



## Principles of Xeriscaping

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Xeriscaping is the process of landscaping, or gardening that reduces the need for irrigation. It is promoted in regions that do not have available, abundant, or consistent supplies of fresh water and is gaining acceptance in other regions as access to irrigation water is becoming limited; though it is not limited to such climates. Xeriscaping may be an alternative to various types of traditional gardening.

In some areas, terms such as water-conserving landscapes, drought-tolerant landscaping, or smart scaping are used instead. The uses of plants whose natural requirements are appropriate to the local climate are emphasized, and care is taken to avoid losing water to evaporation and run-off. However, the specific plants used in xeriscaping vary based on climate as this strategy can be used in xeric, mesic, and hydric environments. Xeriscaping is different from natural landscaping, because the emphasis in xeriscaping is on selection of plants for water conservation, not necessarily selecting native plants.

Xeriscaping produces green spaces that require low amounts of maintenance and irrigation, and sponsor biodiversity; but, due to societal norms and be short of landscape understanding, public perception of xeriscaping has frequently been negative, as some assume that these types of landscapes are ugly expanses of just cactus and gravel. However, studies have shown that education in water conservation practices and xeriscaping's benefits can greatly progress the public's perception of xeriscaping.

### Principles

In the beginning conceived by Denver Water, the seven design principles of xeriscaping have since expanded into effortless and appropriate concepts to creating landscapes that use less water. The principles are suitable for multiple regions and can serve up as a guide to creating a water conserving landscape that is regionally appropriate.

**1. Plan and design:** make a drawing, drawn to scale, that shows the most important elements of the landscape, such as impervious surfaces, existing flora, and other stable elements.

Once a base plan of an existing place has been determined, the formation of a conceptual plan (bubble diagram) is done which shows the areas for turf, perennial beds, views, screens, slopes, etc. Once finished, the development of a planting plan that integrates plants into zones is done.

**2. Soil amendment:** Most plants will benefit from the use of compost, which will help the soil retain water. However, some desert plants prefer gravel soils instead of well-amended

soils. Plants can either fit the soil or the soil should be amended to fit the plants. Soil is essential to most plant growth, so it is important that this step isn't overlooked or undervalued.

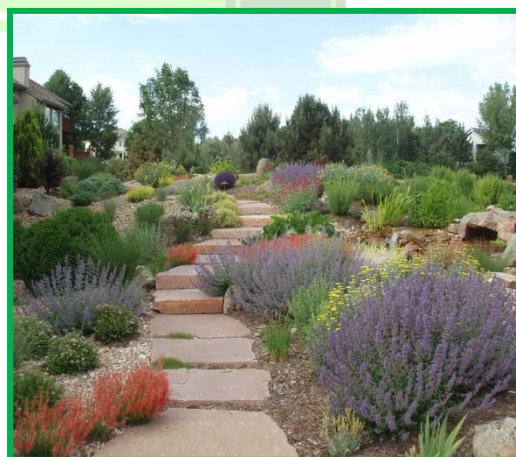
**3. Efficient irrigation:** A xeriscaping can be irrigated efficiently by hand or with an automatic sprinkler system. In the design process it is suggested that turf areas are zoned individually from other plant sections, and that efficient irrigation methods used appropriately for each zone. For grass, use gear-driven rotors, or rotary spray nozzles, that has larger droplets and low angles to avoid wind drift. While drip line or bubbler emitters are most efficient for watering trees, shrubs, flowers and ground covers.

If watering by hand, avoid oscillating sprinklers and other devices that throw water high in the air or release a fine mist. The most efficient sprinklers release big drops close to the ground.

When irrigating it is important to water deeply and infrequently to develop deep roots and healthy plants to reduce water lost to evaporation, watering should be avoided during the day. The use of automatic sprinkling systems is highly encouraged as well as adjusting the controller monthly to accommodate weather conditions. It is often recommended to also install a rain sensor to shut off the device when it rains.

**4. Appropriate plant and zone selection:** Green spaces often have differing environmental conditions when considering amount of light per day (due to building shadows), wind, and moisture. To minimize water waste, it is essential to group together plants with similar light and water needs, and place them in areas of the green space that match these requirements; for example, moderate-water-use plants should be placed in low-lying drainage areas, near downspouts, or in the shade of other plants. Turf typically requires the most water and shrub perennial beds will require approximately half the amount of water as the turf. Planting a variety of plants with different heights, color, and textures creates interest and beauty as well as promotes biodiversity.

**5. Mulch:** Mulch keeps plant roots cool, prevents soil from crusting, minimizes evaporation, and reduces weed growth. Organic mulches, such as bark chips, pole peelings, or wood grindings, should be applied 2 to 4 inches deep to help promote root growth. Fiber mulches create a web that is more resistant to wind and rain washout. When using inorganic mulches, such as rocks and gravel, they should be applied 2 to 3 inches deep. Surrounding plants with rock makes the area hotter as they absorb sunlight, so it is recommended to limit this practice when xeriscaping.



**6. Limited turf areas:** Turf areas use the most water so it is important to use the appropriate grass as well as limit the amount of grass in the environment. Native grasses (warm-season) that have been cultivated for turf lawns, such as buffalo grass and blue grama, can survive with a quarter of the water that bluegrass varieties need. Warm-season grasses are greenest in June through September and may go dormant during colder months.

Native grasses (cool season) such as bluegrass and tall fescue, are greenest in the spring and fall and go dormant in the high heat of the summer. New cultivars of bluegrass, such as Reveille, and tall fescue, can reduce typical bluegrass water requirements by at least 30%. Fine fescues can provide substantial water savings and are best used in areas that receive low traffic or highly shaded locations.

**7. Maintenance:** All landscapes require some degree of care during the year. Turf requires spring and fall aeration along with regular fertilization every 6 to 8 weeks. Additionally, the turf should be cut to a height of 3 inches with a bag less lawn mower, allowing the clippings to fall. Trees, shrubs, and perennials will need occasional pruning to remove dead stems, promote blooming, or control height and spread. To promote zero waste and avoid adding organic materials to landfills, the removed plant material can be shredded and used in composting piles.

## References

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