San Antonio Botanical Garden

Exploring the Conservatory

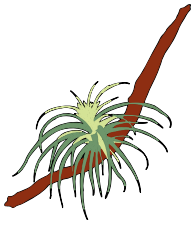
Your mission, should you choose to accept it, is to explore the Lucile Halsell Conservatory, which features plants from around the world. Discover the amazing adaptations of rainforest and desert plants, walk under a waterfall to see a diversity of ferns, and get a bird's eye view of the palms and cycad collection from the top of the Conservatory. Don't forget to pick up a map at the front desk!

Exhibit Room

Tropical rainforests are the most biodiverse ecosystems in the world. The reason there are so many species living there is because of the ideal climate for plant growth—warm and moist. Rainforests may receive 80-400 inches of rain per year. The high rainfall often results in poor soils, since many of the nutrients are washed away. Tropical rainforests are often known for their layers. What are the four layers?

Plants in the rainforest have several different strategies for reaching the light. Find an example of a plant that uses one of these strategies:

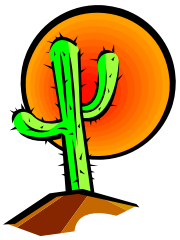
1. **Large leave**s to help them collect light in the lower layers of the rainforest.
2. **Vines**—many plants climb up other plants to reach the light.
3. **Epiphytes**. Some plants grow on branches high in the trees. They use the trees for support, but do not remove nutrients from it.



Rainforests can have very complex food webs (interrelated food chains). Look for the Tropical Rainforest Mural created by the fifth graders at St. Luke Episcopal School. Draw a food web in the space below using plants and animals from the mural.

Desert Room
A desert is an area that receives very little rain and often has temperature extremes. Plants in these areas have special adaptations to help capture and store rain.

1. Many plants in the desert are **succulent** and store water in their stems or leaves. Notice how many of the plants have ridges and grooves. They help funnel water to the roots of the plant. They also allow the plant to expand as it stores water inside its stem. Can you find two examples of plants like this? Look at some of the other plant shapes—how might they help capture water?



2. In some deserts, plants must also adapt to hot temperatures and intense sunlight. Observe how some of the cacti shade themselves with their spines. Light colors also help to reflect light. Find a good example of this adaptation…but be careful not to touch the spines!

Tropical Room
The tropics provide us with many of the foods that we eat every day.

1. List two plants that you have eaten in the last month. What part of the plant were you eating?

2. Some plants have developed tasty fruits to attract animals to eat them and help disperse their seeds to a new location. These fruits are often green while they are developing, but then change color to advertise their ripeness. Can you find an example of a plant that does this in the Tropical Room?

Palm House
Palms and cycads are found across much of the tropical and subtropical areas of the world. While cycads look similar to palms, they are only distantly related. Cycads bear their seeds in cones, while the seeds of palms are found in enclosed fruits.

1. Palms get their name from their leaves, which are shaped like the palm of your hand. The leaves are divided. How is this an adaptation to the ecosystems in which they live? (Hint: Think about why it is so noisy in this room, where they grow and the fact they have very flexible trunks.)

2. Look for the unusual prop roots of the screwpine. How do they get their name? Compare this to the trunk of the ponytail palm. How are they similar in function?

Fern Room

Ferns first appeared in the fossil record 360 million years ago and were the dominant form of vegetation during the Carboniferous Period. There are about 12,000 different kinds of ferns today.

1. Ferns reproduce through spores. Look for the little brown sori containing spore cases (sporangia) underneath the leaves. How many different kinds of ferns can you find with sori?

2. Look for the Staghorn fern in this room. Staghorn ferns are epiphytes and often grow perched on trees. Most Staghorn ferns have two kinds of leaves. One is sterile and shield-shaped, the other is fertile (produces spores) and is forked like an antler. As the sterile leaf grows, it clasps on to its support, turning brown as it ages. Besides helping to support the fern, these leaves collect water and dead plant material that provides nutrients to the plant. How do you think the spores from the fertile, antler-shaped leaves are spread? Remember…it's up in a tree!

Congratulations on completing your mission to explore the world of plants!