



## **Third Grade Ecuadorian Rainforest**

### **National Standards for Grade 3 Lessons**

#### **Language Arts Writing**

##### Standard 4 Level 2 Grade 3-5

2. 3. 4. Gathers and uses information for research purposes (encyclopedias, dictionaries, electronic media).  
Uses multiple representations of information (maps, charts, diagrams, tables) to find information for research topics.  
7. Uses strategies to compile information into written reports or summaries.

#### **Reading**

##### Standard 7 Level 2 Grade 3-5

- Uses reading skills and strategies to understand a variety of informational texts.  
5. Summarizes and paraphrases information in texts.  
6. Uses prior knowledge and experience to understand and respond to new information.

#### **Listening and Speaking**

##### Standard 8 Level 2 Grade 3-5

- Contributes to group discussions.  
Asks questions in class.  
Responds to questions and comments.  
1. Listens to classmates and adults.  
7. Makes basic oral presentations to class.  
10. Organizes ideas for oral presentations.

#### **Reading**

##### Standard 6 Level 2 Grade 3-5

- Uses reading skills and strategies to understand and interpret a variety of literacy texts.  
9. Makes connections between characters or simple events in a literary work and people or events in his or her own life.

#### **Thinking and Reasoning**

##### Standard 3 Level 2 Grade 3-5

4. Makes comparisons between countries in terms of relatively concrete characteristics (size, population, products).

##### Standard 1 Level 2 Grade 3-5

1. Uses facts from books, articles and databases to support an argument.  
7. Recognizes when a comparison is not fair because important characteristics are not the same.

Standard 5 Level 2 Grade 3-5

1. Identifies issues and problems in the school or community that one might help solve.

**Mathematics**

Standard 1 Level 2 Grade 3-5

1. Uses a variety of strategies to understand problem situations.
2. Represents problems situations in a variety of forms.

Standard 3 Level 2 Grade 3-5

7. Solves real world problems involving number operations.

Standard 4 Level 2 Grade 3-5

1. Understands the basic measures perimeter, area, volume circumference.
2. Selects and uses appropriate tools for given measurement situations.
4. Understands relationships between measures.
1. Uses specific strategies to estimate quantities and measurements

Standard 9 Level 2 Grade 3-5

2. Understands that mathematical ideas and concepts can be represented concretely, graphically, and symbolically.

**Life Science**

Standard 6 Level 2 Grade 3-5

1. Knows the organization of simple food chains and food webs.
2. Knows the transfer of energy.
3. Knows that changes in the environment can have different effects on different organisms.
4. Knows that all organisms (including humans) cause changes in their environments and these changes can be beneficial or detrimental.

Standard 1 Level 2 Grade 3-5

Understands atmospheric processes and the water cycle.

Standard 4 Level 2 Grade 3-5

5. Knows that the characteristics of an organism can be described in terms of a combination of traits; some traits are inherited and others result from interactions with the environment.

Standard 5 Level 2 Grade 3-5

3. Knows that living organisms have distinct structures and body systems that serve specific functions in growth, survival and reproduction. (body structures for walking, flying, or swimming).

Standard 7 Level 2 Grade 3-5

3. Understand the concept of extinction and its importance in biological evolution.
4. Knows ways in which living things can be classified.

Standard 9 Level 2 Grade 3-5

Understands the sources and properties of energy.

Standard 11 Level 2 Grade 3-5

5. Knows that good scientific explanations are based on evidence (observations) and scientific knowledge.
6. Knows that scientists make the results of their investigations public.

Standard 13 Level 2 Grade 3-5

1. Knows that people of all ages, backgrounds and groups have made contributions to science and technology throughout history.

Standard 12 Level 2 Grade 3-5

3. Plans and conducts simple investigations.
4. Uses appropriate tools and simple equipment.



## Third Grade Ecuadorian Rainforest

### **Lesson 1: Dependence and Interdependence**

#### **Concept**

In every environment plants and animals depend on each other for food and shelter, protection and community. The survival of different species depends on the health of ecological systems that may be near or far away. The complex relationships within one ecosystem can be hurt when one of the components is threatened or one of the species becomes extinct.

#### **Essential Question**

What can't one live without the other?

#### **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 Ecuador 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 an original story for use with these units, available in English, Spanish and Portuguese. The story is available to download and print or can be viewed onscreen.

#### **Romel's Rainforest Home**

- **From the Bean to the Bar: Chocolate Slideshow** - Where does chocolate come from? Take a journey that follows the production of a chocolate bar from the bean to your supermarket. The slideshow can be downloaded for viewing in the classroom, printed out and read as a story, or viewed online with the students.
- **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.
  - Bromeliad
  - Ocelot
  - Great Curassow
  - Capuchin Monkey
  - Three-Toed Sloth

- **Rainforest Poster:** Download and print out this colorful two-page poster, which is available for you to use in explaining the layers of the rainforest, its products and the environmental threats facing many rainforests around the world.

**Inside the Canopy** – Structure and species of the rainforest

**Status Report** – What is happening to the rainforest

- **Terrarium Instructions** – Download directions for making a terrarium in your classroom.
- **Rainforest Products** – Visit <http://www.rainforest-alliance.org/resources/forest-facts/lives.html> for a summary of products found in our homes and supermarkets that either originated in tropical forests or are currently produced there.
- **Teacher summary/Chachi Community Profile** – The Rainforest Alliance Learning Site provides a downloadable overview of Chachi cocoa farmers in Ecuador with useful information to introduce you to the lesson topic.
- **Conservación y Desarrollo (Conservation and Development)** – Check out this online resource for more information about how the Rainforest Alliance’s partner group in Ecuador, *Conservación y Desarrollo*, is helping the Chachi protect their precious ecosystems:  
<http://www.rainforestalliance.org/programs/aar/ecuador.html>
- **Profiles in Sustainability** – Visit <http://www.rainforestalliance.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.
- **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)**

### **Challenge**

Students begin to explore what happens when one of the essential players in a dynamic ecological process disappears.

### **Materials**

- Paper, pencils

### **Procedure**

1. Have students list all the different species referred to as pets that they interact with or observe each day.
2. Talk about the relationship that each of these animals has with the human counterpart, paying close attention to reciprocal relationships and dependency. (A dog, cat, bird or fish usually depends on a human for their food, water, shelter, health care and companionship.)

3. Discuss what might happen to those pets if your family didn't come home for a week. Where would they find food? Water? Would they be lonely?
4. Discuss how we have created these "ecosystems" for our pets and if not maintained, the pet would lack the necessary things needed for survival.
5. Ask the students to list the things they need to survive each day.
6. In small groups have students create a diagram (concept map) that describes where each of the things they need for survival comes from. This is called developing a concept map. Put the key word (food) in the middle of a sheet of paper. The kinds of food they commonly eat would make up the second concentric circle around the key word, 'food'. Then have students brainstorm a list of the places the foods come from by extending outward as new ideas emerge. For example, apples might be the first word on the second level out. Extending out from the word apple, the children might list the different stores they go to for apples. Then in a concentric circle, list where the in the store originates.

Example: Apple – Hannaford – Fruit Section – California.

7. When students have exhausted their lists ask them to imagine trucks disappearing from the scene. What would change? Would their favorite food still be available in the store?
8. Imagine that apple trees do not produce fruit one year. What might disappear from the stores? What if all the cows went on strike? What might not be in the store if cows refused to cooperate with humans? Have students read the labels on their food for one night and list all the food that is dependent on cows.

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

### **Challenge**

Students consider how a missing part in an ecological system might upset the balance that is necessary for elements of that system to live.

### **Materials**

- Art supplies (crayons, stickers/labels)
- Book: **The Great Kapok Tree**, by Lynne Cherry
- Large world map
- Smaller map of Brazil

### **Procedure**

1. Using a large map, locate the Brazilian rainforest. Move from a large global map to show where the children live to a smaller map of Brazil.
2. Explain that a story called **The Great Kapok Tree** takes place in Brazilian Amazon. Relay facts about the kapok tree that are listed in the teacher background information.

3. Read Lynne Cherry's **The Great Kapok Tree** aloud and discuss the story with the children.
4. On chart paper, list all the rainforest inhabitants that are mentioned in the book.
5. Discuss how the survival of rainforest plants and animals are interdependent. Identify each inhabitant from the story on a separate sticker/label, so that each student in the class can wear a sticker to eventually act out a part. Inhabitants mentioned in the story include the following: boa constrictor, bee, flower, tree, monkey, soil, toucan, macaw, cock-of-the-rock, tree frog, jaguar, birds, four tree porcupines, several anteaters, three-toed sloth and a Yanomami child.
6. The child who is acting out the role of the kapok tree will stand in the middle of a circle holding one piece of yarn for each child in class. Each piece should be about 6 feet long.
7. Reread the story aloud. Whenever a creature in the book's name is mentioned, have the kapok tree child toss one end of a length of yarn to the animal mentioned, while the kapok tree continues to hold onto the other end of each piece of yarn. (The yarn symbolizes the tie that these two inhabitants have and how they depend on each other for survival.)
8. At the end of the story, take time to look at the web of interdependence that was created. Have the kapok tree lightly tug on his collection of yarn. Ask the other children to give a thumbs-up if they feel a tug on the yarn. Those that did (which would be everyone) can say thank you to the kapok tree for helping them to survive.
9. Now, explain that not all people respect the importance of a single tree. Pretend to chop down the kapok tree. The kapok tree falls to the ground. Ask all the other characters to also drop to the ground if their yarn was pulled when the kapok tree fell.
10. Discuss the impact of cutting down one kapok tree on other plants and animals of the rainforest.

### **Step 3A - PRACTICE**

#### **Challenge**

Students will isolate one factor in an ecosystem and determine how much the loss of that one factor will impact the full ecological system and, as a result, the different species in that ecosystem.

#### **Materials**

- Instructions for making a terrarium
- Large soda bottles (1 per group of 3 or 4)
- Scissors
- Potting soil or soil from outside
- Plant seeds or seedlings
- Water

### **Procedure**

1. In groups of three or four, students will design terrariums that represent local ecosystems. (Use soil and plants from the local area to build them.) Each terrarium will have the same amount of soil and the same plants. The closed terrarium will have plants and soil and water (no animals).
2. Students are directed to use water as the determining factor for survival of the plants in their terrarium.
3. Each group will give their terrarium different amounts of water over a two-week period. Some will receive only a teaspoon full of water each, some five teaspoons of water each day, some a cup of water and some none at all.
4. After two weeks, students will report on the conditions in their different terrariums.

### Discussion:

How did rainfall affect the health of the ecosystem?

What would be affected in your local neighborhood if no rain fell for a year?

What if it rained everyday for a month, would things change in your area?

5. Math Task: Using an encyclopedia or the Internet, look up the average rainfall in your local area.
  - a. List the rainfall for different seasons of the year.
  - b. Look up the average rainfall for different seasons in the Ecuadorian rainforest and compare them.
  - c. How much more rain falls in the rainforest than in your local area.
  - d. What do you think would happen to your local area if the rainfall was like the Ecuadorian rainforest?

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

#### **Challenge**

Students will be able to identify all the components that are necessary for their survival in their current location.

#### **Materials**

- Poster-sized paper
- Colored markers

#### **Procedure**

1. Students will create a poster that puts their silhouette in the center of a piece of paper. In spokes that surround the silhouette, students name all the things that they NEED to survive.
2. In a different color marker have students list all the things they WANT to make their lives comfortable.
3. Putting the posters up in a gallery around the room, students review all the posters and list questions that address the difference between needs and wants.

4. Students will ask questions that address the difference between what people NEED and what they WANT to be comfortable. Have students outline the needs in green and their wants in red after the discussion if they change in classification after the discussion.
5. In a discussion led by the teacher, students will address what could be crossed off the list and what is necessary to keep for their individual survival on each of the posters.

Discussion:

- a. What might happen if one of the basic needs is threatened or disappears?
- b. How might students react?
- c. Would they be able to stay in the place where they live if this component disappeared?
- d. How might they adapt?

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

**Challenge**

Students will present the difference between necessary components of their lives and the ones that are wanted but not necessary for survival.

**Materials**

- Needs/Wants posters from step 3B
- Magic markers

**Procedure**

1. Students stand in front of their posters of survival needs and cross off the WANTS explaining why these are not necessary and expressing the NEED for certain components and why.
2. Students might do this activity in a short written paragraph instead of a public announcement.

**LESSON 1 ASSESSMENT RESULTS:**

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

<b>Assessment Guidelines</b>	<b>3 = P (Proficient)</b>	<b>2 = S (Satisfactory)</b>	<b>1 = NW (Needs Work)</b>
1. Student creates a list of survival needs that include examples of nutrition, shelter, water, relationships, safety and compares their 'needs' to 'wants'.			
2. Student can trace, through a concept map, the source/origin of two different needs through raw material, production, dissemination and consumption.			
3. Student constructs a likeness of a local microclimate and region within a terrarium.			
4. Student constructs a graph that charts the rainfall in the local ecosystem and compares the results of different amounts of water on survival of microclimates.			