trees.
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Course/Program Credential(s): <input type="checkbox"/> Credential <input type="checkbox"/> Certificate <input type="checkbox"/> Postsecondary Degree <input checked="" type="checkbox"/> University Degree <input type="checkbox"/> Other:

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Unit: 5	Tree Disorders
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Content Standard(s) and Depth of Knowledge Level(s):	<p>Students will:</p> <ol style="list-style-type: none"> 11. Describe major tree disorders. <ul style="list-style-type: none"> • Examine tree growth and structure • Identify tree defense systems 12. Identify insects, diseases, parasites, and weeds that afflict trees. <ul style="list-style-type: none"> • Describing pest management in urban forestry, including mechanical treatment, biological treatment, chemical treatment, and genetically engineered resistance
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Learning Objective(s) and Depth of Knowledge Level(s):	<p>Students will:</p> <ol style="list-style-type: none"> 1. Describe the major categories of insect pests of forest trees. 2. Describe the major categories of disease problems of forest trees. 3. Describe management techniques for controlling insect and disease pests in forest trees.
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Essential Question(s):	<p>What are the major categories of insect pests of forest trees? What are the major categories of disease problems of forest trees? What are some management techniques that can be employed to control insect and disease pests in forest trees?</p>
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Content Knowledge	Suggested Instructional Activities Rigor & Relevance Framework (Quadrant)	Suggested Materials, Equipment and Technology Resources
<ol style="list-style-type: none"> I. Tree Disorders <ol style="list-style-type: none"> A. Major tree disorders <ol style="list-style-type: none"> 1. Insects <ol style="list-style-type: none"> a. Bark Borers b. Defoliators c. Wood Borers d. Tip Feeders e. Sap Suckers f. Root Feeders g. Other 2. Diseases <ol style="list-style-type: none"> a. Foliage 	<p>Lecture and discussion Virtual field trip using video Flash cards Research Worksheets PowerPoint Presentation</p>	<p>Whiteboard Textbook Computer PowerPoint Presentation LCD projector Internet VCR/DVD/LCD projector</p>

<ul style="list-style-type: none"> b. Stems and Branch c. Roots d. Vascular Wilts e. Other <p>3. Techniques for controlling tree disorders</p> <ul style="list-style-type: none"> a. Biological controls <ul style="list-style-type: none"> 1) Predator insects 2) Pathogen b. Management controls <ul style="list-style-type: none"> 1) Removal of infested trees and parts 2) Insect resistant tree varieties 3) Maintain proper tree populations 4) Prescribed burns 5) Other c. Chemical controls <ul style="list-style-type: none"> 1) Pesticides 		
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Unit Assessment:	Participation in discussion, tests, quizzes, teacher observations, pop tests, open-ended questions, essays, research projects
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Unit/Course CTSO Activity:	Participate in the Forestry Career Development Event (CDE) and Supervised Agricultural Experience Programs.
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Unit/Course Culminating Product:	Students will understand the importance of implementing pest management in controlling tree disorders.
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Course/Program Credential(s): <input type="checkbox"/> Credential <input type="checkbox"/> Certificate <input type="checkbox"/> Postsecondary Degree <input checked="" type="checkbox"/> University Degree <input type="checkbox"/> Other:
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