
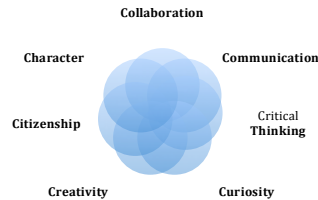


Content Area Agriscience DRAFT	Greenhouse Plant Production & Processing Year A	Grade Level: 11/12
	R14 The Seven Cs of Learning 	
Unit Titles	Length of Unit	
• <i>Advanced Floral Design</i>	5-6 weeks	
• <i>Specialty Designs</i>	3-4 weeks	
• <i>Horticultural Chemicals</i>	4-6 weeks	
• <i>Retail Flower Shop Management</i>	4-6 weeks	
• <i>Tissue Culture</i>	2-3 weeks	
• <i>Supervised Agricultural Experience (SAE) Proficiencies</i>	2 weeks	
• <i>Bedding Plant ID, Production & Marketing</i>	3-5 weeks	
• <i>Horticultural Therapy</i>	2-3 weeks	



Strands	Course Level Expectations
Plant Production	Knowledge of production techniques, cultural conditions and common pests of each plant that we wish to produce. Then we can practice the production techniques and manage the greenhouse environment and plant production techniques to produce a commercially acceptable crop.
Floral Design	Knowledge of flower identification and physiology is important to have in order to create an arrangement. Flowers have to chosen based on their physical characteristics, such as longevity, ability to stay upright, and place of origin.
Floriculture - the Services and Therapeutic Benefits	Floriculture as a service industry is important to understand. Each customer has unique needs based on culture, traditions, associations, and personal preferences. It is important to honor these needs and differences and be able to provide the services they need. Working with plants can help people in many ways. It has a positive effect on individuals social, emotional and psychological wellbeing in addition to physical benefits.

Unit Title	Advanced Floral Design	Length of Unit	5-6 weeks
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Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • Why is floral arrangement a science? • Why is floral arrangement an art?
Standards*	<p>Plant Systems (PS):</p> <p>PS. 01: Apply knowledge of plant classification, plant anatomy, and plant physiology to the production and management of plants.</p> <p>PS. 01.02: Apply knowledge of plant anatomy and the functions of plant structures to activities associated with plant systems.</p> <p>PS. 04: Employ elements of design to enhance the environment.</p> <p>PS. 04.01: Create designs using plants.</p>
Unit Strands & Concepts	<p>Floral Design, Design Matching Occasion</p> <p>Classify and select plants based on their anatomy, select plant material and hard goods according to the occasion or style, historical periods and their influence on modern design.</p>
Key Vocabulary	<p>Flemish Period, Renaissance Period, Rhythm, Line, Balance, Proportion, Respiration, Transpiration, Floral Preservative, Bactericide, Ethylene Gas</p>

** The agriculture, food and natural resources (AFNR) industry standards

Unit Title	Advanced Floral Design	Length of Unit	5-6 weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> • types and forms of flowers based on their botanical structure. • how cut flowers are classified. • the four parts of a floral arrangement. 	<ul style="list-style-type: none"> • identify cut flowers and foliage and classify. • harmoniously select parts of a floral arrangement • process cut flowers and foliage for use in an arrangement • describe the influence historical periods had on floral designs • create specific designs: crescent, Hogarth curve, Multi-flower corsage

Assessments:	<ul style="list-style-type: none"> • Ongoing Performance Assessments - Floral Arrangements and student portfolios • Various formative and interim assessments throughout the unit.
Teacher Resources:	❖ Primary in Industry Resources.

Unit Title	Specialty Designs - Weddings	Length of Unit	3-4 weeks
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Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • Why have certain flowers become associated with specific themes? • Why is it important to know your customer?
Standards	<p>Plant Systems (PS):</p> <p>PS. 01: Apply knowledge of plant classification, plant anatomy, and plant physiology to the production and management of plants.</p> <p>PS. 01.02: Apply knowledge of plant anatomy and the functions of plant structures to activities associated with plant systems.</p> <p>PS. 04: Employ elements of design to enhance the environment.</p> <p>PS. 04.01: Create designs using plants.</p>
Unit Strands & Concepts	<p>Use of materials, determining cost and pricing for profit, understanding cultural differences, communicating with customers, design techniques.</p> <p>Advanced floral design techniques, common arrangement styles used for weddings or sympathy, cultural differences and traditions, effective communication,</p>
Key Vocabulary	<p>Colonial Bouquet, Nosegay, Tulle, Bouquet Holders, Chuppa, Altar Piece, Line Flowers, Bridesmaids, Groomsmen, Synagogue, Panigrahana, civil ceremony</p>

Unit Title	Specialty Designs - Weddings	Length of Unit	3-4 weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> • how to read a wholesale florist invoice • how to communicate with customers in order to determine needs • how important weddings or funerals are to the retail floral industry • cultural differences and traditions 	<ul style="list-style-type: none"> • use supplies properly to create unique novelty arrangements. • calculate the retail price of arrangements with the correct profit margin. • select or recommend specialty arrangements based on the traditions of specific cultures. • design and construct a funeral basket or altar piece. • design and construct a different style of wedding or sympathy piece (not basket or altar). • meet with customers to determine their needs and help them place an order.

Assessments:	<ul style="list-style-type: none"> • Ongoing Performance Assessments - Mock event and student portfolios • Various formative and interim assessments throughout the unit.
Teacher Resources:	❖ Primary in Industry Resources are used.

Unit Title	Horticultural Chemicals	Length of Unit	4-6 weeks
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Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • Why use chemicals on plants? • How important is the label on chemical products?
Standards	<p>Plant Systems (PS):</p> <p>PS. 01:Apply knowledge of plant classification, plant anatomy and plant physiology to the production and management of plants.</p> <p>PS.01.03: Apply knowledge of plant physiology and energy conversion to plant systems.</p> <p>PS. 03: Propagate, culture and harvest plants.</p> <p>PS.03.03: Develop and implement a plan for integrated pest management.</p>
Unit Strands & Concepts	<p>Reviewing laws and regulations about pesticide use and storage, determining use, Signs and symptoms of poisoning and first aid, documentation, SAFETY throughout the unit.</p> <p>Pest Identification, Pesticide selection, IPM methods, Application certification - state and federal laws and regulations, First Aid</p>
Key Vocabulary	<p>Pathogens, Phylum, Protectants, Eradicants, Parasites, Nematodes, Biological Control, Pests, Label, IPM, Predator, Parasite, Target Pest, Host</p>

Unit Title	Horticultural Chemicals	Length of Unit	4-6 weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> • what information is contained in a label and the importance of each • the signs and symptoms of chemical exposure • evaluate environmental and consumer concerns regarding pest management strategies • how to comply with state and federal pesticide laws 	<ul style="list-style-type: none"> • select chemicals based on the purpose • identify pests • read a label for specific information • keep records of chemical applications • recognize pesticide poisoning and provide care • take a stand on pesticide use and successfully defend their position with facts

Assessments:	<ul style="list-style-type: none"> • Ongoing Performance Assessments - Develop and implement a pest management plant for a specific crop, create a pesticide label. • Various formative and interim assessments throughout the unit.
Teacher Resources:	<ul style="list-style-type: none"> ❖ Primary Industry Resources. MSDS Binders with Sheets, ❖ Pesticide Applicator Training Manual (Cornell University) ❖ Introduction to Greenhouse Production - Robert W. McMahon - 2nd edition - Chapter 8 - IPM

Unit Title	Retail Flower Shop Management	Length of Unit	4-6 weeks
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Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • What influences a decision to buy a business? • How do demographics impact the business plan? • How important are aesthetics to a business?
Standards	<p>Plant Systems (PS):</p> <p>PS.04: Employ elements of design to enhance the environment. PS.04.02: Determine supplies needed to create a floral business (landscape design) and develop a marketing plan.</p> <p>CTE- Marketing Education Standards C. Market Planning: Understand concepts and strategies utilized to determine and target marketing strategies to a select audience.</p>
Unit Strands & Concepts	<p>Planning, decision making, shop and employee management, market research Business & Entrepreneurial Literacy</p>
Key Vocabulary	<p>Customer Base, Merchandiser, Full-Service Flower Shop, Promotion, Public-Relations, Wire Service, Ratio Markup, Specialty Flower Shop, Lease, Consignment</p>

Unit Title	Retail Flower Shop Management	Length of Unit	4-6 weeks
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Critical Content: My students will Know...	Key Skills: My students will be able to (Do)...
<ul style="list-style-type: none"> • indicators of business success • how shop design/set up can affect profit • where to find specific information needed in business • how appearance affects perception • what skills are needed to be a successful manager • the four goals of a sales display 	<ul style="list-style-type: none"> • create a floor plan/design a floral shop • research a demographic area to determine the success of a floral business • plan and create a table display • create a business plan • analyze a specific business to determine its profitability • interview as an employer and perform an employee performance review • plan for value added service

Assessments:	<ul style="list-style-type: none"> • Ongoing Performance Assessments, Demographic Analysis, • Floor plan Design • Table Display
Teacher Resources:	<ul style="list-style-type: none"> ❖ The Art of Floral Design - Norah T. Hunter - Chapter 21 - The Retail Flower Shop ❖ The Retail Florist Business - Fifth Edition - Behe/Pfahl/Hofmann

Unit Title	SAE Proficiencies	Length of Unit	1 to 2 weeks
Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • How does record keeping relate to evaluation of goals? • How does a student quality growth? • How does a student describe and document success? 		
Standards	<p>Career Ready Practices (CRP): CRP.01. Act as a responsible and contributing citizen and employee. CRP.01.01. Model personal responsibility in the workplace and community CRP.01.02 Evaluate and consider the near-term and long-term impacts of personal and professional decisions on employers and community before taking action. CRP.01.03. Identify and act upon opportunities for professional and civic service at work and in the community. CRP.02. Apply appropriate academic and technical skills. CRP.02.01. Use strategic thinking to connect and apply academic learning, knowledge and skills to solve problems in the workplace and community. CRP.02.02. Use strategic thinking to connect and apply technical concepts to solve problems in the workplace and community.</p>		
Unit Strands & Concepts	Learn the importance of accurate record keeping, personal responsibility, descriptive writing, and goal planning. Record keeping, Descriptive writing, Evaluation of goals and success.		
Key Vocabulary	Proficiency, financial report, income, expenses, career success, placement, scope, expenditures, gross earnings, net earnings, liabilities, net worth		

Unit Title	SAE Proficiencies	Length of Unit	1 to 2 weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> • utilize AET • describe and explain the student's' SAE • calculate hours worked and money earned • list skills and identify growth • calculate gross and net income • evaluate goals 	<ul style="list-style-type: none"> • create a comprehensive PowerPoint presentation • create a expense report and earning report • write descriptive paragraphs • assemble a collage • create a resume • describe and quality success

Assessments:	<ul style="list-style-type: none"> • Formative and Interim Assessments • Summative: Submission of Proficiency Application (National FFA Proficiency Rubric) • Performance Assessment: SAE Presentation
Teacher Resources:	❖ www.theaet.com and various other primary and industry sources.

Unit Title	Tissue Culture	Length of Unit	2-3 weeks
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Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • When is tissue culture used? • How does tissue culture promote a healthy plant? • Why do we follow standard lab procedures during culturing?
Standards	Plant Systems (PS): PS.03: Propagate culture and harvest plants. P.S. 03.01: Demonstrate plant propagation techniques.
Unit Strands & Concepts	Sterile Lab Procedures, What and Why of Tissue Cultures Scientific Method, Critical Thinking and Problem Solving, Plant Production
Key Vocabulary	Agar, Apical, Aseptic, Callus, Culture, Differentiation, Explant, Gibberellins, In Vitro, Medium, Meristem, Micropropagation, Mitosis, Totipotency

Unit Title	Tissue Culture	Length of Unit	2-3 weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> • Why tissue culture is used • Sterile lab procedures and techniques • How this process is possible • What the media contains and why 	<ul style="list-style-type: none"> • Propagate a plant by tissue culture • Use non-lab supplies and materials to successfully micropropagate • Mix up and make their own propagation media

Assessments:	<ul style="list-style-type: none"> • Various formative and interim assessments throughout the unit.
Teacher Resources:	<ul style="list-style-type: none"> ❖ Plants in Test Tubes - <i>An Introduction to Micropropagation</i> ❖ Plant Propagation - <i>Principles and Practices</i>

Unit Title	Bedding Plant Production	Length of Unit	3-5 weeks
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Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> What must we know and be able to do in order to produce quality plants? What affects a plant's quality?
Standards	<p>Plant Systems (AS): PS. 01: Apply knowledge of plant classification, plant anatomy, and plant physiology to the production and management of plants. PS. 01.01: Classify agricultural plants according to taxonomy systems. PS.01.02: Apply knowledge of plant anatomy and the functions of plant structures to activities associated with plant systems. PS.01.03: Apply knowledge of plant physiology and energy conversion to plant systems. PS. 02: Prepare and implement a plant management plan that addresses the influence of environmental factors, nutrients in soil on plant growth. PS.02.01: Determine the influence of environmental factors on plant growth. PS.02.03: Develop and Implement a fertilizer plan for specific plants and crops. PS. 03: Propagate, culture and harvest plants. PS.03.01: Demonstrate plant propagation techniques. PS.03.02: Develop and implement a plant management plan for crop production.</p>
Unit Strands & Concepts	Review plant physiology, plan and implement plant production techniques, market and sell the crop Critical thinking and problem solving during crop production, Collaboration with team members to produce a crop, Use and manage information,
Key Vocabulary	B-Nine, Bacterial Blight, Botrytis, Cotyledons, Damping Off, Dibble, DNA, Plant Patents, Hardening Off, Plugs, Seeders, Soft Pinch, Hard Pinch, Transplanters

Unit Title	Bedding Plant Production	Length of Unit	3-5 weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> • why bedding plant production is important for the Horticulture Industry • how to use plant anatomy to ID plants • what conditions are needed for optimum plant growth • why production records are necessary • how to market crops including advertising and displays 	<ul style="list-style-type: none"> • identify common Annuals and describe their cultural requirements • schedule a specific crop from germination to sale • perform a variety of plant production processes and techniques • design and implement a crop scouting program • price, market and display plants for the spring plant sale • keep production records of the various crops being raised

Assessments:	<ul style="list-style-type: none"> • Ongoing Performance Assessments - Crop Production and Sales
Teacher Resources:	<ul style="list-style-type: none"> • Primary and Industry Resources are used.

Unit Title	Horticulture Therapy - Enrichment	Length of Unit	2-3 weeks
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Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> ● How can plants help us feel better?
Standards	<p>Plant Systems (AS): PS.04.02. Create designs using plants. PS.04.02.01.b. Apply principles and elements of design that form the basis of artistic impression. PS.04.01.02.c. Evaluate a design and provide feedback and suggestions for improvement (e.g., a floral arrangement, a landscape or a landscape plan, etc.).</p>
Unit Strands & Concepts	<p>Awareness of diverse populations, Challenges faced by individuals, Identification of target therapy, Planning and carrying out a therapeutic lesson Global Awareness of diverse populations, Work creatively with others to develop a Horticultural Therapy lesson, Communicate clearly, Interact effectively with others</p>
Key Vocabulary	<p>Parkinson's Disease, Multiple Sclerosis, Developmental Disabilities, Down's Syndrome, Assimilation, Dementia, Empathy, Lesson development,</p>

Unit Title	Horticulture Therapy	Length of Unit	2-3 weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> • what therapeutic benefits do horticultural activities provide • what populations/groups commonly use horticulture as therapy • How to select specific activities to accomplish specific purposes 	<ul style="list-style-type: none"> • plan an activity to provide therapy to a specific group or individual • work cooperatively with others to implement a therapy session • carry out a therapeutic session with a targeted group

Assessments:	Performance Assessment – Students will work in small groups to organize a realistic step-by-step horticulture therapy session for a specific population.
Teacher Resources:	<ul style="list-style-type: none"> • Primary in Industry Resources • Speaker from the CT Horticulture Therapy Association