



Chapter Contents

- Teacher's Notes
 - Assessment of Problem to Solve
 - Notes on the Activities
 - Complementary Activities
- Background Information: *Low Maintenance, Not No Maintenance*
- Problem to Solve: Harrison and Siebert Maintenance Project
- Problem to Solve: Starting a Business
- Harrison and Siebert Maintenance: Project Cover Sheet
- Harrison and Siebert Maintenance Project: Tips for Getting Started
- Starting a Business: Project Cover Sheet
- Student Handout: *I've Mowed, Now What?*
- Resources and References

Xeriscape Principle

Keeping a xeriscape beautiful requires regular fertilizing, pest control, and weeding. To ensure continued water savings, keep the irrigation system properly maintained, check for leaks, and adjust the watering schedule each season.

Key Concepts

Landscape maintenance, evapotranspiration, biodiversity, pruning, fertilizing, weed control, pest control.

Teacher's Notes



Although most xeriscapes are *low* maintenance, they are not *no* maintenance. Keeping a xeriscape beautiful and waterwise through a program of well-timed mowing, fertilizing, pruning, pest control, and weeding will ensure that the landscape develops beautifully.

To ensure water savings, keep the irrigation system properly maintained, adjust watering for the time of year, monitor for leaks, and discontinue watering native plants after they have become established.

The structure of this chapter is slightly different from previous chapters. There are no actual activities. Instead, the students are given **Student Handouts** with background information on maintenance and a choice of two projects, designed to accommodate students with differing abilities and interests. The projects provide a natural tie-in to the “career readiness” section of the New Mexico Standards and Benchmarks.

The first **Problem to Solve** features the Harrison and Siebert families from Chapter 3: Efficient Irrigation. This time, the students are asked to develop an annual maintenance plan for one of the two households. At Level 1, the students develop seasonal maintenance plans for each section of the fami-

Teacher's Notes, continued

ly's yard. At Level 2, they must also include the costs of those completed jobs.

The second **Problem to Solve** involves starting a business. Students are asked to develop a xeriscape maintenance company. They must create the company's infrastructure including name, logo, cost sheets, marketing

tools, and more. There is only one **Starting a Business: Project Cover Sheet** provided for this activity. Teachers should use the expectations of the student project to differentiate between the lower grades and the upper grades. A more complex and detailed project should be required for the higher-level thinkers.



Assessment of Problem to Solve

There are two problems to solve in this chapter. The first, **Problem to Solve: Harrison and Siebert Maintenance Project**, is a continuation of the **Problem to Solve in Chapter 3: Efficient Irrigation**. The Harrisons and the Sieberts would like a year-round maintenance contract from the students. It is up to the students to determine what maintenance tasks need to be done on a seasonal basis, how much time each chore will take, and, at Level 2, how much money they will be charging for the contract.

The lists on the following page contain some of the maintenance issues for both properties that could be included in the final project. These items are meant to serve as a guideline as they are not complete, and not everything on the list has to be included.

Complementary Activities

The following activities complement the **Problem to Solve** for this chapter:

- ✓ 2-2: Holes in the Soil
- ✓ 3-3: Too High, Too Low, Just Right
- ✓ 3-4: Design a Drip
- ✓ 3-5: Rainwater Harvesting
- ✓ 4-1: Heat Beneath My Feet
- ✓ 4-4: Keeping the Water
- ✓ 4-5: Cool Soil
- ✓ 5-6: Shapely Lawns
- ✓ 6-4: Dripping Blossoms
- ✓ 6-7: A Desert Blooms in My Garden





Assessment of Problem to Solve (continued)

Sample: Harrison House Annual Maintenance List

Summer

- Mow bluegrass once a week. 30 minutes
- Plant marigolds and zinnias in flower bed at the beginning of summer. 60 minutes
- Weed flower bed once a week. 10 minutes
- Maintain area under fruit trees. 15 minutes
- Water lawn every five days. 5 minutes

Fall

- Pick fruit not wanted by the Harrisons. 20 minutes
- Plant chrysanthemums in flower bed at the beginning of fall. 60 minutes
- Weed flower bed once a week. 10 minutes
- Mow once a week. 30 minutes
- Water lawn once a week. 5 minutes
- At end of the season, apply new mulch under shrubs (every other year). 90 minutes
- At end of season, prune shrubs in front and back. 90 minutes

Winter

- Rake mulches into place to help prevent freezing. 60 minutes
- Plant pansies in flower bed at the beginning of winter. 60 minutes
- Weed flower bed as needed. 5 minutes
- Mow as needed. 30 minutes
- Water if needed. 5 minutes

Spring

- Rake mulch to give it a fresh look. 60 minutes
- Check for freeze damage, prune where needed. 45 minutes
- Replace pansies with marigolds. 60 minutes
- Weed flower bed once a week. 10 minutes
- Mow once a week. 30 minutes
- Water lawn once a week. 5 minutes
- Check groundcover under fruit trees and mulch areas for invasion of bluegrass; may need weeding. 45 minutes



Assessment of Problem to Solve (continued)

Sample: Siebert House Annual Maintenance List

Summer

- Check mulch in native area. 60 minutes
- Weed as needed. 15 minutes
- Mow buffalograss every 10 to 14 days as needed. 30 minutes
- Water buffalograss every 10 to 14 days as needed. 5 minutes
- Check irrigation system for leaks and blockage. 90 minutes
- Mulch rose garden. 45 minutes

Fall

- Mow buffalograss every 10 to 14 days. 30 minutes
- Weed when needed. 10 minutes
- Check roses for parasites; fertilize as needed. 30 minutes
- Clean fruit under fruit trees if needed. 30 minutes
- At end of season, prune native shrubs for neatness if needed. 45 minutes
- At end of the season, apply new mulch in native area (every other year). 90 minutes
- Mulch roses before first freeze. 45 minutes
- Water buffalograss as needed. 5 minutes

Winter (once-a-month visits)

- Check for freeze damage. 20 minutes
- Make sure mulches are thick enough. 30 minutes
- Water buffalograss as needed. 5 minutes

Spring

- Check mulches. 45 minutes
- Check irrigation system for winter damage. 90 minutes
- Assess water needs of plants (may be able to take established plant off irrigation system). 90 minutes
- Mow buffalograss every 10 to 14 days. 30 minutes
- Weed as needed. 10 minutes
- Water buffalograss as needed. 5 minutes

Background Information: Low Maintenance, Not No Maintenance

One of the beauties of a xeriscape is the relatively low amount of maintenance required to keep it looking good. But that's not to say that most xeriscapes need *no* maintenance. Xeriscapes need maintenance in five main activities: watering, feeding, pruning and mowing, weeding, and pest control.

Proper watering and careful plant selection are the keys to controlling all other aspects of maintenance. Applying the proper amounts of water will naturally limit weed growth, diseases, and pests — which limits the need for weeding and pest control. Choosing native or adapted plants limits the need for watering, fertilizing, and pest control. Choosing plants that fit into the landscape (even when fully grown) limits the need for pruning.

The adherence to other xeriscape principles will also limit the amount of maintenance needed. For example, carefully planning the landscape will result in minimizing the undesirable tasks and retaining the desirable ones.



Watering

The goal of good irrigation is to replace the water lost due to evapotranspiration¹. Evapotranspiration is a measurement of

how much water plants use, which is dependent upon weather factors such as air temperature and humidity. Use the evapotranspiration rate tables in Appendix C as a guide and learn how to recognize when the plants need water. A couple of common signs that a plant needs water are wilted or limp leaves in the morning and foot imprints left in the grass.

The application rate of irrigation water depends on the plants and the soil type. Plants should be zoned so that all the high-water-use plants are in one area. This eliminates the need to over-water plants with lesser needs in order to satisfy the water-thirsty plants. Zoning the whole landscape into high-, medium-, and low-water-use zones helps to minimize over-watering and maximizes the efficiency of the irrigation system.

Different soil types require different water application techniques. A rich loamy soil or an amended soil that holds water well allows grass and other plants to develop deep root systems and, thus, can be watered deeply and infrequently to encourage the roots to grow downward in search of water. Clay soils swell when they become saturated, effectively cutting off any additional water penetration. In fact, when heavy clay soil is over-watered, water may puddle or run off when it hits the saturated, now-impermeable surface. Conversely, sandy soils, which are too porous to hold much water, require frequent water-

Background Information: *Low Maintenance, Not No Maintenance* (continued)

ing and short run times in order to keep the water available in the root zone.

Maintaining good irrigation practices also means regular maintenance of the irrigation system. Systems that are in or on the ground need to be checked regularly for leaks, direction of spray, clogged or broken sprinkler heads, and other potential problems. In addition, any automated system should be adjusted regularly to current weather conditions and seasonal requirements.



Feeding

Plants use nitrogen from the soil as they grow and as they decompose. Feeding or fertilizing plants is the process of

adding nitrogen and other nutrients to the soil. Most native and adapted plants will not require a lot of fertilizer as they are already adapted to local conditions. However, there are a few situations when feeding or fertilizing is necessary.

Fresh organic matter, such as green leaves or grass, consume high levels of nitrogen at the beginning of their decomposition process. For example, nitrogen is initially consumed when lawn clippings are left on the lawn and when fresh, non-composted materials are used for mulch. Supplemental nitrogen in the form of a slow-release fertilizer will help balance the soil's nutrient supply during this decomposition process. Watch the area carefully to determine if additional applications are needed.

It may be necessary to fertilize a lawn on a regular basis. Turf grasses tend to use

nitrogen faster than most plants. To determine if a lawn needs fertilizer, take periodic soil samples. The test results will highlight any nutrients or elements that the lawn might need. Do-at-home tests are now available at most plant nurseries or at County Extension Offices. Check the Cooperative Extension Service Directory published by New Mexico State University (see Appendix B) for addresses and phone numbers.



Pruning and Mowing

“Pruning” involves cutting branches from a plant (usually a shrub or tree) to train the growth of a

plant in a desired shape, keep it away from an obstacle such as a power line, or keep a plant from growing too large for its space in the landscape. The correct pruning method is to cut the lead branches back to where it joins the main part of the tree or bush. The collar around the base of the branch will grow over where the branch was cut if the “stump” is not left too large.

Although it is not recommended, the practice of “topping” a tree is often used as a means of controlling its height. Topping means cutting all the branches off the top of the tree at the same height or level. Topping encourages rapid, weak growth of the limbs that will typically grow back and need to be “topped” again in a few years. Proper pruning will provide a healthy tree that continues to grow and thrive.

Allowing a plant to reach its natural size and shape is really the best plan of action in a landscape. This requires that plants be

Background Information: *Low Maintenance, Not No Maintenance* (continued)

chosen carefully with their mature size and shape in mind. The tendency for a new landscape is to put in enough plants to fill an area for the immediately complete look. However, this does not leave room for the plants to grow. Gardeners should allow for a less dense beginning, and the plants will fill in the empty spaces and require less pruning or removal of overgrown plants.

Mowing is a form of pruning for turf grasses. Each species of turf grass has an optimal height. By allowing the grass to reach this height, it will develop into mature plants with stronger, deeper roots that are more resistant to disease. Mowing only when necessary for the neatness of the yard and never cutting more than a third of the plants' height will improve the turf's health while saving water. Using a sharp blade will put as little stress on the plants as possible.



Weed Control

One of the most time-consuming maintenance chores is weed control. Because native weed seeds are adapted to

local environments, some can remain viable in the soil for decades. As the soil is turned and worked for installation of a new landscape, more and more weed seeds are given the proper conditions for rapid growth, and the result is an explosion of weeds in the new plantings. Gardeners should pull the weeds before they reseed, and the earlier the better. A thick layer of mulch will discourage weed growth.

In addition to the mulch, weed barrier materials, such as landscape fabric, are commonly

used. Weed barriers are very successful in preventing the growth of weed seed under the barrier. However, they also prevent the spreading of desirable plants. When used with organic mulches, a weed barrier prevents the decomposing mulch from enriching the soil. Weed barrier does not prevent airborne weed seeds that land on top of the barrier from growing and entwining their roots into the barrier, which can make them hard to remove.



Pest Control

It is a normal response to want to control the insects that eat landscape plants. However, it is wise to remember that the vast majority of insects are beneficial to their natural ecosystem. Many insects are essential to the soil fauna and to the reproduction of flowering plants.

Perhaps the best way to deal with insect pests in a landscape is to create a landscape that is not conducive to pests. The more diverse the plantings, the more birds and beneficial insects are attracted to the landscape. By promoting biodiversity² in the landscape, less will need to be done to control unwanted insects and diseases. Conversely, large areas of a monoculture (one species) invite large quantities of the insect species that rely on that crop for food. Monoculture limits diversity by limiting the food supply.

FOOTNOTES (PAGES 259 and 261)

¹ Evapotranspiration – the combined loss of water from the soil due to evaporation and plant transpiration

² Biodiversity – the number of different varieties of life forms in a given area

Background Information: *Low* Maintenance, Not *No* Maintenance (continued)

Pesticides, chemicals that are designed specifically to kill insect pests, are probably the most commonly used method of insect control. Unfortunately, heavy use of pesticides and herbicides can have long-term effects on the soil, water supply, wildlife, and humans. When chemical pesticides are applied, they become attached to soil particles. If the application conditions are not just right, the poison may remain in the soil, travel to the water table, or affect other plants and wildlife in the area. The delicate balance of microorganisms in the soil will also be affected by the application of pesticides. (NOTE: Whenever an herbicide or pesticide is used, be very careful and follow all the manufacturer's directions.)

Before trying to eliminate insect pests, consider what part of their life cycle they are in. If they are near the end of their life cycle, there is little to be gained from trying to kill them. At times, a plant can afford to sustain the damage the insect is inflicting. In most cases, the loss of a few leaves won't kill a plant.

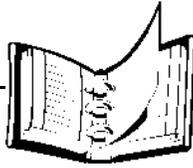
FINAL THOUGHT

Proper watering and careful plant selection ensures that a xeriscape will need less maintenance than a traditional lawn-dominated, "Midwestern-style" landscape. Xeriscapes use plants that are better suited to the local climate and growing conditions, so they are naturally less prone to disease and pests, require less supplemental water, and need less pruning and other maintenance. However, overwatering any type of landscape — including a



xeriscape — will increase the amount of maintenance needed. Too much water will promote weed growth and increase the odds of pest infestations and plant diseases.





Problem to Solve:

Harrison & Siebert Maintenance Project

Your landscape company is working on a bid to do the maintenance on a job site. To get the job, you must provide a list of chores that will need to be completed over the course of a year, a list of tools you will provide and what you expect the landowner to provide, and a schedule of visits you will need to make in order to maintain the landscape.

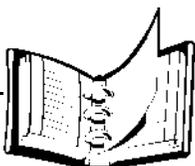
For any seasonal jobs, list the month or months in which the jobs will be done and approximately how many times you expect to have to do them. The job site has automatic sprinklers for watering. You will have access to the central sprinkler control panel if you choose.

Choose to bid on either the Harrisons' house or the Sieberts' house.

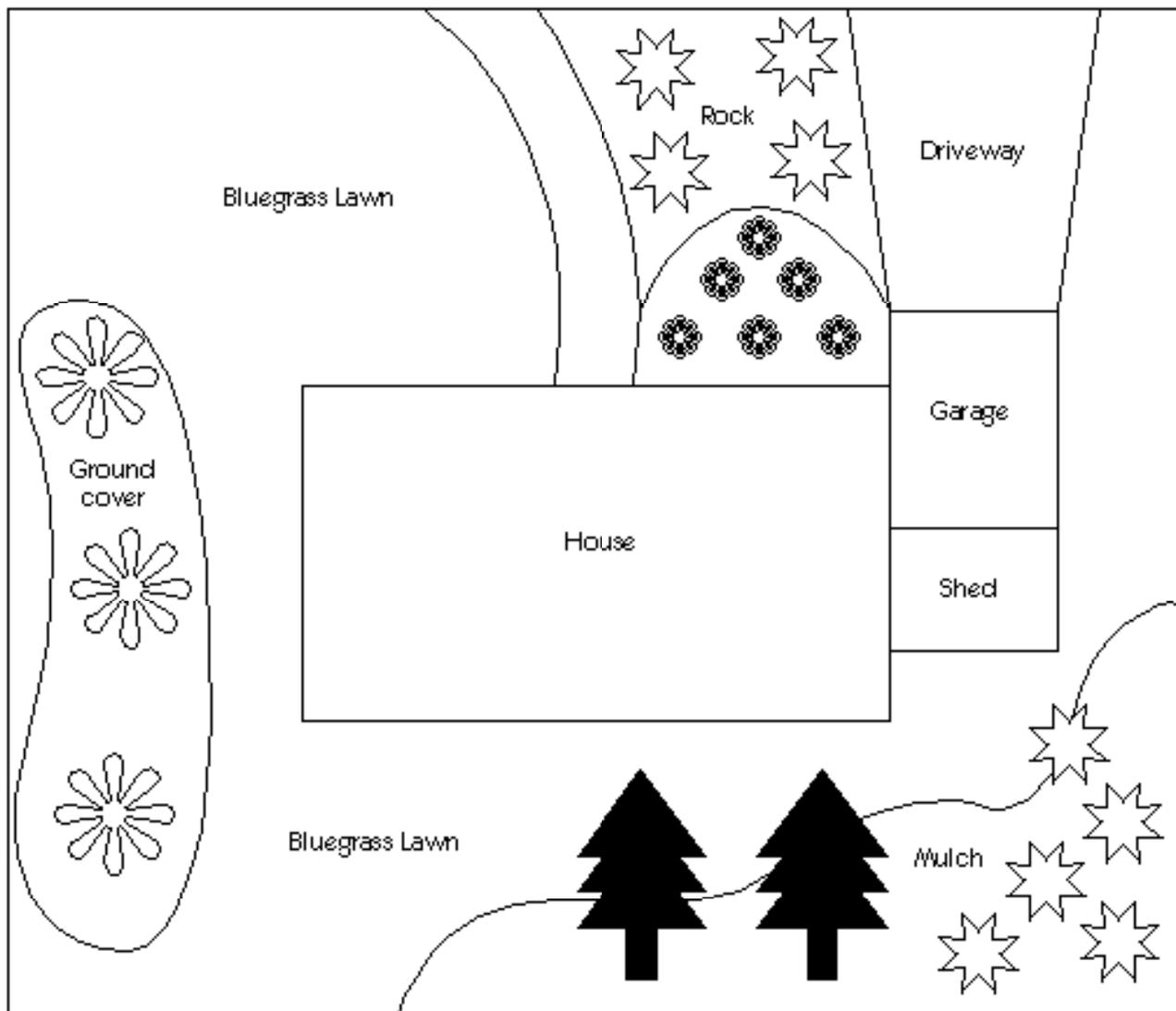
The Harrisons' House The Harrisons are an older couple. They travel out of town for extended periods of time. In the front yard they want you to maintain all their grass, shrubs, and trees. They like their lawn kept short and green and the shrubs pruned and neat. You will need to plant seasonal flowers in the front bed in the corner created by the house and the garage. They enjoy pansies all winter, marigolds and zinnias in the summer, and a new color of chrysanthemum each fall. You will also need to weed that bed. In the back yard, they have an apple tree, a pear tree, and a plum tree. They pick some of the fruit, but not all of it, so that area will also have to be maintained. They have a groundcover under the fruit trees. It grows quickly all summer and is dormant in the winter. The trees will not need to be pruned.

The Sieberts' House The Sieberts have two children and two dogs. The dogs have the run of most of the back yard. The front yard is totally xeriscaped. It has a drip irrigation system with emitters for the shrubs and perennials and three bubblers under the desert willow trees. The entire area is mulched with medium bark. There is no landscape cloth under the mulch. You will be responsible for all maintenance in this area.

In the back yard, the Sieberts have a buffalograss lawn. You are responsible for maintaining the lawn. They also have a large rose and flower garden that has 15 rose bushes in it. They take care of the planting of flowers, but you will be required to water and add mulch once a year. This area is fenced off from the dogs. Under the trees, they have placed crusher fines (finely ground gravel) which pack down to make a hard surface that absorbs water well and only gets occasional infestations of weeds. You are expected to clean up any other debris under the trees as needed.

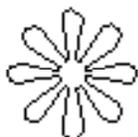


Harrissons' House

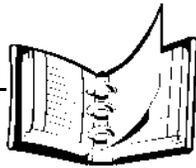


 Flowers

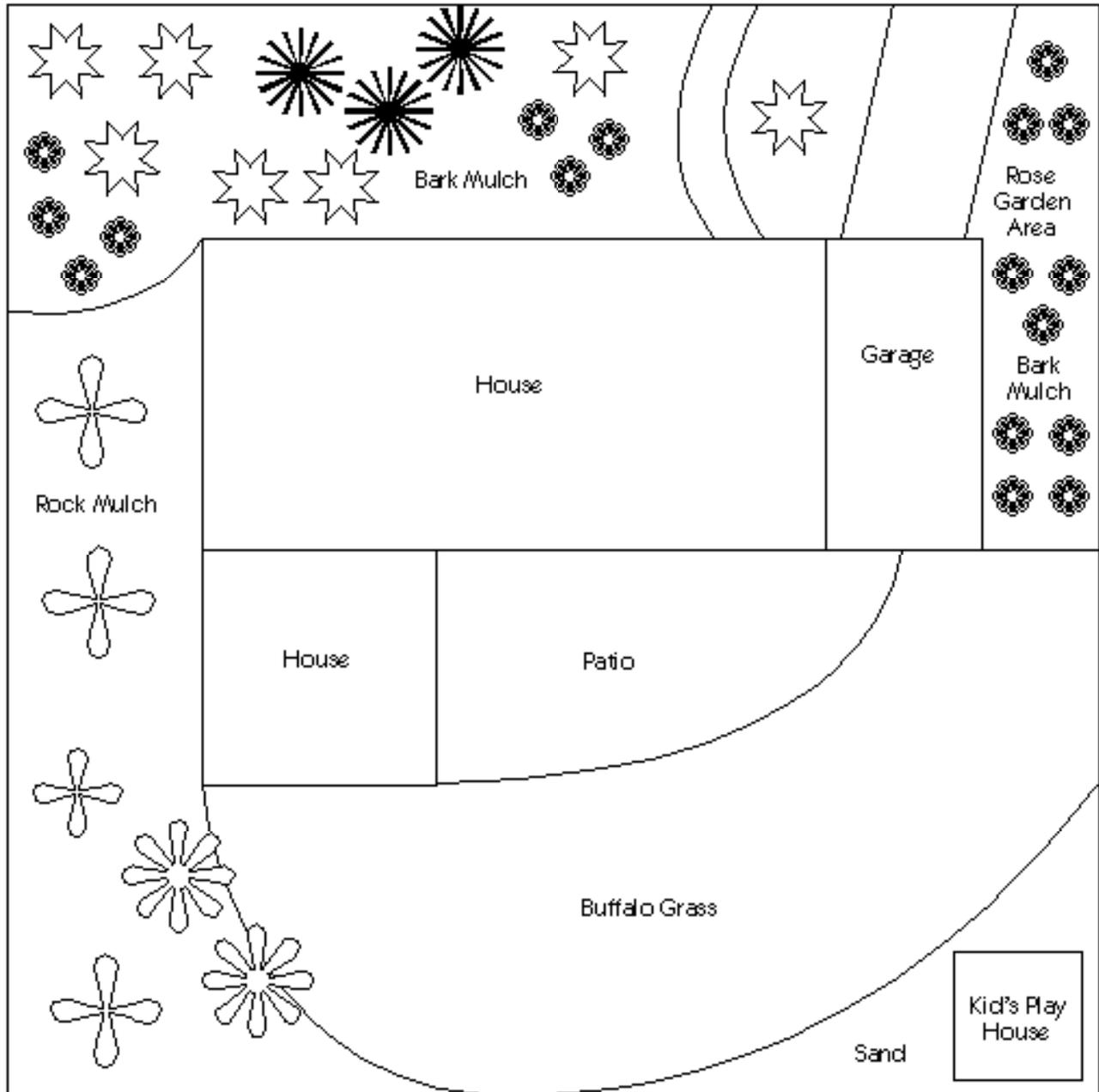
 Shrubs

 Fruit Trees

 Conifers

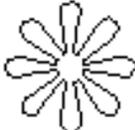


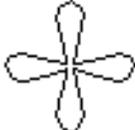
Seiberts' House



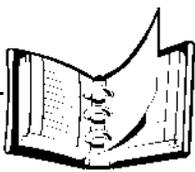
 Flowers

 Shrubs

 Fruit Trees

 Native Trees

 Desert Willow



Problem to Solve: Starting A Business

You have decided to start a xeriscape maintenance company. In order to present yourself in a professional manner to potential customers, you have decided to create some worksheets or flyers that can be used when you place a bid for a job. You will need two main worksheets: one is a list of prices and the other is a question set for you to use when evaluating a new site. You may also want to create a logo, company slogan, and marketing plan.

Some questions to consider:

1. How much will you charge for labor? Will you give the homeowner a price to pay and do all the work to finish the job, or are you going to give them a dollars-per-hour price and keep track of your time? Will your prices vary by the season?
2. How often will you need to visit the site? Will certain chores need to be done every visit, or can you alternate chores? How much time will each visit take?
3. Will you charge a hauling fee to remove pruned materials? Will you charge a delivery fee to bring materials such as mulches and fertilizers to the site? How will you calculate these charges?
4. What tools will you provide and what will you ask the homeowner to provide? How much of an investment will your tools be? How will you carry them to the site?
5. What are the up-front costs (the costs you have to pay to get started, including tools, business license, truck if needed, etc.)? What are the ongoing costs (the costs you have to pay every week, including labor, advertising, gasoline, etc.)?
6. Are you going to advertise your business? What form of advertisement will you use and what will it cost? Can you think of some free ways to advertise?
7. What kinds of work would you be comfortable doing, and with what jobs would you advise the homeowner to seek other professional help? Do you need a business license to do this? Where do you get a license and how much does it cost? What about income tax and state tax?



Maintenance: Project Cover Sheet

Getting Started

Using the diagram of the yard, mentally walk through each section and determine what might need to be done. Make a list of tasks to be done in the summer months, then modify that list for each season.

Consider the following questions:

1. How often will you need to visit the site?
2. Will certain chores need to be done on every visit or can you alternate chores?
3. How much time will each visit take?
4. What tools do you already have that you can use? What additional tools will you need to buy? What tools can you borrow from the homeowner?

Level 1 & 2

Your completed project should include:

- _____ Chore lists broken down into the seasonal maintenance jobs. By each chore that you list, state how often it will need to be done (for example: weekly, every other week, once a month, occasionally, etc.)
- _____ A list of tools you will provide for the job
- _____ A list of tools you expect the homeowner to provide
- _____ A schedule of visits. This can be as simple as, "I will visit every Friday," or as detailed as a calendar with the dates circled. Be sure to include approximately how long each visit will take and if it will vary by season.

Level 2

- _____ Cost estimate for one year of service. If the cost varies by season, break the year down into four seasonal estimates.



Starting A Business: Project Cover Sheet

Your completed project should include:

- ___ Site Evaluation Checklist
The checklist you will use on a new job site to help you and the homeowner keep track of what work is to be done on the site.
- ___ Cost Estimates
To show the homeowner your standard prices
- ___ Explanation of Costs and Checklist
Documentation for the homeowner (and your teacher) on why you have included the items on your checklist and how you determined the cost estimates

Extensions

- ___ A business name and logo
- ___ A business card for your new business
- ___ A one-page flyer to advertise your business
- ___ A completed Site Evaluation Checklist and Cost Estimate from interview with potential customer (neighbor, family, etc.)

Harrison & Siebert



Maintenance Project: Tips For Getting Started

Here is the proposed summer maintenance schedule for the Harrisons' landscape. See if you can come up with the schedule for fall, winter and spring.

Summer

- | | |
|---|------------|
| 4 Mow bluegrass once a week. | 30 minutes |
| 4 Plant marigolds and zinnias in flower bed at the beginning of summer. | 60 minutes |
| 4 Weed flower bed once a week. | 10 minutes |
| 4 Maintain area under fruit trees. | 15 minutes |
| 4 Water lawn every five days. | 5 minutes |

I've Mowed, Now What?

Landscape maintenance usually includes five main activities: watering, fertilizing, pruning and mowing, weeding, and pest control. If you are using xeriscaping principles, your landscape will need less maintenance, but it will not be maintenance-free. Carefully plan your landscape to limit the maintenance activities you dislike and keep the tasks you like.

Watering

Learn to identify when your plants need water. If a plant looks wilted in the early morning hours before the sun gets hot, then it is probably in need of water. For a lawn, if your footprints remain visible after walking over the lawn because the grass does not spring back up, then the plants are stressed and it is probably time to water. You can also track the evapotranspiration¹ rate. Evapotranspiration, or ET, measures the water lost from the soil due to evaporation and transpiration of plants. ET rates vary from plant to plant and from local climate to local climate. Check with your local Cooperative Extension Service to find the ET rates for your area.

Remember to examine the soil type before determining the best way to water. For well-amended soils, it is better to water deeply and infrequently, allowing enough time for the soil to absorb the water and make it available to plant roots. For clay or sandy soils, you will want to water frequently with short run times so the water does not run off or infiltrate beyond the root zone.

Maintaining good watering practices means also maintaining your irrigation system. If you have an automated system, never go more than a month without adjusting your automatic settings to seasonal

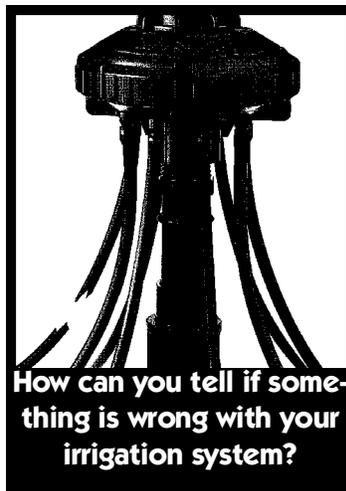
requirements, and always turn the system off when it rains. All irrigation systems need to be checked regularly for leaks, direction of the spray, clogged or broken sprinkler heads, and other problems.

Fertilizing

Plants use nitrogen from the soil as they grow and as they decompose. Feeding or fertilizing plants is the process of adding nitrogen and other nutrients to the soil. Native and adapted plants typically do well in the existing soil and will not need a lot of fertilizer. However, most plants benefit from a little extra fertilizer when transplanted and at the beginning of the growing season. (Be careful not to apply too much fertilizer to new plants, however. Too much fertilizer can cause plants to get “burned.”)

Most lawns use a lot of nitrogen from the soil and can usually benefit from regular applications of fertilizer. Be sure to check the needs of the turf that you have chosen, and also consider your soil type. Most plant nurseries carry simple soil testing kits that will help you decide what type of fertilizer would be most effective.

If you are using organic mulches such as bark or leaves, be aware that they use large amounts of nitrogen in the beginning of the decomposition process. Large mulched beds may require a slow-release fertilizer to compensate for the loss of nitrogen.



How can you tell if something is wrong with your irrigation system?

Pruning and Mowing

“Pruning” is cutting branches from a plant, usually a shrub or tree. Pruning can be used to keep limbs off sidewalks and away from obstacles, or to shape a plant to a desired path. When you prune a tree, always cut a branch at its base, where it meets

I've Mowed, Now What? (continued)

another branch or the trunk of the tree. Do not use the practice of topping. Topping takes all the branches off at a specific height. Trees that have been topped will grow thin, weakened branches usually shooting straight back up to be topped again in a couple of years. Proper pruning will provide a healthy tree that continues to grow in the right directions.

Allowing a plant to reach its natural size and shape is really the best plan for a landscape. When designing a landscape, choose plants that fit in the landscape even when they are fully grown. The landscape may look bare for a couple of years, but allowing a plant to reach its natural size and shape is really the best plan of action. Plus, selecting the right-sized plants for the right spots will naturally cut down on the amount of pruning the landscape will need.

Mowing is a form of pruning for turf grasses. Nobody really likes to mow, so allow the grass to grow a little taller. A taller, more mature grass will be healthier and grow deeper roots, making it less susceptible to drought and disease. But make sure you know what type of grass you have and how high it likes to grow, because all grasses have a different optimal height.



Weed Control

Just like native plants, native weed seeds are adapted to arid environments. Some can remain viable in the soil for decades. As you turn and work the soil for installation of a landscape, more and more of these weed seeds

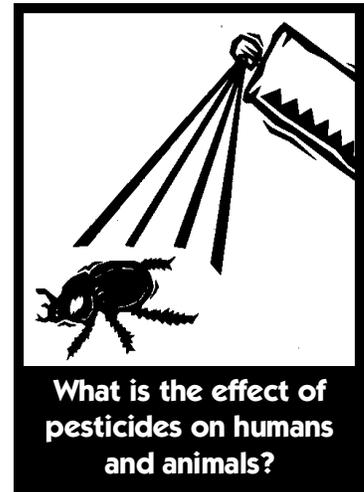
are given the proper conditions for explosive growth. The result is a sudden increase of weeds in your new landscape. You will need to pull the weeds — and the earlier the better. Rake or stir up the bedding area to disturb the weed seeds that continue to germinate, and provide a thicker layer of mulch to help deter weed growth.

Herbicides are chemical options to weed control. If you choose to use an herbicide, be sure to read the label and follow the directions very carefully. Do not use an herbicide if the weather forecast predicts rain. You do not want the chemicals to run off with the rainwater. Always be careful with chemicals around children and pets.

Pest Control

Wherever there are plants, there are also insects. The vast majority of insects are beneficial to their natural ecosystem. Before you decide to control insects, do a little research. Which insect is actually eating your plants? Where is it in its life cycle? Will the plant survive if you do not remove the insect? If you have an insect that is at the end of its life cycle, it may be easier to not worry about the adults and simply eliminate the eggs. Another option is to introduce a biological control, such as a beneficial insect. Ladybugs, praying mantises, and other friendly insects eat the aphids and larvae that can damage garden plants.

The easiest form of insect or pest control in a landscape is biodiversity. If you have a variety of plants



I've Mowed, Now What? (continued)

that simulate a natural environment, you will attract birds and beneficial insects that will help control the unpleasant insects for you.

Pesticides are chemicals designed to kill insect pests. If you need to use a pesticide, use it very carefully and follow the manufacturer's directions.

But remember pesticides don't just kill the unwanted pests; they will kill all the insects in the landscape. In addition, heavy use of pesticides has been known to pollute the soil and water.

Pesticides have also been found in pets and humans because these chemicals do not degrade in the biological system and eventually work their way up the food chain.



Final Thought

Proper watering and careful plant selection ensures that a xeriscape will need less maintenance than a traditional lawn-dominated, "Midwestern-style" landscape. Xeriscapes use plants that are better suited to the local climate and growing conditions, so they are naturally less prone to disease and pests, require less supplemental water, and need less pruning and other maintenance. However, overwatering any type of landscape — including a xeriscape — will increase the amount of maintenance needed. Too much water will promote weed growth and increase the odds of pest infestations and plant diseases.

RESOURCES:

American Horticultural Society Pests & Diseases by Pippa Greenwood, Andrew Halstead, A.R. Chase, and Daniel Gilrein provides a “complete guide to preventing, identifying, and treating plant problems.” This excellent resource includes numerous photos and illustrations depicting insect pests and plant diseases. ISBN 0-7894-5074-7.

Rodale’s Successful Organic Gardening: Pruning by Kris Medic starts with pruning basics and includes separate sections on how to prune popular varieties of shrubs, hedges, and trees. ISBN 0-87596-661-6.

Sunset Western Garden Problem Solver by the editors of Sunset Books and Sunset Magazine, is the companion to Sunset’s *Western Garden Book*. This volume shows not only how to solve a wide variety of common garden problems but it also includes information on how to prevent common problems before they occur. ISBN 0-376-06132-4.

<http://www.co.broward.fl.us/bri00300.html> – A comprehensive site with easy-to-understand explanations of how to prune plants.

<http://www.marchbiological.com/> – Every pest has a natural enemy. The key to successful pest control is to identify the pest and its natural enemy, releasing the beneficial insect early when pest levels are low and letting nature take its course. Beneficial insects attack and destroy only insects; they will not bother people, plants, or pets. This is a commercial site that sells beneficial insects.

<http://www.fertilizer.org/ifa/> – The International Fertilizer Industry Association provides a glossary of fertilizer terms in English, Spanish, German, and Dutch.

http://cahe.nmsu.edu/pubs/_a/a-128.html – New Mexico State University College of Agriculture and Home Economics column *Fertilizer Guide for New Mexico* written by an extension agronomist. The column is written for agricultural production but includes valuable information for landscapers.

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