

# Landscape Design Ag 330

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### Nursery/Landscape Careers

Objectives	Power Points	Student Handouts	Evaluations
1. Students will research one historical figure in the history of landscape design. 2. Students will explore a career in nursery or landscape design, determine the specifications of the career and present to the class.	0	Landscape Design Historical Profile Assignment Sheet  Nursery & Landscape Design Career Assignment Sheet	Nursery & Landscape Design Career Assignment Grading Sheet  Two quiz questions from students about careers

### Landscape Design Drafting

1. Students will be able to use drafting equipment. 2. Students will be able to measure and reproduce lines drawn to scale. 3. Students will be able to practice landscape lettering. 4. Students will be able to render symbols used in landscape designing. 5. Students will be able to redraw a house plan footprint in a different scale. 6. Students will be able to reproduce different symbols used in landscape design. 7. Students will be able to reproduce a landscape design plan label.	Landscape Design Drafting Equipment	House plan footprint Student Handout Scale Student Sheet Circle and Angle Student Sheet Landscape Symbol House Plan Student Sheet Plan Label Student Sheet Plan Label Guide Student Sheet Lettering Student Sheet Lettering Student Handout Blank Lettering Student Sheet Low & High Gravity Lettering Student Sheet General & Branched Trees Student Sheet Broadleaf Trees Student Sheet Mulch & Ground Cover Student Sheet Needle, Grasses, & Weeping Trees	Landscape Design Drafting Quiz  Landscape Design Drafting Quiz Master
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		Student Sheet Wood, Water, Turf & Rocks Student Sheet Hardscape Student Sheet	
<b>Elements &amp; Principles of Landscape Design</b>			
<b>Objectives</b>	<b>Power Points</b>	<b>Student Handouts</b>	<b>Evaluations</b>
<ol style="list-style-type: none"> <li>Students will be able to identify and demonstrate the Elements of Landscape Design.</li> <li>Students will be able to identify and demonstrate the Principles of Landscape Design.</li> <li>Students will be able to identify the colors on a color wheel.</li> <li>Students will be able to identify color values: tints, tones, &amp; shades.</li> <li>Students will be able to identify different color harmonies.</li> </ol>	<p>Elements and Principles of Landscape Design</p> <p>Color</p> <p>Landscape Examples</p>	<p>Elements &amp; Principles of Design Student Sheet</p> <p>Elements &amp; Principles Flashcards Color Wheel Student Sheet</p> <p>Mandala Student Sheet</p>	<p>Elements &amp; Principles Quiz</p> <p>Elements &amp; Principles Quiz Master</p>
<b>Planning Landscape Designs</b>			
<ol style="list-style-type: none"> <li>Students will be able to conduct a client evaluation to determine wants and needs of a potential landscape design client.</li> <li>Students will be able to create a base map for a landscape design.</li> <li>Students will be able to conduct a site analysis for a landscape design.</li> <li>Students will be able to draw a bubble diagram based on information gathered from the site analysis.</li> <li>Students will be able to create a final design based on the bubble diagram.</li> <li>Students will be able to create a legend or key for their final design.</li> <li>Students will be able to add color to the final design.</li> </ol>	<p>The Landscape Design Process</p> <p>Coloring Techniques</p>	<p>Client Evaluation</p> <p>Site Analysis Plan Check List</p> <p>Bubble Diagram Plan Check List</p> <p>Landscape Design Standard Measurements Student Information Sheet</p> <p>Flower Bed Design Student Sheet</p> <p>Low-Maintenance Landscape Design Planning Student Handout</p> <p>Coloring Techniques Student Handout</p>	<p>Site Analysis Grading Sheet</p> <p>Bubble Diagram Grading Sheet</p> <p>Final Plan Grading Sheet</p> <p>Planning Landscape Design Quiz</p> <p>Planning Landscape Design Quiz Master</p>

<p>8. Students will be able to create a planting plan based on their final plan.</p> <p>9. Students will be able to present their final design to the client.</p> <p>10. Students will learn the proper and improper way to design a foundation planting.</p> <p>11. Students will be able to plan a flower bed design.</p> <p>12. Students will be able to identify key elements in the Outdoor Room Concept</p> <p>13. Students will be able to identify the Design areas: private, public, play and utility.</p> <p>14. Students will be able to select plants and place them in a landscape setting.</p> <p>15. Students will be able to plan landscapes to meet Low maintenance criteria.</p>			
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## Maintaining Landscapes

<b>Objectives</b>	<b>Power Points</b>	<b>Student Handouts</b>	<b>Evaluations</b>
<p>1. Students will be able to identify design strategies for a low maintenance landscape.</p> <p>2. Students will be able to list the benefits of trees.</p> <p>3. Students will be able to identify proper pruning cuts.</p> <p>4. Students will be able to list the benefits of mulch.</p> <p>5. Students will be able to list the key elements in watering a landscape</p> <p>6. Students will be able to list the key elements in weeding a landscape.</p> <p>7. Students will be able to list the key elements in fertilizing a landscape.</p>	<p>Landscape Maintenance</p>	<p>Lawn Watering Guide Student Sheet</p> <p>Landscape Design Fertilizer Experiment Assignment Sheet</p> <p>Fertilizer Experiment Data Collection Sheet</p> <p>Tree Pruning Animation Student Sheet</p>	<p>Landscape Design Fertilizer Experiment Grading Sheet</p> <p>Landscape Maintenance Quiz</p> <p>Landscape Maintenance Quiz Master</p> <p>Tree Pruning Animation Master</p>

## Installing Landscape Designs

Objectives	Power Points	Student Handouts	Evaluations
<ol style="list-style-type: none"> <li>1. Students will be able to determine the benefits of sod vs. seeding a lawn.</li> <li>2. Students will be able to learn how to install a hardscape.</li> <li>3. Students will be able to prepare a bill of materials for a landscape design.</li> <li>4. Students will be able to describe how to plant several different kinds of trees.</li> <li>6. Students will be able to complete a design model to scale of their landscape plan.</li> </ol>	Installation of Landscape Designs	Tree Planting Student Sheet Bill of materials	Tree Planting Sheet Master Model Grading Sheet

## Nursery/Landscape Plant Identification

<ol style="list-style-type: none"> <li>1. Students will learn why scientific classification of plants is important.</li> <li>2. Students will be able to properly write a scientific name.</li> <li>3. Students will be able to identify nursery and landscape plants used in the industry.</li> <li>4. Students will be able to determine which climate zone they live in.</li> <li>5. Students will be able to classify plants according to climate zone, growth habits, and growing requirements.</li> <li>6. Students will be able to identify trees according to a dichotomous key.</li> </ol>	The Classification of Plant Materials Nursery/Landscape Plant ID A-E Nursery/Landscape Plant ID F-L Nursery/Landscape Plant ID M-P Nursery/Landscape Plant ID Q-Z	Nursery/Landscape Plant Identification Student Sheet Climate Zone Student Sheet What Tree Is That? Student Sheet	Nursery/Landscape Plant ID A-E Quiz Nursery/Landscape Plant ID F-L Quiz Nursery/Landscape Plant ID M-P Quiz Nursery/Landscape Plant ID Q-Z Quiz What Tree Is That? Master
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## Nursery/Landscape Equipment Identification

Objectives	Power Points	Student Handouts	Evaluations
1. Students will be able to properly identify nursery equipment and supplies. 2. Students will be able to identify appropriate uses for nursery equipment and supplies. 3. Students will compare nursery equipment and supplies to find the similarities and differences. 4. Students will be able to determine if nursery equipment and supplies are readily available in their area.	Nursery Equipment & Supplies Identification	Nursery Equipment & Supplies Comparison Student Sheet Nursery Equipment & Supplies Observation Sheet	Nursery Equipment & Supplies Identification Quiz ppt.

## Nursery Pests & Disorders Identification

1. Students will be able to identify and classify nursery pests and disorders.	Nursery Pests & Disorders Identification	Nursery Pests & Disorders Identification Student Sheet	Nursery Pests & Disorders Identification Quiz
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**Agricultural Science and Technology**  
**Landscape Design-Ag 330**  
**Landscape & Nursery Career Exploration**

**Unit Objectives**

1. Students will be able to research one historical figure in the history of landscape design.
2. Students will explore a career in nursery or landscape design, determine the specifications of the career and present to the class.

**Student Handout**

Landscape Design Historical Profile Assignment Sheet

Nursery & Landscape Design Career Assignment Sheet

**Evaluation**

Nursery & Landscape Design Career Assignment Grading Sheet

Evaluation will be a compilation of the two quiz questions written by the students about their careers

**Interest Approach**

Begin by asking the students what they did this morning on their way to school. What determined their choice of breakfast, clothes, how they fixed their hair, how they got to school, etc. Share with them that the reason why we do certain things is determined by a variety of choices that we make. Share with them why you chose to be a teacher. Help them choose a career they would like to study that is related to nursery or landscape design. Encourage them to research different career opportunities. The history profile sheet may help them determine what kind of career they would like to choose.

**Teaching Content**

Some historical figures in landscape architecture could include, but are not limited to:

Andrew Jackson Downing	Gilbert Laing Meason
Beatrix Farrand	H.W.S. Cleveland
Calvert Vaux	Humphry Repton
Ellen Biddle Shipman	Joseph Addison
Florence Yoch	Lancelot Brown
Fredrick Law Olmstead	Thomas Church
Gertrude Jekyll	William Shenstone

Some careers related to nursery or landscape design could include, but are not limited to:

Botany	Garden Designer	Landscape maintenance
Chemical applicator	Grounds keeper	Nursery grower
Entomologist	Landscape	Plant research & development
Forestry	Landscape architect	Teacher
Garden center owner, manager, employee	Landscape designer	
	Landscape installation	

## **Student Activities**

1. Landscape Design Historical Profile

Students will research one historical figure in landscape designing history. This may be an introduction into what career they would like to choose for research.

**Equipment:**

Landscape Design Historical Profile Assignment Sheet

2. Nursery & Landscape Design Career Presentation Assignment

Students will research a career related to the nursery or landscape industry. Students will prepare and present a presentation of their research.

**Equipment:**

Nursery & Landscape Design Career Assignment Sheet

Nursery & Landscape Design Career Assignment Grading Sheet

## **Reference**

Laprofession.org

Name \_\_\_\_\_

Landscape Design Ag 330

## Historical Profile Assignment Sheet

<b>Name of Historical Figure:</b>
<b>Time period:</b>
<b>Associations affiliated with or founded:</b>
<b>Contributions to Landscape Design:</b>



## **Nursery & Landscape Design Career Presentation Assignment Sheet**

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Due Date:

Value: 150 points

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**REQUIREMENTS:** The Nursery & Landscape Design Career Assignment must include:

1. Education Needed
2. Benefits & Salary
3. Job Description
4. Special Training
5. Employment Location(s)
6. Visuals of Career to be included in PPT or Poster
7. Prepare a presentation (power point or poster)
8. Present Landscape Design Career to the class
9. References
10. Two quiz questions about your career choice

**COMMENTS:**

The class will be discussing possible careers related to landscape design. This assignment requires students to research possible choices of careers in the landscape industry. Learning about landscape careers helps students gain knowledge about what job opportunities are available and a chance to decide if this is an avenue they would pursue as a possible career choice.

NAME \_\_\_\_\_

# NURSERY & LANDSCAPE DESIGN CAREER PRESENTATION ASSIGNMENT GRADING SHEET

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**ASSIGNMENT:** CAREER PRESENTATION

**DUE DATE:**

**POINTS:** 150 Points

**REQUIREMENTS:** STUDENTS WILL study one career choice in nursery or landscape design and prepare a power point presentation or poster for the class.

<b>Requirement</b>	<b>Possible</b>	<b>Earned</b>
Education Needed.....	10	_____
Benefits & Salary.....	10	_____
Job Description .....	10	_____
Special Training .....	10	_____
Employment Location(s).....	10	_____
Visuals of Career.....	10	_____
Power Point or Poster .....	25	_____
Presentation to class.....	25	_____
References used .....	10	_____
Two quiz questions.....	10	_____
Overall.....	20	_____
<b>Sub-Total.....</b>	<b>150</b>	_____
Late deductions (10%/day) .....	0	_____
<b>Total.....</b>	<b>150</b>	_____

## **AG. 330 LANDSCAPE DESIGN**

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**COURSE DESCRIPTION:** A course that prepares students to design, construct, and maintain planted areas and devices for the beautification of home grounds and other areas of human habitation and recreation.

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<b>UNITS OF INSTRUCTION</b>	<b>MINUTES OF INSTRUCTION</b>
Introduction to Landscaping	705
Landscape Design	705
Climate and Zonation	235
Soil Conservation	235
Ornamental Plant Identification	470
Horticulture Tools, Equipment and Machinery	235
Electrical Controls and Sensing Devices	235
Leveling and Land Measurement	235
Lawnsite Quality and Preparation	235
Maintaining Lawns	235
Identification and Control of Turf Grass Pests	235
Gardening	235
Salesmanship	235
<b>TOTAL MINUTES</b>	<b>4,230</b>

### **A. Introduction to Landscaping**

1. Match terms and definition associated with landscaping
2. List the duties and responsibilities of a landscape architect
3. List the duties and responsibilities of a landscape horticulturist
4. Name the objectives of developing a landscape plan
5. List the guiding principles of landscape design
6. Identify as true or false statements relating to the elements of a good landscape design
7. Name the main areas to develop in a landscape design
8. Identify the tools associated with landscape design
9. Select statements that pertain to corner plantings
10. Identify factors as they relate to entrance and foundation plantings
11. List three different occupations related to landscaping

## **B. Landscape Design**

1. Match terms and definitions associated with landscape design
2. List the elements of landscape design
3. List the principles of symmetry in landscape design
4. Choose between formal and informal design factors
5. Draw and explain the symbols used in landscape design
6. List the sequence of planning a landscape design
7. List the ways to attain contrast in a landscape design
8. Identify as true or false statements about repetition and rhythm in landscape design
9. Discuss proportion or scale as it relates to landscape design
10. Identify plants that are commonly used in landscaping
11. List the common mistakes made in foundation plantings
12. List the maintenance considerations in a landscape design
13. List the factors used in developing a private area in landscaping
14. Complete a scale exercise landscape plan
15. Develop a home landscape plan

## **C. Climate and Zonation**

1. Match terms and definitions associated with climate and plant zones
2. List the factors which influence weather
3. Explain plant hardiness and the importance of it in choosing plants for landscaping
4. Select appropriate plants for various landscaping conditions and considering climate
5. Demonstrate the ability to determine climate zone and develop a landscape plan for a given area

## **D. Soil Conservation**

1. List types of erosion
2. List factors that influence soil erosion
3. Describe the four categories of water erosion
4. List conservation practices for reducing erosion
5. List mechanical and cropping practices used to reduce water erosion
6. List factors that determine cropping systems
7. List three organizations involved with soil conservation

**E. Ornamental Plant Identification**

1. Discuss the system of plant classification
2. Identify the parts of simple and compound leaves
3. Name the types of leaf arrangement, venation and margins
4. Identify the types of leaf arrangement to the stem
5. Identify the parts of a stem
6. Match stem modification to their descriptions
7. Identify the types of inflorescences
8. Identify 100 common ornamental indoor plants
9. Identify 100 common ornamental outdoor plants

**F. Horticulture Tools, Equipment, and Machinery**

1. Match terms and definitions associated with horticulture tools
2. List the general rules for choosing garden tools
3. List the kinds of shovels
4. Name the kinds of hoes
5. Identify as true or false statements about hoes
6. List the kinds of shears
7. Name the kinds of spading forks and two uses of each
8. List some special tools used in horticulture
9. Select preventive maintenance techniques for horticulture tools
10. List the kinds of equipment used in horticulture and landscaping
11. Name the tractor implements used in horticulture applications

**G. Electrical Controls and Sensing Devices**

1. Identify types of controls by nomenclature and use, including thermostats, humidostats, photoelectric cells, magnetic relays, timers, pressure switches, and time delay equipment
2. Set controls, such as timers and switches, for the desired performance
3. Use low voltage electrical control equipment
4. Interpret wiring diagrams
5. Select controls for electric motors from supply catalogs
6. Connect, start, and stop magnetic motor controllers
7. Install a timer circuit
8. Install a thermal delay relay control
9. Install a low voltage motor control system
10. Install switch control for starting 115 & 230 volt motors
11. Install a sensing device such as thermostat, humidostat, photoelectric cell, etc.

## **H. Leveling and Land Measurement**

1. Set up leveling instrument
2. Take rod readings
3. Determine difference in elevation of two or more points
4. Record field notes for differential leveling
5. Measure distance with steel tape
6. Determine percent of slope
7. Determine land area
8. Use the hand level
9. Read legal land descriptions
10. Lay out foundations, footings, and batter boards

## **I. Lawn Site Quality and Preparation**

1. Identify common lawn tools and the safety practices associated with them
2. Demonstrate the ability to prepare a lawnsite for proper drainage
3. Develop an irrigation plan for a lawn site
4. Demonstrate the ability to prepare a proper seedbed
5. Develop an overall plan for a lawn, protecting valuable natural features, to enhance property value

## **K. Identification and Control of Turf Grass Pests**

1. List the common diseases of turf grass
2. Describe the symptoms of various turf diseases
3. List the preventative management practices to avoid turf grass diseases
4. Identify the common insect pests harmful to lawns
5. Identify the common lawn diseases
6. Match the damage to the lawn with the pest responsible
7. Match the pests with the control measures for each
8. List the reasons for controlling weeds in lawns
9. Identify the common turf grasses used in the northwest and their specific area of advantage
10. List the management practice used in controlling lawn weeds

## **J. Maintaining Lawns**

1. Describe how to properly water a lawn
2. Explain what happens when a newly seeded lawn has too much traffic
3. Describe the use of weed killers on a newly seeded lawn
4. Describe the mowing schedule of a newly seeded lawn
5. List the types of equipment for lawn mowing

6. Describe what each type of fertilizer does for a lawn
7. Develop a fertilizer schedule for a lawn
8. Identify common lawn problems
9. Select the qualities of a good and poor lawn
10. Demonstrate the ability to aerate a lawn
11. List the maintenance practices for lawns

**L. Gardening**

1. Locate a desirable garden site at home
2. Determine the size of garden a family of four would need
3. Plan a garden layout based on suggested planting groups
4. Select vegetable varieties based on family preference, geographics, and vegetable seed availability
5. Estimate cost and return of a home garden
6. Determine the proper time to prepare garden soil for crops
7. Demonstrate the ability to prepare garden soil with usual cultural practices
8. Demonstrate the ability to properly plant a garden
9. Demonstrate the ability to transplant vegetables from flats and hot beds
10. List proper garden irrigation methods
11. List the common garden fertilization methods

**M. Salesmanship**

1. Match terms and definitions associated with salesmanship
2. Describe how to be a service to the customer
3. Explain how to use persuasion in closing a sale
4. Discuss the necessity to educate the customer before proceeding in the sales process
5. Discuss how vital sales are in the American system of economy
6. List the steps in making a sale

Name \_\_\_\_\_

Landscape Design 330  
Blank Lettering Student Sheet

Blank lettering practice sheet with 10 sets of horizontal lines. Each set consists of a solid top line, a dashed middle line, and a solid bottom line.



**Agricultural Science and Technology**  
**Landscape Design-Ag 330**  
**Landscape Design Drafting**

**Unit Objectives**

1. Students will be able to use drafting equipment.
2. Students will be able to measure and reproduce lines drawn to scale.
3. Students will be able to practice landscape lettering.
4. Students will be able to render symbols used in landscape designing.
5. Students will be able to redraw a house plan footprint in a different scale.
6. Students will be able to reproduce different symbols used in landscape design.
7. Students will be able to reproduce a landscape design plan label.

**Power Point**

Landscape Design Drafting Equipment

**Student Handouts**

Circle and Angle Student Sheet  
Scale Student Sheet  
House Plan Footprint Student Handout  
Landscape Symbol House Plan Student Sheet  
Plan Label Student Sheet  
Plan Label Guide Student Sheet

Landscape Symbols Student Sheets:  
Broadleaf Trees Student Sheet  
General & Branched Trees Student Sheet  
Hardscape Student Sheet  
Mulch & Ground Cover Student Sheet  
Needle, Grasses, & Weeping Trees Student Sheet  
Wood, Water, Turf & Rocks Student Sheet

Lettering Student Sheets:

Low & High Gravity Lettering Student Sheet  
Lettering Student Sheet  
Lettering Student Handout  
Blank Lettering Student Sheet

**Evaluation**

Landscape Design Drafting Quiz

**Interest Approach**

Display several different drafting tools to the students. Have students guess what the tool is used for. Correct misconceptions as you explain what each drafting tool is used for.

**Teaching Content**

**Drafting Equipment:**

Drawing surface—smooth surface without bumps or grooves in the table top. Drawing surface must have a straight edge allowing for horizontal and vertical lines to be drawn with the T-square. May be a board placed on the student desk if drafting tables are not available. Portable drafting tables are also available for purchase.

Tracing paper—thin and translucent paper used to sketch ideas and designs. Usually available in a roll.

Drafting tape or dots—used to secure the paper to the drawing surface. All four corners should be secured after lining up with a T-square to make sure the paper is square on the drawing surface.

T-square—used to draw consistent vertical and horizontal lines on the paper.

45/45 degree triangle—used to draw 45 or 90 degree lines.

30/60 degree triangle—used to draw 30, 60, or 90 degree lines.

Pencils—come in a variety of lead hardness or softness. H designates the degree of hardness and is used to make light/thin lines. B designates the degree of softness of the lead and is used to draw dark/thick lines. HB is used for general drawing or to draw shadows.

Pencil Sharpener—a high quality pencil sharpener must be available to keep pencils sharp and lines consistent.

Eraser—most generally white, use with caution to avoid smudging lines with soft lead. Can be washed or cut to sharpen edges. Pink may be used but harden over time.

Eraser shield—not essential but useful to erase lines close to other lines.

Flexi-curve—used to draw curving lines. May be picked up and the line repeated.

Circle template—used to draw circles quickly and to scale.

Compass—used to draw large circles.

Scale—a scale is a ruler that has units that represent feet in a landscape plan. Available as engineer or architect depending on preference and project.

Protractor—used to measure and draw angles.

**Note:** As you have students begin to draw plans, have them draw the plans on the outside of the roll of their paper instead of the inside. This way, when they roll out their plans, the rolled edges will be facing down instead of up on their desk. This will help keep their plans from rolling.

## Student Activities

### Equipment for Student Activities:

30/60 degree triangle	Compass	Eraser shield	Scale
45/45 degree triangle	Drafting tape or dots	Flexi-curve	Tracing paper
Circle template	Drawing surface	Pencil Sharpener	T-square
	Eraser	Pencils	
		Protractor	

1. Drafting Equipment

Allow students to experiment with different drafting tools and make a 8 ½ x 11 composition using the drafting tools.

2. Scale, angle, and circle assignments

Students will measure and reproduce lines drawn to scale. Students will measure and reproduce angles. Students will measure and reproduce circles.

**Student Sheets needed:**

*Scale Student Sheet*

*Circle and Angle Student Sheet*

3. House plan foot print

Have students redraw lines of a house using a different scale. This plan may be kept and used in the next unit: Planning the Landscape Design, students will add further detail there.

**Student Sheet needed:**

*House plan Footprint Student Sheet*

4. Measuring and drawing to scale

Have students measure a hallway, your classroom, or small outside building. Have students reproduce their measurements to scale on a sheet of tracing paper. Remind students to include features like windows, doors, heaters, etc. in their drawing.

5. Lettering

Have students practice lettering the alphabet.

**Student Sheets needed:**

*Lettering Student Handout*

*Lettering Student Sheet*

*Blank Lettering Student Sheet*

*Low & High Gravity Lettering Student Sheet*

6. Symbol Rendering

Students will reproduce different symbols used in a landscape design. Once they are finished with these sheets, have them put them all together on the *Landscape Symbol House Plan Student Sheet* to practice what symbols they have learned.

**Student Sheets needed:**

*Landscape Symbol House Plan Student Sheet*

*Broadleaf Trees Student Sheet*

*General & Branched Trees Student Sheet*

*Hardscape Student Sheet*

*Mulch & Ground Cover Student Sheet*

*Needle, Grasses, & Weeping Trees Student Sheet*

*Wood, Water, Turf & Rocks Student Sheet*

7. Landscape Design Plan Label

Have students practice drawing different kinds of plan labels.

Student Sheets needed:

*Plan Label Student Sheet*

*Plan Label Guide Student Sheet*

**Reference**

Bertanski, Tony. Plan Graphics for the Landscape Designer. Prentice Hall 2003.

Name \_\_\_\_\_

Score \_\_\_\_\_

**Landscape Design Ag 330  
Landscape Drafting Quiz**

Match the following drafting equipment with the correct definition.

1. \_\_\_\_\_ d
2. \_\_\_\_\_ j
3. \_\_\_\_\_ h
4. \_\_\_\_\_ k
5. \_\_\_\_\_ m
6. \_\_\_\_\_ g
7. \_\_\_\_\_ i
8. \_\_\_\_\_ l
9. \_\_\_\_\_ b
10. \_\_\_\_\_ n
11. \_\_\_\_\_ a
12. \_\_\_\_\_ e
13. \_\_\_\_\_ f
14. \_\_\_\_\_ c
15. \_\_\_\_\_ o

16. Measure the following line with an engineer scale. Use the 10 scale and the 30 scale.

\_\_\_\_\_

10 scale \_\_\_\_\_

30 scale \_\_\_\_\_

**Answers will vary. Please refer to student sheets:**

17. Draw an example of a deciduous tree. Include a shadow.
18. Draw an example of a evergreen tree. Include a shadow.
19. Draw an example of a grouping of trees. Include shadows.
20. Draw an example of low gravity lettering.
21. Draw an example of mulch.
22. Draw an example of a wall with a window.
23. Draw an example of water.
24. Draw an example of wood.
25. Draw a 50 degree angle.

Name \_\_\_\_\_

Score \_\_\_\_\_

**Landscape Design Ag 330  
Landscape Drafting Quiz**

Match the following drafting equipment with the correct definition.

1. \_\_\_\_\_ Drawing surface
2. \_\_\_\_\_ Tracing paper
3. \_\_\_\_\_ Drafting tape or dots
4. \_\_\_\_\_ T-square
5. \_\_\_\_\_ 45/45 degree triangle
6. \_\_\_\_\_ 30/60 degree triangle
7. \_\_\_\_\_ Pencils
8. \_\_\_\_\_ Pencil Sharpener
9. \_\_\_\_\_ Eraser
10. \_\_\_\_\_ Eraser shield
11. \_\_\_\_\_ Flexi-curve
12. \_\_\_\_\_ Circle template
13. \_\_\_\_\_ Compass
14. \_\_\_\_\_ Scale
15. \_\_\_\_\_ Protractor

- a. used to draw curving lines
- b. used to erase pencil mistakes
- c. a ruler that has units that represent feet in a landscape plan
- d. smooth surface without bumps or grooves in the table top
- e. used to draw circles quickly and to scale
- f. used to draw large circles
- g. used to draw 30, 60, or 90 degree lines
- h. used to secure the paper to the drawing surface
- i. come in a variety of lead hardness or softness
- j. thin and translucent paper used to sketch ideas and designs
- k. used to draw consistent vertical and horizontal lines on the paper
- l. keep pencils sharp and lines consistent
- m. used to draw 45 or 90 degree lines
- n. useful to erase lines close to other lines
- o. used to measure and draw angles

16. Measure the following line with an engineer scale. Use the 10 scale and the 30 scale.

\_\_\_\_\_

10 scale \_\_\_\_\_

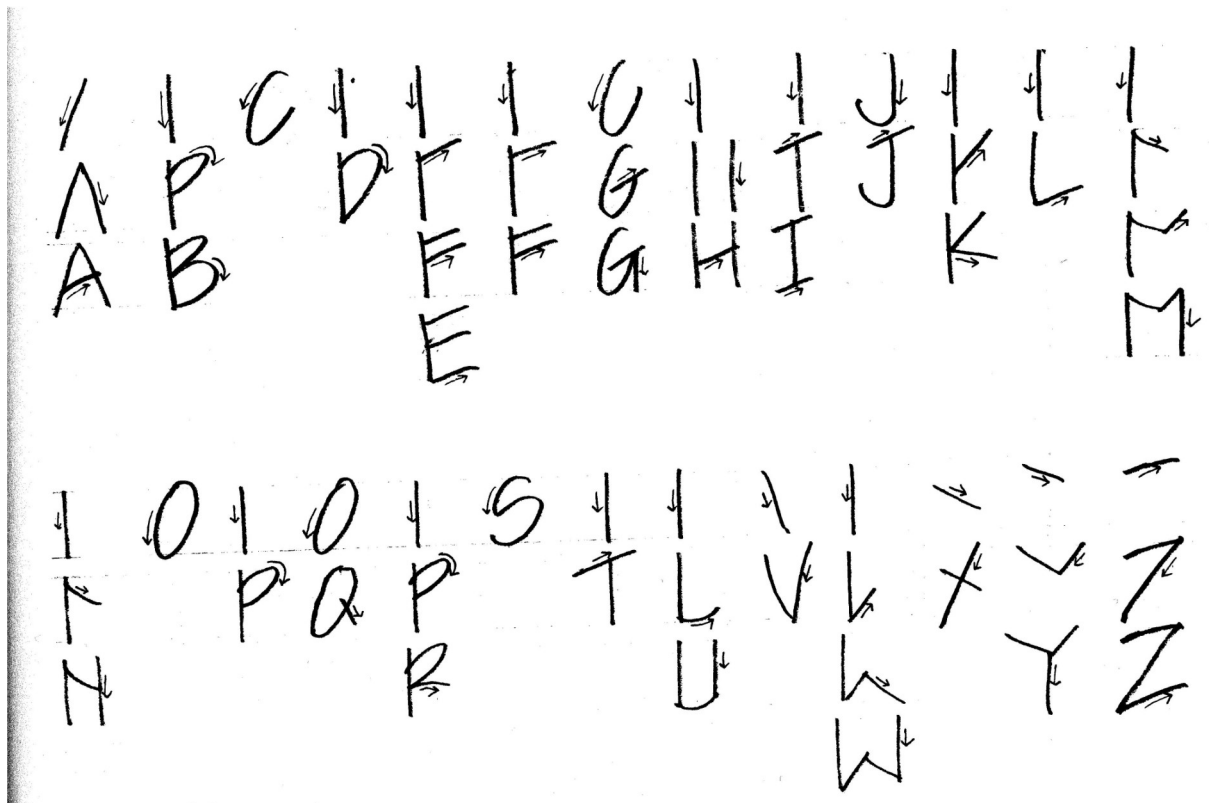
30 scale \_\_\_\_\_

17. Draw an example of a deciduous tree. Include a shadow.
18. Draw an example of a evergreen tree. Include a shadow.
19. Draw an example of a grouping of trees. Include shadows.
20. Draw an example of low gravity lettering.
21. Draw an example of mulch.
22. Draw an example of a wall with a window.
23. Draw an example of water.
24. Draw an example of wood.
25. Draw a 50 degree angle.

Name \_\_\_\_\_

Landscape Design 330  
Lettering Student Handout

The vertical central axis is an imaginary line that runs down the left side of a letter. When the axis is designated as vertical, the line on the left side of the letter should be straight up and down, perpendicular to the line it is written on. When the center of gravity is in the middle, the middle line the letters are written on is in the middle of the lines. If the letter has a low center of gravity, the parallel line in the middle is lowered. If the letter has a high center of gravity, the parallel guide line is higher.





Name \_\_\_\_\_

Landscape Design 330  
Lettering Student Sheet

Practice drawing the following capital letters using a vertical central axis and center gravity.  
Draw each letter until it becomes natural.

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

a b c d e f g h i j k l m n o p q r s t u v w x y z

1 2 3 4 5 6 7 8 9 0

Name \_\_\_\_\_

Landscape Design 330  
High and Low Gravity Lettering Student Sheet

Practice drawing the letters using a vertical axis and low or high gravity center.

Low Gravity Letters

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

\_\_\_\_\_

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\_\_\_\_\_

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\_\_\_\_\_

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\_\_\_\_\_

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\_\_\_\_\_

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High Gravity Letters

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

\_\_\_\_\_

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\_\_\_\_\_

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\_\_\_\_\_

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\_\_\_\_\_

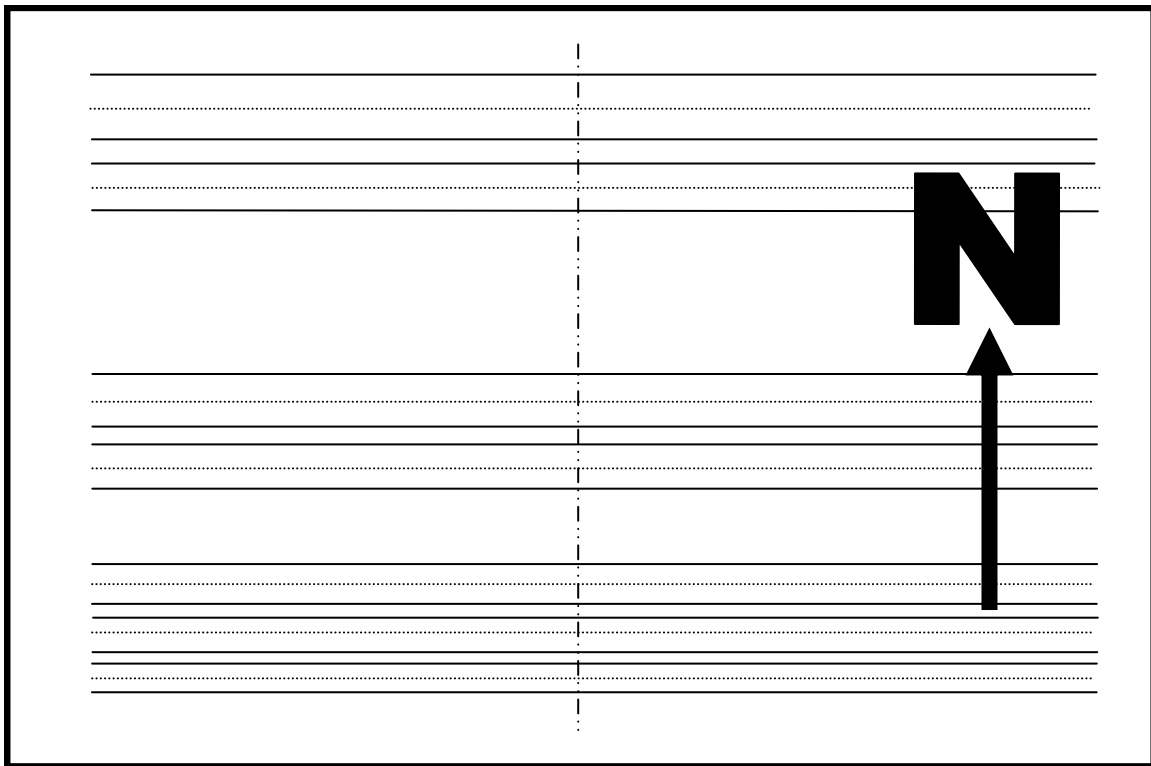
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\_\_\_\_\_

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## Plan Label Guide

**This Plan Label Guide may be placed under a sheet of tracing paper to fill in the label. The horizontal lines will act as a guide for the lettering height. The vertical line is a guide for centering words.**



## Plan Label

Each plan you draw must be labeled. The plan label always goes in the bottom right corner of the landscape design. The plan label is approximately 6" x 4". The first label on this sheet shows what is included on a plan label and the font sizes for each line. The second plan label is an example.

**Plan Name (34)**

Scale: 1" = 5' (18)

North Arrow (18)

**Client Name (24)**

**Client City, ST (20)**

Your Name (16)

Your Business Name or School Name (16)

Your City, ST (12)

**Site Analysis Plan**

Scale: 1" = 5'

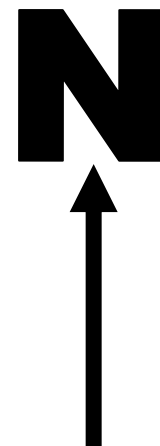
**Jones Residence**

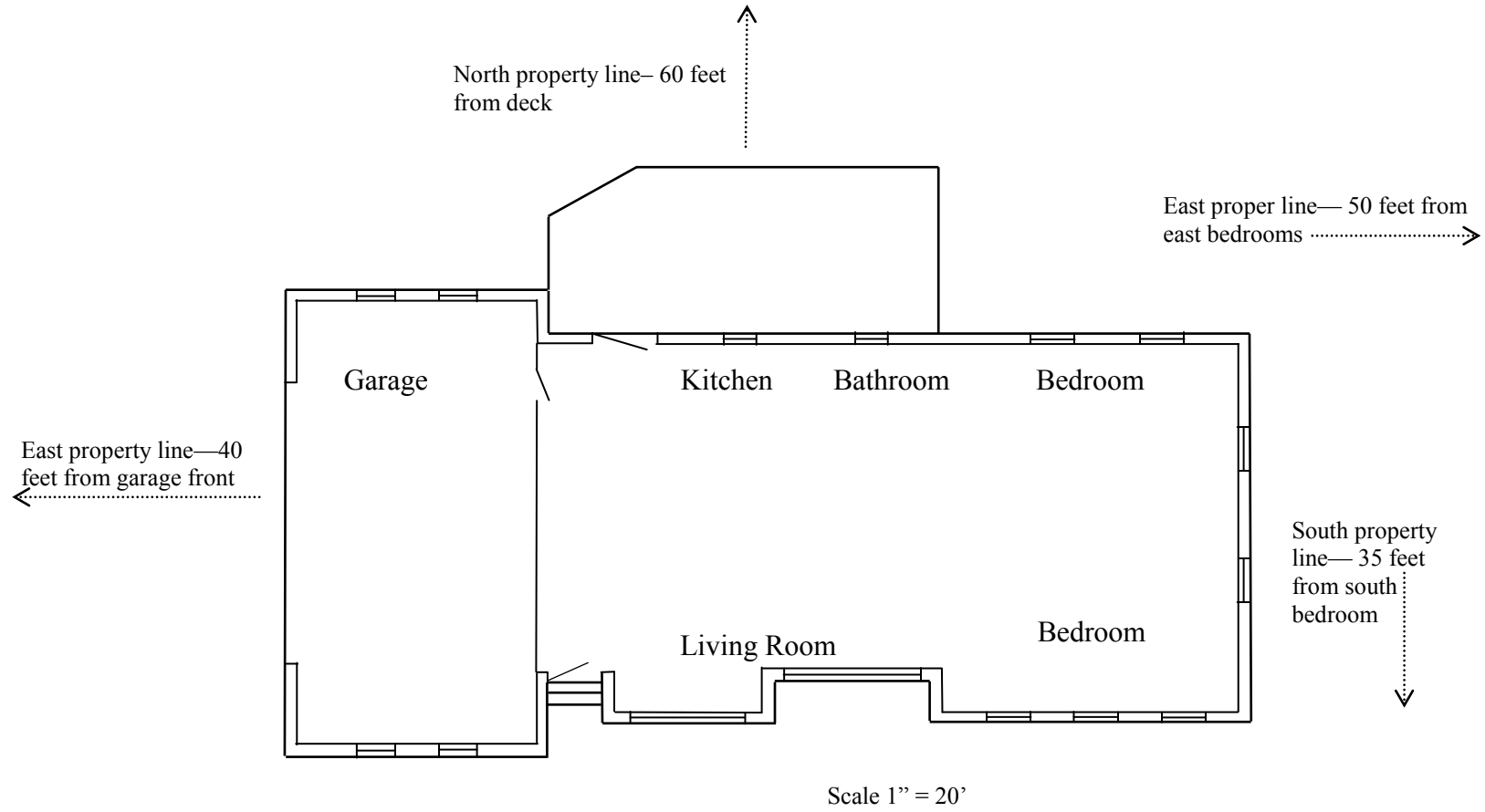
**Joy Valley, ID**

Jill Smiles

Love Your Landscape Design Firm

Joy Valley, ID





Name \_\_\_\_\_

Base Plan Student Sheet

1. Draw the following plan in 1" = 10' scale
2. Draw the inside walls as 1' thick
3. Fill in windows, doors, and garage door
4. Add in the extended property lines

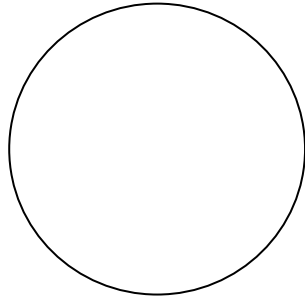
Name \_\_\_\_\_

Landscape Design 330  
Circle & Angle Student Sheet

1. Measure the radius and diameter of the following circle using 10' scale.

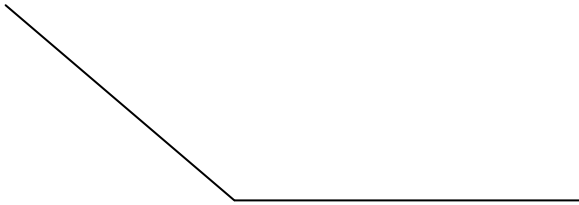
Radius \_\_\_\_\_

Diameter \_\_\_\_\_



Duplicate the circle using 20' scale.

2. Measure the following angle using a protractor.



Duplicate the previous angle.

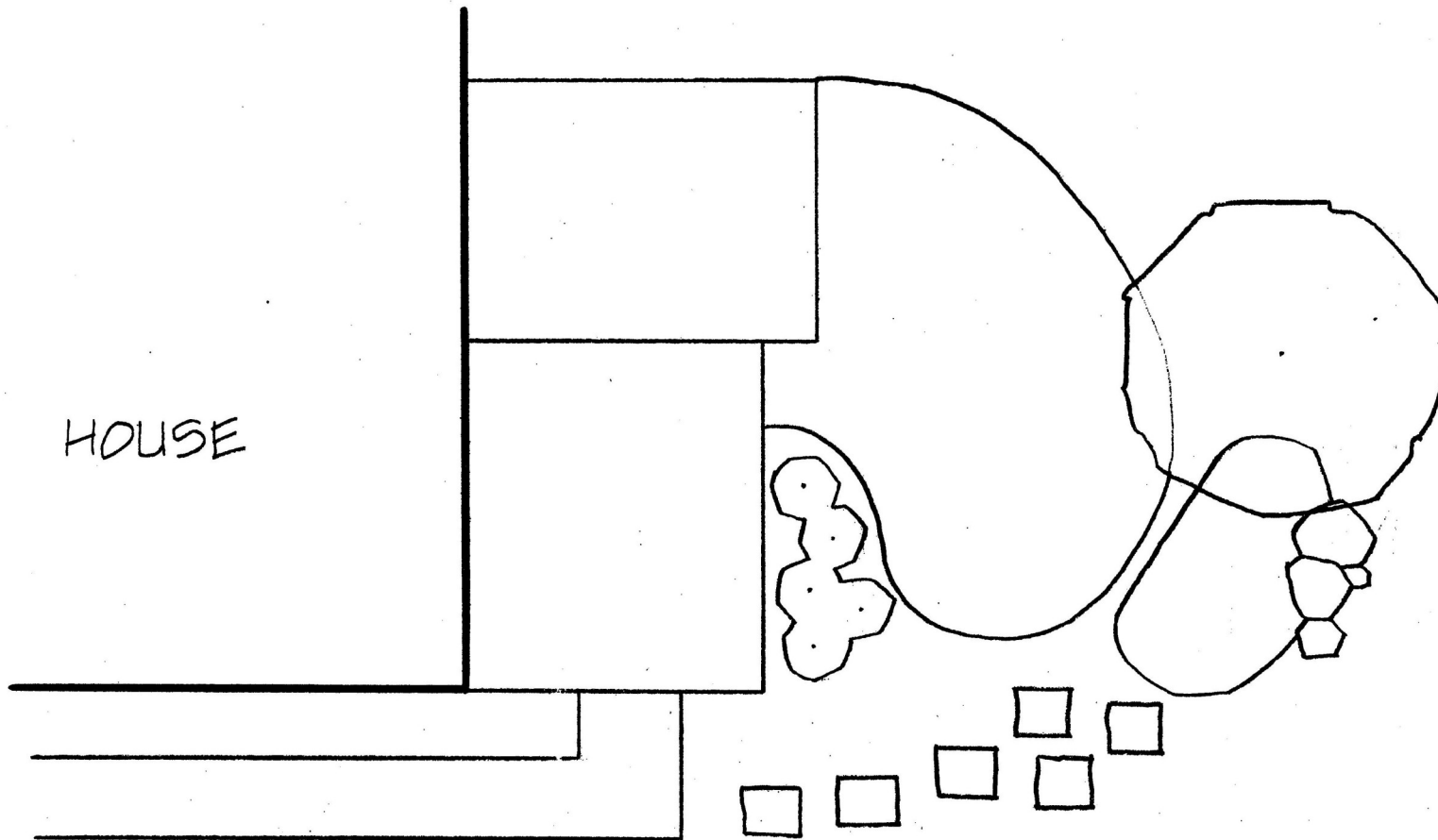
3. Draw a 35 degree angle.

4. Draw a 70 degree angle

Name \_\_\_\_\_  
Landscape Symbol Student Sheet

Fill in the following plan with symbols practiced. Draw in mulch, turf, ground cover, patio materials, etc.

Bertanski, Tony. Plan Graphics for the Landscape Designer. Prentice Hall 2003.



Name \_\_\_\_\_

Landscape Design 330  
Scale Student Sheet

1. Measure the following lines using an Architect & Engineer Scale.

A.



B.



C.



Engineer Scale	10	20	30	40	50	60
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A.

B.

C.

Architect Scale	3/16"	3/32"	1/4"	1/8"	1/2"	3/4"	3/8"
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A.

B.

C.

2. Measure the following line using an Engineer scale in 10 scale and duplicate the line using 40 scale.



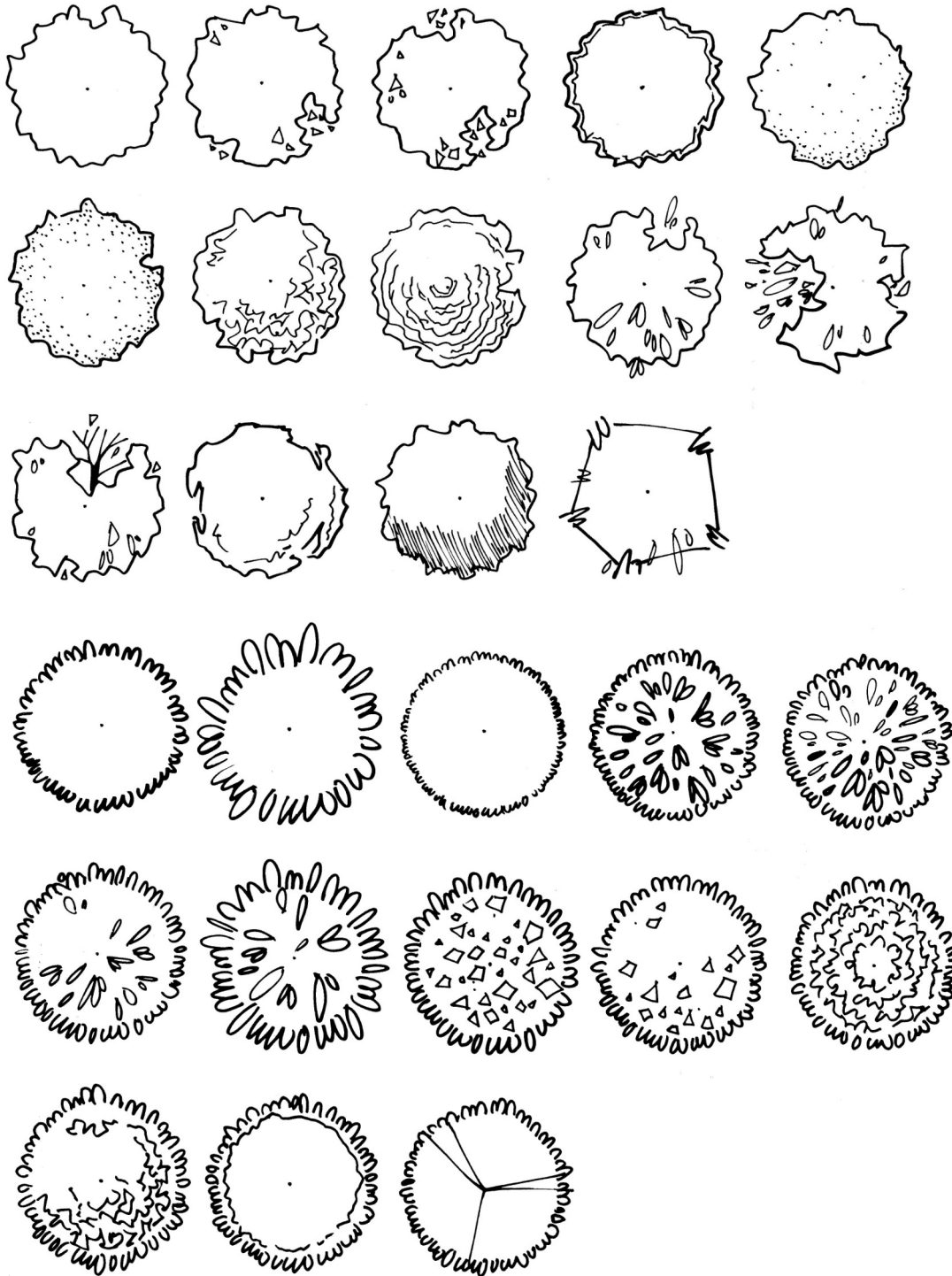
3. Measure the same line using an Architect scale in 1/4" scale and duplicate in 1/8" scale.



Name \_\_\_\_\_

Landscape Design 330  
Broadleaf Trees Student Sheet

On a separate piece of paper, practice drawing broadleaf trees. Use a circle template to draw the original circle, then add detail as shown. Choose 10 different broadleaf symbols to draw.

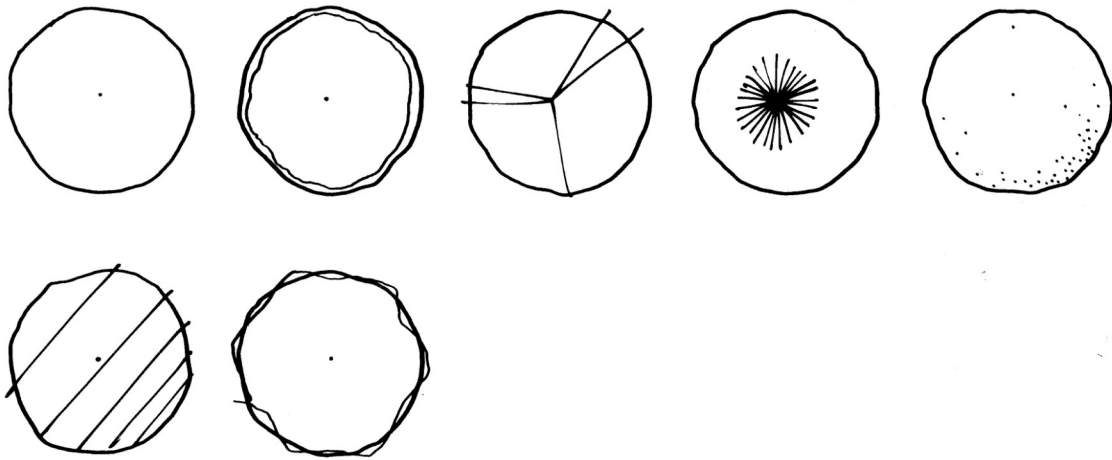


Name \_\_\_\_\_

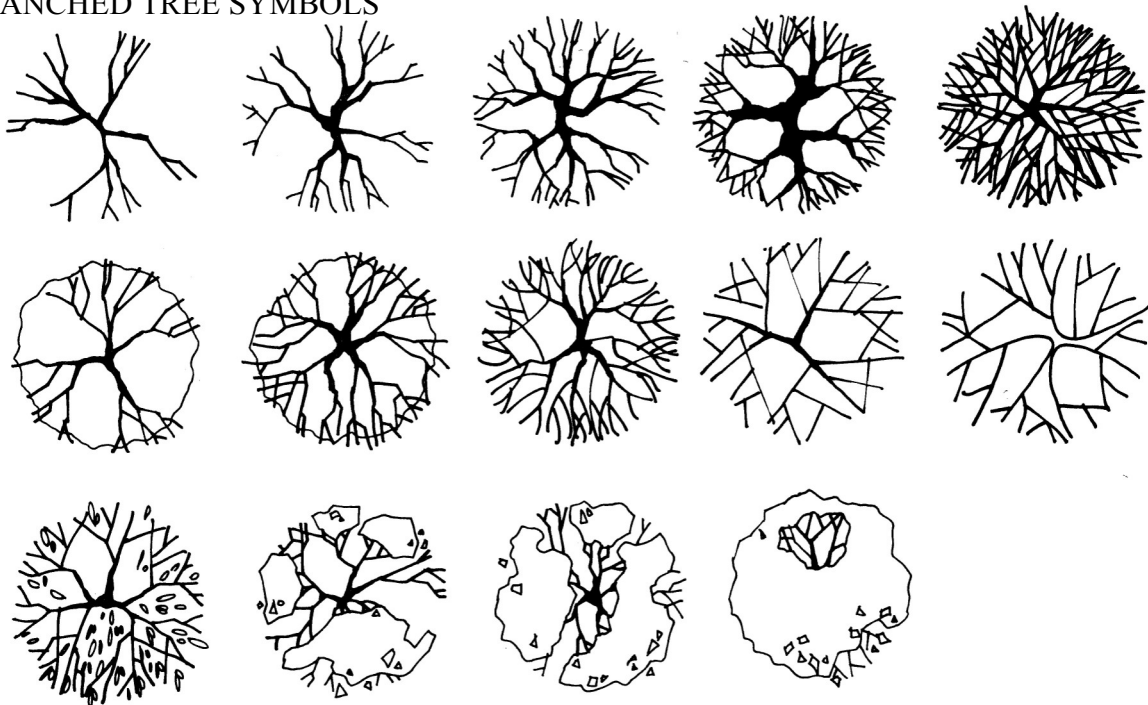
Landscape Design 330  
General and Branched Trees Student Sheet

On a separate piece of paper, practice drawing general and branched trees. Use a circle template to draw the original circle, then add detail as shown. Choose 3 general and 4 branched symbols to draw. General trees are drawn when specific detail is not necessary. Branched trees are drawn when special attention is given to one specific or specimen tree.

GENERAL TREE SYMBOLS



BRANCHED TREE SYMBOLS

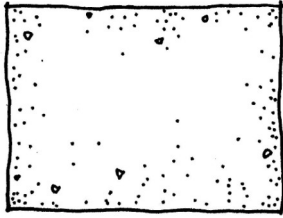


Name \_\_\_\_\_

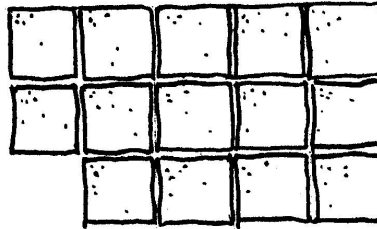
Landscape Design 330  
Hardscape Student Sheet

On a separate piece of paper, practice drawing these hardscape symbols. Use a T-square and triangle to make the lines square.

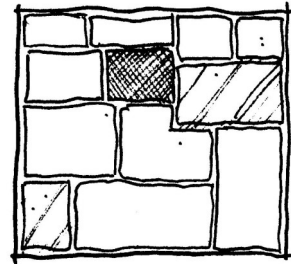
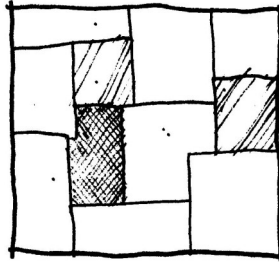
CONCRETE SYMBOLS



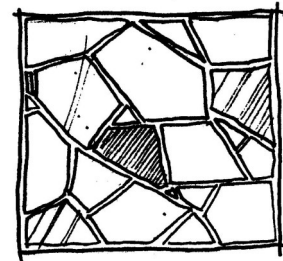
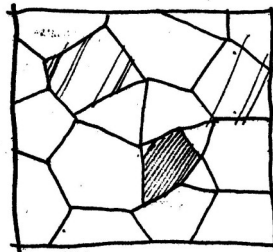
PATIO STONE SYMBOL



CUT STONE SYMBOLS

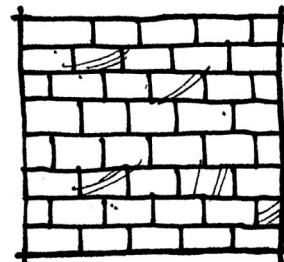
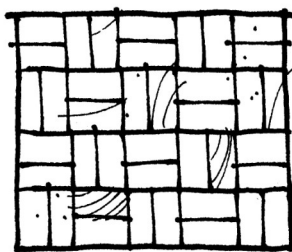
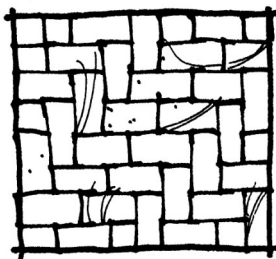


FLAG STONE SYMBOLS



Bertanski, Tony. Plan Graphics for the Landscape Designer. Prentice Hall 2003.

BRICK PAVER SYMBOLS



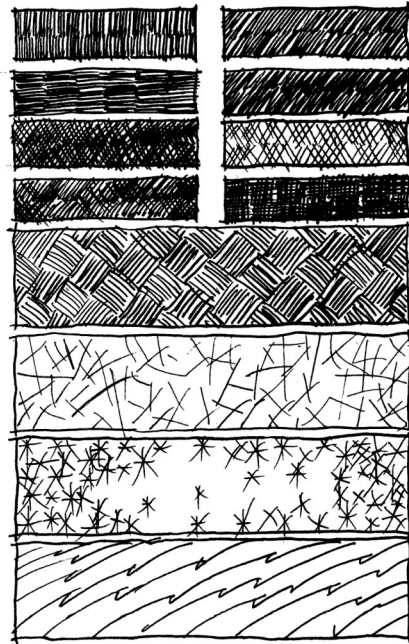
Name \_\_\_\_\_

Landscape Design 330  
Mulch & Groundcover Student Sheet


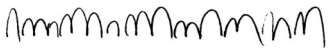
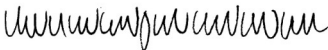

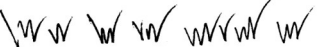
On a separate piece of paper, practice drawing mulch and groundcover. Use a T-square and triangle to make the outlines square.

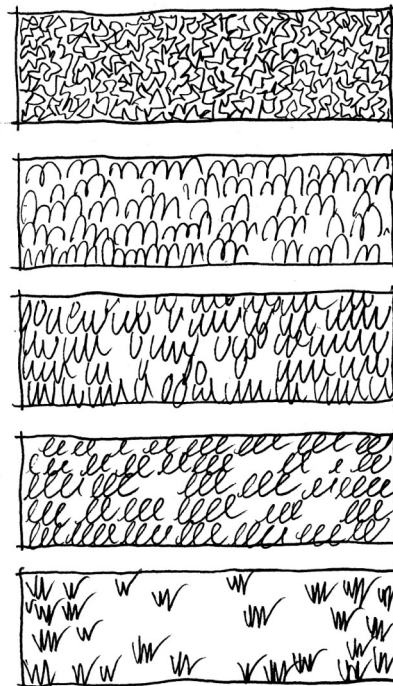
MULCH SYMBOLS

-  HATCHING
-  CROSS-HATCHING
-  PATCHWORK
-  CHICKEN SCRATCH
-  STARS
-  LIGHTNING



GROUNDCOVER SYMBOLS

-  STATIC
-  MOUNDING
-  SHINGLES
-  CURLING
-  CLUMPS

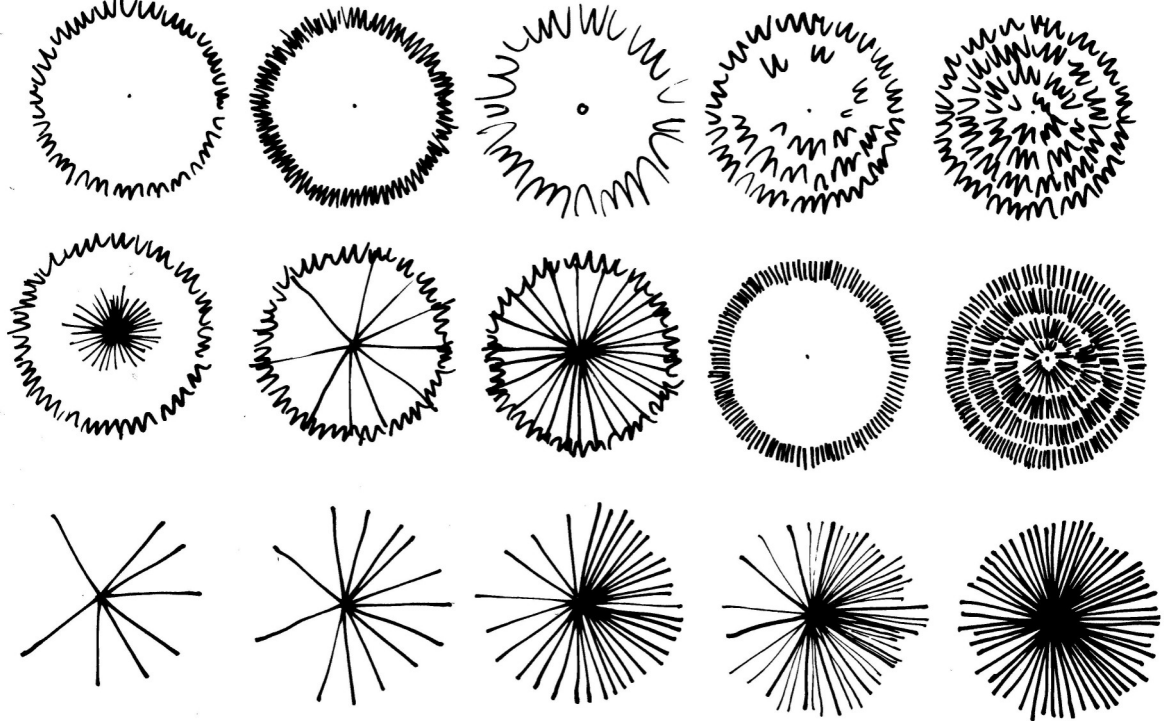


Name \_\_\_\_\_

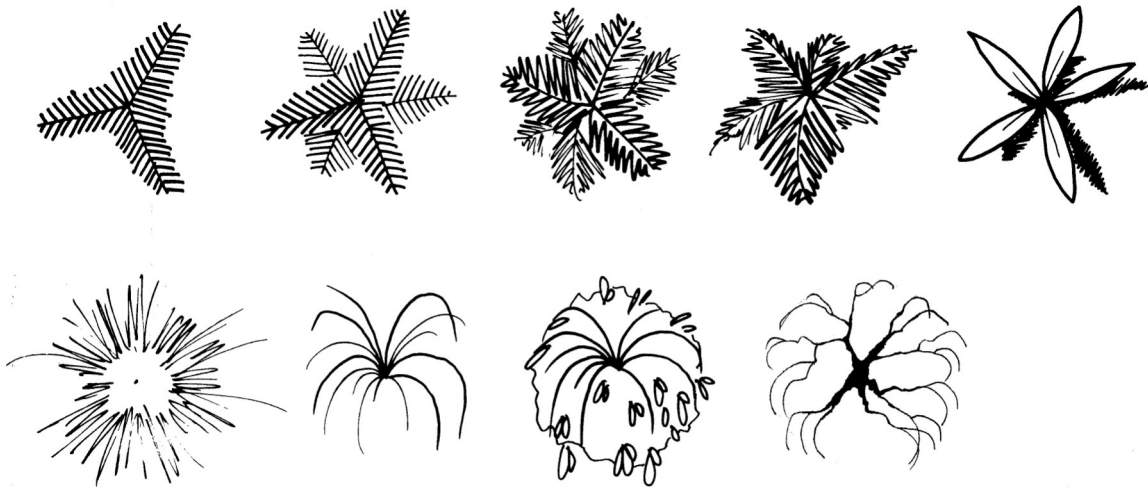
Landscape Design 330  
Needle, Grasses and Weeping Trees Student Sheet

On a separate piece of paper, practice drawing needle trees, grasses and weeping trees. Use a circle template to draw the original circle, then add detail as shown. Choose 4 needle, two grasses, and two weeping forms to draw.

NEEDLE TREE SYMBOLS



GRASSES AND WEEPING TREE SYMBOLS

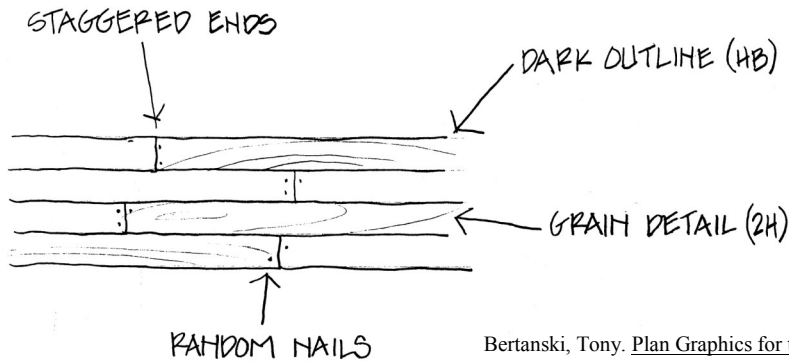


Name \_\_\_\_\_

Landscape Design 330  
Wood, turf, rocks, and water Student Sheet

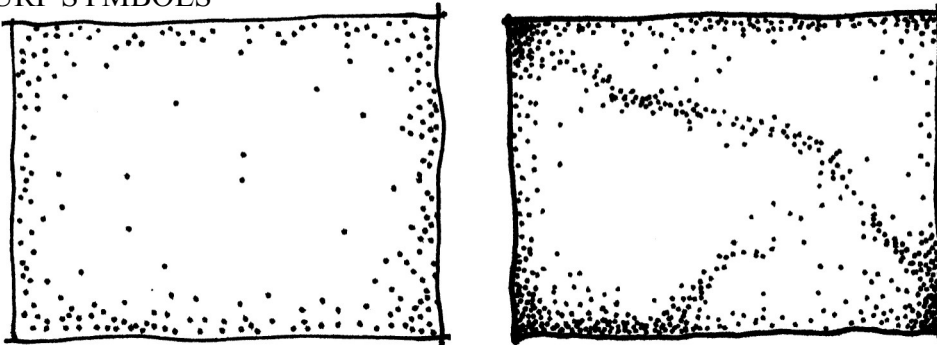
On a separate piece of paper, practice drawing wood, turf, rocks, and water. Use a T-square and triangle to make the lines square.

WOOD SYMBOL

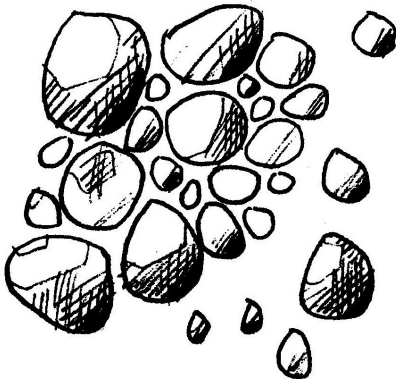


Bertanski, Tony. Plan Graphics for the Landscape Designer. Prentice Hall 2003.

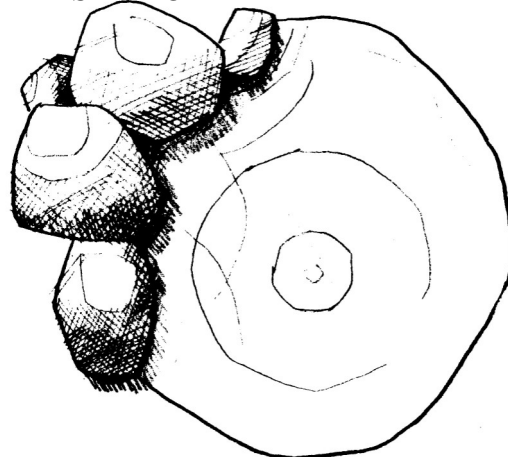
TURF SYMBOLS



COBBLESTONE SYMBOL



WATER SYMBOL



**Agricultural Science and Technology**  
**Landscape Design-Ag 330**  
**Planning a Landscape Design**

**Unit Objectives**

1. Students will be able to conduct a client evaluation to determine wants and needs of a potential landscape design client.
2. Students will be able to create a base map for a landscape design.
3. Students will be able to conduct a site analysis for a landscape design.
4. Students will be able to draw a bubble diagram based on information gathered from the site analysis.
5. Students will be able to create a final design based on the bubble diagram.
6. Students will be able to create a legend or key for their final design.
7. Students will be able to add color to the final design.
8. Students will be able to create a planting plan based on their final plan.
9. Students will be able to present their final design to the client.
10. Students will learn the proper and improper way to design a foundation planting.
11. Students will be able to plan a flower bed design.
12. Students will be able to identify key elements in the Outdoor Room Concept
13. Students will be able to identify the Design areas: private, public, play and utility.
14. Students will be able to select plants and place them in a landscape setting.
15. Students will be able to plan landscapes to meet Low maintenance criteria.

**Power Point**

Design Process  
Coloring Techniques

**Student Handout**

Client Evaluation  
Site Analysis Plan Check List  
Bubble Diagram Plan Check List  
Landscape Design Standard Measurements Student Information Sheet  
Low-Maintenance Landscape Design Planning Student Handout

**Evaluation**

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

**Interest Approach**

Show students a photo of a newly built home that has not had a landscape planned. Have students discuss what types of things would need to happen to start the landscape. List these on the board, and then have students number them according to what should happen first. This should lead into a client evaluation.

## Teaching Content

### The Landscape Design Process

Landscape plans are drawn from a bird's eye view.

Aerial photo and plans drawn for the landscape.

#### Steps In Design

- Assemble the Base Plan
- Conduct a Site Analysis
- Client Evaluation
- Assess family needs and desires
- Develop a Bubble Diagram
- Locate private, public, service, and utility areas
- Design Landscape Plan
- Pencil drawing, then color
- Plant selection and placement

#### Assembling the Base Plan

- Obtain architect drawings
- Plan view drawings (house plans) floor plans
- Sections—side view or cut away slice
- Perspectives or elevations
- Contour map or topographic
- Site or deed map—dimensions with proper angles
- These plans maybe secured from the builder, developer or county or city property records.

#### The base plan should consist of :

- accurate house placement on the lot
- accurate lot and house dimensions with window & door placement
- existing driveways &/or walks (hardscape)

#### Conducting A Site Analysis

- Features that will stay
  - Existing vegetation
  - Tree and shrub condition and placement
  - Trees on adjoining property that affect shade patterns
  - Protect existing vegetation during construction
- Hardscape
- Permanent features
- Views to preserve or block
  - Panoramic views--Takes in a wide area, distance from viewer
    - Distant mountain range, valley below, adjoining golf course
  - Concentrated or focused view--particular point
    - Sculpture, unique tree, bed of showy flowers
  - Blocked view--undesirable, needs screened
    - High plant materials, walls, fences
- Poor Drainage
- slope or land elevation changes



- determines surface water drainage patterns
- Traffic
  - provide proper access
- City/County Ordinances
- Noise Levels
  - Identify distractions
  - question neighbors or the property owner
  - Record noise sources like roads, factories, saw mills, etc
  - time of day for peak noise levels
  - Plot the direction and distance of the source
  - Record other distractions--glare or odors
- Utility Placement
  - on poles or underground
  - locate the electrical meter, the air-conditioner unit & water outlets
  - television and telephone cables, water lines and sewage lines, or a septic tank and field line
- Easements/setback lines
- Primary architectural features of the house
  - Shape of windows, style, and items that can be repeated in the landscape
- House orientation
  - affects the exposure of various portions of the house to the sun
- provide shade
  - southeastern exposure- most comfortable spot year-round
  - western slope- hot in summer and cold in winter
- Soil conditions
  - determines selection and placement of plants
  - Consider soil pH, nutrient and water holding capacity and drainage
- Seasonal wind pattern—prevailing winds
  - differ with the area of the state, the season and the time of day
  - existing wind breaks
  - plants and structures on the property or on adjacent property
- Microclimate
  - conditions in a isolated spot may differ considerably from the conditions in another area of the landscape
- Other:
  - Snow removal, pile-up

### **Client evaluation**

- Establish the wants and needs of the client

### **Landscape Design Areas: Bubble Diagram**

- Establish--Public area, Private area, Utility area, Play area
- Slow down and think broadly or generally
- More creative design
- Think of alternatives
- Go beyond preconceived notions or ideas

## **Public Area**

(Entrance area or front yard)

- Puts the house into an attractive setting
  - Enhance architecture
  - Focus of viewer's attention
  - Recognize value of home
- Identify & provide access to the point of entry
- Greatest priority
- Not complicated
- Front walk to front door
- guest parking easy access
- Includes:
- lawn, foundation plants, walks, and drives/parking
- Should not include:
- cheap plastic animals, recreation equipment, play equipment, swimming pools

## **Private Area**

(Living Area or backyard)

- Outside extension of the private living area inside the home
- Use of plants and/or fences to make private
- Open space needed for games, etc.
- Include: Deck or patio, area of open lawn, plants that provide an attractive view
- may include swimming pool, athletic facilities, barbecue or picnic facilities, trails, view gardens, reflection pools

## **Utility Area (service/work area)**

- Smallest space possible and still functional
- Screen from private area
- Locate on driveway side of yard for access
- May have two or more locations
- Includes: Clothesline, compost bin, Firewood, fuel tanks , garbage containers, garden supplies storage, Greenhouse, pet facilities, tool storage, utility buildings, vegetable gardens, workshops

## **Play Area**

- May or may not be part of private area
- Visible from kitchen
- Easy access to rear entry door
- Grass worn under play equipment
- Use mulch, fine gravel, or sand
- Includes: swings, slides, sandbox, shade trees

## **Final Design plan--Form composition**

Form composition—the organization, placement, or relationship of basic shapes so as to produce a naturally and logically connected image

- Detailed plans for planting and construction
- show sizes, locations, and quantity of plants and materials
- drawn to scale

## **Outdoor Room Concept**

**Outdoor wall**

- Defines the limits or size of the outdoor room
- Slow or prevent movement in a certain direction
- Should not be placed in the middle of areas, but sides instead
- Materials include: shrubs, small trees, ground covers, flowers fencing, masonry

**Outdoor floor**

- Provides the surface
- Materials grass, ground covers, sand, gravel, or water, brick, concrete, patio blocks, tile.

**Outdoor ceiling**

- Defines the upper limits of the outdoor room
- May offer physical protection—awning or aluminum covering
- Shade in summer, drop leaves, warm house in winter

**Foundation Plantings: Foundation Mistakes****Overgrown effect**

- plants too large for rooflines or windows
- dwarfs home and requires high maintenance to control size

**Crowded effect**

- large mass of confusion
- plants too close at time of planting
- gives instant fullness but plants lose their identity over time

**Clipped effect**

- plants get a regular “haircut”
- maintained with very smooth edge
- plants lose unique growth habits

**Unbalanced effect**

- too many plants or larger plants occur on one side or at the end of the planting
- appears tilted and is out of balance

**Toy Solider effect**

- Landscape uses one species of landscape plants, often round which are spaced equally with noticeable gaps between plants
- monotonous, boring and lack creativity

**Hedge effect**

- plants are trimmed to continuous box shape
- lacks variety and gives foundation no relief from horizontal lines
- hedges are used as borders or living fence

**Foundation Plantings:**

- Focalize the main entrance with noticeable plants
- Compliment architectural style
- Break long continuous lines of the house
- Avoid competing elements
- Select plants
- Easily be maintained to proper scale with the house
- Height not to exceed two-thirds the wall at house corners
- Use taller plants on corners

- Medium-size shrubs for one-story homes; large shrubs for two story or taller.
- Use dwarf shrubs or ground covers under windows 4' or less above ground level.
- Balance the planting with equal “foliage mass.”
- Repeat some of the same plants on each end
- Use variety in plants—texture, color, form
- Mass plants
- Mature size allowed to touch adjacent plants

#### **Designing a Flower Garden:** Steps in Garden designing:

- Choose a configuration, Explosion, Sine curve, C curve, E curve
- Place skeletal flowers on the ground in a triangular shape with three unequal sides along the curved line
- Draw line in soil with shovel or use a hose for the line
- One side of that triangle is then used to form the base of the next triangle of a different size
- Continue pattern throughout the design until it forms the configuration you have chosen
- Configurations that don't work
- Straight lines, concentric circles, checkerboards, zipper patterns

#### **Skeleton**

- Dominance main design principle
- Shown by plant form, texture, color or position
- Qualify a plant as skeletal:
- Strong, tall, vertical (for dominant form)
- Broad and dramatic (for dominant form)
- Coarse texture (for dominant texture)
- Vivid bright blossoms or leaves (for dominant color)
- 10 to 20 % of flowers used in design

#### **Tendon**

- Positioned after the skeleton plants have been placed
- Chosen to connect and blend the skeletal flowers, helping to hold together the form of the skeleton
- Complement skeleton flowers according to principle you choose
- form might be shorter or less dominant
- texture might be softer or smaller
- color might contrast or complement
- Tendon maintains the configuration line
- Triangles interlock with the skeleton plant triangles along the configuration line
- 10 to 20 % of flowers in the design

#### **Flesh**

- More subordinate flowers
- Scattered in and among the other flowers to complete and fill out the design
- Place in clusters that form asymmetrical shapes with fractured edges
- Group together to form clusters around the skeletal and tendon flowers
- creates a shifting mosaic with the groupings of plants
- 60-80% of the number of plants

## **Sparkle**

- Final touch
- Few special or highly contrasting flowers
- Odd-numbered groups of three, five or seven
- Placed randomly

## **Plant Selection: Choosing plants**

- Massing
  - Group alike plants together
  - placed close enough to look like a mass without overcrowding
- Variety
  - Makes design interesting
  - Vary time of bloom or leaf color, and mature height, spring blooming, fall color
- Texture
  - Most often associated with leaf size
  - don't use all coarse or fine textured plants
- Repetition
  - Repeat same plants throughout the design
  - Same plant used on one side should be repeated on the other
- Symmetrical all same number
- Asymmetrical not necessary to use same number of plants

## **Low-Maintenance Landscape Planning**

- Even the perfectly designed and installed landscape will fail if maintenance fails
- Many maintenance problems are designed into landscapes
- Complex designs usually require more maintenance

## **Design**

- Keep outlines of grass, decks, sidewalks simple
- Use curving lines in the borders--more natural
- Keep lawn out of small wedges and acute angles
- Avoid acute angles—obtuse is allowable
- If it can be mowed with a riding lawnmower without a lot of trimming, it is a low maintenance design
- When lines and forms intersect a square, connect them at right angles--90 degrees
- Landscape the borders of the property—especially the rear garden

## **Trees and Shrubs**

- Avoid improper plant selection, spacing and installation
- Own planting bed
- Less edging and trimming if not planted in grass
- Next to building Placement
- Genetically small w/ slow rate of growth

## **Selection**

- Little pruning
- Pest resistance
- Avoid messy fruit drop

## **Lawn**

- Keep plant materials separate from grass

- Leave open areas of lawn
- Learn to use weed barrier fabrics, mulches, groundcovers and chemicals to reduce weeds
- Only plant grass where it is actually needed
- Use edging materials that are impregnable
- Bender board, metal or concrete edging
- Distinct mowing edge, clean lawn boundary

### **Flowers**

- Use annuals sparingly
  - Plant every year
  - Labor and money intensive
- Rely more heavily on perennial flowers, ground covers, flowering shrubs & vines

### **Coloring Techniques : Coloring the Final Plan Using: Prisma Color Dual Tip Markers**

1. Color in basic shapes. One layer of marker.
2. Color in hardscape
3. Color in ground plane
4. Color over shapes to add dimension--use more than one color to layer trees.
5. Draw in lines of trees, beds, and hardscape.
6. Draw in shadows.
7. Add in more detail as needed.

#### **Marker Coloring Tips:**

- Marker bleeds through most paper—but not tracing paper.
- Place tracing paper over final design and color in detail on the tracing paper.
- Don't use the black outlining pen until all of the color is finished. The color markers make the sharpie bleed.
- Base color all the shapes in a light color. Add layers of darker colors on top.
- Have a piece of scratch paper to test colors and combinations on before adding to color design.
- Use a blending marker to blend harsh lines.
- To keep the color from pooling, lift quickly and blend out pools of marker with blending marker.
- Keep a list of markers used to lessen confusion if you have to go back and color a spot again.
- Don't be afraid to use different colors on trees—they don't have to be all green. Purple, blue, or yellow stippling added gives depth.

### **Student Activities**

#### **1. Client Evaluation**

Find a member of your community who has just finished building a home and needs the landscape started. Invite this client into your classroom and go through the Client Evaluation with them. Have them bring as many house plans and plot plans as they have. Have them also bring measurements of their site or invite the students to take there measurements if this is feasible. Photographs of their site will help the students

visualize the design. Many students can work on the same design and present different plans to the client. You may have more than one client. If this is not feasible, you will need to come up with a landscape for the students to design. I would not suggest having the students make up their own plan out of their heads, but you may invite them to bring their own dimensions from home and landscape their own residence. Encourage students to think of where we live when planning a landscape and not design too many swimming pools for an Idaho climate. This is why the client evaluation has been added. They will need to really consider the needs of the client and not just unrealistic ideas.

**Equipment:**  
Client Evaluation

**Equipment for all of the following student activities:**

30/60 degree triangle	Drafting tape or dots	Pencils
45/45 degree triangle	Drawing surface	Protractor
Circle template	Eraser	Scale
Compass	Eraser shield	Tracing paper
Drafting Paper	Pencil Sharpener	T-square

2. Base Map Plan

Give the students a piece of drafting paper. It should be at least 2' x 2'. Have them square the paper to their desk and affix with drafting tape. Hand out all necessary drafting equipment. If possible, gather as many of the plans for the landscape design as possible. This would include site maps, elevation changes, etc. Have students begin drafting the property borders, house footprint, and any permanent features—such as the hardscape. This is as far as you want them to go up to this point. Instead of having the students redraw everything for the final design, I just have them add to the base map, but they will need to conduct the site analysis and bubble diagram before adding any more to this plan. The plan label will need to be placed in the bottom right hand corner. Remember to have the students roll their plans with the plan on the outside of the sheet. This helps the plan lay flat when it is unrolled.

**Equipment:**  
Architect plans  
Base map from Drafting Unit

3. Site Analysis Plan

Place a piece of tracing paper over the base map plan and have students free hand the details in that have been placed on the base map plan. Have the students conduct a site analysis using the *Site Analysis Plan Check List*. This will help them determine where significant design details will be placed. I explain this plan as the problems or special considerations that need faced during the planning for the landscape design. The plan label for this design should be Site Analysis Plan placed in the bottom right hand corner.

**Equipment:**  
Site Analysis Plan Check List

4. Bubble Diagram Plan

Have the students place a new piece of tracing paper over their site analysis plan and base map plan. The bubble diagram is a plan which gives the students and opportunity to think generally and brainstorm before being committed to a final design. The site analysis plan should have given all considerations to be faced during planning, the bubble diagram fixes or addresses all those considerations. This is why it is placed over the site analysis. The students will need to free hand the base map information and then free hand circles or bubbles for specific areas in the plan. All areas in the plan will need to be filled in. There should not be spaces between the circles. Please note the *Bubble Diagram Plan Checklist* for details needed in this plan. The plan label for this design should be Bubble Diagram Plan placed in the bottom right hand corner.

**Equipment:**

Bubble Diagram Plan Check List

5. Final Design Plan

After the bubble diagram plan is completed, the students are ready to begin the final design plan. They will need to refer to their practice sheets for how to render landscape symbols and start adding symbols and detail to their base map plan. The detail in this plan is not generally freehanded, but requires use of all of the drafting equipment. The plan label for this design should be Final Design Plan placed in the bottom right hand corner. Have students make a legend after they are finished with the design. Each symbol will need to be explained in the legend as well as any other detail they have added—see Planting Plan. Have students use the *Low-Maintenance Landscape Design Planning Student Handout* while planning their designs. Remind them of the outdoor room concept as they are planning.

6. Color Final Design Plan

Have the students lay a piece of tracing paper over their Final Design Plan and begin coloring in their details. Color all pieces first with color markers and then add in black detail with a fine tip permanent marker. This detail should be all of the symbols they made in the Final Design Plan. Make sure the tracing paper does not bleed through. Refer to the ppt. for detail on how to color with markers. I suggest markers over colored pencils only because it is faster.

**Equipment:**

Prisma Color dual tip markers

Fine tip or ultra fine tip Sharpie markers--black

7. Planting plan

Students will use the information gathered in the *Plant Identification Unit* –climate zone, growth habits, growing requirements, and plant classification to decide what plants will be placed in their final plan. They may make a specific plan for planting or they may include the specific plants needed in a key or legend on their final plan.

8. Present Design To Client



Invite clients into the classroom to view the Final Designs. Have the students present their work and answer any questions the clients may have.

9. Plan a Flower Bed Design

Show students the flower bed design ppt. Give them an assignment to plan a flower bed using the skeleton, tendon, flesh, and sparkle technique. They may choose a flower bed they have already added in a landscape design or create a new one. This plan has a lot more specific detail than added to a landscape plan.

**References**

Bertanski, Tony. Plan Graphics for the Landscape Designer. Prentice Hall 2003.

Bridwell, Ferrell M. Landscape Principles & Practices. The Residential Design Workbook. Sixth Edition. Delmar Learning 2004.

Booth, Norman K. & James E. Hiss. Residential Landscape Architecture: Design Process for the Private Residence, 3rd Edition. Prentice Hall 2002.

Gates, Christina, Diane Erickson, Shelly Zollinger & Larry Sagers. Temple Square Gardening. Inland Press 2003.

Ingels, Jack E. Landscape Principles & Practices. Sixth Edition. Delmar Learning 2004.

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**Resources**

CAERT Curriculum. 2005 Unit C. Nursery, Landscaping, and Gardening. Problem Area 2— Residential Landscape Design. Lesson 1. Analyzing the Residential Landscape

Name \_\_\_\_\_

Date \_\_\_\_\_

Landscape Design  
**Client Evaluation**

**Client Evaluation**  
**Residential Landscape Design**

Landscape Plans for \_\_\_\_\_ Residence

**Address:**

**Phone:**

**Email:**

Names:	Age:	M/F:	Hobbies:	Frequency:

**Examples of hobbies**—greenhouse, swimming, rebuilding old cars

**Frequency**--everyday/weekends/some weekends/seldom/seasonal

Additional family members expected? (children, grandchildren, aged parents)

Do family members have physical limitations?

**Outdoor Activities enjoyed by family**

(please note: ask intended future uses—past uses, patio, deck, pool, open space for games, etc.)

Cooking and dining:  
type of cooking--

Type of entertaining:  
Number of people--

Children's play:  
specific requirements--

Gardening:  
vegetable garden, cut flower production, perennial, annual

<b>Pets</b> (please note: indoors, outdoors, confinement)																														
<b>Plants</b> (please note: ask what are favorite trees, shrubs, flowers?)	Wanted:  Avoid:  Are family members allergic to specific plants?																													
<b>Privacy issues:</b>	Satisfied with current privacy or needs changed—  What changes?																													
<b>Landscape Maintenance</b>	Sprinkling system available Yes/No  <table border="1" data-bbox="464 999 1433 1346"> <thead> <tr> <th data-bbox="464 999 966 1035">Maintenance job</th> <th data-bbox="966 999 1229 1035">Willing to do</th> <th data-bbox="1229 999 1433 1035">Hire out</th> </tr> </thead> <tbody> <tr> <td data-bbox="464 1035 966 1066">Mow grass</td> <td data-bbox="966 1035 1229 1066"></td> <td data-bbox="1229 1035 1433 1066"></td> </tr> <tr> <td data-bbox="464 1066 966 1098">Prune trees</td> <td data-bbox="966 1066 1229 1098"></td> <td data-bbox="1229 1066 1433 1098"></td> </tr> <tr> <td data-bbox="464 1098 966 1129">Fertilize &amp; water lawn</td> <td data-bbox="966 1098 1229 1129"></td> <td data-bbox="1229 1098 1433 1129"></td> </tr> <tr> <td data-bbox="464 1129 966 1161">Rake leaves</td> <td data-bbox="966 1129 1229 1161"></td> <td data-bbox="1229 1129 1433 1161"></td> </tr> <tr> <td data-bbox="464 1161 966 1192">Mix and spray pesticides</td> <td data-bbox="966 1161 1229 1192"></td> <td data-bbox="1229 1161 1433 1192"></td> </tr> <tr> <td data-bbox="464 1192 966 1224">Prepare planting areas</td> <td data-bbox="966 1192 1229 1224"></td> <td data-bbox="1229 1192 1433 1224"></td> </tr> <tr> <td data-bbox="464 1224 966 1255">deadhead</td> <td data-bbox="966 1224 1229 1255"></td> <td data-bbox="1229 1224 1433 1255"></td> </tr> <tr> <td data-bbox="464 1255 966 1346">Other:</td> <td data-bbox="966 1255 1229 1346"></td> <td data-bbox="1229 1255 1433 1346"></td> </tr> </tbody> </table>			Maintenance job	Willing to do	Hire out	Mow grass			Prune trees			Fertilize & water lawn			Rake leaves			Mix and spray pesticides			Prepare planting areas			deadhead			Other:		
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<b>Preferences:</b> colors, materials, styles, brands, themes	
<b>Views:</b> important views into the landscape from major rooms within the house	
<b>Interior:</b> formal or casual types of décor— original art, crafty, themes, etc	
<b>Budget:</b> range in mind, one step completion, over time, most important first	
<b>Time Frame:</b>	
<b>Changes planned:</b> additions to the home, etc.	
<b>Other Considerations:</b>	

Name \_\_\_\_\_

Landscape Design Ag 330

## Site Analysis Plan Checklist

Conduct a site analysis by noting on the Site Analysis Plan where each of the following items are located. This will help identify what items will need to be addressed in the Bubble Diagram and continued on into the Final Design Plan. Place a piece of tracing paper over your base plan, hand draw in the house footprint and property lines and begin your site analysis.

- Features that will stay
  - Existing vegetation
    - tree and shrub condition and placement
    - trees on adjoining property that affect shade patterns
    - Protect existing vegetation during construction
  - Hardscape
  - Permanent features
- Views to preserve or block
  - Panoramic views--Takes in a wide area, distance from viewer
  - Concentrated or focused view--particular point
  - Blocked view--undesirable, needs screened
- Poor Drainage
  - slope or land elevation changes
    - determines surface water drainage patterns
- Traffic
  - provide proper access
- City/County Ordinances
- Noise Levels
  - Identify distractions
    - question neighbors or the property owner
  - Record noise sources like roads, factories, saw mills, etc
    - time of day for peak noise levels
  - Plot the direction and distance of the source
    - Record other distractions--glare or odors
- Utility Placement
  - on poles or underground
  - locate the electrical meter, the air-conditioner unit & water outlets
  - television and telephone cables, water lines and sewage lines, or a septic tank and field line
- Easements/setback lines
- Primary architectural features of the house
  - Shape of windows, style, and items that can be repeated in the landscape
- House orientation



Name \_\_\_\_\_

Landscape Design Ag 330

## Bubble Diagram Checklist

The bubble diagram gives designers the opportunity to brainstorm ideas before committing to a certain design. It is a time to make a more creative design and go beyond preconceived notions or ideas. Remember to slow down and think broadly or generally. Each area in the bubble diagram should be covered in a bubble or circle with clear distinction on what this area will entail. Place your bubble diagram plan over the site analysis you conducted earlier in order to address the issues discovered there. Include the following areas:

- Public area
  - Identify point of entry
  - Provide access to the point of entry
  - Identify guest parking
- Private area (may or may not include all of the following)
  - Deck or patio
  - Open area of lawn
  - Swimming pool
  - Athletic facilities
  - Barbecue
  - Picnic facilities
  - Trails
  - View gardens
  - Reflection pools
  - Plants or fences for privacy
  - Other:
- Play area
  - Visible from kitchen
  - Easy access to rear entry door
  - May or may not include all of the following:
    - Swings
    - Slides
    - Sandbox
    - Shade trees
  - Other:
- Utility area
  - Screen from private area
  - Locate on driveway side of yard for access
  - May have two or more locations
  - Smallest space possible and still functional
  - May or may not include all of the following:
    - Clothesline
    - Compost bin
    - Firewood
    - Fuel tanks
    - Garbage containers
    - Garden supplies storage
    - Greenhouse
    - Pet facilities
    - Tool storage
    - Utility buildings
    - Vegetable gardens
    - Workshops
    - Other:

**Landscape Design Ag 330**  
**Landscape Design Standard Measurements**  
**Student Information Sheet**

**House Measurements:**

Standard windows	2 ½ to 3 feet
Bathroom windows	2 to 2 ½ feet
Picture or bay windows	6 to 8 feet
Doors	3 to 3 ½ feet

**Driveways & Walkways:**

Driveway	minimum of 10 feet for each car (9' x 18' single car)
Entry walk	4 feet wide
Secondary walk	2 feet minimum
Garden path	3 feet
Circle drive	18 feet inside radius minimum 32 feet outside radius 14 feet surface width
wheelchair ramp	3 feet width minimum 5 percent gradient

**Trees & Shrubs:**

Large trees	20 feet in diameter or greater
Medium trees	15 to 20 feet in diameter
Small trees	10 to 15 feet in diameter
Dwarf shrubs	3 to 4 feet in diameter
Medium shrubs	5 to 6 feet in diameter
Large shrubs	6 to 9 feet in diameter

**Cooking:**

Grill	2' x 2'
Countertop	2' x 4'
Overall	20 sq. feet

**Eating:**

Two people	2' – 6' x 5'
Four people	9' x 9'
Six people	7' x 8' (picnic table)
Eight people	9' x 7' (picnic area)



### **Sitting:**

Patio	12' x 15' minimum
Single aluminum lawn chair	2' x 2'
Single wood deck chair with cushions	2' – 6' x 2' – 6'
Bench	Seat depth 18"
	Seat length 2' – 6'
Single aluminum lounge chair	2' – 6'

### **Storage:**

Garbage can	2' diameter
Two garbage cans	2' x 6'
Cord of wood	4' x 4' x 8'

### **Recreation:**

Badminton (doubles):	17' x 39' (playing surface)
	20' x 44' (overall surface)
Croquet	38' x 85' (playing surface)
	50' x 95' (overall surface)
Frisbee, baseball, football throwing	15' x 40'
Horseshoe stakes	40' apart
	10' x 50' (overall area)
Tennis (doubles)	36' x 78' (playing surface)
	60' x 120' (overall surface)
Volleyball	30' x 60' (playing surface)
	45' x 80' (overall surface)
Backyard basketball	25' x 25' minimum
Half-court basketball	42' x 40'
Swimming pool (average)	18' x 36'
Lap pool	10' x 60'
Spa/Jacuzzi	5' x 5'
Sandbox	4' x 4'
Swing set	10' x 15'

## **Low-Maintenance Landscape Design Planning Student Handout**

### **Design**

Keep outlines of grass, decks, sidewalks are simple

Use curving lines in the borders--more natural

Keep lawn out of small wedges and acute angles

Avoid acute angles—obtuse is allowable

If it can be mowed with a riding lawnmower without a lot of trimming, it is a low maintenance design

When lines and forms intersect a square, connect them at right angles--90 degrees

Landscape the borders of the property—especially the rear garden

### **Trees and Shrubs**

Avoid improper plant selection, spacing and installation

Own planting bed

Less edging and trimming if not planted in grass

Next to building Placement--Genetically small w/ slow rate of growth

Selection --Little pruning , Pest resistance, Avoid messy fruit drop

### **Lawn**

Keep plant materials separate from grass

Leave open areas of lawn

Learn to use weed barrier fabrics, mulches, groundcovers and chemicals to reduce weeds

Only plant grass where it is actually needed

Use edging materials that are impregnable--Bender board, metal or concrete edging

Distinct mowing edge, clean lawn boundary

### **Flowers**

Use annuals sparingly--Plant every year, Labor and money intensive

Rely more heavily on perennial flowers, ground covers, flowering shrubs & vines

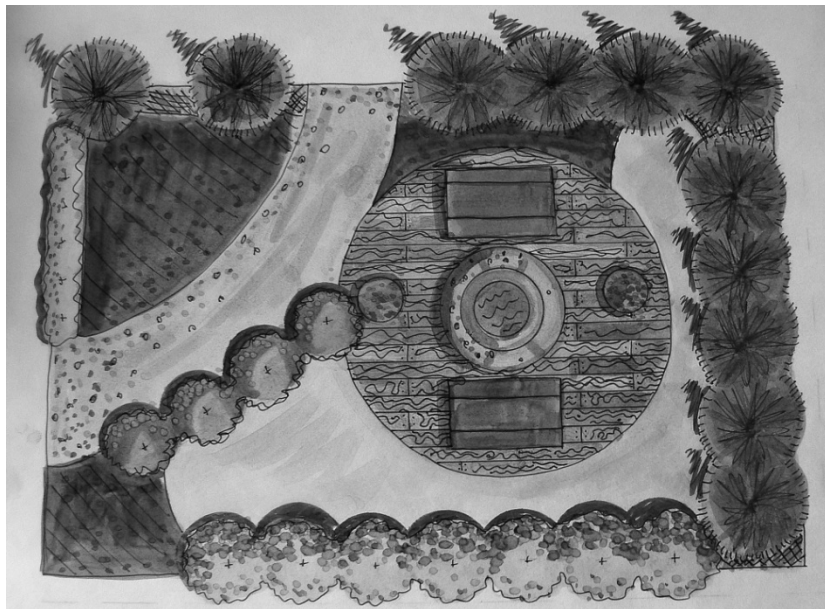
# Coloring Techniques Student Handout

## Coloring the Final Plan

1. Color in basic shapes. One layer of marker.
2. Color in hardscape
3. Color in ground plane
4. Color over shapes to add dimension--use more than one color to layer trees.
5. Draw in lines of trees, beds, and hardscape.
6. Draw in shadows.
7. Add in more detail as needed.

### Marker Coloring Tips:

- Marker bleeds through most paper—but not tracing paper.
- Place tracing paper over final design and color in detail on the tracing paper.
- Don't use the black outlining pen until all of the color is finished. The color markers make the sharpie bleed.
- Base color all the shapes in a light color. Add layers of darker colors on top.
- Have a piece of scratch paper to test colors and combinations on before adding to color design.
- Use a blending marker to blend harsh lines.
- To keep the color from pooling, lift quickly and blend out pools of marker with blending marker.
- Keep a list of markers used to lessen confusion if you have to go back and color a spot again.
- Don't be afraid to use different colors on trees—they don't have to be all green. Purple, blue, or yellow stippling added gives depth.



# **Flower Bed Design Student Sheet**

## **Designing a Flower Garden:** Steps in Garden designing:

- Choose a configuration, Explosion, Sine curve, C curve, E curve
- Place skeletal flowers on the ground in a triangular shape with three unequal sides along the curved line
- Draw line in soil with shovel or use a hose for the line
- One side of that triangle is then used to form the base of the next triangle of a different size
- Continue pattern throughout the design until it forms the configuration you have chosen
- Configurations that don't work
  - Straight lines, concentric circles, checkerboards, zipper patterns

## **Skeleton**

- Dominance main design principle
- Shown by plant form, texture, color or position
- Qualify a plant as skeletal:
- Strong, tall, vertical (for dominant form)
- Broad and dramatic (for dominant form)
- Coarse texture (for dominant texture)
- Vivid bright blossoms or leaves (for dominant color)
- 10 to 20 % of flowers used in design

## **Tendon**

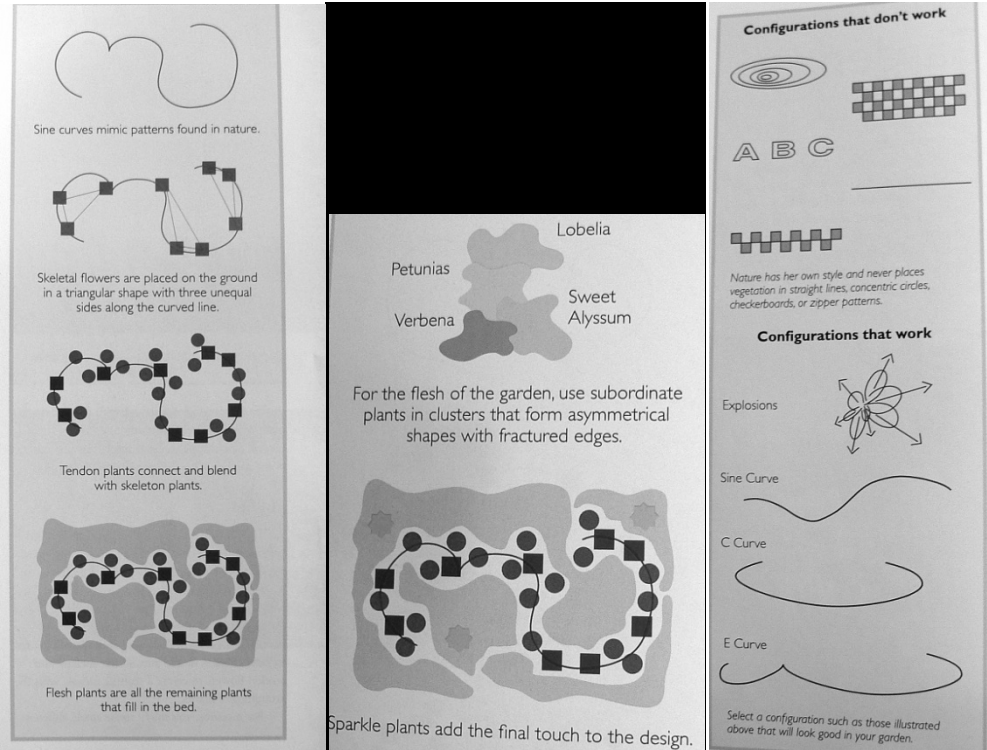
- Positioned after the skeleton plants have been placed
- Chosen to connect and blend the skeletal flowers, helping to hold together the form of the skeleton
- Complement skeleton flowers according to principle you choose
- form might be shorter or less dominant
- texture might be softer or smaller
- color might contrast or complement
- Tendon maintains the configuration line
- Triangles interlock with the skeleton plant triangles along the configuration line
- 10 to 20 % of flowers in the design

## **Flesh**

- More subordinate flowers
- Scattered in and among the other flowers to complete and fill out the design
- Place in clusters that form asymmetrical shapes with fractured edges
- Group together to form clusters around the skeletal and tendon flowers
- creates a shifting mosaic with the groupings of plants
- 60-80% of the number of plants

## **Sparkle**

- Final touch
- Few special or highly contrasting flowers
- Odd-numbered groups of three, five or seven
- Placed randomly



Gates, Christina, Diane Erickson, Shelly Zollinger & Larry Sagers. Temple Square Gardening. Inland Press 2003.

Name \_\_\_\_\_

## Landscape Planning Quiz 128 points total

Put a (\*) in front of the following items that would be found in a client evaluation.

Put a (√) in front of the following items that would be found in a base plan.

Put a (♥) in front of the following items that would be found in a bubble diagram.

Put a (→) in front of the following items that would be found in a site analysis.

Put a (□) in front of the following items that would be found in a landscape plan—form composition. (2 points each)

1. \_\_\_\_\_ Accurate house placement on the lot
2. \_\_\_\_\_ Accurate lot and house dimensions with window & door placement
3. \_\_\_\_\_ City/county ordinances
4. \_\_\_\_\_ Detailed plans for planting and construction
5. \_\_\_\_\_ Easements/setback lines
6. \_\_\_\_\_ Establish--public area, private area, utility area, play area
7. \_\_\_\_\_ Existing driveways &/or walks (hardscape)
8. \_\_\_\_\_ House orientation
9. \_\_\_\_\_ Microclimate
10. \_\_\_\_\_ Noise levels
11. \_\_\_\_\_ Poor drainage
12. \_\_\_\_\_ Primary architectural features of the house
13. \_\_\_\_\_ Seasonal wind pattern—prevailing winds
14. \_\_\_\_\_ Show sizes, locations, and quantity of plants and materials
15. \_\_\_\_\_ Slow down and think broadly or generally
16. \_\_\_\_\_ Snow removal, pile-up
17. \_\_\_\_\_ Soil conditions
18. \_\_\_\_\_ Think of alternatives
19. \_\_\_\_\_ Traffic
20. \_\_\_\_\_ Trees on adjoining property that affect shade patterns
21. \_\_\_\_\_ Utility placement
22. \_\_\_\_\_ Views to preserve or block
23. \_\_\_\_\_ Wants and needs

24. Describe the Public Area (4 points)

25. Describe the Private Area (4 points)

26. Describe the Utility Area (4 points)

27. Describe the Play Area (4 points)

**Match the following items: (2 points each)**

- |                                |   |
|--------------------------------|---|
| 28. _____ Outdoor wall         | d. Defines the upper limits of the outdoor room   |
| 29. _____ Outdoor floor        | e. Few special or highly contrasting flowers  |
| 30. _____ Outdoor ceiling      | f. Landscape uses one species of landscape plants, often round which are spaced equally with noticeable gaps between plants |
| 31. _____ Outdoor Room Concept | g. Materials like grass, ground covers, sand, gravel, or water, brick, concrete, patio blocks, tile.                        |
| 32. _____ Overgrown effect     | h. Plants are trimmed to continuous box shape   |
| 33. _____ Crowded effect       | i. Plants get a regular “haircut”   |
| 34. _____ Clipped effect       | j. Plants too close at time of planting   |
| 35. _____ Unbalanced effect    | k. Plants too large for rooflines or windows  |
| 36. _____ Toy soldier effect   | l. Scattered in and among the other flowers to complete and fill out the design   |
| 37. _____ Hedge effect         | m. Too many plants or larger plants occur on one side or at the end of the planting   |
| 38. _____ Skelton              | n. Extending the indoor rooms to outdoor areas  |
| 39. _____ Tendon               |   |
| 40. _____ Flesh                |   |
| 41. _____ Sparkle              |   |
- a. Chosen for plant form, texture, color or position  
b. Chosen to connect and blend the skeletal flowers, helping to hold together the form of the skeleton  
c. Defines the limits or size of the outdoor room

**42. What are some tips for correct Foundation Plantings? (10 points)**

**43. Circle the following items that are considered “Low-Maintenance Landscape Planning” (2 points each)**

- Use curving lines in the borders
- Keep lawn out of small wedges and acute angles
- Avoid obtuse angles— acute is allowable
- If it can be mowed with a riding lawnmower—without extra trimming
- When lines and forms intersect a square, connect them at right angles--90 degrees
- Landscape the borders of the property— especially the rear garden
- Encourage improper plant selection, spacing and installation
- Trees in own planting bed
- Choose messy fruit drop
- Keep plants separate from grass
- Leave open areas of lawn
- Learn to use weed barrier fabrics, mulches, groundcovers and chemicals to reduce weeds
- Only plant grass where it is needed
- Distinct mowing edge, clean lawn boundary
- Use perennials sparing

# Landscape Planning Quiz Master

Put a (\*) in front of the following items that would be found in a client evaluation.

Put a (✓) in front of the following items that would be found in a base plan.

Put a (♥) in front of the following items that would be found in a bubble diagram.

Put a (→) in front of the following items that would be found in a site analysis.

Put a (□) in front of the following items that would be found in a landscape plan—form composition. (2 points each)

- |            |             |             |
|------------|-------------|-------------|
| <u>1.✓</u> | <u>9.→</u>  | <u>17.→</u> |
| <u>2.✓</u> | <u>10.→</u> | <u>18.♥</u> |
| <u>3.→</u> | <u>11.→</u> | <u>19.→</u> |
| <u>4.□</u> | <u>12.→</u> | <u>20.→</u> |
| <u>5.→</u> | <u>13.→</u> | <u>21.→</u> |
| <u>6.♥</u> | <u>14.□</u> | <u>22.→</u> |
| <u>7.→</u> | <u>15.♥</u> | <u>23.*</u> |
| <u>8.→</u> | <u>16.→</u> |             |

## 24. Describe the Public Area (4 points)

(Entrance area or front yard)

Puts the house into an attractive setting

Enhance architecture

Focus of viewer's attention

Recognize value of home

Identify & provide access to the point of entry

Greatest priority

Not complicated

Front walk to front door

guest parking easy access

Includes:

lawn, foundation plants, walks, and drives/parking

Should not include:

cheap plastic animals, recreation equipment, play equipment, swimming pools

## 25. Describe the Private Area (4 points)

(Living Area or backyard)

Outside extension of the private living area inside the home

Use of plants and/or fences to make private

Open space needed for games, etc.

Include: Deck or patio, area of open lawn, plants that provide an attractive view

may include swimming pool, athletic facilities, barbecue or picnic facilities, trails, view gardens, reflection pools

## 26. Describe the Utility Area (4 points)

(service/work area)

Smallest space possible and still functional

Screen from private area

Locate on driveway side of yard for access

May have two or more locations

Includes: Clothesline, compost bin, Firewood, fuel tanks, garbage containers, garden supplies storage, Greenhouse, pet facilities, tool storage,

utility buildings, vegetable gardens, workshops

## 27. Describe the Play Area (4 points)

May or may not be part of private area

Visible from kitchen

Easy access to rear entry door

Use mulch, fine gravel, or sand

Includes: swings, slides, sandbox, shade trees

Grass warn under play equipment



**Match the following items: (2 points each)**

28. c	33. j	38. a
29. g	34. i	39. b
30. d	35. m	40. l
31. n	36. f	41. e
32. k	37. h	

**42. What are some tips for correct Foundation Plantings? (10 points)**

Focalize the main entrance with noticeable plants	Height not to exceed two-thirds the wall at house corners	Balance the planting with equal “foliage mass.”
Compliment architectural style	Use taller plants on corners	Repeat some of the same plants on each end
Break long continuous lines of the house	Medium-size shrubs for one-story homes; large shrubs for two story or taller.	Use variety in plants—texture, color, form
Avoid competing elements	Use dwarf shrubs or ground covers under windows 4’ or less above ground level.	Mass plants
Select plants		Mature size allowed to touch adjacent plants
Easily be maintained to proper scale with the house		

**43. Circle the following items that are considered “Low-Maintenance Landscape Planning” (2 points each)**

**\* notes which items are not circled**

- Use curving lines in the borders
- Keep lawn out of small wedges and acute angles
- \*Avoid obtuse angles— acute is allowable
- If it can be mowed with a riding lawnmower—without extra trimming
- When lines and forms intersect a square, connect them at right angles--90 degrees
- Landscape the borders of the property—especially the rear garden
- \*Encourage improper plant selection, spacing and installation
- Trees in own planting bed
- \*Choose messy fruit drop
- Keep plants separate from grass
- Leave open areas of lawn
- Learn to use weed barrier fabrics, mulches, groundcovers and chemicals to reduce weeds
- Only plant grass where it is needed
- Distinct mowing edge, clean lawn boundary
- \*Use perennials sparingly

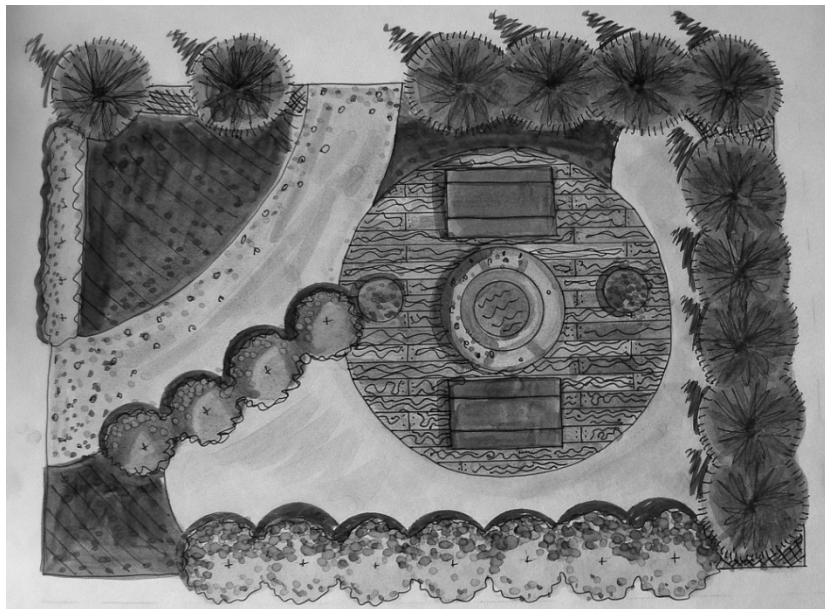
# Coloring Techniques Student Handout

## Coloring the Final Plan

1. Color in basic shapes. One layer of marker.
2. Color in hardscape
3. Color in ground plane
4. Color over shapes to add dimension--use more than one color to layer trees.
5. Draw in lines of trees, beds, and hardscape.
6. Draw in shadows.
7. Add in more detail as needed.

### Marker Coloring Tips:

- Marker bleeds through most paper—but not tracing paper.
- Place tracing paper over final design and color in detail on the tracing paper.
- Don't use the black outlining pen until all of the color is finished. The color markers make the sharpie bleed.
- Base color all the shapes in a light color. Add layers of darker colors on top.
- Have a piece of scratch paper to test colors and combinations on before adding to color design.
- Use a blending marker to blend harsh lines.
- To keep the color from pooling, lift quickly and blend out pools of marker with blending marker.
- Keep a list of markers used to lessen confusion if you have to go back and color a spot again.
- Don't be afraid to use different colors on trees—they don't have to be all green. Purple, blue, or yellow stippling added gives depth.



# Flower Bed Design Student Sheet

## **Designing a Flower Garden:** Steps in Garden designing:

- Choose a configuration--Explosion, Sine curve, C curve, E curve
- Place skeletal flowers on the ground in a triangular shape with three unequal sides along the curved line
- Draw line in soil with shovel or use a hose for the line
- One side of that triangle is then used to form the base of the next triangle of a different size
- Continue pattern throughout the design until it forms the configuration you have chosen
- Configurations that don't work
  - Straight lines, concentric circles, checkerboards, zipper patterns

## **Skeleton**

- Dominance main design principle
- Shown by plant form, texture, color or position
- Qualify a plant as skeletal:
- Strong, tall, vertical (for dominant form)
- Broad and dramatic (for dominant form)
- Coarse texture (for dominant texture)
- Vivid bright blossoms or leaves (for dominant color)
- 10 to 20 % of flowers used in design

## **Tendon**

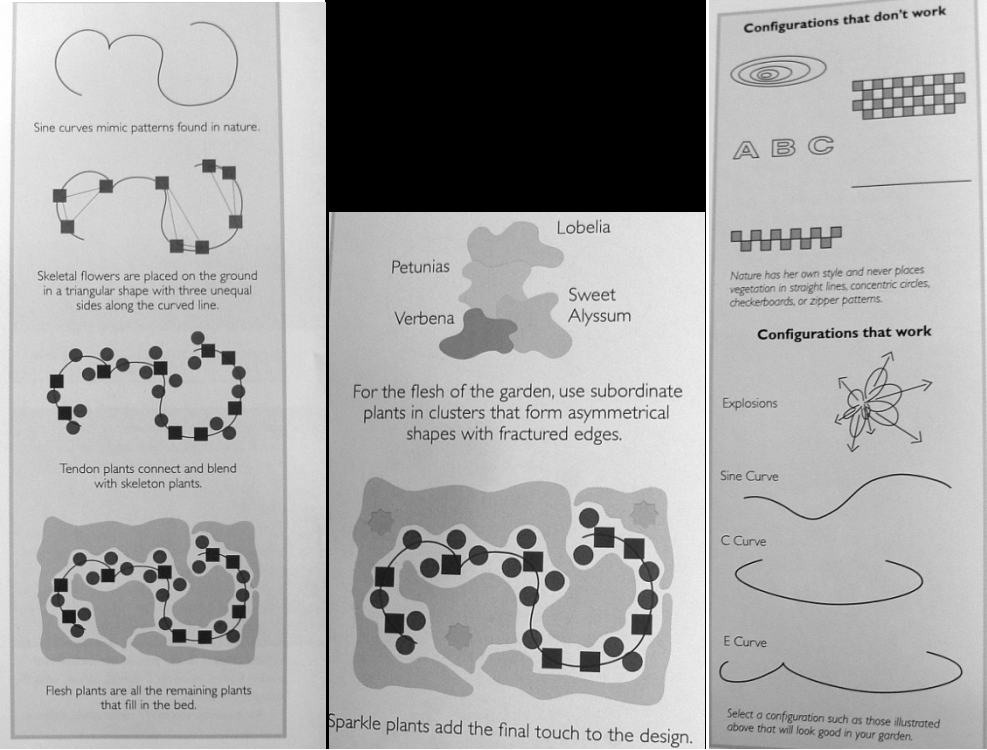
- Positioned after the skeleton plants have been placed
- Chosen to connect and blend the skeletal flowers, helping to hold together the form of the skeleton
- Complement skeleton flowers according to principle you choose
- form might be shorter or less dominant
- texture might be softer or smaller
- color might contrast or complement
- Tendon maintains the configuration line
- Triangles interlock with the skeleton plant triangles along the configuration line
- 10 to 20 % of flowers in the design

## **Flesh**

- More subordinate flowers
- Scattered in and among the other flowers to complete and fill out the design
- Place in clusters that form asymmetrical shapes with fractured edges
- Group together to form clusters around the skeletal and tendon flowers
- creates a shifting mosaic with the groupings of plants
- 60-80% of the number of plants

## **Sparkle**

- Final touch
- Few special or highly contrasting flowers
- Odd-numbered groups of three, five or seven
- Placed randomly



Gates, Christina, Diane Erickson, Shelly Zollinger & Larry Sagers. Temple Square Gardening. Inland Press 2003.

Name \_\_\_\_\_

# Site Analysis Plan Grading Sheet

<p><b>Instructors: rate the students on a scale of 1 to 5 for each of the following Site Analysis Items:</b>            5= present, well planned for            4=present, planned for            3=present            2= present, needs improvement            1= not present            NA=not applicable to this design You will need to fill in the points possible as some items may not be used in all designs.</p>		
<b>Site Analysis Items:</b>	<b>Points Possible:</b>	<b>Points Earned:</b>
Existing vegetation	_____	_____
Tree and shrub condition and placement	_____	_____
Trees on adjoining property	_____	_____
Hardscape	_____	_____
Permanent features	_____	_____
Panoramic views	_____	_____
Concentrated or focused view	_____	_____
Blocked view	_____	_____
Poor drainage	_____	_____
Traffic	_____	_____
City/county ordinances	_____	_____
Noise levels	_____	_____
other distractions--glare or odors	_____	_____
Utility placement	_____	_____
Television cables	_____	_____
telephone cables	_____	_____
water lines	_____	_____

sewage lines septic tank field line	_____	_____
Easements/setback lines	_____	_____
Primary architectural features of the house	_____	_____
House orientation	_____	_____
Soil conditions	_____	_____
Seasonal wind pattern prevailing winds	_____	_____
Note existing wind breaks	_____	_____
Microclimate	_____	_____
Snow removal, pile-up	_____	_____
Other Items to consider on specific Site Analysis:	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
<b>Site Analysis Subtotal:</b>	_____	_____
Late 10%/day:	_____	_____
<b>SITE ANALYSIS TOTAL:</b>	_____	_____



Name \_\_\_\_\_

## Landscape Design Grade Sheet

Landscape Design Item:	Points Possible:	Points Earned:
<b>Drafting Skills:</b>		
House is square	5	
House lines are correct length	5	
Yard lines are correct length	5	
Items labeled correctly	5	
House and borders drawn in Legend	5	
Title Block	20	
Exact scale throughout design	5	
Lettering complete & neat	5	
Lines are dark, smooth, & consistent	5	
Overall neatness throughout design	20	
<b>Drafting Skills Subtotal:</b>	<b>100</b>	+ _____
<b>Principles and Elements:</b>		
Variety in plants and textures	5	
Simplicity evident	5	
Circulation provides ease in movement	5	
Focal points in front & rear garden	5	
Overall design of property balanced	5	
Foliage mass appears balanced	5	
Plants appear massed	5	
Plants repeated throughout design	5	
<b>Principles &amp; Elements Subtotal:</b>	<b>40</b>	+ _____
<b>Design Areas:</b>		
Areas well defined and organized	5	
Entry to residence enhanced	5	
Guest parking provided & appropriate	5	
Plantings in borders of yard	5	

Landscape Design Item:	Points Possible:	Points Earned:
Borders are curving or geometrical	5	
Open areas of lawn	5	
Straight lines avoided	5	
<b>Design Areas Subtotal:</b>	<b>35</b>	+ _____
<b>Low Maintenance Design:</b>		
Avoid acute angles with lawn	5	
Lawn areas can be mowed with riding lawn mower	5	
grass only where it is needed	5	
Distinct mowing edge, clean lawn boundary	5	
Trees--own planting bed	5	
Plant selection--less pruning, pest resistance, fruit drop	5	
90 degree angles when lines or forms intersect at a square	5	
Use of perennials over annuals	5	
<b>Low-maintenance Subtotal:</b>	<b>40</b>	+ _____
Colors consistent with landscape designing	15	
Coloring clean & neat	<b>70</b>	
<b>Coloring Subtotal:</b>	<b>85</b>	+ _____
<b>DESIGN Subtotal:</b>	<b>300</b>	= _____
Late 10%/day -		
<b>DESIGN TOTAL:</b>	<b>300</b>	





## Bubble Diagram Grading Sheet

<b>Instructors: rate the students on a scale of 1 to 5 for each of the following areas:</b> 5=most appropriate use of space 4=used space well 3=used space 2= space needs improved 1= least appropriate use of space NA=not applicable to this design You will need to fill in the points possible as some areas may not be used in all designs.		
<b>Area:</b>	<b>Points earned:</b>	<b>Points possible:</b>
<b>Public area overall</b> Identify point of entry Access to entry Identify guest parking  <b>Subtotal:</b>	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
<b>Private area overall:</b> Deck or patio Open area of lawn Swimming pool Athletic facilities Barbecue Picnic facilities Trails View gardens Reflection pools Privacy plants or fences  <b>Subtotal:</b>	_____ _____ _____ _____ _____ _____ _____ _____ _____ _____	_____ _____ _____ _____ _____ _____ _____ _____ _____ _____
<b>All space designated:</b>  <b>Other specific to this diagram:</b>  <b>Subtotal:</b>	_____  _____  _____	_____  _____  _____

<b>Area:</b>	<b>Points earned:</b>	<b>Points possible:</b>
<b>Play area overall:</b> Visible from kitchen Easy access to rear entry door Swings Slides Sandbox Shade trees  <b>Subtotal:</b>	_____ _____ _____ _____ _____ _____ _____	_____ _____ _____ _____ _____ _____ _____
<b>Utility area overall:</b> Screen from private area Located for access Smallest space, still functional Clothesline Compost bin Firewood Fuel tanks Garbage containers Garden supplies storage Greenhouse Pet facilities Tool storage Utility buildings Vegetable gardens Workshops  <b>Subtotal:</b>	_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____
Bubble Diagram Subtotal:	_____	_____
Late work- 10% / day:	_____	_____
<b>Bubble Diagram Total:</b>	_____	_____

**Agricultural Science and Technology**  
**Landscape Design--Ag 330**  
**Elements and Principles of Landscape Design**

**Unit Objectives**

1. Students will be able to identify and demonstrate the Elements of Landscape Design.
2. Students will be able to identify and demonstrate the Principles of Landscape Design.
3. Students will be able to identify the colors on a color wheel.
4. Students will be able to identify color values: tints, tones, & shades.
5. Students will be able to identify different color harmonies.

**Power Points**

Elements and Principles of Landscape Design  
Color

**Student Handouts**

Elements & Principles of Design Student Sheet  
Elements & Principles Flashcards  
Mandala Student Sheet  
Color Sheet

**Evaluation**

Elements & Principles Quiz  
Elements & Principles Quiz Master

**Interest Approach**

Have the students imagine a day at the beach. They are building a giant sand castle. Let the students help you think of all the items/tools they will need—i.e. buckets, shovels, sand, water, and sticks. Now have them describe how they will go about building-- the first layer of sand, then the towers and mote and whatever else they can think of that goes into building the sand castle. Now explain to them that the elements of designing are like the tools they needed to build the sand castle—the sand, water, buckets, and shovels. The principles are how the pieces are put together—we need a stable foundation before we add a second—then we can add the tower and the mote. The elements are what items were tangibly used to put the castle together; the principles are the “rules” of construction. You may use a different building strategy, but the basis is the same.

## Teaching Content

### Elements of Design

**The elements of design:** the directly observable components, ingredients, and physical characteristics of design.

**Line:** the vital visual path that directs eye movement through a composition.

**Form:** the shape or configuration of an individual component of the composition. The overall, three-dimensional, geometric shape or configuration of a composition.

**Space:** the area in, around, and between the components of the design, defined by the three-dimensional area occupied by the composition.

**Texture:** the surface quality of a material, as perceived by sight or touch.

**Pattern:** a repeated combination of line, form, color, texture, and/or space.

**Size:** the physical dimensions of line, form, or space.

**Color:** the visual response of the eye to reflected rays of light.

### Principles of Design

**Principles of design-**fundamental guidelines to aesthetic design that govern the organization of the elements and materials in accordance with the laws of nature.

**Balance:** a state of equilibrium, actual or visual; a feeling of three-dimensional stability.

**Proportion:** the relationship of one portion to another, or of one portion to the whole.

**Scale:** the relative ratio of size, or the relationship of the size of a composition to the surrounding area or environment.

**Focal area/ focal point:** the area of greatest visual impact or weight; the center of interest to which the eye is most naturally drawn.

**Opposition:** contrast between elements which are counterpoint in relation to each other.

**Simplicity:** elimination of unnecessary detail

**Variation:** dissimilarity among attributes or characteristics.

**Rhythm:** visual movement through a design, usually achieved through repetition or gradation.

**Repetition:** the recurrence of like elements within a composition.

**Transition:** the ease of visual movement with results from gradual degrees of change among one or more of the elements.

**Unity:** oneness of purpose, thought, style, and spirit.

The American Institute of Floral Designers. The AIFD Guide to Floral Design. Terms, Techniques, and Traditions. The Intelvid Group 2005.

### Color

**Color:** the visual response of the eye to reflected rays of light.

**Hue:** the descriptive name of color. Hue defines a specific spot on the color wheel. Hues are pure color without black, white, or gray added to them.

**Value:** the lightness or darkness of a hue, relative to the gray scale, achieved by the addition of black, white, or gray.

**Shade:** a hue which has been darkened by the addition of black. E.g., navy is a shade of blue.

**Tint:** a hue which has been lightened by the addition of white. E.g., pink is a tint of red

**Tone**: a hue which has been muted by the addition of gray, often resulting in a dull or dusty appearance.

**Color wheel**: twelve hour color system which was developed by Louis Prang, an American Printer in 1876.

**Primary colors**: red, yellow, and blue—are spaced equidistantly apart on the color chart and cannot be created by mixing any other colors together.

**Secondary colors**: orange, green and violet—are created by mixing two primary colors and are placed in between primary colors.

**Tertiary colors**: red-orange, red-violet, blue-violet, blue-green, yellow-green, and yellow-orange are situated between primary and secondary colors and are made from mixing the two. Primary color is always listed first with a hyphen in the center of the word.

**Chromatic colors**: colors derived from the visible spectrum and characterized by the presence of both hue and chroma, all colors other than black, white or gray.

**Achromatic colors**: neutral colors which lack hue: white, black, and any values of gray and they do not appear on the color wheel.

**Neutral color**: an achromatic color to which a small amount of hue has been added.

**Advancing colors** (also known as aggressive or warm)-colors that are predominantly composed of red or yellow and seem to visually move forward toward the viewer.

**Receding colors**: (also known as passive or cool)-colors that are predominantly composed of blues or greens. Receding colors seem to visually pull back from the viewer.

**Color harmonies**: groupings of specific hues and/or different values of a hue, resulting in a pleasing or useful combination. Color harmonies may display different values of the given hue and still be (i.e. pink and mint green) considered complementary color harmony. White, black and gray –being achromatic, can be legitimately included in any color harmony without disrupting it.

**Achromatic color harmony**: a grouping of colors without hue; white, black, and any values of gray.

**Monochromatic color harmony**: a grouping of different values of one hue, and which may include achromatic colors. An example would be a color scheme using pink (red+white), mauve (red+gray), red, burgundy (red+black), and/or black, white or gray.

**Analogous color harmony**: a color harmony featuring adjacent hues on the color wheel, incorporating no more than one primary color. The group of adjacent colors forms an angle of up to 90 degrees on the color wheel. One color usually dominates. The most realistic depiction of colors as they occur in nature as well as interior environments, also one of the most harmonious and pleasing of all. An example of an analogous color scheme would be using green, blue-green, and yellow-green, with green dominating.

**Complementary color harmony**: a pair of hues directly opposite each other on the color wheel. Some examples would be red and green, violet and yellow, or blue and orange. Many schools select their colors from a complementary color harmony.

**Split complementary color harmony**: a trio of hues, consisting of a hue and the two hues on either side of its direct complement. An example would be violet with yellow-orange, and yellow-green. Many restaurants use a split-complementary color scheme.

**Triadic color harmony**: a grouping of three hues which are equidistant on the color wheel. An example would be the primary colors red, blue and yellow. An interesting triadic color harmony used often in baby designing would be pink, baby blue, and soft yellow. Changing the value does not change the color harmony.

**Tetradic color harmony**: a grouping of four hues which are equidistant on the color wheel.

**Polychromatic color harmony**: a multicolored grouping of many hues which may otherwise be unrelated.

The American Institute of Floral Designers. The AIFD Guide to Floral Design. Terms, Techniques, and Traditions. The Intelvid Group 2005.

### **Student Activities**

1. Elements and Principles School Grounds Observation

Take your students on an observation hike around the school campus, or greenhouse. Have them evaluate their surroundings according to the elements and principles around them. Have them also observe color harmonies. They may find these in posters on the wall, school colors, clothing, tiles, etc. Give them a few minutes to find the elements, principles and color harmonies and then meet back together as a class to discuss what they found. If it isn't possible to leave the classroom, take a moment to have the students identify different elements, principles and color harmonies in class.

2. Elements and Principles Class Discussion

Make flashcards that are provided. Hand out one card to each student. Have students view an art piece or a landscape design from ppt. Go around the classroom and have the students share what they see as pertaining to the element or principle. Switch to a different slide and have the students trade cards with each other and start evaluation again. This will help the students prepare for the next activity.

**Equipment:**

*Elements & Principles Flashcards*

3. Elements and Principles Art Evaluation

Students will need to gather pictures of 2 landscape designs, one art piece, and one advertisement out of magazines or internet site. Instructors may change the required evaluation criteria. Students will evaluate the piece according to the elements and principles displayed in the picture. Students will write what it is about the picture that displays the element or principle in the corresponding table. Teachers may want to evaluate one piece as a class.

**Equipment:**

*Elements & Principles Student Sheet*

4. Color a Mandala

Mandalas have spiritual significance to Buddhist Monks who developed them. They believe that a realigning of the spirit and body can be achieved by creating a mandala. Mandalas are usually circular with some type of center point signifying deity. The mandala is often divided into twelve equal parts--which makes it perfect for creating a color wheel. Have students fill in each of the twelve parts of the color wheel by coloring a mandala. Additional study may be made by researching mandala history, uses, etc. You may have the students cut out their mandala and laminated it for them. They will then have a color wheel to refer to during the rest of the course. Students may color the mandala with hues, tints, tones, and shades.

**Equipment:**

Packages of 24 Crayola Crayons—these include all of the tertiary colors  
*Mandala Student Sheet*

**References**

Booth, Norman K. & Hiss, James E. Residential Landscape Architecture—Design Process for the Private Residence. Third Edition. Prentice Hall 2002.

Hunter, Norah T., The Art of Floral Design Second Edition Delmar 2000.

The American Institute of Floral Designers. The AIFD Guide to Floral Design. Terms, Techniques, and Traditions. The Intelvid Group 2005.

**Resources**

CAERT Curriculum. 2005 Unit B. Floriculture. Problem Area 2--Floral Design. Lesson 3 & 4. Understanding the Principles of Design & Understanding the Design Elements

**LINE**

**PATTERN**

**FORM**

**SIZE**

**SPACE**

**COLOR**

**TEXTURE**

**UNITY**

BALANCE	SIMPLICITY
PROPORTION	REPETITION
RHYTHM	FOCAL POINT
TRANSITION	OPPOSITION
SCALE	VARIATION



Name \_\_\_\_\_

Date \_\_\_\_\_

**Landscape Design  
Elements and Principles Quiz**

**58 points**

**Match the following terms with their definitions:**

**(2 points each)**

- |                               |                                   |
|-------------------------------|-----------------------------------|
| 1. Elements of design _____   | 11. Proportion _____              |
| 2. Line _____                 | 12. Scale _____                   |
| 3. Form _____                 | 13. Focal area/ focal point _____ |
| 4. Space _____                | 14. Opposition _____              |
| 5. Texture _____              | 15. Simplicity _____              |
| 6. Pattern _____              | 16. Variation _____               |
| 7. Size _____                 | 17. Rhythm _____                  |
| 8. Color _____                | 18. Repetition _____              |
| 9. Principles of design _____ | 19. Transition _____              |
| 10. Balance _____             | 20. Unity _____                   |

- a. the physical dimensions of line, form, or space.
- b. The vital visual path that directs eye movement through a composition
- c. the visual response of the eye to reflected rays of light.
- d. the shape or configuration of an individual component of the composition. The overall, three-dimensional, geometric shape or configuration of a composition.
- e. the surface quality of a material, as perceived by sight or touch.
- f. a repeated combination of line, form, color, texture, and/or space.
- g. the area in, around, and between the components of the design, defined by the three-dimensional area occupied by the composition.
- h. the directly observable components, ingredients, and physical characteristics of design.
- i. the recurrence of like elements within a composition.
- j. the relative ratio of size, or the relationship of the size of a composition to the surrounding area or environment.
- k. oneness of purpose, thought, style, and spirit.
- l. contrast between elements which are counterpoint in relation to each other
- m. the area of greatest visual impact or weight; the center of interest to which the eye is most naturally drawn.
- n. the relationship of one portion to another, or of one portion to the whole.
- o. fundamental guidelines to aesthetic design that govern the organization of the elements and materials in accordance with the laws of nature.
- p. dissimilarity among attributes or characteristics.
- q. visual movement through a design, usually achieved through repetition or gradation.
- r. a state of equilibrium, actual or visual; a feeling of three-dimensional stability.
- s. the ease of visual movement with results from gradual degrees of change among one or more of the elements.
- t. elimination of unnecessary detail

**Matching:**

**Match the following color terms with their correct definition:**

**(2 points each)**

21. Color \_\_\_\_\_

22. Hue \_\_\_\_\_

23. Value \_\_\_\_\_

24. Shade \_\_\_\_\_

25. Tint \_\_\_\_\_

26. Tone \_\_\_\_\_

27. Color wheel \_\_\_\_\_

28. Chromatic colors \_\_\_\_\_

29. Achromatic colors \_\_\_\_\_

30. Advancing colors \_\_\_\_\_

31. Louis Prang \_\_\_\_\_

32. Neutral colors \_\_\_\_\_

33. Receding colors \_\_\_\_\_

- a. twelve hour color system developed in 1876.
- b. all colors other than black, white or gray.
- c. known as passive or cool colors
- d. white, black, and gray--which do not appear on the color wheel.
- e. an achromatic color to which a small amount of hue has been added.
- f. known as aggressive or warm colors.
- g. an American Printer who developed the color wheel.
- h. descriptive name of color which defines a spot on the color wheel.
- i. a hue which has been lightened by the addition of white.
- j. the visual response of the eye to reflected rays of light.
- k. a hue which has been darkened by the addition of black.
- l. a hue which has been muted by the addition of gray.
- m. the lightness or darkness of a hue.

**34. Using the color wheel, give an example of the following color harmonies: (3 points each) Each example should have the colors listed which will be used.**

Achromatic color harmony

Monochromatic color harmony

Analogous color harmony

Complementary color harmony

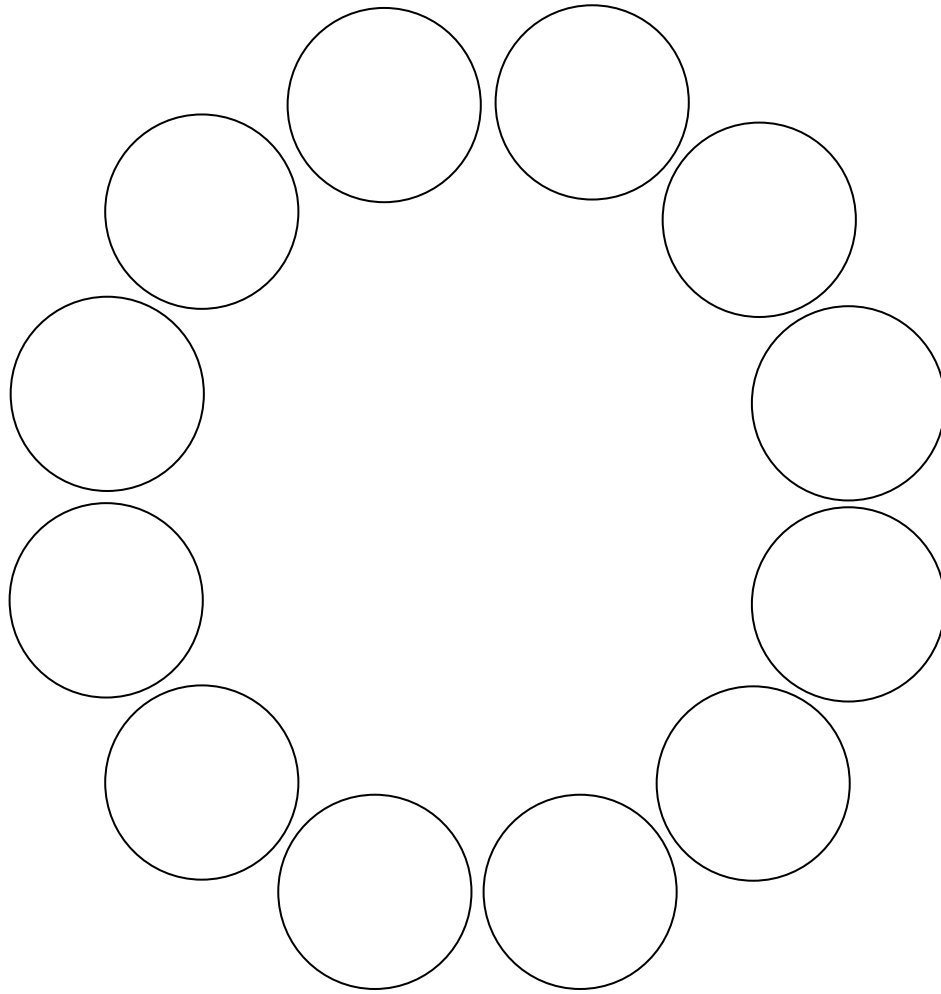
Split complementary color harmony

Triadic color harmony

Tetradic color harmony

Polychromatic color harmony

**35. Fill in the following color wheel. Label each hue as P-primary, S-secondary, or T-tertiary. (3 points each)**

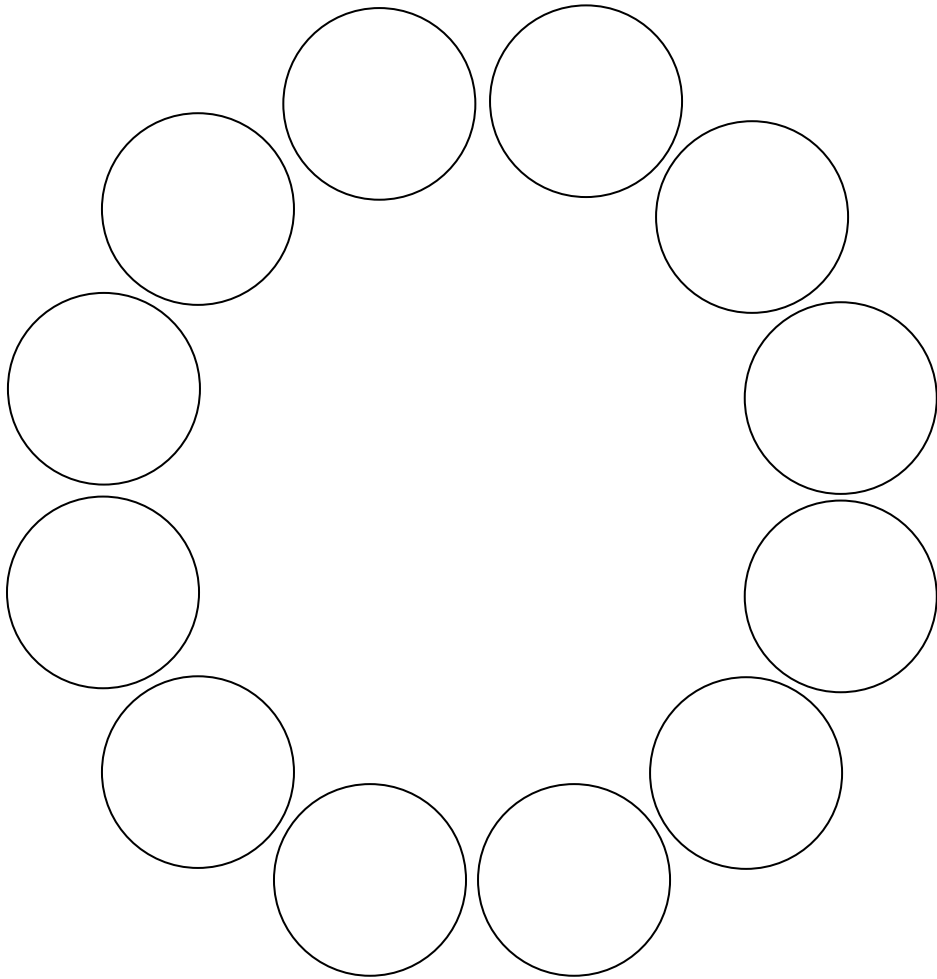


## Principles and Elements of Landscape Design Quiz Master

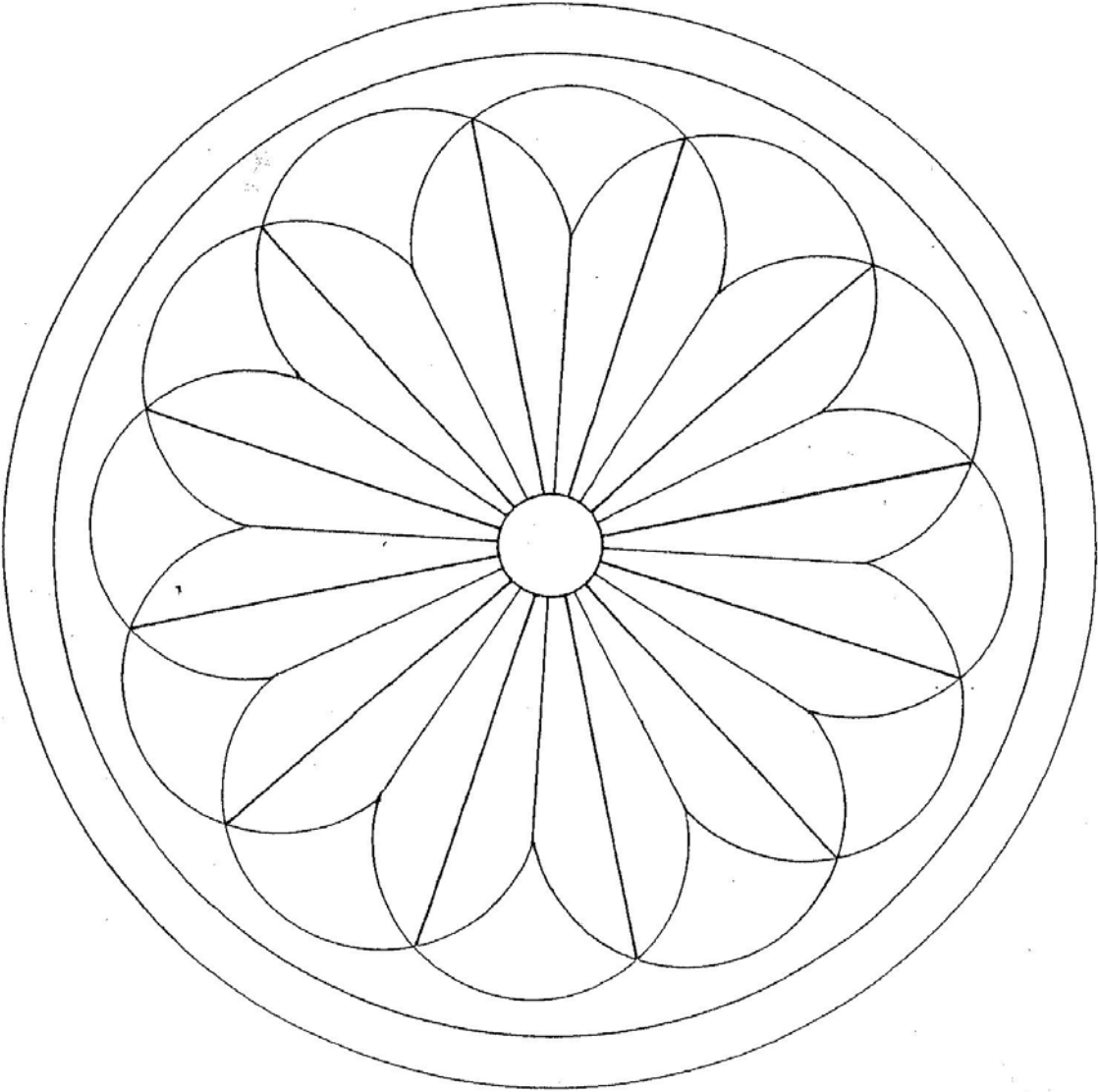
1. Elements of design h
2. Line b
3. Form d
4. Space g
5. Texture e
6. Pattern f
7. Size a
8. Color c
9. Principles of design o
10. Balance r
11. Proportion n
12. Scale j
13. Focal area m
14. Opposition l
15. Simplicity t
16. Variation p
17. Rhythm q
18. Repetition i
19. Transition s
20. Unity k
21. Color j
22. Hue h
23. Value m
24. Shade k
25. Tint i
26. Tone l
27. Color wheel a
28. Chromatic colors b
29. Achromatic colors d
30. Advancing colors f
31. Louis Prang g
32. Neutral colors e
33. Receding colors c
34. Answers will vary
35. See color wheel to check

Name \_\_\_\_\_

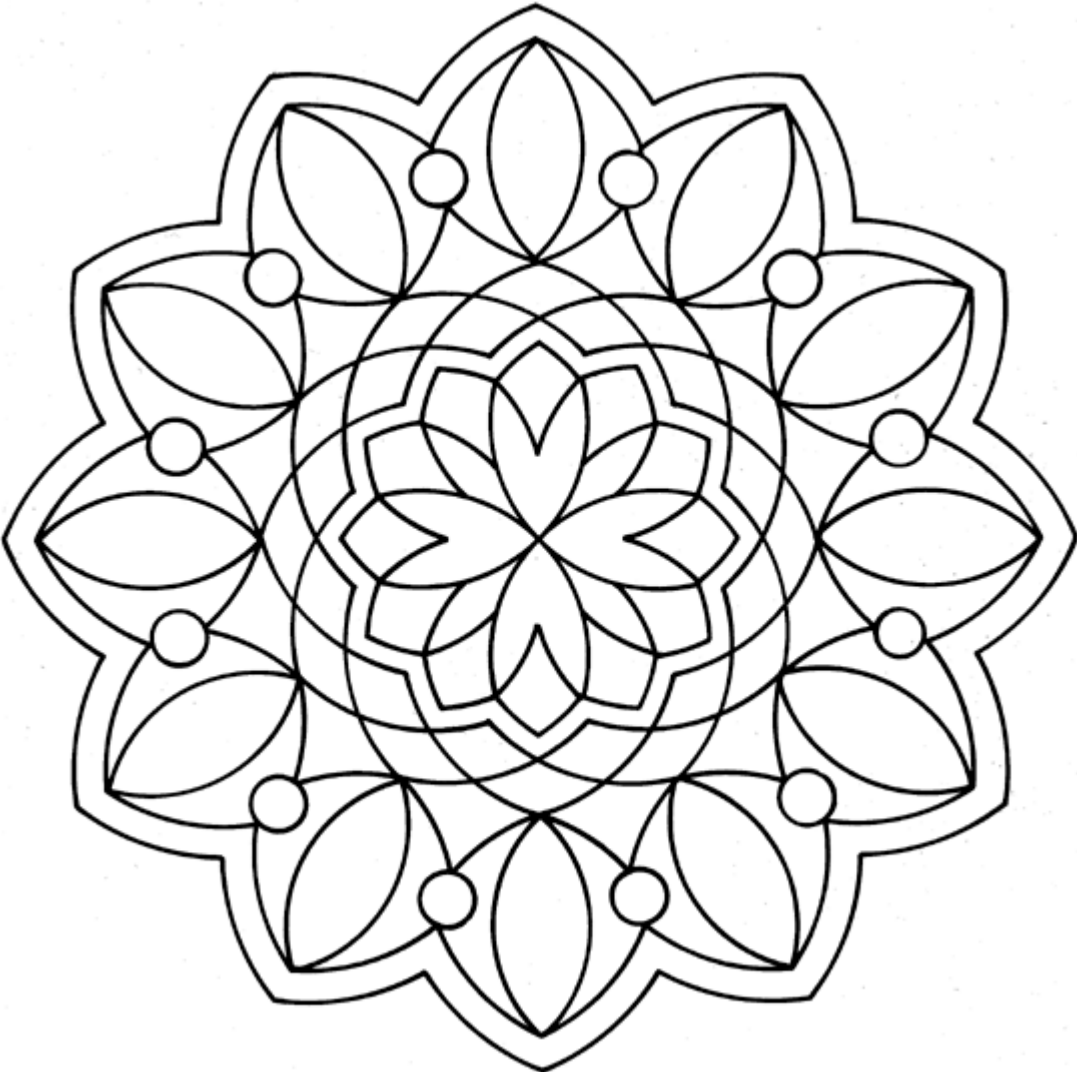
# Color Sheet



Mandala Student Sheet



Mandala Student Sheet



Name \_\_\_\_\_

**Landscape Design Ag 330**  
**Elements and Principles of Design Assignment Sheet**

Evaluate two landscape designs, one art piece, and one advertisement. Write which part of the design conveys the specific element or principle. For example, if the trees in a design show a nice vertical line, write trees in the box.

<u>Elements</u>	<u>Landscape Design</u>	<u>Landscape Design</u>	<u>Art Piece</u>	<u>Advertisement</u>
<b>Line</b>				
<b>Form</b>				
<b>Space</b>				
<b>Texture</b>				
<b>Pattern</b>				
<b>Size</b>				
<b>Color</b>				

<u>Principles</u>				
<b>Balance</b>				
<b>Proportion</b>				
<b>Focal point</b>				
<b>Scale</b>				
<b>Opposition</b>				
<b>Simplicity</b>				
<b>Variation</b>				
<b>Rhythm</b>				
<b>Repetition</b>				
<b>Transition</b>				
<b>Unity</b>				



**Agricultural Science and Technology**  
**Landscape Design-Ag 330**  
**Nursery/Landscape Equipment & Supplies Identification**

**Unit Objectives**

1. Students will be able to properly identify nursery equipment and supplies.
2. Students will be able to identify appropriate uses for nursery equipment and supplies.
3. Students will compare nursery equipment and supplies to find the similarities and differences.
4. Students will be able to determine if nursery equipment and supplies are readily available in their area.

**Power Point**

Nursery Equipment & Supplies Identification

**Student Handout**

Nursery Equipment & Supplies Observation Sheet

Nursery Equipment & Supplies Comparison Student Sheet

**Evaluation**

Nursery Equipment & Supplies Identification Quiz ppt.

**Interest Approach**

Assign the students a job using incorrect tools such as eating a yogurt or pudding with a pencil or ruler, knife or fork. Then let the students use the correct tool, in this case a spoon. You may wish to build a peanut butter and jelly sandwich instead. Timing the event would make it more interesting—first using inappropriate tools, then appropriate ones. Use this demonstration to lead into nursery equipments and supplies identification and appropriate uses for each.

**Student Activities**

1. Nursery Equipment & Supplies Identification

Where possible have a class set of each nursery equipment and supplies. Share appropriate uses with the students. Allow students to experiment using tools. Observe safety regulations.

**Equipment:**

Nursery Equipment & Supplies available at your school

2. Nursery Equipment & Supplies Comparison

Students will compare different nursery equipment & supplies to learn the similarities and differences between them.

**Equipment:**

*Equipment & Supplies Comparison Student Sheet*

### 3. Garden Supply Store

Send students to a garden supply store. Have them observe which equipment and supplies are readily available. Have students fill in the Nursery Equipment & Supplies Observation Sheet.

#### **Equipment:**

#### *Nursery Equipment & Supplies Observation Sheet*

#### **Resources**

Sites that have power point presentations with--  
Nursery Equipment & Supplies Identification:

Okstate.edu

Gaaged.org

#### **References**

1.bp.blogspot.com	freplants.com	plantpropagation.com
1.zoysiafarms.com	furniture.lovetoknow.com	plumbersurplus.com
2.bp.blogspot.com	gardening-tools-direct.co.uk	portable-electric-power-
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ecx.images-amazon.com	montrosesupply.com	wikipedia.com
eijkelkamp.com	northernrntool.com/	wilkinsonplus.com
emeraldseedandsupply.com	ohioline.osu.edu	williamthecoroner.files.wordpress.c
farmtek.com	okstate.edu	om
fivenonblondes.files.wordpress.com	oregonwireproducts.com	wise4living.com
free-background-wallpaper.com	otteruk.com	

Name \_\_\_\_\_

Landscape Design Ag 330

**Nursery Equipment & Supplies Observation Sheet**

Observe as many sources as possible to find the following nursery equipment and supplies. Determine the use of the items. Have a manager or sales clerk sign the next sheet as verification.

<b>Item</b>	<b>Use</b>	<b>Store</b>	<b>Item</b>	<b>Use</b>	<b>Store</b>
Anvil-and-blade pruner			Garden (spading) fork		
Architect's scale			Garden (bow) rake		
Ball cart (B&B truck)			Gas mask		
Bark mulch			Grafting band		
Bark medium			Grafting tool		
Bow saw			Granular fertilizer		
Brick paver			Gravity (drop) spreader		
Broadcast (cyclone) spreader			Grass shears		
Bubbler head, irrigation			Ground/pelleted limestone		
Bulb planter			Hearing protection		
Burlap			Hedge shears		
Chaps			Hoe		
Compressed air sprayer			Hook-and-blade pruners		
Core aerifier			Hose-end repair footing		
Chain saw			Hose-end sprayer		
Cut-off machine			Hose-end washer		
Drip emitter, irrigation			Hose repair coupling		
Dry-lock wall block			Impulse sprinkler		
Duster			Landscape fabric		
Dust mask			Leaf rake		
Edger (power or hand)			Loppers		
Edging			Mattock		
Engineer's scale			Measuring wheel		
Erosion netting			Mist nozzle (mist bed)		
Fertilizer tablet			Mower blade balancer		
Galvanized pipe			Nursery container		

<b>Item</b>	<b>Use</b>	<b>Store</b>	<b>Item</b>	<b>Use</b>	<b>Store</b>
Oscillating sprinkler			Planting/earth/soil auger		
Peat moss			Planting bar		
Pick axe			Pole pruner		
Polyethylene film			Siphon proportioner		
Polyethylene pipe			Soaker hose		
Pop-up irrigation head			Soil sampling tube		
Post-hole digger			Solenoid valve		
Power blower			Spade		
Power hedge trimmer			Spark plug gap gauge		
Pot-in-pot units			Sphagnum moss		
Propagation mat			Spray suit		
Pruning saw			Square point (flat) shovel		
PVC (polyvinylchloride) pipe			String trimmer		
Reel mower			Tape measure		
Resin-coated fertilizer			Timeclock		
Respirator			Topsoil		
Rotary mower			Tree caliper		
Rototiller			Tree wrap		
Round point shovel			Trowel		
Safety goggles			T-square		
Sand			Vermiculite		
Scoop shovel			Vertical mower		
Shade fabric			Water breaker		
Sharpening stone			Wire tree basket		

Signatures of sales clerks:

Store :

Clerk:

Name \_\_\_\_\_

Landscape Design Ag 330

### Nursery Equipment & Supplies Comparison Sheet

Compare the following Nursery Equipment & Supplies and determine similarities & differences.

SIMILARITIES:	ITEMS:	DIFFERENCES:
	Bubbler head, irrigation Drip emitter, irrigation Pop-up irrigation head	
	Impulse sprinkler Oscillating sprinkler	
	Mist nozzle (mist bed) Soaker hose Water breaker	
	Siphon proportioner Solenoid valve	
	Hose-end repair footing Hose-end washer Hose repair coupling	
	Power blower Duster	
	Bark mulch Bark medium	
	Peat moss Sphagnum moss Vermiculite	
	Sand Topsoil	
	Hedge shears Power hedge trimmer Grass shears	
	Pole pruner Bow saw Pruning saw	

	<p>Square point (flat) shovel          Spade          Trowel          Scoop shovel          Round point shovel</p>	
	<p>Reel mower          Rotary mower          Vertical mower</p>	
	<p>Ground/pelleted limestone          Resin-coated fertilizer          Granular fertilizer          Fertilizer tablet</p>	
	<p>Chain saw          Cut-off machine</p>	
	<p>Erosion netting          Burlap</p>	
	<p>Galvanized pipe          PVC (polyvinylchloride) pipe          Polyethylene pipe</p>	
	<p>Architect's scale          Engineer's scale          T-square</p>	
	<p>Grafting band          Tree wrap</p>	
	<p>Anvil-and-blade pruner          Hook-and-blade pruners          Loppers</p>	
	<p>String trimmer          Edger (power or hand)</p>	
	<p>Garden (spading) fork          Hoe          Post-hole digger</p>	
	<p>Mower blade balancer          Spark plug gap gauge</p>	
	<p>Rototiller          Core aerifier</p>	
	<p>Mattock          Pick axe</p>	

	Measuring wheel Tape measure Tree caliper Timeclock	
	Garden (bow) rake Leaf rake	
	Propagation mat Pot-in-pot units	
	Wire tree basket Nursery container	
	Edging Dry-lock wall block	
	Bulb planter Planting bar Planting/earth/soil auger Soil sampling tube	
	Dust mask Gas mask Respirator	
	Compressed air sprayer Hose-end sprayer	
	Safety goggles Hearing protection	
	Chaps Spray suit	
	Shade fabric Landscape fabric Polyethylene film	
	Grafting tool Ball cart (B&B truck)	
	Gravity (drop) spreader Broadcast (cyclone) spreader	
	Brick paver Sharpening stone	

**Agricultural Science and Technology**  
**Landscape Design-Ag 330**  
**Installing a Landscape Design**

**Unit Objectives**

1. Students will be able to describe how to plant several different kinds of trees.
2. Students will be able to complete a design model to scale of their landscape plan.
3. Students will be able to prepare a bill of materials for a landscape design.
4. Students will be able to determine the benefits of sod vs. seeding a lawn.
5. Students will be able to learn how to install a hardscape.

**Power Point**

Installing a Landscape Design

**Student Handout**

Bill of materials

Tree Planting Student Sheet

**Evaluation**

Tree Planting Master

Model Grading Sheet

**Interest Approach**

Help the students imagine a fairy tale landscape where plants are placed correctly and all is beautiful. Now help them imagine a landscape where trees are falling over, plants are dying and all is in chaos. Help them understand why it is so important to install landscapes correctly.

**Student Activities**

1. Planting a tree

Have students observe the following internet videos in class:

Planting videos

- Tree planting techniques
- Planting bare root trees
- Balled and burlapped
- Planting containerized trees

[arborday.org/trees/video/howtoplant/cfm](http://arborday.org/trees/video/howtoplant/cfm)

2. Landscape Design Model

This assignment allows students to “install” a landscape that they have created. You may have opportunity to landscape a client’s yard in this class, but lacking time and money, this assignment is a great substitute. Have students build a landscape design model out of a design they have already drawn. It is helpful to make a copy of their design and glue it to a base cardboard. This only works if they stay in the same scale as their drawing. I have found that students like to work in a larger scale for the model than they used for drawing. You may decide to have students choose a smaller section of their design to build their model. They may choose a key section such as a



flower bed or water feature. This uses less material and saves time, depending on what resources you have. Detail may then be added in the form of hardscape etc. Have them follow the patterns for grass—felt or they may spray paint their cardboard with green paint. They may glue the trees and flowers into the floral foam. They will be very creative. You may encourage students to provide their own materials or charge a class fee and purchase the items yourself. Examples are included in the Installing a landscape Design ppt. As students complete this activity, you may wish to take pictures and add them to your ppt.

**Suggested Equipment & Supplies:**

Glue gun & glue  
Scissors  
Knife  
Little colored candy or candy sprinkles--shrubs and flowers  
Floral foam for hills or contours  
Pinecones sprayed green for needle trees  
Dried plant material for deciduous trees  
Peat moss for mulch  
Felt for grass  
Matte board for stairs  
Water--Hot glue and blue paper (gum wrappers)  
Small rocks—boulders and borders  
Spray paint—shades of green  
Graham or other crackers and frosting for flagstone walkway  
Pretzel sticks for fences

Landscape Design Model Variations:

1. Have the students make a complete model out of modeling clay.
  2. Have the students make a complete model out of all edible materials—such as a gingerbread house.
  3. Use plants from your greenhouse to plant a miniature landscape model with real plants. You may plant them in a seed germination flat, add hardscape, trees, shrubs, etc.
3. Bill of materials  
Have the students determine the cost of installing the landscape they designed. You may choose to have them estimate one portion of the landscape design. Goods may be researched on line or locally. Labor usually doubles the cost of materials. Tax will need to be determined. Tax will be charged when items are purchased with a business license.
4. Seeding Vs. Sod Activity  
Have students calculate how much sod will be needed for a yard. Students could measure any space and have them calculate how much sod will be needed. They may use a plan they have drawn or another plan. Examples of areas to measure include: a parking lot, grass lot, school shop, etc. Sod costs 8-30 cents per square foot depending on variety and quality bought. A lawn with small areas, odd shapes or

steep grade will cost more. A lawn of 2000 square feet would cost between \$160-\$600. Labor usually doubles the cost. Seed will cost approximately \$2 per pound. 1 lb covers 200 square feet. A 5,000 square foot lawn would cost approx \$40.00.

**Equipment:**

Measuring tape

Calculator

5. Hardscape

Build a frame 4x4 and have the students practice laying bricks or pavers in this space.

Search the following references for details on how to install hardscapes:

Install a retaining wall—[dakotahardscapesupply.com/diyretain.html](http://dakotahardscapesupply.com/diyretain.html)

Install a stone patio or walkway—[dakotahardscapesupply.com/diypatio.html](http://dakotahardscapesupply.com/diypatio.html)

Install pavers—[barkmanhardscapes.com/](http://barkmanhardscapes.com/)

Irrigation installation—[doityourself.com/strylh2installsprinkler](http://doityourself.com/strylh2installsprinkler)

[Irrigaiontutorials.com/](http://Irrigaiontutorials.com/)

[Lawnbeltusa.com/design.htm](http://Lawnbeltusa.com/design.htm)

**References**

[Arborday.org](http://Arborday.org)

Name \_\_\_\_\_

## Landscape Installation Model Grading Sheet

<b>Model Grading Items:</b>	<b>Points Possible:</b>	<b>Points Earned:</b>
Installed to scale	25	
Clean edges	25	
Appropriate materials	25	
Creativity	50	
Present to class	25	
<b>Model Subtotal:</b>	<b>150</b>	
Late 10%/day		
<b>MODEL INSTALLATION SUBTOTAL:</b>	<b>150</b>	

**Instructor Comments:**

Name \_\_\_\_\_

## Bill of Materials Student Sheet

Item	Quantity	Price/ea.	Total
<b>Total Materials=</b>			_____
If you purchase items without paying tax, you will need to charge tax and report earnings to the Idaho State Tax Commission			
<b>Total Tax =</b> (Materials Total x .06%)			_____
usually doubles cost of materials <b>Labor Cost=</b> (Total Materials x 2) You don't need to charge tax on labor.			_____
<b>TOTAL=</b>			_____
(Materials + Labor+ Tax)			_____

Name \_\_\_\_\_

# Tree Planting Guide Student Sheet Master

Launch the tree planting guide found at--[arborday.org/trees/video/howtoplant/cfm](http://arborday.org/trees/video/howtoplant/cfm)

## Tree Planting Techniques

1. Why does a tree need to be planted correctly?

Healthy and strong

2. What are some considerations before planting a tree?

Safe to plant it

If in town permit

Not underground or overhead utility wires

Hazard as they grow such as maples, pines, oaks tangled in wires

3. If you plant a tree correctly, it can grow TWICE as fast and live TWICE as long as a poorly planted tree.

## Planting bare root trees

4. What are 5 of the steps to planting a bare root tree?

Remove packing materials from roots

Keep tree roots moist at all times

Tamp with original soil

Soak water 3-6 hours

Keep roots covered with burlap or newspaper or any other moisture holding material

Remove air pockets

Dig hole wider than seems necessary so roots can spread

Position tree in center of hole or mulch

Don't fill with peat or soil amendments—they will discourage from spreading

Clear grass 3 feet radius of planting site

Support tree

Make a nice water basin around tree

Rotor till to turn bare soil or turn soil

Plant so root collar is above the ground

Give a good watering

Mulch with wood chips or mulch

5. What is a root collar?

Bulge right above roots

## Balled and Burlapped

6. What shape is the container?

Saucer shaped

7. How big should the hole for planting a tree be?

2 to 3 times as wide and 10-12 inches deep

8. What are 5 of the steps to planting a balled and burlapped tree?

Sides of hole slope

If moving, support the root ball and don't move by the trunk alone

Cut upside of wire basket vertically and peel away

Don't disturb soil at bottom

Measure for proper depth

Remove all burlap, nails, twine, and rope

Set tree in center of hole

Don't plant too deep

Fold burlap back and cut away loose material

No air pockets

Give good watering

Make sure tree is straight

Soil just below root collar

Mulch

Firmly pack soil around rootball

9. When is it okay to leave burlap below the rootball? if not treated or vinyl

### Containerized trees

10. What are five of the steps to planting containerized trees?

Remove tree

Don't plant too deep

Build a water holding basin around trunk

Keep soil intact

Support tree in straight position

Tap sides and bottom

Firmly pack original soil around roots

Slide tree from container

Make sure no air pockets as backfilling just below root collar

Place tree in middle of hole

11. Why shouldn't you yank on the trunk of a tree? Don't try to remove by yanking on trunk—separate roots from tree

12. What does it mean if a tree is rootbound? roots circle the rootball

13. What should you do if a tree is rootbound? If so, cut x on bottom of root ball with sharp knife and 4 vertical slices on sides to encourage outward growth of roots

14. What does the video say about watering a tree? Water well once a week for a slow hour trickle—won't drown tree

15. Why should you remove all labels on a tree? Remove all labels—affect tree as it grows

16. What parts of a new tree should you prune? Prune only broken, dead or rubbing branches, make sure leader doesn't compete with other branches

17. What is the proper mulching technique? Mulch with wood chips or shredded bark 3 ft circle 2 inches deep.

Name \_\_\_\_\_

## **Tree Planting Guide Student Sheet**

Launch the tree planting guide found at--[arborday.org/trees/video/howtoplant/cfm](http://arborday.org/trees/video/howtoplant/cfm)

### **Tree Planting Techniques**

1. Why does a tree need to be planted correctly?
2. What are some considerations before planting a tree?
3. If you plant a tree correctly, it can grow \_\_\_\_\_ as fast and live \_\_\_\_\_ as long as a poorly planted tree.

### **Planting Bare Root Trees**

4. What are 5 of the steps to planting a bare root tree?
5. What is a root collar?

### **Balled and Burlapped**

6. What shape is the container?
7. How big should the hole for planting a tree be?

8. What are 5 of the steps to planting a balled and burlapped tree?

9. When is it okay to leave burlap below the rootball?

### **Containerized Trees**

10. What are five of the steps to planting containerized trees?

11. Why shouldn't you yank on the trunk of a tree?

12. What does it mean if a tree is rootbound?

13. What should you do if a tree is rootbound?

14. What does the video say about watering a tree?

15. Why should you remove all labels on a tree?

16. What parts of a new tree should you prune?

17. What is the proper mulching technique?



**Agricultural Science and Technology**  
**Landscape Design-Ag 330**  
**Landscape Maintenance**

**Unit Objectives**

1. Students will be able to identify design strategies for a low maintenance landscape.
2. Students will be able to list the benefits of trees.
3. Students will be able to identify proper pruning cuts.
4. Students will be able to list the benefits of mulch.
5. Students will be able to determine the amount of water needed in a landscape.
6. Students will be able to list the key elements in weeding a landscape.
7. Students will be able to list the key elements in fertilizing a landscape.

**Power Point**

Landscape Maintenance

**Student Handout**

Lawn Watering Guide

Landscape Design Fertilizer Experiment Assignment Sheet

Fertilizer Experiment Data Collection Sheet

Landscape Design Fertilizer Experiment Grading Sheet

Tree Pruning Animation Student Sheet

**Evaluation**

Landscape Maintenance Quiz

Landscape Maintenance Quiz Master

Tree Pruning Animation Master

**Interest Approach**

Have students list all the benefits of trees they can think of. List them on the board. Refer to the Maintaining a Landscape power point presentation or [arborday.org/trees/benefits.cfm](http://arborday.org/trees/benefits.cfm) for more benefits. Lead a discussion on the benefits of maintaining a landscape design.

**Teaching Content**

**Trees:**

**Where roots really grow**

Grow outward to a diameter 1 to 2 times the height of the tree

Roots lie less than 8 to 12 inches below the surface

Don't grow in compacted soil under paved streets

**Girdling**

Injures the bark of a tree trunk and extends around much of the trunk's circumference

Caused by lawnmowers and weed trimmers

Destroy vital membranes that conduct water and minerals from the roots to the leaves and return the food produced by the leaves to the rest of the tree

**Pruning**

Don't top trees

Never cut main branches back to stubs  
 Weakly attached limbs grow back higher than the original branches  
 New grow is ugly & bushy  
 Starves tree by drastically reducing food making ability  
 Makes tree more susceptible to insects and disease  
 1/3 and 1/4 rules of pruning  
 Never remove more than 1/4 of a trees' crown in a season  
 Try to encourage side branches that form angles that are 1/3 off vertical ( 10:00 or 2:00 positions)  
 Most species—tree should have a single trunk  
 Main side branches should be at least 1/3 smaller than the diameter of the trunk  
 Don't prune up from the bottom any more than 1/3 of the tree's total height  
 How to make a pruning cut

### **Large limbs**

Make a partial cut from beneath  
 Make a second cut from above several inches out and allow the limb to fall  
 Complete the job with a final cut just outside the branch collar

### **Small branches**

Make a sharp clean cut, just beyond a lateral bud or other branch

### **Mulching**

Insulates soil  
 Retains moisture  
 Keeps out weeds  
 Prevents soil compaction  
 Reduces lawnmower damage  
 Add aesthetic touch to yard or street

### **How to mulch**

Pour wood chips or bark pieces 2 to 4 inches within the circle, but not touching the trunk (will rot)

### **Mowing**

Mowing height and mowing frequency determine how nice a lawn looks  
 never cut away more than one-third of the grass blade in any one mowing  
 Ideal Mowing Heights:

Grass type:	Height:
Bahia grass; fescue, tall; blue grama; buffalo grass	2 to 3 inches
Bent grass	1/4 to 1 inch
Bermuda grass, common	3/4 to 1-1/2 inches
Bermuda grass, hybrid	1/2 to 1 inch
Centipede grass; zoysia grass*	1 to 2 inches
Fescue, fine; St. Augustine grass	1-1/2 to 2-1/2 inches
Kentucky bluegrass	1-3/4 to 2-1/2 inches
Ryegrass	1-1/2 to 2 inches

Edging and trimming are the finishing touches of mowing  
 leave clippings on the lawn  
 pieces break down quickly

reduce the amount of fertilizer by as much as 25%  
research has proven that the clippings don't cause thatch to build up

### **Watering**

give your plants enough water without giving them too much water

Watering too little can lead to wilt from which the plant may not recover

watering too much starves the roots of oxygen

Different size and types of plants require different depths and widths.

completely wet the root zone each time you water

root zone—the area in which the plant's feeder roots are concentrated.

The 1-2-3 Rule is an easy way to remember how deep to water:

Grass should be watered to a depth of 10 inches

Water small plants such as groundcovers, cacti, and annuals to a depth of 1 foot.

Water medium plants such as shrubs to a depth of 2 feet.

Water large plants such as trees to a depth of 3 feet.

test watering depth with a soil probe (or a very long screwdriver)

Wait one hour after watering

push the probe into the soil

it will slide easily through wet soil but will be difficult or impossible to push through dry soil

Water your plants and lawn until you can easily slide the probe to the recommended depth.

After plants are established, most water absorbing roots are located near the dripline

beneath the outer edge of the plant's canopy—not close to the trunk or stem

Concentrate your emitters along the dripline of each plant.

The water will spread down and horizontally as it soaks into the soil, reaching the entire root zone.

When plants get more water than they need, they grow more than they should, and will need to have more pruning and mowing.

While fertilizers promote plant growth, they also increase water consumption. Apply the minimum amount of fertilizer needed.

### **Watering tips:**

Thatch in the lawn restricts penetration of water, air and nutrients, and should be removed as soon as possible.

If soil is compacted, aerate (core) to increase water and air penetration  
done only during spring

Properly fertilize

Don't change turf mowing height

Eliminate weeds that compete for moisture

Mulch helps planting beds retain moisture

Use an oscillating sprinkler, or impact-drive revolving sprinkler

Don't use a hand-held hose

Make sure sprinkler system is in good repair

no leaks

heads are properly adjusted to eliminate any overspray

When installing new landscapes, a properly designed and installed irrigation system should be included as a water conservation tool.

Consider water consumption when selecting and placing plants (zoning) .

Water early in the day to avoid loss due to evaporation.

Water slowly for longer periods of time to avoid loss due to run-off.

### **Weeding**

A weed is any plant that grows where it is not wanted

compete with crops for nutrients and water

Weeds and crops can coexist for about 3 weeks before too much competition

convert productive land into unusable scrub

poisonous, distasteful, produce burrs, thorns or other damaging body parts

contaminate harvests

host pests and diseases that can spread to cultivated crops

seeds can lay dormant in the soil for as long as 80-100 years

will germinate if soil is disturbed

can produce as many as 30,000 seeds per plant

Remove weeds before they seed out

### **Herbicides:**

Contact herbicides destroy only that plant tissue in contact with the chemical spray.

fastest acting herbicides

ineffective on perennial plants that are able to re-grow from roots or tubers.

Systemic herbicides are foliar-applied and are translocated through the plant and destroy a greater amount of the plant tissue.

designed to leave no harmful residue in the soil.

Soil-borne herbicides are applied to the soil and are taken up by the roots of the target plant.

Pre-emergent herbicides are applied to the soil and prevent germination or early growth of weed seeds.

### **Organic Weeding Methods:**

Drip irrigation: Rubber hoses bring water to the roots of the desired plants. This limits weed access to water.

Manually: pulling weeds by hand

Mechanical tilling: carefully till weeds around plants

Weed mat: A weed mat is an artificial mulch, fibrous cloth material, bark or newspaper laid on top of the soil preventing weeds from growing to the surface.

### **Fertilizing**

#### **Rates of Application:**

Woody plants--N-P-K ratio between 3-1-1 and 4-1-2 (such as 12-4-4)

Landscape plants--N-P-K ratio of 3-1-2

#### **Timing Fertilizer Treatments:**

once a year is preferable to less frequent applications

twice a year in light sandy soils or in seasons of excess rainfall

best time to fertilize in the northern United States is autumn

after the first hard freeze in October and before the soil freezes in December

next best time prior to growth in early spring

between February and early April

applications may be made up to July 1

after this midsummer date is not recommended--it could delay acclimation to winter weather conditions

#### **Methods of Application:**

soil should be moist at the time of fertilizing to prevent fertilizer injury

Liquid Injection into Soil—injection sites for fertilizer

Drill Hole or Punch Bar--opens of heavy, compacted soils which allow air and fertilizer to penetrate the soil

Surface Application--surface of the ground

Fertilizer Stakes or Spikes--driven into the soil

Foliar Spraying--spraying liquid or water soluble fertilizer on the foliage

Tree Trunk Injection or Implants—holes place in the trunk root flair and infusing with liquid or implants of fertilizer

### **Low-Maintenance Landscape Planning**

#### **Design**

Keep outlines of grass, decks, sidewalks simple

Keep lawn out of small wedges and acute angles

If it can be mowed with a riding lawnmower without a lot of trimming, it is a low maintenance design

#### **Trees and Shrubs**

Own planting bed

Less edging and trimming if not planted in grass

Next to building Placement

Genetically small w/ slow rate of growth

Selection

Little pruning

pest resistance

Avoid messy fruit droppage

#### **Lawn**

Keep plant materials separate from grass

Learn to use weed barrier fabrics, mulches, groundcovers and chemicals to reduce weeds

Only plant grass where it is actually needed

Use edging materials that are impregnable

Bender board, metal or concrete edging

Distinct mowing edge, clean lawn boundary

#### **Flowers**

Use annuals sparingly

Plant every year

Labor and money intensive

Rely more heavily on perennial flowers, ground covers, flowering shrubs & vines

### **Student Activities**

#### 1. Launch the Tree Pruning Guide Animation

The Arbor Day Foundation website [arborday.org](http://arborday.org) has a tree pruning animated guide to help students see pruning guidelines. Use the *Tree Pruning Animation Student Sheet* and *Master*. Guide students through pruning a tree on school grounds. Get permission first.

2. Lawn Watering Guide

Follow the instruction on the *Lawn Watering Guide Student Sheet* and determine the amount of water needed for a school lawn.

**Equipment:**

*Lawn Watering Guide Student Sheet*  
5 cans  
Watering system or sprinklers  
Ruler

3. Weed Id.

Have students study for the Agronomy CDE. They will need to identify weeds and weed seeds.

**Equipment:**

Agronomy weed and seed id

4. Fertilizer Application Experiment

Students will conduct an experiment to determine the best methods to use for applying fertilizer. They will need to come up with an experiment and implement their ideas. Please see student handout. They may conduct an experiment using different types of fertilizers, application, frequency, duration, and amounts. They will write a report on their findings.

**Equipment:**

*Landscape Design Fertilizer Experiment Assignment Sheet*  
*Fertilizer Experiment Data Collection Sheet*  
*Landscape Design Fertilizer Experiment Grading Sheet*  
differs depending on student experiments  
fertilizers  
measuring devices  
plants

**References**

**The Teaching Content came from the following web sites. See Individual Slide for complete URL.**

arborday.org

dummies.com

uri.edu

wateruseitwisely.com

wikipedia.org

wsnla.org

## Landscape Design Fertilizer Experiment Assignment Sheet

---

Names of  
Group Members:

Due Date:

Value: 150 points

---

**REQUIREMENTS:** **RESEARCH** fertilizer application and rate procedures.

**CHOOSE** an experiment that will help you determine optimum conditions for fertilizing plants. You may manipulate the amounts, types, frequency, and duration of fertilizers. You will need to:

**write a HYPOTHESIS**—what you think will happen,

**determine the CONTROL GROUP**--normal conditions—no experiment done

**determine the EXPERIMENTAL GROUP**--manipulated conditions

**collect DATA**—measure results and record on data collection sheet

**assign a TIME LINE**—length of time for experiment—how you will know when your experiment is finished

**determine VARIABLES**—what happened that changed the outcome, and

**write a CONCLUSION**—was your hypothesis correct or incorrect according to data collected.

**REPORT** all of your findings in a typed report—2 pages, double spaced, 12 pt. font. While writing your report, consider the following questions: What were the results of the experiment? Did the experiment turn how you thought it would? Why or Why not? What did you learn about fertilizer? What would you recommend now that the experiment is completed? Complete an extra credit poster of your findings for 25 points.

**EQUIPMENT NEEDED:**

**COMMENTS:** The class will be discussing proper fertilizer. There are many different types of fertilizers and applications. This assignment requires students to gain hands-on experience by conducting an experiment to determine procedures that will provide optimal growing conditions for landscape plants.





NAME \_\_\_\_\_

LANDSCAPE DESIGN

**FERTILIZER EXPERIMENT GRADING SHEET**

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ASSIGNMENT: FERTILIZER EXPERIMENT

DUE DATE:

POINTS: 150 Points

Requirement	Possible Earned
Hypothesis.....	15 _____
Control group .....	10 _____
Experimental group.....	10 _____
Data collection .....	20 _____
<b>Time line.....</b>	<b>10</b> _____
Variables .....	10 _____
Conclusion .....	15 _____
Report (typed, 2 pgs, double spaced, 12 pt. font) .....	30 _____
Grammar/spelling.....	10 _____
Overall.....	10 _____
<b>Sub-Total.....</b>	<b>150</b> _____
Late deductions (10%/day) .....	0 _____
Extra Credit Poster (up to 25) .....	0 _____
<b>Total.....</b>	<b>150</b> _____

## Lawn Watering Guide Student Sheet

Here's a simple way to determine your lawn watering needs:

1. Place five or more flat bottom cans (tuna can) or coffee mugs randomly around your lawn.
2. Turn on your sprinkler(s) for 15 minutes.
3. Measure the depth of the water in each can with a ruler to determine the average water depth in the cans.
4. Refer to the following chart and read the number of minutes you should water, **every third day**. Record times for future reference.

Depth in Cans	Minutes to Water		
	Spring*	Summer*	Fall*
1/8"	30	60	24
1/4"	15	30	12
2/3"	10	20	8
1/2"	7.5	15	6
5/8"	6	12	4.75
3/4"	5	10	4
1"	4	8	3 1/3
1 1/8'	3 1/3	6 2/3	2 1/2

\*Minutes you should water, every third day.

**Reminders:** Use this chart as a guide only, and alter your watering to climatic conditions. Decrease watering times and frequencies during cool and/or humid weather. Skip at least one scheduled watering after any substantial rainfall.

Name \_\_\_\_\_

Landscape Maintenance Quiz

**Circle the statements which are TRUE.**

Each line is worth 2 points. 74 points total.

**Which of the following statements are true about trees?**

Roots lie less than 8 to 12 inches below the surface.

Tree roots grow in compacted soil under paved streets.

**Which of the following statements are true about girdling?**

Girdling may be caused by lawnmowers and weed trimmers.

Girdling destroys vital membranes that conduct water and minerals from the roots to the leaves and return the food produced by the leaves to the rest of the tree.

**Which of the following pruning statements are true about cutting main branches back to stubs?**

Weakly attached limbs grow back higher than the original branches, making new growth ugly & bushy.

Starves the tree by drastically reducing food making ability and makes tree more susceptible to insects and disease.

**Which of the following statements are true about pruning?**

Never remove more than  $\frac{1}{4}$  of a trees' crown in a season.

Most species of trees should have multiple trunks.

**Which of the following statements are true about mulching?**

Insulates soil, retains moisture, keeps out weeds, & prevents soil compaction.

Mulching increases lawnmower damage.

**Which of the following statements are true about mowing?**

Never cut away more than one-third of the grass blade in any one mowing.

Edging and trimming are the finishing touches of mowing.

**Which of the following statements are true about fertilizing?**

Fertilizing once a year is preferable to less frequent applications.

The best time to fertilize in the northern United States is summer.

Soil should be moist at the time of fertilizing to prevent fertilizer injury.

**Which of the following statements are true about watering?**

Watering too little starves the roots of oxygen.

Watering too much may lead to wilt from which the plant may not recover.

Different size and types of plants require different depths and widths.

Completely wet the root zone each watering.

After plants are established, most water absorbing roots are located near the dripline.

While fertilizers promote plant growth, they also increase water consumption. Apply the minimum amount of fertilizer needed.

Use a hand-held hose for optimum watering.

Sprinkler systems in need of repair are properly adjusted to eliminate any overspray.

When installing new landscapes, a properly designed and installed irrigation system should be included as a water conservation tool.

Water at noon to avoid loss due to evaporation.

Water quickly for shorter periods of time to avoid loss due to run-off.

**Which of the following are true about weeding?**

Weeds and crops can coexist for about 3 weeks before too much competition.

Poisonous, distasteful, produce burrs, thorns or other damaging body parts.

Weeds host pests and diseases that can spread to cultivated crops.

Seeds can lay dormant in the soil for as long as 80-100 years.

Weeds can produce as many as 30,000 seeds per plant.

Pre-emergent herbicides are applied to the soil and prevent germination of weed seeds.

Two organic weeding methods are manual and use of a weed mat.

**Which of the statements are true regarding low-maintenance landscape planning?**

Keep lawn out of small wedges and acute angles and only plant grass where it is actually needed.

If it can be mowed with a riding lawnmower without a lot of trimming, it is low maintenance.

Trees and shrubs should have their own planting bed.

Perennial flowers are labor and money intensive.

## Landscape Maintenance Quiz Master

Circle the statements which are **TRUE**. Each line is worth 2 points. 74 points total.

**Instructors: All statements with an asterisk (\*) are false. All others should be circled.**

### **Which of the following statements are true about trees?**

Roots lie less than 8 to 12 inches below the surface.

\*Tree roots grow in compacted soil under paved streets.

### **Which of the following statements are true about girdling?**

Girdling may be caused by lawnmowers and weed trimmers.

Girdling destroys vital membranes that conduct water and minerals from the roots to the leaves and return the food produced by the leaves to the rest of the tree.

### **Which of the following pruning statements are true about cutting main branches back to stubs?**

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\*Most species of trees should have multiple trunks.

### **Which of the following statements are true about mulching?**

Insulates soil, retains moisture, keeps out weeds, & prevents soil compaction.

\*Increases lawnmower damage.

### **Which of the following statements are true about mowing?**

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Completely wet the root zone each watering.

After plants are established, most water absorbing roots are located near the dripline.

While fertilizers promote plant growth, they also increase water consumption. Apply the minimum amount of fertilizer needed.

\*Use a hand-held hose for optimum watering.

\*sprinkler systems in need of repair are properly adjusted to eliminate any overspray.

When installing new landscapes, a properly designed and installed irrigation system should be included as a water conservation tool.

\*Water at noon to avoid loss due to evaporation.

\*Water quickly for shorter periods of time to avoid loss due to run-off.

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Weeds and crops can coexist for about 3 weeks before too much competition.

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Weeds host pests and diseases that can spread to cultivated crops.

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If it can be mowed with a riding lawnmower without a lot of trimming, it is low maintenance.

Trees and shrubs should have their own planting bed.

\*Perennial flowers are labor and money intensive.

Name \_\_\_\_\_

## Tree Pruning Guide Student Sheet

→Arboday.org

→Trees

→Pruning guide

→Launch the tree pruning animation

Fill in the following blanks and/or answer the following questions:

1. A tree that is properly pruned is:
  - a.
  - b.
  - c.
  - d.
  - e.
  - f.
2. What are the characteristics of a rambling bush?
  - a.
  - b.
  - c.
  - d.
3. What things should be started in the nursery?
  - a.
  - b.
  - c.
  - d.
  - e.
  - f.
  - g.

4. When to prune:

- a. What would be a condition where trees could be pruned in the summer?
- b. When is the best time to prune?
- c. Why would it be unhealthy to prune in the fall?
- d. What does the animation say about pruning in the spring?
- e. What does the animation say about pruning after a storm?
- f. When are other times to prune?

5. Identify the 7 Keys to good pruning:

- a.
- b.
- c.
- d.
- e.
- f.
- g.
- h.

6. What 5 items does the animation say about pruning for strength?

- a.
- b.
- c.
- d.
- e.



7. Pruning for form

- a. Shape trees that is aesthetically pleasing and don't prune too high too quick, no more than \_\_\_\_\_% of life crown should be removed during a season.
  - i. What are Protuders and ingrowers?
  - ii. What does the pruning lesson mean by thinning and spacing?
  - iii. What is a reason to prune for Function?
  - iv. What is a double leader?

8. Virtual pruning lesson--

- a. What is the difference between a tree that is properly pruned and one that is not?
- b. Where specifically do I cut?
  - 1.
  - 2.
  - 3.
  - 4.
- c. Practice cutting the right branches.
  - i. We found a few problems—what advice does the computer give you for proper pruning?

Name \_\_\_\_\_

## Tree Pruning Guide Student Sheet

→Arboday.org

→Trees

→Pruning guide

→Launch the tree pruning animation

Fill in the following blanks and/or answer the following questions:

1. A tree that is properly pruned is:
  - a. tall
  - b. straight trunk
  - c. full
  - d. healthy crown to provide beautiful shade
  - e. more able to resist damage from wind and ice
  - f. much easier to maintain
2. What are the characteristics of a rambling bush?
  - a. Low growing branches
  - b. Obscure Streets and driveways
  - c. Branches damaged during storms
  - d. Unsightly shoots sprout everywhere
3. What things should be started in the nursery?
  - a. Strong developed central leader-main shoot
  - b. Bright, healthy bark
  - c. Trunk and limbs free of insect or mechanical injury
  - d. Healthy buds
  - e. Branches well distributed around trunk, smaller caliper than trunk
  - f. Ideal spacing between branches, 8-12" apart
  - g. Good trunk taper, widest at base, tapering gradually to the top
  - h. Low branches temporary, but help develop taper; promote trunk caliper growth and prevent sun damage.
4. When to prune:
  - a. What would be a condition where trees could be pruned in the summer?  
Corrective purposes
  - b. When is the best time to prune?  
Winter, during dormancy most common after coldest part of winter has passed

- c. Why would it be unhealthy to prune in the fall?  
Fall no decay fungi, spread spores, healing slower
  - d. What does the animation say about pruning in the spring? leave alone
  - e. What does the animation say about pruning after a storm?  
prune broken branches—wait to cut it down if wounded, 50% of crown gone—  
cut the tree down
  - f. When are other times to prune? Anytime— light pruning, water sprouts and  
suckers
5. Identify the 7 Keys to good pruning:
- a. Early-wounds small growth where want
  - b. Start top-visual inspection from top and work down
  - c. Follow leader—best leader and lateral branches
  - d. No paint needed-doesn't prevent or reduce decay
  - e. Stay sharp—curved one hand pruner the best
  - f. Be safe
  - g. Leave collar—swollen area at the branch base, no protruding stubs
  - h. Head back—choose bud, grow in desired direction, ¼ beyond bud
6. What 5 items does the animation say about pruning for strength?
- a. prune modestly if at all—when transplanting, strengthen and expand root  
system—reduced 80-90% by transplanting, loose leaf surface—food factory
  - b. After the first year prune
    - i. Best way to avoid weak branches later on and prevent expensive  
correction later
  - c. Narrow angles-future weakness in trunk or crown; grow against each other,  
hammering a wedge.
  - d. Strength—ideal branch angle 10 and 2 o'clock
    - i. Branches No more than ½ to ¾ diameter of trunk
  - e. Rubbing branches—rub result in wounds, decay, and notches—best to remove  
one.
  - f. Center of gravity-trees deformed by wind more central over trunk by cutting  
back leader and lateral on windward side
7. Pruning for form
- a. Shape trees that is aesthetically pleasing and don't prune too high too quick, no  
more than 25% of life crown should be removed during a season.
    - i. What are Protuders and ingrowers?—limbs turn inward, extend beyond  
natural outline
    - ii. What does the pruning lesson mean by thinning and spacing?

removing a portion of the limbs that compete for space and light even spaced laterals 8-12 in apart in a young tree

- iii. What is a reason to prune for Function? headed toward house, walkway, sign
- iv. What is a double leader?—protect leader from competition, lopsided

8. Virtual pruning lesson--

- a. What is the difference between a tree that is properly pruned and one that is not?
- b. Where specifically do I cut?
  1. 1<sup>st</sup> cut partway through the branch A
  2. Next cut off branch at B
  3. Then cut along C-D
  4. Do not cut along C-X
- c. Practice cutting the right branches.
  - i. We found a few problems—what advice does the computer give you for proper pruning?

**Agricultural Science and Technology**  
**Landscape Design-Ag 330**  
**Nursery Pests & Disorders Identification**

**Unit Objectives**

1. Students will be able to identify and classify nursery pests and disorders.

**Power Point**

Nursery Pests & Disorders Identification

**Student Handout**

Nursery Pests & Disorders Identification Student Sheets

**Evaluation**

Nursery Pests & Disorders Identification Quiz (ppt format)

**Interest Approach**

Bring in different samples of pest and disorders and start a discussion about what causes these plant disorders. Brainstorm different ways to capture pests. Discuss the impact of plant pests and disorders.

**Student Activities**

1. Nursery Pests & Disorders Identification

After discussing the nursery pests & plant disorders identification slides, allow students to explore the greenhouse or school grounds to find different samples. Place sticky yellow insect cards in the greenhouse to capture pests. Have students identify their findings. You may want students to bring in samples from home—depending on availability at school.

**Equipment:**

Yellow sticky cards

Various insect collection equipment

2. Nursery Pests & Disorders Identification Sheets

Divide the nursery pests & disorders Id items and have each student research the items on the *Nursery Pests & Disorders Identification Student Sheet*. Have them present their findings to the class. You may wish to have them prepare a power point of the items and add them to your Nursery Pests & Disorders Identification Power Point Presentation.

The students will find the following information for the pests and disorders:

- **Pest or Disorder No.**—pest or disorder number from the official list of Nursery Pest & Disorders Identification
- **Common name**—name typically called, may have more than one
- **Unique characteristics**—things that make the pest or disorder easier to identify
- **Classification**—insect, disease, physiological problem, weed
- **Habitat**—where the pest or disorder can be found

- **Growing requirements**—what are the optimal growing conditions for this pest or disorder
- **Image**—draw a sketch of the pest or disorder or upload one from the internet
- **other**—any other things that you would like to remember about the pest that will make it easier to identify

**Equipment:**

*Nursery Pests & Disorders Identification Student Sheets*

**References:**

**The photos in the Nursery Pests & Disorders Ppt. have come from the following sites:**

altnature.com  
 associatedcontent.com  
 bing.com  
 bing.com  
 caf.wvu.edu  
 colostate.edu  
 cornell.edu  
 Edis.ifas.ufl.edu  
 gardeningknowhow.com  
 iastate.edu

illinois.edu  
 Inhs.uiuc.edu  
 na.fs.fed.us  
 nu-distance.unl.edu  
 Ohiolin.osu.edu  
 orst.edu  
 pbsgrow.com  
 pestproducts.com  
 plant-shed.com  
 purdue.edu

tamu.edu  
 ucdavis.edu  
 utahstate.edu  
 uwex.edu  
 vt.edu  
 wikimedia.org  
 wikipedia.org  
 wildmanstevebrill.com  
 wsu.edu  
 wsu.edu

Name \_\_\_\_\_

Date \_\_\_\_\_

## Nursery Pests & Disorders Identification Student Sheet

Obtain the official list of Nursery Pests and Disorders Identification. These pests & disorders are numbered from 217-254. Using your book, internet, or a lab manual, research the following information about nursery pests and disorders and fill out this Student Sheet.

- **Pest or Disorder No.**—pest or disorder number from the official list of Nursery Pest & Disorders Identification
- **Common name**—name typically called, may have more than one
- **Unique characteristics**—things that make the pest or disorder easier to identify
- **Classification**—insect, disease, physiological problem, weed
- **Habitat**—where the pest or disorder can be found
- **Growing requirements**—what are the optimal growing conditions for this pest or disorder
- **Image**—draw a sketch of the pest or disorder or upload one from the internet
- **other**—any other things that you would like to remember about the pest that will make it easier to identify

Disorder No. _____	Pest Id. Information:	Image
<p>common name:</p> <p>unique characteristics:</p> <p>classification:</p> <p>habitat:</p> <p>growing requirements:</p> <p>other:</p>		
<p>Disorder No. _____</p> <p>common name:</p> <p>unique characteristics:</p> <p>classification:</p> <p>habitat:</p> <p>growing requirements:</p> <p>other:</p>	<p>Pest Id. Information:</p>	<p style="text-align: center;">Image</p>

<b>Disorder No.</b> _____	<b>Pest Id. Information:</b>	<b>Image</b>
<b>common name:</b>  <b>unique characteristics:</b>  <b>classification:</b>  <b>habitat:</b>  <b>growing requirements:</b>  <b>other:</b>		
<b>Disorder No.</b> _____	<b>Pest Id. Information:</b>	<b>Image</b>
<b>common name:</b>  <b>unique characteristics:</b>  <b>classification:</b>  <b>habitat:</b>  <b>growing requirements:</b>  <b>other:</b>		
<b>Disorder No.</b> _____	<b>Pest Id. Information:</b>	<b>Image</b>
<b>common name:</b>  <b>unique characteristics:</b>  <b>classification:</b>  <b>habitat:</b>  <b>growing requirements:</b>  <b>other:</b>		
<b>Disorder No.</b> _____	<b>Pest Id. Information:</b>	<b>Image</b>
<b>common name:</b>  <b>unique characteristics:</b>  <b>classification:</b>  <b>habitat:</b>  <b>growing requirements:</b>  <b>other:</b>		



**Agricultural Science and Technology**  
**Floral Design-- Ag 330**  
**Nursery/Landscape Plant Identification**

**Unit Objectives:**

1. Students will learn why scientific classification of plants is important.
2. Students will be able to properly write a scientific name.
3. Students will be able to identify nursery and landscape plants used in the industry.
4. Students will be able to determine which climate zone they live in.
5. Students will be able to classify plants according to climate zone, growth habits, and growing requirements.
6. Students will be able to identify trees according to a dichotomous key.

**Power Point Presentations:**

The Classification of Plants

Nursery/Landscape Plant Identification A-E

Nursery/Landscape Plant Identification F-L

Nursery/Landscape Plant Identification M-P

Nursery/Landscape Plant Identification Q-Z

*Please note that the sources for all slides are found in the notes section for each slide.*

**Evaluation (power points):**

Nursery/Landscape Plant Identification A-E Quiz

Nursery/Landscape Plant Identification F-L Quiz

Nursery/Landscape Plant Identification M-P Quiz

Nursery/Landscape Plant Identification Q-Z Quiz

*The quiz answers will be found in the notes section of each slide.*

Instructors may use the *Nursery/Landscape Career Development Events Guide* to evaluate plant identification scoring.

*Nursery/Landscape CDE Plant Identification Lists* pgs.

*Nursery/Landscape CDE Plant Identification Score Card* pg.

**Student Handout**

Nursery/Landscape Plant Identification Student Sheet

Nursery/Landscape CDE Plant Identification List

Nursery/Landscape CDE Identification Score Card

Climate Zone Student Sheet

What Tree Is That? Student Sheet

What Tree Is That? Master

**Interest Approach**

Show the students the power point **The Classification of Plants**. Have the students write their own names according to the correct way to write scientific names.

## Teaching Content

### The Classification of Plants

Taxonomy is the study and practice of classifying living things into a natural system of groups based on evolutionary relationships. Whenever one deals with groups of things as large as the more than 350,000 known species of plants, some form of classification is essential. Taxonomists have attempted to make their basic classifications of plant and animals correspond with actual degrees of relationship, as nearly as these can be determined. The plants within any of the major divisions of the plant kingdom are thus understood to be more closely related to each other than they are to plants in any other division (in the animals kingdom, the first level of division is called a phylum). Each division is in turn broken down into progressively smaller categories, and at each level the most closely related plants are placed together into one group. From time to time, especially in modern times with more advanced testing techniques, classifications are changed based on the discovery of some new genetic evidence.

The system of classification most widely used at present, separates the plant kingdom into twelve divisions based mostly on reproductive characteristics, which distinguish among various groups of vascular plants (flowering and non-flowering), fungi, and byophytes (mosses and liverworts). Each division is further separated into classes, each class is divided into orders, the orders into related families, the families into related genera, and each genus into related species. As species may be further divided into subspecies, varieties, and cultivars, the latter category being especially used to identify by trade name the flowers and plants which have been bred or selected for the horticulture and floriculture industries.

Historically, Latin has been the language of the science, including botany, and has been conceived to be internationally understandable. Many of the unusual sounding names of flowers and plants have their origins in Latin as well as Greek terminology. The binomial system of nomenclature (the naming of living organisms with a pair of Latin or Latinized word which identify the genus and species) is the comprehensive system by which living things are categorized (at least among Western societies). In technical writing, these words are written in italics. For example: the botanical name for the Bird of Paradise flower is *Strelitzia* (genus name) *reginae* (specific epithet).

The botanical name typically references some special characteristic of the plant or flower, its place of origin, or it may commemorate a person, such as the individual who discovered or described it, or the patron who funded the expedition during which the plant was found. The genus name may be thought of as being similar to a last name or surname, and plants within the same genus are understood to be closely related to each other. The specific epithet is like a given name or first name, and it further distinguishes genetically related plants from each other. Just as in human communities, given species names may occur within any number of different genera.

This system of binomial nomenclature originated with the great Swedish botanist, Carl von Linne (1707-1778), who, in 1735, published the first edition of his classification of living things, *Systema Naturae*. He is more commonly known by the Latinized name with which he dubbed himself, Carolus Linnaeus, and is often called the Father of Taxonomy.

The following chart shows, as an example, the taxonomic classification of the Bird of Paradise:

<b>Taxonomic Hierarchy Chart</b>	
Kingdom	Plantae (plants)
Division (Phylum)	Spermatophyta (seed bearing plants) (aka: Magnoliophyta)
Subdivision	Angiospermae (flowering plants with covered seeds) (aka: Magnoliophyta)
Class	Liliopsida (monocots)
Order	Zingiberales (ginger family)
Family	Musaceae (bananas)
Genus	Strelitzia
Species	reginae
Common name	Bird of Paradise

The Classification of Plants information is for educational use only. Obtained by permission from:

The American Institute of Floral Designers. The AIFD Guide to Floral Design. Terms, Techniques, and Traditions. The Intelvid Group 2005.

### Student Activities

#### 1. Nursery/Landscape Plant Identification Student Sheet

Students will research information for the Nursery/Landscape plants. They will find several different pieces of information:

*Instructions on the sheet:*

Obtain the official list of Nursery/Landscape Plant Identification. These plants are numbered from 101-216. Using your book, internet, or a lab manual, research the following information about nursery/landscape plants and fill out the Information Sheet.

- **Plant no.**—plant number from the official list of Nursery/Landscape Plant Identification
- **Common name**—name typically called, may have more than one
- **Scientific name**—Latin botanical epithet
- **Unique characteristics**—things that make the plant easier to identify
- **plant classification**—herbaceous or woody, annual, biennial, perennial, woody plant, vine
- **hardiness zone**—zone the plant can withstand as the coldest freezing temperature and still grow
- **growing requirements**—does the plant prefer shade or sun, what type of soil, etc
- **Image**—draw a sketch of the plant or upload one from the internet
- **other**—any other things that you would like to remember about the plant that will make it easier to identify

#### **Equipment:**

Nursery/Landscape Plant Identification List

One copy for each student of the first sheet, several copies of the second sheet—  
Nursery/Landscape Plant Identification Student Sheet

2. Nursery/Landscape Plant Identification List  
Have the students study the power points and learn the **Nursery/Landscape Plant Identification List**. Each has been divided into 15-20 plants. Help students prepare for the quizzes provided.
  
3. Climate Zone  
Have the students log onto arborday.org and follow the directions on *Climate Zone Student Sheet* and find which climate zone they live in. This will help when deciding which plants to plant in a particular zone.
  
4. Arborday.org What Tree Is That? Animation  
Students will launch the “What Tree Is That?” Animation from arborday.org and work through a worksheet to learn how to identify six mystery trees and then they will learn how to use a simple dichotomous key. Students will need to collect information for six trees to identify on their own. *What Tree Is That? Student Sheet & Master*

## References

The American Institute of Floral Designers. The AIFD Guide to Floral Design. Terms, Techniques, and Traditions. The Intelvid Group 2005.

## The photos in the Plant Identification Ppt. have come from the following sites:

1.bp.blogspot.com	davesgarden.com	image51.webshots.com
2.bp.blogspot.com	davidbessler.files.wordpress.com	images.marketplaceadvisor.channeladvisor.com
3.bp.blogspot.com	daytonnursery.com	images.pictureshunt.com
4.bp.blogspot.com	desert-tropicals.com	images.whiteflowerfarm.com
abnativeplants.com	dicts.info	img.hgtv.com
about-garden.com	digitalnaturalhistory.com	inmygarden.org
acgnursery.com	dkimages.com	jabalamelnursery.com
aggie-horticulture.tamu.edu	en.wikipedia.org	jungleseeds.com
ajuga.org/	en.wikivisual.com	jvh-nurseries.com
americanmeadows.com	extension.umn.edu	landscape-service.com
aragriculture.org	faculty.etsu.edu	lejardin.ro
aroma-pure.com	farm2.static.flickr.com	lh6.ggpht.com
arthurleej.com	farm3.static.flickr.com	lotf.com
assets.babycenter.com	farm4.static.flickr.com	magnoliagardensnursery.com
australian-insects.com	findmeplants.co.uk	magnoliasociety.org
azarboretum.org	finegardening.com	marecromwell.files.wordpress.com
banwnursery.co.uk	floracyberia.net	media.growsonyou.com
bernheim.org	floralimages.co.uk	media-2.web.britannica.com
biology.missouristate.edu/	florifacts.umn.edu	members.tripod.com
bioweb.uwlax.edu	flowerservant.com	mgonline.com
bomengids.nl/	fotosearch.com	michaelweishan.com
botgard.ucla.edu	gardenmart.com	millernursery.com
bowerbirdz.files.wordpress.com	gardensandplants.com	missouriplants.com
bpl.blogger.com	gerdes-wholesale-nursery.com	mivak.nl
brianandsherry.com	gerrystreenursery.com	mobot.org
cactusjungle.com	goodnewsgardening.com	msuplants.com
cas.vanderbilt.edu	gpgreenhouses.ca	naturallandscapenursery.com
ces.ncsu.edu	greengrasslandscape.com	netstate.com
cincinnati.com	greengrowerindia.com	oncampus.richmond.edu
cirrusimage.com	greenspade.com	oregonstate.edu
classeshortla.wsu.edu	greergardens.com	paghat.com
commanster.eu	gruporiobravo.com	pekin.net
conncoll.edu	home.comcast.net	pendernursery.com
connon.ca	hort.cornell.edu	plantcare.com
critsite.com	hortiplerx.gardenweb.com	plantfinder.sunset.com
darrell.barrell	hortmag.com	plant-identification.co.uk
datasync.com	image.gardening.eu	

plantoftheweek.org  
plants.chebucto.biz  
Portland Nursery  
quaint.kapsi.fi  
rainkc.com  
robsplants.com  
rockwallgardens.com  
royalcrestnurseries.com  
sacredorigin.com  
seedlingsrus.com  
shadetreesandevergreens.com

sod-depot.com  
soonerplantfarm.com  
swbiodiversity.org  
talltreesgroup.com  
thegardenhelper.com  
thewildlifeporch.com  
thymeafterthyme.com  
toptropicals.com  
trees-online.co.uk  
troymi.gov  
us nps photo

uvm.edu  
vanbloem.com  
wikimedia.org  
wikipedia.com  
windowtothegarden.com  
wolf.mind.net  
yorkccd.org  
zahradnictvikub.cz  
zelenhoz.com

## **Resources**

Nursery/Landscape CDE Guide

CAERT Curriculum. 2005 Unit C. Animal, Plant, and Soil Science. Problem Area 2—Plant and Soil Science. Lesson 1. Classifying and Naming Plants

Name \_\_\_\_\_

## What Tree Is That? Student Sheet

- Log on to Arborday.org
- What Tree is that? Online Edition
- Tree ID Tutorial
- Click to launch the animation
- Choose a mystery tree to identify until you have identified all six.

### **All six trees identified:**

- |          |          |
|----------|----------|
| 1. _____ | 4. _____ |
| 2. _____ | 5. _____ |
| 3. _____ | 6. _____ |

### **Fill in the blanks and answer the following questions as you identify the mystery trees:**

\_\_\_\_\_ have cones. Most conifers are evergreen. Some broadleaf trees, like \_\_\_\_\_, remain evergreen, holding on to their leaves throughout the year-\_\_\_\_\_ them gradually over time.

What part of the tree is next year's leaf? \_\_\_\_\_

A \_\_\_\_\_ leaf has one blade attached to the leaf stalk or \_\_\_\_\_.

A \_\_\_\_\_ leaf has more than one blade attached to the \_\_\_\_\_.

Compound leaves have many individual leaf blades called \_\_\_\_\_.

\_\_\_\_\_ leaves stagger up the twig and are not located directly across from each other on the twig.

\_\_\_\_\_ leaves have two leaves arranged directly across from each other on the twig.

The edge of a leaf is called the \_\_\_\_\_. Some broadleaf trees have leaves with smooth edges or entire margins. Some have \_\_\_\_\_ leaves, leaves with projections that shape the edge of the leaf. Some have toothed margins characterized by a \_\_\_\_\_ - \_\_\_\_\_ edge on the leaf.

\_\_\_\_\_ means the trees keep their leaves through the winter. Conifers have leaves that either look like \_\_\_\_\_ or leaves that look like small \_\_\_\_\_, resembling fish scales.

Broadleaf trees have a variety of \_\_\_\_\_ and \_\_\_\_\_. They have leaves that are \_\_\_\_\_ and \_\_\_\_\_. Most broadleaf trees are \_\_\_\_\_, meaning they lose their leaves in the fall.

Collect leaf samples from six more trees. Use samples you have collected to identify six more trees:

- Arborday.org
- What Tree is That? Online Edition
- Western United States
- Begin the Tree Identification

Start sorting which characteristics your trees contain by clicking yes to each of the sets of questions until your tree is the only possible answer.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_

## What Tree Is That?

- Log on to Arborday.org
- What Tree is that? Online Edition
- Tree ID Tutorial
- Click to launch the animation
- Choose a mystery tree to identify until you have identified all six.

**All six trees identified:**

- |                              |                        |
|------------------------------|------------------------|
| 1. <u>Eastern White Pine</u> | 4. <u>Honey locust</u> |
| 2. <u>Bur Oak</u>            | 5. <u>Silver Maple</u> |
| 3. <u>Eastern Redcedar</u>   | 6. <u>Green Ash</u>    |

**Fill in the blanks and answer the following questions as you identify the mystery trees:**

Conifers have cones. Most conifers are evergreen. Some broadleaf trees, like holly, remain evergreen, holding on to their leaves throughout the year-shedding them gradually over time.

What part of the tree is next year's leaf? Bud

A simple leaf has one blade attached to the leaf stalk or petiole

A compound leaf has more than one blade attached to the leaf stalk.

Compound leaves have many individual leaf blades called leaflets.

Alternate leaves stagger up the twig and are not located directly across from each other on the twig.

Opposite leaves have two leaves arranged directly across from each other on the twig.

The edge of a leaf is called the margin. Some broadleaf trees have leaves with smooth edges or entire margins. Some have lobed leaves, leaves with projections that shape the edge of the leaf. Some have toothed margins characterized by a saw-like edge on the leaf.

Evergreen means the trees keep their leaves through the winter. Conifers have leaves that either look like needles or leaves that look like small scales, resembling fish scales.

Broadleaf trees have a variety of fruits and flowers. They have leaves that are thin and flat. Most broadleaf trees are deciduous, meaning they lose their leaves in the fall.

Collect leaf samples from six more trees. Use samples you have collected to identify six more trees:

- Arborday.org
- What Tree is That? Online Edition
- Western United States
- Begin the Tree Identification

Start sorting which characteristics your trees contain by clicking yes to each of the sets of questions until your tree is the only possible answer.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_



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FFA makes a positive difference in the lives of students by developing their potential for **premier leadership, personal growth and career success** through agricultural education. National FFA Online, [www.ffa.org](http://www.ffa.org), FFA's Internet web site, can provide information about the National FFA Organization.

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## GENERAL INFORMATION

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 National FFA Center  
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 Indianapolis, Indiana  
 46268-0960  
 (317) 802-4263

**Technical Writer** Carol L. Herl  
 51 Snowbird Trail  
 Fairfield, PA

The National FFA Career Development Events are educational activities organized by the National FFA Organization and sponsored through the National FFA Foundation and special industry sponsors.

This is your copy of the official rules and regulations for National FFA Career Development Events for 2006–2010. Please retain this manual throughout the five-year period. Refer to the Local Program Resource CD-ROM or FFA online for the most up-to-date edition of the Career Development Event Handbook.

CDE Event	Superintendent	Phone	E-mail
Agricultural Communications	Dr. Cindy Akers	806-742-2816	cindy.akers@ttu.edu
Agricultural Issues Forum	Dr. Jerry Peters	765-494-8423	peters@purdue.edu
Agricultural Mechanics	Dr. Stephen Poe	523-317-6418	spoe@ag.arizona.edu
Agricultural Sales	Mr. Troy Selman	936-661-9195	TLselman@gmail.com
Agronomy	Mr. Harold Brown	614-836-7694	hbrown@synagro.com
Creed Speaking	Mr. Greg Beard	805-756-2402	gbeard@calpoly.edu
Dairy Cattle Evaluation	Mr. Jim Ertl	651-582-8347	jim.ertl@state.mn.us
Dairy Cattle Handlers' Activity	Ron Tilford	513-293-4180	rtilford2@cinci.rr.com
Dairy Foods	Dr. Freddie Scott	479-575-2035	FScott@comp.uark.edu
Environmental and Natural Resources	Mr. Billy Sumrall	601-785-9602	glbbeef@bellsouth.net
Extemporaneous Public Speaking	Mr. Dennis Wallace	360-458-6543	dennis_wallace@ycs.wednet.edu
Farm Business Management	Dr. James Casey	318-342-1750	jcasey@ulm.edu
Floriculture	Mr. David Kercheval	254-854-2952	KerchBar3@aol.com
Food Science and Technology	Dr. Lori Moore		LMoore@aged.tamu.edu
Forestry	Mr. Marion Fletcher	501-682-2561	marion.fletcher@arkansas.gov
Horse Evaluation	Mr. Joe Cunningham	918-479-6221	jcunningham@lg.k12.ok.us
Job Interview	Ms. Linda Story	270-733-4173	ljstory@bellsouth.net
Livestock Evaluation	Dr. Fred Rayfield	229-896-2293	frayfield@cook.k12.ga.us
Marketing Plan	Mr. John Jeans	503-999-6914	jjeans@astoria.k12.or.us
Meats Evaluation and Technology	Dr. Randy Harp	254-968-9212	harp@tarleton.edu
Nursery/Landscape	Dr. Alan McDaniel	540-231-5781	alanmcd@vt.edu
Parliamentary Procedure	Dr. James Connors	614-292-3386	connors.49@osu.edu
Poultry Evaluation	Dr. Jason Emmert	479-575-3595	jemmert@uark.edu
Prepared Public Speaking	Mr. Dustin DeVries	703-727-9866	ddevries@falconpro.net

## PHILOSOPHY FOR NATIONAL FFA CAREER DEVELOPMENT EVENTS

Students are important customers of agricultural education and FFA who recognize quality and value in products and activities. When provided an opportunity to fashion their educational experiences, they generally make wise decisions based on needs. Perceptions, images and opinions of others influence students. They value change based on their perceived personal needs as well as the needs of others. They sometimes value change for the sake of variety. Adults are concerned about the experiences of students and want to help organize experiences that will meet the future needs of students while accomplishing the purposes of agricultural education and the National FFA Organization. The National FFA Organization should assume the leadership role in developing and continuously improving relevant FFA career development events. Although the National FFA Organization should be aware of the needs of state associations and should react to those needs, it should help initiate opportunities that reflect relevant and emerging technology. National FFA Career Development Events should be developed with significant input from FFA members, teachers, partners, respective industry sponsors and others involved in agricultural education.

National career development events should reflect instruction that currently takes place in the entire agricultural education program, including classroom instruction, laboratory instruction, individualized instruction, and/or supervised agricultural experience. However, it is appropriate for the national organization to develop career development events and awards that stimulate instruction in emerging areas that reflect both current and future community, national and global work force needs. The authority for insuring the relevance of an FFA

activity is ultimately vested in the National FFA Board of Directors.

The national organization should promote career development events. Career development events that include team activities should be based on cooperation and teamwork while recognizing the value of competition and individual achievement. The role of career development events is to motivate students and encourage leadership, personal growth, citizenship and career development.

Students should be recognized for achievement in career development events. Quality standards should be used as a basis for achievement. The national organization should ensure that the recognition is appropriate and meaningful. Recognition for achievement should be reflective of the total effort required by the chapter/team/individual and should take place at all levels of participation.

The National FFA Organization shall encourage accessibility and provide opportunities for achievement and recognition for students with diverse backgrounds. High expectations should be consistently communicated to those who are involved in career development events and awards.

## GENERAL RULES AND OFFICIAL POLICIES

*Violations of any of the following rules may be grounds for the event superintendent to disqualify the participants.*

National FFA staff and event superintendents will use the published rules and procedures to organize and implement the National FFA Career Development Events. Event activities may not be conducted, modified or substituted due to lack of necessary materials, expertise or extreme impact to event budgets. Every effort will be taken to

maintain the quality and integrity of the event. In this case notification will be provided at the team orientation meeting. Teams that qualify to compete will be mailed the current format for the specific event in a team orientation packet prior to the convention for which they have qualified.

### Team Activities

The primary goal of career development events is to develop individual responsibilities, foster teamwork and promote communications while recognizing the value of ethical competition and the value of individual achievement. Where appropriate team activities will be included that requires two or more members from one chapter working cooperatively. Career development events and awards are intended to be an outgrowth of instruction.

Career development events should:

- include problem solving and critical thinking.
- promote an appreciation for diversity by reducing barriers to participation.
- promote new directions and focus on future needs of members and society.
- include cooperative activities, where appropriate.
- encourage broad participation among members and recognize excellence within levels of experience.
- recognize individual and team achievement, develop general leadership and recognize levels of ability.
- provide local recognition for superior performance at the state and national level.

### Eligibility of Participants

1. Each participant must be a current bona fide dues paying FFA member in good standing

with the local chapter, state FFA association and the National FFA Organization at the time of his/her certification and at the time of the national career development event in which he/she participates.

If the participant's name is not on the chapter's official roster for the years in which the dues were payable to the National FFA Organization, a past due membership processing fee of \$25, in addition to the dues must be paid **prior** to certification.

2. The participant, at the time of his/her certification as a national team member:
  - a. must be a *high school* FFA member, (a graduating senior is considered eligible to compete in state and national career development events up to and including his/her first national convention following graduation). (High school refers to grades 9–12.)
  - b. must have qualified as either a 7th, 8th or 9th grade member to compete in the creed speaking event.
  - c. while in school, must be enrolled in at least one agricultural education course during the school year and/or follow a planned course of study; either course must include a supervised agricultural experience program, the objective of which is preparation for an agricultural career.
 

The National FFA Constitution provides flexibility to meet the needs of students enrolled in non-traditional programs. For this purpose a student needs to be enrolled in at least one agricultural education course during the year they qualified for the event.
  - d. must have qualified as a state representative in a respective career development event; if he or she moves to a

different chapter or a different state, they may be allowed to compete in the national event with the school they qualified with during the qualifying year. Certification forms submitted to the national FFA will be the list that will be accepted.

3. A student may not participate more than once in the same official National FFA Career Development Event. No student may participate in more than one National FFA Career Development Event each year.
4. CDE participants who start an event and do not complete the event without notifying event officials at the time of departure will be disqualified. This can affect the overall team rank and position. In some events this will also disqualify the entire team.

### Official Dress

1. Participants are expected to observe the National FFA Code of Ethics and the Proper Use of the FFA Jacket during the career development events. (Please see the latest edition of the Official FFA Manual.) Official dress is highly recommended for all participants where appropriate and is required for the awards presentation and recognition.

## SELECTION AND CERTIFICATION OF STATE TEAMS

1. Each state team may be composed of four members except for agricultural communications, agricultural issues, marketing plan and parliamentary procedure. The members of a state team must be from the same chapter. Members must qualify in the career development event in which they are to participate at the national level. With extenuating circumstances a teacher may substitute another

student from the chapter who may not have participated at a state qualifying event.

2. Each team will be composed of the number of members determined by the specific event committee. See chart on next page for number of team members and number of scores used to comprise the team score.
3. Teams must be selected at a state or interstate career development event held between the immediate previous National FFA Career Development Event Convention and prior to the National FFA Convention in which they are participating. States that qualify more than one year out must request and submit a written waiver for approval at least 110 days prior to the national event.
4. Each state will submit a team declaration form by June 1st prior to the national FFA convention. A \$25 entry-processing fee will be charged for participation in each declared event with the exception of the Dairy Cattle Handlers' Activity. Processing fee must be paid in conjunction with certification of each team.
5. The state supervisor of agricultural education or the executive secretary must certify that participants are eligible. If an ineligible student participates in any career development event, the member will be disqualified and may result in the disqualification of the team as well.
6. All students must be certified by the designated deadline. Once original certification has been completed, no member may be added without first deleting a member.
7. Certification forms will be made available each year to the state supervisor of agricultural education and the executive secretary through the National FFA CDE website and National Agricultural Education Inservice CD-ROM. States must certify participants to the National FFA Organization 110 days

**OFFICIAL DRESS RECOMMENDATIONS, NUMBER OF PARTICIPANTS  
AND NUMBER OF SCORES FOR TEAM TOTAL**

<b>Event</b>	<b>Official Dress Appropriate</b>	<b>Number of Participants Allowed(per team)</b>	<b>Number of Scores for Team Total</b>
Agricultural Communications	Yes	5	5
Agricultural Issues	Optional	3-7	Team Score Event
Agricultural Mechanics	No	4	Top 3 Scores
Agricultural Sales	Yes	4	4
Agronomy	Yes	4	4
Creed Speaking	Yes	1	N/A
Dairy Cattle	Yes	4	Top 3 Scores
Dairy Handler	Yes	1	N/A
Dairy Foods	Yes	4	Top 3 Scores
Environmental and Natural Resources	Yes	4	4
Extemporaneous Speaking	Yes	1	NA
Farm Business Management	Yes	4	Top 3 Scores
Floriculture	Yes	4	4
Food Science and Technology	Yes	4	4
Forestry	No	4	Top 3 Scores
Horse	Yes	4	Top 3 Scores
Job Interview	Yes	1	N/A
Livestock	Yes	4	Top 3 Scores
Marketing Plan	Yes	3	Team Score Event
Meats Evaluation and Technology	No	4	Top 3 Scores
Nursery/Landscape	Yes	4	Top 3 Scores
Parliamentary Procedure	Yes	6	Team Score Event
Poultry	Yes	4	Top 3 Scores
Prepared Speaking	Yes	1	N/A

prior to the start of the national convention. The names of all participants may be submitted after the 110 day certification deadline, but must be in the National FFA Center at least ten (10) business days prior to the career development event in which they are to participate. Any additions or deletions of participants less than ten (10) business days prior to the career development event must be done at the national FFA convention within one (1) hour prior to the time of each respective career development event team orientation meeting.

8. To certify at the convention, advisors are to complete an on-site add/delete form. Membership of those participants listed on the on-site add/delete form will be verified after the convention. If at that time, a member is found to be inactive, the team may be disqualified, if the member who is in question had an effect on the team placing. Regardless, the member in question will be disqualified. These participants must also meet all other requirements of eligibility printed in this handbook. When possible membership checks will be done at the time the on-site add/delete form is processed on site. If at this time the participant is not a member the chapter advisor will have the opportunity to pay membership processing fees, state dues and national dues.
9. Each member participating in a National FFA Career Development Event must submit the proper Waiver, Release of Liability and Consent to Medical Treatment Form. The form must be sent to the National FFA Center within 30 days prior to the event. If a team does not qualify for participation in the national event until after this deadline, the waiver form must be submitted with the certification form. Participants who do not submit this form will not be allowed to participate.

National FFA staff highly recommend that all liability waiver forms be submitted with the event certification form prior to the certification deadline. Liability waivers must be submitted with all add/delete forms.

### **Emergency Conditions**

1. Under emergency conditions, a state team participating in a National FFA Career Development Event may be made up of less than the required members. States must still certify teams prior to the national FFA convention, but fewer than the required number could compete if an emergency condition such as illness, death in the family or an act of God would occur. Those individuals competing would still be eligible to qualify for individual awards.
2. Event committees will strive to divide teams into groups so that no two participants from a team will be in the same group. In any case no two members will be placed side-by-side.

### **Disqualification**

1. Any communication, verbal or non-verbal, between participants during a career development event will be sufficient cause to eliminate the team member involved from the career development event. The only exception to this would be communication between team members during the team activity portion of a given career development event.
2. Teams or participants arriving after the career development event has begun may be disqualified or penalized.
3. Any assistance given to a team member from any source other than the career development event officials or assistants will be sufficient cause to eliminate the team from the career development event.

4. Event superintendents may stop any participant if they deem their manner to be hazardous either to themselves or others. Such stoppage shall deem the individuals disqualified for that section of the career development event.
5. CDE participants who start an event and do not complete the event without notifying event officials at the time of departure will be disqualified. This can affect the overall team rank and position. In some events this will also disqualify the entire team.
6. Participants will not be allowed to utilize personal electronic communication devices, other than those approved by the event officials, during the entire course of the event. Participants who access personal electronic communication devices without prior approval of the event officials will be disqualified.
7. No team, participant, advisor or coach shall visit the event facilities from September 1 to the end of the event. Any team, participant, advisor or coach reported and proven to do so will cause the elimination or disqualification of that team from the national event.
8. Assess a penalty of 10% of the total points allotted for the written documents post-marked after the postmarked deadline in the following events; Agricultural Communications, Agricultural Issues, Job Interview, Marketing Plan and Prepared Public Speaking. If the document is still not received seven days after the postmarked deadline, the team/individual may be subject to disqualification.

### **Waiver of FFA Rules**

Any local chapter seeking a wavier of a National FFA Board Policy or Procedure must submit in writing to the chapter's state FFA association office. If the request is approved at the state level,

it must be forwarded, under the signature of the state FFA advisor or executive secretary, to the national FFA advisor. After study by the appropriate staff, the wavier request must be submitted to the national FFA staff at least 30 days prior to the scheduled event or due date for which the waiver is requested. This policy does not supersede any current FFA policy for appeals already established for a particular FFA program.

### **Rules Committee of the National FFA Award, Recognition and Career Development Events Advisory Committee**

1. The committee will meet only when needed at the national FFA convention and will make all final decisions on interpretation of the rules and regulations of the National FFA Career Development Events. The committee will be chaired by the National FFA Awards, Recognition and Career Development Events Advisory Committee chairperson who will in turn appoint a representative of the each of the following organizations: National Association of Supervisors of Agricultural Education (NASAE), National Association of Agricultural Educators (NAAE) and the American Association for Agricultural Education, (AAAE). The program manager responsible for career development events will also serve. All five committee members will have one vote each.
2. The rules committee will resolve detailed written appeals associated only with scoring errors. Official judges' decisions are final. The announced results are the official results and awards may be duplicated as a result of the appeal. The written appeal must be filed with the education division staff responsible for career development events within seven (7) calendar days of the results announcement and accompanied with a \$50 filing fee. The fee will be returned if the appeal is justified.



## Additional Operational Procedures and Policies

### Check-in

Participants will report at the national FFA convention as indicated in the annual team orientation packet. Dates, hours and location will be sent annually to the state supervisor of agricultural education and to each team advisor in the team orientation packet. All participants will be given an identification number by which they will be designated throughout the event.

### Assistants, Group Leaders and Officials

Each state agricultural education department is encouraged to provide staff and students to help administer and conduct specific National FFA Career Development Events. *States with prepared, extemporaneous and creed speaking participants must provide a judge.* States entering a team may recommend a person or persons to serve as an assistant in the career development event in which a team will participate. These persons may be supervisors, teacher educators, teachers of agriculture or other qualified individuals. A person designated as an assistant, group leader or official for a career development event must neither be the coach, advisor or agricultural instructor of a team/individual in that same career development event; nor shall they have had any direct part in training/coaching the team/individual in preparation for the event after qualification for nationals has occurred. If an individual wishes to train/coach their team/individual, they must excuse themselves from the committee and event preparation for that convention year.

### Special Need

Accessibility for all students—All special needs requests and appropriate documentation as outlined in the special needs request procedure must be submitted with appropriate career

development event certification form by certification deadline. National FFA staff and the event superintendent will be responsible for scheduling assistance from a different state association to assist participants.

### Scoring

Continuous revisions of scoring sheets, due to computer scoring, will be necessary. Copies of any revised sheets will be sent to the state supervisor/executive secretary of agricultural education 60 days prior to the career development event.

## TEAM AND INDIVIDUAL AWARDS

The ranking of teams and individuals in each of the career development events will be on the basis of three logical groups within the total range of scores. These groups will be designated as gold emblem, silver emblem and bronze emblem. Teams and individuals participating in each of the career development events will be rated gold, silver and bronze emblem through a specific procedure that will be predetermined. However, officials will honor natural breaks in scores. In the final written announcement of results, teams and individuals will be ranked from top to bottom in the order of their placing. Awards will be distributed to the winning teams and individuals at award programs following the completion of the career development events.

1. All awards will be provided by a cooperating industry sponsor(s) as a special project, and/or by the general fund of the National FFA Foundation.
2. The team having the highest ranking in each career development event will receive an award and members will receive individual high team awards provided they are present at the time of the awards ceremony.

3. The high individual in each of the National FFA Career Development Events will be announced at the time the awards are distributed and presented with a special award.
4. Results of all National FFA Career Development Events will be released through the education division, National FFA Organization office at the appropriate event award ceremonies.

### Career Development Event Scholarships

1. Scholarships may be awarded in the National FFA Career Development Events, *as funding is available*.

Scholarships will be held for a full year beyond the student's graduation date. If the scholarship is not requested within one year after graduation from high school, the scholarship will be forfeited. Information on availability of scholarships will be sent annually along with the "Program for National FFA Career Development Events" to state participating teams and state agricultural education officials. Only one career development event scholarship may be awarded per student per year.

2. Additional scholarships may be available to top FFA members who have participated in National FFA Career Development Events at local, state and/or national levels through the National FFA Collegiate Scholarship Program. Students must meet the criteria for each specific area as outlined in the national scholarship application and complete the application that is mailed to each chapter in order to be considered for these scholarships.
3. Farm Business Management Career Development Event Fellows Program is for the advisors of the top two National FFA Farm Business Management Career Development Event teams. The advisor of

the first place team will receive a \$1,500 award and the advisor of the 2nd place team will receive a \$1,000 award. The advisors may use the awards for **a)** in-service or continuing education **b)** farm business management instructional materials **c)** a scholarship fund for the local FFA chapter. The Fellows awards will be awarded on an "as available" basis. Fellows awards may only be awarded to a FFA advisor for a total lifetime amount of \$2,500. These awards are provided by the National FFA Organization through National FFA Foundation sponsorship by the career development event sponsor.

### Written Tests

All written tests used in National FFA Career Development Events will be available for sale through the National FFA Catalog effective the January following each career development event. Please request Item NCQ (year).

### Career Development Events Additions/Deletions

- a. National FFA staff in cooperation with the National FFA Board of Directors is expected to be proactive in developing new or initiating changes within existing career development events to ensure they meet the needs of FFA members.
- b. Three years following the initiation of a new career development event, 15 states should be participating and 26 states should be participating after the next three-year period in order to retain the event at the national level.
- c. In addition, if 15 state supervisors/executive secretaries develop a proposal for a new career development event, the national FFA staff will conduct a study for the validity of the career development event and make a recommendation to the National FFA Board of Directors. Representatives of these states

must be from each of the FFA regions. The same process may be used to eliminate a national career development event.

- d. The national organization will certify National FFA Career Development Event winners for international competition when states request, with the understanding that the state team will provide their own travel expenses.
- e. The National FFA Board of Directors and national officers shall approve all changes in the general plan, rules and methods of selecting winners.

## **NATIONAL FFA AWARD, RECOGNITION AND CAREER DEVELOPMENT EVENTS ADVISORY COMMITTEE**

Purpose: To advise the National FFA Board of Directors on issues impacting both National FFA Career Development Events and Awards to ensure:

- 1. all activities are consistent with industry needs.
- 2. all activities are available to all members.
- 3. all activities are conducted openly, fairly and in a quality manner.
- 4. cooperation among various activities occurs, to the degree possible, to promote the interconnectedness of agriculture (i.e. forestry and agricultural mechanics or farm business management and dairy or livestock) and agricultural education (classroom, SAE, FFA).
- 5. new and innovative activities are being put forward for consideration.
- 6. as many students as possible have the opportunity to participate.

- 7. a constant process of local advisor in-service on proper use of these activities as tools for learning is being championed.
- 8. all activities are operated consistently with national FFA board policy.
- 9. activities are conducted within available budgets approved by the FFA board and, if appropriate, FFA foundation board.

### **Membership**

- 1. Two members of the National FFA Board of Directors, selected by the board, one of which will be a state supervisor (preference may be given for the second position to be held by the teacher acting as the USDE representative).
- 2. Two members, who are agricultural education instructors, selected by National Association of Agricultural Educators, (NAAE) through a process of their choosing.
- 3. Two members, who are state staff, selected by National Association of Supervisors of Agricultural Education, (NASAE) through a process of their choosing.
- 4. Two members, who are teacher educators, selected by American Association of Agricultural Education, (AAAE) through a process of their choosing.
- 5. Two FFA members who are or were delegates selected by the FFA national officers through a process of their choosing.
- 6. One member who is a career development event superintendent selected by the CDE superintendents through a process of its choosing.

### Consultants

The current superintendent of each FFA career development event area will serve as a consultant.

### Term

Members serve a three-year term except for the two FFA member representatives who will serve a one-year term.

### Chair

The chair of the national advisory committee on awards and career development events will be the state staff member selected by the National FFA Board of Directors.

### Meeting Schedule

1. Annual national convention meeting will be held to report on the completion of activities at convention and provide input into the winter meeting agenda.
2. The annual winter meeting will allow for most of the committee's work to be conducted as a whole group and in sub-groups focused on specific issues or specific types of activities (e.g., team career development events, individual awards, chapter awards).

Costs for all official members and consultants:

- convention meeting cost is borne by each participant.
- the winter meeting cost will be borne by the National FFA Organization, education division budget and the National FFA Foundation special project budgets for career development events.

### National FFA Career Development Event Committee Responsibilities

The National Career Development Event Committee should:

1. broadly represent agriculture teachers, agriculture educators, subject matter specialists and industry personnel.
2. be appointed/confirmed by the chief operating officer with authority to manage the team activities and events.
3. build on the principles of volunteerism and individual members should be recognized for their contributions.
4. elect a superintendent to a five-year term that is confirmed by the FFA chief operating officer.
5. develop and propose a three-year budget to be approved by the appropriate FFA staff subject for submission to the National FFA Board of Directors.
6. develop committee assignments cooperatively with FFA staff.
7. be structured to encourage member development within the committee and be sensitive to, and represent the needs of diverse populations and cultures.
8. be large enough to adequately manage the team activities.
9. be responsible for the identification of the number of teams eligible to participate at the national level. They should encourage equal opportunity for members of teams to participate from across the states.

***Conflict of Interest***

Any career development event committee member who has a team qualify for or choose to train a team that qualifies for national competition in the event related to their committee assignment shall excuse themselves from their committee duties and event preparation for that convention year to eliminate the conflict of interest. It is the committee member's responsibility to inform the event superintendent and national FFA staff of

their involvement with a team that has qualified for national competition. A person designated as an assistant, group leader or official for a career development event must neither be the coach, advisor or agricultural instructor of a team/individual in that same career development event; nor shall they have had any direct part in training/coaching the team/individual in preparation for the event, after qualification for nationals has occurred.



# 21 CHAPTER

## NATIONAL FFA NURSERY/ LANDSCAPE

### CAREER DEVELOPMENT EVENT

*A Special Project of the National FFA Foundation*

#### IMPORTANT NOTE

*Please thoroughly read the Introduction Section at the beginning of this handbook for complete rules and procedures that are relevant to all National FFA Career Development Events.*

#### I. EVENT SCOPE

The Nursery/Landscape Career Development Event includes all aspects of the industry in producing, marketing, utilizing and maintaining landscape plants (woody and herbaceous plants and turf grasses), plus related products, equipment and services including landscape design.

#### II. EVENT PURPOSE

To stimulate career interest, encourage proficiency development and recognize excellence in students of nursery practices and landscaping through the agricultural education curriculum.

#### III. OBJECTIVES

**PLANT MATERIALS** — to demonstrate the ability to identify nursery and landscape plant materials and turf grasses commonly used in the United States.

**PLANT DISORDERS** — to demonstrate the ability to identify unhealthy plant conditions due to pests, nutritional or physiological disorders and mechanical or chemical injury.

**CULTURAL PRACTICES**— to demonstrate knowledge of the principles and skills involved in propagation, growth requirements, growing techniques, harvesting, marketing and maintenance of nursery plants and landscape turf.

**DESIGN AND CONSTRUCTION**— to demonstrate knowledge of the principles and techniques of landscape design and construction.

**SUPPLIES AND EQUIPMENT**— to demonstrate the ability to identify, select, use and maintain appropriate supplies and equipment for nursery and landscape operations, including equipment and procedures in mechanization and automation.

**SAFETY**— to demonstrate knowledge of safety practices in nursery and landscape operations.

**INTERPERSONAL RELATIONS** — to demonstrate skills in oral and written business communications.

**MARKETING** — to demonstrate understanding of marketing principles and proper sales and service skills.

**RECORDS AND REPORTS**— to demonstrate the ability to prepare accurate and legible records and reports and to interpret business documents.

## IV. RULES OF THE EVENT

1. Under no circumstances will any participant be allowed to touch or handle plant materials or other specimens during the event except as expressly permitted in certain practicums.
2. Coaches may accompany participants to the event site but then must leave the area. At the conclusion of all event components, the superintendent will announce when participants and coaches may enter the competition area to review the materials and organization.

## V. EVENT FORMAT

### A. Equipment

**Materials student must supply** — Each participant must have the following individual tools: a clean clipboard, at least two No. 2 pencils, a ball-point or felt-tip pen, a calculator, a 12-inch ruler for use as a straightedge, an architect's scale and an engineer's scale. Calculators used in this event should be battery operated, non-programmable and silent with large keys and large displays. Calculators may have only these functions – addition, subtraction, multiplication, division, equals, percent, square root, +/- key and one memory register. No other calculators are allowed to be used

during the event. Additional items allowed but not required include the following: a circle template, a plastic block or stick eraser, a pocket-size dictionary or electronic speller, and a personal hand pruner or knife. Note that landscape symbol templates are not allowed.

### B. Team Activity

#### Phase 1 — (50 points each + 100 team points)

This practicum involves the team members working together towards accomplishing an assignment. It is designed to evaluate individual and group contributions in coordination and cooperation of knowledge, evaluation and decision-making. The team activity has two parts, described below.

1. **Team Preparation** — The team members work as a group in evaluating a landscape or nursery business-type situation (production, service, personnel, or business operations or relations), as in the following examples:
  - a. A landscape plan (new or renovation) with a planting plan, hardscapes (patio, etc.) plan, irrigation system plan, and landscape maintenance plan, with each of the components evaluated to describe them verbally.
  - b. Two landscape plans of the same property to evaluate for making a verbal comparative description and recommendation on which plan is preferred by the team.
  - c. Preparation of a 4 × 5 inch newspaper advertisement (e.g., for the school paper promoting enrollment in the school nursery and landscape program).

The team will have 30 minutes for this preparation part. Notepaper and other supplies, including computer resources that may be appropriate for the situation



will be available. References will not be provided or needed for this preparation part. A judge will be observing and scoring during this time but not interacting with the team. If needed, the team may ask the judge basic questions about the assignment or materials provided.

2. **Team Presentation** — Each of the team members will make a verbal presentation to a judge based on decisions made during the preparation part. For the examples above this might be conducted as follows:
  - a. Each team member separately describes one of the plan components (plants, hardscapes, irrigation and maintenance).
  - b. Positive and negative qualities of Plan A are described by a team member, repeated for Plan B by another, the team recommendation is provided by the third, while the fourth serves as moderator.
  - c. Members separately discuss the audience characteristics, program features considered and selected for promotion, ad layout and ad timing.

The team will have 15 minutes for individual presentations and interaction with the judge. The presentation format is informal and conversational with all seated at a conference table, not a prepared visual-aid speech. Division of the time and organization of the presentations is at the team's discretion. The judge may ask questions of the presenter or other team members during this time. Information will be provided on the judge's role as business client, supervisor or other appropriate party to facilitate the dialogue.

Scoring criteria for the team preparation and presentation portions are given on the "Team Activity" scorecard. Individual components

from both phases have a value of 50 points added to the individual score, while the team components of both phases have a value of 100 points added to the composite team score.

### C. Individual Activities

#### Phase 2 — General Knowledge Examination (150 points)

Fifty objective multiple-choice questions will be prepared on topics reflecting subject areas in the objectives. This phase will evaluate the participant's knowledge and understanding of basic horticultural principles in producing, marketing, using and maintaining landscape plants and turf. Participants are allowed 50 minutes to complete this phase. Each answer has a value of three points. Participants will record their answers on a scanning sheet.

#### Phase 3 — Identification of Plants, Pests, Disorders, Equipment and Supplies (150 points)

Participants will identify 50 items selected from the provided list covering the following categories:

- Plant Materials
- Pests and Disorders
- Equipment and Supplies

Plants to identify will be presented as intact, live specimens. Equipment may be either an intact item or photograph. Pest and disorder items may be presented as an intact specimen, photograph or preserved specimen (herbarium sheet, insect mount, etc.). When a problem must be presented with an affected plant, a "Disorder" label will be with the item to designate identification of the problem rather than the plant.

Each specimen will be designated by a station number (1-50). When the participant identifies the item, its name is then located on the identification list. The participant then records the

number by that name on a scanning sheet at the respective station number.

Each participant will be provided a copy of the list at the event site. Three points will be awarded for each correct identification, and participants have 50 minutes to complete this event phase.

No specimens or items may be touched or handled in any way.

#### **Phase 4 — Landscape Estimating (100 points)**

This practicum is designed to evaluate participant knowledge of and ability in 1) evaluating a landscape design 2) reading a landscape drawing 3) measuring and calculating materials needed to execute a landscape plan 4) evaluating factors that affect profitability of a landscape business.

A landscape drawing and scratch paper will be provided to the participants. There will be 20 objective questions about the landscape plan, and each correct answer has a value of five points. The questions may include such areas as determining how accent was provided in the public area, the form and size specified for a certain plant, the cost of fencing, the number of patio pavers required, the area of sod to be installed, the volume of mulch required and the labor cost to install a ground cover bed. Fifty minutes will be allowed for this practicum. Participants will record their answers using a scanning sheet.

#### **Phase 5 — Landscape Drawing (50 points)**

This practicum is designed to evaluate participant knowledge of and ability in applying the tools of landscape design through preparation of a plan drawing. Written information about a property will be given, including such details as lot dimensions and orientation; house size and setbacks; size and location of paving, decking and fencing; and the location, size and type of plant materials to be included. This will be translated into a scale drawing on 8.5 x 11-inch grid paper provided. An objective score sheet specific to the assignment will be used by a judge to evaluate that all compo-

nents are included with appropriate size, location, symbol, and label, for a possible 50 points total. Participants will have 30 minutes to prepare the drawing. Allowed drawing aids are a straightedge, ruler or scale, and circle template along with the pencil, eraser, and calculator. Templates with landscape symbols are not allowed.

#### **Phase 6 – Verbal Customer Assistance (50 points)**

This interpersonal relations practicum is designed to evaluate participant knowledge of and ability in 1) verbal communication 2) sales and customer assistance skills 3) preparation of business documents 4) plant materials, plant culture and problems and garden center supplies and equipment.

The participant will assume the role of a customer service representative (garden center or other related business or an educational agency) responding to an assistance need of a customer or client (the judge). Example situations might include, but are not limited to, the following individually or in combination:

*Assistance with product purchase and use* — from a selection of merchandise and related informational materials provided.

*Disorder diagnosis and treatment recommendation* — from a sample of the pest or symptoms, photograph, or verbal description (from the list in Phase 3) and selection of specimen labels from common retail-packaged garden chemicals.

*Advice on plant selection or culture questions* — from informational materials provided.

*Assistance with a client complaint or problem* — from personnel instructions and procedures provided.

Each participant will be located at a separated station with one minute allotted to review the materials and information provided prior to arrival of the judge. These materials may be handled and referred to as appropriate for the

conversation with the judge. Plants and disorders presented will come from the current list for Phase 3. Tools and supply items, if not on the Phase 3 list, will be appropriately labeled for identification and use. Depending on the situation presented, preparation of a store order form may also be appropriate.

Seven minutes will be allowed for completion of this practicum. Scoring criteria are presented on the “Verbal Customer Assistance” score card, to be recorded by the judge.

### **Phase 7 — Written Customer Assistance (50 points)**

This interpersonal relations practicum has the same objectives as in Phase 6 – Verbal Customer Assistance applied to written communication.

The participant will assume the role of a customer service representative. A copy of correspondence about a plant, landscape or business question will be provided, along with the appropriate response information. Each participant will hand-write in ink pen and in business letter format the response to the writer. Scratch paper will be provided for a rough draft in pencil if desired. Only the final draft in ink on the letterhead stationary provided will be scored.

Thirty minutes will be allowed for this practicum. A pocket-size dictionary or electronic speller is allowed for checking spelling. Scoring criteria are presented on the “Written Customer Assistance” score card, which will be recorded by a judge.

### **Phase 8 — Nursery Production Practices (50 points)**

This practicum is designed to evaluate participant knowledge of and ability in performing fundamental nursery production practices. All participants will perform one of the following exercises. The selected exercise will not be announced prior to the start of the event.

*Propagating Nursery Stock* — Each participant will be furnished a stock plant, rooting flat and media, rooting powder, a hand pruner and a label and marking pen. (Personal knives or pruners are allowed, if desired.) Participants are to prepare the designated softwood or hardwood cuttings and place them in the media with a single label. Seven minutes will be allowed for making and sticking up to 20 cuttings. An official will observe and score each participant during this practicum. Scoring criteria are presented on the “Propagating Nursery Stock” score card.

*Potting Nursery Stock* — Each participant will be furnished a supply of plants, nursery containers or pots of appropriate size and media. Hand pruners, a label and a marking pen will also be provided. (Personal pruners are allowed, if desired.) The participants will pot the plants, one per container, using standard nursery practices. Plant division or grading of liners may be involved. One finished container will be labeled. Seven minutes will be allowed for potting up to 10 containers. An official will observe and score each participant during this practicum. Scoring criteria are presented on the “Potting Nursery Stock” score card.

### **Phase 9 – Assessment and Solution (50 points)**

This practicum is designed to evaluate participant knowledge of and ability in 1) assessing the request or problem presented 2) reviewing alternative procedures or courses of action based on individual knowledge or reference information provided 3) deciding on a solution. Possible solutions will be presented in multiple-choice form for the participant to mark on a scanning sheet.

Ten situations will be presented from the following four areas:

*Measuring Nursery Stock* — One nursery plant will be measured for market size (height, spread or caliper as appropriate) according to the American Standard for Nursery Stock for BR and B&B evergreen and deciduous trees and shrubs. A

caliper and measuring rule will be provided. Plants presented in containers will be assumed as growing in the field, and a label will advise on whether it is to be dug BR or B&B. Cut trunk sections may be presented for larger tree measurement.

*Pruning Nursery Stock* — One or more nursery plants will be displayed with points marked for possible pruning cuts. No plant will be actually pruned. Participants are to evaluate each labeled point and decide if the plant part should be pruned or not for improvement of the plant's health, form and overall quality. The answer choice then will be the combination of cuts that should be made.

*Equipment Maintenance* – Tools from the list in Phase 3, a part for a tool and/or an operating manual will be presented with answer choices of possible maintenance needs, corrective actions and/or operating specifications. Examples of possible choices are low oil, uneven height setting, blade needs sharpening, incorrect gas:oil ratio provided or replace broken handle.

Equipment will be placed to allow observing all components in the answer choices without handling the item. If handling should be required, allowance for this will be stated with that answer choice.

*Problem Solving* — Other situations of nursery and landscape plants, supplies or practices where observation and analysis of the subject and resource materials are involved in a decision-making process. Example situations may include the following:

- According to the sample label provided, a spill of this chemical must be handled by \_\_\_\_\_?
- From the information provided on these catalog pages, one bag of the designated medium will fill \_\_\_pots of the size and shape presented.

- According to the information provided, which plants in this list would likely need a protected site for winter survival in the Indianapolis, Indiana area?

Participants have 10 minutes to complete this phase. Each correct solution has a value of five points.

## VI. SCORING

Participant scores are the sum of the nine individual phases of the event, and team scores are the sum of the three highest member scores plus the group portion of the team activity. Possible points are as follows:

Phase	Member	Team
1A. Team Activity – Individual . . .	.50 . . .	150
1B. Team Activity – Group . . . . .		100
2. Examination . . . . .	.150 . . .	450
3. Identification . . . . .	.150 . . .	450
4. Landscape Estimating . . . . .	.100 . . .	300
5. Landscape Drawing . . . . .	.50 . . .	150
6. Verbal Customer Assistance . . .	.50 . . .	150
7. Written Customer Assistance . .	.50 . . .	150
8. Production Practices . . . . .	.50 . . .	150
9. Assessment and Solution . . . . .	.50 . . .	150
<b>INDIVIDUAL TOTAL . . .</b>	<b>700</b> . .	<b>2100</b>
<b>TEAM TOTAL . . . . .</b>		<b>2200</b>

## VII. TIEBREAKERS

If needed in the case of tied individual or team total scores, final placings will be determined by comparing, in order, scores for the following:

1. Phase 2 – Written Exam
2. Phase 3 – Identification Section
3. Phase 4 – Landscape Estimating
4. Phase 9 – Assessment & Solution

## VIII. AWARDS

Awards will be presented at the awards ceremony. Awards are presented to teams as well as individuals based upon their rankings. Awards are sponsored by a cooperating industry sponsor(s) as a special project, and/or by the general fund of the National FFA Foundation.

In addition to the general awards of the career development events, the top three participants in the following two areas will be specially recognized:

**Nursery/Landscape Knowledge and Principles** — based on the composite score from Written Exam and Identification section.

**Nursery/Landscape Applications** — based on the composite score from the seven practicums from the following sections: Team Activity – Individual; Landscape Estimating; Landscape Drawing; Verbal Customer Assistance; Written Customer Assistance; Production Practices; Assessment and Solution.

## IX. RECOMMENDED REFERENCES

The following list of references is a guide to team training. Some content areas have more than one title listed. This reflects the wide array of quality references available that will provide a proper foundation for this event. No single reference is recommended as superior over others in that area. However, multiple references for the plant materials may be desirable as no single source is comprehensive for the entire country or plant list. Other references than those listed may be equally valuable resources, along with the many video and computer-based training aids that are available.

### Books

*Introduction to Horticulture*. 4th Edition, 2004. Charles B. Schroeder, Eddie Dean Seagle,

Lorrie M. Felton, John M. Ruter, William Terry Kell, and Gerard Krewer. Prentice-Hall, Inc., Englewood Cliffs, NJ. ISBN 0130364134

*Introductory Horticulture*. 6th Edition, 2002. H. Edward Reiley and Carroll L. Shry, Jr. Delmar Publishers Inc., Albany, NY. ISBN 0766815676

*Ornamental Horticulture: Science, Operations and Management*. 3rd Edition, 2001. Jack Ingels. Delmar Publishers Inc., Albany, NY. ISBN 0766814173

*Introduction to Plant and Soil Science and Technology*. 2003. Ronald J. Biondo and Jasper S. Lee. Prentice-Hall, Inc., Englewood Cliffs, NJ. ISBN 0813432162

*Principles of Plant Science: Environmental Factors and Technology in Growing Plants*. 2005. Dennis R. Decoteau. Prentice-Hall, Inc., Englewood Cliffs, NJ. ISBN 0130163015

*Practical Horticulture*. 5th Edition. 2003. Laura W. Rice and Robert P. Rice. Prentice-Hall, Inc., Englewood Cliffs, NJ. ISBN 0130946346

*Plant Propagation: Principles and Practices*. 6th Edition, 1997. Hudson T. Hartmann, Fred T. Davies, Jr., Dale E. Kester, and Robert L. Genieve. Prentice-Hall, Inc., Englewood Cliffs, NJ. ISBN 0132061031

*Nursery Production - A Teachers Manual*. Revised edition, 1989. Department of Agricultural Education, Pennsylvania State University, University Park, PA.

*Nursery Management: Administration and Culture*. 4th Edition, 2000. Harold Davidson, Roy Mecklenburg, and Curtis Peterson. Prentice-Hall, Inc., Englewood Cliffs, NJ. ISBN 0138579962

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*Manual of Woody Landscape Plants.* 5th Edition, 1998. Michael A. Dirr. Stipes Publishing Co., Champaign, IL. ISBN 0875638007

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*Landscaping Construction.* 2nd Edition, 2005. David Sauter. Delmar Publishers Inc., Albany, NY. ISBN 140184281X

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*Care and Operation of Small Gasoline Engines.* 1990. American Association for Vocational Instructional Materials, Athens, GA. No. 1086W.

*Reference Manual for Office Personnel.* 6th Edition, 1999. Clifford R. House. South-Western Publishing Co., Cincinnati, OH. ISBN 0538114517

*Business Communications.* 2004. A.C. Krizon, Patricia Merrier, Carol Jones Larson. South-Western Publishing Co., Cincinnati, OH. ISBN 0324272251

#### **Trade Periodicals**

*American Nurseryman.* American Nurserymen Publishing Co., Chicago, IL

*Grounds Maintenance.* Primedia, Overland Park, KS.

#### **Catalogs**

Many horticultural supply company catalogs can be utilized for reference support on tools, equipment, and supplies that may not be illustrated in other sources. The following company has given permission for listing their catalog:

A.M. Leonard, Inc., 665 Spiker Road, Piqua, OH 45356 (513/773-2697 or <http://www.amleo.com/index1.html>)

#### **Websites and Problem Samples**

Visit the National FFA website at <http://www.ffa.org/> for information on career development events, access to prior-year event materials, and links to additional study aids. The Nursery/Landscape CDE committee website at <http://www.hort.vt.edu/faculty/McDaniel/nationalFFA.htm> also offers additional aids for team preparation. Additional links and resources will be included as they are developed or identified, along with the following links of the CDE sponsors:

<http://www.stihlusa.com/knowhow/>

<http://www.kubota.com>

<http://www.arvesta.com/>

#### **Special Note for State Events**

No national listings of plant materials and disorders can match perfectly the industry situation in every state due to the wide range of environments across the U.S. Thus, the national event committee recommends that state event coordinators, wherever feasible, modify both sections of the list to serve better their industry and student educational needs.

## NURSERY/LANDSCAPE PLANT IDENTIFICATION

Participant Name/Number \_\_\_\_\_

No.	Botanical Name/Common Name	No.	Botanical Name/Common Name
101	<i>Abelia x grandiflora</i> / Glossy Abelia	128	<i>Dracaena fragrans</i> 'Massangeana' / Corn Plant
102	<i>Abies concolor</i> / White Fir	129	<i>Echinacea purpurea</i> / Purple Coneflower
103	<i>Acer palmatum</i> cv. / Japanese Maple	130	<i>Epipremnum spp.</i> / Pothos
104	<i>Acer platanoides</i> cv. / Norway Maple	131	<i>Euonymus alatus</i> / Winged Euonymus
105	<i>Acer rubrum</i> cv. / Red Maple	132	<i>Euonymus fortunei</i> cv. / Wintercreeper
106	<i>Acer saccharum</i> cv. / Sugar Maple	133	<i>Fagus sylvatica</i> cv. / European Beech
107	<i>Ajuga reptans</i> cv. / Carpet Bugle	134	<i>Festuca spp.</i> and cv / Fescue
108	<i>Antirrhinum majus</i> cv / Snapdragon	135	<i>Ficus benjamina</i> / Benjamin Fig
109	<i>Aquilegia x hybrida</i> cv. / Columbine	136	<i>Ficus elastica</i> 'Decora' / Decora Rubber Plant
110	<i>Amelanchier arborea</i> / Downy Serviceberry	137	<i>Forsythia x intermedia</i> cv. / Border Forsythia
111	<i>Astilbe hybrid</i> cv. / Astilbe	138	<i>Fraxinus americana</i> cv. / White Ash
112	<i>Begonia semperflorens-cultorum</i> / Wax Begonia	139	<i>Gaillardia aristata</i> cv. / Common Blanketflower
113	<i>Berberis x mentorensis</i> / Mentor Barberry	140	<i>Gardenia jasminoides</i> 'Fortuniana' / Common Gardenia
114	<i>Betula nigra</i> / River Birch	141	<i>Ginkgo biloba</i> / Ginkgo, Maidenhair Tree
115	<i>Brassaia actinophylla</i> / Schefflera, Octopus Tree	142	<i>Gleditsia triacanthos inermis</i> cv. / Thornless Honeylocust
116	<i>Buxus microphylla</i> cv. / Littleleaf Boxwood	143	<i>Hedera helix</i> cv. / English Ivy
117	<i>Camellia japonica</i> cv. / Common Camellia	144	<i>Hemerocallis spp.</i> and cv. / Day lily
118	<i>Cedrus atlantica</i> 'Glauca' / Blue Atlas Cedar	145	<i>Hosta x hybrida</i> cv. / Plaintain Lily
119	<i>Cercis canadensis</i> / Redbud	146	<i>Hydrangea quercifolia</i> / Oakleaf Hydrangea
120	<i>Chaenomeles speciosa</i> cv. / Japanese (Flowering) Quince	147	<i>Ilex cornuta</i> cv. / Chinese Holly
121	<i>Cornus florida</i> cv. / Flowering Dogwood	148	<i>Ilex crenata</i> cv. / Japanese Holly
122	<i>Cotoneaster dammeri</i> / Bearberry Cotoneaster	149	<i>Ilex x meserveae</i> cv. / Meserve Holly
123	<i>Cotoneaster divaricatus</i> / Spreading Cotoneaster	150	<i>Impatiens hybrid</i> cv. / Impatiens
124	<i>Crataegus phaenopyrum</i> / Washington Hawthorn	151	<i>Iris x germanica florentina</i> cv. / Bearded Iris
125	<i>Cynodon dactylon</i> cv / Bermudagrass	152	<i>Juniperus chinensis</i> cv. / Chinese Juniper
126	<i>Dieffenbachia maculata</i> cv. / Spotted Dumb Cane	153	<i>Juniperus horizontalis</i> cv. / Creeping Juniper
127	<i>Dracaena deremensis</i> 'Warneckii' / Striped Dracaena	154	<i>Lagerstroemia indica</i> cv / Crape Myrtle
		155	<i>Leucanthemum x superbum</i> cv. / Shasta Daisy



No.	Botanical Name/Common Name	No.	Botanical Name/Common Name
156	<i>Liquidambar styraciflua</i> / Sweet Gum	187	<i>Prunus laurocerasus</i> cv. / Cherry Laurel
157	<i>Liriodendron tulipifera</i> / Tuliptree	188	<i>Prunus serrulata</i> 'Kwanzan' / Kwanzan Japanese Flowering Cherry
158	<i>Liriope</i> spp. cv. / Lily-Turf	189	<i>Pyracantha coccinea</i> cv. / Firethorn
159	<i>Lobularia maritima</i> / Sweet Alyssum	190	<i>Quercus alba</i> / White Oak
160	<i>Lonicera japonica</i> 'Halliana' / Hall's Japanese Honeysuckle	191	<i>Quercus palustris</i> / Pin Oak
161	<i>Magnolia grandiflora</i> cv. / Southern Magnolia	192	<i>Quercus rubra</i> / Red Oak
162	<i>Magnolia x soulangiana</i> cv. / Chinese (Saucer) Magnolia	193	<i>Rhododendron x catawbiense</i> / Catawba Hybrid Rhododendron
163	<i>Mahonia aquifolia</i> cv. / Oregon Grape	194	<i>Rhododendron Hybrid</i> / Exbury Hybrid Azalea
164	<i>Malus</i> spp. and cv. / Flowering Crabapple	195	<i>Rosa</i> spp. <b>Class Hybrid Tea</b> cv. / Hybrid Tea Rose
165	<i>Myrica pensylvanica</i> / Bayberry	196	<i>Salvia nemorosa</i> cv. / Meadow Sage
166	<i>Nandina domestica</i> / Heavenly Bamboo	197	<i>Sedum spurium</i> cv. / Sedum
167	<i>Narcissus pseudonarcissus</i> cv. / Daffodil	198	<i>Solenostemon scutellarioides</i> / Coleus
168	<i>Nyssa sylvatica</i> / Sour (Black) Gum	199	<i>Sorbus aucuparia</i> / European Mountain Ash
169	<i>Pachysandra terminalis</i> / Japanese Spurge	200	<i>Spiraea x bumalda</i> / Bumalda Spirea
170	<i>Paeonia hybrid</i> cv. / Peony	201	<i>Syringa vulgaris</i> cv. / Common Lilac
171	<i>Parthenocissus tricuspidata</i> / Boston Ivy	202	<i>Tagetes</i> spp. cv. / Marigold
172	<i>Pelargonium x hortorum</i> cv. / Zonal Geranium	203	<i>Taxodium distichum</i> / Bald Cypress
173	<i>Pennisetum ruppelia</i> / Fountain Grass	204	<i>Taxus</i> spp. and cv. / Yew
174	<i>Petunia x hybrida</i> cv. / Petunia	205	<i>Thuja occidentalis</i> cv. / American Arborvitae
175	<i>Philodendron scandens oxycardium</i> / Heartleaf Philodendron	206	<i>Tilia cordata</i> / Littleleaf Linden
176	<i>Picea abies</i> / Norway Spruce	207	<i>Tsuga canadensis</i> / Canadian Hemlock
177	<i>Picea pungens</i> cv. / Colorado (Blue ) Spruce	208	<i>Tulipa</i> spp. cv. / Tulip
178	<i>Pieris japonica</i> / Lily-of-the-Valley Bush	209	<i>Verbena x hybrida</i> cv. / Garden Verbena
179	<i>Pinus mugo</i> / Mugo Pine	210	<i>Viburnum x burkwoodii</i> / Burkwood Viburnum
180	<i>Pinus strobus</i> / Eastern White Pine	211	<i>Viburnum trilobum</i> / American Cranberrybush Viburnum
181	<i>Pinus sylvestris</i> / Scotch Pine	212	<i>Vinca minor</i> cv. / Periwinkle
182	<i>Pinus thunbergiana</i> / Japanese Black Pine	213	<i>Viola x wittrockiana</i> cv. / Pansy
183	<i>Platanus x acerifolia</i> / London Planetree	214	<i>Wisteria sinensis</i> cv. / Chinese Wisteria
184	<i>Poa pratensis</i> cv Kentucky Bluegrass	215	<i>Yucca filamentosa</i> / Adam's Needle
185	<i>Podocarpus macrophyllus</i> / Southern Yew	216	<i>Zinnia elegans</i> / Zinnia
186	<i>Potentilla fruticosa</i> cv. / Shrubby Cinquefoil		

### NURSERY/LANDSCAPE PESTS AND DISORDERS IDENTIFICATION

No.	Item Name	No.	Item Name	No.	Item Name
<b>Insects</b>		230	Botrytis	244	Nutsedge
217	Aphid	231	Canker	245	Oxalis
218	Bagworm	232	Cedar-Apple Rust	246	Purslane
219	Borer	233	Crown Gall	247	White Clover
220	Leafhopper	234	Fireblight	<b>Physiological Problems</b>	
221	Leaf Miner	235	Powdery Mildew	248	Frost/Freeze Injury
222	Scale	236	Root Rot	249	Iron Deficiency
223	Spider Mite	<b>Weeds</b>		250	Leaf Scorch (drought/ winter burn)
224	Snail/Slug	237	Annual Bluegrass	251	Nitrogen Deficiency
225	Whitefly	238	Broadleaf Plantain	252	Pot-bound roots
226	White Grub	239	Buckhorn Plantain	253	String Trimmer Injury
<b>Diseases</b>		240	Chickweed	254	2,4-D Injury
227	Anthraxnose	241	Crabgrass		
228	Apple Scab	242	Dandelion		
229	Black Spot	243	Henbit		

### NURSERY/LANDSCAPE EQUIPMENT AND SUPPLIES IDENTIFICATION

No.	Item Name	No.	Item Name	No.	Item Name
255	anvil-and-blade pruner	275	edger (power or hand)	294	hose-end repair fitting
256	architect's scale	276	edging	295	hose-end sprayer
257	ball cart (B&B truck)	277	engineer's scale	296	hose-end washer
258	bark mulch	278	erosion netting	297	hose repair coupling
259	bark medium	279	fertilizer tablet	298	impulse sprinkler
260	bow saw	280	galvanized pipe	299	landscape fabric
261	brick paver	281	garden (spading) fork	300	leaf rake
262	broadcast (cyclone) spreader	282	garden (bow) rake	301	loppers
263	bubbler head, irrigation	283	gas mask	302	mattock
264	bulb planter	284	grafting band	303	measuring wheel
265	burlap	285	grafting tool	304	mist nozzle (mist bed)
266	chaps	286	granular fertilizer	305	mower blade balancer
267	compressed air sprayer	287	gravity (drop) spreader	306	nursery container
268	core aerifier	288	grass shears	307	oscillating sprinkler
269	chain saw	289	ground/pelleted limestone	308	peat moss
270	cut-off machine	290	hearing protection	309	pick axe
271	drip emitter, irrigation	291	hedge shears	310	planting/earth/soil auger
272	dry-lock wall block	292	hoe	311	planting bar
273	duster	293	hook-and-blade pruners	312	pole pruner
274	dust mask			313	polyethylene film

No.	Item Name	No.	Item Name	No.	Item Name
314	polyethylene pipe	327	rototiller	342	square point (flat) shovel
315	pop-up irrigation head	328	round point shovel	343	string trimmer
316	post-hole digger	329	safety goggles	344	tape measure
317	power blower	330	sand	345	timeclock
318	power hedge trimmer	331	scoop shovel	346	topsoil
319	pot-in-pot units	332	shade fabric	347	tree caliper
320	propagation mat	333	sharpening stone	348	tree wrap
321	pruning saw	334	siphon proportioner	349	trowel
322	PVC (polyvinylchloride) pipe	335	soaker hose	350	T-square
323	reel mower	336	soil sampling tube	351	vermiculite
324	resin-coated fertilizer	337	solenoid valve	352	vertical mower
325	respirator	338	spade	353	water breaker
326	rotary mower	339	spark plug gap gauge	354	wire tree basket
		340	sphagnum moss		
		341	spray suit		

## Nursery/Landscape

Name: \_\_\_\_\_ Chapter: \_\_\_\_\_

State: \_\_\_\_\_ Team No.: \_\_\_\_\_

Member No.: \_\_\_\_\_

### POTTING NURSERY STOCK PRACTICUM SCORECARD

	POSSIBLE POINTS	MEMBER SCORE
<b>POTTING PROCESS (35 POINTS)</b>		
<b>PREPARATION OF PLANTS</b>		
<ul style="list-style-type: none"> <li>• Plants selected for quality and uniformity</li> <li>• Inspects/prunes/grooms damaged parts</li> <li>• Prunes excess root length</li> <li>• Handles plants properly</li> </ul>	<b>10</b>	
<b>PLACEMENT OF PLANTS IN CONTAINERS</b>		
<ul style="list-style-type: none"> <li>• Plant centered and vertical</li> <li>• Roots carefully and properly spread</li> <li>• Plant at proper depth</li> <li>• Plant roots covered</li> </ul>	<b>10</b>	
<b>MEDIA FILLING AND SETTLING__</b>		
<ul style="list-style-type: none"> <li>• Sufficient media added</li> <li>• Media settled by bumping</li> <li>• Plant remains stable</li> </ul>	<b>10</b>	
<b>LABELING OF COMPLETED UNITS_____</b>		
<ul style="list-style-type: none"> <li>• Plant (variety) name and date</li> <li>• Legible</li> </ul>	<b>2</b>	
<b>SAFETY PRACTICES APPLIED_____</b>		
<ul style="list-style-type: none"> <li>• Proper cutting technique</li> <li>• Tool closed when finished</li> <li>• Minimal clutter/good organization in work area</li> </ul>	<b>3</b>	
<b>POTTING PRODUCTIVITY (15 POINTS)_____</b>		
NUMBER OF UNITS COMPLETED_____	<b>10</b>	
<b>QUALITY OF UNITS COMPLETED_____</b>		
<ul style="list-style-type: none"> <li>• Overall quality and uniformity of lot</li> </ul>	<b>5</b>	
<b>TOTAL POINTS</b>	<b>(50 POINTS)</b>	

\_\_\_\_\_  
*Judge's Name*

\_\_\_\_\_  
*Judge's Signature/Date*

## Nursery/Landscape

Name: \_\_\_\_\_ Chapter: \_\_\_\_\_

State: \_\_\_\_\_ Team No.: \_\_\_\_\_

Member No.: \_\_\_\_\_

### PROPAGATING NURSERY STOCK PRACTICUM SCORECARD

	POSSIBLE POINTS	MEMBER SCORE
<b>PROPAGATION PROCESS (35 POINTS)</b>		
<b>REMOVAL OF CUTTINGS</b>		
<ul style="list-style-type: none"> <li>• Selects best quality, uniform stock</li> <li>• Cuts at appropriate lengths</li> <li>• Makes clean cuts</li> </ul>	5	
<b>PREPARATION OF CUTTINGS</b>		
<ul style="list-style-type: none"> <li>• Leaves stripped/trimmed/groomed as needed</li> <li>• Proximity of cuts to nodes</li> <li>• Angled or wounded basal cut</li> <li>• Cutting/buds not damaged</li> </ul>	10	
<b>APPLICATION OF PROPER HORMONE</b>		
<ul style="list-style-type: none"> <li>• Sufficient applied and excess removed</li> <li>• Hormone kept clean</li> </ul>	7	
<b>PLACEMENT OF CUTTINGS IN MEDIA</b>		
<ul style="list-style-type: none"> <li>• Proper medium depth, as applicable</li> <li>• Media furrow cut and closed</li> <li>• Proper sticking depth</li> <li>• Efficient row and cutting spacing</li> </ul>	8	
<b>LABELING OF COMPLETED UNITS</b>		
<ul style="list-style-type: none"> <li>• Plant (variety) name, date, treatment</li> <li>• Legible</li> </ul>	2	
<b>SAFETY PRACTICES APPLIED</b>		
<ul style="list-style-type: none"> <li>• Proper cutting technique</li> <li>• Tool closed when finished</li> <li>• Minimal clutter in work area</li> </ul>	3	
<b>POTTING PRODUCTIVITY (15 POINTS)</b>		
NUMBER OF UNITS COMPLETED	10	
<b>QUALITY OF UNITS COMPLETED</b>		
<ul style="list-style-type: none"> <li>• Uniform size and placement</li> <li>• Cuttings stable in media</li> </ul>	5	
<b>Total Points</b>	<b>(50 points)</b>	

\_\_\_\_\_  
*Judge's Name*

\_\_\_\_\_  
*Judge's Signature/Date*

## Nursery/Landscape

Name: \_\_\_\_\_ Chapter: \_\_\_\_\_

State: \_\_\_\_\_ Team No.: \_\_\_\_\_

Member No.: \_\_\_\_\_

### TEAM ACTIVITY SCORECARD

TEAM PREPARATION	INDIVIDUAL POSSIBLE SCORE	1	2	3	4	TEAM	ACTUAL TEAM SCORE
• Team leadership roles established/evident							(10)
• Project assignment and goal defined						(10)	
• Member responsibilities outlined and defined						(10)	
• Members effective in individual tasks	(10 pts each)						
• Members supportive of each other	(10 pts each)						
• Members interact in positive/constructive way	(10 pts each)						
<b>Sub-Total (A)</b>	<b>(30 possible)</b>						
• Agreement reached on individual evaluation						(10)	
• Presentation plan developed (who does what/when)						(10)	
<b>Sub-Total (B)</b>						(50)	
TEAM PRESENTATION	INDIVIDUAL POSSIBLE SCORE	1	2	3	4	TEAM	ACTUAL SCORE
• Positive voice, grammar, eye contact	(5 pts each)						
• Effective organization of information	(5 pts each)						
• Effective communication of information	(5 pts each)						
• Demonstrates knowledge of subject	(5 pts each)						
<b>Sub-Total (C)</b>	<b>(20 possible)</b>						
• Effective team interaction during presentations						(15)	
• Appropriate participation from each team member						(15)	
• Effective total team presentation						(10)	
• Team Assignments fulfilled						(10)	
<b>Sub-Total (D)</b>							
<b>Total Team Member Points (A + C)</b>	<b>(50 possible)</b>						

\_\_\_\_\_  
*Judge's Name, section A & B*

\_\_\_\_\_  
*Signature/Date*

## Nursery/Landscape

Name: \_\_\_\_\_ Chapter: \_\_\_\_\_

State: \_\_\_\_\_ Team No.: \_\_\_\_\_

Member No.: \_\_\_\_\_

### VERBAL CUSTOMER ASSISTANCE PRACTICUM SCORECARD

	POSSIBLE POINTS	MEMBER SCORE
<b>CONVERSATION (35 POINTS)</b>		
<b>APPROACH</b>		
<ul style="list-style-type: none"> <li>• Effective greeting and offer to help</li> <li>• Positive, enthusiastic; not hesitant</li> </ul>	4	
<b>PERSONALITY</b>		
<ul style="list-style-type: none"> <li>• Pleasant, friendly manner</li> <li>• Not pushy in selling</li> </ul>	7	
<b>VOICE</b>		
<ul style="list-style-type: none"> <li>• Easy to hear and understand</li> <li>• Proper grammar used; good speaking form</li> </ul>	7	
<b>INFORMATION REQUESTED FROM CUSTOMER</b>		
<ul style="list-style-type: none"> <li>• Determines assistance needs</li> <li>• Effectively ask details/preferences</li> </ul>	7	
<b>SALESMANSHIP</b>		
<ul style="list-style-type: none"> <li>• Effective; tries to expand sale</li> <li>• Develops customer confidence in product/service</li> </ul>	7	
<b>CLOSING</b>		
<ul style="list-style-type: none"> <li>• Repeats order, handles payment (as applicable)</li> <li>• Asks if instructions understood</li> <li>• Thank you close</li> </ul>	3	
<b>PRODUCT/PROBLEM/PROCEDURE PRESENTATION * (15 POINTS)</b>		
CORRECT PRODUCT/PROCEDURE/SELECTIONS	6	
CORRECT PRODUCT/PROBLEM INFORMATION PROVIDED	6	
CLARITY OF INFORMATION PROVIDED TO CUSTOMER	3	
<b>Total Points</b>	<b>(50 points)</b>	

\* Includes, as applicable, evaluation of order form for completeness, spelling and arithmetic accuracy, clarity.

\_\_\_\_\_  
*Judge's Name*

\_\_\_\_\_  
*Judge's Signature/Date*

## Nursery/Landscape

Name: \_\_\_\_\_ Chapter: \_\_\_\_\_

State: \_\_\_\_\_ Team No.: \_\_\_\_\_

Member No.: \_\_\_\_\_

### WRITTEN CUSTOMER ASSISTANCE PRACTICUM SCORECARD

	POSSIBLE POINTS	MEMBER SCORE
<p><b>Customer Relations</b></p> <ul style="list-style-type: none"> <li>• Does the letter create/maintain goodwill (is it free of negative words that create an unpleasant tinge)?</li> <li>• Is the tone appropriate for the letter purpose?</li> <li>• Does the letter emphasize reader (you) rather than writer (I)?</li> <li>• Is the tone and reading level appropriate for reader?</li> </ul>	10	
<p><b>Business Letter Form</b></p> <ul style="list-style-type: none"> <li>• Is the letter written in acceptable business format including the date, inside address, salutation, body, complimentary close, signature and additional data (pc, enclosure, etc.)?</li> </ul>	10	
<p><b>Organization</b></p> <ul style="list-style-type: none"> <li>• Is the content organized in logical, coherent order?</li> <li>• Is the letter properly divided into paragraphs with topic sentences?</li> <li>• Is the letter divided into sentences which clearly convey key points?</li> <li>• Does the letter use short conversational words?</li> </ul>	10	
<p><b>Technical Information</b></p> <ul style="list-style-type: none"> <li>• Is the technical information provided in letter correct?</li> <li>• Is the information provided in simple, clear, concise manner?</li> <li>• Does the letter relate directly to the inquiry?</li> </ul>	10	
<p><b>Grammar/Punctuation</b></p> <ul style="list-style-type: none"> <li>• Is the letter free of grammatical errors and misspelled words?</li> </ul>	10	
<b>Total Score:</b>	<b>50</b>	
<i>Deductions( i.e., Rules Infractions, Missing Content)</i>		(    )
<b>Grand Total:</b>		

\_\_\_\_\_  
*Judge's Name*

\_\_\_\_\_  
*Judge's Signature/Date*

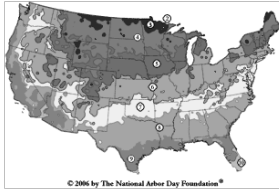


Name \_\_\_\_\_

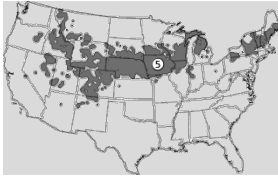
## Climate Zone Student Sheet

Arborday.org

- ✓ Go to
- ✓ Click on
- ✓ Click on
- ✓ Enter your
- ✓ A map will come up with your climate hardiness zone.



What is the zone where you live? \_\_\_\_\_



- ✓ Click on

What are 5 of the most popular trees for your zone?

- ✓ Click on

What are 5 more trees that grow well in your zone?

Why would a climate zone map of your area be helpful?

Name \_\_\_\_\_

Date \_\_\_\_\_

## Nursery/Landscape Plant Identification Student Sheet

Obtain the official list of Nursery/Landscape Plant Identification. These plants are numbered from 101-216. Using your book, internet, or a lab manual, research the following information about nursery/landscape plants and fill out this Student Sheet.

- **Plant no.**—plant number from the official list of Nursery/Landscape Plant Identification
- **Common name**—name typically called, may have more than one
- **Scientific name**—Latin botanical epithet
- **Unique characteristics**—things that make the plant easier to identify
- **Plant classification**—tree form, herbaceous—annual, biennial, perennial/ or woody plant
- **Hardiness zone**—zone the plant can withstand as the coldest freezing temperature and still grow
- **Growing requirements**—does the plant prefer shade or sun, what type of soil, etc..
- **Image**—draw a sketch of the plant or upload one from the internet
- **Other**—any other things that you would like to remember about the plant that will make it easier to identify

Plant No. _____	Plant Id. Information:	Image
<p>common name:</p> <p>scientific name:</p> <p>unique characteristics:</p> <p>plant classification:</p> <p>hardiness zone:</p> <p>growing requirements:</p> <p>other:</p>		
Plant No. _____	Plant Id. Information:	Image
<p>common name:</p> <p>scientific name:</p> <p>unique characteristics:</p> <p>plant classification:</p> <p>hardiness zone:</p> <p>growing requirements:</p> <p>other:</p>		

Plant No. _____	Plant Id. Information:	Image
<p>common name:</p> <p>scientific name:</p> <p>unique characteristics:</p> <p>plant classification:</p> <p>hardiness zone:</p> <p>growing requirements:</p> <p>other:</p>		
Plant No. _____	Plant Id. Information:	Image
<p>common name:</p> <p>scientific name:</p> <p>unique characteristics:</p> <p>plant classification:</p> <p>hardiness zone:</p> <p>growing requirements:</p> <p>other:</p>		
Plant No. _____	Plant Id. Information:	Image
<p>common name:</p> <p>scientific name:</p> <p>unique characteristics:</p> <p>plant classification:</p> <p>hardiness zone:</p> <p>growing requirements:</p> <p>other:</p>		
Plant No. _____	Plant Id. Information:	Image
<p>common name:</p> <p>scientific name:</p> <p>unique characteristics:</p> <p>plant classification:</p> <p>hardiness zone:</p> <p>growing requirements:</p> <p>other:</p>		

# TREE FORMS



ROUND



SPREADING



PYRAMIDAL



OVAL



CONICAL



VASE



COLUMNAR



OPEN



WEEPING



IRREGULAR