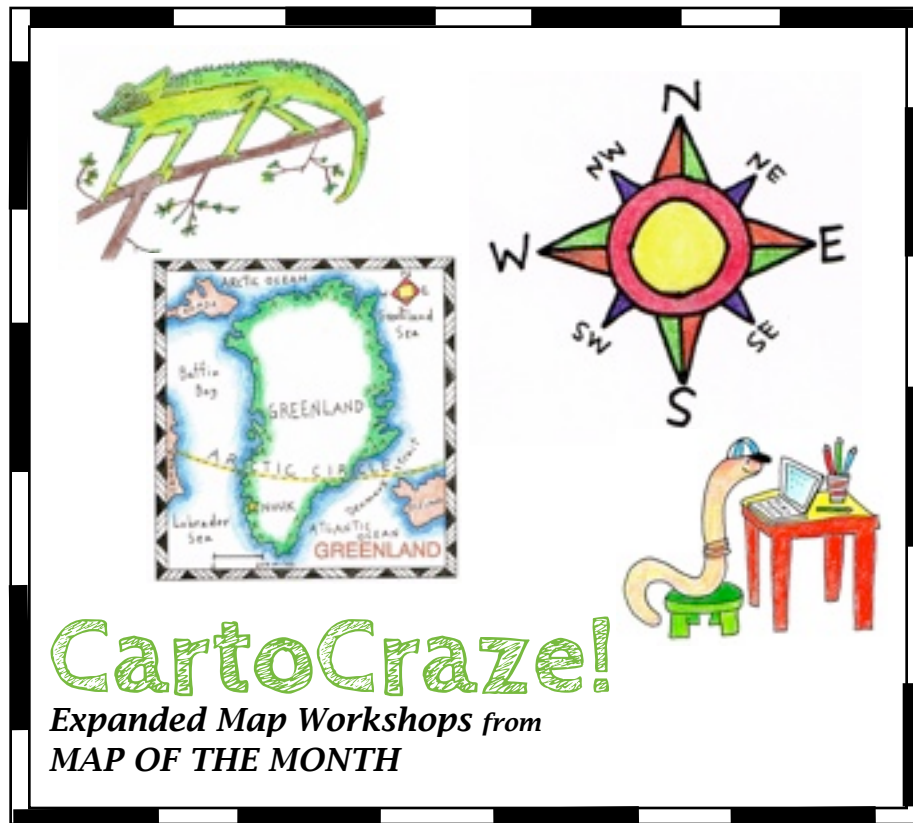


ANDES MOUNTAINS



CartoCraze!

Expanded Map Workshops

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MOUNTAINS



This vista of the beautiful Valley of the Ten Peaks, in the Canadian Rockies, is a fine example of why mountains inspire our sense of wonder!

People throughout human history have been fascinated with mountains. Their majesty and size fills us with wonder! Mountains have inspired religion and mythology. They are the setting for stories, tall tales and literature. Men and women have set out on adventures and accomplish epic feats in mountainous terrain. For the average person, they provide places for sport activities and vacations!

A mountain is one of our planet's major landforms. A group of mountains forms what is called a range. Mountains are areas of earth that rise up sharply in peaks or mounded shapes, with different elevations.

Mountains can be small or large, and are formed in several ways. When the tectonic plates of the earth's surface move towards each other and crumble, they caused the earth to rise in peaks. When this movement of plates allow the hot magma beneath the earth's surface to rise up, volcanic peaks are formed.

The height of mountains is measured from sea level. Low altitude mountains can support vegetation year round and the highest peaks have only snow and cold. Mountains are home to a wide variety of plants and animals, and humans have adapted to living around and on mountains.

MOUNTAIN TERMS AND THEIR DEFINITIONS



It is impossible to talk about MOUNTAINS, or learn about them, without knowing some terms that relate to MOUNTAINS.

Here are just a few terms!

Can you come up with other terms related to mountains??

RANGE A range is a group of mountains that are geographically related. Sometimes a large mountain range is made up of many smaller ranges.

SUMMIT The highest point of a mountain.

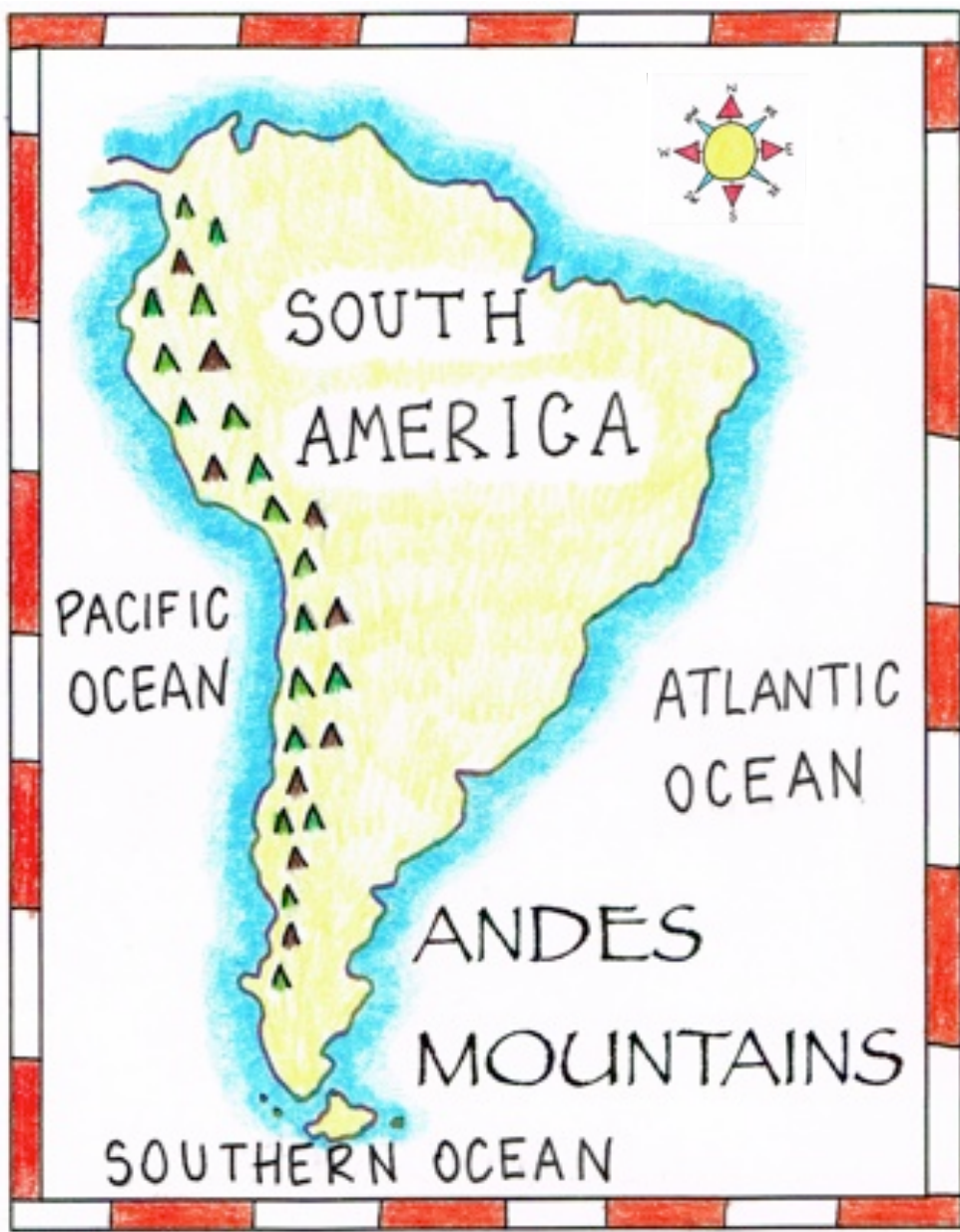
ELEVATION The elevation of a place is often described as its height above sea level. A mountain's elevation is determined by its highest point, or summit.

SEA LEVEL This is a base measurement for determining the height of mountains. The seas and oceans of the world vary slightly in height due to weather and geography so Sea Level is an average called "Local Mean Sea Level."

RIDGE A chain of mountains whose upper section form a continuous line over a distance.



The following presentation is an introduction to
THE ANDES MOUNTAINS
with guidelines about making a map,
as well as some information about its
geography, people and animals.



Make a compass rose for your map by following the directions [HERE](#)!



I am Professor Earthworm

ANDES MOUNTAINS

The Andes Mountains form the largest continental range of mountains in the world. They extend about 4,500 miles along the western coast of South America. The Andes Mountains go through seven countries in the continent of South America. Ranging from north to south they are Venezuela, Columbia, Ecuador, Peru, Bolivia, Chile, and Argentina.

The Andes Mountain range has many very high peaks. The only higher mountains in the world are the Himalayas in Asia. The highest mountain in the Andes range is Mount Aconcagua in Argentina: it measures almost 23,000 feet high, which is almost 4-1/2 miles high!

ANCIENT EMPIRE OF THE INCAS

A view of Machu Picchu, with neighboring peak
Huayna Picchu in the background

Photo: Alberana, Wikipedia Commons



The famous Inca Empire existed in the Andes Mountains, starting in the 1300s. This rich and interesting culture died out in the early 1600s due to internal strife, the arrival of the Spanish explorers as well as the diseases that they brought with them. There were many Incan cities in the vast empire: the main city was Cusco, now a city in the country of Peru.

Only fragments and artifacts of many of the Empire's cities remain. However, the one city named after the peak Machu Picchu is unique and is our link today to this distant civilization. Built around 1450, isolated high in the Andes, it was not destroyed with the fall of the empire, nor was it plundered or damaged by the Spanish explorers. Its remains were in very good condition when it was uncovered in the early 20th century. Researchers believe that this might have been a city that was a special destination for members of a royal class. Average people lived there to serve the nobility, to maintain the land and buildings and to grow crops and raise animals.

The original excavated site allows us to see how the people of this past world lived: how they built their homes and sacred buildings. The Incas had a refined knowledge of engineering and architecture that helped them to build a city on a mountainside. Their buildings were made without mortar: stones were carefully shaped to fit together with great precision. They built terraces to allow the land to be used and to allow rainwater to drain into the mountain rather than down the sides. In this way they avoided erosion and the city has remained secure.



Photo: Padowski, [Creative Commons](#)

**The remains of the ancient city of Machu Picchu,
with the peak Huayna Picchu on the left.**

**This special city is located between two peaks:
Machu Picchu and Huayna Picchu.**

The Incas were alert to the changes in the seasons, and celebrated the winter solstice. There is a special structure at Machu Picchu that was designed to capture the rays of the sun through an opening only at the solstice! Also, they had a large rock structure that was a kind of sundial, or solar calendar, and its shadow faced a certain way at the solstice.

Today many tourists visit the site of the city to experience the location where ancient people lived. So many people have come to see it that now the numbers allowed there each day are limited to be able to maintain the site.



View of the city of Machu Picchu in 1912 showing the original ruins after major clearing and before modern reconstruction.



Research to find out Who "discovered" Machu Picchu and How and When came to be found.

INCA PICTURES!



Viracocha was the Incan god of the Sun, creator of all things.

The angular block-like way the god is drawn is typical of the art of the Incas. In a way, it resembles the textile motifs in the piece at the right!

The Incas wove complex fabrics. This poncho, with an opening for the head to pass through, is formed of a pattern of repeating motifs.



Count how many different motifs there are in the textile piece shown above.

The Incas were very creative people and their images were used in ceramics, wood carvings, textiles and metalwork. **Research some Inca arts and crafts and make some drawings of your own inspired by them!**





Photo: Donkeet, Wikipedia Commons



What a soft beautiful coat!

ALPACA

The Alpaca is has been a completely domesticated species for thousands of years, and for this reason there are no known wild alpacas in the Andes Mountains. These animals have valuable coats whose fibers can be transformed into valuable fibers for weaving and knitting. Alpaca ranchers use shears to clip the coats from the alpacas.

These livestock animals resemble llamas but differ in that they are bred exclusively for their fibers. Llamas are used as pack animals.

Alpacas are gentle and intelligent creatures who seek companionship with their fellow herd members. They make humming sounds when happy. If they are separated from their friends, they become noticeably upset!

ANDES

PRINT THIS PAGE:
COLOR AND LABEL THE MAP

ADD A COMPASS ROSE
TO YOUR MAP! DO THE ACTIVITIES
AND COLOR THE ALPACA!

VOCABULARY WORDS

Turn your map over and
define these words!

domesticated

bray

shorn

grazing

fiber

roused

floppy

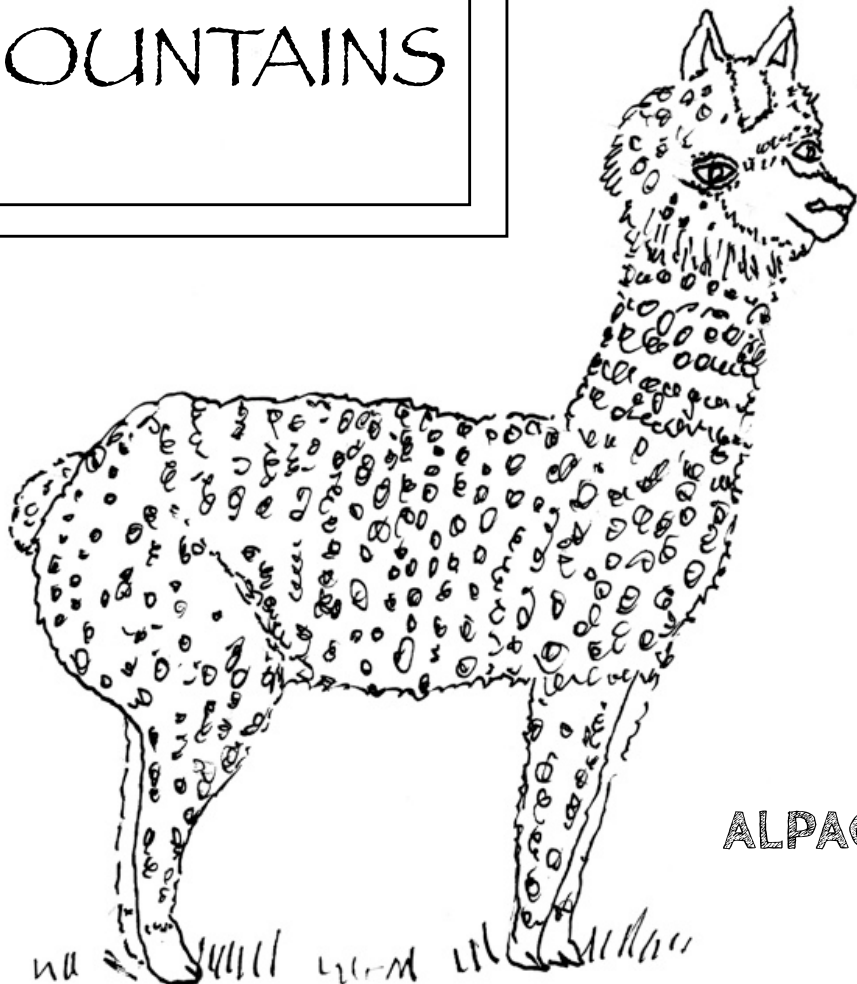
herd

curious

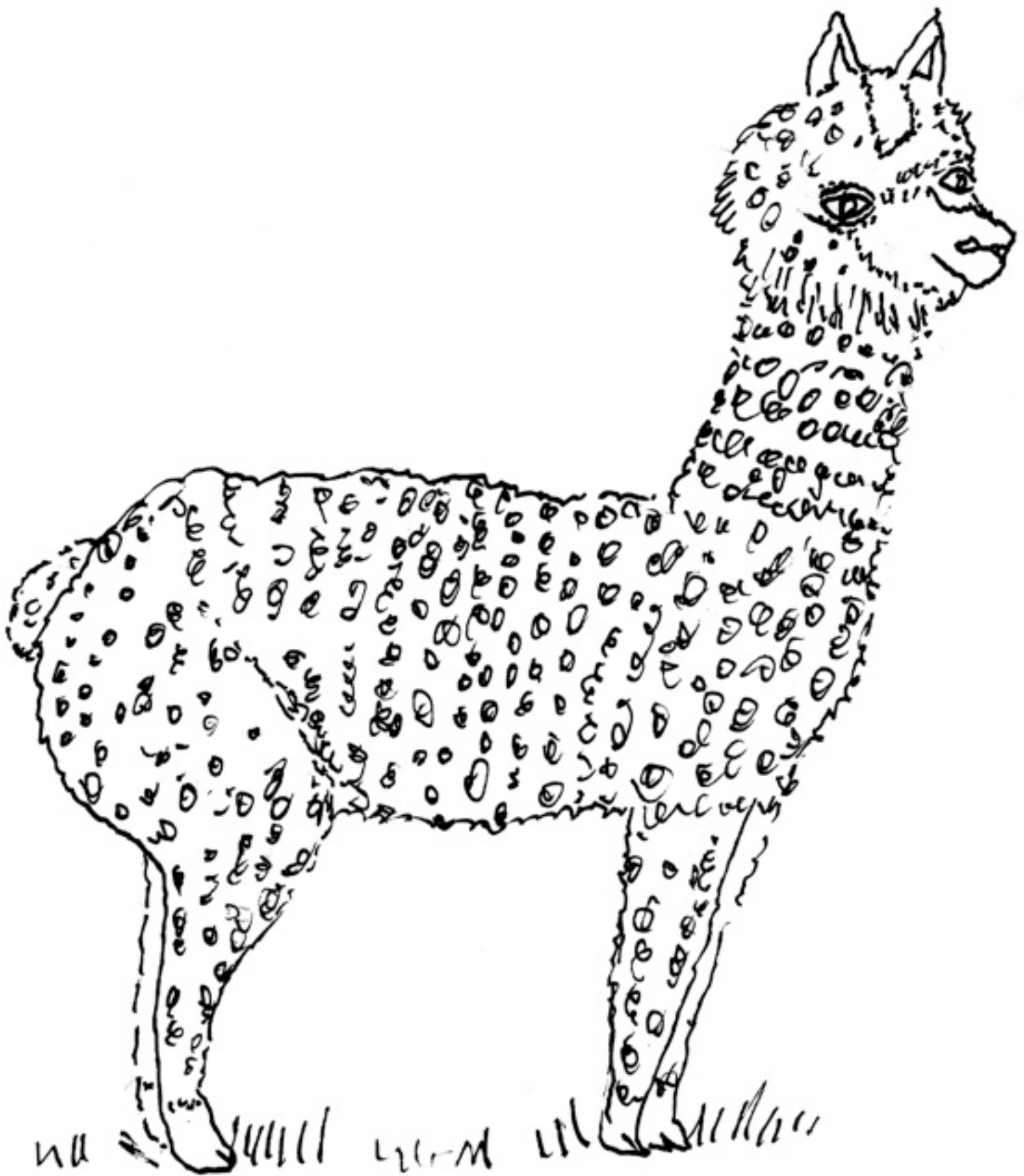
ANDES
MOUNTAINS

SPELLING WORDS

herd
gentle
curious
fiber
mohair
territorial
individual
gentle
fleece
humming



ALPACA



ALPACA



Quechua woman with her alpacas

Quechua is a language spoken by 8 to 10 million people in the Andes Mountains.

Quechua is an indigenous language of the native people, spoken in the countries of Argentina, Bolivia, Chile, Colombia, Ecuador, and Peru. The language varies slightly from country to country and region to region.

A Bolivian man and his alpaca





POTATO PATCH!

RESEARCHERS HAVE FOUND THAT OVER 200 DIFFERENT KINDS OF POTATOES WERE GROWN BY THE INCAS. TODAY MANY OF THESE VARIETIES ARE STILL BEING CULTIVATED.



WHAT OTHER CROPS DID THE INCA PEOPLE GROW IN THE ANDES TO SUPPORT THEMSELVES AND THEIR FAMILIES, AND PERHAPS TO SELL?





Photo: Edubucher, Wikipedia Commons

**There are not valleys without mountains,
There are not mountains without valleys....**

Here are two high peaks in the Andes that are part of Southern Peru.
Their names are Chachani and El Misti: both are over 19,000 feet
high. How many miles high are these peaks?

Study this beautiful photo of these two peaks and
make a list of as many features of the land and
sky that you can. After your list is complete,
write a poem that includes these features:

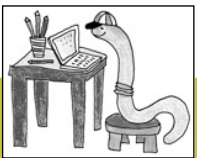
1. Include yourself as a person in the poem: where
are you, what are you doing, and how did you get
there?
2. Think of a creative way to combine all these
elements in your poem!
3. Title your poem in a way that reflects how you
feel about this photo.

**USE YOUR
“POETIC LICENSE!”**





Cuernos del Paine from Lake Pehoé in the Torres del Paine National Park in southern Chile. This park is one of the largest and most popular for tourists to visit in the country of Chile.



MATH MOMENTS!

150,000 people visit it every year. And 60% of this number are foreigners -- **how many people is that?**

The park was established in 1959: **how many years ago was that?**

In 1977 a famous Italian mountain climber named Guido Monzino donated hectares of land which he owned to the park. **How many acres of land is this?**

March and April are the months with the most rainfall in the park: **when there is 80 mm of rain, how many inches does this represents?**

The warmest month in the park is January and the temps do not rise above 16 degrees Celsius. **What temperature is this in Fahrenheit degrees?**



Guanaco which live in the park measure, on the average, between 1 and 1.2 meters at the shoulder and weigh about 90 kg. **How much is this in inches and pounds?**

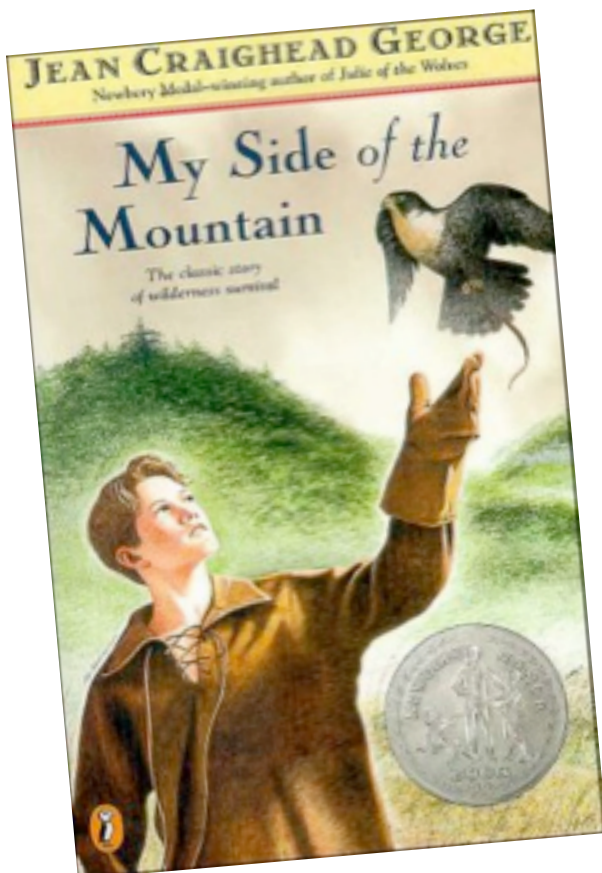
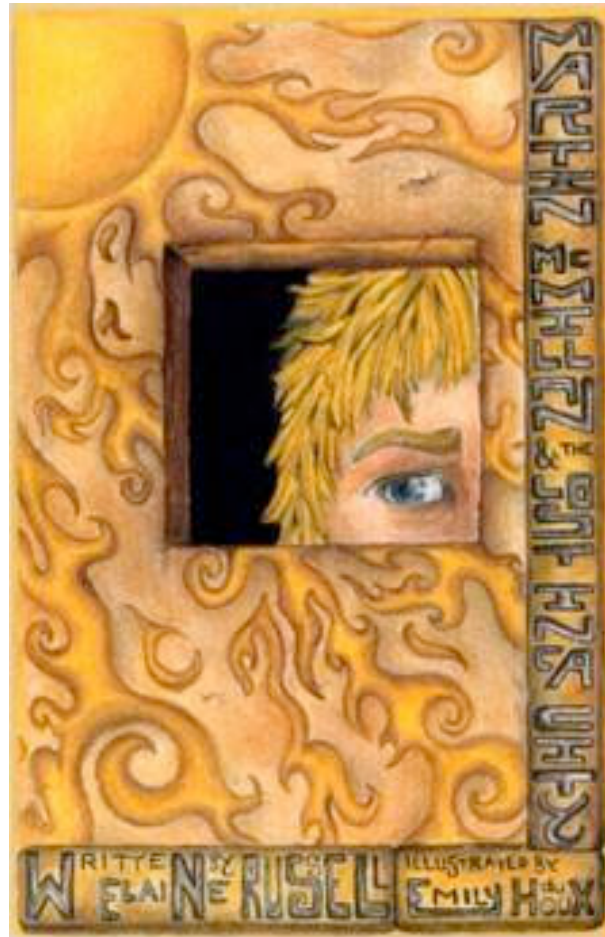


MOUNTAIN READING LIST!

Martin McMillan and the Lost Inca City

by Elaine Russell

Martin goes to Peru on an archaeological dig and brings his skateboard. He unexpectedly falls into an adventure with his new friend Isabel. They gain insights into the modern adult world, the Incan world, and their own world, while becoming immersed in a culture where meetings and clashes between richly diverse civilizations lead to a web of secret activity.



MY SIDE OF THE MOUNTAIN

by Jean Craighead George

Sam Gribble is unhappy living in New York City with his family, so he runs away to the Catskill Mountains to live in the wood, by himself. With only a penknife, a ball of cord, forty dollars, and some flint and steel, he intends to survive on his own.

Sam learns about courage, danger, and independence during his year in the wilderness, a year that changes his life forever.



HEIDI

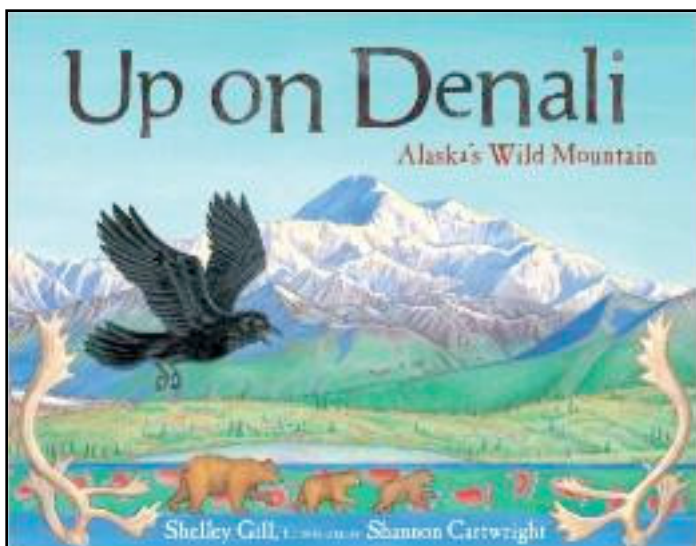
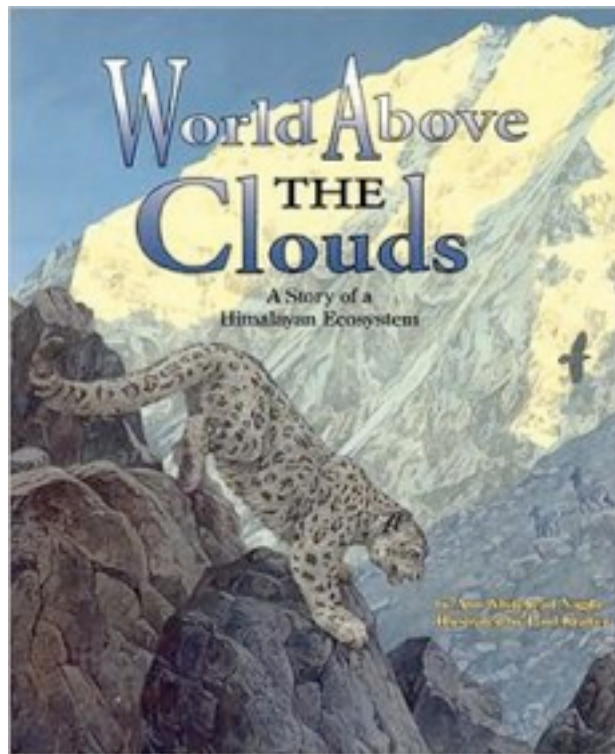
by Joanna Spyri

At the age of five, little orphan Heidi is sent to live with her grandfather in the Alps. Everyone in the village is afraid of him, but Heidi is fascinated by his long beard and bushy grey eyebrows. She loves her life in the mountains, playing in the sunshine and growing up amongst the goats and birds. But one terrible day, Heidi is collected by her aunt and is made to live with a new family in town. Heidi can't bear to be away from her grandfather; can she find a way back up the mountain, where she belongs?

World Above the Clouds: A Story of a Himalayan Ecosystem

by Ann Whitehead Nagda

High in the snow-covered Himalayan peaks of northern India, a snow leopard has left the care of her mother and now must hunt and fend for herself. In the first few days alone she competes for her meals with a red fox, a bearded vulture, and even nearby villagers.



UP ON DENALI

by Shelley Gill and Shannon Cartwright

From its origins as a trick played by Raven (the scientific version involving plate tectonics is also included) to the flora and fauna and human explorations, this colorful children's book reveals every facet of Alaska's great Denali Mountain. This book is full of fun and fascinating information.

MAP of the MONTH

WHAT'S HAPPENING IN THE RAINFOREST?

The tropical rainforests of South America are moist and warm, with little changes in the seasons. The high trees form a canopy where many animals, insects, trees and other plants have perfect living conditions. Together, in this system, all living things depend on each other for survival.

Recently, tropical rainforests have been shrinking in size, due to human developments and overcutting of forest wood. Once the forest is cut, it is hard to grow anything because the soil is very poor. Without the trees, the land becomes dry and hot. The animals and plants lose their ability to help each other live.

Today environmentalists are working very hard to preserve these precious areas and their inhabitants. Hopefully, land can be set aside for parks and wildlife refuges. People are trying to find resources within the rainforest and prevent it from being destroyed.

There are many other rainforest areas throughout the world. Try to learn more about how the animals and plants live together in these unique environments. Here are a few drawings of animals of the South American rainforest.



JAGUAR

SOUTH AMERICA

Welcome to South America! South America is the fourth largest continent and is located in the western hemisphere. The Atlantic Ocean is to the east of the continent, the Pacific is to the west.

South America has many prominent geographic features. The Amazon, the second largest river in the world, is located in the north. It has over 700 tributaries, or smaller rivers, that branch out from it. This large area of waterways is called the Amazon Basin.

There are also many mountains in South America. The Andes Mountain range stretches along the western coast of South America for about 5,000 miles. The peaks are very high in places and there are many volcanoes. In the northern area are the more rounded hills of the Guiana Highlands. To the east are the Brazilian Highlands which cover over 2,000 miles along the coast and extend into the interior of the continent.

Another highland area is known as Patagonia. It is located in the south, to the east of the Andes, on the long, narrow tip of the continent. It is a cool, dry plateau, with many lakes that were formed by glaciers thousands of years ago.

South America's long shape spans a large area. It is joined to the North American continent by the country of Panama. In the south, it is close to the continent of Antarctica. The southernmost tip of South America is called Cape Horn. In the age of exploration, navigators were forced to travel around Cape Horn to reach the Pacific Ocean. In the twentieth century, a canal was built through a narrow bridge of land in Panama so ships could avoid the long passage around the continent.



Map Activities

1. Label the oceans, seas and rivers. Color them blue.
2. Fill in the names of the countries and their capitals.
3. Mark some other major cities.
4. Lightly draw in the Andes.
5. Draw in the lines for the Equator and the Tropic of Capricorn.
6. With a green pencil, lightly shade in the areas which represent the rainforest. You may need to refer to a recent book or magazine.
7. With a light brown pencil, shade in the dry area called Patagonia.
8. Label Cape Horn.

EARTH WORM ASKS:

WHEN IT'S SUMMER IN NEW YORK CITY, WHY IS IT WINTER IN BUENOS AIRES?

CLIMATES

South America's size, location and topography cause it to have four climates. Climate refers to weather conditions in a region over a period of time. The northern area near the equator has very warm temperatures. At the other extreme, the southern tip is near the frigid South Pole. The highland areas of the Andes Mountains are much drier and colder than the lowlands that form the Amazon River Basin.

1. TROPICAL climate:
 - Similar temperatures all year long
 - Rainforest regions, much rainfall
 - Savannah regions, around rainforest edges, are grassy areas with dry seasons
2. TEMPERATE climate:
 - Seasonal changes, cooler winters
 - South of Tropic of Capricorn, includes the Andes in this latitude
3. ARID climate:
 - dry, desert-like
 - east of the Andes in Patagonia, coastal Peru, northeast Brazil
4. COLD climate:
 - in very high Andes, lower tip of the continent

Visit us at www.mapofthemoth.com

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INCA

