



Teacher Guide

UNIT 3 LESSON 4: THE HUMAN – ENVIRONMENT RELATIONSHIP

Theme

From how we grow our food to our consumer decisions, the actions humans take impact our environment. The human-environment relationship – It's complicated.

Missouri Science Standards: **LS2.C.1; LS2.C.2; ESS3.C.2**

Vocabulary



Conservation - Preservation and protection of something; especially planned management of a natural resource to prevent exploitation, destruction, or neglect

Biodiversity - All the different kinds of life found in an area—the variety of animals, plants, fungi, and microorganisms in an ecosystem

Sustainable - A method of harvesting or using a resource so that the resource is not depleted or permanently damaged

Deforestation - The purposeful act of clearing and removing trees from forested lands

Shade-grown coffee - Coffee grown under a tree canopy – traditionally with coffee bushes, and varying types and heights of trees including fruit trees, shade trees, and overstory trees

Sun-grown coffee - Coffee grown in full sun – usually a monocrop which uses greater amounts of herbicides and pesticides

Video 1: Bird Research and Shade-Grown Coffee

Video Description: Scientists Amanda Rodewald of the Cornell Lab of Ornithology and Nick Bayly of Selva spend a morning on a Colombian coffee farm, researching how shade-grown coffee benefits migratory birds like warblers and tanagers. Film by Chris Foito. Video provided by Cornell Lab of Ornithology.

Link: <https://www.youtube.com/watch?v=9fXBZ-a4ohk>

Follow-Up Questions:

1. True or False. Coffee is one of the most important crops in a large part of the Andes of Columbia.
2. Fill in the blank. When conserving a migratory bird species, we need to think not only about its breeding habitat, but also its migrating and _____ habitat.
3. True or False. Farming practices can have profound impacts on the land and the bird population.
4. What is one of the many services that the trees provide that is mentioned in the video?

Video 2: Bird Friendly Coffee

Video Description: The Smithsonian Migratory Bird Center's Bird Friendly® coffee certification program aims to protect the most quality habitat from the threat of deforestation under the Bird Friendly seal. While this video was filmed in Colombia, Bird Friendly coffee farms can be found in 12 countries, with more than 4,600 participating coffee producers and more than 31,000 acres of protected land. Video made by Smithsonian Global.

Link: <https://www.youtube.com/watch?v=gqYOL9t4z-s>

Teacher Notes:

- This video has mostly Spanish speakers with English subtitles. Some students may need to watch the video at their own reading pace to be able to catch everything.

Follow-Up Questions:

1. What does bird-friendly coffee farmer, Rafael Tovar, say the birds do for their coffee farm?
2. True or False. Agroforestry systems, like bird-friendly coffee farms, can be a solution to climate change.
3. What did the bird-friendly coffee farmer say at the end of the video as to why they joined this process?

Activity – Connecting Coffee in Your Neighborhood to Bird Conservation

Activity Summary: In this activity, students will discover where the coffee in their neighborhood is made, how it is produced, and by which method it is grown: sun or shade. The goal is for students to connect this information with the things they learned about bird migration to grasp the importance of conserving rainforest habitat for migratory birds and all living things (i.e., trees, animals, insects, humans).

Teacher Notes:

- The brochure design portion of this activity is intended as a homework component to give students ample time to create it

Video 3: Conservation Science: Amanda Rodewald Discusses Shade Grown Coffee

Video Description: Amanda Rodewald from the Cornell Lab of Ornithology explains why conservation must consider the needs of people and how shade-grown coffee can conserve birds and other biodiversity, support farmers and local communities, protect ecosystem services, and produce a great cup of coffee. Video provided by Cornell Lab of Ornithology.

Link: <https://youtu.be/b9fZRPgl0tE>

Follow-Up Questions:

1. True or False. The choices we are making about the coffee we buy are directly affecting the livelihoods of people in the Andes.
2. Fill in the blank. Shade-grown coffee is one system where what we want to see happen for conservation can be beneficial to the growers from an _____ standpoint.
3. From what three directions does shade-grown coffee intersect with sustainability? Or in other words, in what three ways are shade-grown coffee sustainable?
 - o Answer
 - o Answer
 - o Answer

Concluding Questions/Assessment

*Student worksheet included in packet.

1. What does the term 'conservation' mean to you?
2. What are some characteristics that make shade-grown coffee farms better habitats for birds than sun-grown coffee farms?
3. What are two ways birds and shade-grown coffee systems help support coffee farmers?
4. What are two ways that traditional shade-grown coffee systems benefit the environment?
5. Write a paragraph reflecting on your experience researching where your local coffee comes from. Was it easy to figure out where the coffee was grown and what methods the farmer used?

