



Fifth Grade
El Imposible National Park, El Salvador

National Standards for Grade Five Lessons

English

Standard 3: Evaluation Strategies

Students apply a wide range of strategies to comprehend, interpret, evaluate and appreciate texts.

Standard 1: Reading for Perspective

Students read a wide range of print and non-print texts to build an understanding of texts, of themselves and of the cultures of the US and the world.

Standard 4: Communication Skills

Students adjust their use of spoken, written and visual language to communicate effectively with a variety of audiences and for different purposes.

Standard 7: Evaluating Data

Students conduct research on issues and interests by generating ideas and questions, and by posing problems.

Life Science

Standard 3

Students develop an understanding of the structure and function in living systems, populations and ecosystems, and diversity and adaptations of organisms.

Math

Standard 1: Grades 3-5

Students understand the need for measuring with standard units and that measurements are approximations and how differences in units affect precision.

Technology

Standard 5: Technology Research Tools

Students use technology to locate, evaluate and collect information from a variety of sources.

Standard 4: Technology Communication Tools

Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences.

Social Studies

Standard 5: Environment and Society

Students should understand how human actions modify the physical environment.

Science

Standard 6: Personal and Social Perspectives

Students develop an understanding of populations, resources and environments.



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Lesson 1: Biodiversity

Concept

The more diverse an ecosystem is, the more interdependence of species exists within that system. The complex relationships among diverse species are difficult to identify. As species disappear or become extinct we begin to see the vital links that exist among species. Essential levels of biodiversity vary among biomes and bioregions.

Essential Question

Could an ocelot live where you live?

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 El Salvador 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 Stories**- 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.

**Alex Goes Exploring in El Imposible
Life In San Miguelito**

- **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.
 - Ocelot
 - Great Curassow
 - King Vulture
 - Blue-Crowned Motmot
- **Rainforests: Supermarkets to the World** - A great two-page introduction to the many fruits, vegetables, medicines and other products that we use everyday, which are harvested from tropical rainforests.
- **Park Profile** - Visit <http://www.rainforest-alliance.org/programs/aar/el-salvador.html> for a basic introduction to El Imposible National Park.

- **Rainforest Poster** - Check out this colorful two-page poster depicting the layers of the rainforest, rainforest products, and the threats faced today by many of the world's rainforests is available for your use.

Inside the Canopy – Structure and species of the rainforest
Status Report – What is happening to the rainforest

- **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.
- **Profiles in Sustainability** – Click here <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.
- **Conservation Coffee Summary** – Visit <http://www.rainforest-alliance.org/programs/education/teachers/curriculum/pdfs/conservation-coffee.pdf> to access an eight-page introduction to the issue, including a glossary of terms. These are appropriate for students to read independently.
- **Venn Diagram Template** - Download a photocopy-ready Venn diagram designed to complement this unit.
- **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 will observe the biodiversity in their backyard by connecting the adaptations of the animals in their neighborhood to the climate and habitats in which they live in.

Materials

- Access to schoolyard or nearby park
- Paper, pencils

Procedure

1. Take students out into the school grounds and look for signs of life.
2. Search for insects, birds, animal tracks, scat, feathers, nests, different types of trees, grasses, soil types, etc.
3. Make a class list that shows all findings in the schoolyard and post it as a visual in the classroom.
4. Make headings to organize groupings: insects, plants, mammals, birds, etc.

5. Discuss the Web of Life concept. Draw lines that connect one thing to another. For example: A nest is connected to a bird which is connected to the worms which is connected to the soil which is connected to the trees, and on and on.

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

Challenge

Students will learn about the biodiversity of the rainforest and compare and contrast with that of their own schoolyard findings.

Materials

- Book: **The Great Kapok Tree**, by Lynn Cherry
- Biodiversity list from Step 1
- 1 piece of long string or rope

Procedure

1. Read **The Great Kapok Tree**, by Lynn Cherry. Discuss the different perspectives voiced throughout the book.
2. Activity: *The Web of Life*
 - Have students stand in a large circle.
 - Each student should choose one of the items from the classroom biodiversity list, making sure everyone represents a different living thing.
 - Use a string or a rope to represent the links between each person.
 - One person starts by saying the name they chose and, as a class, decide how they are connected to another organism in the circle.
 - The rope is then passed to that organism.
 - The goal is to finish with a web that is connected to everyone.
 - This game demonstrates the intricate web of life.
3. Debrief in order for students to see how everything in their backyard, as in the rainforest, is ultimately connected in some way or another to their specific environment.

Step 3A- PRACTICE

Challenge

Students will come up with their own web of life example.

Materials

- Access to natural area (i.e. yard, park, etc.)

Procedure

1. Each student will look for an animal or insect in their own backyard or the schoolyard.
2. Students will make observations based on the behavior of that animal or insect.

3. Students will come up with their own web of life example based on the observations made and research on the behavior, food and habitat of that organism.
4. Students will make observations that support the theory that all organisms are connected: behavior, food, habitat, etc.

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

Challenge

Students will demonstrate through writing how all living things interact with their environment in order to survive.

Materials

- Paper, pencils

Procedure

1. Students will synthesize their observations of an organism and create a story that parallels **The Great Kapok Tree**. Using their observations as a framework, they will write their own stories to explain who depends on what for survival and why these interactions are unique to their environment.

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

Challenge

Students will practice their oral reading skills.

Materials

- Story from Step 3B

Procedure

Each student will read their story to the class.

LESSON 1 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's story shows the connection between organisms and their environment.			
2. All spelling, punctuation and grammar are accurate.			
3. Student's illustrations follow the story line.			
4. Story provides multiple links between organisms and their environment.			
5. The story and illustrations represent student's full potential.			



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Lesson 2: Birds and Coffee

Concept

In a global economy, where products from one country or bioregion are used in another bioregion, resource use and changes in the landscape impact the lives of species that depend on several bioregions for survival.

Essential Question

How are migratory birds affected by coffee production in El Salvador?

Additional Resources

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Technology Resources

Migration- How and why do birds migrate?

- Visualization: **Songbird Story** (13 min. video K-6) Migratory songbirds, including tanagers, buntings and orioles are disappearing. What does it mean? Where have they gone? In our backyards in North America, the songbirds' nesting habitats are being lost to development of land. But is this the whole story? The video is available from Bullfrog Films (www.bullfrogfilms.com).
- www.songbirds.org - This Web site gives facts and pictures about the songbirds and their dependency on their habitat. It also has links to forest conservation, farming and the earth's sustainability.
- <http://www.birds.cornell.edu/AllAboutBirds/BirdGuide> - This Web site provides information on bird species in North America, their habitats and migration patterns, as well as guides and photographs to help identify birds.

Shade/Sun grown coffee methods in El Salvador- What are the differences? Why are both methods being used in the rainforest?

- www.rainforestweb.org: This site has many links specifically about El Salvador's agriculture, industrial development and rainforest products, specifically shade coffee.
- www.goldenbean.com/life: This Web site explains the life cycle of the Arabica coffee plant.
- www.rainforest-alliance.org: This site includes information on shade-grown coffee, a visual tour of a coffee farm and a list of sources for shade-grown coffee.

Step 1- CONNECT (The Concept to Prior Knowledge)

Challenge

Students will identify with the changing of the seasons and how these changes affect human and animal behavior. Students will explain what migration is and why many songbirds migrate south for the winter.

Procedure

1. As a class, brainstorm questions such as:
 - a. How do you dress during the different seasons?
 - b. What do you see in winter that you don't see in the summer?
 - c. How do animals react to the changing seasons? (Key words: migration, hibernation, adaptation)

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

Challenge

Students will learn about the two main coffee production methods used in the rainforest and be able to identify how this affects the habitat and health of migratory birds.

Materials

- El Imposible National Park Slideshow (available on the Resource Index)
- Slideshow script (available on the Resource Index)
- Conservation Coffee Summary (available on the Resource Index)
- CD or cassette of bird calls or bird music
- Chairs

Procedure

1. Give a mini-lecture on migratory birds
2. Address the reasons why birds migrate. (Food, climate, shelter)
3. Give mini-lecture on coffee production in the El Salvador rainforest

4. Provide information of sun and shade coffee growing practices, who's using what and why. (For more background information, see Conservation Coffee Summary)
5. Activity:
Migrating Birds (a take off of musical chairs):

In this rendition of musical chairs, students will role play as birds and each chair will represent a tree.

Set up:

1. Bunch up a large number of chairs, enough for each student to have a seat.
2. Have a CD or cassette of bird calls or other bird music.

Round 1:

- a. Have students stand together as if they were a flock of birds getting ready to fly south for the winter.
- b. Play bird calls and tell the students to migrate to the rainforest (a chair).
- c. Once every student is seated, ask them what they think the chairs symbolize.

The goal is for students to understand that the rainforest is much more than just a bunch of trees; it provides shelter, food, oxygen, etc., not only to the birds but to the other animals and indigenous people that live among the rainforest canopy.

Round 2:

- a. Take several of the chairs and set them upside down on the outskirts of the inner bunch.
- b. Start the music again and initiate another mock migration. A number of students should be without a chair (without a tree, without a home, without protection, etc.)
- c. Debrief and ask them what the overturned chairs represent. (Deforestation for coffee production *and* other threats to rainforests.)
- d. Continue until students clearly understand the benefits of conserving the forest.
- e. Discuss the benefits of shade grown coffee. By cultivating coffee underneath the shade of trees, the forest remains intact not only to migrating birds, but to the local people and animals that live there and depend on its resources year round.

Step 3A- PRACTICE (Math and Learning Centers)

Challenge 1

Students will discover the distances that many birds fly in order to find food and shelter in the rainforest canopy. These distances will be translated to a determined scale and presented visually.

Materials 1

- Research tools: bird books, maps, Internet, etc.
- Chalk

Procedure 1

1. In groups of two or three, students will pick one local migratory bird to study. Using a variety of resources (books, maps and the internet), students will calculate the mileage and through what states and countries their bird travels from start to finish during migration.
2. After the mileage has been estimated, students will come up with a standard scale to represent their calculations. For example: 100 miles = 1 foot.
3. Space and weather permitting, all groups will create their own 'Bird Migration Map' on the playground using chalk. Each map will include a scale and a visual representation of where the bird takes off from and where it lands.

Challenge 2

Students will discover where the coffee in their neighborhood is made, how it is produced and by which method, sun or shade. The goal is for students to connect this information with the findings from the above challenge in order to grasp the importance of conserving rainforest habitat for migratory birds and all living things (i.e. trees, animals, insects, humans).

Materials 2

- Coffee labels

Procedure 2

1. Students will trace origins of coffee sold or used in their neighborhood by looking at labels at home and/or in stores.
2. Then, groups will research if the coffee is grown with sun or shade practices depending on the region in which it came from and information provided by the label.

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

Challenge

Students will ask their parents or local store owners to buy shade grown as opposed to sun grown coffee.

Materials

- Migratory information from Step 3A
- Paper
- Art supplies

Procedure

1. Students will design brochures for parents or local store owners trying to convince them to sell or buy shade grown coffee. Brochures should include migratory bird information from the first challenge and coffee research from the second challenge.

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

Challenge

Students will practice public speaking.

Materials

- Brochures from Step 3B

Procedure

Students will distribute brochures and read them to the class.

LESSON 2 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's brochure is based on scientific facts.			
2. Student's brochure set up is easy to follow.			
3. Spelling, grammar and punctuation are accurate.			
4. The information included in the brochure is convincing.			
5. Brochure represents student's full potential.			



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Lesson 3: Deforestation

Concept

One element of a complex ecosystem may provide essential components to the survival of many species of plants and animals.

Essential Question

How can the clearing of trees destroy a community?

Additional Resources

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Step 1- CONNECT (The Concept to Prior Knowledge)

Challenge

Students will identify and connect with the benefits of trees.

Procedure

1. As a class, brainstorm the relationship between trees and humans.
 - a. How do we benefit from trees?
 - b. How do they benefit from us?
2. Discuss oxygen/CO₂ exchange, soil stabilization and protection from erosion, animal habitat, shade, medicine from the rainforest, etc.

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

Challenge

Students will be challenged with opposing viewpoints of the relationship and attitudes between humans and the forest.

Materials

-Book: The Lorax, by Dr. Seuss.

Procedure:

1. Read The Lorax, by Dr. Seuss.
2. Discuss the two main characters. Explore student's thoughts and reactions to what these characters represent in our society.

Step 3A- PRACTICE (Language Arts)**Challenge**

Students will use their knowledge of the forest to predict a deforestation scenario.

Materials

- Paper, pencils

Procedure

1. Students will create a story that shows what they think would happen if all the trees were cut down in their neighborhood.
 - a. Who would be affected?
 - b. What changes would occur?
2. Students will act out their stories for the class and/or for the whole school.

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

Students will organize a community tree planting day.

Procedure

1. Have students pretend they have replanted a forest that was cut down for coffee production. Predict how long it would take to look like a forest again.
2. Students will organize a community tree planting day.
3. Students will monitor the growth of their trees throughout the year.

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

Students will put on an open house to present their service project to the community.

Materials

- Recycled or FSC-Certified paper (visit <http://www.rainforest-alliance.org/marketplace/index.html>)

Procedure

1. Students will make and distribute invitations, on recycled or tree-free paper, for an open house where they will describe to the community their goals and objectives of their tree planting service project.

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 clearly states backyard deforestation scenario.			
2. Student's spelling, punctuation and grammar are accurate.			
3. Student's story is based on scientific discovery.			
4. Story is neatly typed or handwritten.			
5. Student makes a clear statement as to how deforestation would affect all living organisms in their community.			



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Lesson 4: Community Action

Concept

Decisions about how one uses the resources within a particular bioregion must consider the biodiversity and complexity of the ecosystem.

Essential Question

How can communities make decisions that benefit both their families and the animals that live within them?

Additional Resources

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Step 1- CONNECT (The Concept to Prior Knowledge)

Challenge

Students will examine their role in harming or helping the environment.

Materials

- Paper, pencils

Procedure

1. Brainstorm a list of decisions that students make on a daily basis that affect the welfare of the environment. Categorize these as being either harmful or helpful.
2. Trace local actions to distant consequences. Ask students how our decisions at home affect the people in El Salvador. How do their decisions affect us? Discuss our role as consumers and how that affects how resources are used around the world.

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

Challenge

Students will discover the source of all the resources used at their school.

Materials

- Paper, pencils

Procedure

1. Brainstorm a list of things that students and faculty use while they are at school. Examples: paper, electricity, running water, pencils, markers, books, P.E. equipment, lunch trays, etc.
2. Students will conduct research to trace all of these materials to their original sources. Where does the water in your community come from? What kind of fuel does your school use to make electricity? What are your supplies made of?

Step 3A- PRACTICE

Challenge

Students will choose a resource (water, paper, electricity) and do an environmental assessment of their school community.

Materials

Audit survey from:

- <http://www.redefiningprogress.org/>
- <http://www.earthday.net/footprint/index.html>

Procedure

1. In small groups or individually, students will observe and record how resources are used in their school community.

Through interviews and direct observation, students will do an environmental assessment of their school. An audit of how resources are used might include the type of energy that heats the school, the amount of electricity used to light classrooms, the food that is used in the cafeteria, the materials used in the construction of the building...

Audit surveys are available at <http://www.redefiningprogress.org/> and <http://www.earthday.net/footprint/index.html>.

Examples of survey questions might include: Do students leave the water on while they clean up for lunch? Is there enough natural light in each classroom to leave the lights off? Do students and teachers recycle? Explore the cost vs. environmental benefits of using recycled paper.

2. Results of resource use and/or conservation practices will be displayed on charts and diagrams.

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

Challenge

In small groups or individually, students will create a plan to conserve a resource in their school community.

Materials

- Assessments from Step 3A

Procedure

- Using the environmental assessment results, students will come up with a step-by-step proposal for resource conservation within their school community. Refer to EcoFootprint at www.redefiningprogress.org.

Step 4- PRESENT**Challenge**

Students will have to present their information to a mixed audience in an effective way.

Procedure

Students will present their results and proposals to the rest of the school community in a way that they feel will be most effective in demonstrating the results of their findings.

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 collected enough data to make a conservation proposal.			
2. Student's step-by-step plan is clear and concise.			
3. Visuals (graphs, diagrams, etc.) clearly demonstrate student's data collection.			
4. Student makes a clear statement as to how their proposal will contribute to the conservation of school resources.			