

Landscape and Turf Management
KY Valid Course Code 010631

<p>Course Description: This course combines landscaping and turf management curriculum. The material includes identification of landscape plants and their characteristics, site evaluation, site design, calculation of materials needed, costs for bidding, and installing landscape plans. Landscape plant maintenance will also be presented. Selection, culture and management of turf species used for lawns, golf courses, athletic fields and erosion control may also be included. Content may be enhanced by utilizing appropriate technology. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.</p>	
NATIONAL AFNR STANDARDS	Content/Process statements followed by # codes in Bold = KOSSA Standards, <i>Italic = Academic Expectations</i>
CS.03	<p>Students will:</p> <ul style="list-style-type: none"> • demonstrate employability and social skills relative to the career cluster. EA 003, EA 006, EA 011, EA 013 <i>2.36, 2.37, 2.38</i>
PS.04	<ul style="list-style-type: none"> • determine principles of design and elements of art in landscape design. OA 001, EE 001 <i>1.3, 2.22, 2.23, 2.9, 3.4</i>
PS.04	<ul style="list-style-type: none"> • select appropriate plants for design. OA001, EE 001, OD 002 <i>1.3, 2.1, 2.22, 2.23, 2.9, 3.4</i>
PS.02	<ul style="list-style-type: none"> • calculate costs of landscape plans for installation. AB 001, AB 008, OD 001 <i>2.7</i>
PS.02	<ul style="list-style-type: none"> • develop a plan for fertilizing landscape and turf areas. AC 005, OC 004, OD 002 <i>1.2, 1.3, 2.1, 2.7, 3.4</i>
PS.02	<ul style="list-style-type: none"> • recommend site preparation and landscape plan installation. OB 005, OD 002 <i>1.3, 2.22</i>
PS.02	<ul style="list-style-type: none"> • establish and maintain residential and commercial turf grass areas. AC 005, OC 001, OC 003, OC 004, OD 002 <i>1.3, 2.22</i>
PS.02	<ul style="list-style-type: none"> • formulate landscape and turf grass maintenance schedule. AC 005, OC 003, OC 004, OD 002, OE 001 <i>1., 2.1, 2.7, 5.1</i>
PS.02	<ul style="list-style-type: none"> • calculate landscape maintenance costs. AB 001, AB 008 <i>2.7, 2.8</i>
PS.03	<ul style="list-style-type: none"> • understand how to maintain golf courses. AC 005 <i>1.1, 1.2, 1.3, 2.1, 2.7</i>
PS.03	<ul style="list-style-type: none"> • demonstrate how to propagate and produce landscape plants. AC 003, AC 004, AC 005 <i>1.2, 1.3, 2.1, 2.3</i>
PS.03	<ul style="list-style-type: none"> • develop a plan for controlling pest and diseases. OE 001, OE 002, OE 003, OE 004 <i>1.1, 1.2, 1.3, 2.1, 2.3</i>

PS.01	<ul style="list-style-type: none"> identify landscape plants and turfgrass species. AC 001, AC 002 1.2, 1.3, 2.1
PST.02	<ul style="list-style-type: none"> maintain, operate and repair facilities and equipment. OF 001, OF 002 1.1, 1.2, 1.2, 2.1, 2.3
CS.07	<ul style="list-style-type: none"> apply safety practices and regulations. OG 001-010 2.29, 2.31
ABS.01	<ul style="list-style-type: none"> maintain records on a supervised agricultural experience program and be able to summarize and analyze results in making financial decisions. EC 003, EC 004, EC 005 2.7, 2.37, 3.4
CS.01	<ul style="list-style-type: none"> utilize activities of FFA as an integral component of course content and leadership development. AA 008, AA 015, AA 012 4.1, 4.2, 4.3
CS.11	<ul style="list-style-type: none"> apply science, math and communication skills within the technical content. AA, AB, AC 1., 6.1, 6.2, 6.3
CONNECTIONS	
<ul style="list-style-type: none"> PROGRAM OF STUDIES – REVISED 2006 KENTUCKY OCCUPATIONAL SKILL STANDARDS (KOSSA: Horticulture Area)) <i>ACADEMIC EXPECTATIONS</i> SECRETARY’S COMMISSION ON ACHIEVING NECESSARY SKILLS (SCANS) FFA CONNECTIONS: Nursery Judging, Floriculture, Turf Impromptu, Nursery and Landscaping Impromptu, Agri-Entrepreneurship, Landscape Management Proficiency, Nursery Management Proficiency, Turfgrass Management Proficiency, Marketing Plan 	

Course Title	Turf/Landscape Management	Grade Levels	11-12	Credit Value	1
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Prerequisites	At least one class from the Horticulture pathway				
Unit Title	<u>Introduction and Safety</u>				

Technical Content

- 1 - Demonstrate employability and social skills relative to the career cluster
- 11 - Apply safety practices and regulations
- 12 - Maintain records on a supervised agricultural experience program and be able to summarize and analyze results in making financial decisions
- 13 - Utilize activities of FFA as an integral component of course content and leadership development

KY Core Academic Standards (Big Idea)

Biological Change (Biological Science) - Science

The only thing certain is that everything changes. At the high school level, students evaluate the role natural selection plays in the diversity of species. Modern ideas of evolution provide a scientific explanation for three main sets of observable facts about life on Earth: the enormous number of different life forms we see about us, the systematic similarities in anatomy and molecular chemistry we see within that diversity, and the sequence of changes in fossils found in successive layers of rock that have been formed over more than a billion years.

Career Awareness, Exploration, Planning - Vocational Studies

Career awareness, exploration and planning gives students the opportunity to discover the various career areas that exist and introduce them to the realities involved with the workplace. Many factors need to be considered when selecting a career path and preparing for employment. Career awareness, exploration and planning will enable students to recognize the value of education, learn how to plan for careers and integrate academic subjects.

Employability Skills - Vocational Studies

Employability skills will focus on student's competencies with their work habits and academic/technical skills that will impact an individual's success in school and workplace. School-to-work transition skills will help students develop interpersonal skills and positive work habits.

Government and Civics - Social Studies

The study of government and civics equips students to understand the nature of government and the unique characteristics of American representative democracy, including its fundamental principles, structure, and the role of citizens. Understanding the historical development of structures of power, authority, and governance and their evolving functions in contemporary U.S. society and other parts of the world is essential for developing civic competence. An understanding of civic ideals and practices of citizenship is critical to full participation in society and is a central purpose of the social studies.

Lifetime Physical Wellness (Physical Education) - Practical Living

Lifetime wellness is health-focused. The health-related activities and content utilized are presented to help students become more responsible for their overall health status and to prepare each student to demonstrate knowledge and skills that promote physical activity throughout their lives. Physical education uses physical activity as a means to help students acquire skills, fitness, knowledge and attitudes that contribute to their optimal development and well-being. Physical, mental, emotional and social health is strengthened by regular involvement in physical activities.

Personal Wellness (Health Education) - Practical Living

Wellness is maximum well-being or total health. Personal wellness is a combination of physical, mental, emotional, spiritual and social well-being. It involves making behavioral choices and decisions each day that promote an individual's physical well-being, the prevention of illnesses and diseases and the ability to remain, physically, mentally, spiritually, socially and emotionally healthy.

Safety (Health Education) - Practical Living

Accidents are a major cause of injury and death to children and adolescents. Unintentional injuries involving a motor vehicle, falls, drowning, fires, firearms and poisons can occur at home, school and work. Safe behavior protects a person from danger and lessens the effects of harmful situations.

English/Language Arts Common Core Standards

CC.9-10.L.3 Knowledge of Language: Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.

CC.9-10.R.I.1 Key Ideas and Details: Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

CC.9-10.R.I.4 Craft and Structure: Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper).

Technical Literacy Standards

Key Ideas and Details, Grades 11-12, 2. Determine the central ideas or conclusions of a text.

21st Century Skills and Knowledge

Environmental Literacy

Global Awareness

Health Literacy

Media Literacy

KOSSA Standards

1001.OE.4 Distinguish environmental issues (e.g., surface or ground water, government regulations, water testing, EPA)

1001.OH.2 Identify immediate and real costs of an accident

1001.OH.3 Identify hazardous substances in the workplace

Learning Targets

Sample Learner Activities - Click in the box to go to Activities

Describe the importance and value of the Landscaping and Turf Industry

Investigate professional associations and publications for those employed in the landscape and/or turf management industry

Identify hazards associated with Landscaping and Turf Management and methods to decrease danger

Research and evaluate careers related to the horticulture industry including skills needed to gain employment

File: "Professional Horticulture Communities"

Students will choose a horticultural career and find trade journals that would be appropriate for that career.

file:
turf lawn safety

File: "Careers in Agriculture Wheel Notes" and "Careers Research Project"

Students will use the Career Wheel Notest guide to complete the Careers Reserach Project through the Ag. Career Network.

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Prerequisites	At least one class from the Horticulture pathway				
Unit Title	<u>Design</u>				

Technical Content

- 2 - Determine principles of design and elements of art in landscape design
- 3 - Select appropriate plants for design
- 14 - Apply science, math, and communication skills within the technical content

KY Core Academic Standards (Big Idea)

Government and Civics - Social Studies

The study of government and civics equips students to understand the nature of government and the unique characteristics of American representative democracy, including its fundamental principles, structure, and the role of citizens. Understanding the historical development of structures of power, authority, and governance and their evolving functions in contemporary U.S. society and other parts of the world is essential for developing civic competence. An understanding of civic ideals and practices of citizenship is critical to full participation in society and is a central purpose of the social studies.

Mathematics Common Core Standards

- CC.9-12.A.SSE.1 Interpret expressions that represent a quantity in terms of its context.*
- CC.9-12.A.CED.1 Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.*
- CC.9-12.G.CO.1 Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.
- CC.9-12.G.CO.4 Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.
- CC.9-12.G.CO.12 Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.
- CC.9-12.G.GPE.7 Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.*

21st Century Skills and Knowledge

Creativity and Innovation

KOSSA Standards

- 1001.AD.3 Make reasonable estimates
- 1001.AD.4 Use tables, graphs, diagrams, and charts to obtain or convey information
- 1001.AD.5 Use deductive reasoning and problem-solving in mathematics

Learning Targets

Sample Learner Activities - Click in the box to go to Activities

Explain the principles of design and apply them in landscape designs	File: "Utilizing Landscape Principles" Students will identify 6 Principles of Design and identify how they are used in various home landscapes.
Apply elements of art in landscape plans	File: "Elements of Design Critique" Students will find various landscapes and evaluate the elements of the designs on a scale from 1-10.
Create a landscape plan while utilizing proper scale and tools	File: " Creating a Landscape Plan" Students will draw a landscape plant to scale and meet certain criteria. Once finished, students will go through a self-critique followed by a teacher critique.

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Prerequisites	At least one class from the Horticulture pathway				
Unit Title	<u>Landscape Plants</u>				

Technical Content

- 4 - Caclulate costs of landscape plans for installation
- 5 - Recommend site preparation and landscape plan installation
- 8 - Calculate landscape maintenance costs
- 14 - Apply science, math, and communication skills within the technical content

KY Core Academic Standards (Big Idea)

Consumer Decisions - Vocational Studies

Individual and families need to make consumer decisions due to the numerous products/services on the market, multiple advertising techniques, and the need to make responsible financial management decisions. Accessing and assessing consumer information, comparing and evaluating products and services, provides basis for making effective consumer decisions. Consumer decisions influence the use of resources and the impact they have on the community and environment.

Geography - Social Studies

Geography includes the study of the five fundamental themes of location, place, regions, movement and human/environmental interaction. Students need geographic knowledge to analyze issues and problems to better understand how humans have interacted with their environment over time, how geography has impacted settlement and population, and how geographic factors influence climate, culture, the economy and world events. A geographic perspective also enables students to better understand the past and present and to prepare for the future.

Unity and Diversity (Biological Science) - Science

All matter is comprised of the same basic elements, goes through the same kinds of energy transformations, and uses the same kinds of forces to move. Living organisms are no exception. At the high school level, an in-depth study of the specialization and chemical changes occurring at the cellular level builds upon the foundational ideas developed earlier to investigate deoxyribonucleic acid (DNA) and effects of alterations in DNA for an individual organism as well as for a species. Emphasis at every level should be placed upon the understanding that while every living thing is composed of similar small constituents that combine in predictable ways, it is the subtle variations within these small building blocks that account for both the likenesses and differences in form and function that create the diversity of life.

Technical Literacy Standards

Craft and Structure, Grades 11-12, Determine the meaning of key terms and other domain specific words or phrases.

21st Century Skills and Knowledge

Information Literacy

KOSSA Standards

- 1001.OD.4 Fertility requirements of specific plants
- 1001.OC.6 Demonstrate the use of different soil mixes and growing media

Learning Targets

Identify landscape plants based on function in a landscape

Sample Learner Activities - Click in the box to go to Activities

File: "Bronx_River_Tree_Guide_Final" and Rubric

Students will use the document to explore the various ways that one can identify trees

Select appropriate plants for a given scenario

File: "Landscape Plant Selection" and "Selecting Plants"

Students will select the appropriate plants to plant at the school campus.

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Prerequisites	At least one class from the Horticulture pathway				
Unit Title	<u>Landscape Installation and Maintenance</u>				

Technical Content

- 6 - Establish and maintain residential and commercial turf grass areas
- 10 - Maintain, operate and repair facilities and equipment
- 14 - Apply science, math, and communication skills within the technical content

KY Core Academic Standards (Big Idea)

Interdependence (Unifying Concepts) - Science

It is not difficult for students to grasp the general notion that species depend on one another and on the environment for survival. But their awareness must be supported by knowledge of the kinds of relationships that exist among organisms, the kinds of physical conditions that organisms must cope with, the kinds of environments created by the interaction of organisms with one another and their physical surroundings, and the complexity of such systems At the high school level, the concept of an ecosystem should bring coherence to the complex array of relationships among organisms and environments that students have encountered. Students growing understanding of systems in general will reinforce the concept of ecosystems. Stability and change in ecosystems can be considered in terms of variables such as population size, number and kinds of species, productivity and the effect of human intervention.

Technical Literacy Standards

Craft and Structure, Grades 11-12, 4. Determine the meaning of words and phrases as they are used in text.

Mathematics Common Core Standards

- CC.9-12.A.CED.2 Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.*
- CC.9-12.G.MG.3 Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).*

21st Century Skills and Knowledge

- Collaboration
- Flexibility and Adaptability
- Initiative and Self-Direction
- Productivity and Accountability

KOSSA Standards

- 1001.OA.5 Analyze the process of plant growth and development
- 1001.OA.7 Explain the use of applied genetics in horticulture
- 1001.OC.5 Analyze site according to soil type, slope, and drainage
- 1001.OF.4 Monitor for plant damage

Learning Targets

Properly prepare a landscape site for installation based on landscape plan and plants to be used

Sample Learner Activities - Click in the box to go to Activities

File: "Landscape Site Preparation Brochure"

Students will create a brochure that could be placed at the checkout counter at the local home-improvement store that could aide customers in their quest for curb appeal.

Investigate hardscape materials and their installation methods

File: "Handscapes Fountain Building"

Students will plan and build a small water fountain.

Outline proper steps and procedures for plant installation

File: "Plant Installation Jigsaw Activity"

Students will break into "expert groups" to determine how to properly install common landscape plants and then share with their home groups.

Develop maintenance plan for landscaping

File: "Landscape Maintenance Plan"

Students will create a list of common tasks for each month of the year that must be done to maintain a landscape.

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Prerequisites	At least one class from the Horticulture pathway				
Unit Title	<u>Turf Establishment and Maintenance</u>				

Technical Content

6 - Establish and maintain residential and commercial turf grass areas

7 - Formulate landscape and turf grass maintenance schedule

KY Core Academic Standards (Big Idea)

Economics - Social Studies

Economics includes the study of production, distribution and consumption of goods and services. Students need to understand how their economic decisions affect them, others, the nation and the world. The purpose of economic education is to enable individuals to function effectively both in their own personal lives and as citizens and participants in an increasingly connected world economy. Students need to understand the benefits and costs of economic interaction and interdependence among people, societies, and governments.

Interdependence (Unifying Concepts) - Science

It is not difficult for students to grasp the general notion that species depend on one another and on the environment for survival. But their awareness must be supported by knowledge of the kinds of relationships that exist among organisms, the kinds of physical conditions that organisms must cope with, the kinds of environments created by the interaction of organisms with one another and their physical surroundings, and the complexity of such systems. At the high school level, the concept of an ecosystem should bring coherence to the complex array of relationships among organisms and environments that students have encountered. Students growing understanding of systems in general will reinforce the concept of ecosystems. Stability and change in ecosystems can be considered in terms of variables such as population size, number and kinds of species, productivity and the effect of human intervention.

English/Language Arts Common Core Standards

CC.9-10.W.3.c Text Types and Purposes: Use a variety of techniques to sequence events so that they build on one another to create a coherent whole.

Technical Literacy Standards

Integration of Knowledge and Ideas, Grades 11-12, 7. Integrate and evaluate multiple sources of information presented in diverse formats and media in order to address a question or solve a problem.

Mathematics Common Core Standards

CC.9-12.G.MG.2 Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).*

21st Century Skills and Knowledge

Initiative and Self-Direction

Productivity and Accountability

KOSSA Standards

1001.OA.5 Analyze the process of plant growth and development

1001.OA.7 Explain the use of applied genetics in horticulture

1001.OC.5 Analyze site according to soil type, slope, and drainage

1001.OD.4 Fertility requirements of specific plants

1001.OF.1 Determine proper pesticide for given symptoms

1001.OF.4 Monitor for plant damage

Learning Targets

Identify common types of turfgrass and their advantages

Sample Learner Activities - Click in the box to go to Activities

File: "Turfgrass Sales Portfolio"

Students will create a sales portfolio highlighting the common characteristics of a given turf variety to present to the rest of the class.

Discuss lawn establishment methods

File: "Lawn Establishment Project"

Students will create a story board and illustrate the various steps in the lawn establish process. The teacher may choose to have students create a 3-D model in addition to the story board project.

Develop maintenance plan and schedule for a lawn

File: "Developing a Lawn Maintenance Plan and Schedule"

Students will develop a lawn maintenance plant and schedule for several given scenarios.

Differentiate between commercial and residential lawncare

File: "Business Plan"

Students will develop business plans for a commercial and residential lawn care businesses, keeping in mind the differences in start up money, equipment, etc.

Analyze specific needs of types of sports fields and golf courses

File: "Sports field & Golf Courses"

Students will use various means; glogster, PowerPoint, prezi, etc. to present the various requirements for a given sports turf.

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Prerequisites	At least one class from the Horticulture pathway				
Unit Title	<u>Equipment and Maintenance</u>				

Technical Content

- 10 - Maintain, operate and repair facilities and equipment
- 11 - Apply safety practices and regulations

KY Core Academic Standards (Big Idea)

Economics - Social Studies

Economics includes the study of production, distribution and consumption of goods and services. Students need to understand how their economic decisions affect them, others, the nation and the world. The purpose of economic education is to enable individuals to function effectively both in their own personal lives and as citizens and participants in an increasingly connected world economy. Students need to understand the benefits and costs of economic interaction and interdependence among people, societies, and governments.

Motion and Forces (Physical Science) - Science

Whether observing airplanes, baseballs, planets, or people, the motion of all bodies is governed by the same basic rules. At the middle level, qualitative descriptions of the relationship between forces and motion will provide the foundation for quantitative applications of Newton’s Laws. These ideas are more fully developed at the high school level along with the use of models to support evidence of motion in abstract or invisible phenomena such as electromagnetism.

English/Language Arts Common Core Standards

CC.9-10.W.7 Research to Build and Present Knowledge: Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

Technical Literacy Standards

Integration of Knowledge and Ideas, Grades 9-10, 7. Translate technical information expressed in words into visual form.

21st Century Skills and Knowledge

Communication

KOSSA Standards

- 1001.OG.1 Clean and maintain hand tools
- 1001.OG.2 Service selected equipment according to manufacturers recommendations
- 1001.OH.1 Follow anti-theft and security procedures

Learning Targets

Sample Learner Activities - Click in the box to go to Activities

Identify common landscape and turf management equipment, their uses and costs	File:"Landscape and Turf Equipment Card Deck Assignment"
	Through presentations, students will create a "deck of cards" to keep as a reference to help ID tools and equipment.
Perform basic small power and hand tool equipment maintenance	File: "Lawnmower Clinic"
	Students will conduct a small lawnmower clinic to service lawn mowers from community members.

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Prerequisites	At least one class from the Horticulture pathway				
Unit Title	<u>Business Management</u>				

Technical Content

9 - Maintain golf course

10 - Maintain, operate and repair facilities and equipment

11 - Apply safety practices and regulations

KY Core Academic Standards (Big Idea)

Communication/Technology - Vocational Studies

Special communication and technology skills are needed for success in schooling and in the workplace. Students will be able to express information and ideas using a variety of technologies in various ways.

Economics - Social Studies

Economics includes the study of production, distribution and consumption of goods and services. Students need to understand how their economic decisions affect them, others, the nation and the world. The purpose of economic education is to enable individuals to function effectively both in their own personal lives and as citizens and participants in an increasingly connected world economy. Students need to understand the benefits and costs of economic interaction and interdependence among people, societies, and governments.

Financial Literacy - Vocational Studies

Financial literacy provides knowledge so that students are responsible for their personal economic well-being. As consumers, individuals need economic knowledge as a base for making financial decisions impacting short and long term goals throughout one's lifetime. Financial literacy will empower students by providing them with the knowledge, skills and awareness needed to establish a foundation for a future of financial responsibility and economic independence.

Information, Communication and Productivity - Technology

Students demonstrate a sound understanding of the nature and operations of technology systems. Students use technology to learn, to communicate, increase productivity and become competent users of technology. Students manage and create effective oral, written and multimedia communication in a variety of forms and contexts.

Research, Inquiry/Problem-Solving and Innovation - Technology

Students understand the role of technology in research and experimentation. Students engage technology in developing solutions for solving problems in the real world. Students will use technology for original creation and innovation.

English/Language Arts Common Core Standards

CC.9-10.L.1 Conventions of Standard English: Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

CC.9-10.L.1.a Conventions of Standard English: Use parallel structure.*

CC.9-10.L.6 Vocabulary Acquisition and Use: Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression

CC.9-10.SL.4 Presentation of Knowledge and Ideas: Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.

CC.9-10.SL.5 Presentation of Knowledge and Ideas: Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.

Technical Literacy Standards

Integration of Knowledge, Grades 9-10, 7. Translate technical data expressed in words into visual form and translate the information expressed visually or mathematically.

Mathematics Common Core Standards

CC.9-12.A.SSE.4 Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems. For example, calculate mortgage payments.*

CC.9-12.A.CED.3 Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context. For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.*

CC.9-12.F.IF.9 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.

21st Century Skills and Knowledge

Communication

Critical Thinking and Problem Solving

Financial, Economic, Business and Entrepreneurial Literacy

ICT (Information, Communications, and Technology) Literacy

Leadership and Responsibility

Social and Cross-Cultural Skills

KOSSA Standards

1001.OB.1 Develop a marketing plan

1001.OB.3 Demonstrate the sales process

1001.OE.1 Determine production cost for a given crop

1001.OI.1 Distinguish roles and responsibilities of government agencies

1001.OI.2 Keep up-to-date through industry associations and trade journals

1001.OI.3 Interpret the impact of the horticultural industry on local, state, national, and international economy

Learning Targets

Construct a business plan for a turf or landscape business

Develop a budget for a business

Sample Learner Activities - Click in the box to go to Activities

File: "Developing a business plan for a horticultural company"

Students will develop a business plan for a horticultural company.

File: "Schedule of Start Up Funds"

Students will use the spreadsheet to develop the start-up schedule for their company.