



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 3: If the Forests Could Talk**

Concept

Insects are essential elements of any ecosystem as they serve as pollinators for plants. Insects may be regarded as a nuisance to humans, but if they all disappeared every ecosystem would feel the impact of this loss.

Essential Question

What if the forest could talk?

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.

Informational Introduction for the Teacher

This lesson guides students in an exploration of sustainable agricultural practices directly related to the lives of people living in the rainforest. The connection is made through chocolate and cocoa farming. By engaging students in a study of the origins of chocolate, we will introduce the impact of increased need/want for chocolate on the environment where it is grown and species that surround those farms. The unit focuses specifically on the Chachi people, who protect their forest from destruction by sustainably harvesting cocoa. The Chachi participate with the Rainforest Alliance in developing sustainable farming techniques that conserve the rainforest while providing the local people with a means for earning an income.

Informational Introduction for the Students

Go into almost any backpack in your school and you will find empty chocolate wrappers or chocolate treats waiting to be eaten. Chocolate is a favorite candy of American children and children all over the world. Where does all this chocolate come from? Who produces the ingredients for this treat? As the desire for more chocolate increases, farming of chocolate increases. What effect does chocolate farming have on the landscape, the people and the different animals that live around those farms? What happens when trees are cut down in an area that is rich in biodiversity and replaced with farms that grow only cocoa plants? How might these changes affect our lives so far away?

Step 1 – CONNECT (The Concept to Prior Knowledge)

Challenge

Students identify one of the essential elements from their environment that must be protected in order to maintain the effective balance of the ecosystem. Insects are critical to the survival of many ecosystems.

Materials

- Internet access or insect field guides
- Poster paper
- Art supplies

Procedure

1. Students research different pollinating insects that live in their local environment on the Internet or field guide books.
For example, bees work to pollinate plants that provide essential botanical species within certain areas. Bees may be necessary for the production of honey or for certain vegetables in gardens.
2. Students create posters that describe their insect and show its connection to plants in their area.
3. Have students identify how the insects may interact by sharing plants or insuring that a food source is present for another insect.
4. Display the posters.
5. Remove one of the insects at a time and discuss the impact this might have on the environment, especially on the types of plant and animal life (vegetable gardens and honey producers) that live in the area.
6. Identify which plants and animals would have to move to another location or would die as a result of the changes on insect life.
7. Discuss what other changes might affect plants and animals that children have identified, for example, changes in rainfall or temperature.

Step 2 – LITERATURE/DISCUSS (Give expert Information/Book: Ask questions)

Challenge

Students find out what changes in the Ecuadorian landscape will impact the productivity of cocoa trees.

Materials

- Book: **The Story of Chocolate** by DK Publishing
- From the Bean to the Bar: Chocolate Slideshow – Available at: http://www.rainforest-alliance.org/programs/education/teachers/curriculum/ecuador/slideshow/cocoa_slideshow.pdf
- Paper, pencils

Procedure

1. Read aloud: **The Story of Chocolate**
2. Read the **From the Bean to the Bar: Chocolate Slideshow**, available from the Resource Index, to take a delicious journey that follows the production of a chocolate bar from the bean to your supermarket.
3. Discuss with students the interaction of different elements in the rainforest environment and how these might impact the growth and productivity of cocoa plants.
4. Have students research the growth cycle and conditions of the cocoa plant.
5. Draw a diagram of the cocoa growth cycle and conditions answering the questions:
 - How much water does a plant need in a year?
 - What kind of soil is best?
 - Do plants grow better in shade or in full sun?
 - What pollinators come to cocoa plants?
 - What is missing from cocoa farms that occur naturally in the forest?
 - What birds use the cocoa plant for shelter or food?

Step 3A – PRACTICE (Math and Learning Centers)

Challenge

Students calculate the ratio of chocolate to the productivity of cocoa plants and their farmers.

Materials

- Research tools (Internet, encyclopedia)
- Paper, pencils

Procedure

1. Students research how many cocoa beans are produced on one cocoa plant.
 - a. Calculate how many beans are necessary for one pound of chocolate.
 - b. Calculate how many cocoa plants are necessary to supply the chocolate consumed by one student over a week, a month and a year. (Students will have to keep a record on their chocolate consumption and estimate the weight in pounds.)
 - c. If a cocoa plant takes up X amount of room, how big would a field of cocoa plants have to be to supply chocolate to your class?
 - d. Estimate how heavy a bag that carries the number of cocoa beans for one pound of chocolate is.
 - e. Figure out how many pounds a worker in a cocoa field would have to carry in order to supply a pound of chocolate for a student.

Step 3B – CREATE (Performance Tasks)

Challenge

Students will understand how their supermarket habits impact the communities of people like the Chachi in Ecuador.

Materials

- Paper
- Art supplies

Procedure

1. Students will create a mock store that sells chocolate of different kinds.
2. Each student in the class will design a package for their chocolate product that shows the amount/weight of the chocolate and lists all the "ingredients" necessary to grow chocolate, or cocoa beans...

For example: What insects are necessary, how much rainfall, how much land is required for the number of plants to produce the right amount of beans, etc.
3. Each label will be illustrated with a picture that shows (either with a map or a drawing) where the cocoa plant grows and how it is related to the Ecuadorian rainforest.
4. Students will draw posters for their "store" that advertise shade grown versus full sun/plantation cocoa and list at the bottom the benefits and problems with each approach to farming.

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

Challenge

Students have a mock open house for their store and advertise their 'products' to other students.

Materials

- Chocolate labels from Step 3B

Procedure

1. Students organize their packaging by setting up a mock chocolate store for other students to visit.
2. Students write and present commercials/advertisements for their products that they present orally/dramatically in front of the class.

LESSON 3 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 demonstrates an understanding, through his/her poster, the relationship between local pollinators and plant reproduction and the effects of shrinking insect populations. | | | |
| 2. Student draws a diagram of the cocoa plant growth cycle that shows the interrelationship among different elements of the rainforest environment on the health and productivity of cocoa plants. | | | |
| 3. Student calculates the ratio of cocoa beans to the production of locally consumed chocolate candy. | | | |
| 4. Student displays knowledge of 'full cost' elements in the production of consumable products like chocolate (raw materials, processing, transportation, marketing) through the created product labels. | | | |
| 5. Student creates an oral presentation that illustrates the 'full cost' of products consumed on a daily basis. | | | |