Kindergarten
Cachalú Biological Reserve, Colombia

Lesson 1: My forest or the rainforest?

Concept
There are many differences and similarities between the flora and fauna of temperate forests and rainforests. Certain environmental conditions allow particular plants and animals to live in the rainforest.

Essential Question
How can something so far away and different be so similar?

Total Time: 85 minutes

Standards
Life Sciences Standard 6
Understands relationships among organisms and their physical environment.

Level I (Grade K - 2)
Knows that living things are found almost everywhere in the world and that distinct environments support the life of different types of plants and animals.

Life Sciences Standard 7
Understands biological evolution and the diversity of life.

Level 1 (Grade K - 2)
Knows that there are similarities and differences in the appearance and behavior of plants and animals.

Additional Resources

- **Resource Index** – Check out this page at http://www.rainforest-alliance.org/programs/education/teachers/curriculum/resources/index.html for additional supplemental materials that complement these dynamic units and to access many of the resources listed below.

- **Slideshow** – The Learning Site provides a slideshow and script about the Cachalú reserve in Colombia that includes background information about the animals, people and landscape of this region. The slideshow can be downloaded for viewing in the classroom, printed out and read as a story, or viewed online with the students.

- **Unit-Specific Story -** The Rainforest Alliance has developed two original stories for use with these units, available in English, Spanish and Portuguese. The stories are available to download and print or can be viewed on-screen.

  Chayo's Andean Home
  Clara and the Armadillo

- **Species Profiles** – The species profiles, available to view on screen or download from the beginning of the unit or the Resource Index, include photos, habitat, foraging behavior, group relationships, threats and many more facts.

  - Andean Condor
  - Cock-of-the-Rock
  - Leaf-Cutter Ant
  - Nine-Banded Armadillo
  - Red-Eyed Tree Frog
  - Spectacled Bear
  - Praying Mantid

- **Rainforest Products** – Visit http://www.rainforest-alliance.org/resources/forest-facts/lives.html for a summary of products that we use in our everyday lives that originate in rainforests. Both teachers and students will find information on the products found in their homes and supermarkets that either originated in tropical forests or are currently produced there.

- **Conservation Coffee Summary** – Download this summary, which includes the environmental, social and cultural impact that coffee has had on the Americas, the connection between coffee farms and wildlife and a glossary of relevant terms.

- **Ranger Rick Article -** Download "*Rick and the Gang Find Out Why Some Coffee is Bad for Birds,"* a colorful article from the National Wildlife Federation's *Ranger Rick* magazine which describes the impact some coffee harvesting techniques have on bird habitat.

- **Profiles in Sustainability** – Visit http://www.rainforest-alliance.org/programs/profiles/index.html for case studies on companies who work closely with the Rainforest Alliance to ensure that their practices protect wildlife, workers and communities.

- **Fundación Natura (Nature Foundation)** - Check out these online resources for more information about the Rainforest Alliance's partner group in Colombia:
  www.rainforest-alliance.org/programs/aar/colombia.html
  www.natura.org.co

- **Certificate of Accomplishment** – Print out colorful rainforest certificates for your students to commemorate their completion of these units.

Step 1 - CONNECT (The Concept to Prior Knowledge) — 20 minutes

Challenge
Challenge students to work with a partner to sort pictures, sounds and objects according to whether they think each item can be found in a rainforest or temperate forest.

Materials *(per 3 - 4 students/group. If you can make more sets of these materials, divide the class into pairs.)*
-Three, 12" x 15" presentation cardboards or white boards. Label one board "Rainforest," one board "My Forest" (Temperate Forest) and the other, "Both." On the front of each board, stick small pieces of Velcro at random locations.
-A mixed set of pictures, objects and sounds representative of flora, fauna and landscapes from temperate forest and rainforest.[1] Pictures and objects should have masking tape stuck on back.

[1] These are only examples of the different objects, pictures and sounds that can be used for this exercise. The goal is to provide students with a large enough collection of items from which to sort. Those items marked with a "*" can be found in both forests.

Temperate Forest	Rainforest
Actual objects -Ferns* (bracken fern, interrupted fern) -Fruit (apple, blueberry, pumpkins) -Leaves: deciduous & coniferous (American beech, eastern white pine needles, red maple, red oak, red pine needles, sugar maple, white ash, etc.) -Lichens and mosses* (Species may be limited geographically, but these organisms thrive in both forests) -Maple syrup samples– taste it! -Mushrooms* -Seeds (acorns, apple seeds, maple seeds, pine cones) -Snow, Ice -Soil* ***Pictures***[2] -Amphibians (bullfrog, spring peeper, tree frog) -Birds (American crow, American kestrel*, black-capped chickadee, blue jay, hummingbird*, northern cardinal, northern parula*, red-tailed hawk*, rock dove, veery*, wood thrush*,) -Insects* (carpenter ants, mosquitoes*) -Landscapes (winter, fall, early spring) -Mammals (black bear, badger, beaver, deer mouse*, gray squirrel, little brown myotis bat, lynx, moose, muskrat, weasel, white-tailed deer) -Rain and lightning* -Reptiles (garter snake, rattlesnake) -Tall trees* (American beech, paper birch, red maple, red oak, sugar maple, etc.) ***Sounds***[3] -Animals: (see examples from "Pictures" above) -4:30am sounds from your area.	***Actual objects*** -Coffee beans -Fruit (avocado, banana, fig, mango, orange) -Lichens and mosses*(Species may be limited geographically, but these organisms thrive in both forests) -Mushrooms* -Plants (w/ large leaves* (i.e., elephant ear Fern, orchid flowers) -Soil* ***Pictures*** -Amphibians (poison arrow frog, red-eyed tree frog) -Birds (American kestrel*, cattle egret, cockatoo, hummingbird*, toucan, parrot, pelican, quetzal, scarlet macaw, rainbow lorikeet, red-tailed hawk*, wood thrush*) -Ferns* (tree fern, calla lily, elephant ear fern) -Insects* (leaf cutter ants*, bees*, large stag beetle, colorful katydids) -Landscapes (ridgelines dominated by green vegetation*, dense canopy with emergent layer of trees) -Mammals (anteater, chimpanzee, deer mouse*, flying foxes*(bats limited to rainforests), howler monkey, jaguar, kinkajou, ocelot, spectacled bear, tamarin monkey) -Rain and lightning* -Reptiles (anaconda, boa constrictor, chameleon, gecko) -Trees (w/ very large trunks, tall trees* cacao tree, cecropia tree, kapok tree, teak tree, strangler fig tree) ***Sounds***** -Animals: (see examples from "Pictures" above)

[2] Landscape photos can be 8 1/2" x 11". Plant and animal photos should be no larger than 3" x 5" so that 10 or so of these images can later be displayed as a collage on the presentation board.

[3] ****Sound advice:** a computer can be set up at one station with various sounds posted for students to click and hear with headphones. The Web site http://www.christiananswers.net/kids/sounds.html#amphib has a large collection of rainforest sounds. To save these items, open each sound file using Windows Media Player. Click "File", then "Export Playlist to File". Save the file on your computer's desktop and give it a name such as "Sound 1" or "Bird 2". Temperate forest sounds can be found on many Web sites. Audiotaping early morning sounds is also an option.

Procedure

1. Set up 4 - 6 stations, each containing the same set of objects, pictures and sounds listed above. These items should be in a random pile.

2. Challenge students working in groups of 3 - 4 to sort the items into three piles consisting of plants, animals, weather and scenery from: (a) a temperate forest (presumably their own); (b) a rainforest; and (c) items that belong in both places.

   Rather than say "rainforest" say, "A forest where it rains almost every day of the year- often more than 100 inches per year. There is only one season, and the temperatures are typically between 70 and 90 degrees."

   Rather than say "temperate forest" say, "the forest around here" if you live near or in a temperate forest. Or say, "A forest where it rains about 35 inches per year, there are 4 seasons and the temperatures range from 0 to 100 degrees."

3. Tell students to tape each picture onto the appropriate presentation board and to place each object in front of the corresponding board as well. If they are able to listen to sounds, tell them to tape the sound number on the board they think it belongs.

4. Explain that they will return to their boards in a little while.

Step 2 - LITERATURE/DISCUSS (Give Expert Information Book; Ask Questions)

20 minutes

Challenge

After reading aloud, *The Umbrella* by Jan Brett, challenge students to verbalize how rainforests and temperate forests are similar and different. Then ask students to return to their presentation boards and make any changes based on what they just learned.

Materials

-Book: *The Umbrella* by Jan Brett

Procedure

1. While reading *The Umbrella* ask questions like:
   a. Describe at least 5 ways a rainforest is different from the forest closest to where we live.
   b. What is the difference between the seasons where we live and the seasons of the rainforest we read about?
   c. Why do you think moose don't live in the rainforest? Why do you think monkeys don't live in a temperate forest?
   d. What kinds of animals and/or plants live in both rainforests and temperate forests?

2. Ask students to work with a partner to describe three ways they think rainforests and temperate forests are different. Elicit students' ideas and ask which ideas, if any, they don't agree with and why.

Step 3A - PRACTICE (Math and Learning Centers) 15 minutes

Challenge
Challenge students to work in their original groups to reorganize their forest boards based on what they learned from the previous reading and discussion.

Materials
-Same as Step 1

Procedure
1. After presenting the challenge and giving the students a few minutes to make any changes, pick a few of the items from each board and ask them to explain what makes them think it belongs where they placed it. Then tell each group how many of the items on each board do not reflect what we know in real life.

2. When all the groups think they are done, have them rotate around to each of the other groups' presentations and ask them to note of any items that are organized differently from their own.

3. Elicit from the whole group those items on which they do not agree. Ask students to explain their thinking and inform them of the correct answer.

Step 3B - CREATE (Performance Tasks Related to Standard Indicators)

Challenge **20 minutes**
Students create collages that depict the rainforest and the local forest, displaying their understanding of the two types.

Materials
-Objects and pictures from Step 1
-Large posterboard or butcher paper on which to tape elements and paint
-An assortment of crayons, paints, markers, colored pencils, etc.
-Masking tape

Procedure
1. Ask students to disassemble and mix up their entire set of objects and pictures and then make a final collage using the pictures and objects from the exercise. Invite them to paint and draw other items that they think belong in each forest.

   You could facilitate the creation of two larger murals on which all the items from all the groups are displayed. In either scenario, use their final work to help them verbalize the similarities and differences between a temperate forest and a rainforest.

Step 4 - PRESENT (Edit Work/Students Orally Present Projects)

10 minutes

Challenge
Students present their newly created landscape collages, explaining what lives in their forest and why it belongs there.

Materials
-Same as Step 1

Procedure

1. Ask students to describe their collages to the class. Challenge them to describe the plants and animals that live in the forest they chose. Ask them to explain why some plants and animals live in one forest and not the other, and how some animals can live in both the local, or temperate, forest as well as the rainforest. Challenge students to verbalize the similarities and differences between a temperate forest and a rainforest.

LESSON 1 ASSESSMENT RUBRIC:

Teacher observations of tasks with rubrics as listed below, as well as collected work samples.

Assessment Guidelines	3 = P (Proficient)	2 = S (Satisfactory)	1 = NW (Needs Work)
1. Student uses prior knowledge of local forest to organize elements of the forest. Student is actively engaged in working with partner(s) to make cooperative decisions.			
2. Student makes appropriate changes to sorted forest elements. Changes are accurate and incorporate new information from literature and/or class discussion.			
3. Student verbalizes why elements are matched with the appropriate forest. Explanations are accurate and incorporate new understandings of each forest. Student explains why new choices are correct.			
4. Student verbalizes why elements are matched with the appropriate forest. Explanations are accurate and incorporate new understandings of each forest. Student explains why new choices are correct.			