

Pre-visit Activity: Life in the Layers

Objective

Students will identify the four plant layers found in tropical rainforest ecosystems. Students will research one of these layers and produce a collaborative creative writing piece which they will present and share with their peers.

Next Generation Sunshine State Benchmarks: SC.3.N.1.1, SC.3.L.14.1, SC.3.L.14.2, SC.3.L.17.2, LA.3.1.6.1, LA.3.1.6.2, LA.3.1.6.3, LA.3.1.6.4, LA.3.1.6.5, LA.3.1.7.3, LA.3.2.2.2, LA.3.2.2.3, LA.3.2.2.5, LA.3.3.1.1, LA.3.3.1.2, LA.3.3.2.1, LA.3.3.5.1, LA.3.3.5.3, LA.3.4.2.2, LA.3.5.2.2, LA.3.6.2.1

Vocabulary

emergent epiphyte decompose
canopy understory

Materials

“Words for a Day at Fairchild” (page 2)
“Life in the Layers” story (pages 3 & 4)
Unlined paper
Pencils/crayons/markers
Resource materials (Internet, encyclopedias, newspaper articles, etc.)

Procedure

1. As a class, read and discuss the story about Pedro on pages 3 & 4.
2. Divide the class into groups of 4-5 students. Each group will focus on a specific layer of the rainforest.
3. Students may use the Internet, encyclopedias, etc., to conduct research on their specific layer.
4. Ask the students to choose a plant or animal that lives in their layer of the rainforest and write a story from the point of view of the animal or plant. Their stories will be fictional, but should include facts about the rainforest and details about the layer where the plant or animal lives.
6. Ask student groups to read their stories to the class and allow time for questions and answers. Which layer would students like to live in?

Life in the rainforest exists at different levels or layers, with plants and animals having specialized physical adaptations to live in a particular layer. The conditions are different at each level:

Emergent - bright sun, hot, windy, least moisture

Canopy - hot and windy at the top, much darker underneath, less moisture

Understory - little wind, low light, more moisture, cooler

Forest floor - dark, most moisture, little wind, cool

Words for a Day at Fairchild

Adaptation - unique features of plants and animals that enable them to live in a particular environment.

Biodiversity - many different kinds of life in one area.

Canopy - a thick, overhead layer of the rainforest formed by the branches and leaves of the tall trees. It is the “ceiling” of the forest.

Condensation - when water changes from a gas to a liquid.

Conservation - protection of natural resources from waste, loss or harm.

Decomposer - organisms, such as bacteria, fungi and insects, that break down dead plant and animal materials to be recycled and reused.

Drip tip - the end of a leaf that comes to a point, allowing rainwater to drip off.



Drip Tip

Ecosystem - a community of animals, plants, and microscopic life that interact together in the environment.

Emergent - the tallest layer of trees in a rainforest, they typically break through the canopy.

Epiphyte - a plant that lives on the surface of another plant, especially the trunk and branches. It does not typically harm its host plant.

Evaporation - when moisture changes from liquid to gas.

Forest Floor - the ground layer of the rainforest, made up of tree roots, soil, decaying matter and decomposers.

Humidity - the amount of water vapor in the air.

Interdependence - the concept that everything in nature is connected to each other, and cannot survive without the help of other plants, animals and abiotic factors (i.e., sun, soil, water and air).

Precipitation - the forms in which water falls to the ground as rain, sleet, snow and hail.

Sustainable - using resources in a way that does not permanently destroy them, so that people in the future can also use them.

Transpiration - the loss of water from plant surfaces (usually leaves).

Tropics - hot, humid zone between the Tropic of Cancer and the Tropic of Capricorn.

Understory - the layer growing under the canopy, made up mostly of young trees and shrubs.



Epiphyte in tree

Life in the Layers

Pedro, who is 9 years old, loves where he lives in the rainforest in South America. There are millions of different kinds of plants and animals living in the forest, and everything he and his family needs, they get from the forest around them. Today, Pedro is going hunting with his father, but he has a little free time before his father is ready to go. He walks a short distance from the village and stands very still, looking all around him. There is much to see, and the more he looks up, the more everything changes. In the rainforest, life exists in different levels, or layers.

Now he is standing quietly beside an enormous old tree, and next to that is a palm tree that has roots like stilts coming out of the trunk of the tree. Pedro bends down to look at a red fungus growing on the forest floor. It is dark and cool down on the forest floor, as the trees keep out most of the light. Pedro also notices that there are few plants living at this level and wonders why this is so. Under his feet, the ground feels soft with damp rotting leaves, and underneath the leaves, ants and termites do their work of helping to decompose the leaves, turning them into soil.

On his right, Pedro can see fresh tracks from a peccary. These pig-like animals dig into the ground with their snouts, searching for roots and underground stems to eat. Pedro hopes to see a jaguar, tapir or any other large animal that lives on the forest floor where the thin vegetation allows them to move freely.

Pedro looks up and notices a plant with leaves as big as an umbrella. He thinks to himself, "If it starts to rain, I should come back here and stay dry under one of these leaves." Many of the plants in the understory, have big leaves to catch what little light there is. There are also some small trees nearby that are as tall as a house. As Pedro silently looks around, a butterfly flutters past him, and he notices a frog and a lizard on the tree.



Tapir



Peccary

Pedro looks up even higher, peering into the canopy over 100 feet high, as tall as an eight-story building. This is his favorite level, as this is home to most of the organisms found in the rainforest. The canopy layer forms a thick green roof of branches and leaves that shades the forest floor. Up here, where there is more sunlight and rainfall, there are dense vines, and many plants growing on the branches of the trees. These plants are epiphytes and include orchids, ferns, mosses and bromeliads. Many insects and animals such as monkeys, birds, snakes and sloths also live here.

High above the canopy, taller trees grow, like the one that Pedro is standing beside. These trees make up the emergent layer and they have smaller leaves than the other trees because they are in full sun. On the top of this tree perches a harpy eagle, but Pedro cannot see it through the canopy. The eagle looks down for something to eat, perhaps a sloth or monkey.

In the rainforest, the web of life is spinning, and Pedro waits patiently for his father to start to hunt.

