



The Kapok (Ceiba) Tree

Summary:

Through reading a trade book, The Great Kapok Tree, by Lynne Cherry, students will gain an understanding of the value of a rainforest. They will also become familiar with some of the biodiversity within the rainforest and how all creatures are connected including humans. Through extension activities, students will become activists for the rainforest.

Background Information:

A kapok tree, *Ceiba pentandra*, is an emergent drought deciduous tropical tree that is native to tropical America, Africa, and the East Indies. It can grow from 45 to 100 feet tall. The tallest kapok is in Africa. The crown of this tree is an open umbrella shape. It loses its leaves during the tropical dry season. Flowers generally appear before the palmate, compound leaves appear. Seeds are found within seedpods along with cotton-like fibers that help dispense seeds in the wind. The height of the tree makes this possible because it rises above other trees, where breezes can be utilized.

Large thorny spines protrude from the trunk to discourage damage of the trunk. The kapok has buttresses that help stabilize it. The buttresses can extend to 30 feet.

Many plants and animals reside in the branches of the kapok. Birds nest in it; the huge branches are highways for mammals. Frogs breed in the pools that collect on bromeliads and crevices.

The following two sites were helpful not only for info, but photos and links:

Tropilab Inc: <http://www.tropilab.com/ceiba-pen.html>

Massachusetts's School-West Tisbury School
<http://www.blueplanetbiomes.org/kapok.htm>

Grade Level: 3rd – 5th

Goal: Students will learn that a tree is just one interconnecting part of the rainforest ecosystem. Gain understanding that although we don't live in the rainforest, it provides us with things we need and is important to us. Empower students to be actively involved in an environmental cause.

Key Concepts:

Biodiversity, conservation of the rainforest, activist

Objectives: 1) Be able to give ways the rainforest is important 2) Name some of the species that depend on the rainforest 3) Gain insight into the plight of the rainforest 4) Show some sign of activism

Teaching Location:

Classroom

Lesson Time: At least 3 class periods. One class lesson for story and discussion, another for research, and numerous periods depending on action project.

Subject Areas for

Infusion: Reading, Science, Language, Theater

Standards:

Environmental Ed.:

B.4.6; C.4.1, C.4.4; D.4.3; E.4.1

Reading:

A.4.1, A.4.2, A.4.4

Language Arts:

C.4.1; E.4.1; F.4.1

Theater:

E.4.1, E.4.2, E.4.4, E.4.6

Deforestation of the rainforest is a problem for all the reasons mentioned in the book, The Great Kapok Tree. Another fictional book that does a very good job of describing the rainforest ecology (Venezuela) and the need for protection is One Day in the Tropical Rainforest by Jean Craighead George. It could be read aloud for second and third graders. Fourth graders and older should be able to handle the text independently. The text is very descriptive and is full of interesting information about the various animals and plants of the forest.

Materials:

- Book The Great Kapok Tree, by Lynne Cherry or Harcourt Brace Signatures 4th gr. Reading book, 1999
- Computer program such as Inspiration or paper and pencil
- Photos taken of Ceiba trees in Puerto Rico and Vieques
- Play scripts adapted from the book, The Great Kapok Tree
- Simple Scenery
- Paper for making invitations and can coverings
- Coffee cans (free trade, of course)

Procedure:

Introduction:

Brainstorm reasons trees are important. Possibly use a computer program such as Inspiration to make a web. Find out what students know about the plight of the rainforest and why it is important to us. (By fourth grade they know quite a lot.) Share pictures of Ceiba (kapok) trees.

Activities:

Activity 1-Reading and Discussing a Story

1. Have students read the book or read it to them.
2. Discuss the creatures that visited the kapok tree and what they had to say.
3. Have students make a web on paper or with Inspiration showing each character and what they said to the man. Add more of their own reasons the forest should be saved.
4. Talk about interdependence of people, animals, and plants.
5. Discuss the message of the book: Rainforests are disappearing at the hand of man and they are important not only to the welfare of creatures that live there, but all of us.

Activity 2-Research on kapok (Ceiba) tree

Vocabulary

Biodiversity: the range of organisms present in a given ecological community or system. The variety of life.

Conservation: the preservation, management, and care of natural and cultural resources. The keeping or protecting of something from change, loss, or damage.

1. Besides the reasons given in the story (oxygen, erosion control, medicines, beauty) can students come up with other ways the kapok could be beneficial to man without having to be cut down?
2. Give students time to research the kapok (Ceiba) tree for other benefits. (White fluffy seed coverings from pods were used in pillows, mattresses, flotation devices, and padding. Seeds, leaves, bark, and resin have been used to treat such things as dysentery, fever, asthma, and kidney disease. Oil from the seeds is used in animal feed and edible products.)
3. Now have students take the role of the kapok (first voice) and explain to the man another reason he should not chop you down.

Conclusion: Call to Action

1. Brainstorm ways students could help save the rainforest or let others know of its plight.
2. The call to action might be as simple as making posters that make others aware of the plight of the rainforest and its importance. Students might want to make donation cans and explain to classes orally or in writing why they think people should donate. Another way might be to put on a play for the school body and ask them to donate to the Earth's Birthday Project.

<http://www.earthsbirthday.org>

(Last year my students chose to put on the play for Earth Day to raise the awareness of the rainforest's plight. They decorated cans and took them to the other classrooms explaining what we were doing. Classrooms brought their donation cans to the play. Not only did they have a great time performing, but the school raised around \$150 for the Earth's Birthday Project. The scenery was very basic. The students made leaves on green construction paper after researching on the computer what they should look like. We turned a long rectangle table on end and that was our trunk. The leaves were taped on and vines were made from twisted brown paper. Students drew plants on long sheets of green paper and outlined them with black markers. These were taped to long tables and the tables were put on their sides. Students brought in stuffed animals such as snakes, frogs, lizards, and birds. Students found pictures of their characters and they wore it on a string around their necks – no fancy costumes. I am looking forward to adapting the play this year to substitute island rainforest animals for the large mammals of the Amazon rainforest.)

Assessment:

Could students give reasons rainforests are important? Were students moved to action? Did they take an active role in promoting whatever action project you decided on?

Adaptations: Older students could write their own play. Teacher could read story to younger students.

References

Background information was taken from
<http://www.tropilab.com/ceiba-pen.html> and
<http://www.blueplanetbiomes.org/kapok.htm>

Extension Lessons:

Since the Ceiba pictures that were shared with students were from Puerto Rico and Vieques this would be a good opportunity to discuss the differences between species found in an island rainforest and a continental rainforest (bats only mammal vs. large mammals).

Which animals would have pleaded with the kapok in the island rainforest? Would they have asked for the same things? This could lead to more research on island rainforests such as El Yunque. Students could take roles of island animals in a rainforest play instead of those from the book. This would be a good time to introduce students to the Puerto Rican Parrot.

Another extension lesson might be to look at the kapok's adaptations and compare and contrast them to trees students are more familiar with in their area. Why were those adaptations made?

Buttresses vs. deep roots

Leaves fall off in dry periods vs. leaves fall off in winter

Thorny smooth bark vs. grooved rough bark

Seedpods with fluff vs. maple helicopters or oak acorns