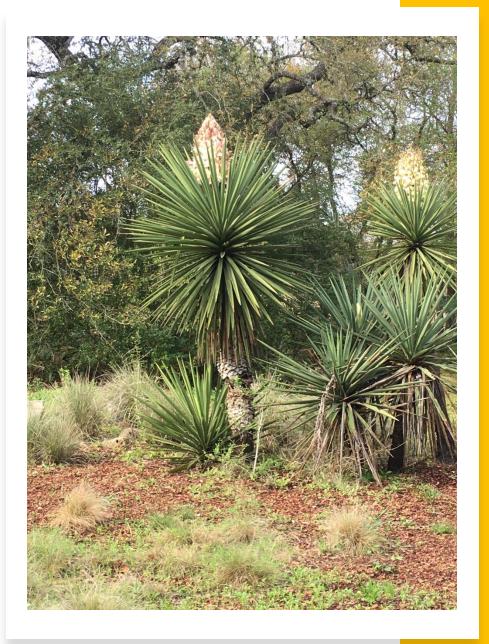
Beat the heat!

Yuccas, etc.



Agave is a monocot found in arid regions of the Americas, known for its succulent and xerophytic species with large rosettes of strong, fleshy leaves.

Yucca is in the family Asparagaceae, subfamily Agavoideae with rosettes of evergreen, tough, sword-shaped leaves and large terminal panicles of white or whitish flowers.

Aloe vera is a succulent plant species of the genus Aloe.



Xeric adaptations—plants adapt to a dry environment and hot climate in many ways.

 Escape—annuals begin to grow again (germinate) and bloom in the cool part of the year and re-seed strongly—an example is the Texas bluebonnet.



• Evade—perennials have bulbs (parts of stems) like rain lilies, or tubers (parts of roots) like potatoes, to store water when it's wet and replace the water with the new rains. The underground part stays alive when water is scarce.



Endure--Xeric adaptation

Reduce leaf surface—tiny

leaves broken into little

leaflets or deeply toothed—an

example is the acacia.

Dropping leaves like the mesquite.

 Shading leaves with hairs like the Artemisia.











Other adaptations

Rosette spiral structure to direct water to the root, as in agaves, yuccas, and aloes.

Leathery/stiff leaves with a waxy (cuticle) layer as in the live oak.

Delayed growth and bloom as in the penstemmons







Cactus, agave, and yucca plants endure. They have ways to change their structure, and how they function, to minimize heat and water loss.

They make their energy (big word alert—photosynthesis) in their stems.

Compact, round stems reduce the surface. Ribs direct water to the roots.

Waxy, hairy, spiny surfaces trap air, shade the surface, and downward leaves direct water to the roots

Roots near the surface absorb water quickly

They germinate, or make new growth, in cool months.









More adaptations for heat and dry weather (draught).

Succulence means they store water in sticky tissues.

They reduce leaf area with thin small leaves or leaves with irregular edges.

Stomata, or breathing holes are sunken.

They make their energy and give off water at night when it's cool.

Demonstrating adaptations



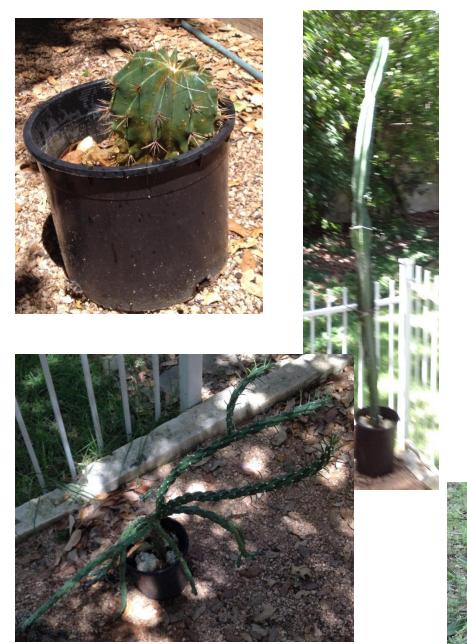
Xeric plant shapes















More shapes





The 3 E-s sung to Pop Goes the Weasel

Escape, Evade, Endure, (hands separate, shield eyes, grow upward)

Escape, Evade, Endure, (hands separate, shield eyes, grow upward)

Ribs, rosettes and waxy too (hands together fingers spread)

Help beat the heat for sure! (clapping)



You can be a yucca artist!

Add a green straw stem and small cotton ball or GTC hole protector yucca flowers! https://www.heb.com/product-detail/gtc-reinforcements-white/543090







Yucca imagineering!

What yuccas and succulents can you find walking in the park?

What can you use to make a yucca snack? Celery stems? Scallion leaves?

White M&M flowers? Or perhaps agave syrup and gummy butterflies?





Animals also adapt to heat and drought.

