

# LANDSCAPE AND TURF MANAGEMENT

## Lesson 15: PRUNING

### I. LESSON DESCRIPTION

Students enter a day in the life of an arborist. After studying the basic principles of pruning, students become "certified" and assess the landscape around your school as a professional would assess before making any pruning cuts. *Estimated time requirement for this lesson is 60 minutes.*

**Curriculum Standards:** National Agriculture, Food and Natural Resources (AFNR) Career Cluster Content Standards, National Council for Agricultural Education, 2009:

- AFNR LifeKnowledge® and Cluster Skills Standards (CS):
    - CS.01.01.01.a. Work productively with a group or independently.
    - CS.01.01.01.b. Demonstrate the ability to complete a task without assistance.
    - CS.01.01.01.c. Work independently and in group settings to accomplish a task.
    - CS.01.01.03.a. Exhibit good planning skills for a specific task or situation.
  - Plant Systems (PS):
    - PS.03.02.05.a. Explain the reasons for controlling plant growth.
    - PS.03.02.05.b. Demonstrate proper techniques to control and manage plant growth through mechanical, cultural or chemical means.
- PS.03.02.05.c. Create and implement a plan to control and manage plant growth.

*Because of the balance between roots and leaves, pruning generally stimulates growth.*

#### **Student Learning Objectives:**

- (1) Analyze plants in the landscape to relate the 5 objectives of pruning
- (2) Explain why some shrubs should be pruned in winter, others in spring
- (3) List 3 of the 6 pruning tools discussed
- (4) Diagram where to place a cut to manage a tree's small branches, to remove large branches, to thin out a shrub, and to renew a shrub

**Instructional Methods:** Informal Lecture, Discussion, Exercise, Tour

#### **Teacher Preparation**

- Optional: If you have access to any of these tools, you may wish to bring to class: hand pruning shears, lopping shears, pole pruners, hedge shears, pruning saws, chainsaw. Use bypass pruning shears, as the anvil pruning shears tend to damage tissue.
- Optional: If time permits, preview the site of the Tour described below, to identify plants that illustrate the points in the PowerPoint presentation.

## II. LESSON PLAN

### Legend:

Text in normal face      Represents teacher's words.

*Text in italic face*      *Represents suggestions for the teacher.*

### Interest Approach:

- QUESTION: Imagine walking through an elegant estate planted in 1830 with a fine variety of shrubs and trees. The owner of this property, for the past 50 years, has prohibited the gardeners from pruning any of the plants. Please tell me, what comes to your mind when you picture these plants, which haven't been pruned for 50 years?
- ANTICIPATED RESPONSES: Large branches fell and left ragged stubs, shrubs are overgrown and leggy, rose canes are too tall to appreciate the flowers, understory shrubs are lanky from low light levels, etc. (*Entertain responses for 1 or 2 minutes, until you feel the students appreciate the value of controlling a plant's growth.*)
- So, do you see the value of a sharp saw and pruning shears? A large part of caring for plants involves selective pruning, and it's worthwhile taking some time to learn some basic principles to meet the pruning needs of several plant groups.

### Relevancy:

- Today we'll enter a specialty within horticulture, a specialty called arboriculture, which is the cultivation of trees and shrubs. We'll wear the hat of an arborist, and after we become certified in a short class today, we'll sample a typical work day. First we'll have a presentation on pruning principles; we'll cover reasons for pruning, when to prune, pruning tools, and pruning techniques. Then we'll have a quick exercise so you can assess your skills. Once we're certified, we'll go into the field and apply the principles.

### Learning Objectives:

- After completing this lesson, you will be able to:
- Analyze plants in the landscape to relate the 5 objectives of pruning
- Explain why some shrubs should be pruned in winter, others in spring
- List 3 of the 6 pruning tools.
- Diagram where to place cuts for a tree's small branches, for large branches, for thinning out purposes on a shrub, and for renewal purposes on a shrub.
- Before we even think about our first paycheck, we'll have to review the basic principles of pruning.

## Instructional Methods

**Lecture:** 22 minutes estimated

- Present the PowerPoint file, 15\_Pruning\_PowerPoint.ppt.*

**Exercise:** 5 minutes estimated

- Distribute the handout, 15\_Pruning\_task.doc*
- Now let's practice some of the principles we've learned. On your handout, mark lines at the points where you would prune for the effect desired.
- Then discuss their decisions.*
- Let's begin earning our paychecks. We'll tour the grounds outside and consider how to apply the principles we learned in class.

**Tour:** 30 minutes estimated

- Visit the grounds around the school, or walk the adjacent neighborhood. Divide the group into two teams.*
- Students in Team A, your mission is to find plants that illustrate good pruning practice. For example, look closely at fresh wounds on trees - were branches cut flush to the branch collar, or flush to the trunk? Take note of the shape of the cut edge; a donut shape is best since it is easiest to cover with subsequent expansion of the tree's growth rings, eventually closing the wound completely. A less favorable shape is an oval, since the area of the wound is larger than a circle.
- Team B, find plants that need pruning. For example, can you find any shrubs whose interior foliage is too sparse because dense outer foliage excluded sunlight? Find shrubs that are too large for the site, to exemplify the case where pruning is required to make up for someone's bad judgment, i.e. the designer specified the wrong plant. Find some conditions that drastically need pruning, and ask the students to indicate where they would prune. *(Optional: Both teams, assign an accountant to track the number of cases you see; don't worry, we're not assessing the better team, we're just assessing the landscape.)*
- If your group is large, you can subdivide each team into a Shrubs team and a Trees team.*
- Throughout the tour, keep your eye out for other examples that reinforce the principles. For example, if you see an azalea, remind them the best time to prune is just after the spring bloom, since the azalea will begin developing the flower bud for next year, very shortly after the spring bloom; you don't want to prune in June since you'll destroy next year's bloom. The flower bud deep within the twig is miniature and won't be very apparent for the first growing season, but it is there. Walk the area and ensure each team fulfills their tasks.*
- Next, analyzing the Teams' scores. Even if you don't keep scores, you'll see a general pattern of Team A's good examples and Team B's bad examples. For example, if there are more bad examples than good examples, then you can wind up the tour by saying there's a great demand for pruning here; there's loads of room for improvement, and plenty opportunities for apprentices like us. If there are more good examples than bad,*

*then you can comment that the school groundskeepers or neighbors deserve congratulations for jobs well done. You can remain outdoors to deliver the Conclusion.*

**Summary:**

- Now that we're certified, and now that we've concluded a major analysis outside, let's revisit the estate we toured in our mind, at the beginning of class. The estate has changed hands, and the new owner is not scissors-phobic. As a team, go back in your mind and apply your skills:
  - (1) Analyze plants in the landscape to relate the 5 objectives of pruning;
  - (2) Explain why some shrubs should be pruned in winter, others in spring;
  - (3) Consider your kit of 6 pruning tools;
  - (4) Consider where to place cuts for a tree's small branches, for large branches, for thinning out purposes on a shrub, and for renewal purposes on a shrub.
- Imagine how you've transformed the place - the estate is now a model for all the pruning practices that we've learned. Isn't that a more uplifting place to spend a Sunday afternoon?
- Now that you've seen how you've beautified that estate, turn your talents to your own yard. You now have the basic guidelines for pruning, an important practice in the landscape whether you approach it as a hobby or a profession.

**OPTIONAL ACTIVITIES**

The most valuable supplement is to offer hands-on experience described in option 1 or 2:

- If the school has a garden or greenhouse, then you can schedule some hands-on practice, with permission from the groundskeeper. If time permits, follow-up visits to analyze results will be vital in learning the effects of each practice.
- Even if you don't have access to a garden, you can stage a hands-on session with real plant material in the classroom. However, there is some additional preparation time in gathering pruning shears and woody plant material. Borrow as many pruning shears as you can find, so several students can practice simultaneously. Point out that bypass pruners are superior to anvil pruners, since the latter tend to crush the twig. You'll notice that bypass pruners have a thin blade and a thick blade; place the thin blade nearest the wood that remains, for a precise cut. Find some fresh woody clippings with prominent dormant buds, from a recent trimming job performed in your yard, or else purchase woody material from a florist. Better yet is a potted plant or a complete shrub destined for the compost pile, if you can find it; you may encounter an entire shrub or small tree that died; even though it's leafless, you still might find some growth buds on the stems. In addition, if you can find some branches of 1" diameter or more, consider bringing in a professional pruning saw if you own one; then students can see how easy it is to cut thicker wood, even without resorting to a chainsaw.
- If you know an arborist willing to volunteer, invite to class to relate experiences, such as job satisfaction, or special examples of how pruning maintains plant health. Some say

that tree climbing is the most dangerous occupation.

- Ask students to identify gardens they admire, then interview the owners about special pruning practices they consider essential to the maintenance and aesthetics of their yard.
- Ask students to list the key trees and shrubs in their own yards, and create a schedule of appropriate times to prune.
- If you know an orchardist willing to volunteer, invite to class to relate the importance of pruning regularly to maximize crops of apples, peaches, and plums.
- Invite a representative of your local nursery to present a demo of the key tools they sell for pruning tasks.
- Invite a representative of a chainsaw dealer to present a summary of chainsaw safety. Alternatively, ask students to identify key safety principles found on various websites.

### RESOURCES:

#### Free:

- "Pruning Landscape Trees", publication CAT UH099 from Penn State University, available online at [http://hortweb.cas.psu.edu/pubs/pdfs/lscpe/pruning\\_lscpe\\_trees.pdf](http://hortweb.cas.psu.edu/pubs/pdfs/lscpe/pruning_lscpe_trees.pdf)
- "Pruning Ornamental Plants", publication CAT AGRS 95 from Penn State University, available online at [http://hortweb.cas.psu.edu/pubs/pdfs/lscpe/pruning\\_ornamental\\_plants.pdf](http://hortweb.cas.psu.edu/pubs/pdfs/lscpe/pruning_ornamental_plants.pdf)
- <http://hort.ifas.ufl.edu/woody/powerpoints.htm> - Follow the link "Pruning Trees" for a detailed PowerPoint presentation with numerous photographs.
- Don't forget Inter-Library Loan makes any book a free (or nearly free) resource - ask your librarian for a request form. (Sometimes you pay a few dollars for shipping, but usually not.)

**Books:** Many books include the topic of pruning, but the following titles come with particularly high recommendations.

- *Modern Arboriculture*, Shigo and Trees, Associates - Dr. Alex Shigo, plant pathologist for USDA Forest Service, stands out as an authority in tree care, emphasizing the need to cut a branch flush to the branch collar, not flush with the trunk. His key principle was CODIT - the compartmentalization of decay in trees.
- *American Horticultural Society Pruning and Training*, Christopher Brickell, editor-in-chief, ISBN 1-56458-331-7, DK Publishing, 1996, SRP \$35.00. This is an excellent reference, rich with over 1500 diagrams and photographs, and complete with individual information for 800 species.

**Websites:** Within a web address, locations of specific pages may change in time; if the pages below are not found, then remove all characters that follow the website root such as ".com" or ".org" to visit the home page. Then explore the menus to find the page described below.

- <http://hort.ifas.ufl.edu/woody/pruning/> - "Pruning Shade Trees in Landscapes" by Dr. Ed Gilman of the University of Florida.
- [http://www.treesaregood.com/treecare/pruning\\_young.asp](http://www.treesaregood.com/treecare/pruning_young.asp) - International Society of Arboriculture
- <http://www.bbg.org/gar2/topics/sustainable/handbooks/pruningtrees/1.html> - Brooklyn Botanical Garden
- [http://www.fairchildgarden.org/horticulture/n\\_pruning.html](http://www.fairchildgarden.org/horticulture/n_pruning.html) - Fairchild Tropical Botanical Garden

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