



passports

educational group travel

Monteverde Cloud Forest

Fauna and Flora

Subject Spanish II
Grade Level 9-12
Duration 150 minutes
(2 class periods)



Experiential Learning Components

Monteverde Cloud Forest, Costa Rica



Classroom Learning Components

Companion lesson plan in compliance with, or exceeding applicable standards.

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 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.



Monteverde Cloud Forest, Costa Rica

Standards Compliance

ELA.Literacy.SL.11-12.6 Adapt speech to a variety of contexts and tasks, demonstrating a command of formal English when indicated or appropriate.

ELA.Literacy.L.11-12.1 Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

ELA.Literacy.L.11-12.2 Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

National Standards for Foreign Language Education

American Council on the Teaching of Foreign Languages (ACTFL)

Communication 1.2 Students understand and interpret written and spoken language on a variety of topics.

Communication 1.3 Students present information, concepts, and ideas to an audience of listeners or readers on a variety of topics.

Connections 3.1 Students reinforce and further their knowledge of other disciplines through the foreign 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.
 - 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.
 - 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.”
 - 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!

Links

www.monteverdetours.com/history-of-monteverde.html

“History of Monteverde and the Quakers”, from the official Desafío 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/

“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

“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

“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

Credit

© Copyright 2014 Passports, Inc., All rights reserved.

Monteverde: historia en breve

Le presentamos una historia muy breve de Monteverde, pero le animamos a que lea la historia completa en el libro "Walking with Wolf", por Wolf Guindon y Kay Chornook.

"Nuestra economía se ha involucrado tanto en los esfuerzos militares de todo el mundo que una persona apenas puede ganarse la vida sin llegar a formar parte de ese sistema ... incluso el precio de la leche depende de ello." — Hubert Mendenhall, Pionero de Monteverde (Revista "Time" 9 de octubre de 1950)

En 1948 los jóvenes eran llamados al servicio militar en los Estados Unidos para librar una guerra en la península coreana. En los años siguientes, en la que hoy es conocida como "Guerra Olvidada," más de un millón y medio de coreanos y más de 33.000 soldados de EE.UU. perderían sus vidas.

A 7,000 millas de Corea, cuatro agricultores de Fairhope, Alabama, se negaron a ser reclutados para la Guerra Coreana y fueron enviados a prisión. Siendo miembros de la Sociedad Religiosa de los Amigos, o los Cuáqueros, los agricultores no apoyaban el esfuerzo de la guerra por razones religiosas y morales. Tras su liberación de la cárcel, una docena de familias cuáqueras partieron de Fairhope en 1951 y se mudaron a Costa Rica, que acababa de abolir su ejército, en su deseo de buscar una vida más pacífica.

Junto a los costarricenses, los cuáqueros fundaron una pequeña comunidad agrícola en un bosque nuboso que ellos llamaron Monteverde. Las familias compraron alrededor de 2000 hectáreas y aunque gran parte de estas fueron deforestadas para la producción de leche, se reservaron 554 hectáreas de bosque primario para proteger el suministro de agua de la comunidad.

A finales de la década de 1960 los científicos venían a Monteverde para estudiar la rica diversidad de su flora y su fauna. De hecho, una milla cuadrada de bosque nuboso de Monteverde tiene más especies de árboles que toda América del Norte. Influenciada por todos los biólogos, herpetólogos y ornitólogos, que comenzaron a llegar, la comunidad cuáquera cedió sus 554 hectáreas de la cuenca para la fundación de la Reserva Biológica de Monteverde. Eso era Monteverde entonces.



la región cada año. Hoteles y restaurantes se han multiplicado. Las atracciones turísticas están creciendo. Se construirán nuevas carreteras. Y mientras el negocio florece, cambian los patrones tradicionales del clima. A pesar de los enormes esfuerzos en la conservación, las especies de plantas y animales disminuyen. Se trata de Monteverde ahora.

"Monteverde ¡Ya!- Voces desde el Bosque Nuboso" es una colección de historias personales y observaciones profesionales de los que viven y trabajan en un bosque nuboso. Se trata de la naturaleza, de las personas, del clima y del cambio. Y mientras usted tal vez viva a miles de kilómetros de Monteverde... es sobre usted. Mire, piense, responda. Su voz tiene importancia.



A finales de los años ochenta y en la década de 1990, una iniciativa mundial, dirigida por la Liga Conservacionista de Monteverde, amplió las áreas protegidas a aproximadamente 35.000 hectáreas, estableciendo la región de Monteverde como la reserva forestal privada más grande de Centroamérica. Pero las áreas protegidas no eran lo único por crecer.

Cuando se fundó la Reserva en 1972, sólo un puñado de personas hizo el largo viaje por las estrechas carreteras de montaña para visitar Monteverde. Hoy en día, más de un cuarto de millón de turistas visitan

Nombre _____ Fecha _____

Monteverde: historia en breve

Respuestas cortas

Lee el pasaje *Monteverde: historia en breve* y contesta las siguientes preguntas.

1. ¿Por qué algunas familias cuáqueras querían salir de los Estados Unidos para vivir en Costa Rica en 1951?
2. ¿Qué hicieron los pioneros cuáqueros con su tierra en Costa Rica?
3. ¿Qué significa *fauna y flora*?
4. ¿Por qué los cuáqueros dieron su tierra a unos científicos en 1960?
5. Hoy en día, la Liga Conservacionista de Monteverde protege más de 35.089 acres de tierra. ¿Cómo es que esta área todavía está en peligro, aunque está protegido?

El Bosque Nuboso Monteverde

Fauna y Flora



Pájaro-sombrilla
Cuellinudo

Bare-necked Umbrellabird
Cephalopterus glabricollis



Reinita Mielera

Bananaquit
Coereba flaveola



Campanero
Tricarunculado

Three-wattled Bellbird
Procnias tricarunculata



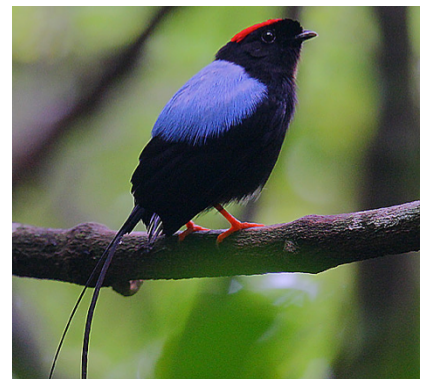
Oropendola
Cabecicastana

Chestnut-headed
Oropendola
Zarhynchus wagleri



Tucán Pico Iris

Keel-billed Toucan
Ramphastos sulfuratus



Saltarín Toledo

Long-tailed Manakin
Chiroxiphia linearis



Momoto Cejiceleste

Turquoise-browed Motmot
Eumomota superciliosa



Quetzal

Resplendent Quetzal
Pharomachrus mocinno



Ala de Sable

Violáceo

Violet Sabrewing
Campylopterus hemileucurus



Saino

Collared Peccary
Tayassu tajacu



Danto

Baird's Tapir
Tapirus bairdii



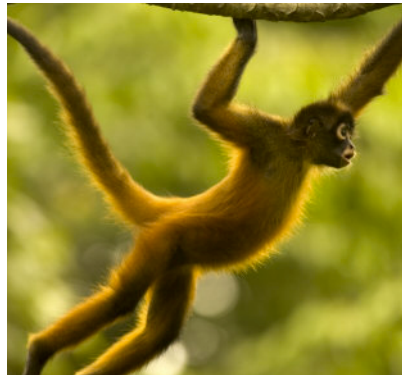
Gato Moro

Jaguarundi
Herpailurus yagouaroundi



Tigrillo

Margay
Felis wiedii



Mono Araña

Spider Monkey
Ateles geoffroyi



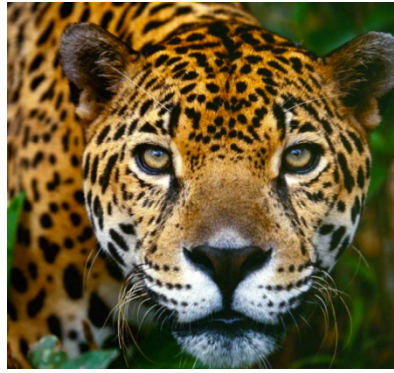
Tayra

Tayra
Eira barbara



Perezoso de Tres Dedos

Three-Toed Sloth
Bradypus variegatus



Tigre

Jaguar
Felis Onca



Martilla

Kinkajou
Potos flavus



Manigordo

Ocelot
Leopardus pardalis



Olingo

Olingo
Bassaricyon gabbii



León

Puma
Puma concolor



Vampiro

Vampire Bat
Desmodus rotundus



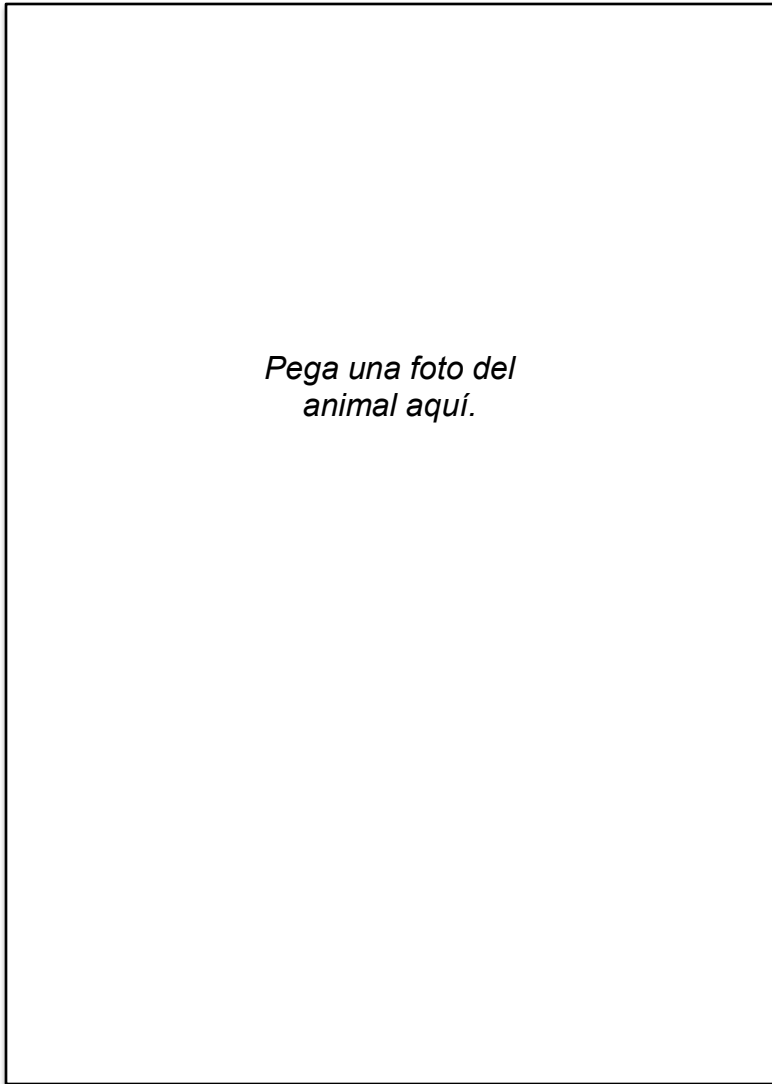
Sapo grande

Giant Toad
Bufo marinus



Lagartija Espinosa

Spiny Green Lizard
Sceloporus malachiticus



Nombre de animal

Nombre científico

Clase

Dieta

Esperanza de vida

Tamaño

Peso

¿Sabías que...?

Hecho n.1 _____

Hecho n.2 _____

Hecho n.3 _____

Réplica de tamaño real

Crea una réplica de tu animal de tamaño real.

Tengas en cuenta...

- Tamaño (largo del cuerpo / talla)
- Color
- Textura
- Apariencia general
- ¡Creatividad!

Utiliza papeles de colores, plumas, etc.
para hacer tu réplica parece más realista.

Presentación oral

Presenta tus resultados a la clase.

Asegúrate de hablar con claridad, y mencionar todos tus datos. ¡Tus compañeros de clase van a escribir esta información!

Grading Rubric

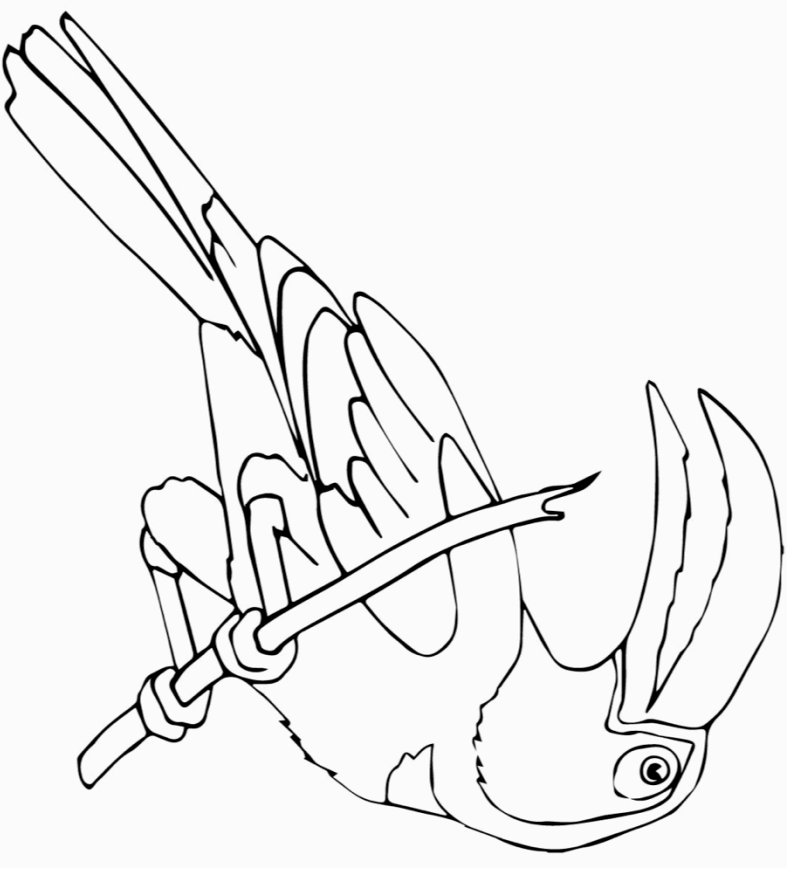
	Exemplary 4 points	Proficient 3 points	Emerging 2 points	Developing 1-0 points
Fast Facts Sheet	All 10 sections answered correctly; clear picture of animal included.	7-9 sections answered correctly; clear picture of animal included.	4-6 sections answered correctly; picture of animal included, but may be blurry or unrecognizable.	Less than 4 questions answered correctly; questions left unanswered; no image included.
Grammar / Spelling	0-2 grammar or spelling errors on the Fast Facts Sheet.	3-5 grammar or spelling errors on the Fast Facts Sheet.	6-9 grammar or spelling errors on the Fast Facts Sheet.	10 or more grammar or spelling errors on the Fast Facts Sheet.
Life-size Replica	Replica is detailed and accurate (i.e. length, width, color).	Replica is accurate (i.e. length, width, color).	Size or color of replica is inaccurate.	Size and color of replica are inaccurate.
Neatness / Creativity	Replica is well crafted, visually pleasing and highly creative.	Crafted presentation of replica; shows some creativity.	Adequate presentation of replica.	Presentation of replica lacks creativity and appears to be hastily made.
Oral Presentation	Presentation is clear, audible and rehearsed; all 10 fast facts are covered.	Presentation is mostly clear, audible and rehearsed; 7-9 fast facts are covered.	Presentation is hard to hear or understand at times; 4-6 fast facts are covered.	Presentation is unrehearsed; less than 4 fast facts are covered.

Score = _____

x 5 = Total Score = _____ / 100

MONTEVERDE

Manual de Fauna y Flora



Nombre

Nombre de animal

Nombre científico



Tipo

Dieta

Esperanza de vida

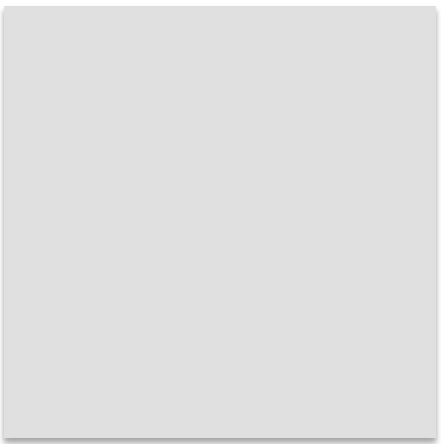
Tamaño

Peso

Hecho

Nombre de animal

Nombre científico



Tipo

Dieta

Esperanza de vida

Tamaño

Peso

Hecho

Nombre de animal

Nombre científico



Tipo

Dieta

Esperanza de vida

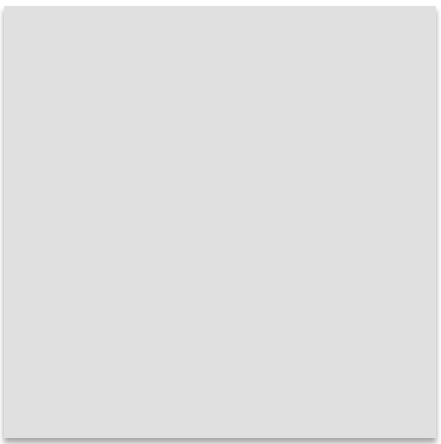
Tamaño

Peso

Hecho

Nombre de animal

Nombre científico



Tipo

Dieta

Esperanza de vida

Tamaño

Peso

Hecho

Nombre de animal

Nombre científico



Tipo

Dieta

Esperanza de vida

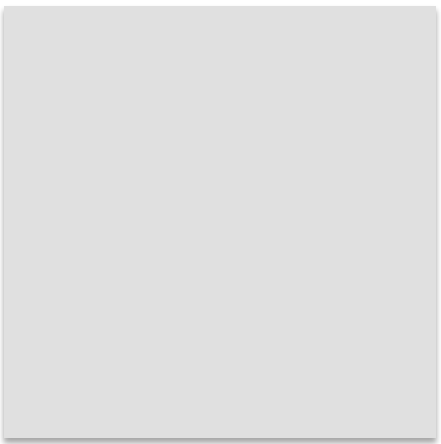
Tamaño

Peso

Hecho

Nombre de animal

Nombre científico



Tipo

Dieta

Esperanza de vida

Tamaño

Peso

Hecho
