Part 2

Desert Gardening Basics

Chapter 5

Finding a Row to Hoe

As you check out playground corners and other possible garden sites, remember that location is the most important factor in establishing a successful garden. Favorable sunlight, relatively level ground, access to water, good drainage, and decent soil are the critical elements to consider, all of which will be described below. Poor soil, by the way, can be improved, but a poor location is forever a poor location!

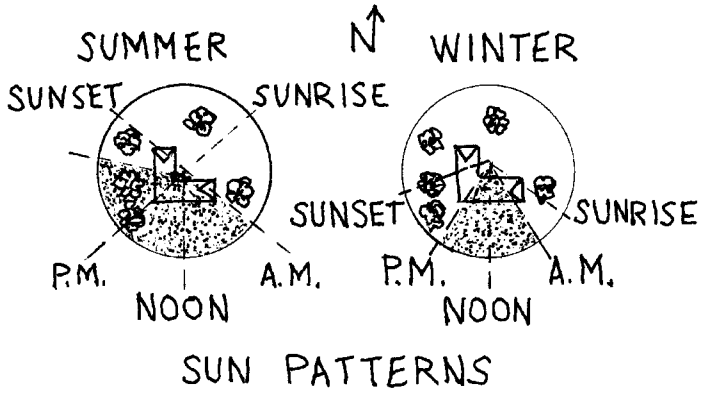
Sunlight

Most guidance regarding sun exposure on seed packets or in gardening books is not very useful in the desert, with its intense sunlight and wildly fluctuating daily temperatures. Through experience, you will begin to appreciate the lighting needs of individual plants. For now, resist the urge to seek shade for your desert garden. Your vegetables, flowers and herbs will require at least six to eight hours of full sun a day. The important factor is the time of day when the garden is exposed.

Because of the earth's rotation, the angle of the sun as it hits your garden will change with the seasons. In summer, the sun is high overhead; it shines for a longer period of time with a more direct angle. In winter, the sun is lower in the sky; there aren't as many hours of sunlight and its angle is less direct. Think about the sun's path when you decide where to locate your beds. For example, a garden planted close to the north side of your school building wouldn't receive direct rays during the winter growing season.

Ideal lighting conditions change with the season. A full day of sun in the winter, when days are shorter and cooler, is ideal for vegetables and flowering plants. Cool-weather crops will continue to do well into the spring but will require some shade in the hot

afternoon when the weather really begins to heat up. However, given the school year calendar, you might consider uprooting your cool crops early to allow adequate time to plant and harvest fast-maturing, warm-weather crops before school adjourns. (See "Choosing Crops" in Chapter 10 and "Planting Calendars" in Appendix F for more information about cool- and warm-weather crops.) Afternoon shade in the heat of the summer is needed by most crops, some of which can be provided by tall plants like corn and sunflowers or shade cloth stretched on a temporary or permanent structure. You can also accept the reality of heat-stressed plants and wait patiently until the fall brings relief.



SUN PATTERNS

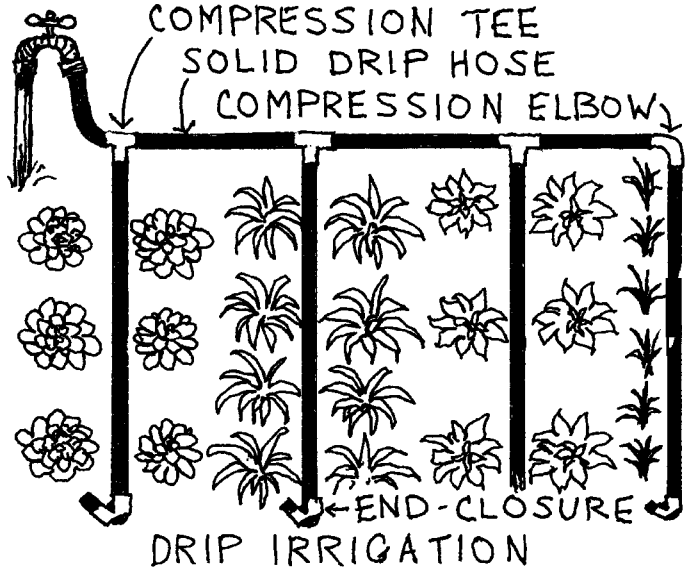
Access to Water

Plants can't survive without water, and the larger the garden, the less likely you'll want to water from buckets and cans. Try to ensure that there is at least one spigot within a hose length or two of the garden's farthest corners. If not, extending the reach by burying some PVC pipe to and around the garden to add a few more hose bibs (faucets) is economical, practical (fewer hoses to keep untangled and from mashing other plants) and easy to install with a "T" off the original water system or spigot (with the school's permission, of course). Remember to get Schedule 40 PVC pipe, which is the proper thickness to handle water pressure.

A backflow preventer is also an essential part of your watering system. When any water supply is turned off, it can create a suction effect that can reverse water flow from the irrigation system back to the source. This means that anything in your watering system (bacteria, fertilizer, manure) can end up in your drinking water supply traveling via drip irrigation emitters and hoses. Most zoning ordinances require backflow preventers and any hardware, plumbing or irrigation supply shop can give you basic instructions. Your school or organization's maintenance crew can also help you determine what you need and may already have backflow preventers in place.

Assuming the beds have rims or berms, flooding the area with a hose is probably the easiest method, although it uses more water than some of the other techniques. Also, plants can rot if left in standing water and certain fungal diseases are easily transmitted via wet conditions. If you use a hose, be careful that the force of the water doesn't dislodge seeds or tender transplants.

Alternatively, soaker hoses literally "weep" through pores all along the hose, allowing water to soak into the ground at an even, slow rate and lose less to evaporation. Soaker hoses also help prevent disease as plant leaves don't get wet with each watering. They



provide flexibility to move around a bed for different plantings or to different beds within the garden. The disadvantage to soaker hoses is that they may lose water pressure towards the end of the hose if they are too long.

Drip irrigation systems are an efficient and water-saving alternative but may take more time and money to install initially. They are usually less costly in the long term as they save in equipment replacement costs and water use. In arid climates, drip irrigation gets water directly to plant roots with a minimum of loss due to run-off and evaporation. It also helps prevent disease by watering the soil, not the leaves. A typical drip system has main tubes or lines (one-half-inch in diameter) with thinner tubing (often called "spaghetti") running to each plant. An emitter at the end of the spaghetti tubing "drips" water at a slow rate. Emitters can be purchased at different flow rates, such as one gallon per hour.

A variation is to attach laser spaghetti tubing to the main line. Similar to soaker hoses, with tiny holes drilled at equal intervals, the tubing is stretched across the bed, with water seeping at a slow rate. This works well to cover an area of closely planted vegetables or flowers, where numerous tubes with emitters might be less attractive and more costly.

Trenching for a full drip irrigation system with valves and a timer before you establish the beds would be great if you are very confident about your garden layout, the program is well funded from the start or you have donated materials. Hoses are a perfectly acceptable interim solution and you will have lots of student hands for labor. Even watering cans or buckets with cups and cans for "dipping" will work if your garden isn't too large.

Sprinklers are not recommended as water will hit the plants' leaves, evaporate, and leave salt residues that cause leaf burn. Wet leaves are more susceptible to fungal disease. Also, the deep soil soaking required for good root development generally isn't achieved in the desert with sprinklers.

Level Ground

Your garden should be located in a fairly level area. Sloping ground is subject to run-off and erosion, and plant watering needs are difficult to meet. If an area with a slope greater than 20 degrees

is your only option, consider adding soil to level the area or building some type of terrace.

Drainage

Check your soil for drainage by digging a foot-deep hole. Fill it with water and let it drain. Refill it and time how long it takes to drain the second time. The slowest acceptable drainage rate is one inch per hour. If it doesn't drain, you will need to check for and break through a probable hardpan barrier with a pick. There can sometimes be too much of a good thing—even water. Most plants want crumbly-textured, well-draining soil to thrive. Heavy, muddy, hard-packing clay allows little to grow, because plant roots need aeration, too. If, on the other hand, the water drained as fast as you poured, you have sandy soil, which will need plentiful amounts of organic matter to help hold moisture. Chapter 6 discusses soil and amendments in more detail.

Raised beds can alleviate some of the problems associated with desert soils, such as extreme compaction and poor drainage. We will explain how to create raised beds in Chapter 9.

Other Considerations

Select your garden spaces only after carefully reviewing other important factors. High traffic routes, community congregational areas and shortcuts to the ball fields should be avoided, but don't keep the garden out of sight. Easy access to the classrooms is beneficial and visibility will reduce the potential for vandalism. Consider the opportunity to locate the garden near or within the view of friendly neighbors who can keep an eye on the area.

Fencing will serve multiple functions as trellises, shade and deterrents to pets, wildlife, stray balls and racing bikes. It can also make a potential vandal "think twice." Consider incorporating existing schoolyard fencing on at least several sides. If funding for a fence is not immediately available (see Appendix E, "Grants and Funding Sources," which may help with this type of capital expenditure), don't despair. Consider the use of such living fence materials as climbing roses, thorny vines like blackberries or sunflowers and other large, sturdy plants for a temporary barrier. (Be

sure to check your district's policy on thorny plants; some have restrictions on plant varieties.) Bales of hay can become a barrier, be used later for mulch and provide some summertime shade. Do not give up your vision for lack of a fence.

Never underestimate the value of showcasing your garden so that visitors can easily view the fruits of your labors. Your ability to promote a beautiful campus facility will go a long way toward maintaining support from faculty, officials and parents. However, you should also understand the price you pay for this type of "advertising." The more prominent the garden, the more important it is to maintain it. An eyesore will work against your efforts.

Do you have some assurance that this year's garden will *not* be next year's new basketball court? Be aware of site-based construction plans for two reasons: first, to address potential impacts to the garden and second, to have an opportunity to incorporate garden structural needs (fencing, irrigation, electrical) in the planning process. Have your administrator or a member of the committee keep you posted.

Other design considerations are listed in Chapter 8. Finally, although most municipal lands should already have public liability insurance, you may want to check with your administrator to make sure the garden activities will be covered. If for some reason you are choosing to garden on private land, review the need for carrying such coverage.