

Landscape Design, Construction, and Maintenance


This course is designed to provide Agricultural Education students an overview of the landscape industry. The student has the opportunity to explore various skills used in the landscape industry and gain experiences and knowledge that prepare the student to obtain a state license as a landscape contractor. Emphasis will be placed on developing skills used in landscape plant design, installations, basic landscape construction, and the care and management of established beds. Work-based learning strategies appropriate for this course include field trips, job shadowing or internships, and activities in the school lab. Interpersonal skills, work ethics, and oral and written communication skills are reinforced in this course. 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. Upon completion of the course under the direction of a licensed Louisiana Landscape Contractor, students may receive a partial completion industry-based certification as a Louisiana Landscape Contractor.


Prerequisites: Agriscience I or Biology


Credits: 1


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Landscape Design, Construction, and Maintenance	Content Guideline													
Louisiana Agricultural Education Content Standards Curriculum Framework 	Orientation to the Agriscience Program	Introduction to the Landscape Industry	Plant Growth and Development	Soils	Using Plants in the Landscape	Turf Management	Landscape Design, Installation, and Maintenance	Pests and Diseases	Landscape Construction	Landscape Contracting				
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	•	•	•	•	•	•	•	•	•	•				


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2. Developing chapter recruitment activities	•	•	•	•	•	•	•	•	•	•					
3. Developing student and community related financial activities															
c. Citizenship in agriculture															
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		•													
STRAND: Agribusiness Standard: AgEd/FFA students will understand the concept of agricultural marketing, management, finance, and entrepreneurship.															
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															


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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		•								•					
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 the laws of supply and demand									•	•					
2. Understanding the agricultural market, sales, and services systems		•							•	•					
3. Discussing marketing costs and margins										•					
4. Discussing the impact of the customer on markets, sales, and services															


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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														
3. Analyzing a DNA model														
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			•											

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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														

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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						•		•							
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		•													

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STRAND: Agriscience Technology														
Standard: AgEd/FFA students will demonstrate technical skills that reflect successful business and industry practices.														
a. Agriculture power and energy														
1. Explaining the principles of electricity: terms, service entrances, meters, and circuits														
2. Understanding the applications for lighting, heating, and selecting electric motors														
3. Working safely with electrical energy														
4. Developing skills in planning, estimating, selecting of materials, installing, testing, and troubleshooting														
5. Describing the principles of the internal combustion engine, including both two-stroke, four-stroke, and diesel engines														
6. Exploring the fundamentals of hydraulic power														
7. Explaining and analyzing pneumatic power														
8. Servicing troubleshooting, repairing, and overhauling of small engines														
9. Explaining and demonstrating maintenance, operation and safety of tractor and lawn equipment									•					
b. Energy sources in agriculture														
1. Describing primary nonrenewable sources of energy including coal, natural gas, and petroleum														
2. Understanding other sources of energy (ethanol, solar, etc.)														
3. Discussing issues related to federal and state regulation of energy sources														

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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					•	•	•	•	•						
d. Agriscience welding technology															
1. Identifying careers and appropriate work behavior in the welding industry															
2. Identifying and applying skills in welding safety									•						
3. Demonstrating basic competencies needed for applying welding skills									•						
4. Demonstrating shielded arc welding skills (stick)									•						
5. Describing and applying the different gas metal arc welding technology (wire feed welding), including short arc, flux core, and inner shield									•						
6. Explaining the concepts, process, and purpose of tungsten inert gas welding (TIG)									•						
7. Explaining and demonstrating the concepts, process, and purpose of plasma arc cutting									•						
8. Identifying and applying the safe set up, lighting, adjusting, and usage of oxyfuel equipment									•						

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e. Agricultural structures and facilities															
1. Planning, estimating, and using building components in agricultural construction									•						
2. Developing skills in estimating and applying paints									•						
3. Developing skills in selection and use of surveying equipment															
4. Developing skills in planning, estimating, and installing agricultural plumbing and/or irrigation system							•								
5. Developing skills in planning, estimating, and placing concrete									•						

Louisiana Science Grade Level Expectations	Content Guideline										
GLEs Grade 9-12	Orientation to the Agriscience Program	Introduction to the Landscape Industry	Plant Growth and Development	Soils	Using Plants in the Landscape	Turf Management	Landscape Design, Installation, and Maintenance	Pests and Diseases	Landscape Construction	Landscape Contracting	
	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).			•	•	•	•	•	•	•		
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).			•	•	•	•	•	•	•		
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).			•	•	•	•	•	•	•		

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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											
12. Classify elements as metals or nonmetals based on their positions in the periodic table (PS-H-C2).							•				
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).			•	•	•	•		•	•		
28. Identify chemical reactions that commonly occur in the home and nature (PS-H-D7).			•	•				•			

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Biology (Life Science)											
The Cell											
2. Identify and describe structural and functional differences among organelles (LS-H-A1).			•			•					
4. Compare active and passive cellular transport (LS-H-A2).			•			•	•				
5. Analyze the movement of water across a cell membrane in hypotonic, isotonic, and hypertonic solutions (LS-H-A2).			•			•					
The Molecular Basis of Heredity											
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).			•		•	•	•		•		
Matter, Energy, and Organization of Living Systems											
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).			•	•	•	•					
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).			•	•	•	•		•	•	•	
23. Describe the relationship between public support and the enforcement of environmental policies (SE-H-C5).							•	•	•	•	
Personal Choices and Responsible Actions											
24. Identify the advantages and disadvantages of using disposable items versus reusable items (SE-H-D1).		•					•		•		
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).			•	•	•	•	•	•	•	•	
28. Discuss the reduction of combustible engines needed to significantly decrease CO ₂ in the troposphere (SE-H-D6).							•		•	•	
Chemistry											
Physical Science - Measurement and Symbolic Representation											
7. Write a balanced symbolic equation from a word equation (PS-H-A2).			•				•				

Louisiana Mathematics Grade Level Expectations	Content Guideline										
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	Number and Number Relations										
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).							•		•		

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	Number and Number Relations										
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											
8. Model and use trigonometric ratios to solve problems involving right triangles (M-4-H) (N-6-H).							•		•		
Geometry											
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).							•		•		
18. Determine angle measures and side lengths of right and similar triangles using trigonometric ratios and properties of similarity, including congruence (G-5-H) (M-4-H).							•		•		
Data Analysis, Probability, and Discrete Math											
24. Use counting procedures and techniques to solve real-life problems (D-9-H).							•		•		

Louisiana Mathematics Grade Level Expectations	Content Guideline										
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Patterns, Relations, and Functions											
26. Represent and solve problems involving nth terms and sums for arithmetic and geometric series (P-2-H).									•		

Louisiana English Language Arts Grade Level Expectations	Content Guideline										
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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).	•	•	•	•	•	•	•	•	•	•	
4. Draw conclusions and make inferences in oral and written responses about ideas and information in texts, including: nonfiction works, short stories/novels, five-act plays, poetry/epics, film/visual texts, consumer/instructional materials, and public documents (ELA-1-H3).	•	•	•	•	•	•	•	•	•	•	
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	•	•	•	•	•	•	•	•	•	•	

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parallel construction where appropriate (ELA-2-H1).											
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).	•	•	•	•	•	•	•	•	•		
17. 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, clear voice (individual personality) (ELA-2-H2).	•	•	•	•	•	•	•	•	•		
18. Develop complex compositions using writing processes, including: selecting topic and form (e.g., determining a purpose and audience), prewriting (e.g., brainstorming, clustering, outlining, generating main idea/thesis statements), drafting, conferencing (e.g., peer and teacher), revising for content and structure based on feedback, and proofreading/editing to improve conventions of language publishing using technology (ELA-2-H3).	•	•	•	•	•	•	•	•	•		
19. Develop paragraphs and complex, multiparagraph compositions using all modes of writing (description, narration, exposition, and persuasion) emphasizing exposition and persuasion (ELA-2-H4).	•	•	•	•	•	•	•	•	•		
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,	•	•	•	•	•	•	•	•	•		

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GLEs Grade 9	Orientation to the Agriscience Program	Introduction to the Landscape Industry	Plant Growth and Development	Soils	Using Plants in the Landscape	Turf Management	Landscape Design, Installation, and Maintenance	Pests and Diseases	Landscape Construction	Landscape Contracting	
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).	•	•	•	•	•	•	•	•	•		
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).	•	•	•	•	•	•	•	•	•		

Louisiana English Language Arts Grade Level Expectations	Content Guideline										
GLEs Grade 9	Orientation to the Agriscience Program	Introduction to the Landscape Industry	Plant Growth and Development	Soils	Using Plants in the Landscape	Turf Management	Landscape Design, Installation, and Maintenance	Pests and Diseases	Landscape Construction	Landscape Contracting	
	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).	•	•	•	•	•	•	•	•	•	•	
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).	•	•	•	•	•	•	•	•	•	•	
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).	•	•	•	•	•	•	•	•	•	•	

Louisiana English Language Arts Grade Level Expectations	Content Guideline										
GLEs Grade 10	Orientation to the Agriscience Program	Introduction to the Landscape Industry	Plant Growth and Development	Soils	Using Plants in the Landscape	Turf Management	Landscape Design, Installation, and Maintenance	Pests and Diseases	Landscape Construction	Landscape Contracting	
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).	•	•	•	•	•	•	•	•	•	•	
4. Draw conclusions and make inferences about ideas and information in grade-appropriate texts in oral and written responses, including: short stories/novels, nonfiction works, five-act plays, poetry/epics, film/visual texts, consumer/instructional materials, and public documents (ELA-1-H3).	•	•	•	•	•	•	•	•	•	•	
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).	•	•	•	•	•	•	•	•	•	•	
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).	•	•	•	•	•	•	•	•	•	•	
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).	•	•	•	•	•	•	•	•	•	•	

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	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).	•	•	•	•	•	•	•	•	•	•
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 (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).	•	•	•	•	•	•	•	•	•	•	

Louisiana English Language Arts Grade Level Expectations	Content Guideline										
GLEs Grade 10	Orientation to the Agriscience Program	Introduction to the Landscape Industry	Plant Growth and Development	Soils	Using Plants in the Landscape	Turf Management	Landscape Design, Installation, and Maintenance	Pests and Diseases	Landscape Construction	Landscape Contracting	
	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).	•	•	•	•	•	•	•	•	•	•	
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 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).	•	•	•	•	•	•	•	•	•	•	
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).	•	•	•	•	•	•	•	•	•	•	
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).	•	•	•	•	•	•	•	•	•	•	

Louisiana English Language Arts Grade Level Expectations	Content Guideline										
GLEs Grade 11-12	Orientation to the Agriscience Program	Introduction to the Landscape Industry	Plant Growth and Development	Soils	Using Plants in the Landscape	Turf Management	Landscape Design, Installation, and Maintenance	Pests and Diseases	Landscape Construction	Landscape Contracting	
	Reading and Responding										
3. Draw conclusions and make inferences about ideas and information in complex texts in oral and written responses, including: fiction/nonfiction, drama/poetry, public documents, film/visual texts, and debates/speeches (ELA-1-H3).	•	•	•	•	•	•	•	•	•	•	
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).	•	•	•	•	•	•	•	•	•	•	

Louisiana English Language Arts Grade Level Expectations	Content Guideline										
GLEs Grade 11-12	Orientation to the Agriscience Program	Introduction to the Landscape Industry	Plant Growth and Development	Soils	Using Plants in the Landscape	Turf Management	Landscape Design, Installation, and Maintenance	Pests and Diseases	Landscape Construction	Landscape Contracting	
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).	•	•	•	•	•	•	•	•	•	•	
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).	•	•	•	•	•	•	•	•	•	•	
33. Participate in group and panel discussions, including: identifying the strengths and talents of other participants, acting as facilitator, recorder, leader, listener, or mediator,	•	•	•	•	•	•	•	•	•	•	

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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 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).	•	•	•	•	•	•	•	•	•	•	
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) .	•	•	•	•	•	•	•	•	•	•	

Louisiana Social Studies Grade Level Expectations	Content Guideline										
GLEs Civics	Orientation to the Agriscience Program	Introduction to the Landscape Industry	Plant Growth and Development	Soils	Using Plants in the Landscape	Turf Management	Landscape Design, Installation, and Maintenance	Pests and Diseases	Landscape Construction	Landscape Contracting	
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).			•	•							

Landscape Design, Construction, and Maintenance

Content Guideline

(The student will be able to. . .)

Unit One

Orientation to the Agriscience Program

1. Investigate and summarize the scope of agriscience.
2. Survey and distinguish among the variety of career opportunities available in the field of agriculture.
3. Describe the components of a total agriscience program.
 - a. Classroom/laboratory instruction
 - b. Student Leadership Development (FFA)
 - c. Supervised Agricultural Experience (SAE) program
4. Develop a personal plan.
 - a. Career path
 - b. FFA participation
 - c. SAE

Unit Two

Introduction to the Landscape Industry as a Career Choice

1. Develop an understanding of the opportunities available in the landscape industry.
 - a. Available career opportunities
 - b. Technical skills needed for those jobs
 - c. Educational and/or licensing requirements for various jobs in the landscape industry
2. Explore personal career choices.
 - a. Documents needed for employment (social security card, birth certificate, driver's license, evidence of insurance, etc.)
 - b. Career search for a selected job
 - c. Resources for available jobs
 - d. Resume
 - e. Letter of application
 - f. Job application form
 - g. Appropriate interview skills

Unit Three

Plant Growth and Development

1. Explain how plants are classified.
 - a. Binomial system
 - b. Growth habit
 - c. Life cycle

- d. Cultural requirements
- e. Use
- 2. Identify the following plant structures and describe their functions.
 - a. Roots
 - b. Stems, including specialized stems
 - c. Leaves
 - d. Flowers, fruits and seeds
- 3. Determine the relationship between plant growth and environmental conditions.
 - a. Fertilizers
 - b. Light
 - c. Water
 - d. Microclimates
 - e. Temperature extremes

Unit Four

Soils

- 1. Recognize the characteristics of soil that are important for landscape plant growth.
 - a. Soil composition
 - b. Soil texture
 - c. Soil structure
 - d. Amount of organic matter
 - e. Soil pH
- 2. Evaluate the need for soil amendments.
 - a. Improvement of soil structure
 - b. Adjustment of pH

Unit Five

Using Plants in the Landscape

- 1. Select the proper plants for the landscape and outline their use and care.
 - a. Ground covers
 - b. Trees
 - c. Shrubs
 - d. Annuals
 - e. Perennials
 - f. Cacti and succulents
- 2. Determine how to select, use, and care for specialty plants.
 - a. Roses
 - b. Palms

Unit Six

Turf Management

- 1. Select the proper turf grass for the landscape.
- 2. Outline steps in establishing and renovating a lawn.

3. Develop a turf management plan for lawns that would include:
 - a. A fertilization program
 - b. Mowing practices
 - c. Cultivation and thatch removal
 - d. Overseeding
 - e. Irrigation
 - f. Weed control
 - g. Pest prevention and control
 - h. Disease prevention and control

Unit 7

Landscape Design, Installation and Maintenance

1. Review the designs and drawings associated with the design process.
 - a. Hand drawn designs
 - b. Video imaging programs
 - c. CAD-based programs
2. Apply the basic principals of design to landscaping.
 - a. Design elements
 - b. Using landscape features to implement the design.
3. Select appropriate hardscape elements for the design.
 - a. Surfacing material
 - b. Enclosures
 - c. Site amenities
4. Identify and list criteria for landscape installation.
 - a. Plant care before installation
 - b. When to plant
 - c. Site preparation
 - d. Planting techniques
5. Identify cultural practices needed to maintain the installation.
 - a. Fertilization
 - b. Pruning
 - c. Watering

Unit 8

Pests and Diseases

1. Review common diseases and their control.
2. Identify types of pests and their control.
3. Identify common weeds and methods of control.
4. Outline methods to safely apply pesticides.
5. Determine non-chemical methods of pest control.

Unit 9 (optional)
Landscape Construction

1. Review safety procedures for the workplace.
2. Use calculations common to the construction industry.
 - a. Averages
 - b. Linear measurements
 - c. Perimeters
 - d. Areas
 - e. Volume calculations
 - f. Weight conversions
 - g. Specialty calculations
3. Select materials used for walls and fences.
4. Differentiate between the types of landscape paving and their uses.
5. Describe and give the uses for wooden landscape structures.
6. Construct various site amenities such as:
 - a. Water features
 - b. Garden art
 - c. Furnishings
 - d. Planters

Unit 10
Landscape Contracting

1. Identify the licenses, permits, and other legal documents necessary to become a landscape contractor.
2. List and describe services needed by landscape contractors.
3. Explain the bidding process.
4. Explain the purposes of contractual agreements.
5. Identify types of contracts.
6. Considerations used for subcontracting jobs.

Resources

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