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Xeriscape Principle

A beautiful xeriscape starts with a good design. A well-planned design will help ensure the installation of a landscape that meets lifestyle needs, retains its aesthetic appeal over time, and remains water-efficient.

Key Concepts

Site characteristics, function of landscape areas, hardscapes.

Teacher's Notes



This chapter is meant to tie all of the other chapters together. Students will be asked to use what they have learned from the other chapters to make informed choices about the design of a landscape. The physical characteristics of the site to be landscaped should be considered, as well as how the site will be used and the aesthetic preferences of its inhabitants. The following should be considered: amount of sun received, function of lawn and patio areas, views to be protected or blocked, and amount of time allotted to maintenance.

As in **Chapter 7: Proper Maintenance**, there are no new activities in this chapter. Instead, the students are given background information on planning and design and a choice of three **Problems to Solve**. All of the problems can be done at Level 1 or Level 2. However, the third problem is the most involved and most likely a Level 2 problem.

The first problem is **The Young Castillo Family**. The Castillo family has moved into a new home and has two small children. Students are asked to assess the family's needs and develop a landscape plan that meets those needs. A more complex and detailed project should be required for upper grades and higher-level thinkers. There is no set "correct"

Teacher's Notes, continued

answer; however, make sure that the students' landscape designs address the needs of the family and provide sound reasoning for their choices.

The second problem is the **Castillo House – 30 Years Later**. The family's children have moved out, and now the older couple would like a landscape that requires less maintenance. For a Level 1 project, students can start with the blank landscape and create a design that meets the needs of the aging couple. For a Level 2 project, students could complete the first problem for the Young Castillo Family, then adapt it to meet the needs of the aging couple. (A student could also adapt a classmate's Young Castillo Family project.) This exercise tests students' ability to re-think and re-evaluate a project. This project can be a challenge for students who often come up with just one way of solving a problem. (One way to assess this activity is to compare the improvement of this plan over the original plan.)

The third problem is **Kids Alive!!! Nursery School**. The property is larger than the Castillo lot and is in a commercial district. Students will have to deal with busy streets, parking lots and several buildings on the property. The school is also asking for a playground (with equipment), an outdoor reading area, a butterfly garden, and a grass area for naps, general play, and picnics.

One option to the **Problems to Solve** is to have the students rework the **Your Dream Landscape: Pre-assessment activity**. Instead of using the fictional scenarios found in this chapter, allow the students to develop their own needs and desires for the landscape.

They can then rework their original design, implementing what they have learned throughout the curriculum. Another option is to have students practice a site evaluation. Pick a spot on campus or let the students use their own homes as the site for which they draw up a site plan with hardscapes, exposures, and microclimates.

For all of the problems, the corresponding **Project Cover Sheet** provides detailed instructions, and **Tips for Getting Started: A Step-by-Step Guide to the Landscape Design Process** will remind students what they have already learned and help them make good design decisions. If students are having trouble getting started, advise them to think about the landscapes at their house or in their neighborhoods. Prompt their thinking with questions such as, "What is it that you like or dislike about these landscapes?"

These problems can be used in the classroom in several ways:

- Individual students could be asked to complete an entire design themselves.
- Students can be divided into small groups to design all aspects of the given problem.
- As a class project, groups of students could design different aspects of the landscape while working together to ensure overall flow.
- Instead of using the existing **Problems to Solve**, the class could design a xeriscape for the school site. The students could then follow through and install their xeriscape design at the school.
- Each design can be adapted to include restrictions and obstacles that better challenge the students. (Some examples are thematic designs, plans for handicapped

Teacher's Notes, continued

residents, and plans that must deal with busy streets.)

- Students could design a garden for a local business. Each student would have to make his/her own map of existing features and interview stakeholders¹ to find out the needs and desires for the landscape.

This chapter has potential for hands-on community action. Take a look around the community to find various design projects in which the students could participate. Present the idea to the mayor's office, the city council, or the main stakeholder in the property. Have students investigate partnerships to come up with the funding needed to install a xeriscape. Students can research, design,

and possibly install a new water-wise landscape, with advice from professionals.

There are many books on walkways, fences, patios, garden structures, and decks that can provide supplemental ideas for the students' landscape dreams. Check the reference section in Appendix M for additional information. If the students are attempting to provide a tie-in with the community, it might be advantageous to invite various professionals to talk with the class. Landscape contractors, architects, landscape designers, plant nursery owners, nursery school or daycare owners, construction company supervisors, or the school system's architects all might provide interesting information for the students.



Teacher's Notes, continued



Assessment of Problem to Solve

While the aesthetics of a design is a very subjective issue, students can be graded on meeting the basic requirements of the project: providing a plan that is to correct scale, drawing an elevation (view from the side), coloring the plan and elevation, and providing a reasonable cost estimate. Other options include having students present their plans to the class, make poster presentations, or include a written analysis of the design issues and how their plan addresses them.

Students should show what they have learned about preparing soil, including mulch, installing a proper irrigation system, and choosing and placing turf and plants. With the **Problem to Solve: The Young Castillo Family and Castillo House — 30 Years Later**, there should be an obvious maintenance difference. The young Castillos enjoy working in the garden, yet 30 years later they no longer want to deal with maintenance issues.

In **Problem to Solve: Kids Alive!! Nursery School**, the students should plan for strong barriers between the school grounds and the parking lots and streets. They can use either hardscapes such as fences or walls or large quick-growing plants to provide the barrier.

Complementary Activities

Complementary Activities

The following activities complement the **Problems 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 Blooms
- ✓ 6-7: A Desert Blooms in My Garden



Background Information: It Starts With A Plan

What is unique about the planning and design xeriscape principle is that it is composed of two separate ideas that must complement each other. Planning involves the evaluation of the site and of how the landscape will be used. It envisions how the landscape will look in each season and how it will evolve over several years. Design includes the details and arrangements of the landscape plan, such as which plants will be included and where they will be placed. A design will not meet an owner's needs without solid, up-front planning.

There are several things to keep in mind before beginning a landscape.

- Remember the budget. Do not plan a landscape that is more costly than the budget allows. If the landscape is bigger than the budget, consider implementing it in stages over time.
- Consider maintenance. Plan the maintenance level to match the homeowner's time and inclination. If the owner does not want to spend the whole weekend in the yard, plan for a low-maintenance landscape.
- Reducing water use is the ultimate goal. There may be a slight spike in water use during the first year or two to establish new plants. However, the overall goal of using xeriscape techniques is to reduce the long-term water use. A good plan and design can help accomplish these goals for years to come.

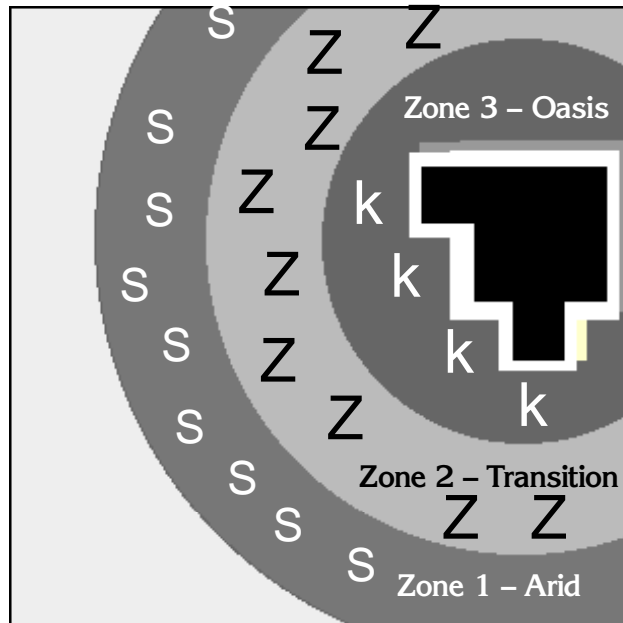


Styles

Landscapes can be formal or informal. A formal landscape is trim and neat. The plants may be in rows and the edges of areas are clearly defined. An informal landscape may have a more natural appearance. Plants are placed more randomly. They may spill over the edges of beds or wander through a gravel area. Plants may be grouped together in clusters or clumps instead of being placed in rows.

Plants have different textures, shapes, and colors. Bold areas of the same color or texture can be used to make a statement or call attention to a specific part of the yard. Flowers can be used to create a point of interest for people to see from buildings or seating areas. Don't forget that plants provide physical comforts also. Think about using deciduous² trees to cool areas in the summer and let light and warmth into an area in the winter.

Background Information: It Starts With A Plan (continued)



Zones

There are three landscape zones in xeriscaping: high-, medium- and low-water-use. The entire landscape should be zoned into these categories, repeating the zones wherever appropriate. For example, one yard may include two high-water-use zones, (one for the lawn and one for the flower garden), two medium-water-use zones (one in front and one in back) and one large low-water-use zone.

A high-water-use zone is usually placed closest to the house where it is visible and easy to access. It generally includes the turf areas. A good location for a high-water-use zone is on the east or north side of any building, where it will get less sun, stay cooler, and better retain soil moisture. High-water-use zones also benefit from captured rainwater runoff from rooflines and gutters.

A medium-water-use zone is considered a transition zone. It blends the high-water-use areas with the more low-water-use zones that

are farthest from the water source. This area should contain low- to moderate-water-use plants that will need to be watered once a week or less.

The third zone is the arid, or low-water-use zone. A low-water-use zone is usually located farthest from buildings and high-traffic areas and should contain drought-tolerant plants that need little or no supplemental water.



Planning

Landscape planning consists of two different elements: site evaluation and functional analysis.

Site Evaluation – A good site evaluation is the first step toward making decisions about the placement of features and plants. First, determine the physical characteristics of the plot, such as size, shape, drainage patterns, and elevation change. Second, consider the site's existing features such as buildings,

Background Information: It Starts With A Plan (continued)

patios, trees, and fences. Next, identify microclimates created by these existing features (shady areas, areas exposed to the wind, and hot areas caused by reflected sunlight). Finally, identify any views that need to be protected or views that need to be obscured.

Once the site evaluation has been completed, draw a site plan. It should be kept to scale. This is the template from which the new landscape can be planned. Several copies of the template should be made to try various designs.

Function – Next, consider how the landscape will be used. Identify the possible activities that will occur in the landscape and what type of area will be needed to accommodate these activities. For example, occasional outdoor meals will not require a large lawn. A small patio surrounded by flowers might be nicer. However, a troop of kids who want to throw the ball around requires a lawn away from breakables.

Design

Using the site plan from the site evaluation, draw in a detailed landscape. First, show where any hardscapes and design features such as playground equipment, decks, or fences will be added. Decide where each water-use zone will be located, then add plants. Allow growing room for the plants selected so they will not be overcrowded when they reach a mature height.

This is the time to consider thematic plantings such as a butterfly garden or a water feature, if desired. This is also the time to think about year-round interest. Plants that bloom at different times or provide interest-



ing colors and shapes throughout the year provide an additional asset to the landscape. In some parts of the state, there are strict limits to the amount of turf grass allowed, so be sure to consider any appropriate turf or planting restrictions. Finally, add the irrigation system and the mulches to the plan, including location and type. It might be beneficial to attempt several versions of the plan before deciding on the final design.

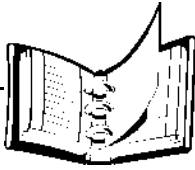
Final Thought:

Planning and design is the one xeriscape principle that ties all of the other principles together. While planning, it's important to remember everything that has been discussed about soil amendments, irrigation systems, mulching, limiting turf areas, plant choices, and maintenance.

FOOTNOTES (PAGES 277 and 279)

¹ Stakeholders – people who have a vested interest in the project; for example, the stakeholders for a business wanting a xeriscape would include the owners, the employees, the customers, the neighborhood and other businesses in the area.

² Deciduous – leaves that fall off or shed seasonally



Problems to Solve:

House Design #1: The Young Castillo Family

Landscape Design Requirements

The Castillos have purchased a home. They are a young family with two kids (ages three and five years old) and a small cocker spaniel. The family wants to spend time in the back yard, but it needs to be a safe place for the kids to play. The family would also like places where they can eat meals and grow a small vegetable garden. Since gardening is the parents' hobby, they don't mind spending time taking care of the landscape. The Castillo landscape needs to take advantage of good views and screen out undesirable views; and it should use water wisely.

See the attached site layout for additional information.

House Design #2: Castillo House — 30 Years Later

Landscape Design Requirements

Thirty years later the kids have grown up and left home, and the Castillo parents are ready for a change in lifestyle. They want to travel and relax. They no longer have a dog. The Castillos love to entertain and need a sheltered place in the back yard where they can serve meals, bar-beque, and relax with friends.

The Castillos want to convert their landscape to a low-maintenance garden. They want to keep the cost of the conversion as low as possible.

The landscape still needs to take advantage of good views and screen out bad views. It must use water wisely and be easy for the teenager next door to take care of when the Castillos are out of town.

See the attached site layout for additional information.

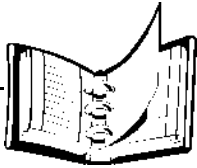
Kids Alive!!! Nursery School

Landscape Design Requirements

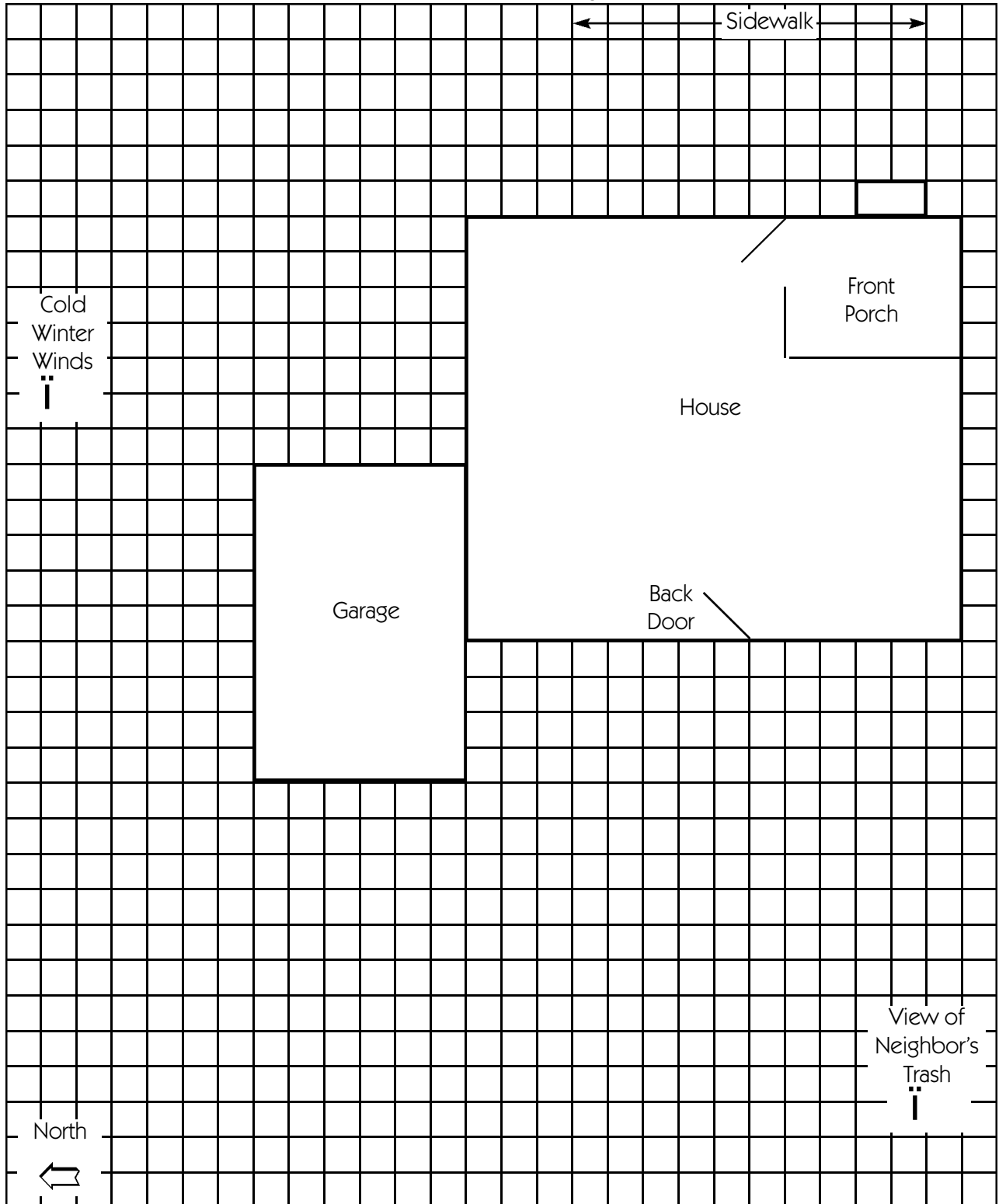
Kids Alive!!! Nursery School has just moved into a new building. The site was previously an empty lot. Your job is to design a site plan to include a playground, outdoor reading area, butterfly garden, and grass area for naps, play, and picnics. Be sure to include walkways between the buildings.

You will need to research what kinds of materials are best for these kinds of spaces. They must be economical, durable, low-maintenance, and use water wisely.

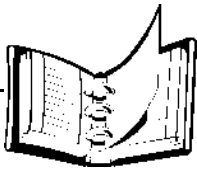
See the attached site layout for additional information.



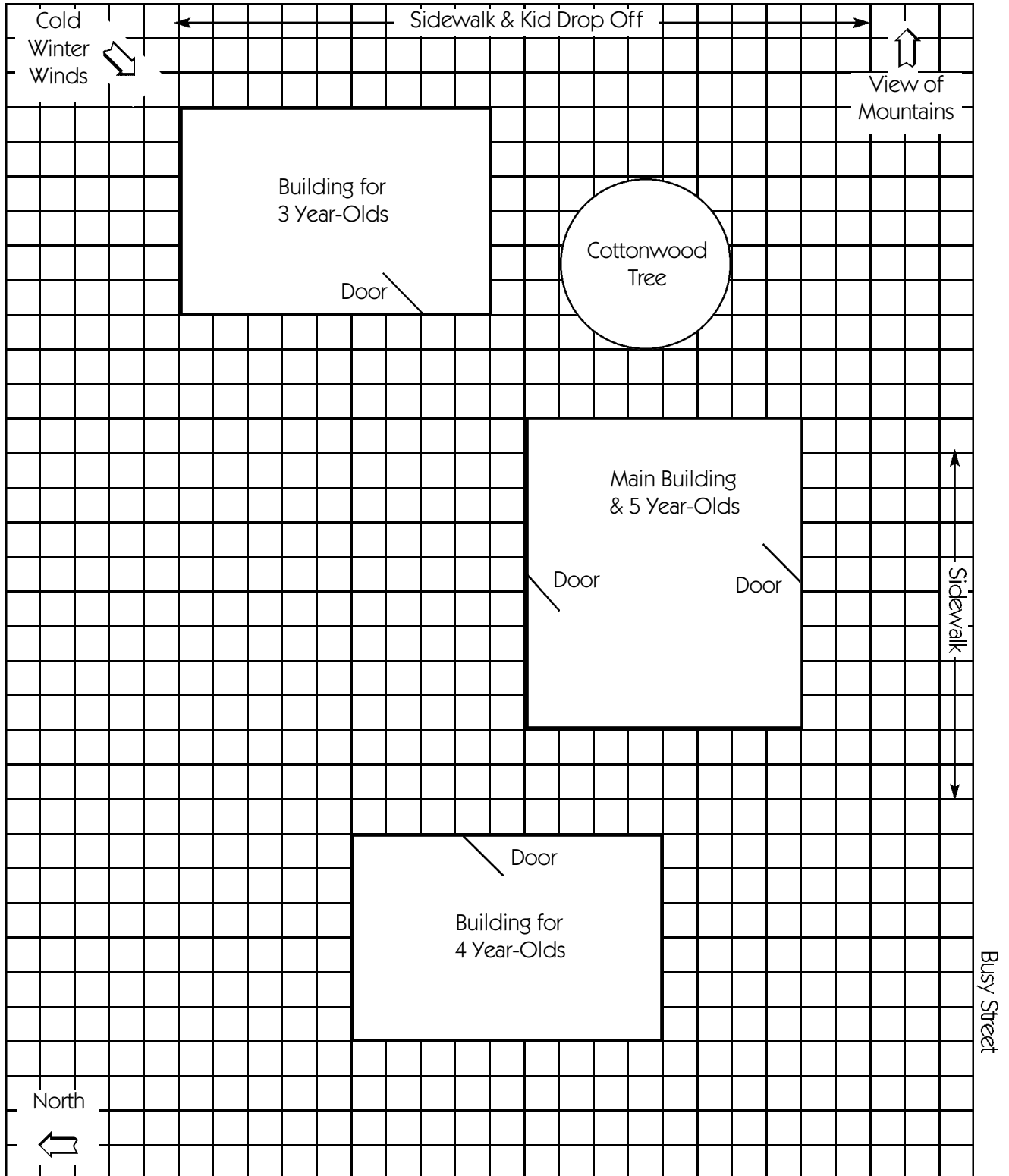
Site Plan: Castillo House (Young & 30 Years Later)



Scale: 1 square = 2' per side



Site Plan: Kids Alive!!! Nursery School





Young Castillo Family: Project Cover Sheet

You will be designing a landscape for the young Castillo family. Be sure to keep your client's needs in mind as you complete your design. Have fun and be creative while incorporating the seven xeriscape principles.

1. To assess the site and analyze the needs of your client, use the **Step-by-Step Guide to the Landscape Design Process** that has been provided by your teacher.

Other specific questions to keep in mind for the young Castillo family are:

- What should be avoided or included to accommodate the young children?
- How can you make the garden a nice place to be during all seasons?
- Does a front yard have the same importance/needs as the back yard?
- How will you keep the dog in the yard and keep it from destroying the landscape?

2. Sketch your preliminary design onto the site plan provided. Be sure to include hardscape (sidewalks, patios, etc.) and softscape (plants, mulched areas).

3. Provide a cost estimate using the irrigation expenses from Activity 3-4: Design-a-Drip, mulch expenses from Activity 4-3: A World of Mulches, and the following plant costs. If you do not find an item you need on the list, check with vendors.

Size	Cost
2-gallon shrub	\$15.00 each
5-gallon tree	\$26.00 each
1-gallon perennial/annual	\$8.00 each
Grass sod	\$1.50 /SF
Driveway	\$30.00 /SY
Paver path/sidewalk	\$2.50 /LF

SF = square foot
SY = square yard
LF = linear foot

To change the calculations to metric, see Appendix N.

4. Re-evaluate your plan based on cost. Is it within the budget of the homeowners? If not, how can you reduce your costs and still meet their needs?

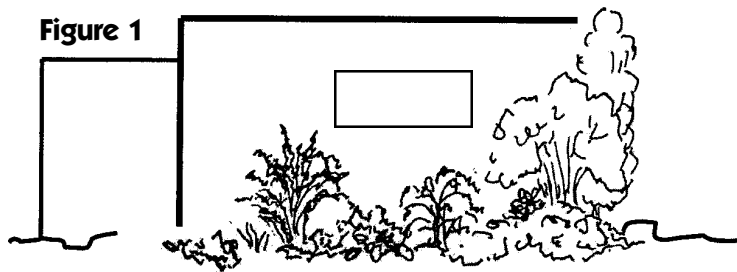
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Young Castillo Family: Project Cover Sheet

5. Draw your final design. Color your plan if desired.

6. Pick a view from one side of the landscape and draw an elevation. An elevation is a ground-level view of the landscape (as opposed to, say, an aerial view.) See **Figure 1** for an example of an elevation. Color your elevation if desired.



Extension:

- Build a three-dimensional model of the plan.
- Draw other elevations.



Castillo House—30 Years Later: Project Cover Sheet

You will be designing a landscape for the older Castillo family. Be sure to keep your client's needs in mind as you complete your design. Have fun and be creative while incorporating the seven xeriscape principles.

1. To assess the site and analyze the needs of your client, use the **Step-by-Step Guide to the Landscape Design Process** that has been provided by your teacher. Specific things to keep in mind for the older Castillo family are:
 - Did you modify the original irrigation system to meet the revised plan?
 - Is the new design compatible with the original theme or style of design?
 - Did you meet the Castillos' revised needs?
2. Sketch your preliminary design onto the site plan provided. Be sure to include hardscape (sidewalks, patios, etc.) and softscape (plants, mulched areas).
3. Provide a cost estimate using the irrigation expenses from Activity 3-4: Design-a-Drip, mulch expenses from Activity 4-3: A World of Mulches, and the following plant costs. If you do not find an item you need on the list, check with vendors.

Size	Cost
2-gallon shrub	\$15.00 each
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Grass sod	\$1.50 /SF
Driveway	\$30.00 /SY
Paver path/sidewalk	\$2.50 /LF

SF = square foot
SY = square yard
LF = linear foot

To change the calculations to metric, see Appendix N.

4. Re-evaluate your plan based on cost. Is it within the budget of the homeowners?
If not, how can you reduce costs and still meet their needs?

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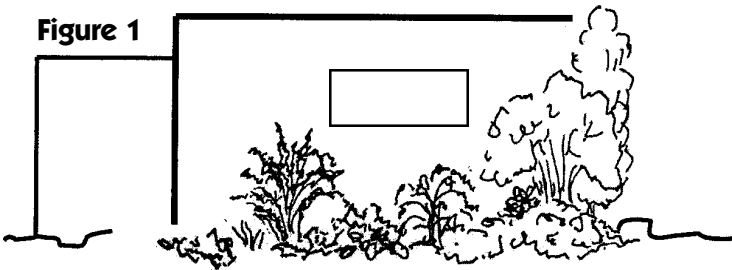


Castillo House—30 Years Later: Project Cover Sheet

5. Draw your final design. Color your plan if desired.

6. Pick a view from one side of the landscape and draw an elevation. An elevation is a ground-level view of the landscape (as opposed to, say, an aerial view.) See **Figure 1** for an example of an elevation. Color your elevation if desired.

Figure 1



Extension:

- Build a three-dimensional model of the plan.
- Draw other elevations.



Kid's Alive!!! Nursery School: Project Cover Sheet

You will be designing a landscape for the Kids Alive!!! Nursery School. Be sure to keep your client's needs in mind as you complete your design. Have fun and be creative while incorporating the seven xeriscape principles.

1. To assess the site and analyze the needs of your client, use the **Step-by-Step Guide to the Landscape Design Process** that has been provided by your teacher. Specific things to keep in mind for the Kids Alive!!! Nursery School's landscape are:
 - Are there safety considerations that can be addressed using the landscape?
 - Did you use low-water-use grass in turf areas? Can it stand up to heavy foot traffic?
 - Will surfaces under playground equipment cushion falls?
 - Does your butterfly garden provide food, shelter, and breeding areas for all stages of a butterfly's lifecycle?
 - Did you meet the Kids Alive!!! Nursery School's needs?
2. Sketch your preliminary design onto the site plan provided. Be sure to include hardscape (sidewalks, patios, etc.) and softscape (plants, mulched areas).
3. Provide a cost estimate using the irrigation expenses from Activity 3-4: Design-a-Drip, mulch expenses from Activity 4-3: A World of Mulches, and the following plant costs. If you do not find an item you need on the list, check with vendors.

Size	Cost
2-gallon shrub	\$15.00 each
5-gallon tree	\$26.00 each
1-gallon perennial/annual	\$8.00 each
Grass sod	\$1.50 /SF
Driveway	\$30.00 /SY
Paver path/sidewalk	\$2.50 /LF

SF = square foot
SY = square yard
LF = linear foot

To change the calculations to metric, see Appendix N.

4. Re-evaluate your plan based on cost. Is it within the budget of the school? If not, how can you reduce costs and still meet their needs?

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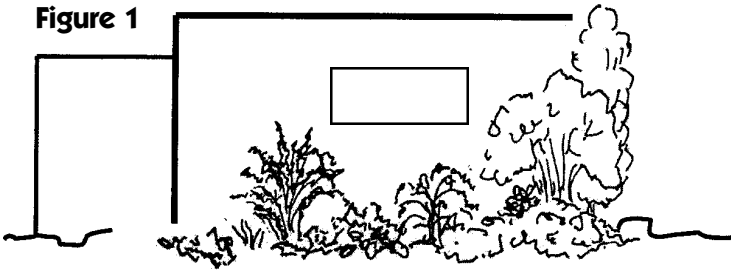


Kid's Alive!!! Nursery School: Project Cover Sheet

5. Draw your final design. Color your plan if desired.

6. Pick a view from one side of the landscape and draw an elevation. An elevation is a ground-level view of the landscape (as opposed to, say, an aerial view.) See **Figure 1** for an example of an elevation. Color your elevation if desired.

Figure 1



Extension:

- Build a three-dimensional model of the plan.
- Draw other elevations.
- Research the lifecycle of one species of butterfly that is attracted to the garden and write a paper about it, draw a cartoon day-in-the-life, or pretend to be the butterfly and write an autobiography.
- Design and build a butterfly garden at the school.
- Research other types of landscape features or gardens, such as ponds, fountains, sculpture gardens, topiary, Japanese gardens, etc. Design a garden using the information found.



Tips For Getting Started: A Step-by-Step Guide to the Landscape Design Process

As you start to answer these questions, add the items that are important to your design onto your site plan.

The first two steps are part of the planning process. The last step is design.

1. Conduct a site evaluation.

- ✓ Look for the physical characteristics of the land:
 - How big is it?
 - What is its shape?
 - Does it have a drainage pattern? Which way does the water flow?
 - Does it change elevation? Does it have hills or drop-offs?
- ✓ Look at the site. What are the important existing conditions?
 - Where are the buildings?
 - What other features or hardscapes (patios, hot tubs, walkways) exist?
 - What plants or trees do you want to keep?
- ✓ What microclimates exist?
 - What direction does the wind come from?
 - What areas will get the most sun?
 - Where are there shady areas?
- ✓ What views are in each direction? Which need to be protected and which need to be blocked?

2. Consider function.

- ✓ List activities for which the owners will need space. What kinds of space and surface do they need? Are there some areas in the landscape that will work better for these activities than others?
- ✓ Determine the turf area size, shape, and placement. Are there turf grass restrictions in the community, and have they been met?
- ✓ How much maintenance do the owners want to do?
- ✓ Will there be any additional hardscapes (patios, walkways)?
- ✓ What are the movement patterns through the area (path to the shed, walk between fence gate and back porch)? Do these need any special landscape considerations?

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Tips For Getting Started:



A Step-by-Step Guide to the Landscape Design Process

3. Create a plan.

- ✓ Is there a theme to the design (butterfly garden, water pond)?
- ✓ Remember zoning. Group plants with similar water requirements together.
- ✓ Do the owners want a mature landscape installed or can they wait a few years for the landscape to mature? Plan enough space around trees and shrubs to allow them to reach their mature size.
- ✓ What types of plants do the owners want (flowering, low maintenance, trees, seasonal color)?
- ✓ Will the project be completed in several stages? If so make a design for each stage.
- ✓ Will soil amendments be needed?
- ✓ Where can mulches help?
- ✓ Where is supplemental irrigation needed?

This is the time to step back and consider what you are planning. Have you met the requirements of the owners? Are you within their budget? Take a good second look at what you have done and see if you can make improvements that would better meet the needs of the owners or use water more efficiently.

Design Do's and Don'ts

The planning and design principle of xeriscape is actually composed of two separate ideas that must complement each other. Think of planning as the pieces of a puzzle and design as putting the puzzle together. Obviously, you need to find the pieces to your design puzzle before you can put it together as a finished landscape design.

Planning the landscape will be the more time-consuming of the two steps. Planning requires research to fully examine the site and discover the functions that the finished landscape must serve. Remember to always keep the needs and desires of the homeowner in mind!

The first three pieces to the puzzle — budget, reducing water use, and desired maintenance — are important items to consider throughout the entire planning and design process: Refer back to them to help you make all of the other decisions.

- **Remember the budget.** Do not plan for a landscape that costs more than the budget allows. If the plan is bigger than the budget, implement the plan in several stages over a longer time frame.
- **Consider maintenance.** Plan the maintenance level of the landscape to match the homeowner's available time and inclination. If the owner does not want to spend the whole weekend maintaining the yard, plan for a low-maintenance landscape.
- **Reducing water use is the ultimate goal.** There may be a slight spike in water use during the first year or two as new plants are established. However, the overall goal of using the xeriscape techniques is to reduce the long-term water use. A good plan and design can help accomplish these goals for years to come.

Styles

Landscapes can be formal or informal. A formal landscape is trim and neat. The plants are often in rows with clearly defined edges between areas. The overall effect is one of control. Informal landscapes look more natural. Plants may wander through the area and escape the bounds of the planting bed to spread through a gravel area. They may be placed more randomly, or appear in clumps and clusters.

Interview the homeowners. Are they the formal or informal type? Check their desired maintenance!

Zones

Zoning is one way to help ensure the success of your xeriscape. Zoning is the process of grouping plants that have similar water requirements together. In xeriscaping, we use three zones: high-, medium- and low-water-use. Not every landscape will include all three zones. If you include a high water-use-zone, try to keep it small. If you decide to make the whole landscape low-water-use, be sure to keep it interesting with textures and color.

Usually the high-water-use or water-thirsty zones are placed next to the house where they can be checked and cared for easily. This thirsty zone should include your lawn area. The best places for the high-water-use zones are on the east and north sides of any building, since these sides get less sun, stay cooler, and retain more moisture in the soil.

The next zone is the medium-water-use or transition zone. This area should contain medium- to low-water-use plants that might need supplemental water about once a week. This zone blends the high-water-use areas with the more arid, low-water-use zones. The transition zone is a good place for trees and bushes. You can use it to add height and shape to your landscape.

Design Do's and Don'ts (continued)

The last zone is the low-water-use zone. It is usually the farthest from buildings and farthest from the water source. A low-water-use zone should contain drought-tolerant plants that need little or no supplemental water. This area is generally the farthest-removed from the active areas of the landscape.

Site Evaluation

A good site evaluation is the first step in making decisions about where to place landscape features and plants. Start by determining physical characteristics of the site such as size, shape, orientation to the sun, drainage patterns, and elevation change (if any). Sketch a template or outline of the area to be landscaped.

Continue your site evaluation by noting the existing features such as buildings, patios, trees, and fences. Next, identify microclimates created by these existing features (shady areas, areas exposed to the wind, and hot areas caused by reflected sunlight).

Finally, identify any views that you would like to be protected or views that need to be obscured, such as a neighbor's junk car collection.

When you have completed the site evaluation, redo the template or outline including as much information about the site as possible. Keep the drawing to scale. Now you have an overall picture of the area you will be working with. This is your site plan. Make several copies of the site plan so that you can experiment with various designs.

Function

The best way to determine the function of a landscape is to interview the homeowner. Find out what they like and do not like and how they plan to utilize the area. Consider all the possible activities that will occur in the landscape and what type of area will be needed to accommodate these activities. For example, if the family likes to occasionally eat outdoor meals, will they require a large

lawn? A small patio surrounded by flowers might be nicer. However, if you have a troop of kids who want to throw the ball around, a nice lawn might be more appropriate.

Sometimes the only function of a landscape is to give the homeowner a beautiful area to enjoy and maintain.

Make sure to ask the homeowner about their short- and long-term maintenance plans. Do they enjoy working in the landscape for several hours every weekend? If their ultimate goal is to never have to work in the

yard again, be sure to plan for a low-maintenance landscape.

Design

Once you have completed your site plan, determined the function, set your budget, and kept in mind the ultimate goal of water conservation, you can begin the design process. Start by reviewing the different styles of landscaping and reviewing the principles of water-use zoning. Then you can move to "placing the pieces of the puzzle" onto the landscape.

Textures

In your overall design, remember that plants have different textures, shapes, and colors. You can use bold areas of the same color or texture to make a



Design Do's and Don'ts (continued)

statement or call attention to a specific part of the yard. Flowers can be used to create a point of color for people to see from buildings or seating areas. Don't forget that plants provide physical comforts also. Think about using deciduous¹ trees to cool areas in the summer and let light and warmth into the area in the winter.

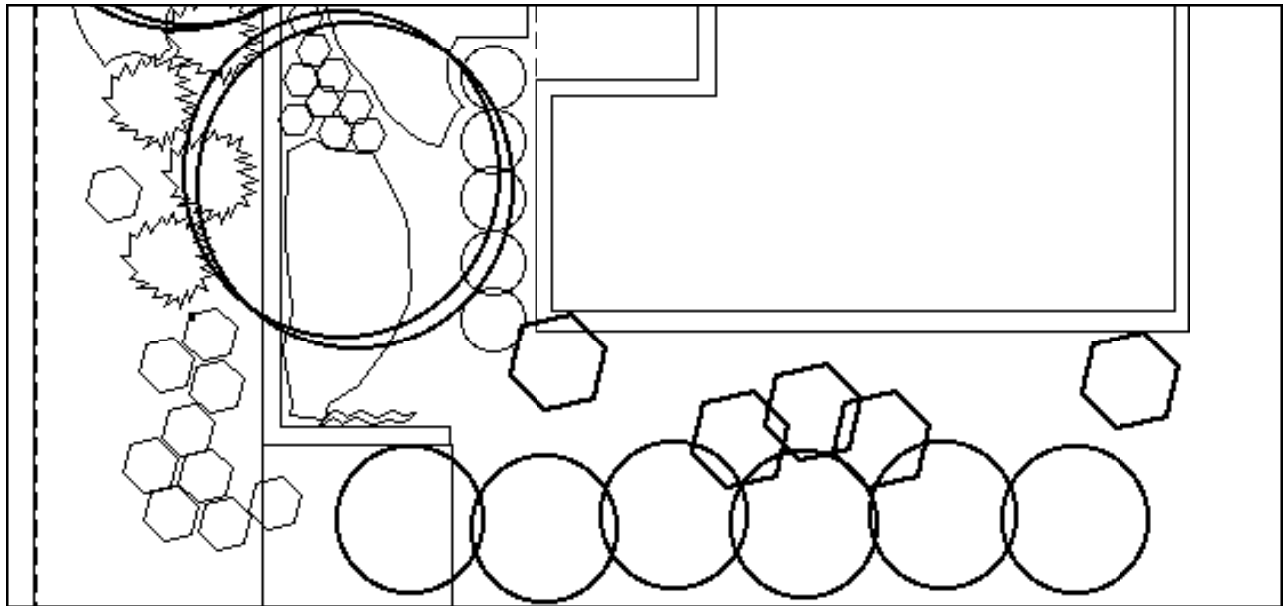
Placing the Pieces

Use your site plan to play with some design options. It is usually best to start with any hard-scapes and design features that will be added, such as playground equipment, decks, or fences. Next, utilize the information learned from the homeowner about the function of the landscape. Decide where the three water-use-zones will be

placed. Then you can add specific plants into each zone. Remember to allow growing room for the plants selected so they will not be overcrowded when they reach their mature size.

Some of the design components to consider include:

- thematic plantings such as a butterfly garden or formal garden;
- creating year-round interest by including plants that bloom at different times or provide interesting colors and shapes throughout the year;
- local restrictions on turf grass; and
- the location and type of irrigation systems and mulch.



Final Thought

Planning and design ties all of the other xeriscape principles together. While planning, it's important to remember everything that has been already discussed about soil amendments, irrigation systems, mulching, limiting turf areas, and plant choices. Then, during the design process you can let your creative juices flow!

¹Deciduous – leaves that fall off or shed seasonally

RESOURCES:

Xeriscape Gardening, Water Conservation for the American Landscape by Connie Ellefson, Tom Stephens, and Doug Welsh starts with an excellent chapter on planning and design.

<http://dmoz.org/Home/Gardens/Landscaping/Design>
– Open Directory Project includes a listing of landscape design sites

<http://www.lesslawn.com> – practical, creative, and relevant ideas for how to shrink the lawn

<http://www.bae.ncsu.edu/programs/extension/publicat/wqwm/ag508-2.html> – from the North Carolina Cooperative Extension Service, *How to Plan & Design a Wise-Water-Use Landscape*

<http://www.udel.edu/LongwoodGrad/symp97.html> – *Wooden Structures In The Garden* by Colleen Bugler explains how to use hardscape elements of wood and stone to create a unified garden.

REFERENCES:

Campbell, Stu. 1990. *Let it Rot, The Gardener's Guide to Composting*. Pownal: Storey Communications, Inc.

City of Albuquerque. *Rainwater Harvesting, Supply From the Sky*.

Ellefson, Connie, et. al., 1992. *Xeriscape Gardening, Water Conservation for the American Landscape*. New York: MacMillan Publishing Company.

Frank, Luke and Bennett, Doug. *Low Volume Irrigation Design and Installation Guide*. Albuquerque: City of Albuquerque.

Johnson, Eric A. and Millard, Scott. 1993. *The Low-Water Flower Gardener*. Tuscon: Millard Publishing Services.

Knoopf, Jim. 1991. *The Xeriscape Flower Gardener*. Boulder: Johnson Books.

Mielke, Judy. 1993. *Native Plants for Southwestern Landscapes*. Austin: University of Texas Press.

New Mexico Office of State Engineer. *The Enchanted Xeriscape*.

New Mexico Office of State Engineer. *Xeriscape 101*.

Phillips, Judith. 1995. *Natural by Design*. Santa Fe: Museum of New Mexico Press.

Phillips, Judith. 1998. *New Mexico Gardener's Guide*. Franklin: Cool Springs Press.

Phillips, Judith. 1995. *Plants for Natural Gardens*. Santa Fe: Museum of New Mexico Press.

Schultz, Randall D. 1998. *The Complete How to Guide to Xeriscaping*. Albuquerque: City of Albuquerque.

Sedenko, Jerry, 1991. *The Butterfly Garden*. New York: Villard Books.