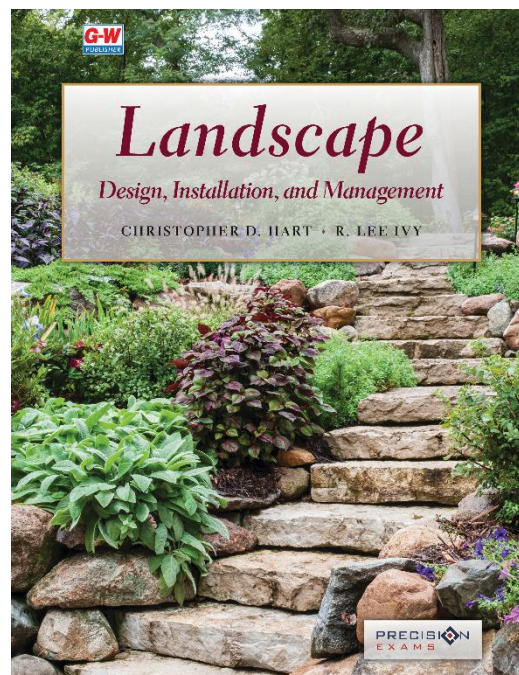


*Correlation of*  
***Landscape Design, Installation, and Management, Hart and Ivy***  
**(Goodheart-Willcox Publisher ©2020)**  
to  
**Precision Exams Nursery Operation (134)**

Goodheart-Willcox is pleased to partner with Precision Exams by correlating *Landscape Design, Installation, and Management* to their Nursery Operation (134) standards. Precision Exams standards and Career Skills Exams were created in concert with industry and subject matter experts to match real-world job skills and marketplace demands. Students who pass the exam and performance portion of the exam can earn a Career Skills Certification.

The correlation chart below lists the Standards, Objectives, and Indicators for the Nursery Operation (134) in the left column. Corresponding content from *Landscape Design, Installation, and Management* that can be used by a student to help achieve the standard, objective, or indicator is listed in the right column.

For more information on Precision Exams, including a complete listing of their 150+ Career Skills Exams and Certificates, please visit [www.precisionexams.com](http://www.precisionexams.com).



Standards, Objectives, and Indicators	G–W Content
<b>Standard 1: Develop personal, leadership, and career skills through FFA participation.</b>	
<b>Objective 1.</b> Assess the role of FFA participation in developing personal and leadership skills.	Textbook: pg. 45
<b>Indicator 1:</b> Identify important personal skills and the strategies to use in developing the skills.	Textbook: pg. 37–44
<b>Indicator 2:</b> Identify important leadership skills and the role of FFA participation in developing the skills.	Textbook: pg. 44
<b>Objective 2.</b> Assess the role of FFA participation in developing career skills.	Textbook: pg. 45

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<b>Standards, Objectives, and Indicators</b>	<b>G–W Content</b>
<b>Indicator 1:</b> List and describe proficiency awards appropriate for horticulture.	Textbook: pg. 21–22
<b>Indicator 2:</b> List and describe career development events appropriate for horticulture.	Textbook: pg. 9, 19–23
<b>Indicator 3:</b> Relate the importance of supervised agricultural experience to FFA achievement.	Textbook: pg. 45
<b>Indicator 4:</b> Utilize FFA and supervised agricultural experience participation to gain advanced degrees of FFA membership.	Textbook: pg. 45
<b>Standard 2: Explain the maintenance and expansion of supervised agricultural experience (SAE) programs.</b>	
<b>Objective 1.</b> Maintain and use SAE records.	Textbook: pg. 27 (Thinking Critically #1–3; Suggested Activities #1–5)
<b>Indicator 1:</b> Explain how SAE records are maintained from year to year.	Textbook: pg. 20–23, 27 (Thinking Critically #1–3; Suggested Activities #1–4)
<b>Indicator 2:</b> Explain how to summarize and analyze SAE records.	Textbook: pg. 27 (Suggested Activities #1–5)
<b>Objective 2.</b> Devise long-range plans for expanding SAE programs.	Textbook: pg. 27 (Suggested Activities #4)
<b>Indicator 1:</b> Evaluate the overall quality of a current SAE and determine how to make it more productive or profitable.	Textbook: pg. 462–463, 22 (Career Connection)
<b>Indicator 2:</b> Explain factors that should be considered in expanding an SAE program.	Textbook: pg. 483 (Thinking Critically #3; Suggested Activities #1–7)
<b>Indicator 3:</b> Explain how placement SAE and ownership SAE programs may be expanded.	Textbook: pg. 483 (Suggested Activities #3–7)
<b>Standard 3: Demonstrate an understanding of landscape design components.</b>	
<b>Objective 1.</b> Identify and categorize landscape plants.	Textbook: pg. 147 (Thinking Critically #2; Suggested Activities #3, 4), 226–230
<b>Indicator 1:</b> Explain systems used to classify plants.	Textbook: pg. 226–230, 243 (Thinking Critically #1–5; Suggested Activities #1–4)
<b>Indicator 2:</b> Classify landscape plants according to the hierarchical classification system, life cycles, plant use, and status as monocotyledons or dicotyledons.	Textbook: pg. 226–230, 243 (Thinking Critically #1–5; Suggested Activities #1–4)
<b>Indicator 3:</b> Identify woody landscape plants.	Textbook: pg. 232–234
<b>Indicator 4:</b> Identify annuals, biennials, and herbaceous perennials used in the landscape.	Textbook: pg. 243 (Thinking Critically #1–5; Suggested Activities #1–4)

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<b>Standards, Objectives, and Indicators</b>	<b>G–W Content</b>
<b>Indicator 5:</b> Identify turfgrass species.	Textbook: pg. 288–303, 307 (Suggested Activities #1–5, 7)
<b>Indicator 6:</b> Explain the use of a USDA plant hardiness zone map and plant heat zone maps in the selection of landscaping plants.	Textbook: pg. 140–143, 147 (Suggested Activities #3)
<b>Objective 2.</b> Compile information in preparation for landscape design work.	Textbook: pg. 128–143, 147 (Suggested Activities #2–7)
<b>Indicator 1:</b> Determine the client’s needs and desires.	Textbook: pg. 147 (Thinking Critically #1–3; Suggested Activities #1)
<b>Indicator 2:</b> Analyze the site conditions and prepare a site analysis plan.	Textbook: pg. 128–143, 147 (Thinking Critically #3, Suggested Activities #1–7)
<b>Indicator 3:</b> Identify drafting equipment and demonstrate its proper use.	Textbook: pg. 88–89, 431–436
<b>Objective 3.</b> Create a functional and aesthetically pleasing landscape plan.	Textbook: pg. 150–163, 167 (Thinking Critically #1–5; Suggested Activities #1–7), 455 (Suggested Activities #7)
<b>Indicator 1:</b> Create a base plan to scale.	Textbook: pg. 455 (Suggested Activities #6)
<b>Indicator 2:</b> Identify and draw landscape symbols on the landscape plan.	Textbook: pg. 439–444, 454–455 (Thinking Critically #2; Suggested Activities #4–7)
<b>Indicator 3:</b> Identify and design the major areas of a residential landscape (e.g., public, outdoor living, service).	Textbook: pg. 170–191, 195 (Thinking Critically #1–3; Suggested Activities #1–4)
<b>Indicator 4:</b> Organize the location of activities within the landscape plan.	Textbook: pg. 133, 455 (Suggested Activities #7, 8)
<b>Indicator 5:</b> Apply the principles and elements of design to the landscape.	Textbook: pg. 167 (Thinking Critically #3–5; Suggested Activities #1–6), 455 (Suggested Activities #6–9)
<b>Indicator 6:</b> Select plant materials for the landscape.	Textbook: pg. 268 (Thinking Critically #5; Suggested Activities #1–6), 455 (Suggested Activities #1–3)
<b>Indicator 7:</b> Select hardscape materials for the landscape.	Textbook: pg. 400–421, 427 (Site-Leveling Activities #1–4; Suggested Activities #3, 4), 455 (Suggested Activities #1–7)
<b>Indicator 8:</b> Plan for xeriscaping and soil erosion control.	Textbook: pg. 162–163, 167 (Thinking Critically #2, 3; Suggested Activities #3, 4)
<b>Indicator 9:</b> Develop bed patterns for the landscape.	Textbook: pg. 260–261, 268 (Suggested Activities #4)
<b>Indicator 10:</b> Locate trees in the landscape plan.	Textbook: pg. 247–250, 437, 455 (Suggested Activities #5–8)
<b>Indicator 11:</b> Label the landscape plan.	Textbook: pg. 455 (Suggested Activities #6, 7)

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<b>Standards, Objectives, and Indicators</b>	<b>G–W Content</b>
<b>Objective 4.</b> Explain landscape design business concepts.	Textbook: pg. 483 (Thinking Critically #1–3; Suggested Activities #1–7)
<b>Indicator 1:</b> Differentiate between an estimate and a bid.	Textbook: pg. 488 (The Language of Business), 492, 500, 502, 508–509 (Suggested Activities #2, 4)
<b>Indicator 2:</b> Describe landscape specifications.	Textbook: pg. 508–509 (Suggested Activities #1–5)
<b>Indicator 3:</b> Calculate common landscape measurements.	Textbook: pg. 509 (Suggested Activities #3–5)
<b>Indicator 4:</b> Prepare a cost estimate for a landscape plan.	Textbook: pg. 508–509 (Thinking Critically #1, 2; Suggested Activities #2)
<b>Indicator 5:</b> Prepare a bid for a landscape design and installation project.	Textbook: pg. 509 (Suggested Activities #4)
<b>Standard 4: Demonstrate landscape plant installation and maintenance practices.</b>	
<b>Objective 1.</b> Install a landscape area based on a landscape design.	Textbook: pg. 536–557, 562–563 (Thinking Critically #1–5; Suggested Activities #2–4, 8)
<b>Indicator 1:</b> Read a landscape plan and locate plant and hardscape placement.	Textbook: pg. 562–563 (Thinking Critically #1–5; Suggested Activities #2–8)
<b>Indicator 2:</b> Plant seeds, bulbs, ground covers, annuals, perennials, and woody plants according to instructions.	Textbook: pg. 562 (Thinking Critically #1, 2; Suggested Activities #2–4, 8, 9)
<b>Indicator 3:</b> Provide post-planting care, such as appropriate watering, bracing, and mulching.	Textbook: pg. 553–554, 563 (Suggested Activities #1, 10)
<b>Objective 2.</b> Explain turfgrass installation and maintenance methods.	Textbook: pg. 308–327, 331 (Suggested Activities #1–7)
<b>Indicator 1:</b> Identify methods of turfgrass establishment and the advantages and disadvantages of each method.	Textbook: pg. 331 (Thinking Critically #1–4; Suggested Activities #1–7)
<b>Indicator 2:</b> Interpret a seed label.	Textbook: pg. 310–311
<b>Indicator 3:</b> Explain proper turfgrass watering practices.	Textbook: pg. 327, 331 (Suggested Activities #6)
<b>Indicator 4:</b> Identify and explain the use of equipment for installing and maintaining turfgrass.	Textbook: pg. 326–327, 331 (Thinking Critically #2–4, Suggested Activities #1–6)
<b>Indicator 5:</b> Explain the reason for, and the process of, aerating turfgrass.	Textbook: pg. 292, 301, 307 (Suggested Activities #4)
<b>Indicator 6:</b> Describe mowing procedures.	Textbook: pg. 322, 331 (Suggested Activities #6)
<b>Indicator 7:</b> Explain the purpose of and procedure for top dressing turfgrass.	Textbook: pg. 322 (Pro Tip)

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Standards, Objectives, and Indicators	G–W Content
<b>Indicator 8:</b> Explain overseeding of turfgrass.	Textbook: pg. 312 (Pro Tip), 331 (Thinking Critically #4)
<b>Indicator 9:</b> Interpret fertilizer bag labels.	Textbook: pg. 200, 568–573
<b>Indicator 10:</b> Calculate the quantity of fertilizer needed for turfgrass.	Textbook: pg. 331 (Suggested Activities #4–6)
<b>Indicator 11:</b> Apply fertilizers as needed to maintain nutrient levels.	Textbook: pg. 322, 568–573
<b>Objective 3.</b> Describe proper tree and shrub maintenance practices and procedures.	Textbook: pg. 268 (Thinking Critically #1–3; Suggested Activities #1–5)
<b>Indicator 1:</b> Identify symptoms of water stress in trees and shrubs.	Textbook: pg. 234
<b>Indicator 2:</b> Explain recommended watering practices for trees and shrubs.	Textbook: pg. 595 (Suggested Activities #1, 2)
<b>Indicator 3:</b> Identify symptoms of nutrient deficiency in trees and shrubs.	Textbook: pg. 234, 579–580
<b>Indicator 4:</b> Explain guidelines for fertilizing trees and shrubs.	Textbook: pg. 573, 585–586
<b>Indicator 5:</b> Describe how to select and apply mulches to the landscape.	Textbook: pg. 576, 595 (Suggested Activities #1, 2)
<b>Indicator 6:</b> Identify tools used for pruning trees and shrubs.	Textbook: pg. 577–584, 98–100, 113 (Suggested Activities #1–5)
<b>Indicator 7:</b> Demonstrate various techniques for pruning trees and shrubs.	Textbook: pg. 577–584, 595 (Thinking Critically #1–4; Suggested Activities #4, 6)
<b>Objective 4.</b> Examine the physical and chemical properties of growing media in landscape applications.	Textbook: pg. 6 (STEM Connection), 199–201, 221 (Suggested Activities #1, 2)
<b>Indicator 1:</b> Describe the components of growing media.	Textbook: pg. 221 (Thinking Critically #1–3; Suggested Activities #1, 2)
<b>Indicator 2:</b> Describe the functions of growing media.	Textbook: pg. 221 (Thinking Critically #1–3; Suggested Activities #1, 2)
<b>Indicator 3:</b> Determine desirable properties of growing media.	Textbook: pg. 199–201, 221 (Thinking Critically #1, 2; Suggested Activities #1, 2)
<b>Indicator 4:</b> Evaluate the advantages and disadvantages of soilless media.	Textbook: pg. 221 (Thinking Critically #1, 2; Suggested Activities #2)
<b>Indicator 5:</b> Demonstrate proper techniques for sampling growing media.	Textbook: pg. 199–201, 221 (Thinking Critically #3; Suggested Activities #1, 2, 8)
<b>Indicator 6:</b> Test and determine pH level of various growing media.	Textbook: pg. 221 (Suggested Activities #1)
<b>Indicator 7:</b> Interpret pH test results of a growing medium sample.	Textbook: pg. 221 (Suggested Activities #1)

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<b>Standards, Objectives, and Indicators</b>	<b>G–W Content</b>
<b>Indicator 8:</b> Describe pH and how it is modified.	Textbook: pg. 221 (Suggested Activities #1)
<b>Standard 5: Describe integrated pest management.</b>	
<b>Objective 1.</b> Describe the principles of integrated pest management.	Textbook: pg. 598–623, 630–631 (Thinking Critically #1–5; Suggested Activities #1–8)
<b>Indicator 1:</b> Explain integrated pest management (IPM).	Textbook: pg. 598, 630–631 (Thinking Critically #1–5; Suggested Activities #2–8)
<b>Indicator 2:</b> Identify benefits of IPM.	Textbook: pg. 598–604, 630–631 (Thinking Critically #2, 5; Suggested Activities #2–8)
<b>Indicator 3:</b> Describe pest control strategies associated with IPM.	Textbook: pg. 600–604, 631 (Suggested Activities #1–7)
<b>Objective 2.</b> Identify plant pests and diseases and their causes.	Textbook: pg. 599–609, 631 (Suggested Activities #3)
<b>Indicator 1:</b> Identify types of plant pests and disorders.	Textbook: pg. 599–609, 631 (Suggested Activities #2–8)
<b>Indicator 2:</b> Identify weed, insect, rodent, and fungi pests.	Textbook: pg. 605–609, 631 (Suggested Activities #7, 8)
<b>Indicator 3:</b> Identify infectious and noninfectious plant diseases.	Textbook: pg. 605–609, 631 (Suggested Activities #3, 8)
<b>Objective 3.</b> Explain procedures for the safe handling, use, and storage of pesticides.	Textbook: pg. 616–623, 630–631 (Thinking Critically #4, 5; Suggested Activities #1, 4)
<b>Indicator 1:</b> Explain risks and benefits associated with the materials and methods used in plant pest management.	Textbook: pg. 611–623, 630–631 (Thinking Critically #5; Suggested Activities #1–8)
<b>Indicator 2:</b> Interpret pesticide labels.	Textbook: pg. 616–619, 630–631 (Suggested Activities #1)
<b>Indicator 3:</b> Explain procedures for mixing and storing pesticides.	Textbook: pg. 620–623, 631 (Suggested Activities #4)
<b>Indicator 4:</b> Describe types of pesticide controls and formulations.	Textbook: pg. 611–615, 630–631 (Thinking Critically #5; Suggested Activities #4–7)
<b>Indicator 5:</b> Explain the safety practices that should be followed when applying pesticides.	Textbook: pg. 619–623, 631 (Suggested Activities #1, 4)
<b>Indicator 6:</b> Describe the proper disposal of surplus pesticides and empty containers.	Textbook: pg. 623, 630–631 (Thinking Critically #4; Suggested Activities #4)
<b>Indicator 7:</b> Evaluate environmental and consumer concerns regarding pest management strategies.	Textbook: pg. 630–631 (Thinking Critically #1, 4; Suggested Activities #1)
<b>Standard 6: Demonstrate the installation and maintenance of irrigation systems.</b>	
<b>Objective 1.</b> Prepare for installation of a sprinkler system.	Textbook: pg. 364–389, 397 (Thinking Critically #1–3; Suggested Activities #1–8)

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<b>Standards, Objectives, and Indicators</b>	<b>G–W Content</b>
<b>Indicator 1:</b> Analyze site conditions.	Textbook: pg. 377–389, 397 (Thinking Critically #1; Suggested Activities #1–8)
<b>Indicator 2:</b> Calculate area coverage dimensions.	Textbook: pg. 378–380, 397 (Suggested Activities #1, 3–4)
<b>Indicator 3:</b> Calculate water flow in gallons per minute (GPM).	Textbook: pg. 397 (Suggested Activities #3)
<b>Indicator 4:</b> Identify components of irrigation systems, including pipes and joints.	Textbook: pg. 369–376, pg. 397 (Suggested Activities #1, 4)
<b>Objective 2.</b> Plan and install a sprinkler system.	Textbook: pg. 374–376, 385, 397 (Suggested Activities #1–8)
<b>Indicator 1:</b> Plan and illustrate a distribution system.	Textbook: pg. 397 (Suggested Activities #1, 3)
<b>Indicator 2:</b> Select components for the irrigation system.	Textbook: pg. 368–376, 397 (Suggested Activities #1–4)
<b>Indicator 3:</b> Calculate the number of heads, valves, and drains and the length of pipe needed.	Textbook: pg. 397 (Suggested Activities #1, 2)
<b>Indicator 4:</b> Calculate the cost of the parts, supplies, and labor for system installation.	Textbook: pg. 397 (Suggested Activities #1, 2)
<b>Indicator 5:</b> Identify factors involved in the bidding process.	Textbook: pg. 397 (Suggested Activities #5)
<b>Indicator 6:</b> Cut, fit, and install PVC pipes and fittings.	Textbook: pg. 370–371, 384
<b>Indicator 7:</b> Install valves and faucets.	Textbook: pg. 381–382
<b>Indicator 8:</b> Perform an irrigation system test.	Textbook: pg. 387–389
<b>Objective 3.</b> Maintain a sprinkler system.	Textbook: pg. 387–389, 397 (Suggested Activities #7)
<b>Indicator 1:</b> Check for leaks or broken heads.	Textbook: pg. 388–389
<b>Indicator 2:</b> Replace or repair heads.	Textbook: pg. 388–389
<b>Indicator 3:</b> Replace or repair pipe.	Textbook: pg. 388–389
<b>Indicator 4:</b> Adjust sprinkler head height.	Textbook: pg. 388
<b>Standard 7: Demonstrate landscape equipment maintenance and operation.</b>	
<b>Objective 1.</b> Demonstrate the use of equipment in landscape maintenance.	Textbook: pg. 87–105, 113 (Suggested Activities #1, 2, 5)
<b>Indicator 1:</b> Identify common equipment and its use in landscape maintenance.	Textbook: pg. 87–105, 113 (Suggested Activities #1, 3–5)
<b>Indicator 2:</b> Explain the meaning and importance of the operator’s manual.	Textbook: pg. 86, 102 (Pro Tip), 113 (Suggested Activities #5)

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<b>Standards, Objectives, and Indicators</b>	<b>G–W Content</b>
<b>Indicator 3:</b> Identify the location and use of controls on equipment.	Textbook: pg. 102–108, 110–113 (Suggested Activities #4, 5)
<b>Indicator 4:</b> Follow safe practices in the use of landscape maintenance equipment.	Textbook: pg. 58–78, 83 (Suggested Activities #1–9), 113 (Suggested Activities #5)
<b>Objective 2.</b> Properly maintain equipment used in landscape maintenance.	Textbook: pg. 87–108, 113 (Suggested Activities #1, 2, 5)
<b>Indicator 1:</b> Complete basic tire inspections and perform maintenance for safe tire performance.	Textbook: pg. 106–108, 113 (Suggested Activities #5)
<b>Indicator 2:</b> Check the oil level and add oil if necessary.	Textbook: pg. 87, 105–108, 113 (Suggested Activities #5)
<b>Indicator 3:</b> Check the fuel level and add fuel if necessary.	Textbook: pg. 87, 102–103, 105–107, 113 (Suggested Activities #5)
<b>Indicator 4:</b> Service the air cleaner.	Textbook: pg. 105, 107, pg. 113 (Suggested Activities #5)