			Landscape Design and Maintenance **Grades 9-10** **Unit: #1**
Course/Subject: Landscape Design and Maintenance	**Grade:** 9, 10		**Suggested Timeline:** **3 Weeks**

Grade Level Summary	This course covers material that prepares students to design, install, and maintain planted areas for the beautification of home grounds and other areas of human habitation and recreation, and for employment skills in the landscape/nursery industry. The course will consist of physical activity on the school campus, the safe operation of various landscape tools, and drawing/drafting designs as an introduction to the landscaping.
Grade Level Units	**Unit 1: Landscape & Nursery Career Exploration (3 Weeks)** Unit 2: Landscape Design Drafting Basics (3 Weeks) Unit 3: Elements and Principles of Landscape Design (2 Weeks) Unit 4: Landscape Design Planning (3 Weeks) Unit 5: Landscape Design Installation (2 Weeks) Unit 6: Landscape Maintenance (2 Weeks) Unit 7: Nursery/Landscape Plant Identification (1 Week) Unit 8: Nursery/Landscape Equipment Identification (1 Week) Unit 9: Nursery Pests & Disorder Identification (1 Week)

Unit Title	Landscape & Nursery Career Exploration
Unit Summary	This unit addresses the areas of careers and needed knowledge and skills for viable employment, workplace and personal safety considerations for tools and personal habits, and an introduction to the benefits of Supervised Agricultural Experience.

Unit Essential Questions:	**Key Understandings:**
1. What contributions of historically significant figures have lead to contemporary landscape nursery careers and industry employment opportunities? 2. How can workers keep themselves and others safe during all phases of landscape design, installation, and maintenance? 3. How will SAE's benefit me?	1. Several figures (14) have made significant contributions in landscape architecture. 2. Landscape knowledge, skills, and a culture of keeping self and others safe is needed for a productive and healthy workplace environment. 3. SAE's focus on career exploration and planning, financial & skills record keeping, and a real-world understanding of work and income in today's world of employment.

Focus Standards Addressed in the Unit:	
Standard Number	*Standard Description*
CRP.02.02.01.c.	Apply technical concepts to solve problems in the workplace and react upon the results achieved.
CRP.03	Attend to personal health and well-being.
CRP.10.01.01.c.	Plan a career path based on personal interests, goals, talents and preferences.
CRP.10.02.01.a.	Categorize career advancement requirements for potential careers (e.g., degrees, certification, training, etc.).

Important Standards Addressed in the Unit:	

Misconceptions:	**Proper Conceptions:**
1. Little or no education is needed for most jobs in landscape/nursery industry. 2. Injuries are not common when you work in the garden. 3. SAE projects only benefit student who are very active in the FFA organization.	1. The landscape/nursery industry employs unskilled to highly skilled workers, with no education to doctoral degrees. 2. Workplace hazards are common, especially since most workers work independently. 3. Record keeping, budgeting, career goals and planning are relevant to the success of all high school students.

Knowledge & Concepts	**Skills & Competencies**	**Dispositions & Practices**
● Landscape/nursery disciplines with related career ● Safety considerations and common workplace hazards ● SAE projects provide career readiness skills.	● Investigate emerging technologies within practical applications of plant science through ● Recognize and demonstrate safety rules and regulations. ● Demonstrate positive safety attitudes and responsibilities. ● Select and demonstrate the safe use of appropriate tools for the maintenance of mechanical systems. ● Locate and comprehend Safety Data Sheets (SDS) (formerly MSDS). ● Maintain accurate program plans and records (i.e. SAE) ● Research career opportunities in the landscape/nursery industry. ● Create a plan to achieve career goals and priorities.	● Creating, Imagining, Innovating ● Persisting ● Metacognition

Academic Vocabulary: botany, chemical applicator, entomologist, garden center, garden designer, grounds keeper, landscape, landscape architect, landscape designer, landscape installation, landscape maintenance, nursery

Assessments:

- Career Project
- Historical Figure Presentation
- Safety Skills Assessment
- SAE Establishment

Suggested Strategies to Support Design of Coherent Instruction

Charlotte Danielson's Framework for Teaching: Domain 3 Instruction

3a Communicating with Students

3b Using Questioning and Discussion Techniques

3c Engaging Students in Learning

3d Using Assessment in Instruction

3e Demonstrating Flexibility and Responsiveness

Interdisciplinary Connections:

- Language Arts, Reading and Writing, Speaking, Math

Additional Resources:

- Horticulture Today, Riedel and Driscoll, 2017 with On-line Student and Instructor Resources
- Internet access and SmartBoard
- Horticulture learning lab
- Equipment and Supply Examples
- National FFA Career Development Event Resources

Created By:

Carol Richwine

			Landscape Design and Maintenance **Grades 9-10** **Unit: #2**
Course/Subject: Landscape Design and Maintenance	**Grade:** 9-10		**Suggested Timeline:** **3 Weeks**

Grade Level Summary	This course covers material that prepares students to design, install, and maintain planted areas for the beautification of home grounds and other areas of human habitation and recreation, and for employment skills in the landscape/nursery industry. The course will consist of physical activity on the school campus, the safe operation of various landscape tools, and drawing/drafting designs as an introduction to the landscaping.
Grade Level Units	Unit 1: Landscape & Nursery Career Exploration (3 Weeks) **Unit 2: Landscape Design Drafting Basics (3 Weeks)** Unit 3: Elements and Principles of Landscape Design (2 Weeks) Unit 4: Landscape Design Planning (3 Weeks) Unit 5: Landscape Design Installation (2 Weeks) Unit 6: Landscape Maintenance (2 Weeks) Unit 7: Nursery/Landscape Plant Identification (1 Week) Unit 8: Nursery/Landscape Equipment Identification (1 Week) Unit 9: Nursery Pests & Disorder Identification (1 Week)

Unit Title	**Landscape Design and Drafting Basics**
Unit Summary	This unit introduces tools, scale concepts, plan drawings, symbols, and labels used in landscape/nursery industry. These concepts are not just for designers, but for all workers, especially those who work with design installation.

Unit Essential Questions:	**Key Understandings:**
1. What drafting equipment and tools are used by landscape design professionals? 2. How are items properly represented to scale on designs? 3. How are letters, plants, and other design symbols professionally graphically represented in drawings?	1. There are several tools and supplies used by landscape designers. 2. Scale is used to proportionally and accurately draw real-life objects on paper. 3. Industry symbols are used for plants, hardscaping, labels, and letters on landscape plans which installers and designers need to manipulate.

Focus Standards Addressed in the Unit:

Standard Number	*Standard Description*
CRP.02.02.01.c.	Apply technical concepts to solve problems in the workplace and react upon the results achieved
CRP.03	Attend to personal health and well-being.

PS.04.02.02.a.	Identify and categorize tools used for design.
PS.04.02.02.b.	Demonstrate the use of tools used for creating designs.

Important Standards Addressed in the Unit:

Misconceptions:	**Proper Conceptions:**
1. Landscape plans are created by computer, and rendering skills are no longer needed in landscape design. 2. Only landscape architects need to read and interpret landscape plans.	1. Designers will quickly render a design prior to using expensive time and computer resources for ideas with their clients. 2. Planters, crew foreman, and designers need to be able to read and interpret landscape plans.

Knowledge & Concepts	**Skills & Competencies**	**Dispositions & Practices**
● Drafting tools identification and use ● Scale ● Lettering ● Symbols	● Students will be able to use drafting equipment. ● Students will be able to measure and reproduce lines drawn to scale. ● Students will be able to practice landscape lettering. ● Students will be able to identify and reproduce symbols used in landscape designing. ● Students will be able to reproduce a landscape design plant label.	● Creating, Imagining, Innovating ● Persisting ● Metacognition

Academic Vocabulary: drawing surface, tracing paper, drafting tape or dots, T-square, 45/45 degree triangle, 30/60 degree triangle, pencil hardness, vinyl erasers, eraser shield, flexi-curve, circle template, compass, scale, protractor, plan label, deciduous, evergreen, broadleaved, needled, tree, shrub, ground cover, mulch, hardscape

Assessments:

- Drafting equipment identification
- Scale, angle, circle assignments
- House plan footprint
- Scale measurement assignment
- Lettering, symbol, landscape design plan label assignment

Suggested Strategies to Support Design of Coherent Instruction

Charlotte Danielson's Framework for Teaching: Domain 3 Instruction

3a Communicating with Students

3b Using Questioning and Discussion Techniques

3c Engaging Students in Learning

3d Using Assessment in Instruction

3e Demonstrating Flexibility and Responsiveness

Interdisciplinary Connections:

- Language Arts, Reading and Writing, Speaking, Math

Additional Resources:

- Horticulture Today. Riedel and Driscoll, 2017 with On-line Student and Instructor Resources
- Internet access and SmartBoard
- Horticulture learning lab
- Drafting and Design Tools and Equipment, Student Sets
- National FFA Career Development Event Resources

Created By:

Carol Richwine

			Landscape Design and Maintenance **Grades 9-10** **Unit: #3**
Course/Subject: Landscape Design and Maintenance	**Grade:** 9-10		**Suggested Timeline:** **2 Weeks**

Grade Level Summary	This course covers material that prepares students to design, install, and maintain planted areas for the beautification of home grounds and other areas of human habitation and recreation, and for employment skills in the landscape/nursery industry. The course will consist of physical activity on the school campus, the safe operation of various landscape tools, and drawing/drafting designs as an introduction to the landscape industry.
Grade Level Units	Unit 1: Landscape & Nursery Career Exploration (3 Weeks) Unit 2: Landscape Design Drafting Basics (3 Weeks) **Unit 3: Elements and Principles of Landscape Design (2 Weeks)** Unit 4: Landscape Design Planning (3 Weeks) Unit 5: Landscape Design Installation (2 Weeks) Unit 6: Landscape Maintenance (2 Weeks) Unit 7: Nursery/Landscape Plant Identification (1 Week) Unit 8: Nursery/Landscape Equipment Identification (1 Week) Unit 9: Nursery Pests & Disorder Identification (1 Week)

Unit Title	**Elements and Principles of Landscape Design**
Unit Summary	This unit addresses knowledge and skills essential in designing and evaluating landscapes in aesthetics, functionality, and sustainability. The visual qualities, known as the elements of design, are arranged using guidelines, known as principles of design, by landscape professionals to produce a marketable design for consumers.

Unit Essential Questions:	**Key Understandings:**
1. How are elements of landscape design used in marketable landscapes? 2. How do the principles of landscape design manipulate the elements in order to create pleasing designs? 3. How is the color theory used in the landscape?	1. Elements (plants and hardscaping) of landscape design include line, form, space, texture, pattern, size, and color. 2. Principles of landscaping design that govern the organization of elements and materials in accordance with the laws of nature include balance, proportion, scale, focal area/point, opposition, simplicity, variation, rhythm, repetition, transition, and unity. 3. Color Theory is the body of practical guidance for using and mixing colors in the landscape and used to create accents and themes, affect mood and energy, and even human behaviors in the garden.

Focus Standards Addressed in the Unit:	
Standard Number	*Standard Description*
CRP.02.02.01.c.	Apply technical concepts to solve problems in the workplace and react upon the results achieved
CRP.03	Attend to personal health and well-being.
PS.04.02.01.a.	Research and summarize the principles and elements of design for use in plant systems.
PS.04.02.01.b.	Apply principles and elements of design that form the basis of artistic impression.
PS.04.02.01.c.	Analyze designs to identify use of design principles and elements.

Important Standards Addressed in the Unit:

Misconceptions:	**Proper Conceptions:**
1. There are no rules in when designing landscapes. 2. Colors have little effect in the garden	1. Elements and Principles landscape design are industry standards which are the guiding principles for marketable landscape designs. 2. Various color and color combinations can affect human mood, physiology, and even physical behaviors in the landscape.

Knowledge & Concepts	**Skills & Competencies**	**Dispositions & Practices**
● Elements of Design ● Principles of Design ● Color Theory	● Students will be able to identify and demonstrate the Elements of Landscape Design. ● Students will be able to identify and demonstrate the Principles of Landscape Design. ● Students will be able to discuss the color theory and identify various color harmonies used in landscapes.	● Creating, Imagining, Innovating ● Persisting ● Metacognition

Academic Vocabulary: elements of design, line, form, space, texture, pattern, size, color, principles of design, balance, proportion, scale, focal area/point, opposition, simplicity, variation, rhythm, repetition, transition, unity, color, hue, value, shade, tint, color theory, tone, color wheel, advancing colors, receding colors, monochromatic color harmony, analogous color harmony, complementary color harmony

Assessments:

- Elements and principles Assignment Evaluation
- Elements and Principles Quiz
- Student Color Wheel Mandala

Suggested Strategies to Support Design of Coherent Instruction

Charlotte Danielson's Framework for Teaching: Domain 3 Instruction

3a Communicating with Students

3b Using Questioning and Discussion Techniques

3c Engaging Students in Learning

3d Using Assessment in Instruction

3e Demonstrating Flexibility and Responsiveness

Interdisciplinary Connections:

- Language Arts, Reading and Writing, Speaking, Math

Additional Resources:

- Horticulture Today, Riedel and Driscoll, 2017 with On-line Student and Instructor Resources
- Internet access and SmartBoard
- Horticulture learning lab
- Equipment and Supply Examples
- National FFA Career Development Event Resources

Created By:

Carol Richwine

			Landscape Design and Maintenance **Grades 9-10** **Unit: #4**
Course/Subject: Landscape Design and Maintenance	**Grade:** 9-10		**Suggested Timeline:** **3 weeks**

Grade Level Summary	This course covers material that prepares students to design, install, and maintain planted areas for the beautification of home grounds and other areas of human habitation and recreation, and for employment skills in the landscape/nursery industry. The course will consist of physical activity on the school campus, the safe operation of various landscape tools, and drawing/drafting designs as an introduction to the landscaping.
Grade Level Units	Unit 1: Landscape & Nursery Career Exploration (3 Weeks) Unit 2: Landscape Design Drafting Basics (3 Weeks) Unit 3: Elements and Principles of Landscape Design (2 Weeks) **Unit 4: Landscape Design Planning (3 Weeks)** Unit 5: Landscape Design Installation (2 Weeks) Unit 6: Landscape Maintenance (2 Weeks) Unit 7: Nursery/Landscape Plant Identification (1 Week) Unit 8: Nursery/Landscape Equipment Identification (1 Week) Unit 9: Nursery Pests & Disorder Identification (1 Week)

Unit Title	**Landscape Design Planning**
Unit Summary	This unit addresses necessary steps in the landscape design process including customer objectives, site analysis, and stages of drawings to reach the final landscape plan. Proper plans include knowledge of foundation plantings, seasonal color low maintenance, and water-wise design principles and elements.

Unit Essential Questions:	**Key Understandings:**
1. What are the steps in developing functional and sustainable landscape designs? 2. What critical components are included in sustainable landscape designs? 3. How are the stages of landscape designs graphically represented?	1. Steps of landscape designs include customer and site analysis, functional diagrams, concept plans, preliminary designs and the final landscape plan. 2. Critical components include outdoor room concept, foundation plantings, color sequencing, and low maintenance planning. 3. Bubble diagrams, plant legends, and planting plans lead to the final colored diagram.

Focus Standards Addressed in the Unit:	
Standard Number	*Standard Description*
CRP.02.02.01.c.	Apply technical concepts to solve problems in the workplace and react upon the results achieved.
CRP.03	Attend to personal health and well-being.
PS.04.01.01.b.	Demonstrate proper use plants in their environment (e.g., focal, shade plants in a landscape design, etc.)
PS.04.02.01.b.	Apply principles and elements of design that form the basis of artistic impression.
PS.04.02.02.b.	Demonstrate the use tools of used for creating designs.
PS.04.02.03.c.	Utilize green technologies and sustainable practices that prevent or limit negative environmental impacts.

Important Standards Addressed in the Unit:

Misconceptions:	**Proper Conceptions:**
1. Only objective landscape design is aesthetics. 2. Landscaping primary considerations only involve mowing grass and spreading mulch.	1. There are several objectives and problems which are remedies by good and intentional sustainable landscape designs. 2. There are several considerations and steps to functional designs.

Knowledge & Concepts	**Skills & Competencies**	**Dispositions & Practices**
● Client and site evaluation ● Design Process ● Guiding Principals: foundation plantings, flower beds, outdoor room concepts, sustainability, low maintenance	● Students will be able to conduct a client evaluation to determine wants and needs of a potential landscape design client. ● Students will be able to identify various stages of the design process: base map, bubble designs, and final design. ● Students will be able to draw a bubble diagram with foundation plantings, flower beds, outdoor room concepts, sustainability, and low maintenance considerations. ● Students will create and present a final design (with color) based on their bubble diagram.	● Creating, Imagining, Innovating ● Persisting ● Metacognition

Academic Vocabulary: base plan, site analysis, bubble diagram, outdoor room concept, public area, private area, utility area, play area, perspectives, elevations, hardscape, microclimate, foundation planting, form composition, explosion, Sine curve, C curve, E curve, skeleton, tendon, flesh, sparkle, massing, variety, texture, repetition, symmetrical, assymetrical

Assessments:

- Site Analysis Evaluation
- Bubble Diagram Evaluation
- Final Plan Evaluation
- Planning Landscape Design Quiz

Suggested Strategies to Support Design of Coherent Instruction

Charlotte Danielson's Framework for Teaching: Domain 3 Instruction

3a Communicating with Students

3b Using Questioning and Discussion Techniques

3c Engaging Students in Learning

3d Using Assessment in Instruction

3e Demonstrating Flexibility and Responsiveness

Interdisciplinary Connections:

- Language Arts, Reading and Writing, Speaking, Math

Additional Resources:

- Horticulture Today, Riedel and Driscoll, 2017 with On-line Student and Instructor Resources
- Internet access and SmartBoard
- Horticulture learning lab
- Equipment and Supply Examples
- National FFA Career Development Event Resources

Created By:

Carol Richwine

			Landscape Design and Maintenance **Grades 9-10** **Unit: #5**
Course/Subject: Landscape Design and Maintenance	**Grade:** 9-10		**Suggested Timeline:** **2 Weeks**

Grade Level Summary	This course covers material that prepares students to design, install, and maintain planted areas for the beautification of home grounds and other areas of human habitation and recreation, and for employment skills in the landscape/nursery industry. The course will consist of physical activity on the school campus, the safe operation of various landscape tools, and drawing/drafting designs as an introduction to the landscape industry.
Grade Level Units	Unit 1: Landscape & Nursery Career Exploration (3 Weeks) Unit 2: Landscape Design Drafting Basics (3 Weeks) Unit 3: Elements and Principles of Landscape Design (2 Weeks) Unit 4: Landscape Design Planning (3 Weeks) **Unit 5: Landscape Design Installation (2 Weeks)** Unit 6: Landscape Maintenance (2 Weeks) Unit 7: Nursery/Landscape Plant Identification (1 Week) Unit 8: Nursery/Landscape Equipment Identification (1 Week) Unit 9: Nursery Pests & Disorder Identification (1 Week)

Unit Title	**Landscape Design Installation**
Unit Summary	This unit address proper installation techniques of various plant materials and hardscaping elements. Improper installation of designs cause costly mistakes that can financially effect the homeowner and landscape business alike.

Unit Essential Questions:	**Key Understandings:**
1. How is plant material properly planted? 2. How are lawns established? 3. How are hardscape installed? 4. How are costs of landscapes determined?	1. Various finished landscape materials have different methods: B & B, bare root, containerized trees. 2. Principles of seed germination are applied to seeded lawns, while principles of transplant success apply to sodded areas. 3. Hardscaping steps vary among application: patios, walkways, retaining walls, irrigation, and lighting.

Focus Standards Addressed in the Unit:

Standard Number	*Standard Description*
CRP.02.02.01.c.	Apply technical concepts to solve problems in the workplace and react upon the results achieved
CRP.03	Attend to personal health and well-being.

PS.04.02.03.c.	Utilize green technologies and sustainable practices that prevent or limit negative environmental impacts.
CRP.12.02.01.a.	Identify effective strategies used to engage team members to accomplish goals.
PST.04.02.01.b.	Analyze a project plan to prepare a bill of materials and an estimate of material costs.

Important Standards Addressed in the Unit:

Misconceptions:	**Proper Conceptions:**
1. All plants are installed using the same method. 2. Creating hardscapes is gender specific. 3. Precision in plant and hardscape installation does not matter to plant success.	1. Various techniques are used to plant plants, based on the finished product. 2. Installing hardscapes is relative to mobility and physical strength. 3. Improper plant can have a huge financial impact to both homeowners and business owners.

Knowledge & Concepts	**Skills & Competencies**	**Dispositions & Practices**
● Plant installation ● Bills of Sale ● Lawn establishment ● Pavers Installation	● Students will describe and demonstrate how to plant various plant materials. ● Students will prepare a bill of sale for a landscape design. ● Students will describe steps in seeding and sodding a lawn area. ● Students will describe steps in laying hardscaping.	● Creating, Imagining, Innovating ● Persisting ● Metacognition

Academic Vocabulary: bare root, ball and burlapped, containerized, bill of sale, root ball, root collar, drip line, root bound, drip-line, paver, tamper, mulch

Assessments:

- Planting Guide Sheet and Practicum
- Landscape Model and Bill of Materials Team Project
- Seeding vs Sod Activity
- Hardscape Assessment

Suggested Strategies to Support Design of Coherent Instruction

Charlotte Danielson's Framework for Teaching: Domain 3 Instruction

3a Communicating with Students

3b Using Questioning and Discussion Techniques

3c Engaging Students in Learning

3d Using Assessment in Instruction

3e Demonstrating Flexibility and Responsiveness

Interdisciplinary Connections:

- Language Arts, Reading and Writing, Speaking, Math

Additional Resources:

- Horticulture Today. Riedel and Driscoll 2017 with On-line Student and Instructor Resources
- Internet access and SmartBoard
- Horticulture learning lab
- Equipment and Supply Examples
- National FFA Career Development Event Resources

Created By:

Carol Richwine

			Landscape Design and Maintenance **Grades 9-10** **Unit: #6**
Course/Subject: Landscape Design and Maintenance	**Grade:** 9-10		**Suggested Timeline:** **2 Weeks**

Grade Level Summary	This course covers material that prepares students to design, install, and maintain planted areas for the beautification of home grounds and other areas of human habitation and recreation, and for employment skills in the landscape/nursery industry. The course will consist of physical activity on the school campus, the safe operation of various landscape tools, and drawing/drafting designs as an introduction to the landscape industry.
Grade Level Units	Unit 1: Landscape & Nursery Career Exploration (3 Weeks) Unit 2: Landscape Design Drafting Basics (3 Weeks) Unit 3: Elements and Principles of Landscape Design (2 Weeks) Unit 4: Landscape Design Planning (3 Weeks) Unit 5: Landscape Design Installation (2 Weeks) **Unit 6: Landscape Maintenance (2 Weeks)** Unit 7: Nursery/Landscape Plant Identification (1 Week) Unit 8: Nursery/Landscape Equipment Identification (1 Week) Unit 9: Nursery Pests & Disorder Identification (1 Week)

Unit Title	**Landscape Maintenance**
Unit Summary	This unit covers the five primary tasks that are addressed in every residential and/or commercial landscape: watering, fertilizing, pruning, edging, and mulching. When done properly, these maintenance tasks not only increase the curb appeal and longevity of designs. Additionally, task knowledge and skills are a launch point for jobs in the landscape industry.

Unit Essential Questions:	**Key Understandings:**
1. How are landscape designs watering needs addressed? 2. How are plant fertilized for optimum health? 3. How and why are plants pruned properly? 4. How and why are landscape beds properly edged? 5. How and why are mulches applied in the landscape? 6. How, when, and why are mowed?	1. Manual and automatic watering systems are used in the landscape, and are critical to plant life. 2. There are seventeen elements plants need for optimum nutrition applied at various times throughout the year through various formulations. 3. The method of pruning considers factors of plant species, time of the year, and objective of pruning. 4. Edging provides the physical and visual separation for functional and aesthetics in landscapes. 5. Both organic and inorganic mulches provide several benefits in different applications, but improper methods can have fatal effect on plants. 6. Various grass species as well as climate condition determine mowing specifics.

Focus Standards Addressed in the Unit:	
Standard Number	*Standard Description*
CRP.02.02.01.c.	Apply technical concepts to solve problems in the workplace and react upon the results achieved
CRP.03	Attend to personal health and well-being.
CRP.11.01.01.a.	Identify and summarize new technologies, tools and applications to use in workplace and community situations
CRP.09.01.02.c.	Model characteristics and workplace and community situations (e.g., integrity, self-awareness, etc.).
PS.04.02.03.c.	Utilize green technologies and sustainable practices that prevent or limit negative environmental impacts.

Important Standards Addressed in the Unit:	

Misconceptions:	Proper Conceptions:
1. Proper landscape maintenance requires little knowledge or skills. 2. The landscape maintenance schedule tasks do not change throughout the life of a landscape.	1. Education in proper landscape maintenance increases plant health, landscape life, and employment opportunities. 2. A landscape worker needs to assess sites as each year, required maintenance tasks could change (i.e. mulching might not need to be done annually.)

Knowledge & Concepts	Skills & Competencies	Dispositions & Practices
● Watering ● Fertilization ● Pruning ● Edging ● Mulching ● Mowing ● Weeding	● Students will determine the need for, and if applicable, properly water landscape plant materials. ● Students will safely and properly applied provided fertilizer and/or amendments according to label directions. ● Students will safely and properly prune landscape plants. ● Students will safely and properly edge lawns and beds with hand tools. ● Students will demonstrate the safe and proper use of grass cutting equipment: grass sheers, string trimmer, push mower, riding mower. ● Students will identify common landscape weeds and demonstrate various methods of removal.	● Creating, Imagining, Innovating ● Persisting ● Metacognition

Academic Vocabulary: canopy, dripline, irrigation, soaker hoses, essential elements, chlorosis, vigor, killing frost, granular fertilizer, punch bar, feeder roots, liquid soil injection, foliar spray, pinching, thinning, heading back, renewal pruning, topiary, organic mulch, inorganic mulch, weed, seed-out, herbicides: contact, systemic, soil-borne, pre-emergent, drip irrigation, weed mat,

Assessments:

- Tree Pruning Animation Guide
- Lawn Watering Guide
- Weed Identification
- Fertilizer Application Experiment
- Landscape Maintenance Quiz
- String Trimmer Practicum
- Push Mower and Riding Mower Practicum

Suggested Strategies to Support Design of Coherent Instruction

Charlotte Danielson's Framework for Teaching: Domain 3 Instruction

3a Communicating with Students

3b Using Questioning and Discussion Techniques

3c Engaging Students in Learning

3d Using Assessment in Instruction

3e Demonstrating Flexibility and Responsiveness

Interdisciplinary Connections:

- Language Arts, Reading and Writing, Speaking, Math

Additional Resources:

- Horticulture Today, Riedel and Driscoll, 2017 with On-line Student and Instructor Resources
- Internet access and SmartBoard
- Horticulture learning lab
- Equipment and Supply Examples
- National FFA Career Development Event Resources

Created By:

Carol Richwine

			Landscape Design and Maintenance **Grades 9-10** **Unit: #7**
Course/Subject: Landscape Design and Maintenance	**Grade:** 9-10		**Suggested Timeline:** **1 Week**

Grade Level Summary	This course covers material that prepares students to design, install, and maintain planted areas for the beautification of home grounds and other areas of human habitation and recreation, and for employment skills in the landscape/nursery industry. The course will consist of physical activity on the school campus, the safe operation of various landscape tools, and drawing/drafting designs as an introduction to the landscape industry.
Grade Level Units	Unit 1: Landscape & Nursery Career Exploration (3 Weeks) Unit 2: Landscape Design Drafting Basics (3 Weeks) Unit 3: Elements and Principles of Landscape Design (2 Weeks) Unit 4: Landscape Design Planning (3 Weeks) Unit 5: Landscape Design Installation (2 Weeks) Unit 6: Landscape Maintenance (2 Weeks) **Unit 7: Nursery/Landscape Plant Identification (1 Week)** Unit 8: Nursery/Landscape Equipment Identification (1 Week) Unit 9: Nursery Pests & Disorder Identification (1 Week)

Unit Title	**Nursery/Landscape Plant Identification**
Unit Summary	Using the "right plant, right place" is fundamental to good landscape practices, although is the area with the great knowledge lacking among general laborers in the green industry. While concepts will be covered in one week, students will have the entire course to identify landscape plant material from the FFA plant identification list. Plant identification, zonation, and naming lay the foundation for further employment in landscape nursery industry, but also play a role for any plant consumer.

Unit Essential Questions: 1. How and why are plant classified and named? 2. How do USDA hardiness zones play into landscape plants? 3. How are plants identified?	**Key Understandings:** 1. Plants are classified and named based on plant morphology, and named for global applications in Latin using binomial nomenclature. 2. The USDA Hardiness Zone map corresponds with plant hardiness classification for purchase and successful survival use of landscape plants. 3. Dichotomous keys are used by plant taxonomists for plant identification.

Focus Standards Addressed in the Unit:	
Standard Number	*Standard Description*
CRP.02.02.01.c.	Apply technical concepts to solve problems in the workplace and react upon the results achieved.
CRP.03	Attend to personal health and well-being.
PS.02.01.01.c.	Classify agricultural and ornamental plants according to the hierarchical classification system
PS.02.01.02.c.	Identify and describe important plants to agricultural and ornamental plant systems by scientific names.

Important Standards Addressed in the Unit:	

Misconceptions:	**Proper Conceptions:**
1. Learning plant names is very difficult. 2. All plants have the same structures that allow them to grow anywhere.	1. A high success rate of learning plant names is possible by high school students once the naming system is understood. 2. Plants have taxonomic differences that allow them to exist in various climates. Climate zone map is the tool to match plants with climate.

Knowledge & Concepts	Skills & Competencies	Dispositions & Practices
● Plant Classification ● Zonation ● Plant Identification	● Students will learn why scientific classification of plants is important. ● Students will be able to properly write a scientific plant name. ● Student will be able to identify nursery and landscape plants used in the industry. ● Students will be able to discuss the use of USDA hardiness zone map and determine their climate zone. ● Students will be able to classify trees according to a dichotomous key.	● Creating, Imagining, Innovating ● Persisting ● Metacognition

Academic Vocabulary: taxonomy, taxonomist, hierarchy, binomial nomenclature, genus, species, subspecies, cultivar, variety, trade name, USDA hardiness map, climate zone, tender, hardy, conifer, evergreen, deciduous, broadleaf, needled, tree, shrub, annual, perennial, groundcover, grasses, common name, scientific name, plant classification, dichotomous key, form, round, spreading, pyramidal, oval, conical, vase, columnar, open, weeping, irregular, simple leaf, compound leaf, leaflets, opposite, alternate, whorled, margin, petiole, saw-like, scales

Assessments:

- Plant Identification A-E, F-L, M-P, Q-Z
- Plant Palette Project
- Verbal Comprehension of Climate/Plant Zonation

Suggested Strategies to Support Design of Coherent Instruction

Charlotte Danielson's Framework for Teaching: Domain 3 Instruction

3a Communicating with Students

3b Using Questioning and Discussion Techniques

3c Engaging Students in Learning

3d Using Assessment in Instruction

3e Demonstrating Flexibility and Responsiveness

Interdisciplinary Connections:

- Language Arts, Reading and Writing, Speaking, Math

Additional Resources:

- Horticulture Today, Riedel and Driscoll, 2017 with On-line Student and Instructor Resources
- Internet access and SmartBoard
- Horticulture Learning Lab
- Equipment and Supply Examples
- National FFA Career Development Event Resources

Created By:

Carol Richwine

			Landscape Design and Maintenance **Grades 9-10** **Unit: #8**
Course/Subject: Landscape Design and Maintenance	**Grade:** 9-10		**Suggested Timeline:** **1 Week**

Grade Level Summary	This course covers material that prepares students to design, install, and maintain planted areas for the beautification of home grounds and other areas of human habitation and recreation, and for employment skills in the landscape/nursery industry. The course will consist of physical activity on the school campus, the safe operation of various landscape tools, and drawing/drafting designs as an introduction to the landscape industry.
Grade Level Units	Unit 1: Landscape & Nursery Career Exploration (3 Weeks) Unit 2: Landscape Design Drafting Basics (3 Weeks) Unit 3: Elements and Principles of Landscape Design (2 Weeks) Unit 4: Landscape Design Planning (3 Weeks) Unit 5: Landscape Design Installation (2 Weeks) Unit 6: Landscape Maintenance (2 Weeks) Unit 7: Nursery/Landscape Plant Identification (1 Week) **Unit 8: Nursery/Landscape Equipment Identification (1 Week)** Unit 9: Nursery Pests & Disorder Identification (1 Week)

Unit Title	**Nursery/Landscape Equipment Identification**
Unit Summary	This unit will expose students to the equipment and supplies used in the nursery landscape industry. The unit will stress item identification, but also personal and workplace safety, costs and resources for purchase, and application on a job site as well as the student's home.

Unit Essential Questions:	**Key Understandings:**
1. What supplies are most commonly used in the landscape/nursery industry? 2. What are the safety precautions in using landscape/nursery equipment and supplies? 3. What are the purchasing essentials (cost range, availability, quality, wholesalers vs retailers) to secure such resources?	1. There are over 90 tools and materials that are commonly used in the landscape industry, with specific and similar applications. Knowledge of their applications lays the foundation for employment in the industry. 2. Equipment varies in hazards. Personal and workplace safety with equipment and supplies is paramount to student health. 3. Equipment can be purchased locally at specialty stores, at box stores, and via the internet. Business licensing parameters determine wholesale buying capabilities and cost ranges.

Focus Standards Addressed in the Unit:	
Standard Number	*Standard Description*
CRP.02.02.01.c.	Apply technical concepts to solve problems in the workplace and react upon the results achieved.
CRP.03	Attend to personal health and well-being.
PST.02.02.01.a.	Research and summarize the use of equipment, machinery and power units for AFNR power, structural and technical systems.
PST.02.02.02.a.	Examine and identify safety hazards associated with equipment, machinery and power units used in AFNR power, structural, and technical systems (e.g., caution, warning, danger, etc.).
PST.02.02.01.b.	Analyze and calculate the cost of using equipment, machinery, and power units for AFNR power, structural and technical systems.

Important Standards Addressed in the Unit:

Misconceptions:	**Proper Conceptions:**
1. Landscapers use a limited amount of equipment. 2. Any tool can be forcibly used for various applications.	1. Equipment use is determined by site task and can vary greatly in cost, quality, and duration. 2. Using the intended tool for the job increases workplace safety and tool life.

Knowledge & Concepts	Skills & Competencies	Dispositions & Practices
● Nursery equipment and supply identification ● Nursery equipment and supply application ● Nursery equipment and supply safety ● Nursery equipment and supply purchase	● Students will be able to identify nursery equipment and supplies. ● Students will compare and contrast applications of nursery equipment and supplies. ● Students will identify safe use and safety hazards of nursery equipment and supplies. ● Students will explore local purchase details of common equipment and supplies.	● Creating, Imagining, Innovating ● Persisting ● Metacognition

Academic Vocabulary: □

- anvil-and-blade pruner
- ball cart (B&B truck)
- bark mulch □bow saw,
- broadcast (cyclone) spreader
- □bubbler head
- irrigation, □bulb planter
- □bunker rake
- □burlap
- compressed air sprayer
- □core aeriater
- □chain saw
- cut-off machine
- drip emitter
- irrigation
- □dry-lock wall block
- edger (power or hand)
- □edging
- □erosion netting
- fertilizer injector
- □fertilizer tablet
- □garden (spading) fork
- garden (bow) rake
- grafting band
- grafting knife
- □granular fertilizer
- gravity (drop) spreader
- □ground/pelleted limestone
- □hedge shears
- □hoe
- hook-and-blade pruners
- hose-end repair fitting
- hose-end sprayer
- hose-end washer
- hose repair coupling
- impact sprinkler
- irrigation
- ring tool
- landscape fabric
- leaf rake
- loppers
- mattock
- measuring wheel
- mist nozzle (mist bed)
- mower blade balancer
- nursery container
- oscillating sprinkler
- peat moss
- pick axe
- planting/earth/soil auger
- pole pruner
- polyethylene pipe
- pop-up irrigation head
- post-hole digger
- power blower
- power hedge trimmer
- pot-in-pot units
- pump sprayer
- propagation mat□
- pruning saw
- □quick coupler
- quick coupler head adapter
- reel mower
- resin-coated fertilizer
- rotary mower
- rototiller□
- round point shovel
- scoop shovel
- shade fabric
- sharpening stone
- siphon proportioner
- soaker hose
- □soil sampling tube
- solenoid valve□
- spade
- □sphagnum moss
- □square point shovel
- string trimmer
- □thatch rake
- □tree caliper
- □tree wrap
- trowel
- □vertical mower
- □water breaker
- □wire tree basket
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Assessments:

- Field Trip with Equipment and Supply Observation Sheet
- Nursery equipment and supply identification quiz
- Equipment and Supply Shopping Spreadsheet

Suggested Strategies to Support Design of Coherent Instruction

Charlotte Danielson's Framework for Teaching: Domain 3 Instruction

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3e Demonstrating Flexibility and Responsiveness

Interdisciplinary Connections:

- Language Arts, Reading and Writing, Speaking, Math

Additional Resources:

- Horticulture Today, Riedel and Driscoll, 2017 with On-line Student and Instructor Resources
- Internet access and SmartBoard,
- Horticulture learning lab
- Equipment and Supply Examples
- National FFA Career Development Event Resources

Created By:

Carol Richwine

			Landscape Design and Maintenance **Grades 9-10** **Unit: #9**
Course/Subject: Landscape Design and Maintenance	**Grade:** 9-10	**Nursery Pests & Disorder Identification**	**Suggested Timeline:** **1 week**

Grade Level Summary	This course covers material that prepares students to design, install, and maintain planted areas for the beautification of home grounds and other areas of human habitation and recreation, and for employment skills in the landscape/nursery industry. The course will consist of physical activity on the school campus, the safe operation of various landscape tools, and drawing/drafting designs as an introduction to the landscape industry.
Grade Level Units	Unit 1: Landscape & Nursery Career Exploration (3 Weeks) Unit 2: Landscape Design Drafting Basics (3 Weeks) Unit 3: Elements and Principles of Landscape Design (2 Weeks) Unit 4: Landscape Design Planning (3 Weeks) Unit 5: Landscape Design Installation (2 Weeks) Unit 6: Landscape Maintenance (2 Weeks) Unit 7: Nursery/Landscape Plant Identification (1 Week) Unit 8: Nursery/Landscape Equipment Identification (1 Week) **Unit 9: Nursery Pests & Disorder Identification (1 Week)**

Unit Title	Nursery Pests & Disorder Identification
Unit Summary	This unit will cover the identification of nursery pests and plant disorders, classification, and the disease triangle. Students will use information as preparation for the FFA nursery career development event.

Unit Essential Questions:	**Key Understandings:**
1. How are common nursery pests identified? 2. What are the identifiable characteristics of diseases? 3. What are the identifiable characteristics of weeds, and primary control methods? 4. What are the identifiable characteristics of physiological problems? 5. What are the identifiable characteristics of beneficial insects?	1. Hosts, habitat, and body morphology are all key to proper identification which is necessary for control of pests in the landscape. 2. Physical expression, signs, symptoms, host, and location on plant are all key to proper identification which is necessary for control of diseases in the landscape. 3. Plant morphology and life cycle identification is key to proper identification for control of weeds in the landscape. 4. Plant expression and stage of growth is key to proper identification for control of physiological problems in the landscape.

	5. Hosts, habitat, and body morphology key to proper identification that is necessary to encourage beneficial insects in the landscape.

Focus Standards Addressed in the Unit:	
Standard Number	*Standard Description*
CRP.02.02.01.c.	Apply technical concepts to solve problems in the workplace and react upon the results achieved
PS.03.03.01.b.	Identify and analyze major local weeds, insect pests and infectious non infectious plant diseases.

Important Standards Addressed in the Unit:	

Misconceptions:	**Proper Conceptions:**
1. Nursery pests and disorders aren't too common. 2. There aren't too many tasks associated with pest control in the landscape.	1. Nursery pests and disease populations are simply controlled to minimize damage. 2. Identification, classification, common name, habitat, and unique characteristics, growing requirements are all factors of management.

Knowledge & Concepts	**Skills & Competencies**	**Dispositions & Practices**
● Landscape Pests ● Nursery Plant Diseases ● Common Landscape Weeds ● Physiological Problems of Plants ● Beneficial Insects	● Students will be able to classify nursery pests and disorders. ● Students will be able to identify distinguishing characteristics of pests, diseases, and disorders. ● Students will identify nursery pests and disorders from pictures and live samples.	● Creating, Imagining, Innovating ● Persisting ● Metacognition

Academic Vocabulary: pests, disease, weed, physiological problems, beneficial insect, life cycle, juvenile, host (See National FFA CDE Resource for complete list)

Assessments:

- Research presentation on assigned pest, disease, disorder.
- Nursery Pests & Disorders Identification Sheet
- Mock CDE- Identification

Suggested Strategies to Support Design of Coherent Instruction

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3e Demonstrating Flexibility and Responsiveness

Interdisciplinary Connections:

- Language Arts, Reading and Writing, Speaking, Math

Additional Resources:

- Horticulture Today, Riedel and Driscoll, 2017 with On-line Student and Instructor Resources
- Internet access and SmartBoard
- Horticulture learning lab
- Equipment and Supply Examples
- National FFA Career Development Event Resources

Created By:

Carol Richwine
