

## Lesson C2–6

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# Choosing Plants for the Landscape

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**Unit C.** Nursery, Landscaping, and Gardening

**Problem Area 2.** Residential Landscape Design

**Lesson 6.** Choosing Plants for the Landscape

### **New Mexico Content Standard:**

**Pathway Strand:** Plant Systems

**Standard:** IV: Exercise elements of design to enhance an environment (e.g., floral, forest, landscape, farm).

**Benchmark:** IV-A: Apply basic design elements and principles to create a design using plants.

**Performance Standard:** 6. Select plant(s) for design.

**Student Learning Objectives.** Instruction in this lesson should result in students achieving the following objectives:

1. Define the categories of landscape plants.
2. Describe why plant names are important.
3. Identify factors to consider when selecting woody plant material for the landscape.
4. Explain how the environment affects plant selection.

**List of Resources.** The following resources may be useful in teaching this lesson:

**Recommended Resources.** One of the following resources should be selected to accompany the lesson:

Biondo, Ronald J. and Charles B. Schroeder. *Introduction to Landscaping: Design, Construction, and Maintenance*, Second Edition. Danville, Illinois: Interstate Publishers, Inc., 2003.

**Other Resources.** The following resources will be useful to students and teachers:

Dirr, Michael A. *Manual of Woody Landscape Plants*, Fourth Edition. Champaign, Illinois: Stipes Publishing Company, 1990.

Bridwell, Ferrell M. *Landscape Plants: Their Identification, Culture, and Use*, Second Edition. Albany, New York: Delmar Publishers, 2003.

## List of Equipment, Tools, Supplies, and Facilities

Writing surface  
Overhead projector  
Transparencies from attached masters  
Copies of student lab sheets  
Several books on landscape plants

**Terms.** The following terms are presented in this lesson (shown in bold italics):

Cultivar  
Deciduous  
Evergreen  
Flowers  
Genus  
Groundcovers  
Hardiness zones  
Ornamental  
Shrubs  
Soil pH  
Species  
Specimen plant  
Variety  
Woody

**Interest Approach.** Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and student situations. A possible approach is included here.

Begin the lesson by writing plant names on the blackboard. Be sure to include some common names as well as Latin names. Ask the students to copy down only those names they are familiar with or they can picture in their head. Then have the students look at the lists and try to cite reasons why that plant is used or not used in the landscape. Next, place students in groups of 2-3 and provide them with references on plant material. See if the students can add to their list of recognizable plants. Finally have the class come up with a collaborative list of plants that are commonly used in the landscape and why they are used.

## Summary of Content and Teaching Strategies

**Objective 1:** Define the categories of landscape plants.

**Anticipated Problem:** What are the common categories of landscape plants?

- I. Plants are divided into separate categories based on their size, growth habit, and purpose in the landscape. By knowing the different terms used for plants in the landscape industry, it is easier to select the right plants for a particular function.
  - A. Trees are **woody** (develops bark) plant material that are usually single-stemmed and over 12 feet in height. They may be **deciduous** (lose their leaves in the fall) or **evergreen** (retain their leaves year-round). Trees are used to provide shade, frame a house, or for **ornamental** (decorative) characteristics like flowers or fruit.
  - B. **Shrubs** are smaller than trees, getting no more than 20 feet in height and multi-stemmed. Shrubs may also be evergreen or deciduous and they are used to create hedges or borders, screen an area, or as foundation plants.
  - C. **Groundcovers** are plant materials under 1 foot tall that are used in place of grass. They help to tie the elements of a landscape together and can climb objects or creep along the ground.
  - D. **Flowers** are ornamental plants that add a burst of color to the landscape. They can be found on trees, shrubs, or groundcovers, or they can be plants in a category of their own like marigolds and tulips. Flowering plants can live for only one season or return to the garden year after year.

*One way to help students master this objective is to have them complete LS: C2–6A. This will help them match the correct terms to their definitions. Another method for this objective would be to show students pictures of plant material and have them sort the material into the proper categories.*

**Objective 2:** Describe why plant names are important.

**Anticipated Problem:** Why are plant names important?

- II. Plant names are what people often associate with the actual plant. Plant names can fall into two categories—common names and botanical names (Latin names). It is important to become familiar with the Latin names of plants because that is the only name that is consistent

for that one particular plant. Common names of plants can vary from country to country and from state to state, sometimes even from one town to the next. Because a plant can have so many common names they are considered unreliable. The botanical names of plants come from Carl von Linne (Linnaeus) and his binomial system of naming plants. Each plant has a genus, specific epithet (species), and often a variety, and a cultivar.

- A. The **genus** is a group of plants that are closely related to each other and they may contain one or more species. Botanists use mainly the flower structure to distinguish one genus from another. The genus is always written with a capital letter and is either underlined or italicized. It is the same for every plant in a particular group. For example, *Quercus* is the Latin name for all oaks while *Acer* refers to all maples.
- B. The **species** is a group of plants that have similar characteristics which make them distinct from other groups in the genus. The species name is written in lower case, underlined or italicized.
- C. A **variety** results from a difference within a species. This difference is passed sexually from one generation to the next. A variety follows the species name and is lowercase, underlined, or italicized.
- D. A **cultivar** is a group of plants within a species with a very distinguishing characteristic. However, unlike a variety, the only way to keep this characteristic within a plant is to asexually propagate the plant from cuttings or grafting. The cultivar is placed in single quotations and capitalized.

*One way to help students master this objective is to have them look through reference books on plants to find Latin names. Have the students copy the names down, labeling the genus, species, variety, cultivar, and common name. Show TM: C2–6A to check for accuracy.*

**Objective 3:** Identify factors to consider when selecting woody plant material for the landscape.

**Anticipated Problem:** What factors should be considered when selecting woody plant material for the landscape?

- III. There are hundreds of plants available for the landscape gardener. It could be a very daunting task for a person to try and select just the right plant for the right area. The best way to select plants for the landscape is to become familiar with the plants. The landscaper needs to research potential plants and find out the plant's ornamental characteristics, the mature size and form, its environmental requirements and its hardiness zone. The United States Department of Agriculture created a map of the U.S. that shows the average annual minimum temperature for all areas. These areas are called **hardiness zones**. In addition to these factors, the designer needs to consider the purposes or function the plant will serve. The landscaper would need a different plant to create a screen in the yard versus the plant that would be chosen to act as a specimen plant. A **specimen plant** is a plant that is particularly attractive and adds accent to a planting bed. Plants are then selected for the correct areas based on their cold tolerance and other environmental requirements.

- A. Probably one of the first things a person would use in selecting a plant for the landscape would be the ornamental characteristics of the plant. Ornamental characteristics would include flowers, fruits, foliage, bark, and form. The best plants for the landscape would have four-season appeal which means they have an attractive quality about them throughout the year. A plant's ability to produce attractive flowers is certainly an asset to the landscape. Some commonly known flowering plants are crab apples, dogwoods, and lilacs. The fruit on a tree could both be a reason for selection like in the case with crab apples or holly, or be a reason to avoid that plant, like ginkgo, which has rotten smelling fruit, or hedge apple with its fruit the size of softballs. The foliage on the plant plays an important roll in plant selection. Plants can be either evergreen or deciduous. The leaves can have different textures and colors. Many plants have outstanding fall color like the reds and oranges of the maples. The plant's branches and trunk can add to the landscape interest. Birches have wonderful exfoliating bark in whites and tans. Cherries also have shiny, smooth bark that makes a great accent in the garden. The shape of the plant from an elegant weeping form to a stark pyramidal can be used in the landscape to create bold statements.
- B. One of the easiest things to forget about when selecting plants for the landscape is the mature size of the plant. Some people want to install a landscape so that it is vivid and eye-catching right from the start. People often forget that plants will grow. One must consider the mature size of a plant and use caution when placing the plant close to the home or windows.
- C. A plant must be in the correct hardiness zone for that particular area or it will not survive the winter. All plants are labeled with a particular zone which indicates its cold tolerance. The U.S. is divided into 11 zones.
- D. When selecting plants for the landscape, it is important to look at and select cultivars if they are known. Cultivars have been selected because they have proven themselves to have consistent outstanding characteristics. Cultivars are often selected for their disease resistance to common ailments.

*One way to help students master this objective is to have them research woody plant material. Have them create a reference of plants that are used in the landscape for a variety of reasons. LS: C2-6B is one example of a research project that would help students create a valuable reference source for selecting landscape plants. Use TM: C2-6B to illustrate hardiness zones.*

**Objective 4:** Explain how the environment affects plant selection.

**Anticipated Problem:** How does the environment affect the selection of plant material?

- IV. A landscape can select a wonderful plant specimen for the landscape that has four-season appeal, is the correct size of the site, and in the correct hardiness zone, but if it is placed in the improper environment, it will not flourish. Two common environmental conditions that affect plants are soil pH and the moisture level in the soil.

- A. The **soil pH** is a measure of the acidity or alkalinity in the soil. It is measured on a scale of 1–14 with 7 being neutral. Measurements of 1–6 are acidic with 8–14 alkaline. Most plants like to grow at a pH of 5.6–7.0. If the soil pH is too high or too low, it will affect the availability of nutrients to the plant. The landscape designer should try to select plants that match the pH of the site whenever possible.
- B. The amount of moisture that the soil holds can be a limiting factor in plant selection. Most plants do not like to have their roots sitting in wet soil for any length of time. In turn, many plants can not tolerate dry soils without any moisture. Be sure to select plants that tolerate the type of soil for any given site.

*One way to help students master this objective is to have them evaluate a site around the school. Have students consider the type of soil the site has and test the soil is pH. Then have the students create a list of plants that would tolerate that environment for that particular site.*

**Review/Summary.** Use the student learning objectives to summarize the lesson. Ask students to explain what factors are used in selecting plants for the landscape. Have the students create lists of plants that are used for flowers or have attractive foliage for reference lists when designing their own landscape. The responses can be used to determine which objectives need clarification.

**Application.** Application of this lesson can be achieved through the following ways:

Completing LS: C2–6A and LS: C2–6B

Reading the appropriate sections *Introduction to Landscaping: Design, Construction, and Maintenance*

**Evaluation.** The evaluation of the student achievement over the lesson objectives will be the successful completion of the lab sheets and the written test. A sample written test is attached.

## **Answers to Sample Test:**

### **Part One: Matching**

1=f, 2=a, 3=c, 4=e, 5=d, 6=b

### **Part Two: Completion**

1. deciduous
2. genus, species
3. 5.6–7.0

### **Part Three: Short Answer**

1. mature size, ornamental characteristics, hardiness zone, environmental conditions, function or purpose.

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# Test

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## Lesson C2–6: Choosing Plants for the Landscape

### Part One: Matching

*Instructions.* Match the term with the correct response. Write the letter of the term by the definition.

- |            |                   |                |
|------------|-------------------|----------------|
| a. tree    | b. shrubs         | c. groundcover |
| d. soil pH | e. specimen plant | f. ornamental  |

- \_\_\_\_\_ 1. Decorative.
- \_\_\_\_\_ 2. Single-stemmed, over 12 feet tall.
- \_\_\_\_\_ 3. Used to tie the landscape together, under 1 foot tall.
- \_\_\_\_\_ 4. An accent to the design.
- \_\_\_\_\_ 5. Measures the acidity or alkalinity in soil.
- \_\_\_\_\_ 6. Multi-stemmed, shorter than 20 feet.

### Part Two: Completion

*Instructions.* Provide the word or words to complete the following statements.

1. A \_\_\_\_\_ plant loses its leaves every year.
2. In the Latin name *Cornus florida*, *Cornus* is the \_\_\_\_\_ and *florida* is the \_\_\_\_\_.
3. Most plants grow at a pH of \_\_\_\_\_.

### Part Three: Short Answer

*Instructions.* Provide information to answer the following questions.

1. List four factors that one should consider when selecting plants for the landscape.
  - a.
  - b.
  - c.
  - d.

TM: C2-6A

# LATIN NAMES

**Acer rubrum var. columnar**

**Genus species**

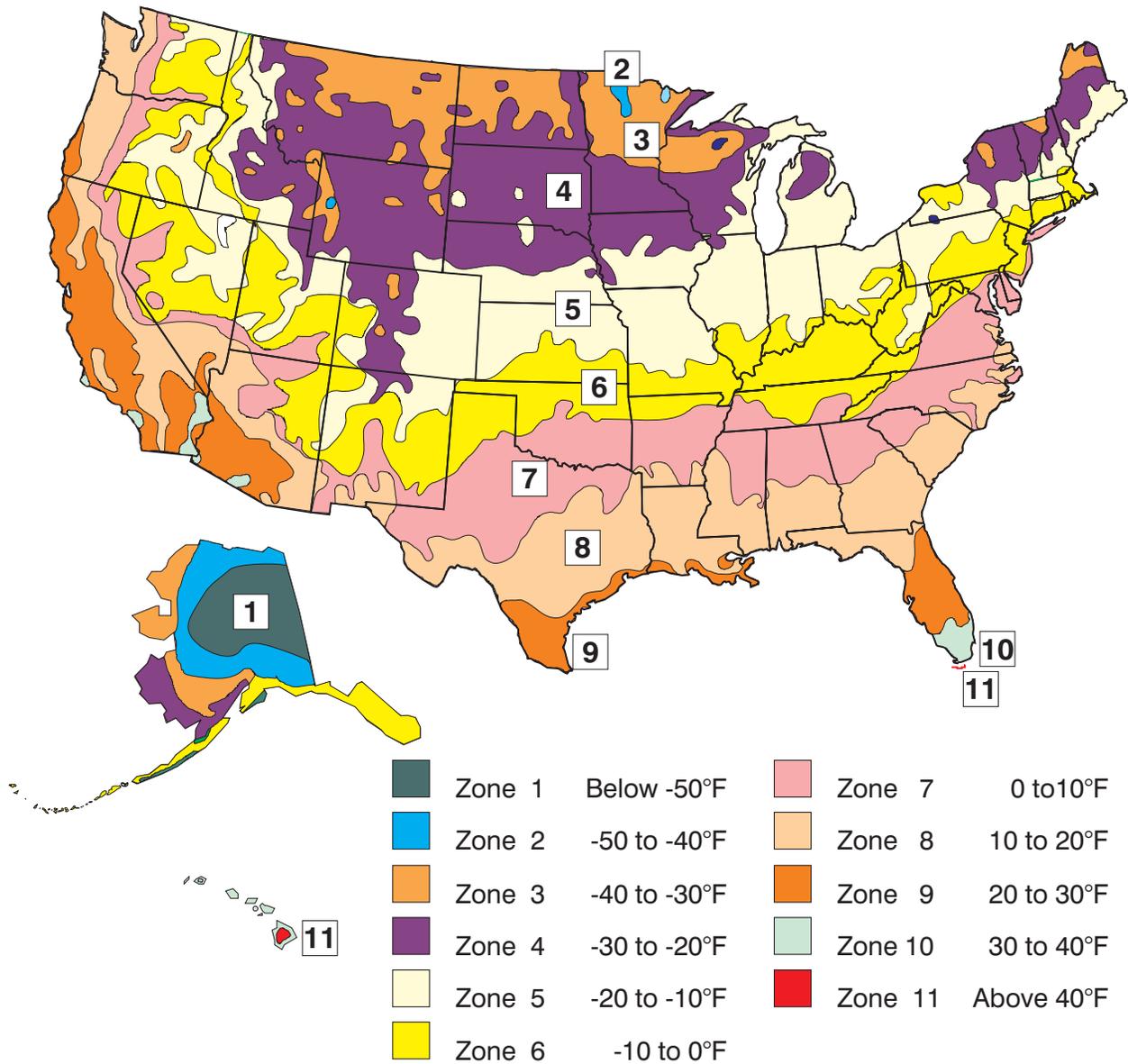
**variety**

**Acer rubrum ‘Red Sunset’**

**Genus species**

**Cultivar**

# PLANT HARDINESS ZONES



(Courtesy, USDA)

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# Lab Sheet

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## Plant Terminology

Match the following terms with their definitions.

_____ Tree	_____ Shrub	_____ Groundcover
_____ Flower	_____ Genus	_____ Deciduous
_____ Ornamental	_____ Evergreen	_____ Cultivar
_____ Specimen plant	_____ Variety	_____ Species

- A plant that loses its leaves every year.
- A plant that is usually multi-stemmed and under 20 feet tall.
- A plant that adds interest to the garden.
- A plant that holds its leaves all year long.
- A plant that is usually single-stemmed and over 12 feet tall.
- A plant that is under 1 foot tall and is an alternative to grass.
- Found on shrubs, trees, or groundcovers; lilacs have very fragrant ones.
- Decorative.
- Always uppercase and underlined or italicized
- Always uppercase and placed in single quotes.
- Always lower case and underlined.
- Always lower case and follows the species.

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# Lab Sheet

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## Landscape Plant Project

### **Assignment**

1. You need to research 25 different landscape plants and prepare a notebook of your findings. You will need to include:
  - 10 tree species (2 of which must be evergreen trees)
  - 8 shrub species ( 2 of which must be evergreen shrubs)
  - 2 groundcovers
  - 5 flowers
2. Information needed on each species:
  - Common Name:
  - Latin Name:
  - Category:
  - Height:
  - Spread:
  - Landscape Value:
  - Picture
  - Actual Sample (May be a leaf, stem, flower, fruit, seed)— Must be preserved