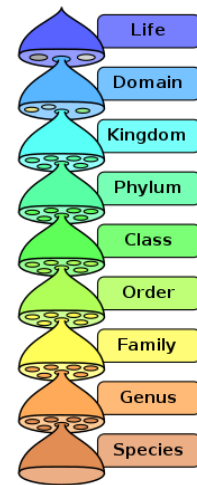


# Zilker Botanical Garden Conservancy High School Docent Guide

## Herb Garden:

- **Taxonomy:** Explore the relationships of plants in the garden from Family to Genus to species and cultivar. Define Taxonomy (the science of classifying organisms). Why do we need taxonomy? What are scientific names? Why do we need standardized nomenclature? Discuss common names and how some common names refer to various plants (e.g. Texas Cedar is actually a juniper) Break students into groups and have them categorize and group the various plants present. Ask them why they grouped them the way they did. Do they think they are related? Explain that in plant taxonomy, there are usually distinct characteristics at the family level (e.g. areoles in Cactaceae or square-stem in Lamiaceae) *TEKS.HS Biology.8.A-B*



## Prehistoric Garden:

- **Plant Evolution:** Using the genetic diversity activity on the table in the pavilion, have students simulate the effects of mutations over time and the effects on population genetic diversity. At the end of the activity, students should be able to explain that the more genes, the greater chance of mutation, leading to greater genotypic and phenotypic variation. Explain the significance of the Cretaceous period for botanical diversity and how the K-P extinction led to the fall of gymnosperms as the dominant group and rise of angiosperms and angiosperm speciation due to high genetic diversity which arose as angiosperms tended towards polyploidy. Use this as a chance to discuss the benefit to multiple copies of genes for increased survivability and speciation. *TEKS HS.Biology.7.A,D*

## Butterfly Garden/Green Garden:

- **Identifying Native Plants:** Explain a dichotomous key and that dichotomous means branching into two parts. Explain how dichotomous keys are usually produced for a specific area (ex: as broad as a country to as narrow as the Texas Hill Country). Share with students that we will be using an abbreviated dichotomous key. Break students into groups of 2-3 and assign them one of the following plants below:
  - Ball Moss (*Tillandsia recurvata*)
  - Ashe Juniper (*Juniperus ashei*)
  - Twisted Leaf Yucca (*Yucca rupicola*)

- Agarita (*Berberis trifoliolata*)
- Yaupon Holly (*Ilex vomitoria*)
- Texas Persimmon (*Diospyros texana*)
- Live Oak (*Quercus fusiformis*)
- Redbud (*Cercis canadensis*)
- Cedar Elm (*Ulmus crassifolia*)

Have students spend a couple minutes determining the species. Then have them share with the class the common name and scientific name. Recall the lessons of the taxonomy section emphasizing the importance of scientific names. Ask them if there are other ways to identify plants. Common answers include plant ID apps. Are plant ID apps always correct? Is it important to understand how to identify plant outside of plant ID app?

*TEKS.HS.EnvironmentalScience.4.A*