

Course Title: Nursery Production and Management

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| Unit: 1 | Career Opportunities |
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| Content Standard(s) and Depth of Knowledge Level(s): | Students will: 1. Describe careers in the nursery production and management industry. |
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| Learning Objective(s) and Depth of Knowledge Level(s): | Students will: 1. List examples of careers in the nursery industry. |
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| Essential Question(s): | What are some career opportunities associated with nursery management? |
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| Content Knowledge | Suggested Instructional Activities Rigor & Relevance Framework (Quadrant) | Suggested Materials, Equipment and Technology Resources |
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| I. Career Opportunities A. Propagator B. Inventory Manager C. Field Supervisor D. Nursery Assistants E. Nursery Manager F. Plant Breeders G. Salesperson H. Sales Manager I. Shipping Supervisor J. Entrepreneurship K. Greenhouse Owner L. Sole Proprietorship M. Partnership N. Corporation | Lecture Guest Speakers Inquiry Field Trips Case Study Lecture Guest Speakers Inquiry Field Trips Case Study | Computer and Printer CDs Videos Support Materials Teacher Designed Materials Computer and Printer CDs Videos Support Materials Teacher Designed Materials |

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| Unit Assessment: | Participation in Discussion, Research Report, Group Investigation Report |
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| Unit/Course CTSO Activity: | Students will participate in Career Development Events and Personal S.A.E. |
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| Unit/Course Culminating Product: | Students will complete a report on a chosen career. |
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| Course/Program Credential(s): <input type="checkbox"/> Credential <input checked="" type="checkbox"/> Certificate <input type="checkbox"/> Postsecondary Degree <input checked="" type="checkbox"/> University Degree <input type="checkbox"/> Other: |
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Course Title: Greenhouse Production and Management

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| 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. Describe safety precautions related to the nursery production and management industry. |
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| Learning Objective(s) and Depth of Knowledge Level(s): | <p>Students will:</p> <ol style="list-style-type: none"> 1. Explain why accidents occur. 2. Explain the importance of safety in nursery management. 3. Describe ways to prevent accidents. 4. Identify personal protective equipment and how it is used. 5. Identify safety precautions when using hand and power tools. 6. Identify safety precautions necessary when handling, applying, and storing chemicals. |
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| Essential Question(s): | What are some safety considerations and procedures for nursery management? |
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| Content Knowledge | Suggested Instructional Activities Rigor & Relevance Framework (Quadrant) | Suggested Materials, Equipment and Technology Resources |
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| <ol style="list-style-type: none"> I. Safety Considerations and Procedures <ol style="list-style-type: none"> A. Accidents defined B. Accident prevention C. Personal Protective Equipment D. Hand Tool Safety F. Power tool Safety G. Chemical Safety | <ol style="list-style-type: none"> Guest Speakers Case Studies Inquiry Research Worksheets Field Trips | <ol style="list-style-type: none"> Computer and Printer CDs Software Handouts Videos Lab Equipment Student Equipment |

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| Unit Assessment: | Participation in Discussion, Homework, Inventories, Posters, Scenarios, Tests |
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| Unit/Course CTSO Activity: | Horticultural related CDEs |
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| Unit/Course Culminating Product: | Students will design a safety program for working in the nursery industry. |
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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: 3 | Basic Plant Science |
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| Content Standard(s) and Depth of Knowledge Level(s): | <p>Students will:</p> <ol style="list-style-type: none"> 3. Differentiate among environmental factors affecting nursery plant growth. 4. Describe uses of primary, secondary, and trace nutrients. Examples: primary nutrients—nitrogen, phosphorus, potassium secondary nutrients—magnesium, calcium, sulfur trace nutrients—iron, manganese, boron, molybdenum, copper, zinc, chloride, aluminum 5. Interpret results of a soil analysis. <ul style="list-style-type: none"> • Differentiating among components of soil Examples: sand, silt, clay • Describing methods for adjusting pH • Calculating the amount of fertilizer needed for nursery crops |
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| Learning Objective(s) and Depth of Knowledge Level(s): | <p>Students will:</p> <ol style="list-style-type: none"> 1. Different environmental factors affecting nursery plant growth. 2. Describe the uses of primary, secondary, and trace nutrients. 3. Interpret results of a soil analysis. |
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| Essential Question(s): | Why is it important to interpret the results of a soil analysis? |
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| Content Knowledge | Suggested Instructional Activities Rigor & Relevance Framework (Quadrant) | Suggested Materials, Equipment and Technology Resources |
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| I. Environmental Factors affecting nursery plants A. Soil B. Air C. Light D. Water | Research paper Brainstorming/Discussion Worksheets | Library Media Center Textbook Internet |

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| Unit/Course CTSO Activity: | FFA member will take soil samples and do a soil test analysis to under the affects of plant nutrients. |
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| Unit/Course Culminating Product: | Students will prepare a soil testing schedule for nursery crops to maintain adequate level of plant nutrients. |
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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: 4 | Plant Propagation |
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| Content Standard(s) and Depth of Knowledge Level(s): | Students will: 6. Demonstrate propagation methods for nursery plants. |
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| Learning Objective(s) and Depth of Knowledge Level(s): | Students will: 1. Explain the difference between sexual and asexual propagation methods. 2. Demonstrate the primary methods of sexual propagation. 3. Demonstrate the various methods of asexual propagation. |
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| Essential Question(s): | Why is plant propagation important for the nursery crop industry? |
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| Content Knowledge | Suggested Instructional Activities Rigor & Relevance Framework (Quadrant) | Suggested Materials, Equipment and Technology Resources |
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| I. Differentiate between propagation methods A. sexual B. asexual II. Methods of sexual propagation A. Direct seeding B. Indirect seeding III. Methods of asexual propagation A. Cuttings B. Grafting C. Budding D. Layering E. Separation and Division | Guest Speaker: Nursery Employee Demonstration Display Demonstration Research Experiment | Textbook Reference materials Propagation tools and supplies Reference materials Propagation tools and supplies Reference materials |

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| Unit Assessment: | Display student work, student demonstrations, and performance exams. |
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| Unit/Course CTSO Activity: | FFA members will use propagation methods to propagate nursery plants on campus. |
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| Unit/Course Culminating Product: | Students will design a propagation schedule to propagate nursery crops sexually and asexually. |
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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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| B. Inorganic Components 1. Rocks 2. Minerals | | |
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| Unit Assessment: | Demonstration of abilities to amend nursery crop growing media. |
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| Unit/Course CTSO Activity: | Students will amend nursery crop growing media for plants to be used for a FFA fund raiser. |
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| Unit/Course Culminating Product: | Students will prepare nursery crop media mixes and prepare PowerPoint presentations to demonstrate knowledge and skills learned in the process. |
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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: 6 | Plant Identification |
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| Content Standard(s) and Depth of Knowledge Level(s): | Students will: 9. Identify nursery plants by common name. |
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| Learning Objective(s) and Depth of Knowledge Level(s): | Students will: 1. Explain ways plants are identified. 2. Describe the parts and function of plant parts. |
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| Essential Question(s): | Why is it necessary to identify plants in the nursery industry? |
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| Content Knowledge | Suggested Instructional Activities Rigor & Relevance Framework (Quadrant) | Suggested Materials, Equipment and Technology Resources |
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| I. Identifying Plants A. stems B. size C. fruit D. foliage E. life cycle II. Plants parts A. leaves B. fruit C. stem D. roots E. flower | Cooperative learning Discussion Portfolio Poster | Textbook Reference materials Textbook Reference materials Posters |

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| Unit Assessment: | Portfolio, Posters, Tests, Plant Identification, Contest |
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| Unit/Course CTSO Activity: | FFA members will participate in local and district nursery plant competition. |
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| Unit/Course Culminating Product: | Students will establish ways and means of competing with peers to identify nursery plants. |
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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: 7 | Nursery Production |
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| Content Standard(s) and Depth of Knowledge Level(s): | <p>Students will:</p> <p>10. Control environmental conditions for plant growth in the nursery industry. Examples: temperature, ventilation, water, light</p> <p>11. Produce nursery crops.</p> <p>12. Identify nursery plant problems. Examples: root rot, insect damage, fungus</p> <p>13. Select types of fertilizers and methods of application used in nursery production.</p> |
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| Learning Objective(s) and Depth of Knowledge Level(s): | <p>Students will:</p> <ol style="list-style-type: none"> 1. Determine ways to control environmental conditions in the nursery industry. 2. Explain ways nursery crops are produced. 3. Identify nursery plant problems. 4. Select types of fertilizers and methods of application used in nursery production. |
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| Essential Question(s): | |
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| Content Knowledge | Suggested Instructional Activities Rigor & Relevance Framework (Quadrant) | Suggested Materials, Equipment and Technology Resources |
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| <ol style="list-style-type: none"> I. Control of environmental conditions <ol style="list-style-type: none"> A. greenhouses/hoop houses B. irrigation systems II. Nursery crop production <ol style="list-style-type: none"> A. container production B. field production | <p>Oral presentation</p> <p>Guided practice</p> <p>Instructional technology</p> | <p>Textbook, pictures/illustration of a variety of nurseries</p> <p>Nursery landscape tools and equipment</p> <p>PowerPoint Presentation</p> |

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| Unit: 8 | Nursery Pest Control |
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| Content Standard(s) and Depth of Knowledge Level(s): | <p>Students will:</p> <p>14. Apply pesticides to nursery crops.</p> <ul style="list-style-type: none"> • Identifying safety and first aid precautions in nursery crop production • Selecting correct pesticides for intended targets in nursery crop production • Disposing of containers and left-over pesticide mixtures according to Environmental Protection Agency (EPA) standards in nursery crop production |
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| Learning Objective(s) and Depth of Knowledge Level(s): | <p>Students will:</p> <ol style="list-style-type: none"> 1. Discuss Material Safety Data Sheets. 2. Discuss first-aid procedures and precautions in nursery crop production. 3. Identify the major classifications of pesticides and their use. 4. Discuss proper disposal methods for left-over containers and pesticide mixtures according to EPA standards in crop production. |
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| Essential Question(s): | Why are the Material Safety Data Sheets critical in the nursery industry? |
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| Content Knowledge | Suggested Instructional Activities Rigor & Relevance Framework (Quadrant) | Suggested Materials, Equipment and Technology Resources |
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| I. Material Safety Data Sheets II. First-Aid Procedures III. Classifications of pesticides <ol style="list-style-type: none"> A. Insecticides B. Miticides C. Fungicides D. Herbicides E. Nematocides F. Molluscicides G. Rodenticides IV. Pesticide Disposal <ol style="list-style-type: none"> A. EPA standards | Cooperative learning Demonstrations Exhibitions | Reference materials Textbook Support Materials Teacher designed materials |

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| B. Pesticide labels C. MSDS | | |
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| Unit Assessment: | Performance task, extended response exercises, demonstrations, exhibitions, cooperative group projects |
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| Unit/Course CTSO Activity: | FFA members participate in cooperation activities with each other. |
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| Unit/Course Culminating Product: | Students will design a monitoring schedule to note the different kinds of pests in the nursery. |
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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 Assessment: | Demonstration of knowledge and skills, checklists, performance, inventories, tests |
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| Unit/Course CTSO Activity: | FFA members participate in cooperation activities with each other. |
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| Unit/Course Culminating Product: | Students will create a business and develop a marketing plan for it. |
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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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| II. Change, clean, inspect power equipment A. fuels B. oils C. filters D. coolants E. spark plugs and wires | | |
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| Unit Assessment: | Performance task, extended response exercises, demonstrations, exhibitions, cooperative group projects |
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| Unit/Course CTSO Activity: | FFA members participate in COOPETITION activities with each other. |
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| Unit/Course Culminating Product: | Students will design a preventative maintenance schedule for the nursery facilities and power equipment. |
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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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