

# **MONTEVERDE CLOUD FOREST: FAUNA AND FLORA**



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## Description

In this lesson, students will identify and research the fauna and flora of the Monteverde Cloud Forest, as well as construct a life-size replica of an assigned animal, then present their findings to the class in the target language.

## Subjects

Spanish

## Grade Level

9-12

## Duration

150 minutes (2 class periods)

## Tour Links

- [Monteverde Cloud Forest, Costa Rica](#)

## Essential Questions

- What is the Monteverde Cloud Forest?
- What is the history of the Monteverde Cloud Forest?
- What is the difference between a cloud forest and a rainforest?
- What kind of fauna and flora is found in the Monteverde Cloud Forest? How does one identify these organisms using Spanish and scientific terms?
- What are some of the defining characteristics of the fauna and flora of the Monteverde Cloud Forest?

## Academic Summary

The Monteverde Cloud Forest: over 35,089 acres of protected land in Costa Rica, housing over 100 species of mammals, 400 species of birds, and 1200 species of amphibians and reptiles, and... founded by Americans?

That's right. In 1948, young men throughout the United States were called to military service in order to wage war on the Korean peninsula. This conflicted with the Religious Society of Friends (better known as *Quakers*), a religious group that not only objected to war and all forms of violence, but also actively promoted peace and pacifism. In 1949, four young Quakers from the Meeting of Friends in Fairhope, Alabama refused to register for the draft and were sent to prison. After their release, forty-four Quaker families left Fairhope and moved to Costa Rica. Pepe Figueres, the president there, had recently abolished the Costa Rican army. Could this be a place where the Quakers could finally live in peace?

After months of searching for a spot that would suit their new community, the Quakers finally settled on a piece of land in a cloud forest they named *Monteverde* (*Green Hill* in Spanish). The group bought about 1400 hectares (about 3500 acres) of this land, setting aside 554 hectares to protect their water supply and clearing the rest for housing and dairy farming.

In the 1960s, biologists, herpetologists (dedicated to the study of amphibians and reptiles), and ornithologists (dedicated to the study of birds), flocked to Monteverde, drawn by accounts of others viewing exotic creatures in its forest and intrigued by its English-speaking population. In 1970, two biology students from California visited the forest and immediately became concerned about its protection. At the rate the deforestation was going the whole forest would disappear, along with its fauna and flora. The students, George and Harriet Powell, worked with the Quakers and the Tropical Science Center in San José to protect the cloud forest. With their help, along with donations from the United States, the Monteverde Cloud Forest Biological Preserve was formed.

That was in 1972. Today, the Monteverde Reserve continues to increase its protective reach and spread the word of conservation to others. In this lesson, students will identify and research the fauna and flora of the Monteverde Cloud Forest, as well as construct a life-size replica of an assigned animal, then present their findings to the class in the target language.

## Objectives

1. Students will identify fauna and flora of the Monteverde Cloud Forest in the target language.
2. Students will present researched information, in the target language, about an assigned animal found in the Monteverde Cloud Forest.
3. Students will construct a life-size replica of an assigned animal found in the Monteverde Cloud Forest.
4. Students will use information spoken in the target language to complete fact sheets about fauna and flora of the Monteverde Cloud Forest.

## Materials

- *Monteverde: un breve historia* Reading Worksheet
- Projector / Computer, or Smart Board (optional)
- *El Bosque Nuboso Monteverde: Fauna y Flora* Vocabulary Sheet
- Fast Facts Project Sheet
- *Monteverde: Manual de Fauna y Flora* Handbook
- Tape and/or Glue
- Scissors
- Other Craft Supplies (optional)

## Procedure

# Part I: Introduction

### I. Anticipatory Set (15 minutes)

- Think-Pair-Share: What is a *bosque nuboso* (“cloud forest”)? (Or, what do you think a “cloud forest” is?) Think about the question for 10 seconds on your own, then discuss your thoughts with a partner for 30 seconds. Afterwards, share your opinions with the class.

Answer: A cloud forest is a tropical forest, often located near the peaks of coastal mountains, that usually has constant cloud cover throughout the year.

- Think-Pair-Share: How does a cloud forest differ from a *bosque pluvial* (rainforest)? Think about the question for 10 seconds on your own, then discuss your thoughts with a partner for 30 seconds. Afterwards, share your opinions with the class.

A cloud forest differs from a rainforest in three major ways:

#### I. Elevation

Cloud forests are located at higher elevations, so they are cooler. This lower temperature adds to the mist and fog in cloud forests. Rainforests are located at lower elevations, so they are warmer. The milder temperatures slows down the evaporation process, so there is not as much mist or fog.

#### II. Topography

Cloud forests often have high peaks and low valleys, contributing to the accumulation of rainwater and atmospheric moisture. Rainforests tend to cover land with little change in elevation, providing consistent conditions in terms of temperature, humidity and precipitation.

#### III. Rivers

Cloud forests have fast, shallow and clear rivers with rocky beds. The moisture that comes from these rivers, combined with the higher altitude, creates additional condensation that leads to the formation of fog and mist. Rainforests tend to have larger, slower rivers with heavy silt beds.

- Have the students copy these differences into their notebooks.

### II. Body of Lesson (60 minutes)

- Today, we are going to learn about the Monteverde Cloud Forest in Costa Rica. Can you guess how it got its name? (*Monte verde* in Spanish translates to *Green Hill*.) The Monteverde Cloud Forest Reserve (the part of the forest under protection) covers over 35,089 acres of land. Within the boundaries of the reserve, there are over 100 species of mammals, 400 species of birds, and 1200 species of amphibians and reptiles. (No wonder it’s protected!)
- Class Reading: Pass out the *Monteverde: un breve historia* reading worksheet to each student. This worksheet provides a brief history of the Monteverde Cloud Forest Reserve. Read it aloud as a class, clarifying unknown words or phrases throughout.

Suggestion: Play the “Monteverde Then” slideshow during the reading (found in the Links section of this lesson plan). It shows authentic photos of Monteverde during the 1950s!

- Partner Activity: Split up the class into pairs. Have students work in partners to answer the short answer questions on the back of the reading. Afterwards, review the answers as a class, filling in any missing information.
- Bring attention to question #3, “What does *fauna* and *flora* mean?” *Fauna* and *flora* refers to the indigenous wildlife and plant life (respectively) of a region or time. [To remember which is which, think of the Spanish words *fauno* (faun – animal) and *flor* (flower – plant).] What kind of *fauna* and *flora* do you think the Monteverde Cloud Forest has? Brainstorm as a class.
- Pass out the *El Bosque Nuboso Monteverde: Fauna y Flora* vocabulary sheet to each student. Each sheet shows 24 animals found in the Monteverde Cloud Forest and their Spanish, English and scientific (Latin) names. Review their pronunciations any way you see fit (“repeat after me”, students reading, etc.).
- Let the class know that in one week they will be going on a mock tour of the Monteverde Cloud Forest. You will be the tour guide, and will tell them information about the cloud forest in general. The class will provide life-size replicas of the animals on the vocabulary sheet. Once they “come across” one of these animals on the tour, it will be the job of the students who have been assigned this animal to tell the class all about it.  
Note: The mock tour can be tomorrow, two days from now, etc., depending on how much time you would like the class to have to prepare for their presentations. One week is just a suggestion.
- Project Review: Split up the class into groups of two, three or four (or keep them all separated, it all depends on how many presentations you would like on the day of the mock tour and how many animals you would like to be covered). Hand out a “Fast Facts Project Sheet” (double-sided) to each group of students. Review the meaning of each section, the project components, and how it will be graded. Then, assign an animal to each group however you see fit (pick a name out of a hat, student choice, teacher choice, etc.).

### III. Closure (15 minutes)

- Have each group write down the name of their animal and the project due date on their project sheets. Check for understanding by having the groups repeat back to you what will be expected of them on the day of the mock tour by ways of product and presentation. Then, give each group time to assign roles and make a “game plan.”  
Note: You may choose to give students time to work on this project during class time throughout the week (in the classroom or at a library or computer lab) or let them know that it will be a project they will have to work on during their own time after school.

## Part II: Presentation

### I. Anticipatory Set (5 minutes)

- Before class, move all of the desks to either side of the classroom. Set up the chairs in two (or four) columns facing the front of the room. This will be the group's "tour bus" for the day.  
Suggestion: Hang cloud cutouts or draw plant life on the board to really set the scene!
- As the students enter class, give each group some tape to hang up their life-size replica somewhere in the classroom. Instruct all students to put their belongings on the desks, taking only a pencil and their project sheet to their bus seat.

### II. Body of Lesson (40 minutes)

- Begin the tour. A sample script (recommended to be spoken in Spanish) is:  
*Hello, and welcome to the Monteverde Cloud Forest Reserve! Does anyone know what a cloud forest is? (Wait for response.) That's right! It's a forest atop a mountain, with lots of cloud cover throughout the year. Over 35,089 acres of land is protected here. Why would we want to protect land like this? (Wait for response.) Yes! There are so many unique animals and plants that live here. If the forest disappeared, so would they! Do you know the name for the animals and plants of a specific region? (Wait for response.) Fauna and flora refers to the animals and plants (respectively) of a region. I wonder what kind of fauna and flora we can find on our tour today!*
- At this point, hand out the *Monteverde: Manual de Fauna y Flora* handbooks. Let the class know that they will have to complete one page in the handbook for each animal they learn about.
- After the tour introduction, begin to point out animals that your tour bus "passes by." At each stop, ask if there are any "experts" on this animal. At this point, the group who was assigned this animal should stand up and give their presentation. The rest of class will fill in the relevant information to their fauna and flora handbooks. Continue along until all of the animals have been covered.

### III. Closure (15 minutes)

- After the mock tour, return the desks and chairs to their original places. Give the students time to cut and paste pictures from their vocabulary sheet into their fauna and flora handbooks. Then, collect all of the projects and handbooks. Make sure the students' names are written on their work!

## **Extension**

### **On tour: Monteverde Cloud Forest**

Make your way to Monteverde, perhaps the richest and best-known biological reserve in the world. The count is in: between 320 and 400 species of birds, between 2000 and 2500 species of plants, and 100 different mammals inhabit this place. (Almost certainly more, since new species are being constantly identified.) Hear the mysterious call of the three-wattled bellbird echo among giant oaks and palm trees. Can you spot any of the animals on your vocabulary list? Bring the list with you, checking off any you find. Make sure to take plenty of pictures!



## Web Links

- [www.monteverdetours.com/history-of-monteverde.html](http://www.monteverdetours.com/history-of-monteverde.html)  
“History of Monteverde and the Quakers”, from the official Desafio Adventures Co. website. Provides a detailed history of the settling of the Quakers in Monteverde, and the founding of the Monteverde Cloud Forest Reserve through George and Harriet Powell.
- <https://monteverdeya.wordpress.com/una-historia-muy-breve/>  
“Monteverde: history en breve” (Spanish). Web article from “Monteverde ¡Ya!- Voces desde el Bosque Nuboso”, a collection of personal accounts and professional observations from those who live and work in the Monteverde Cloud Forest. “Monteverde ¡Ya!” is dedicated to raising awareness about changes in the environment that cannot be ignored, particularly in the Monteverde region of Costa Rica. Direct source for the “Monteverde: history en breve” reading.
- [www.flickr.com/photos/jacques-haeberle/sets/72157625961701558/show/](http://www.flickr.com/photos/jacques-haeberle/sets/72157625961701558/show/)  
“Monteverde Then”, by Wonderful Life o6 (Flickr). A slideshow showcasing authentic photographs of the Monteverde Cloud Forest in the 1950s from Quaker pioneers.
- [www.anywherecostarica.com/attractions/reserve/monteverde-cloud-forest](http://www.anywherecostarica.com/attractions/reserve/monteverde-cloud-forest)  
“Monteverde Cloud Forest Reserve”, from Anywhere Costa Rica, a travel company dedicated to offering accurate information about Costa Rica to a wide range of travelers. Web page provides detailed information about a variety of animals found in the Monteverde region, including their English/Spanish names, scientific name, diet, habitat, physical description, and more. Source for the Monteverde fauna and flora vocabulary sheet.
- [www.govisitcostarica.com/blog/post/difference-between-cloud-forests-and-rainforests.aspx](http://www.govisitcostarica.com/blog/post/difference-between-cloud-forests-and-rainforests.aspx)  
“The differences between cloud forests and rainforests”, from Go Visit Costa Rica, a travel site that provides facts and tips for those interested in learning more about Costa Rica.
- <https://sites.google.com/site/microorganismoszafra/clasificacion-de-los-seres-vivos>  
“Clasificación de los seres vivos” (Spanish). Outlines the classification of all living things in an easy-to-read format. All terms and information provided in Spanish.

## Key Terms

- **el bosque nuboso** cloud forest
- **el bosque pluvial** rainforest
- **el carnívoro** carnivore
- **Clase Amphibia (anfibios)** (amphibians)
- **Clase Aves (aves)** (birds)
- **Clase Mammalia (mamíferos)** (mammals)
- **Clase Reptilia (reptiles)** (reptiles)
- **la elevación** elevation
- **esperanza de vida** life expectancy
- **la fauna y flora** fauna and flora (animals and plants)
- **el herbívoro** herbivore
- **el largo** length
- **el nombre científico** scientific name
- **el omnívoro** omnivore
- **el peso** weight
- **Reino Animalia (animales)** Animal Kingdom
- **el río** river
- **la talla** height
- **el tamaño** size
- **la topografía** topography

