



Garden Adventure Pack (3-5)

Instructions

Welcome to the Atlanta Botanical Garden! This packet provides you with information about the Garden along with activities and discussion questions for your group to reference at different locations around the Garden. Choose five or more sites from the list below (see map for locations). At each site, read aloud the description and choose a few activities or discussion questions.

Have each student fill out a **Garden Adventure Pack Scavenger Hunt** worksheet throughout the garden and at the following stations: Rainforest, Desert and Wetland Garden. When you return to your school or home, the pictures drawn on the worksheet can be compiled into a field trip journal.

1. Southern Seasons Garden
2. Japanese Garden
3. Rose Garden
4. Reflecting Pond
5. Poison Dart Frog Display
6. Rainforest
7. Desert
8. Orchid Center
9. Bog Garden

1. Southern Seasons Garden

Read Aloud

Look around, do you see all the trees growing in this forest habitat? What else do you see growing or living in the forest? The Southern Season's Garden is a beautiful introduction to a Temperate Deciduous (*di-sij-oo-uhs*) Forest Habitat that covers the Atlanta area. Temperate Deciduous Forests are defined by four seasons: fall, winter, spring and summer and deciduous trees that lose their leaves in the fall. This garden is stunning throughout the four seasons. Can you find something beautiful today?

Materials

- Magnifying Lenses

Activities

1. Explore the Southern Seasons garden by walking through all the different paths and look for forest life. What kinds of plants do you see growing? What kinds of animals would live in this type of habitat?
2. Lie down on a secluded path and look up at the tree leaves. What kind of movement do you see? What kind of animals or bugs can you see moving in the treetops?
3. Look under the leaf litter for small insects. What are those insects doing? Look closely at the insects. Do they have 6 legs or many legs? Do they have 3 body parts or many body parts? Please remember to replace the disturbed leaf litter.
4. Use the magnifying lenses to investigate tree bark. When you look closely can you see any holes for insects? What might live in those holes? Can you see small, camouflaged insects living on the bark?
5. Talk about the four seasons in Georgia and this Temperate Forest. What happens to the trees in the fall, winter, spring and summer? What season is it now?
6. Look at the different leaves. What are some similarities and differences between the different leaves?

Follow-up Activities

1. Have the students trace their hand and arm with brown marker on a piece of paper which will represent a tree trunk. Give them time to draw animals and plants on or around their tree. Depending on the season, ask the students to adorn their tree trunk with different seasonal elements (fall: colored leaves, winter: no leaves, spring: flowers, summer: green leaves).
2. Ask the students to collect three different leaves from trees near their home. In the classroom discuss the differences and similarities between the leaves. Make leaf rubbings by placing a white sheet of paper on top of each leaf and rub a peeled crayon horizontally over the leaf and paper. Have the students sort through their leaf rubbings and make two piles of leaves that look the same.
3. Read through One Small Place in a Tree by Barbara Brenner and Tom Leonard. Review all the different animals that live in Temperate Forests and discuss how they are all connected to this one tree. What are some other ways animals are connected in a habitat?

2. Japanese Garden

Read Aloud

The initial and lasting impression of the Japanese Garden is a peaceful feeling. This garden was created to generate a calm feeling and to provide a setting for quiet reflection and inspiration. Rocks, bamboo, and water are elements found in all Japanese gardens. Rocks symbolize permanence and longevity. Bamboo symbolizes resilience or strength to overcome challenges and water symbolizes purity.

Materials

- Bamboo sample

Activities

1. Have the students stand quietly with their eyes closed for 30 seconds and listen to the sounds in the Japanese Garden. Discuss what they heard. Did they hear new sounds that were not there before?
2. Locate and identify the three key elements of the Japanese Garden - Rocks, bamboo, and water. As you talk about the bamboo pass around the sample piece of bamboo. How does it feel?
3. Look at the colors present in the Japanese Garden. It is a monochromatic garden, which means that it has primarily one color – green. The plants in the garden vary because of their different shades of green, different sizes and unique textures. What other colors can you see in the Japanese Garden?

Follow-up activities

1. Create your own miniature Japanese Garden. Be sure to include the three elements - rocks, bamboo or wood, and water or sand.
2. Find a quiet peaceful place around your school or home to sit and observe nature. Write a poem about what you see and how you feel.

3. Rose Garden

Read Aloud

The Rose Garden is home to colorful varieties of old fashioned and antique roses. These roses usually bloom in many colors during the spring and fall. During winter, you can see other colorful flowers such as pansies and violas. Roses attract and feed many different types of pollinators such as bees and butterflies with their vibrant colors and delightful fragrances. After a flower is pollinated, it produces a fruit or a seed. The fruit of a rose plant is called a rose hip, which is usually orange or red.

Materials

- Colored paper chips for matching game.

Activities

1. Give each student a few different colored paper chips. Have them find a rose that matches with each color. Make sure they smell each rose that they match a color to and pick out their favorite and least favorite smelling rose. During the winter have the students find pansies that match their color chips.
2. Call out a color (green, red, yellow, pink, orange, purple) to the students and ask them to stand by that color in the Garden. After you have called all the colors of the rainbow, ask them to find a flower that has two colors, flower that has petals smaller than their small fingernail, flower with 5 petals and/or a flower with more than 12 petals.
3. Have the students try to find pollinators on the flowers. Can they see yellow pollen baskets on the bee's legs? Can they see the butterfly's proboscis (straw like mouthpart) unroll to drink the flower nectar? Discuss how pollinators help the plant produce fruits and seeds.
4. Discuss the reasons why some pollinators are decreasing. Insect populations are decreasing due to habitat loss, loss of native food sources and pesticides that are sprayed on plants.
5. Point out the spines on the rose stems. Discuss why roses would have spines on their stems (to protect themselves against predators).

Follow-up activities

1. Draw or paint a picture of a rainbow garden.
2. Plant flowers at home or school that attract and feed pollinators. Here are a few plants that may help you get started - butterfly bush, coneflowers, geraniums, salvias, lantana, foxgloves, iris, day lilies, and verbena.
3. Order butterfly larvae from a science supply company like Carolina Biological Supply Company or Nature Watch. Then, you and your students can watch the metamorphosis (life cycle) of a butterfly.

4. Reflecting Pond (located in front of the Conservatory)

Read Aloud

The pond in front of the Conservatory contains exotic aquatic plants including hardy water lilies, umbrella grass, and lotus blossoms. It is also home to three types of goldfish (fan tails, darter and shobunkins), frogs, and visiting ducks. The fish are in the pond year round and feed on insects and other small aquatic life in the pond. Staff does not feed them. Coins should never be tossed into this pool. The metals from the coins have a negative effect on the plant and animal life.

Materials

None needed

Activities

1. Try to locate the three different types of goldfish in the pond. How do they look different?
2. Try to locate a tadpole or a bullfrog. It might be difficult to find frogs and tadpoles during the winter months because they hibernate throughout the winter.
3. Fish and Frogs are cold-blooded, which means their body temperature changes with the temperature around them. How would that affect the fish and frogs during the winter? (the fish are not as active and the bullfrogs go into hibernation) How would that affect the fish and frogs during the summer? (they usually stay in shaded areas to keep cool)
4. Discuss how lily pads are able to grow submerged in water. Some aquatic plants have mechanisms within their stems that transport oxygen to their roots.
5. As a group try to find the biggest fish and the smallest fish.

Follow-up activities

1. Make a model of your favorite fish or frog. Try to make your model out of recycled items like cans, plastic containers and plastic bottles. Give your fish or frog a name and come up with a short story describing your model. What does it eat, where does it live, etc.
2. Conduct an experiment. Water one plant everyday and water another plant of the same kind every three days. Observe how the plants change over a few weeks. Can all plants survive with lots of water?

5. Poison Dart Frog Display

Read Aloud

Poison Dart Frogs live in tropical rainforests. Their bright color and unique patterns warn predators that they are poisonous. Poison Dart Frogs got their name because the poison on their skin is used on the tips of hunting arrows. Some frogs living tropical rainforests are in danger of becoming extinct because of a fungus called the Amphibian Chytrid (pronounced - kittrid) Fungus. The Atlanta Botanical Garden collects frogs that are being affected by the Chytrid Fungus before they become extinct. After scientists learn how to eliminate the Chytrid fungus in the wild, the frogs will be reintroduced into their natural habitat.

Materials

None needed

Activities

1. Have the students count the frogs in each terrarium. How many different kinds of frogs are in each terrarium?
2. Discuss how the frogs have adapted to where they live – sticky feet to climb trees, camouflage to hide from predators and bright colors to warn predators that they are poisonous.
3. Have each student look for the things frogs need to live – water, air, food (small crickets and insects) and shelter (plants).

Follow-up Activities

1. Visit saveafrog.org and learn about the Atlanta Botanical Garden's Amphibian Conservation program.
2. Design your own Poison Dart Frog – give each student a blank picture of a frog. Have them color it like a Poison Dart Frog. After the students design it, have them write a description of where the frog lives and what it eats.
3. Recommended Book: [Amphibian \(DK Eyewitness Books\)](#) by Barry Clarke

6. Tropical Rainforest

Read Aloud

Shhhhhhhhhhh. Listen. Can you hear the Poison Dart Frogs calling? What about the quail walking on the ground? This amazing room is similar to a tropical rainforest environment. The plants growing here are from around the world and many of them have special characteristics that help them grow in a warm and wet environment. Some plants have giant leaves to capture sun and some will grow on other plants to get a boost up to the sunlight. Can you find a plant with dark green or reddish colored leaves? The darker colored leaves help the plant absorb more sunlight in this shady environment.

Materials Needed

- Magnifying glasses

Activities

1. Fill out the Tropical Rainforest portion of the Garden Adventure Pack Scavenger Hunt worksheet.
2. The scavenger hunt includes common plant adaptations in the rainforest. As a group, talk about how certain plants are able to live in a rainforest. Descriptions are listed below.
 - a. Gigantic leaves – Some rainforests plants have very large leaves so that they can capture more sunlight.
 - b. Leaves with red undersides – Some rainforest plants have red undersides so that they can absorb more sunlight.
 - c. Vines – Vines use other plants to get a boost up to the sunlight. Vines that grow down from the tops of trees are searching for soil to root down into and vines that grow up from the ground are searching for sunlight.
 - d. Plants with other plants growing on them – Those plants are called Epiphytes (*ep-uh-fahyt*) and they like to grow on other tall plants so they can get a boost up to the sunlight. Epiphytes get their water and nutrients from the air. They do not harm the host plant.
3. Examine the leaves with your magnifying glasses. What do you see?
4. Look and listen for wildlife. Below is a list of what you might see with your group.
 - a. Saffron Finch (small yellow bird) – These birds like to fly around in the canopy. In the wild, they live throughout South America.
 - b. Quail (large brownish birds walking on the ground) – There are three different kinds of quail living in the Conservatory: Scaled Quail and Valley Quail from the western U.S. and Mexico and the Japanese Quail from southeast Asia.
 - c. Poison Dart Frogs – These frogs are hard to spot, but easy to hear. If you hear a singing trill, it is a Poison Dart Frog trying to establish its territory or trying to find a friend.
 - d. Alligator Snapping Turtle – To find this fish-eating turtle, look under the bridge by the waterfall. The Alligator Snapping Turtle lives in ponds in the Southeastern United States. They do not leave the water except when a female lays eggs.

Follow-up activities

1. Review the items found in the scavenger hunt and the answers to the questions. Why do rainforest plants have large leaves, why was it shady, etc.?
2. Have the students design their own rainforest plant. Each plant should have one of the adaptations – big leaves, exposed roots or red undersides.
3. Make a rain forest habitat out of items found around your schoolyard.

7. Desert House

Read Aloud

Deserts are difficult habitats to live in. It rarely rains and the temperatures can rapidly change from very hot to very cold. As a result, desert plants are tough. They have small leaves so they do not burn in the sunlight and they store as much water as possible in their leaves and stems. Plants that store water in their leaves, stems and roots are called succulents. Look around, this room is full of juicy succulents. Do you see a plant with hairs or spines? The spines protect the plant from other hungry or thirsty animals. Be careful not to touch those prickly plants!

Materials needed

1. One container of aloe vera gel

Activities

1. Fill out the Desert House portion of the Garden Adventure Pack Scavenger Hunt worksheet.
2. The scavenger hunt includes common plant adaptations in the desert. As a group, talk about how plants have adapted to live in a desert. Descriptions are listed below.
 - a. Hairs and Spines – Desert plants protect themselves against hungry predators with sharp spines. Sometimes, the spines can have poison on them that will hurt the predator. Be careful!
 - b. Thick juicy leaves or stems – Since plants in the desert do not get a lot of water from rain, they store it as long as possible in their leaves, roots and stems.
 - c. Small leaves – Deserts are extremely sunny. Sometimes a plant can get burned by the sunlight just like humans. To protect themselves against the sun, they have small leaves.
3. Find a plant that we use for medicinal purposes (rosy periwinkle- found near the door to the rainforest; aloe vera- located near exit door). Compare aloe vera gel to the actual aloe plant. The sap of the aloe plant is a thick gel. The gel in the aloe vera plant is used medicinally to treat burns, cuts, and rashes. If you cut open an aloe vera leaf will you see something that looks like the gel? There are many species of aloe, which are not all used medicinally like aloe vera. Some aloes can even have an irritating sap.

Follow-up activities

1. Review the items found in the scavenger hunt and the answers to the questions. Why did plants in the desert have spines, why did it feel dry, etc.?
2. Make a model of your favorite desert plants using recycled items. Encourage your students to make unique desert plants and ask them to incorporate some of the adaptations viewed in the desert house such as hairs and spines, juicy stems or leaves and small leaves.
3. Purchase or find an aloe vera leaf. Cut it open with the group and describe the inside. How is it different from the gel? How is it similar?
4. Recommended books: Cactus Hotel by Brenda Z. Guiberson and About Habitats: Deserts by Cathryn Sill and John Sill

8. Orchid Center

Read Aloud

The Orchid Center is full of bright blossoms and wonderful fragrances. Most of these flowers are from the Orchid family, which means they have similar flower and leaf structures. Nonetheless, when you look around you will see that Orchids have many different colors, smells and shapes. While walking through the Orchid Center take some time to stop and smell the orchids. You may notice some surprising scents.

Materials

- None

Activities/Discussion Questions

1. Walk through the Orchid Center and discuss the different flowers. How do they smell different? What are some different sizes? What different colors can they see? How do the plants grow differently (some may have one stalk of flowers versus many stalks of flowers, exposed roots, or bulbs)? Choose two different flowers and lead a discussion about how those two flowers are the same and different.
2. The Orchid Center has two rooms: Low Elevation and High Elevation. Please walk through both rooms. The High Elevation room is slightly cooler because it has a specially modified cooling system that mimics the cooler, moist environments in tropical mountain habitats. How do orchids in the Low Elevation room look different from orchids in the High Elevation Room. How do the rooms feel different?

Follow-up Activities

1. Provide students with various craft supplies: construction paper, chenille stems, tissue paper, puff balls, felt, scissors, tape, etc. and have the students construct and design their very own flower. Put them on display and ask the students to describe ways their flower is the same or different from other student's flowers.
2. Recommended book: Legend of the Lady Slipper (Ojibwe Tale) by Margi Preus, Lise Lunge-Larsen and Andrea Arroyo

9. Bog Garden (also called Conservation Bog Garden - located behind the Fuqua Orchid Center)

Read Aloud

Wetlands, also called bogs and swamps, are habitats with wet soil and water loving plants. All plants need water, sunlight, air and nutrients to live. Bogs have plenty of water, sunlight and air, but they do not have a lot of nutrients in the soil. As a result, some plants living in bogs get their nutrients from the insects that they capture and digest. The hardy carnivorous (kärniv(ə)rəs) or insect-eating plants that live in this bog are called pitcher plants. Many of the carnivorous plants, like the pitcher plant and the Venus flytrap, are endangered in the southeastern United States due to habitat destruction and poaching.

Materials

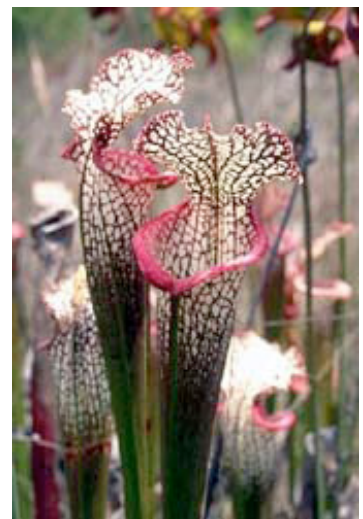
- Magnifying glasses

Activities

1. Fill out the Wetland portion of the Garden Adventure Pack Scavenger Hunt worksheet.
2. Find a Pitcher Plant (see picture below) and read the following description to the students – Insects, like bees, butterflies and ants are attracted to the top of the pitcher plant because of its bright red color and sweet smell. As an insect begins to investigate the tempting treat, it loses its footing because of the slippery sides or the downward pointing hairs and falls down into the pitcher that is filled with digestive fluids like the saliva in your mouth. The insect cannot escape because the sides are very slippery or because of downward pointing hairs. Eventually the insect dies and the plant absorbs nutrients from the insect.
3. Discuss how Pitcher Plants have adapted to live in the nutrient poor soils of a wetland.
4. Remind students that there are many wetlands in Georgia. In fact, 13% of Georgia is considered a Wetland. Some of those habitats are endangered. Why do you think they are threatened? (development, water pollution, water shortage)
5. Walk around the aquatic plant pond and look for wildlife. The pond has different types of fish, frogs, tadpoles and sometimes turtles. What other types of animals live in a wetland?

Follow-up activities

1. Review the scavenger hunt answers. Why would soil in a wetland feel moist, how do the downward facing hairs prevent insects from escaping, etc.?
2. Learn more about carnivorous plants by reading through [DK Readers: Plants Bite Back!](#) By Richard Platt or [Hungry Plants](#) by Mary Batten and Paul Mirocha. Discuss the different methods plants use to capture their prey. How are carnivorous plants similar or different?
3. Make a “Save the Wetlands” poster or write to your local congressperson encouraging him/her to make efforts to save the wetlands.
4. Buy a Venus flytrap for the classroom. Make observations and record the changes.



Trumpet Pitcher Plant