



**El Salvador
Sixth Grade**

National Standards for Grade Six Lessons

Visual Arts

Standard 2

Knows how to use structures (e.g., sensory qualities, organizational principles, expressive features) and functions of art.

Level III (Grade 5-8)

Knows how the qualities of structures and functions of art are used to improve communication of one's ideas.

Geography

Standard 2

Knows the location of places, geographic features and patterns of the environment.

Level III (Grade 5-8)

Knows the relative location of, size of and distances between places (e.g., major urban centers in the United States).

Life Sciences

Standard 6

Understands relationships among organisms and their physical environment.

Level III (Grade 5-8)

Knows factors that affect the number and types of organisms an ecosystem can support (e.g., available resources; abiotic factors such as quantity of light and water, range of temperatures and soil composition; disease; competition from other organisms within the ecosystem; predation).

Mathematics

Standard 6

Understands and applies basic and advanced concepts of statistics and data analysis.

Level III (Grade 5-8)

Reads and interprets data in charts, tables, plots (e.g., stem-and-leaf, box-and-whiskers, scatter) and graphs (e.g., bar, circle, line).

Organizes and displays data using tables, graphs (e.g., line, circle, bar), frequency distributions and plots (e.g., stem-and-leaf, box-and-whiskers, scatter).

Sciences

Standard 6

Understands relationships among organisms and their physical environment.

Level III (Grade 5-8)

Knows factors that affect the number and types of organisms an ecosystem can support (e.g., available resources; abiotic factors such as quantity of light and water, range of temperatures, and soil composition; disease; competition from other organisms within the ecosystem; predation).

Geography

Standard 3

Understands the characteristics and uses of spatial organization of Earth's surface.

Level III (Grade 5-8)

Understands how places are connected and how these connections demonstrate interdependence and accessibility (e.g., the role of changing transportation and communication technology, regions and countries Americans depend on for imported resources and manufactured goods).

Thinking and Reasoning

Standard 6

Applies decision making techniques.

Level III (Grade 5-8)

Makes decisions based on the data obtained and the criteria identified.

Secures factual information needed to evaluate alternatives.

Environment and Society

Standard 14

Understands how human actions modify the physical environment.

Level III (Grade 5-8)

Understands the environmental consequences of people changing the physical environment (e.g., the effects of ozone depletion, climate change, deforestation, land degradation, soil salinization and acidification, ocean pollution, groundwater-quality decline, using natural wetlands for recreational and housing development).



Sixth Grade
El Imposible National Park, El Salvador

Lesson 3: How can my breakfast help the birds?

Concept

Our food choices may have an impact on rainforests. Sun-grown coffee farming destroys essential bird habitat in rainforest areas.

Essential Question

How can my breakfast help the birds?

Objectives

1. Students will rank several pictures of farms based on conservation of bird habitat.
2. Students will research sustainable coffee farming techniques with conservation of bird habitat in mind.
3. Students will design two farms with sustainability of bird habitats in mind.
4. Students will send their farm designs to the Rainforest Alliance and the local agricultural cooperative for comment.

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:** Click here <http://www.rainforest-alliance.org/resources/daily-use.html> for a summary of products found in our homes and supermarkets that either originated in tropical forests or are currently produced there.
- **Profiles in Sustainability:** View our Profiles in Sustainability <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:** Click here 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.

Informational Introduction for the Teacher

This lesson guides students in an exploration of sustainable agriculture and its relation to bird habitat. First, students rank pictures of corn and coffee farms according to bird habitat conservation. Next, students research different coffee farming techniques and their relation to bird habitat. Students design and create maps of ideal farms to maximize both crop production and bird habitat conservation. Finally, students send farm designs to the Rainforest Alliance and the local agricultural cooperative for review.

Informational Introduction for the Students

Go to any diner for breakfast and the first thing you hear from the waiter or waitress is "Would you like coffee this morning?" Coffee is the second most traded commodity in the world. The beans are typically grown in areas of tropical rainforest. This form of agriculture can be damaging to migratory bird habitat. In this lesson, we will investigate the different types of coffee farming and compare them to what we know about agriculture in the US. Our investigation will include research of different farm types and designing the ideal coffee farm. Our designs will be sent to experts in the field for review.

STEP 1 - CONNECT (The Concept to Prior Knowledge)

Challenge

Students work in small groups to rank pictures of 10 different coffee and corn farms according to what they think is in the best interest of a variety of birds.

Materials

- Pictures of farms, one set for each group (shade-grown coffee farm photos available from the Rainforest Alliance)

Procedure

1. Divide class into groups of 3 or 4.
2. Hand out a group of pictures to each group.
3. Challenge students to rank the pictures according to what they think is best for birds. For example, they might begin by finding the farm with the most trees or the farm they think could support the most diverse and abundant bird life.
4. When students have completed their ranking, ask them to explain why they chose to rank the farms the way they did.

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

Challenge

Students read about shade-grown coffee and sustainable corn farming techniques and review a number of pictures depicting these farms. Students use this information to reevaluate the pictures they've ranked and interpret the advantages of a shade-grown coffee farm over sun coffee and conventional over sustainable farming techniques.

Materials

- Ranked pictures of farms from Step 1
- Computer with Internet access

Procedure

1. Tell students they will be investigating different types of coffee farms in order to reevaluate their ranking. Their goal is to compare their interpretations to the information at a number of web-links about shade-grown coffee and other sustainable agriculture techniques.
2. Guide students to the Web sites listed below.
 - <http://www.ag.auburn.edu/aaes/communications/highlights/fall98/birds.html>
 - http://eartheasy.com/eat_shadegrown_coffee.html
 - <http://www.seattleaudubon.org/shadecoffee/aboutsc/aboutsc.html>
 - <http://www.seattleaudubon.org/shadecoffee/business/faq.html>
3. After students research the different farm types, invite them to make any changes to their rankings.
4. When all changes have been made, ask groups to compare their rankings. If discrepancies arise, ask students to compare explain their ideas on which farm is better for birds.

Step 3A - PRACTICE (Math and Learning Arts)

Challenge

Students carry out a number of mathematical calculations designed to illustrate the impact of various agricultural practices on bird populations.

Materials

- Paper
- Writing utensils

Procedure

Challenge students to complete the calculations and answer the related questions.

1. Shade-grown coffee farms are typically home to $\frac{2}{3}$ of the normal bird life in a tropical rainforest. Sun coffee farms are typically home to $\frac{1}{15}$ of the normal bird life in a tropical rainforest. If 225 bird species are typically found in an undisturbed rainforest, how many different types of birds would you expect to find in a shade-grown coffee farm?
2. Using the same ratios from question 1, how many different types of birds would you expect to find in a sun coffee farm?
3. How might this information be useful in conservation of bird habitat in tropical rainforests?
4. How about temperate forests?

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

Challenge

Students design two farms with sustainability of bird habitats in mind. One farm is a corn farm in the eastern US and the other is a coffee farm in El Salvador.

Materials

- Construction paper
- Art supplies
- World atlas
- Pictures of farms

Procedure

1. Challenge students to design two farms with sustainability of bird habitat in mind. One is a corn farm in the eastern US and the other is a coffee farm in El Salvador. The goal of each ideal farm is to be able to grow crops and protect birds. Tell students they will be drawing maps of their farms and sending them to organizations for comment.
2. Suggest to students they begin by creating a list of goals and practices designed to meet these goals. For example, Goal: Produce two varieties of coffee (Robusta and Arabica) while preserving bird food sources (i.e., insects). Practice: Grow Robusta plants in most shaded areas (it requires less specific conditions), Arabica in full sun and eliminate pesticide use. For ideas on farm practices, refer to Internet sites links listed above. Have students write these goals in a chart form to be included on the map of their farm.

3. After students have completed their goals, hand out two large (11"x14") pieces of paper and art supplies. Challenge students to create the ideal farm that will meet the goals they've created.

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

Challenge

Students send their farm designs to the Rainforest Alliance and/or the local agricultural cooperative for comment on their sustainability practices.

Materials

- Farm designs from step 3B

Procedure

1. Tell students they will be sending their farm designs to the Rainforest Alliance (an organization that works with farmers in Latin America to help them grow crops sustainably) and to the local agricultural cooperative for comment on their sustainability practices.
2. Challenge students to compose a short letter of explanation to the Rainforest Alliance and agricultural cooperative describing their farm designs. The letter should include a description of the assignment, specific areas that the student would like comment on and any questions about agriculture, coffee and birds that they would like answered.

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. While ranking farm photos, student shows enthusiasm, works well with group, respects others' opinions, asks good questions, uses prior knowledge when considering pictures and offers insights when appropriate.			
2. Student uses resources provided to rework the ranking of pictures. Student identifies connections between farm technique and its affects on bird habitats.			
3. Student goals and corresponding practices are logical and supported by the research performed in previous steps. Student goals and practices demonstrate knowledge of different farming techniques and their connection to bird habitat.			
4. Maps of ideal farms are creative, visually engaging, and include a chart listing goals and corresponding procedure. Student farm designs clearly illustrate knowledge of sustainable farming techniques and the relationship to bird habitat.			