

Teacher Resources

Books

Bernard, Robin. 1996. *Rain Forest: The Latest Information and Hands-on Activities to Explore Animals, Plants, and Geography*. New York: Scholastic. ISBN#: 0-590-59919-4.

Everything to help you create a successful and fun unit on rain forests, including background information and activities.

National Wildlife Federation. 1998. *Ranger Rick's NatureScope: Discovering Deserts*. New York: McGraw-Hill. ISBN#: 0-07-047100-2.

The what, where, and why about deserts, plus detailed lesson plans and activities with reproducible worksheets.

Telford, Carole, and Rod Theodorou. 1998. *Amazing Journeys: Up a Rainforest Tree*. Des Plaines, Ill.: Heinemann Interactive Library. ISBN#: 1-57572-156-2.

This colorful book explores each layer of the rain forest as a unique ecosystem. Easy to read with exceptional illustrations.

Wallace, Marianne. 1996. *America's Deserts: Guide to Plants and Animals*. Golden, Colo.: Fulcrum Publishing. ISBN#: 1-55591-268-0.

Chock-full of pictures and information about adaptations and interactions.

Video

Plants of the Rainforest, Rainforest for Children Video Series. 1996. Schlesinger Video Productions. Bala Cynwyd, Pennsylvania. (800) 843-3620. Several plants that are featured are exhibited in the Conservatory, thus it is recommended for pre-visit showing to students.

Software

Rainforest Researchers. 1996. Tom Snyder Productions. Watertown, Massachusetts. (800) 342-0236. For upper elementary and secondary grades. Students solve a real life conservation problem as they play the role of a chemist, plant taxonomist, ecologist, or ethnobotanist.

Online Resources

www.nybg.org (background information)

www.mobot.org (biome video lesson)

www.rainforestalliance.org (conservation information and links)

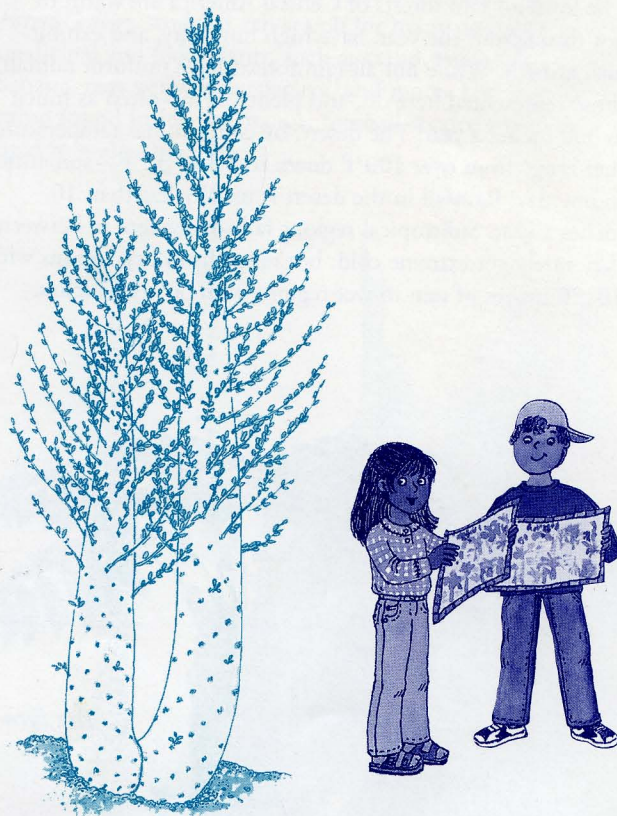
Art by Roz Schanzer

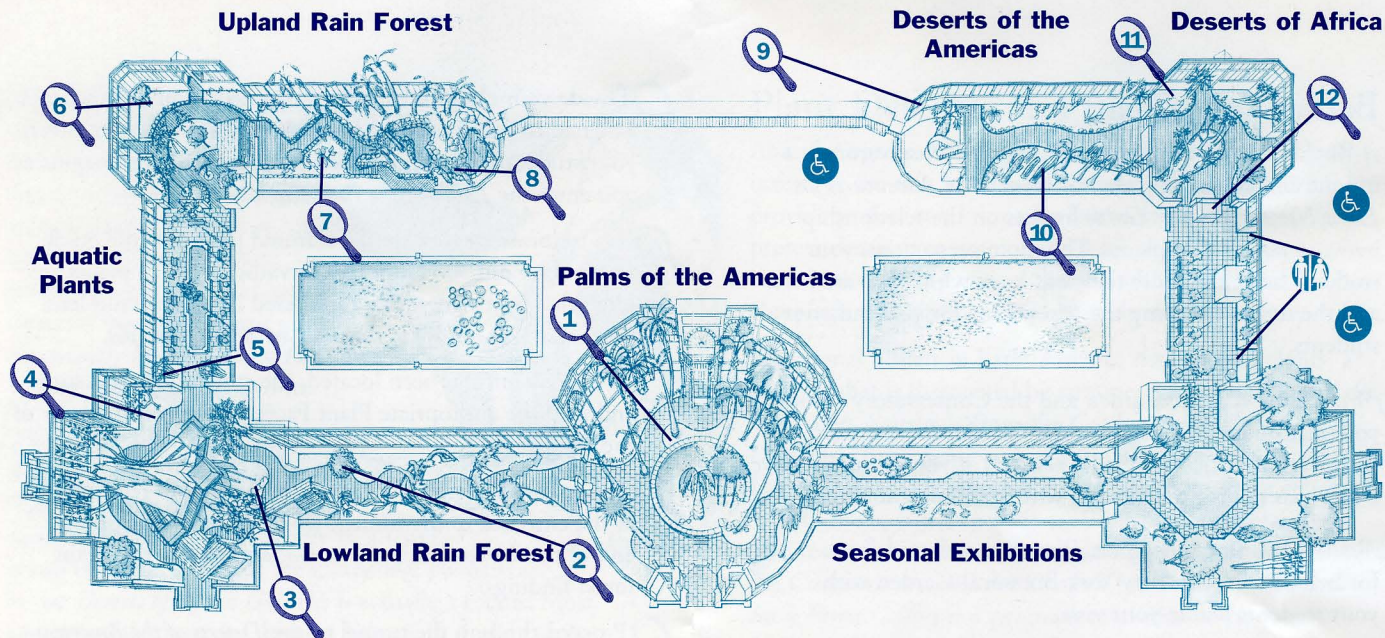


THE NEW YORK BOTANICAL GARDEN

Adventures for Plant Hunters Teacher's Guide

*A self-guided journey through
A World of Plants in the
Enid A. Haupt Conservatory*





Information for Teachers

Group Registration

To register for self-guided tours or to receive a School Programs catalog, call (718) 817-8181.

Hours

The Enid A. Haupt Conservatory and Garden grounds are open 10am–4pm/November–March, Tuesday through Sunday and 10am–6pm/April–October, Tuesday through Sunday, and on Monday holidays.

Fees

New York City school groups may visit the Garden grounds free of charge; however, advance registration and payment are required to visit the Enid A. Haupt Conservatory. Call the Children's Education Registration Office at (718) 817-8181. Teachers receive a free pre-trip pass when they register their classes for any program.

Parking

Bus parking is not available within the Garden, but there is ample street parking.

Lunch Facilities

There are **no** indoor lunch facilities for school groups at the Garden. Picnic areas are located adjacent to the Everett Children's Adventure Garden and across from the Snuff Mill. Picnicking is not permitted at the Garden Cafe.

Restrooms

Restrooms are located near the Conservatory Gate, in the Snuff Mill, and in the Enid A. Haupt Conservatory.

Teacher Programs and Membership

Explore ecology, plant science, and conservation! Call (718) 817-8181 for information about Teacher Membership, Teacher Training Workshops, Seminars, and Summer Institutes.



Bristol-Myers Squibb Company

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THE NEW YORK BOTANICAL GARDEN

Garden Guidelines

1. Please stay on paths.
2. Do not touch plants in the Conservatory—the plants are fragile, and many are armed and dangerous!
3. The plants and animals at the Garden live here. Please do not remove them from the Garden.
4. Please keep the Garden clean. Use trash receptacles, and pick up after your group.
5. Dress for the outdoors, be prepared for rain or shine, and have fun!
6. There must be one chaperone for every seven children. Groups with more than one chaperone per seven children will be charged an admission fee for each additional adult. Groups are not admitted without the appropriate number of chaperones.

Adult chaperones must accompany children at all times.

Programming in the Conservatory is supported by the continued generosity of Enid A. Haupt. Support for Children's Education Programs was provided during the fiscal year that ended June 30, 2000 by the following donors: ABC, Inc.; The Achelis Foundation; Altman Foundation; Anne S. Richardson Fund; The Arnov Family Fund; AT&T; Automatic Data Processing, Inc.; AXA Foundation; The Barker Welfare Foundation; Beker Family Fund; Bristol-Myers Squibb Company and Bristol-Myers Squibb Foundation, Inc.; The Louis Calder Foundation; Captain Planet Foundation; The Chase Manhattan Foundation; Citigroup Foundation; Colgate-Palmolive Company; Consolidated Edison Company of New York, Inc.; Corning Incorporated; Credit Suisse First Boston; Cleveland H. Dodge Foundation, Inc.; The Educational Foundation of America; Eugene M. Grant & Company; Gerber Life Insurance Company; The Lillian Goldman Charitable Trust; William T. Grant Foundation; GTE Foundation; Charles Hayden Foundation; William Randolph Hearst Foundation; Hebrew Technical Institute; The Heckscher Foundation for Children; Mrs. Andrew Heiskell; Howard Hughes Medical Institute; Joseph E. Seagram & Sons, Inc.; J.M. Foundation; Kinney Memorial Foundation; Robert D. and Carol H. Krinsky; Lehman Brothers, Inc.; The Lucius N. Littauer Foundation; Leon Lowenstein Foundation, Inc.; Mitsubishi International Corporation Foundation; The Laura Jane Musser Fund; New York City Environmental Fund; The New York Community Trust; New York Organic Fertilizer Co.; The New York Times Company Foundation; Estate of Elsie Olson; May and Samuel Rudin Family Foundation, Inc.; Charles and Mildred Schnurmacher Foundation, Inc.; Mr. and Mrs. Axel Schupf; Texaco Inc.; Michael Tuch Foundation, Inc.; Johanneette Wallerstein Institute.

Before Your Visit

A *World of Plants* in the Enid A. Haupt Conservatory is a unique and an exciting environment. The *Adventures for Plant Hunters Student Guide* focuses on the relationship between people and plants. The more preparation your students have, the more they will learn while they are here, and the more rewarding the trip will be for you and your students.

If possible, visit the Garden and the Conservatory before your scheduled visit. Contact the Children's Education Registration Office at (718) 817-8181 if you did not receive a free pass to visit the Garden with your confirmation.

Review your learning goals, itinerary, and guidelines for behavior at The New York Botanical Garden with your students before your visit.

Conduct a classroom plant scavenger hunt before visiting the Enid A. Haupt Conservatory. See how many plant products your students can locate in the classroom.

Create a list of plant products your students use each day.

The Enid A. Haupt Conservatory

Four distinct climatic regions are represented in the Enid A. Haupt Conservatory: Lowland and Upland Tropical Rain Forests and Deserts of Africa and the Americas. The plants selected for each region reflect the scientific work of The New York Botanical Garden. Most of the rain forest plants are native to Central and South America.

At the Garden

Plan to arrive early! If you are more than 15 minutes late, you may not be admitted into the Conservatory. No refunds will be given to groups that arrive late.

Bring a copy of the *Adventures for Plant Hunters Student Guide* for each student.

Upon arrival at the Conservatory Gate, across from Fordham University, give the Visitor Services representative your school name and the name of the program you are scheduled to attend. Unload your bus at the first loading zone, or follow the directions given by the Garden staff.



Epiphytes
(Ep'-e-fites)

Divide your class into small groups, with adult chaperones assigned to each group. *Adventures for Plant Hunters* directs your students through the Conservatory. The tour begins as you enter the *Palms of the Americas Gallery*.

Try to locate each of the 12 featured plants on the guide inside the Enid A. Haupt Conservatory. The 12 plants are identified by a sign with a numbered icon of a hand lens. *Look carefully as some of the signs are difficult to spot.*

When a plant has been located, the students should stop and read the appropriate Plant Facts, located on the back of the student guide.

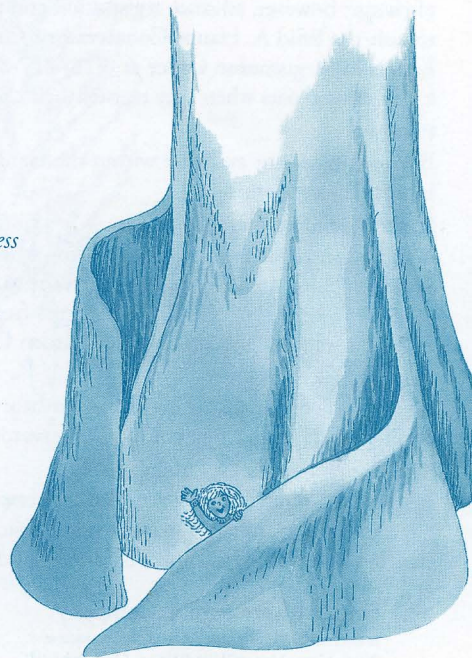
You may wish to instruct adult chaperones to regroup at the entrance to the tunnel, which is located at the end of the *Upland Rain Forest Gallery*. Review their rain forest findings.

Proceed through the tunnel to the *Deserts of the Americas* and the *Deserts of Africa Galleries*.

Things to Look For

Near the Healer's House located in the *Lowland Rain Forest Gallery*, students can search for many different medicinal and food plants, such as cacao, sugar cane, banana, rosy periwinkle, papaya, and more. The seeds of cacao found inside the orange, football-shaped fruit are used to make chocolate.

Kapok Tree Buttress
Root (kay'-pok)



In the *Upland Rain Forest Gallery* the large treelike ferns are Mexican tree ferns, in the family Cyatheaceae. The Garden's Dr. John Mickel studies ferns, and while these tree ferns were grown in a nursery in Hawaii, many of the smaller ferns growing abundantly in the *Upland Rain Forest Gallery* were collected by him.

Not all the plants in *Deserts of the Americas* and *Africa Galleries* are cacti. "Cactus" is not a generic term for succulent plants but refers only to a select group of plants. None of the cactus-like plants in the *Deserts of Africa Galleries* is actually a cactus! Most are euphorbias (yoo-for'-be-ahs) belonging to the family Euphorbiaceae, which contains over 2,000 species!



Cacao
(ka-kow')

Habitat Hints

The lowland rain forests of Central America are warm to hot throughout the year, have high humidity, and exhibit lush growth. While not all rain forests have uniform rainfall, those represented here do, and plenty of it—often as much as 300 inches a year! The desert, by contrast, has temperatures that range from over 100°F down to below 32°F—sometimes in one day! Rainfall in the desert is usually less than 10 inches a year. Subtropical regions fall somewhere in between; they rarely get extreme cold, but range from dry regions with 10–20 inches of rain to wet regions with 30–100 inches.



Tree Fern

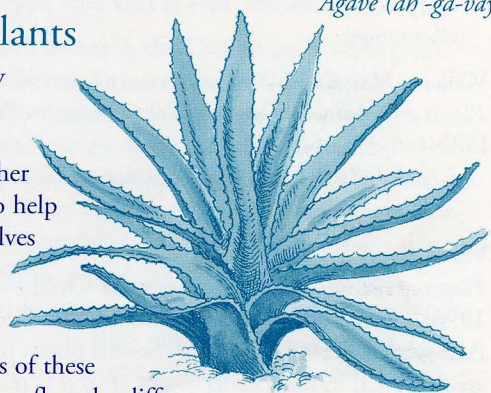
Plant Defenses and Healing Plants

Abundant green plants provide a perfect feast for hungry insects in the rain forest, and abundant rain and humidity provide perfect conditions for destructive fungi. To help protect themselves, many rain forest plants produce chemicals that are toxic to insects and fungi. These chemicals may also be useful as medicines for people.

Traditional healers in Latin America make use of plants, a practice that is threatened by commercial exploitation of the rain forest. Scientists from the Garden's Institute of Economic Botany not only study traditional uses of plants in Latin America, but also work with people in those countries to help them maintain their traditions and conserve their own resources. Many of these healing plants are on exhibit in the Conservatory, and the Healer's House in the *Lowland Rain Forest Gallery* is a poignant reminder of the value of native traditions and knowledge.

Prickly Plants

Plants in many environments have spines, thorns, and other prickly parts to help defend themselves from animal predators. To a scientist, the different names of these protective parts reflect the different plant parts from which they evolved. The spines of a cactus are modified leaves, for example, while the thorns of a euphorbia evolved from two tiny leaflike structures at the base of a leaf. Regardless of what you call them, these parts serve the same roles. Where would you expect to find the most plants with spines, thorns, and prickles?



Agave (ah'-ga-vay)

