



**Fourth Grade
Ecuadorian Rainforest**

National Standards for Grade Four 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.
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

- 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

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

Mathematics

Standard 1 Level 2 Grade 3-5

Uses a variety of strategies to understand problem situations.
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

Understands the basic measures perimeter, area, volume circumference.
Selects and uses appropriate tools for given measurement situations.
4. Understands relationships between measures.
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

Knows the organization of simple food chains and food webs.
Knows the transfer of energy.
Knows that changes in the environment can have different effects on different organisms.
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

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.
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

Knows that good scientific explanations are based on evidence (observations) and scientific knowledge.

Knows that scientists make the results of their investigations public.

Standard 13 Level 2 Grade 3-5

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

Plans and conducts simple investigations.

4. Uses appropriate tools and simple equipment.



Fourth Grade Ecuadorian Rainforest

Lesson 4: How can we keep our forests intact and have our chocolate too?

Concept

By using different methods of growing and harvesting rainforest foods, we can sustain its biodiversity.

Essential Question

How can we keep our forests intact and have our chocolate too?

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 consider the different perspectives on the use of resources that are available from different bioregions.

Materials

- Magazine/newspaper articles about local development projects

Procedure

1. Students consider the different uses of a tree. Brainstorm the different ways that a tree might represent value among students and among different interest groups like loggers, farmers, bee keepers and fruit farmers.
2. Teachers prepare students by identifying a local development project that students can relate to. Provide magazine/newspaper articles and/or have local decision-makers communicate the issue with students.

3. Teachers will design a simulation that will have students address the different interests of community members in a particular piece of land. A challenge from the local community is selected by students or by the teacher as a focus for discussion. It might be the future of an empty lot or a farmer's field that is for sale. Stakeholders are interested in using some of the local land for their own purposes. Students are to decide on a solution to which stakeholder(s) are entitled to use the local piece of land. Explain that a stakeholder is a person or group that has a direct interest or stake in a matter.
4. Help students identify the different interest groups and create a personal profile of a representative from each group of stakeholders. Include a representative from the plant and animals present in the bioregion.
5. Students take the roles of different stakeholders and have a debate about their right to use this land for their own purpose.
6. A panel of students who listen to debate and sit in decision-making roles consider the testimony and decide on a land use plan.

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

Challenge

Students consider land use decisions from another perspective, that of rainforest inhabitants.

Materials

- Story: **Romel's Rainforest Home**

Procedure

1. Students read **Romel's Rainforest Home**, a Rainforest Alliance story.
2. Students compare and contrast their communities and land use issues with Romel's community. Students identify the problems Romel presents and think about all the stakeholders involved.
3. Students research Ecuador's geography and focus on the different uses of the Ecuadorian rainforest.

Resources for Discussion:

Chachi Cocoa Farmers of Ecuador:

<http://www.rainforest-alliance.org/programs/aar/ecuador.html>

Profiles in Sustainability:

<http://www.rainforest-alliance.org/programs/profiles/index.html>

4. Students enact a role playing sequence similar to that in Step 1 with a focus on the rainforest of Romel's family. Include a chocolate producer and consumer in the process.

Step 3A - PRACTICE (Math and Learning Centers)

Challenge

Students integrate their knowledge of chocolate production with the effects on the biodiversity and ecological integrity of the rainforest.

Materials

- Research tool (Internet, etc.)
- Paper, pencils

Procedure

1. Students research chocolate demand and land use issues and trends in tropical rainforests of Ecuador.
2. Students create word problems to teach others about how much chocolate people consume and how it affects tropical rainforests.

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

Challenge

Students shift their perspective from taking care of their own bioregion to taking care of the rainforest.

Materials

- Paper
- Art supplies

Procedure

1. Students create scenarios that ensure that the Chachi people (and Romel's family) can continue harvesting from the rainforest, cacao trees are made available for chocolate exports and the forest is conserved.
2. Challenge students to create comic strips stories to explain their scenarios.

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

Challenge

Students use their knowledge to take action to help conserve the rainforest.

Materials

- Comic strips from step 3B

Procedure

1. Students send their comic strips with letters to the Rainforest Alliance to share their knowledge about Ecuador's rainforest and their concern for the people of Ecuador. The comic strips might include suggestions about how different chocolate producers/manufacturers can ensure we can keep our forests intact and have our chocolate too.

LESSON 4 ASSESSMENT RESULTS:

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 researches, identifies and creates roles for the different stakeholders in a local land-use debate accurately and objectively.			
2. Student researches and creates roles for a land-use debate within the Ecuadorian rainforest that includes cocoa farmers.			
3. Student participates in a role-play that includes a land-use debate between sustainable practice in cocoa farming and plantation/full-sun farmers and other stakeholders.			
4. Student surveys his/her peers and parents for an estimate of chocolate consumption and understands its impact on tropical rainforests.			
5. Student researches the ratio of raw cocoa beans to processed chocolate candy. Student calculates the number of cacao plants necessary to produce chocolate in different amounts for two different populations of American consumers.			
6. Student writes letter to chocolate candy producers that gives facts about the impact of chocolate production on the Ecuadorian rainforest and asks them to use sustainable practices.			