



MIDDLE SCHOOL

PRE AND POST VISIT ACTIVITIES

GEORGIA STANDARDS OF EXCELLENCE

- S7L4.** Obtain, evaluate, and communicate information to examine the interdependence of organisms with one another and their environments.
- Construct an explanation for the patterns of interactions observed in different ecosystems in terms of the relationships among and between organisms and abiotic components of the ecosystem.
 - Ask questions to gather and synthesize information from multiple sources to differentiate between Earth's major terrestrial biomes (i.e., tropical rain forest, savanna, temperate forest, desert, grassland, taiga, and tundra) and aquatic ecosystems (i.e., freshwater, estuaries, and marine).

PRE-VISIT

GUIDING QUESTIONS

- What ecosystem do we live in?
- What makes our ecosystem special?

SCHOOLYARD WALK temperate deciduous forest observations

Ask the students to make observations about our ecosystem, temperate deciduous forest, as observed from the schoolyard. What kinds of plants are growing? What kinds of animals do they see? What is the weather like today? What is the weather generally like the rest of the year? What kinds of plant and animal adaptations help organisms survive in our biome?

POST-VISIT

WRAP UP QUESTIONS

The Atlanta Botanical Garden creates an indoor environment to support plant life from tropical and desert ecosystems. If you were to visit a real tropical rainforest or a real desert, how do you think it would be different?

How would it be the same?

What did we observe about plants in the tropical rainforest?

What did we observe about plants from the desert?

What did the Atlanta Botanical Garden need to do to create a safe environment that supports plants from the tropical rainforest and desert?

ACTIVITY plant visitor

- Ask each student to choose a plant from another biome that will be visiting Atlanta for a year, but cannot stay inside their home. Students can create a separate indoor environment if necessary. What do they need to do to make sure their plant is healthy and happy while visiting a temperate deciduous biome?

- For more information about our greenhouse and how they could create their own, watch [Greenhouse STEM Project](#)

ACTIVITY design your own plant

- Ask each student to design a unique plant that is adapted to live in a particular ecosystem. First have them choose their ecosystem and list out the challenges and advantages for plants in that ecosystem, then with those in mind, design a plant that can live there. What characteristics will their plant have that will help it survive? What kinds of relationships does their plant have with other organisms in the environment?
- Bonus: ask students to create a sculpture of their plant to share with the class.

SUGGESTED RESOURCES

[How Do Trees Survive the Winter?](#) by MinuteEarth

[The Real Reason Leaves Change Color in the Fall](#) by MinuteEarth



MIDDLE SCHOOL

THEMES

- Characteristics of plants growing in different ecosystems
- How plants have adapted to grow in different ecosystems

SUGGESTED DESTINATIONS

- Fuqua Conservatory Tropical Rotunda and Desert House
- Fuqua Orchid Center High Elevation Room
- Anne Cox Chambers Garden and/or Kendeda Canopy Walk



GARDEN ACTIVITIES

RAINFOREST OBSERVATIONS

Location: Fuqua Conservatory Tropical Rotunda and High Elevation Room in Fuqua Orchid Center

The Tropical Rotunda is a representation of various tropical rainforests from around the world. Make observations and discuss the abiotic components of tropical rainforest, such as sunlight, air and water. What do you notice about the air and the temperature? Is this a sunny or a shady environment? What kinds of challenges do you think plants have growing in tropical rainforests? What are some advantages for plants living in tropical rainforests? What do you notice about the plants? How are these plants different from plants found in Atlanta or in the Desert House? What kinds of characteristics do you notice that help plants survive in a tropical rainforest? Visit the High Elevation Room in the Fuqua Orchid Center. This room is a representation of tropical environments at 6,000 – 10,000 feet, versus lower elevations in the Tropical Rotunda. How does the temperature, sunlight, moisture compare to the Tropical Rotunda? How do the plants compare? Why do you think some look different or similar?

DESERT OBSERVATIONS

Location: Fuqua Conservatory Desert House

The Desert House is a representation of desert environments in Madagascar and South Africa. Make observations and discuss the abiotic components of desert ecosystems, such as sunlight, air and water. What do you notice

about the air and the temperature in this room? Is this a sunny or a shady environment? What kinds of challenges do you think plants have growing in a desert? What are some advantages for plants living in a desert? What do you notice about the plants? How are these plants different from plants found in Atlanta or in the Tropical Rotunda? What kinds of characteristics do you notice that help plants survive in a desert?

TEMPERATE DECIDUOUS FOREST OBSERVATIONS

Location: Anne Cox Chambers Garden, Kendeda Canopy Walk

These garden spaces take you through a temperate deciduous forest, Atlanta's ecosystem. You'll find many large native trees and forest loving plants. Make observations and discuss the abiotic components of temperate forest ecosystems, such as sunlight, air and water. How does this ecosystem compare to the ecosystems observed in the Fuqua Conservatories? What are some challenges and advantages for plants growing in a temperate forest? What kinds of characteristics do you notice that help plants survive in a temperate forest?

SCAVENGER HUNT Habitat Comparison

Location: Fuqua Conservatory, Anne Cox Chambers, Kendeda Canopy Walk

Visit the various ecosystems represented at the Garden: tropical rainforest, desert and temperate forest. In each area, have students answer questions about each ecosystem.



NAME _____

Ecosystem Observations

Visit different areas of the Atlanta Botanical Garden and make observations about tropical rainforest, desert and temperate forest ecosystems.

Tropical Rainforest

Location Fuqua Conservatory Tropical Rotunda

Is it sunny or shady in the Tropical Rotunda?

Sunny

Shady

Is the air in the Tropical Rotunda humid/wet or dry?

Humid/wet

Dry

Describe the temperature in the Tropical Rotunda _____

Below are some common tropical rainforest plants adaptations. Check off any you observe:

- Leaf bigger than you.** Leaves absorb sunlight, which is converted into food for the plant through photosynthesis. Why do you think leaves are so large in a tropical rainforest?

- Exposed roots.** Roots absorb water and nutrients from the soil and hold the plant in place. How do you think some plants can survive in a tropical rainforest with their roots out of the ground?

- Plant growing on another plant.** Why would a rainforest plant grow on another plant? What can it get in the treetops that it might not get on the ground?

Write a brief description or draw a picture of a rainforest habitat based on your observations:



NAME _____

Desert Ecosystem

Location Fuqua Conservatory Desert House

Is it sunny or shady in the Desert House?

Sunny

Shady

Is the air in the Desert House humid/wet or dry?

Humid/wet

Dry

Describe the temperature in the Desert House _____

Below are some common desert plants adaptations. Check off any you observe:

- Small leaves.** When leaves capture sunlight and convert it into food, water is released through a process called transpiration. Why do you think leaves are smaller in a desert ecosystem?

- Plants with hairs or spines.** Why do you think some desert plants have hairs or spines?

- Succulent plants store water in their leaves, roots or stems.** Some succulent plants are easily observable because they have thick, juicy leaves. Why do you think some plants in desert ecosystems store water?

Write a brief description or draw a picture of a desert habitat based on your observations today:



NAME _____

Temperate Deciduous Forest

Location Anne Cox Chambers, Kendeda Canopy Walk

Is it sunny or shady in the temperate forest? Sunny Shady

Is the air in the temperate forest humid/wet or dry? Humid/wet Dry

Describe the temperature in the temperate forest _____

Is it winter, spring, summer or fall during your visit _____

How does the current season affect the appearance of the trees and plants?

List two ways the plants in the temperate deciduous forest are different from the plants you saw today in the Tropical Rotunda and the Desert House:

1. _____

2. _____

Write a brief description or draw a picture of the temperate deciduous forest habitat based on your observations today: