

Horticulture

This course is designed to provide students with an overview of the horticulture industry. Topics for study include an orientation to the horticulture industry in Louisiana, types of growing media, basic plant science, plant propagation, vegetable production, and fruit production. Scientific, mathematical, economic, and technical principles are reinforced in this course, as are communication and critical thinking skills. Work-based learning strategies appropriate for this course are field trips and activities in the school greenhouse or lab facility. Supervised Agricultural Experience (SAE) programs and FFA leadership activities are integral components of the course and provide many opportunities for practical application of instructional competencies. As a full credit course emphasis will be placed on information and skills needed to pass the following Louisiana state licensing tests: Horticulture Services and Certified Nursery and Landscape Professional (CNLP). CNLP students will be prepared to enter fields of the green industry that require permits: Wholesale Nursery, Nursery Stock Dealer, and Cut Flower Dealer. Topics of study include establishing, managing, and maintaining ornamental and recreational turf, basic greenhouse management, principles of landscape maintenance, pest control, floriculture, and florist design and marketing. Upon completion of the requirements of the 1 credit course under the direction of an instructor holding a Horticulturist License, students may receive a partial industry-based certification as a Licensed Horticulturist. Upon completion of the requirements of the 1 credit course under the direction of a CNLP certified instructor, students may receive partial certification as a CNLP. *Italicized objectives are the minimum requirements for the ½ credit course.*

Prerequisite: Agriscience I or Jr/Sr

Credits: ½ or 1

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Horticulture	Content Guideline													
<p>Louisiana Agricultural Education Related Content Standards</p>  <p><i>*All benchmarks are not marked for all Agricultural courses.</i></p>	Introduction to Horticulture	Basic Plant Science	Vegetable and Fruit Production	Basic Computer Literacy	Nursery Stock	Interior Landscaping	Pest Control	Turf Management	Ornamental Plants	Landscape Contracting	Flower Arranging			
STRAND: Agricultural Literacy K-12														
Standard: All students will become aware of the characteristics and components of the food and fiber systems.														
c. Agricultural literacy grades 9-12														
1. Exploring the food, fiber, and natural resource systems	•	•	•	•	•	•								
2. Discussing why agriculture is important in our lives	•	•	•											
3. Recognizing areas of science that are a part of agriculture (physics, chemistry, geology, meteorology, biology)		•					•							
4. Understanding the relationship between plants and animals		•					•							
5. Discussing jobs involved in agriculture	•		•	•	•	•	•	•	•	•	•			
6. Understanding how agriculture was, and is, necessary for the development of civilization	•	•												
STRAND: Personal Development														
Standard: AgEd/FFA students will develop the necessary interpersonal and communication skills to obtain a job and work effectively and safely in an interactive work environment.														
a. Agricultural communication														
1. Identifying FFA leadership activities	•								•	•				
2. Developing agricultural related speeches														
3. Participating in leadership skills career activities	•				•	•		•	•	•				
b. Team work in agriculture														
1. Participating in agricultural career event activities	•				•	•		•	•	•				
2. Developing chapter recruitment activities									•	•				
3. Developing student and community related financial activities	•				•	•			•	•				
c. Citizenship in agriculture														

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1. Developing community related economic activities					•	•			•		•				
2. Conducting local agricultural and environmental awareness activities							•	•							
3. Conducting community related citizenship and human resource development activities					•	•			•		•				
d. Careers in agriculture															
1. Exploring agricultural related occupations	•	•	•	•	•	•	•	•	•	•	•				
2. Developing agriculture work experiences	•	•	•	•	•	•	•	•	•	•	•				
3. Participating in agricultural career events	•				•	•		•	•		•				
4. Developing job seeking and keeping skills			•	•	•	•	•	•	•	•	•				
<p>STRAND: Agribusiness Standard: AgEd/FFA students will understand the concept of agricultural marketing, management, finance, and entrepreneurship.</p>															
a. Production systems															
1. Identifying various production practices of the world				•											
2. Determining the factors that affect the development of production practice	•			•	•			•							
3. Understanding human diversity and its affect on world markets				•											
4. Discussing problems affecting agricultural production worldwide				•											
b. Selections from various choices															
1. Identifying occupational preferences			•	•	•	•	•	•	•	•	•				
2. Explaining the reasons for and effects of unemployment			•	•	•	•	•	•	•	•	•				
c. Factors that make employees successful															
1. Explaining the roles of customers and salespersons	•				•				•		•				

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2. Exploring various buying decisions	●				●									
3. Describing the types of customers	●				●									
4. Describing the desirable characteristics of a good salesperson	●				●									
d. Agricultural marketing sales and services														
1. Explaining marketing sales and services.			●		●				●		●			
2. Understanding the agricultural markets, sales, and services systems.			●		●				●		●			
3. Discussing marketing costs and margins			●											
4. Discussing the impact of the customer on markets, sales, and services			●		●				●		●			
e. Economics of production														
1. Understanding how the factors of production are organized and how they differ between systems			●		●	●			●		●			
f. Develop a business plan														
1. Explaining the importance of budgeting and understanding the types of costs			●		●				●		●			
2. Explaining credit and its uses in a business										●				
3. Explaining the various types of business organizations										●				
4. Understanding the meaning of assets and liabilities										●				
5. Developing a cash flow projection for a business										●				
6. Explaining variable versus fixed costs										●				
7. Understanding the legal aspects of a business										●				
8. Demonstrating the concept of capital investment										●				
9. Explaining the purposes and types of insurance in agriculture										●				

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STRAND: Biotechnology in Agriculture															
Standard: AgEd/FFA students will understand the concepts and principles of biotechnology and the relationships biotechnology has with the agricultural environment.															
a. Basic concepts and applications of biotechnology															
1. Defining biotechnology and the history of its development		•		•											
2. Applying the steps of the scientific method and developing record-keeping methods			•		•	•	•	•	•		•				
4. Distinguishing between types of cell structure		•													
5. Understanding the processes involved in the transfer of genetic information		•													
6. Demonstrating the applications of biotechnology in agriculture			•		•	•		•	•						
b. Impacts and public issues of biotechnology															
1. Understanding the benefits and concerns in biotechnology		•													
2. Exploring ethical issues in biotechnology		•	•												
3. Distinguishing among types of companies and jobs available in the biotechnology industry	•														
c. Processes and applications affecting the plant systems															
1. Understanding the purposes for plant biotechnology		•	•		•	•		•	•						
2. Distinguishing between plant breeding systems and genetic engineering of plants			•		•	•		•	•						
3. Analyzing agriculture applications of plant and tissue culture			•		•										
e. Microbial-biotechnology in agriculture															
1. Understanding the microorganisms and relationships to food processing and the environment		•					•								

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STRAND: Plant Systems														
Standard: AgEd/FFA students will understand the concepts and principles of plant science.														
a. Internal processes affecting plant growth and reproduction														
1. Describing plant structures and functions	●	●					●							
2. Exploring growth processes		●					●							
3. Explaining asexual and sexual reproduction processes		●				●								
4. Developing and implementing genetic improvement systems		●												
b. External environmental factors affecting plant growth and reproduction														
1. Understanding relationships among moisture, temperature, air, and plant growth		●	●		●	●		●	●					
2. Planning and implementing integrated pest management			●		●	●		●	●					
3. Applying sustainable production concepts and practices		●	●		●	●		●	●					
c. Soil fertility														
1. Understanding differences between soil and soil-less mixtures		●												
2. Understanding basic soil/plant relationships		●	●		●	●		●	●					
3. Determining liming and soil acidity relationships		●	●					●	●					
4. Exploring the importance of soil fertility and soil management		●	●		●	●		●	●					
5. Selecting and applying fertilizers		●	●		●	●		●	●					
d. Plant production														
1. Learning to identify the uses of plants		●	●		●	●			●					
2. Exploring the way plants grow and the environmental factors required		●	●		●	●		●	●					
3. Understanding and implementing proper crop management			●		●									

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												e. Landscaping and floriculture			
1. Learning to properly identify and classify plants for landscape and floral design use					•	•		•	•						
2. Evaluating the plant data for selection and placement (size, growth, habitat, pests, and cultivar)					•	•		•	•						
3. Developing landscaping plan and floral designs					•	•			•						
f. Crops of Louisiana															
1. Understanding the role of modern-day crop production			•												
2. Understanding the differences among the various crops			•												
3. Understanding the concepts of conservation tillage and crop rotation			•												
g. Horticultural crops of Louisiana															
1. Understanding the role of modern-day horticultural crop production	•		•		•	•		•	•						
2. Understanding the differences among the various crops	•		•		•	•		•	•						
h. Agribusiness relating to crop production															
1. Exploring the different career opportunities	•		•												
2. Learning the basic record-keeping practices			•												
3. Understanding the concepts and skills related to successful employment	•		•	•	•	•	•	•	•	•	•				
STRAND: Environmental Management															
Standard: AgEd/FFA students will develop an understanding of the interrelationship between people, agriculture, and the environment.															
c. Environmental quality															
1. Understanding relationships among agriculture, water quality, and air quality		•	•		•		•	•	•						
2. Applying principles of soil, water, and air conservation			•		•		•	•	•						

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												STRAND: Agricultural Processing Standard: AgEd/FFA students will develop an understanding of the processes of distributing, grading, inspecting, processing, mixing, packaging, and storing of food and non-food products.		
c. Fruits and vegetable processing														
1. Explaining the handling, manufacturing, and transporting of fresh, frozen, and canned fruits and vegetables			•											
e. Career awareness														
1. Describing the various careers associated with agricultural processing and the occupational handbook			•		•	•		•	•	•	•			
STRAND: Agriscience Technology Standard: AgEd/FFA students will demonstrate technical skills that reflect successful business and industry practices.														
a. Agriculture power and energy														
9. Explaining and demonstrating maintenance, operation and safety of tractor and lawn equipment			•					•						
c. Mathematics in agriscience technology														
1. Explaining and applying whole numbers, fractions, decimals, and percentages in standard and metric form			•		•	•	•	•	•					
2. Explaining and solving problems involving perimeter, area, volume, ratio, and proportion			•		•		•	•	•					
3. Using various measuring devices			•				•	•	•					
e. Agricultural structures and facilities														
1. Planning, estimating, and using building components in agricultural construction			•		•									
4. Developing skills in planning, estimating, and installing agricultural plumbing and/or irrigation systems			•		•			•	•					

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	Science as Inquiry										
The Abilities Necessary to Do Scientific Inquiry											
1. Write a testable question or hypothesis when given a topic (SI-H-A1).		•	•		•	•	•	•	•		
2. Describe how investigations can be observation, description, literature survey, classification, or experimentation (SI-H-A2).		•	•		•	•	•	•	•		
3. Plan and record step-by-step procedures for a valid investigation, select equipment and materials, and identify variables and controls (SI-H-A2).		•	•		•	•	•	•	•		
4. Conduct an investigation that includes multiple trials and record, organize, and display data appropriately (SI-H-A2).		•	•		•	•	•	•	•		
5. Utilize mathematics, organizational tools, and graphing skills to solve problems (SI-H-A3).		•	•		•	•	•	•	•		
6. Use technology when appropriate to enhance laboratory investigations and presentations of findings (SI-H-A3).		•	•		•	•	•	•	•		
7. Choose appropriate models to explain scientific knowledge or experimental results (e.g., objects, mathematical relationships, plans, schemes, examples, role-playing, computer simulations) (SI-H-A4).		•	•		•	•	•	•	•		
8. Give an example of how new scientific data can cause an existing scientific explanation to be supported, revised, or rejected (SI-H-A5).		•	•		•	•	•	•	•		
9. Write and defend a conclusion based on logical analysis of experimental data (SI-H-A6) (SI-H-A2).		•	•		•	•	•	•	•		
10. Given a description of an experiment, identify appropriate safety measures (SI-H-A7).		•	•		•	•	•	•	•		
Understanding Scientific Inquiry											
11. Evaluate selected theories based on supporting scientific evidence (SI-H-B1).		•	•		•	•	•	•	•		
12. Cite evidence that scientific investigations are conducted for many different reasons (SI-H-B2).		•	•		•	•	•	•	•		
13. Identify scientific evidence that has caused modifications in previously accepted theories (SI-H-B2).		•	•		•	•	•	•	•		

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	14. Cite examples of scientific advances and emerging technologies and how they affect society (e.g., MRI, DNA in forensics) (SI-H-B3).		•	•		•	•	•	•	•	
15. Analyze the conclusion from an investigation by using data to determine its validity (SI-H-B4).		•	•		•	•	•	•	•		
16. Use the following rules of evidence to examine experimental results: (a) Can an expert's technique or theory be tested, has it been tested, or is it simply a subjective, conclusive approach that cannot be reasonably assessed for reliability? (b) Has the technique or theory been subjected to peer review and publication? (c) What is the known or potential rate of error of the technique or theory when applied? (d) Were standards and controls applied and maintained? (e) Has the technique or theory been generally accepted in the scientific community? (SI-H-B5) (SI-H-B1) (SI-H-B4).		•	•		•	•	•	•	•		

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	Physical Science										
Measurement and Symbolic Representation											
1. Measure the physical properties of different forms of matter in metric system units (e.g., length, mass, volume, temperature) (PS-H-A1).			•		•	•	•	•	•		
2. Gather and organize data in charts, tables, and graphs (PS-H-A1).			•		•	•	•	•	•		
3. Distinguish among symbols for atoms, ions, molecules, and equations for chemical reactions (PS-H-A2).		•	•		•	•	•	•	•		
4. Name and write chemical formulas using symbols and subscripts (PS-H-A2).		•	•		•	•	•	•	•		
The Structure and Properties of Matter											
11. Investigate and classify common materials as elements, compounds, or mixtures (heterogeneous or homogeneous) based on their physical and chemical properties (PS-H-C1).		•	•		•	•	•	•	•		
16. Name and write the formulas for simple ionic and covalent compounds (PS-H-C5).		•									
Chemical Reactions											
21. Classify changes in matter as physical or chemical (PS-H-D1).		•								•	
22. Identify evidence of chemical changes (PS-H-D1).		•									
23. Classify unknowns as acidic, basic, or neutral using indicators (PS-H-D2).		•									
24. Identify balanced equations as neutralization, combination, and decomposition reactions (PS-H-D3).		•									
25. Determine the effect of various factors on reaction rate (e.g., temperature, surface area, concentration, agitation) (PS-H-D4).			•		•	•	•	•	•	•	
26. Illustrate the laws of conservation of matter and energy through balancing simple chemical reactions (PS-H-D5) (PS-H-D3) (PS-H-D7).		•									
28. Identify chemical reactions that commonly occur in the home and nature (PS-H-D7).		•	•		•	•		•	•	•	

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	Biology (Life Science)										
The Cell											
1. Compare prokaryotic and eukaryotic cells (LS-H-A1).		•									
2. Identify and describe structural and functional differences among organelles (LS-H-A1).		•									
The Molecular Basis of Heredity											
7. Identify the basic structure and function of nucleic acids (e.g., DNA, RNA) (LS-H-B1).		•									
8. Describe the relationships among DNA, genes, chromosomes, and proteins (LS-H-B1).		•									
9. Compare mitosis and meiosis (LS-H-B2).		•									
11. Calculate the probability of genotypes and phenotypes of offspring given the parental genotypes (LS-H-B3).		•			•				•		
12. Describe the processes used in modern biotechnology related to genetic engineering (LS-H-B4) (LS-H-B1).		•	•				•				
13. Identify possible positive and negative effects of advances in biotechnology (LS-H-B4) (LS-H-B1).		•	•								
Biological Evolution											
19. Compare characteristics of the major kingdoms (LS-H-C5).							•				
20. Analyze differences in life cycles of selected organisms in each of the kingdoms (LS-H-C6).							•				
21. Compare the structures, functions, and cycles of viruses to those of cells (LS-H-C7).							•				
22. Describe the role of viruses in causing diseases and conditions (e.g., AIDS, common colds, smallpox, influenza, warts) (LS-H-C7) (LS-H-G2).							•				
Interdependence of Organisms											
23. Illustrate the flow of carbon, nitrogen, and water through an ecosystem (LS-H-D1) (SE-H-A6).		•									
Matter, Energy, and Organization of Living Systems											

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	28. Explain why ecosystems require a continuous input of energy from the Sun (LS-H-E1).		●								
29. Use balanced equations to analyze the relationship between photosynthesis and cellular respiration (LS-H-E1).		●									

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Environmental Science											
Science and the Environment- Ecological Systems and Interactions											
7. Illustrate the flow of carbon, water, oxygen, nitrogen, and phosphorus through an ecosystem (SE-H-A6) (LS-H-D1).		•									
10. Analyze the effect of an invasive species on the biodiversity within ecosystems (SE-H-A9).			•				•				
Resources and Resource Management											
13. Evaluate whether a resource is renewable by analyzing its relative regeneration time (SE-H-B1).		•									
14. Analyze data to determine the effect of preservation practices compared to conservation practices for a sample species (SE-H-B2).		•									
16. Evaluate the effectiveness of natural resource management in Louisiana (SE-H-B4) (SE-H-B5).		•									
Environmental Awareness and Protection											
19. Determine the interrelationships of clean water, land, and air to the success of organisms in a given population (SE-H-C1).			•	•	•	•	•	•	•	•	
20. Relate environmental quality to quality of life (SE-H-C2).			•	•	•	•	•	•	•	•	
21. Analyze the effect of common social, economic, technological, and political considerations on environmental policy (SE-H-C3).			•	•	•	•	•	•	•	•	
22. Analyze the risk-benefit ratio for selected environmental situations (SE-H-C4).			•	•	•	•	•	•	•	•	
23. Describe the relationship between public support and the enforcement of environmental policies (SE-H-C5).			•	•	•	•	•	•	•	•	
Personal Choices and Responsible Actions											
25. Discuss how education and collaboration can affect the prevention and control of a selected pollutant (SE-H-D2) (SE-H-D3).			•	•	•	•	•	•	•	•	
26. Determine local actions that can affect the global environment (SE-H-D4).			•	•	•	•	•	•	•	•	
27. Describe how accountability toward the environment affects sustainability (SE-H-D5).			•	•	•	•	•	•	•	•	

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	Chemistry										
Physical Science - Measurement and Symbolic Representation											
1. Convert metric system units involving length, mass, volume, and time using dimensional analysis (i.e., factor-label method) (PS-H-A1).			•		•	•	•	•	•		
2. Differentiate between accuracy and precision and evaluate percent error (PS-H-A1).			•		•	•	•	•	•		
3. Determine the significant figures based on precision of measurement for stated quantities (PS-H-A1).			•		•	•	•	•	•		
4. Use scientific notation to express large and small numbers (PS-H-A1).			•		•	•	•	•	•		
7. Write a balanced symbolic equation from a word equation (PS-H-A2).			•		•	•	•	•	•		
Chemical Reactions											
39. Relate the law of conservation of matter to the rearrangement of atoms in a balanced chemical equation (PS-H-D5).		•									
Physics											
Physical Science - Measurement and Symbolic Representation											
5. Use trigonometric functions to make indirect measurements (PS-H-A1).										•	

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	Number and Number Relations										
1. Identify and describe differences among natural numbers, whole numbers, integers, rational numbers, and irrational numbers (N-1-H) (N-2-H) (N-3-H).		•	•								
3. Apply scientific notation to perform computations, solve problems, and write representations of numbers (N-2-H).		•			•			•	•		
4. Distinguish between an exact and an approximate answer, and recognize errors introduced by the use of approximate numbers with technology (N-3-H) (N-4-H) (N-7-H).		•	•		•			•	•	•	
5. Demonstrate computational fluency with all rational numbers (e.g., estimation, mental math, technology, paper/pencil) (N-5-H).		•	•							•	
Measurement											
17. Distinguish between precision and accuracy (M-1-H).									•		
18. Demonstrate and explain how the scale of a measuring instrument determines the precision of that instrument (M-1-H).		•	•		•			•	•		
21. Determine appropriate units and scales to use when solving measurement problems (M-2-H) (M-3-H) (M-1-H).		•	•		•	•	•	•	•		
22. Solve problems using indirect measurement (M-4-H).			•			•			•		
Geometry											
23. Use coordinate methods to solve and interpret problems (e.g., slope as rate of change, intercept as initial value, intersection as common solution, midpoint as equidistant) (G-2-H) (G-3-H).								•	•		
25. Explain slope as a representation of “rate of change” (G-3-H) (A-1-H).								•	•		
Data Analysis, Probability, and Discrete Math											
30. Use simulations to estimate probabilities (D-3-H) (D-5-H).		•	•								

Louisiana Mathematics Grade Level Expectations	Content Guideline										
GLEs Grade 10	Introduction to Horticulture	Basic Plant Science	Vegetable and Fruit Production	Basic Computer Literacy	Nursery Stock	Interior Landscaping	Pest Control	Turf Management	Ornamental Plants	Landscape Contracting	Flower Arranging
	Number and Number Relations										
2. Predict the effect of operations on real numbers (e.g., the quotient of a positive number divided by a positive number less than 1 is greater than the original dividend) (N-3-H) (N-7-H).		•	•		•	•	•	•	•		
4. Use ratios and proportional reasoning to solve a variety of real-life problems including similar figures and scale drawings (N-6-H) (M-4-H).		•	•		•	•	•	•	•		
Measurement											
7. Find volume and surface area of pyramids, spheres, and cones (M-3-H) (M-4-H).			•			•			•		
8. Model and use trigonometric ratios to solve problems involving right triangles (M-4-H) (N-6-H).						•				•	
Geometry											
11. Determine angle measurements using the properties of parallel, perpendicular, and intersecting lines in a plane (G-2-H).			•			•			•	•	
12. Apply the Pythagorean theorem in both abstract and real-life settings (G-2-H).			•			•			•	•	
13. Solve problems and determine measurements involving chords, radii, arcs, angles, secants, and tangents of a circle (G-2-H).			•			•			•	•	
16. Represent and solve problems involving distance on a number line or in the plane (G-3-H).		•	•			•			•	•	
Data Analysis, Probability, and Discrete Math											
21. Determine the probability of conditional and multiple events, including mutually and non-mutually exclusive events (D-4-H) (D-5-H).			•								
24. Use counting procedures and techniques to solve real-life problems (D-9-H).			•		•				•	•	
25. Use discrete math to model real life situations (e.g., fair games, elections) (D-9-H).	•										

Louisiana Mathematics Grade Level Expectations	Content Guideline										
GLEs Grade 11-12	Introduction to Horticulture	Basic Plant Science	Vegetable and Fruit Production	Basic Computer Literacy	Nursery Stock	Interior Landscaping	Pest Control	Turf Management	Ornamental Plants	Landscape Contracting	Flower Arranging
	Measurement										
11. Calculate angle measures in degrees, minutes, and seconds (M-1-H).						•				•	
12. Explain the unit circle basis for radian measure and show its relationship to degree measure of angles (M-1-H).						•				•	
13. Identify and apply the unit circle definition to trigonometric functions and use this definition to solve real-life problems (M-4-H).						•				•	
Data Analysis, Probability, and Discrete Math											
17. Discuss the differences between samples and populations (D-1-H).							•				

Louisiana English Language Arts Grade Level Expectations	Content Guideline										
GLEs Grade 9	Introduction to Horticulture	Basic Plant Science	Vegetable and Fruit Production	Basic Computer Literacy	Nursery Stock	Interior Plantscaping	Pest Control	Turf Management	Ornamental Plants	Landscape Contracting	Flower Arranging
	Reading and Responding										
1. Extend basic and technical vocabulary using a variety of strategies, including: use of context clues, use of knowledge of Greek and Latin roots and affixes, use of denotative and connotative meanings tracing etymology (ELA-1-H1).	•	•	•	•	•	•	•	•	•	•	•
5. Explain ways in which ideas and information in a variety of texts (e.g., scientific reports, technical guidelines, business memos, and literary texts) connect to real-life situations and other texts (ELA-1-H4).	•	•	•	•	•	•	•	•	•	•	•
11. Demonstrate understanding of information in grade-appropriate texts using a variety of strategies, including: summarizing and paraphrasing information and story elements, comparing and contrasting information in texts, including televised news, news magazines, documentaries, and online information, comparing and contrasting complex literary elements, devices, and ideas within and across texts, examining the sequence of information and procedures in order to critique the logic or development of ideas in texts, making inferences and drawing conclusions, and making predictions and generalizations (ELA-7-H1).	•	•	•	•	•	•	•	•	•	•	•
12. Solve problems using reasoning skills, including: using supporting evidence to verify solutions, analyzing the relationships between prior knowledge and life experiences and information in texts, and using technical information in specialized software programs, manuals, interviews, surveys, and access guides to Web sites (ELA-7-H2).	•	•	•	•	•	•	•	•	•	•	•
14. Analyze information within and across grade-appropriate texts using various reasoning skills, including: identifying cause-effect relationships, raising questions, reasoning inductively and deductively, generating a theory or hypothesis, and distinguishing facts from opinions and probability (ELA-7-H4).	•	•	•	•	•	•	•	•	•	•	•
Writing											
15. Develop organized, coherent paragraphs that include the following: topic sentences, logical sequence, transitional words and phrases, appropriate closing sentences, and parallel construction where appropriate (ELA-2-H1).	•	•	•	•	•	•	•	•	•	•	•

Louisiana English Language Arts Grade Level Expectations	Content Guideline										
GLEs Grade 9	Introduction to Horticulture	Basic Plant Science	Vegetable and Fruit Production	Basic Computer Literacy	Nursery Stock	Interior Landscaping	Pest Control	Turf Management	Ornamental Plants	Landscape Contracting	Flower Arranging
	16. Develop multiparagraph compositions organized with the following: a clearly stated central idea or thesis statement, a clear, overall structure that includes an introduction, a body, and an appropriate conclusion, supporting paragraphs appropriate to the topic organized in a logical sequence (e.g., spatial order, order of importance, ascending/descending order, chronological order, parallel construction), and transitional words and phrases that unify throughout (ELA-2-H1).	•	•	•	•	•	•	•	•	•	•
21. Write for various purposes, including: formal and business letters, such as letters of complaint and requests for information, letters to the editor, job applications, and text-supported interpretations that connect life experiences to works of literature (ELA-2-H6).	•	•	•	•	•	•	•	•	•	•	•
Writing/Proofreading											
22. Apply standard rules of sentence formation, avoiding common errors, such as: fragments, run-on sentences, and syntax problems (ELA-3-H2).	•	•	•	•	•	•	•	•	•	•	•
23. Apply standard rules of usage, including: making subjects and verbs agree, using verbs in appropriate tenses, making pronouns agree with antecedents, using pronouns appropriately in nominative, objective, and possessive cases, using adjectives in comparative and superlative degrees and adverbs correctly, avoiding double negatives, and using all parts of speech appropriately (ELA-3-H2).	•	•	•	•	•	•	•	•	•	•	•
24. Apply standard rules of mechanics, including: using commas to set off appositives or parenthetical phrases, using quotation marks to set off titles of short works, using colons preceding a list and after a salutation in a business letter, using standard capitalization for names of political and ethnic groups, religions, and continents (ELA-3-H2).	•	•	•	•	•	•	•	•	•	•	•
25. Use correct spelling conventions when writing and editing (ELA-3-H3).	•	•	•	•	•	•	•	•	•	•	•
26. Use a variety of resources, such as dictionaries, thesauruses, glossaries, technology, and textual features (e.g., definitional footnotes, sidebars) to verify word spellings (ELA-3-H3).	•	•	•	•	•	•	•	•	•	•	•
27. Use standard English grammar, diction, and syntax when responding to questions, participating in informal group discussions, and making presentations (ELA-4-H1).	•	•	•	•	•	•	•	•	•	•	•

Louisiana English Language Arts Grade Level Expectations	Content Guideline										
GLEs Grade 9	Introduction to Horticulture	Basic Plant Science	Vegetable and Fruit Production	Basic Computer Literacy	Nursery Stock	Interior Landscaping	Pest Control	Turf Management	Ornamental Plants	Landscape Contracting	Flower Arranging
	28. Select language appropriate to specific purposes and audiences when speaking, including: delivering informational/book reports in class, conducting interviews/surveys of classmates or the general public, and participating in class discussions (ELA-4-H1).	•	•	•	•	•	•	•	•	•	•
29. Listen to oral instructions and presentations, speeches, discussions, and carry out procedures, including: taking accurate notes, writing summaries or responses, and forming groups (ELA-4-H2).	•	•	•	•	•	•	•	•	•	•	•
30. Organize and use precise language to deliver oral directions and instructions about general, technical, or scientific topics (ELA-4-H2).	•	•	•	•	•	•	•	•	•	•	•
31. Deliver oral presentations that include the following: phrasing, enunciation, voice modulation, verbal and nonverbal techniques, and inflection adjusted to stress important ideas and impact audience response, language choices selected to suit the content and context, and organization that includes an introduction, relevant details that develop the topic, and a conclusion (ELA-4-H3).	•	•	•	•	•	•	•	•	•	•	•
32. Use active listening strategies, including: monitoring messages for clarity, selecting and organizing essential information, noting cues such as changes in pace, and generating and asking questions concerning a speaker's content, delivery, and attitude toward the subject (ELA-4-H4).	•	•	•	•	•	•	•	•	•	•	•
33. Deliver clear, coherent, and concise oral presentations about information and ideas in texts (ELA-4-H4).	•	•	•	•	•	•	•	•	•	•	•
34. Analyze media information in oral and written responses, including: summarizing the coverage of a media event, and comparing messages from different media (ELA-4-H5).	•	•	•	•	•	•	•	•	•	•	•
35. Participate in group and panel discussions, including: identifying the strengths and talents of other participants, acting as facilitator, recorder, leader, listener, or mediator, and evaluating the effectiveness of participant's performance (ELA-4-H6).	•	•	•	•	•	•	•	•	•	•	•
Information Resources											
36. Identify and use organizational features to locate relevant information for research projects using a variety of resources, including: print resources (e.g., prefaces, appendices, annotations, citations, bibliographic references) and electronic texts (e.g., database keyword searches, search engines, e-mail addresses) (ELA-5-H1).	•	•	•	•	•	•	•	•	•	•	•

Louisiana English Language Arts Grade Level Expectations	Content Guideline										
GLEs Grade 9	Introduction to Horticulture	Basic Plant Science	Vegetable and Fruit Production	Basic Computer Literacy	Nursery Stock	Interior Landscaping	Pest Control	Turf Management	Ornamental Plants	Landscape Contracting	Flower Arranging
	37. Locate, analyze, and synthesize information from a variety of grade-appropriate resources, including: multiple printed texts (e.g., encyclopedias, atlases, library catalogs, specialized dictionaries, almanacs, technical encyclopedias, and periodicals), electronic sources (e.g., Web sites, databases), other media sources (e.g., community and government data, television and radio resources, and other audio and visual materials) (ELA-5-H2).	•	•	•	•	•	•	•	•	•	•
38. Analyze the usefulness and accuracy of sources by determining their validity (e.g., authority, accuracy, objectivity, publication date, and coverage) (ELA-5-H2).	•	•	•	•	•	•	•	•	•	•	•
39. Access information and conduct research using various grade-appropriate, data-gathering strategies/tools, including: formulating clear research questions, gathering evidence from primary and secondary sources, using graphic organizers (e.g., outlining, charts, timelines, webs), and compiling and organizing information to support the central ideas, concepts, and themes of formal papers or presentations (ELA-5-H3).	•	•	•	•	•	•	•	•	•	•	•
40. Write a variety of research reports, which include the following: research supporting the main ideas, facts, details, examples, and explanations from sources, graphics when appropriate, and complete documentation (e.g., endnotes, parenthetical citations, works cited lists or bibliographies) (ELA-5-H3).	•	•	•	•	•	•	•	•	•	•	•
41. Use word processing and/or other technology (e.g., illustration, page-layout, Web-design programs) to draft, revise, and publish various works, including research reports documented with parenthetical citations and bibliographies or works cited lists (ELA-5-H4).	•	•	•	•	•	•	•	•	•	•	•
42. Give credit for borrowed information in grade-appropriate research reports following acceptable use policy, including: using parenthetical documentation to integrate quotes and citations and preparing bibliographies and/or works cited list (ELA-5-H5).	•	•	•	•	•	•	•	•	•	•	•
43. Analyze information found in a variety of complex graphic organizers, including detailed maps, comparative charts, extended tables, graphs, diagrams, cutaways, overlays, and sidebars to determine usefulness for research (ELA-5-H6).	•	•	•	•	•	•	•	•	•	•	•

Louisiana English Language Arts Grade Level Expectations	Content Guideline										
GLEs Grade 10	Introduction to Horticulture	Basic Plant Science	Vegetable and Fruit Production	Basic Computer Literacy	Nursery Stock	Interior Landscaping	Pest Control	Turf Management	Ornamental Plants	Landscape Contracting	Flower Arranging
	Reading and Responding										
1. Extend basic and technical vocabulary using a variety of strategies, including: use of context clues, use of knowledge of Greek and Latin roots and affixes, use of denotative and connotative meanings, and tracing etymology (ELA-1-H1).	•	•	•	•	•	•	•	•	•	•	•
5. Analyze ways in which ideas and information in texts, such as almanacs, microfiche, news sources, technical documents, Internet sources, and literary texts, connect to real-life situations and other texts or represent a view or comment on life (ELA-1-H4).	•	•	•	•	•	•	•	•	•	•	•
11. Demonstrate understanding of information in grade-appropriate texts using a variety of reasoning strategies, including: summarizing and paraphrasing information and story elements, comparing and contrasting information in various texts (e.g., televised news, news magazines, documentaries, online information), comparing and contrasting complex literary elements, devices, and ideas within and across texts, examining the sequence of information and procedures in order to critique the logic or development of ideas in texts, making inferences and drawing conclusions, and making predictions and generalizations (ELA-7-H1).	•	•	•	•	•	•	•	•	•	•	•
12. Solve problems using reasoning skills, including: using supporting evidence to verify solutions, analyzing the relationships between prior knowledge and life experiences and information in texts, and using technical information in specialized software programs, manuals, interviews, surveys, and access guides to Web sites (ELA-7-H2).	•	•	•	•	•	•	•	•	•	•	•
15. Analyze information within and across grade-appropriate texts using various reasoning skills, including: identifying cause-effect relationships, raising questions, reasoning inductively and deductively, generating a theory or hypothesis, and distinguishing facts from opinions and probability (ELA-7-H4).	•	•	•	•	•	•	•	•	•	•	•
Writing											
16. Develop organized, coherent paragraphs that include the following: topic sentences, logical sequence, transitional words and phrases, appropriate closing sentences, and parallel construction where appropriate (ELA-2-H1).	•	•	•	•	•	•	•	•	•	•	•

Louisiana English Language Arts Grade Level Expectations	Content Guideline										
GLEs Grade 10	Introduction to Horticulture	Basic Plant Science	Vegetable and Fruit Production	Basic Computer Literacy	Nursery Stock	Interior Landscaping	Pest Control	Turf Management	Ornamental Plants	Landscape Contracting	Flower Arranging
	17. Develop multiparagraph compositions organized with the following: a clearly stated central idea/thesis statement, a clear, overall structure that includes an introduction, a body, and an appropriate conclusion, supporting paragraphs appropriate to the topic organized in a logical sequence (e.g., spatial order, order of importance, ascending/descending order, chronological order, parallel construction), and transitional words and phrases that unify throughout (ELA-2-H1).	•	•	•	•	•	•	•	•	•	•
18. Develop complex compositions on student- or teacher-selected topics that are suited to an identified audience and purpose and that include the following: word choices appropriate to the identified audience and/or purpose, vocabulary selected to clarify meaning, create images, and set a tone, information/ideas selected to engage the interest of the reader, and clear voice (individual personality) (ELA-2-H2).	•	•	•	•	•	•	•	•	•	•	•
19. Develop complex compositions using writing processes, including: selecting topic and form, determining purpose and audience, prewriting (e.g., brainstorming, clustering, outlining, generating main idea/thesis statements), drafting, conferencing (e.g., with peers and teachers), revising for content and structure based on feedback, proofreading/editing to improve conventions of language, and publishing using technology (ELA-2-H3).	•	•	•	•	•	•	•	•	•	•	•
20. Develop complex paragraphs and multiparagraph compositions using all modes of writing, emphasizing exposition and persuasion (ELA-2-H4).	•	•	•	•	•	•	•	•	•	•	•
24. Write for various purposes, including: formal and business letters, such as letters of complaint and requests for information, letters to the editor, job applications, and text-supported interpretations that connect life experiences to works of literature (ELA-2-H6).	•	•	•	•	•	•	•	•	•	•	•
Writing/Proofreading											
25. Apply standard rules of sentence formation, avoiding common errors, such as: fragments, run-on sentences, and syntax problems (ELA-3-H2).	•	•	•	•	•	•	•	•	•	•	•
26. Apply standard rules of usage, including: making subjects and verbs agree, using verbs in appropriate tenses, making pronouns agree with antecedents, using pronouns in appropriate cases (e.g., nominative and objective), using adjectives in comparative and superlative degrees, using adverbs correctly, and avoiding double negatives	•	•	•	•	•	•	•	•	•	•	•

Louisiana English Language Arts Grade Level Expectations	Content Guideline										
GLEs Grade 10	Introduction to Horticulture	Basic Plant Science	Vegetable and Fruit Production	Basic Computer Literacy	Nursery Stock	Interior Landscaping	Pest Control	Turf Management	Ornamental Plants	Landscape Contracting	Flower Arranging
	(ELA-3-H2).										
27. Apply standard rules of mechanics, including: using commas to set off appositives or parenthetical phrases, using quotation marks to set off titles of short works, using colons preceding a list and after a salutation in a business letter, and using appropriate capitalization, including names of political and ethnic groups, religions, and continents (ELA-3-H2).	•	•	•	•	•	•	•	•	•	•	•
28. Use correct spelling conventions when writing and editing (ELA-3-H3).	•	•	•	•	•	•	•	•	•	•	•
29. Use a variety of resources, such as dictionaries, thesauruses, glossaries, technology, and textual features (e.g., definitional footnotes, sidebars), to verify word spellings (ELA-3-H3).	•	•	•	•	•	•	•	•	•	•	•
Speaking and Listening											
30. Use standard English grammar, diction, and syntax when speaking in formal presentations and informal group discussions (ELA-4-H1).	•	•	•	•	•	•	•	•	•	•	•
31. Select language appropriate to specific purposes and audiences, including: delivering informational/book reports in class, conducting interviews/surveys of classmates or the general public, and participating in class discussions (ELA-4-H1).	•	•	•	•	•	•	•	•	•	•	•
32. Listen to detailed oral instructions and presentations and carry out complex procedures, including: taking accurate notes, writing summaries or responses, and forming groups (ELA-4-H2).	•	•	•	•	•	•	•	•	•	•	•
33. Organize and use precise language to deliver oral directions and instructions about general, technical, or scientific topics (ELA-4-H2).	•	•	•	•	•	•	•	•	•	•	•
34. Deliver oral presentations that include the following: volume, phrasing, enunciation, voice modulation, and inflection adjusted to stress important ideas and impact audience response, language choices adjusted to suit the content and context, and organization that includes an introduction, selected details, and a conclusion arranged to impact an audience (ELA-4-H3).	•	•	•	•	•	•	•	•	•	•	•
35. Use active listening strategies, including: monitoring message for clarity, selecting and organizing essential information, noting cues such as changes in pace, and generating and asking questions concerning a speaker's content, delivery, and attitude toward the	•	•	•	•	•	•	•	•	•	•	•

Louisiana English Language Arts Grade Level Expectations	Content Guideline										
GLEs Grade 10	Introduction to Horticulture	Basic Plant Science	Vegetable and Fruit Production	Basic Computer Literacy	Nursery Stock	Interior Landscaping	Pest Control	Turf Management	Ornamental Plants	Landscape Contracting	Flower Arranging
	subject (ELA-4-H4).										
36. Deliver clear, coherent, and concise oral presentations and responses about information and ideas in a variety of texts (ELA-4-H4).	•	•	•	•	•	•	•	•	•	•	•
37. Analyze media information in oral and written responses, including: comparing and contrasting the ways in which print and broadcast media cover the same event, evaluating media messages for clarity, quality, effectiveness, motive, and coherence, and listening to and critiquing audio/video presentations (ELA-4-H5).	•	•	•	•	•	•	•	•	•	•	•
38. Participate in group and panel discussions, including: identifying the strengths and talents of other participants, acting as facilitator, recorder, leader, listener, or mediator, and evaluating the effectiveness of participants' performances (ELA-4-H6).	•	•	•	•	•	•	•	•	•	•	•
Information Resources											
39. Select and evaluate relevant information for a research project using the organizational features of a variety of resources, including: print texts such as prefaces, appendices, annotations, citations, bibliographic references, and endnotes, and electronic texts such as database keyword searches, search engines, and e-mail addresses (ELA-5-H1).	•	•	•	•	•	•	•	•	•	•	•
40. Locate, analyze, and synthesize information from grade-appropriate resources, including: multiple printed texts (e.g., encyclopedias, atlases, library catalogs, specialized dictionaries, almanacs, technical encyclopedias, and periodicals), electronic sources (e.g., Web sites and databases), and other media sources (e.g., community and government data, television and radio resources, and other audio and visual materials) (ELA-5-H2).	•	•	•	•	•	•	•	•	•	•	•
41. Analyze the usefulness and accuracy of sources by determining their validity (e.g., authority, accuracy, objectivity, publication date, coverage) (ELA-5-H2).	•	•	•	•	•	•	•	•	•	•	•
42. Access information and conduct research using various grade-appropriate data-gathering strategies/tools, including: formulating clear research questions, using research methods to gather evidence from primary and secondary sources, using graphic organizers (e.g., outlining, charts, timelines, webs), and compiling and organizing information to support the central ideas, concepts, and themes of a formal paper or presentation (ELA-5-H3).	•	•	•	•	•	•	•	•	•	•	•

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GLEs Grade 10	Introduction to Horticulture	Basic Plant Science	Vegetable and Fruit Production	Basic Computer Literacy	Nursery Stock	Interior Landscaping	Pest Control	Turf Management	Ornamental Plants	Landscape Contracting	Flower Arranging
	43. Write a variety of research reports, which include the following: research that supports the main ideas, facts, details, examples, and explanations from multiple sources, graphics when appropriate, and complete documentation (e.g., endnotes, parenthetical citations, works cited lists, or bibliographies) (ELA-5-H3).	•	•	•	•	•	•	•	•	•	•
44. Use word processing and/or technology to draft, revise, and publish various works, including research reports documented with parenthetical citations and bibliographies or works cited lists (ELA-5-H4).	•	•	•	•	•	•	•	•	•	•	•
45. Follow acceptable use policy to document sources in research reports using various formats, including: preparing extended bibliographies of reference materials, integrating quotations and citations while maintaining flow of ideas, using standard formatting for source acknowledgment according to a specified style guide, and using parenthetical documentation following <i>MLA Guide</i> within a literature-based research report (ELA-5-H5).	•	•	•	•	•	•	•	•	•	•	•
46. Analyze information found in complex graphic organizers, including detailed maps, comparative charts, extended tables, graphs, diagrams, cutaways, overlays, and sidebars to determine usefulness for research (ELA-5-H6).	•	•	•	•	•	•	•	•	•	•	•

Louisiana English Language Arts Grade Level Expectations	Content Guideline										
GLEs Grade 11-12	Introduction to Horticulture	Basic Plant Science	Vegetable and Fruit Production	Basic Computer Literacy	Nursery Stock	Interior Landscaping	Pest Control	Turf Management	Ornamental Plants	Landscape Contracting	Flower Arranging
	Reading and Responding										
10. Identify, gather, and evaluate appropriate sources and relevant information to solve problems using multiple sources, including: school library catalogs, online databases, electronic resources, and Internet-based resources (ELA-7-H2).	•	•	•	•	•	•	•	•	•	•	•
13. Analyze information within and across grade-appropriate print and nonprint texts using various reasoning skills, including: identifying cause-effect relationships, raising questions, reasoning inductively and deductively, generating a theory or hypothesis, skimming/scanning, and distinguishing facts from opinions and probability (ELA-7-H4).	•	•	•	•	•	•	•	•	•	•	•
Writing											
14. Develop complex compositions, essays, and reports that include the following: a clearly stated central idea/thesis statement, a clear, overall structure (e.g., introduction, body, appropriate conclusion), supporting paragraphs organized in a logical sequence (e.g., spatial order, order of importance, ascending/descending order, chronological order, parallel construction), and transitional words, phrases, and devices that unify throughout (ELA-2-H1).	•	•	•	•	•	•	•	•	•	•	•
15. Develop complex compositions on student- or teacher-selected topics that are suited to an identified audience and purpose and that include the following: word choices appropriate to the identified audience and/or purpose, vocabulary selected to clarify meaning, create images, and set a tone, information/ideas selected to engage the interest of the reader, and clear voice (individual personality) (ELA-2-H2).	•	•	•	•	•	•	•	•	•	•	•
16. Develop complex compositions using writing processes such as the following: selecting topic and form (e.g., determining a purpose and audience), prewriting (e.g., brainstorming, clustering, outlining, generating main idea/thesis statements), drafting, conferencing with peers and teachers, revising for content and structure based on feedback, proofreading/editing to improve conventions of language, and publishing using available technology (ELA-2-H3).	•	•	•	•	•	•	•	•	•	•	•

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	17. Use the various modes to write complex compositions, including: definition essay, problem/solution essay, a research project, literary analyses that incorporate research, cause-effect essay, process analyses, persuasive essays (ELA-2-H4).	•	•	•	•	•	•	•	•	•	•
18. Develop writing/compositions using a variety of complex literary and rhetorical devices (ELA-2-H5).	•	•	•	•	•	•	•	•	•	•	•
19. Extend development of individual style to include the following: avoidance of overused words, clichés, and jargon, a variety of sentence structures and patterns, diction that sets tone and mood, and vocabulary and phrasing that reflect the character and temperament (voice) of the writer (ELA-2-H5).	•	•	•	•	•	•	•	•	•	•	•
20. Write for various purposes, including: interpretations/explanations that connect life experiences to works of American, British, and world literature and functional documents (e.g., resumes, memos, proposals) (ELA-2-H6).	•	•	•	•	•	•	•	•	•	•	•
Writing/Proofreading											
21. Apply standard rules of sentence formation, including parallel structure (ELA-3-H2).	•	•	•	•	•	•	•	•	•	•	•
22. Apply standard rules of usage, for example: avoid splitting infinitives, use the subjunctive mood appropriately (ELA-3-H2).	•	•	•	•	•	•	•	•	•	•	•
23. Apply standard rules of mechanics and punctuation, including: parentheses, brackets, dashes, commas after introductory adverb clauses and long, introductory phrases, quotation marks for secondary quotations, internal capitalization, manuscript form (ELA-3-H2).	•	•	•	•	•	•	•	•	•	•	•
24. Use a variety of resources (e.g., dictionaries, thesauruses, glossaries, technology) and textual features, (e.g., definitional footnotes, sidebars) to verify word spellings (ELA-3-H3).	•	•	•	•	•	•	•	•	•	•	•
Speaking and Listening											
25. Use standard English grammar, diction, and syntax when speaking in formal presentations and informal group discussions (ELA-4-H1).	•	•	•	•	•	•	•	•	•	•	•
26. Select language appropriate to specific purposes and audiences for speaking, including: delivering informational/book reports in class, conducting interviews/surveys of classmates or the general public, participating in class discussions (ELA-4-H1).	•	•	•	•	•	•	•	•	•	•	•

Louisiana English Language Arts Grade Level Expectations	Content Guideline										
GLEs Grade 11-12	Introduction to Horticulture	Basic Plant Science	Vegetable and Fruit Production	Basic Computer Literacy	Nursery Stock	Interior Landscaping	Pest Control	Turf Management	Ornamental Plants	Landscape Contracting	Flower Arranging
	27. Listen to detailed oral instructions and presentations and carry out complex procedures, including: reading and questioning, writing responses, forming groups, taking accurate, detailed notes (ELA-4-H2).	•	•	•	•	•	•	•	•	•	•
28. Organize and use precise language to deliver complex oral directions or instructions about general, technical, or scientific topics (ELA-4-H2).	•	•	•	•	•	•	•	•	•	•	•
29. Deliver presentations that include the following: language, diction, and syntax selected to suit a purpose and impact an audience, delivery techniques including repetition, eye contact, and appeal to emotion suited to a purpose and audience, an organization that includes an introduction, relevant examples, and/or anecdotes, and a conclusion arranged to impact an audience (ELA-4-H3).	•	•	•	•	•	•	•	•	•	•	•
30. Use active listening strategies, including: monitoring messages for clarity, selecting and organizing information, noting cues such as changes in pace (ELA-4-H4).	•	•	•	•	•	•	•	•	•	•	•
31. Deliver oral presentations, including: speeches that use appropriate rhetorical strategies, responses that analyze information in texts and media, persuasive arguments that clarify or defend positions (ELA-4-H4).	•	•	•	•	•	•	•	•	•	•	•
32. Give oral and written analyses of media information, including: identifying logical fallacies (e.g., attack ad hominem, false causality, overgeneralization, bandwagon effect) used in oral addresses, analyzing the techniques used in media messages for a particular audience, critiquing a speaker's diction and syntax in relation to the purpose of an oral presentation, critiquing strategies (e.g., advertisements, propaganda techniques, visual representations, special effects) used by the media to inform, persuade, entertain, and transmit culture (ELA-4-H5).	•	•	•	•	•	•	•	•	•	•	•
33. Participate in group and panel discussions, including: identifying the strengths and talents of other participants, acting as facilitator, recorder, leader, listener, or mediator, evaluating the effectiveness of participants' performance (ELA-4-H6).	•	•	•	•	•	•	•	•	•	•	•
Information Resources											
34. Select and critique relevant information for a research project using the organizational features of a variety of resources, including: print texts (e.g., prefaces, appendices, annotations, citations, bibliographic references), electronic texts (e.g., database keyword	•	•	•	•	•	•	•	•	•	•	•

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	searches, search engines, e-mail addresses) (ELA-5-H1).										
35. Locate, analyze, and synthesize information from a variety of complex resources, including: multiple print texts (e.g., encyclopedias, atlases, library catalogs, specialized dictionaries, almanacs, technical encyclopedias, and periodicals), electronic sources (e.g., Web sites or databases), other media (e.g., community and government data, television and radio resources, and audio and visual materials) (ELA-5-H2).	•	•	•	•	•	•	•	•	•	•	•
36. Analyze the usefulness and accuracy of sources by determining their validity (e.g., authority, accuracy, objectivity, publication date, coverage) (ELA-5-H2).	•	•	•	•	•	•	•	•	•	•	•
39. Use word processing and/or technology to draft, revise, and publish various works, including: functional documents (e.g., requests for information, resumes, letters of complaint, memos, proposals), using formatting techniques that make the document user friendly, analytical reports that include databases, graphics, and spreadsheets, research reports on high-interest and literary topics (ELA-5-H4).	•	•	•	•	•	•	•	•	•	•	•
40. Use selected style guides to produce complex reports that include the following: credit for sources (e.g., appropriate parenthetical documentation and notes), standard formatting for source acknowledgment (ELA-5-H5).	•	•	•	•	•	•	•	•	•	•	•
41. Analyze and synthesize information found in various complex graphic organizers, including detailed maps, comparative charts, extended tables, graphs, diagrams, cutaways, overlays, and sidebars (ELA-5-H6).	•	•	•	•	•	•	•	•	•	•	•

Louisiana Social Studies Grade Level Expectations	Content Guideline										
GLEs Civics	Introduction to Horticulture	Basic Plant Science	Vegetable and Fruit Production	Basic Computer Literacy	Nursery Stock	Interior Landscaping	Pest Control	Turf Management	Ornamental Plants	Landscape Contracting	Flower Arranging
Civics											
Structure and Purposes of Government											
2. Identify and describe services provided by government and assess their necessity and effectiveness (e.g., health care, education) (C-1A-H1).	•	•	•		•		•		•		
21. Explain how government is financed (e.g., taxation, fines, user fees, borrowing) (C-1A-H7).			•		•						
24. Use the rules of taxation (ability, equity, ease of payment, convenient times to pay) to analyze or evaluate a given tax practice (C-1A-H7).			•		•						

Louisiana Social Studies Grade Level Expectations	Content Guideline										
GLEs Economics / Free Enterprise	Introduction to Horticulture	Basic Plant Science	Vegetable and Fruit Production	Basic Computer Literacy	Nursery Stock	Interior Plantscaping	Pest Control	Turf Management	Ornamental Plants	Landscape Contracting	Flower Arranging
Economics (Free Enterprise)											
Fundamental Economic Concepts											
3. Identify factors that drive economic decisions (e.g., incentives, benefits, costs, trade-offs, consequences) (E-1A-H1).		•	•		•						
4. Analyze an economic choice at the personal, family, or societal level to determine its opportunity cost (E-1A-H1).		•	•		•						
8. Explain the role of marketing and channels of distribution in economic decisions (E-1A-H2).			•								
9. Identify actions or conditions that increase productivity or output of the economy (E-1A-H2).			•								
10. Explain the skills, knowledge, talents, personal characteristics, and efforts likely to enhance prospects of success in finding a job in a particular field (E-1A-H3).			•	•	•	•	•	•	•	•	•
11. Explain the types of jobs important to meeting the needs of Louisiana industries and an information-based society (E-1A-H3).			•	•	•	•	•	•	•	•	•
12. Evaluate various careers in terms of availability, educational and skill requirements, salary and benefits, and intrinsic sources of job satisfaction (E-1A-H3).			•	•	•	•	•	•	•	•	•
13. Compare contemporary and historic economic systems (e.g., ownership and control of production and distribution, determination of wages) (E-1A-H4).			•		•						
14. Explain the advantages and disadvantages of given market structures (E-1A-H5).			•		•						
15. Explain factors affecting levels of competition in a market (e.g., number of buyers and sellers, profit motive, collusion among buyers or sellers, presence of cartels) (E-1A-H5).			•		•					•	
16. Explain the effects of competition on producers and consumers (E-1A-H5).			•		•					•	
17. Analyze the role of various economic institutions in economic systems (E-1A-H6).			•		•						
18. Explain the role of government as producer, employer, and consumer in economic systems (E-1A-H6).			•		•						

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19. Analyze the importance of labor-management relations and the effects of given labor and management practices on productivity or business profitability (E-1A-H6).			•		•					•	
20. Compare and contrast characteristics of various forms of business ownership (E-1A-H6).			•		•						
21. Explain ways in which businesses have changed to meet rising production costs or to compete more effectively in a global market (E-1A-H6).			•		•					•	
22. Analyze the role of banks in economic systems (e.g., increasing the money supply by making loans) (E-1A-H7).			•		•						
23. Describe the functions and purposes of the financial markets (E-1A-H7).			•		•						
24. Compare and contrast credit, savings, and investment services available to the consumer from financial institutions (E-1A-H7).			•		•						
Individuals, Households, Businesses, and Governments											
27. Explain, analyze, and apply principles of supply and demand, including concepts of price, equilibrium point, incentives, and profit (E-1B-H1).			•		•					•	
28. Identify factors that cause changes in supply or demand for a product (e.g. complements, substitutes) (E-1B-H1).			•		•					•	
29. Explain the role of <i>factors of production</i> in the economy (E-1B-H2).			•		•						
30. Identify factors affecting production/allocation of goods/services and characterize their effects (E-1B-H2).			•		•					•	
31. Identify the difference between monetary and non-monetary incentives and how changes in incentives cause changes in behavior (E-1B-H2).			•		•					•	
33. Identify various forms of taxation (E-1B-H3).			•		•						
34. Describe the impact of given forms of taxation (E-1B-H3).			•		•						
35. Describe the effects of governmental action or intervention in a market economy (E-1B-H3).			•		•						
36. Describe major revenue and expenditure categories and their respective proportions of local, state, and federal budgets (E-1B-H3).			•		•						

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37. Predict how changes in federal spending and taxation would affect budget deficits and surpluses and the national debt (E-1B-H3).			•		•						
38. Evaluate the impact of policies related to the use of resources (e.g., water use regulations, policies on scarce natural resources) (E-1B-H3).			•		•		•	•	•	•	
The Economy as a Whole											
51. Explain how inflation and deflation are reflected in the Consumer Price Index (E-1C-H2).			•		•						
52. Explain the impact of inflation/deflation on individuals, nations, and the world, including its impact on economic decisions (E-1C-H2).			•		•				•		
53. Describe the effects of interest rates on businesses and consumers (E-1C-H2).			•		•						
54. Predict the consequences of investment decisions made by individuals, businesses, and government (E-1C-H2).			•		•						

Louisiana Social Studies Grade Level Expectations	Content Guideline										
<p style="text-align: center;">GLEs United States History</p>	Introduction to Horticulture	Basic Plant Science	Vegetable and Fruit Production	Basic Computer Literacy	Nursery Stock	Interior Landscaping	Pest Control	Turf Management	Ornamental Plants	Landscape Contracting	Flower Arranging
	United States History										
26. Evaluate the Progressive movement in terms of its goals and resulting accomplishments (e.g., Sixteenth through Nineteenth Amendments, Pure Food and Drug Act, advances in land conservation) (H-1B-H8).		•	•		•		•	•	•		
27. Describe problems facing farmers and laborers, the ways they sought to enact change, and the responses of the government and business community (e.g., populism, sharecroppers, rise of labor unions) (H-1B-H9).	•										
58. Identify and explain recent domestic issues and reform movements (e.g., terrorism, energy, environment, war on drugs, education) (H-1B-H1).		•	•		•	•	•	•	•		

Horticulture

Content Guidelines

(The student will be able to. . .)

Italicized objectives are the minimum requirements for the ½ credit course.

Unit One

Introduction to Horticulture

1. *Define horticulture.*
2. *Differentiate between horticultural and agricultural crops.*
3. *Cite examples showing the economic importance of the horticulture industry in Louisiana and the United States.*
4. *Research possible career choices in the horticulture industry.*
5. *Document requirements for career choices in horticulture.*
 - a. *Two-year associate degrees*
 - b. *Four-year degree programs*
 - c. *Licensing programs*
6. *Develop a personal plan of activities for participation in the FFA.*
7. *Plan and develop an individualized Supervised Agricultural Experience (SAE) program.*

Unit Two

Basic Plant Science

1. *Explain how plants are classified*
 - a. *Binomial system*
 - b. *Growth habit*
 - c. *Life cycle*
 - d. *Cultural requirements*
 - e. *Use*
2. *Identify and label the basic parts of plants.*
 - a. *Distinguishing structures*
 - b. *Functions*
3. *Explore the growth processes of plants.*
 - a. *Photosynthesis*
 - b. *Respiration*
 - c. *Transpiration*
 - d. *Pollination*
 - e. *Fertilization*
4. *Determine the effects of growth stimulants, retardants, and rooting hormones.*
5. *Differentiate between asexual and sexual reproduction, and tell which plant parts are involved.*
6. *Identify and classify special structures used to store food.*

7. *Discuss various environmental factors that affect plant growth.*
 - a. *Environmental conditions affecting plant growth*
 1. *Light*
 2. *Temperature*
 3. *Water*
 4. *Air Quality*
 - b. *Soil versus soil-less media*
 - c. *Soil texture*
 1. *Sandy soils*
 2. *Clay soils*
 3. *Silty soils*
 4. *Loamy soils*
 - d. *Soil improvement*
 1. *Drainage*
 2. *Moisture retention*
 - e. *Relationship between pH and nutrient availability*
 - f. *Functions of each of the major and minor elements*
 - g. *Soil sampling for analysis*
 - h. *Fertilization requirements*
8. *Demonstrate various methods of plant propagation.*
 - a. *Crop improvement through plant reproduction*
 - b. *Sexual propagation (seeds)*
 - c. *Asexual propagation: the plant parts involved, the procedures, and examples of plants propagated asexually*
 1. *Softwood cuttings*
 2. *Hardwood cuttings*
 3. *Separation and division*
 4. *Grafting*
 5. *Budding*
 6. *Layering*
 7. *Micro propagation*

Unit Three

Vegetable and Fruit Production

1. Explore vegetable production in Louisiana.
 - a. *Vegetable varieties for Louisiana*
 - b. *Environmental requirements for common vegetables*
 - c. *Vegetable garden site selection*
 - d. *Selection of vegetable varieties*
 - e. *Soil preparation*
 - f. *Planting a vegetable garden*
 - g. *Strategies to address pests, diseases, and weeds*
 1. *Identification*
 2. *Control measures*
 3. *Prevention*

- h. *Harvesting techniques used for vegetables*
- i. Marketing plan for vegetable producer
- 2. Explore fruit production in Louisiana.
 - a. *Fruit varieties for Louisiana*
 - b. *Environmental requirements for common tree fruits*
 - c. *Orchard site selection*
 - d. *Selection of fruit varieties*
 - e. *Planting fruit trees*
 - f. *Pruning and training fruit trees*
 - g. Strategies to address pests, diseases, and weeds
 - 1. Identification
 - 2. Control measures
 - 3. Prevention
 - h. *Harvesting techniques used for fruit*
 - i. Marketing plan for fruit producer

Unit Four

Basic Computer Literacy Competencies

1. Perform word processing skills.
2. Demonstrate appropriate email usage.
3. Identify essential internet research techniques.

Unit Five

Nursery Stock

1. *Identify common nursery stock used in Louisiana landscapes.*
2. *Determine fertilizer requirements of container plants.*
3. Determine when irrigation should take place and compare types of systems used.
4. Identify pests and weeds common to nursery stock and demonstrate methods of control.
5. Design a sales yard with environmental modifications conducive to both plant health and customer needs.
6. *List and discuss factors that determine the selection of plants for the landscape.*
7. Determine how to care for plants before installation in the landscape.
8. Suggest planting times for different types of nursery stock.
9. *Demonstrate how to prepare the landscaping site.*
10. List the steps in installing landscape plants.
11. Outline methods used to maintain established landscape plants.
 - a. Fertilization
 - b. Pruning
 - c. Watering
 - d. Controlling pests
12. Demonstrate how to prune ornamentals.
13. Compare watering methods used in different types of landscapes.
 - a. Xeriscapes
 - b. Interiorscapes

- c. Micro-irrigation

Unit Six

Interior Plantscaping

1. *Determine the benefits of growing plants indoors and identify common foliage plants used in plantscaping.*
2. *Discuss the major concerns in growing indoor plants.*
 - a. *Light*
 - b. *Water/drainage*
 - c. *Temperature*
 - d. *Humidity*
 - e. *Fertilization*
3. *Select plants for various indoor environments, taking the type of plant and the growing environment into account.*
4. *Formulate a media that could be used indoors.*
5. *Demonstrate how to transplant a foliage plant.*
6. *Propagate common indoor plants.*
7. *Describe elements of design used in interior plantscapes.*

Unit Seven

Pest Control

1. *Discuss the economic importance of insects and the need for insect control.*
2. *Demonstrate how to classify insects by order.*
3. *Identify body parts and characteristics of insects used for identification/classification.*
4. *Compare complete and incomplete metamorphosis.*
5. *Outline the components of an Integrated Pest Management (IPM) program.*
6. *Differentiate between biological and chemical pest control programs.*
7. *List and describe the major types of chemical pesticides.*
8. *Indicate types of pesticide formulations and describe how to apply them.*
9. *Read a pesticide label and interpret the information.*
10. *Select the proper equipment needed to apply pesticides.*
11. *Describe environmental and health concerns related to safe application of pesticides.*
12. *Identify and classify types of weeds.*
13. *Demonstrate how to control weeds in various areas in the landscape.*
14. *Distinguish between pathogenic and non-pathogenic plant diseases.*
15. *Describe how fungi grow, reproduce, and are transferred to plants.*
16. *Relate how disease-causing bacteria and viruses are spread.*
17. *Determine where nematode infections may occur in plants and identify the symptoms.*
18. *Devise a plan for the control of diseases in plants.*

Unit Eight

Turf Management

1. *Distinguish between the warm season and cool season turfgrasses.*

2. Outline a program for the establishment of turfgrasses.
3. Suggest how to renovate established turf.
4. Determine the fertilizer requirements of turf.
5. Determine methods of mowing.
6. Indicate cultural practices used in growing turf.
7. List weeds commonly found in turf and give control measures.
8. Identify pests and diseases on turf, the symptoms, and control measures.

Unit Nine

Ornamental Plants

1. Select trees for the proper landscaping needs.
 - a. Evergreens
 - b. Deciduous
 - c. Patio
 - d. Street trees
2. Demonstrate transplanting techniques.
3. Outline steps for caring for transplanted plants.
4. Develop a fertilizer plan for ornamental plants based on:
 - a. Needs of plants
 - b. Application rate
 - c. Time of application
 - d. Methods of applications
5. Report on methods of pruning trees and shrubs.
 - a. General methods
 - b. Mature trees
6. Determine how to grow palm trees in Louisiana.
7. Summarize the care of roses in the landscape.
8. Identify factors used in selecting groundcovers.
9. Describe how to install groundcovers.
10. Group groundcovers by light requirements.
11. Demonstrate how to trim vining groundcovers.
12. Discuss the uses for annual and perennial bedding plants in the landscape.
13. Develop guidelines for designing a color bed.
14. Describe cultural requirements for bedding plants.
15. Distinguish between commonly used annual and perennial plants.

Units Ten

Landscape Contracting

1. Identify the licenses, permits, and other legal documents required by law for landscape contracting.
2. Name three services used by landscape contractors.
3. Differentiate between the jobs of landscape contractors and landscape architects.
4. Develop a bid on a landscape job, making sure to include all expenses.
5. Name and describe three basic types of contracts.

Unit Eleven
Flower Arranging

1. Outline the principles and elements of design.
2. Demonstrate how to wire flowers and foliage.
3. Design and construct one or more of the following pieces:
 - a. Corsage
 - b. Wedding arrangement
 - c. Funeral spray
 - d. Occasional arrangement
4. Understand the rules and regulations required by law from the Louisiana Horticulture Commission concerning the florist industry.

Resources

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<http://www.gardenweb.com> (2003). Garden Web.

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