

Content Area: Agriscience DRAFT	Nursery/Landscape Year A	Grade Level: 11/12
	R14 The Seven Cs of Learning	
		Collaboration
		enship Critical Creativity Curiosity
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Unit Titles	Length	or Unit
Landscape Maintenance and Safety	2-3 Weeks	
Landscape Construction	4-6 Weeks	
Irrigation Systems	4-5 Weeks	
Equipment Operation and Maintenance	2-3 Weeks	
Landscape Business Management	3-4 Weeks	
• Supervised Agricultural Experience (SAE) Proficiencies	2-3 Weeks	
Landscape Design (Computer Drafting)	4-6 Weeks	
Nursery Management	4-6 Weeks	
Landscape Management	4-5 Weeks	



Strands	Course Level Expectations
Safety	 Design, operate and maintain landscape equipment, tools, hardscapes, and plantscapes in a safe and efficient manner
Design	Analyze, plan, outline, and create landscape concepts through the use of hand sketches and computer drawings
Build	Determine the proper use and amount of materials to be use to construct both plantscapes and hardscapes.
Maintain	 Troubleshoot and use the proper equipment to keep a landscape performing at the highest level of aesthetics and beautification

Unit Title	Landscape Maintenance and Safety	Length of Unit	2-3 Weeks

Unit Strands & Concepts Key Vocabulary	 PST.02.02. Operate machinery and equipment while observing all safety precautions in AFNR settings. PST.03.03. Utilize manufacturers' guidelines to diagnose and troubleshoot malfunctions in machinery, equipment and power source systems (e.g., hydraulic, pneumatic, transmission, steering, suspension, etc.). Landscape and safety operating procedures, survey equipment and functions, troubleshooting of equipment Personal Protective Equipment, 2 cycle, 4 cycle (regular gas), hazards, choke, throttle, operator presence control switch (deadman switch), walk-behind mower, ride-on mower, zero turn mower
Standards*	Power, Structural and Technical Systems (PST): PST.01.02.02.a. Identify the tools, machines fabricate a project in AFNR. PST.01.02.02.c. Devise and document processes to safely implement and evaluate the safe use of AFNR related tools, machinery and equipment. PST.01.02.03.c. Conduct a safety inspection of tools, machines and equipment used in
Inquiry Questions (Engaging & Debatable)	 Why is safety the main focus when it comes to landscaping? Why is work site maintenance and organization important? How does the environment of the job site promote safety?

Unit Title	Landscape Maintenance and Safety	Length of Unit	2-3 Weeks

Critical Content: My students will Know	Key Skills: My students will be able to (Do)
 why a well run job site has rules for work and rules for safety. how to identify tools and equipment used for specific job. the purpose and importance of regular landscape maintenance. the proper safety equipment to use for the specific job. where to find the right tool for the right job what tasks need to be performed to complete a landscaping job. the standard operating procedures for completing a landscape job in a complete and timely fashion. 	 explain job site rules and safety precautions to another identification of equipment and tools essential to task organize and clean landscape equipment and facilities safely operate landscape equipment identify the common causes of equipment failure perform basic troubleshooting of landscape equipment when it doesn't work evaluate a job site for work that needs to be done and completeness proper startup and shutdown procedures of landscape equipment perform a pre-operational check of the equipment before use.

Assessments:	Performance Assessment - Equipment Skill Demonstration
Teacher	 Online Training website: www.lstraining.com Local Sales and Repair Dealers – Chainsaws Unlimited, Dave Blersch; Woodbury Saw and
Resources:	Mower Equipment operation and owner's manuals

Unit Title	Landscape Construction	Length of Unit	4-6 weeks

Inquiry Questions (Engaging & Debatable)	 Why is safety important during a landscape construction project? How does sketching and planning increase the quality of a landscape project? How does methodology and technique increase the overall quality of a project?
Standards	 Power, Structural and Technical Systems (PST): PST.04.01. Create sketches and plans for AFNR structures PST.04.02.01.c. Create a project cost estimate, including materials, labor and management for an AFNR structure. PST.04.03.01.a. Examine the criteria in selecting materials for constructing, maintaining,
Unit Strands & Concepts	Assess, Design, Site Prep, Create a bill of materials, Construct, Use of materials
Key Vocabulary	Bill of Materials, Pavers, Tamper, Edging, Mortar, Drainage, Pitch, Retaining Wall, Hardscape, Water Features, Nightscaping

Unit Title	Landscape Construction	Length of Unit	4-6 Weeks

Critical Content:	Key Skills:
My students will Know	My students will be able to (Do)
 what is meant by hardscape ways hardscape materials are selected a process to identify tools and equipment that are needed for the job. a process to calculate the proper amount a materials that are needed for the job 	 analyze a job site to figure out what prep work needs to be performed prep a job site for construction of hardscapes apply principles of design, construction and installation of hardscapes prepare a project cost estimate include materials, labor and management of work that is to be done

Assessments:	• Performance Assessment - Final construction and design project. Graded with the use of a rubric.
Teacher	Ingels, Jack E. <u>Landscaping: Principles and Practices</u> . 6th Edition. Thomson Delmar Learning,
Resources:	Inc. 2004

Unit Title	Irrigation Systems	Length of Unit	4-5weeks

Inquiry Questions	• What is irrigation and why is it essential to plant health?
(Engaging &	How do we install an irrigation system?
Debatable)	 How do irrigation methods compare?
Unit Strands &	Plant Systems (PS) & Power, Structural and Technical Systems (PST):
Standards	
	PS.01 Develop and implement a crop management plan for a given production goal that accounts
	for environmental factors.
	PS.01.01.03.a. Identify and summarize the pH, dissolved solids, etc.).
	PS.01.01.03.c Analyze plant responses to water conditions and recommend modifications
	for desired plant growth.
	PS.03.02. Develop and implement a management plan for plant production.
	PST.01.02. Apply physical science and engineering principles to design, implement and improve
	safe and efficient mechanical systems in AFNR situations.
	PST.04 . Plan, build and maintain AFNR structures.
Unit Strands &	
Concepts	Types of irrigations, how irrigation systems work, parts of irrigation system, parts of a sprinkler
-	head, designing of an irrigation system
Key Vocabulary	Irrigation, Sprinkler Head, Spray Pattern, Emitter, Water Pressure, Precipitation Rate, Water Flow, PVC

Unit Title	Irrigation Systems	Length of Unit	4-5

Critical Content:	Key Skills:	
My students will Know	My students will be able to (D0)	
 the differences in sprinkler head and styles when to use which sprinkler head and nozzle for certain situations how to describe irrigation sprinkler heads the effects of water pressure (PSI) and flow rate (GPM) on an irrigation system. 	 determine the style of irrigation system that is needed for a given area design an effective irrigation system to be set up in a specific area describe how irrigation pipe is sized and the available flow and pressure of water are determined setup and troubleshoot basic irrigations systems explain precipitation rate and determine the water needs for specific areas of a landscape 	

Assessments:	 Formative and Interim Assessments Performance Assessment - Irrigation troubleshooting, and design of effective and efficient irrigation system
Teacher Resources:	 Ingels, Jack E. <u>Landscaping: Principles and Practices</u>. 6th Edition. Thomson Delmar Learning, Inc. 2004 Parker, Rick. <u>Plants and Soils Science: Fundamentals and Applications</u>. Delmar Cengage Learning. 2010

Unit Title	Equipment Operation and Maintenance	Length of Unit	2-3 weeks

Inquiry Questions (Engaging & Debatable)	 Why is preventative maintenance important? Why are safe equipment operations important?
Standards	 Plant Systems (PS) & Power, Structural and Technical Systems (PST): PST.02.01. Perform preventative maintenance and scheduled service to maintain equipment, machinery and power units used in AFNR settings. PST.02.02. Operate machinery and equipment while observing all safety precautions in AFNR settings. PS.03.02. Develop and implement a management plan for plant production.
Unit Strands & Concepts	Reading of operator's manual, looking up part information in operator's manual, seasonal maintenance, oil change, blade sharpening, deck adjustments, lubrication.
Key Vocabulary	Engine Model Number, Part Number, Parts Manual, Serial Number, Horsepower, Dipstick, Blade Balance

Unit Title	Equipment Operation and Maintenance	Length of Unit	2-3 weeks

Critical Content:	Key Skills:
My students will Know	My students will be able to (D0)
 how to properly read and interpret service information from an equipment owner's manual how to complete service records for all service performed the importance of performing regular and seasonal maintenance common causes of equipment failure and ways to prevent engine issues 	 identify different types of engine models perform regular routine seasonal maintenance such as but not limited to: changing the oil, grease fittings, and change filters. use owner's manual to look up part numbers for replacement parts troubleshoot basic repairs causing engine problems operate equipment safely properly and safely sharpen and balance mower blades

Assessments:	 Formative and Interim Assessments Performance Assessment - Seasonal maintenance evaluation, graded with the use of a rubric
Teacher Resources:	 Various equipment owner's manuals Various primary and industry resources

Unit Title	Landscape Business Management	Length of Unit	3-4weeks

Key Vocabulary	Budget, income, expenses, profit, capital, marketing, cash flow, contracts, debit, credit, lender
Unit Strands & Concepts	Creating and understanding a business plan, budgeting, personal and business finance, income and expenses, business marketing, applying for loans.
Debatable) Standards	 What are ways to acquire money to start or build a business? Agribusiness Science (ABS): ABS.01.03. Devise and apply management skills to organize and efficient, legal and ethical manner. ABS.02.01. Apply fundamental accounting principles, systems, tools and applicable laws and regulations to record, track and audit AFNR business transactions (e.g., accounts, debits, credits, assets, liabilities, equity, etc.). ABS.03.01. Develop, assess and manage cash budgets to achieve AFNR business goals. ABS.04.01. Analyze characteristics and planning requirements associate business plans for different types of AFNR businesses. ABS.05.02. Assess and apply sales principles and skills to accomplish AFNR objectives.
Inquiry Questions (Engaging &	 Why is writing a business plan essential to the success of a business? What is necessary for a business to be financially sustainable and profitable?

Unit Title	Landscape Business Management	Length of Unit	3-4 weesk

Critical Content:	Key Skills:	
My students will Know	My students will be able to (Do)	
 the importance of keeping business finances separate from personal finances. Tthe importance of creating a budget. of financial resources available to help maintain a small business. estimated costs of starting and running a small landscaping business. about the common financial risks and rewards of running a landscaping business 	 create a simple business plan create and maintain a budget for themselves as well as a landscape business. go through the process of applying for a loan for a small business 	

Assessments:	 Formative and Interim Assessments Performance Assessment - Business plan
Teacher Resources:	 Small Business Administration website, www.sba.gov Various primary and industry resources

Unit Title	SAE Proficiency	Length of Unit	1-2 weeks
Inquiry Questions	• How do no would be an in a webste	to evolution of evolution	·
Inquiry Questions	How does record keeping relate		
(Engaging Debatable):	How does a student quantify gro		
	How does a student describe an	d document success?	
Standards	 Career Ready Practices (CRP): CRP.01. Act as a responsible and contributing citizen and employee. CRP.01.01. Model personal responsibility in the workplace and community CRP.01.02 Evaluate and consider the near-term and long-term impacts of personal and professional decisions on employers and community before taking action. CRP.01.03. Identify and act upon opportunities for professional and civic service at work and in the community. CRP.02. Apply appropriate academic and technical skills. CRP.02.01. Use strategic thinking to connect and apply academic learning, knowledge and skills to solve problems in the workplace and community. CRP.02.02. Use strategic thinking to connect and apply technical concepts to solve problems in the workplace and community. 		
Unit Strands & Concepts	Record keeping, Descriptive writing,	Evaluation of goals and success,	
Key Vocabulary	Proficiency, financial report, income, gross earnings, net earnings, liabilitie		t, scope, expenditures,

Unit Title	SAE Proficiency	Length of Unit	1-2 weeks

Critical Content: My students will Know	Key Skills: My students will be able to (Do)
 utilize AET describe and explain the student's' SAE calculate hours worked and money earned list skills and identify growth calculate gross and net income evaluate goals 	 create a comprehensive PowerPoint presentation create a expense report and earning report write descriptive paragraphs assemble a collage create a resume describe and quantify success

Assessments:	 Formative and Interim Assessments Summative: Final Submission of Proficiency Application. Grades with the National FFA rubric Performance Assessment: SAE PowerPoint Presentation
Teacher Resources:	 Various Primary and Industry Resources National FFA AET

Unit Title	Landscape Design (Computer Drafting)	Length of Unit	4-6 weeks

Inquiry Questions (Engaging & Debatable)	 How does design enhance a landscape? Why is it important to know your client? How does computer-drafting aid in the design process?
Standards	 Plant Systems (PS): PS.04.01. Evaluating, identifying and preparing plants to enhance an environment PS.04.02. Create designs using plants. PS.04.02.02.c. Choose and properly use appropriate tools to create a desired design
Unit Strands & Concepts	Importance of landscapes, site assessment, site requirements, client interviews, principles of design, outdoor room concept, computer drafting, color rendering, plant selection
Key Vocabulary	Site analysis, preliminary design, plan view, elevation view, perspective view, principle of design, outdoor room, scale

Landscape Design (Computer Drafting)	4-6 weeks

 importance of landscaping based on the benefits and function of a space importance of a client's needs and wants when it come to design importance of a client interview and how it affects the end result of a design properly use and identify outdoor rooms and principles of design. to come up with an appropriate list of plant material to be used in a design. 	 evaluate the needs and requirements of a space based on site assessment and client interviews assess the needs and requirements of a site that is to have a landscape installation assess the needs and requirements of a client seeking landscape services by performing a client interview create a landscape design by incorporating the principals of design, and the outdoor room concept create a computerized landscape design in both landscape and plan view using a computer drafting design software

Assessments:	 Formative and Interim Assessments Performance Assessment - Computer based design, graded using a rubric
Teacher Resources:	 DynaSCAPE Software Solutions for Landscape professionals, (<u>www.dynascape.com</u>) Ingels, Jack E. <u>Landscaping: Principles and Practices</u>. 6th Edition. Thomson Delmar Learning, Inc. 2004

Unit Title	Nursery Management	Length of Unit	4-6 weeks

Inquiry Questions (Engaging & Debatable)	 What must we know and be able to do in order to produce quality plants? Why are management skills important to the success of a nursery? 	
Standards	 Plant Systems (PS): PS.01 Develop and implement a crop management plan for a given production goal that accounts for environmental factors. PS.01.01.03.a. Identify and summarize the pH, dissolved solids, etc.). PS.01.01.03.c Analyze plant responses to water conditions and recommend modifications for desired plant growth. 	
Unit Strands & Concepts	Employment opportunities, propagation of nursery stock, field production, greenhouse production, nursery layout, common disorders and control measures	
Key Vocabulary	Grafting, barrel lacing, balled and burlapped, bare root, injectors, irrigation systems, botrytis, spider mites, scale, aphids, IPM.	

Unit Title	Nursery Management	Length of Unit	4-6 weeks
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Critical Content:	Key Skills:
My students will Know	My students will be able to (Do)
 what plants are best for grafting, cuttings, dividing, and layering. what barrel lacing is when it is used. how to identify the different sizes and types of containers used in the nursery industry. importance of a nursery site layout, the relationship of the size, and spacing of the different departments. proper growing conditions and needs for plant success. 	 perform a basic graft of selected materials. perform the basic steps root cuttings of selected materials design and layout their own nursery operation implement and evaluate a plan to maintain optimal conditions for plant growth. calculate the amount of fertilizer to be applied and apply prescribed amount. identify major pests and infections that affect plants in the nursery industry.

Assessments:	 Formative and Interim Assessments Performance Assessment
Teacher Resources:	 Local area nurseries – Planters Choice and The Garden Various Primary and Industry Resources

Unit Title	Landscape Management	Length of Unit	4-5 weeks

Inquiry Questions (Engaging & Debatable)	 What practices are required to properly maintain a landscape? Why is it important for routine maintenance of a landscape design? 	
Standards	 Plant Systems (PS): PS.04.01. Evaluating, identifying and preparing plants to enhance an environment PS.04.02. Create designs using plants. PS.04.02.02.c. Choose and properly use appropriate tools to create a desired design. PS.01 Develop and implement a crop management plan for a given production goal that accounts for environmental factors. PS.01.01.03.c Analyze plant responses to water conditions and recommend modifications for desired plant growth. 	
Unit Strands & Concepts	Pruning, plant nutrition, fertilizer, mulching, pest control, types of turf grass, soil science, turf grass establishment	
Key Vocabulary	Pruning, nitrogen, phosphorus, potassium, volcano mulching, applicator, calibration, cool season grass, warm season grass, soil carrying capacity, slicer seeder, aeration	

Unit Title	Landscape Management	Length of Unit	4-5 weeks

Critical Content:	Key Skills:
My students will Know	My students will be able to (D0)
 what tool to use for different types of pruning cuts. what nutrients plants need to be successful the benefits and hazards of different amounts of mulch for plants. the benefits of aerating a area of turf grass 	 perform a pruning cut safely and properly. apply fertilizer in an outdoor landscape setting. calculate the proper amount of mulch that is need for a job identify common landscape pests and how to treat them operate a slicer seeder and aerator for a turf grass

Assessments:	Performance Assessment
Teacher Resources:	Various Primary and Industry Resources