

“South American Adventures”

Lesson Plan No 1: Geography of South America: Andes

SUBJECTS COVERED

Mathematics, Social Studies, Music, and
Language Arts

GRADES

Fourth - Fifth

OBJECTIVES

Students will:

- become familiar with physical maps and their functions by reading a physical map of South America and creating a color map of a portion of the Andes; and
- identify key mountain peaks of the Andes range of South America; and
- use algebraic thinking to solve equations using positive and negative numbers.

MATERIALS

- Geography texts and library resources, crayons, pencils
- Physical map of South America, SouthAmericanAdventures: Andes sheet

DIRECTIONS

1. Briefly discuss the geology of the Andes and how this mountain range has helped shape South America. Discuss how the Andes range is comprised of several small mountain ranges. Show students a physical map of South America, and demonstrate how to read the map
— pointing out where the Andes Mountains are higher or lower, and where they are wider or narrower.
2. Have a student pass out the South American Adventures: Andes teacher-generated cooperative learning task sheet. Divide the class into 6 teams of 4, making sure there is a mix of high-level and low-level learners in each team. Allow students to choose a team name and create a team handshake, then instruct them to complete the sheet.
3. When time is called, allow teams to share their answers.
4. Assign students the Flags of South America sheet for homework. Instruct them to read the directions carefully before beginning the assignment, and sketch out their shapes in pencil before adding color.

EVALUATION/ASSESSMENT

A four-point rubric will be used to evaluate students' work during this lesson. See attached rubrics.

“South American Adventures”

Lesson Plan No 2: Geography of South America: Capitals

SUBJECTS COVERED

Mathematics, Social Studies, Music, and
Language Arts

GRADES

Fourth - Fifth

OBJECTIVES

Students will:

- become familiar with political maps and their functions by reading a political map of South America and creating a color map of countries in South America; and
- identify capital cities of South American countries and reviewing population data; and
- use algebraic thinking to solve equations using positive and negative numbers.

MATERIALS

- Geography texts and library resources, crayons, pencils
- Physical map of South America, [SouthAmericanAdventures:Capitals](#) sheet

DIRECTIONS

1. Show students a political map of Chile and identify its capital, Santiago. Ask students to list characteristics that lesson and allow them to review their team name and handshake, then instruct them to complete the sheet.
2. Tell students that 5 million people live in Chile’s capital, Santiago. Santiago is the sixth-largest city in South America. Ask them to estimate how many people live in our city, our state, our country.
3. Have a student pass out the [South American Adventures: Capitals](#) teacher-generated cooperative learning task sheet. Instruct the students to divide into their cooperative learning teams from the previous
4. Review the major mountain range in South America, (Andes), then tell students that the Andes may be broadly divided into three regional zones: the Northern Andes, which includes the mountains that run through Colombia, Venezuela, Ecuador, and parts of northern Peru; the Central Andes, which includes the part of the range that runs through Bolivia, the rest of Peru, northern Argentina, and Chile; and the Southern Andes, which includes the mountains that run through southern Chile and Argentina, through Patagonia, and down to the southernmost tip of South America, Tierra del Fuego.
5. Assign each team one of the Andes’ three regional zones: northern, central, and southern. (There will be two teams working on each zone). Explain that the groups will put together oral reports on their regional zones and then present them to the rest of the class. The reports must be five minutes in length and include these five criteria:
 - Information on the zone’s topography (Is this a wide section of the Andes? How high are the mountains? Etc.)
 - Typical climate by season
 - Vegetation
 - Animals found there
 - Unique geographic features (highest peaks, major rivers or volcanoes, archeological finds, etc.)

“South American Adventures”

Lesson Plan No 2: Geography of South America: Capitals

6. Talk about how best to divide the work among the group members. One easy way is to assign people specific topics to research and then present during the oral report. (For example, two people could be in charge of finding cultural information, one person in charge of determining climate, two people in charge of creating a physical map, and so on.)

7. Give students time in class and as a homework assignment to research and practice their presentations. Students may use travel magazines; geography texts, encyclopedias, and other library resources; and the Internet to conduct their research. The Web sites listed below have good information on the Andes.

8. Have the groups present their reports to the rest of the class. Allow time for students to ask the presenters questions after each report. Once all the reports have been given, discuss the differences and similarities among the regions.

EVALUATION/ ASSESSMENT

A four-point rubric will be used to evaluate students' work during this lesson. See attached rubric.

Additional Information

<http://www.blueplanetbiomes.org/andes.htm>

<http://www.wbu.com/chipperwoods/photos/andes.htm>

<http://www.jpl.nasa.gov/video/andes.cfm> <http://peruperu.com/andes-mountains.htm>

http://www.vivecuador.com/html2/eng/northern_andes.htm

http://www.vivecuador.com/html2/eng/southern_andes.htm

<http://www.chilediscover.com/info/andes.htm> <http://www.ddg.com/LIS/aurelia/titpag.htm>

<http://www.andes.org/bookmark.html>

<http://www.letus.northwestern.edu/projects/esp/top10/andespage/andes.html>

“South American Adventures”

Rubric

Math Skill Sheets

CATEGORY	4	3	2	1
mathematical reasoning	Uses complex and refined mathematical reasoning.	Uses effective mathematical reasoning.	Some evidence of mathematical reasoning.	Little evidence of mathematical reasoning.
mathematical errors	90-100% of the steps and solutions have no mathematical errors.	Almost all (85-89%) of the steps and solutions have no mathematical errors.	Most (75-84%) of the steps and solutions have no mathematical errors.	More than 75% of the steps and solutions have mathematical errors.
Neatness and organization	The work is presented in a neat, clear, organized fashion that is easy to read.	The work is presented in a neat and organized fashion that is usually easy to read.	The work is presented in an organized fashion but may be hard to read at times.	The work appears sloppy and unorganized. It is hard to know what information goes together.
Completion	All problems are completed.	All but 1 of the problems are completed.	All but 2 of the problems are completed.	Several of the problems are not completed.

“South American Adventures”

Rubric

Collaborative Work Skills: Teamwork

CATEGORY	4	3	2	1
Attitude	Never is publicly critical of the project or the work of others. Always has a positive attitude about the task(s).	Rarely is publicly critical of the project or the work of others. Often has a positive attitude about the task(s).	Occasionally is publicly critical of the project or the work of other members of the group. Usually has a positive attitude about the task(s).	Often is publicly critical of the project or the work of other members of the group. Often has a negative attitude about the task(s).
Problem-solving	Actively looks for and suggests solutions to problems.	Refines solutions suggested by others.	Does not suggest or refine solutions, but is willing to try out solutions suggested by others.	Does not try to solve problems or help others solve problems. Lets others do the work.
Pride	Work reflects this student's best efforts.	Work reflects a strong effort from this student.	Work reflects some effort from this student.	Work reflects very little effort on the part of this student.
Working with others	Almost always listens to, shares with, and supports the efforts of others. Tries to keep people working well together.	Usually listens to, shares with, and supports the efforts of others. Does not cause “waves” in the group.	Often listens to, shares with, and supports the efforts of others, but sometimes is not a good team member.	Rarely listens to, shares with, and supports the efforts of others. Often is not a good team player.

“South American Adventures”

Lesson Plans: Additional Information

Below is a map of South America. Use the map to answer the questions.



1. Which is the biggest country? _____
a) Colombia b) Uruguay c) Brazil d) Chile
2. Which country is east of Argentina? _____
a) Bolivia b) Uruguay c) Peru d) Chile
3. Which ocean is to the west of Chile? _____
a) Pacific Ocean b) Arctic Ocean c) Atlantic Ocean
4. To which country do the Galapagos Islands belong? _____
a) Peru b) Uruguay c) Paraguay d) Ecuador
5. Which country is south of Ecuador? _____
a) Bolivia b) Venezuela d) Guyana d) Suriname

“South American Adventures”
Lesson Plans: Additional Information

Below is a list of the countries on the continent of South America. Use the list to answer the questions. Remember: spelling counts!

Venezuela
Columbia
Guyana
French Guyana
Suriname
Argentina Chile
Brazil
Bolivia
Paraguay
Uruguay
Peru
Ecuador

1. Which country's name has the most letters? _____
2. Which country's name has the least letters? _____
3. How many countries begin with the letter P? _____
4. Write the countries that begin with the letter B:

5. Which country has three letter u's in its name? _____
6. How many countries have at least one letter I in their names? _____

“South American Adventures”

Lesson Plans: Additional Information

Below is a list of the countries on the continent of South America. Use the list to answer the questions. Remember: spelling counts!

Venezuela
Columbia
Guyana
French Guyana
Suriname
Argentina Chile
Brazil
Bolivia
Paraguay
Uruguay
Peru
Ecuador

Your job: put the countries into alphabetical order. Start with the country that begins with the letter A, then B. If there are two countries that start with letter B, look at the next letter to see which comes first in the alphabet! **J**

1. _____

8. _____

2. _____

9. _____

3. _____

10. _____

4. _____

11. _____

5. _____

12. _____

6. _____

13. _____

7. _____

“South American Adventures”

Lesson Plans: Additional Information

South American Adventures: Capitals

1. The capital of Ecuador is Quito, population 1.4 million. Color Ecuador yellow.
2. The capital of Argentina is Buenos Aires, population 2.8 million. Color Argentina orange.
3. The capital of Brazil is Brasilia, population 2.1 million. Color Brazil red.
4. The capital of Venezuela is Caracas, population 1.9 million. Color Venezuela blue.
5. The capital of Peru is Lima, population 6.9 million. Color Peru green.



6. The capital of Paraguay is Asuncion, population 1.3 million. Color Paraguay brown.
7. The capital of Chile is Santiago, population 1 million. Color Chile purple.
8. The capital of Colombia is Bogota, population 6.4 million. Color Colombia black.
9. What is the population of Lima minus Asuncion? _____ million
10. What is the population of Santiago plus Caracas? _____ million
11. What is the population of Buenos Aires plus Quito? _____ million

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“South American Adventures”

Lesson Plans: Additional Information

South American Adventures: Capitals (Continued from previous page)

12. Which capital has the largest population? _____

13. Which capital has the smallest population? _____

14. List the populations in order from largest to smallest:

Population (<i>million</i>)	Capital	Country

15. How many countries are there on the continent of South America? _____

16. Name the South American countries that are not listed in the chart above:

Extra Credit:

What is the total population of all the capitals added together?

_____ million

Super Extra Credit:

What is the mean population? (divide total population by 8)

_____ million

“South American Adventures”

Lesson Plans: Additional Information

South American Adventures: Andes

The Andes Mountains are the principal mountains of South America, and include some of the world’s highest peaks. The Andes are the longest system of high mountains on earth. The mountains reach into 7 countries: Venezuela, Colombia, Ecuador, Peru, Bolivia, Chile, and Argentina.

1. Aconcagua is 6,900 meters tall. It is in Argentina. Color Argentina yellow.

2. El Toro is 5,800 meters tall. It is in Peru. Color Peru orange.

3. Pico Bolivar is 4,900 meters tall. It is in Venezuela. Color Venezuela red.

4. Monte Darwin is 2,500 meters tall. It is in Chile. Color Chile blue.

5. Ancohuma is 6,400 meters tall. It is in Bolivia. Color Bolivia green.

6. Galeras is 4,200 meters tall. It is in Colombia. Color Colombia brown.

7. Cavambe is 5,700 meters tall. It is in Ecuador. Color Ecuador purple.



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“South American Adventures”

Lesson Plans: Additional Information

South American Adventures: Andes (Continued from previous page)

8. What is the height of Aconcagua plus El Toro? _____ meters
9. What is the height of Galeras plus Pico Bolivar? _____ meters
10. What is the height of Cavambe minus Monte Darwin? _____ meters
11. What is the height of Ancohuma minus El Toro? _____ meters
12. Which country’s peak is the shortest? _____
13. Which country’s peak is the tallest? _____
14. List the peak heights in order from shortest to tallest:

Height (m)	Peak	Country

15. What is the mode (middle)? _____ meters

Extra Credit:

What is the total height of all the peaks added together?

_____ meters

Super Extra Credit:

What is the mean height? (divide total height by 7)

_____ meters

“South American Adventures”

Lesson Plans: Additional Information

South American Adventures: Ecuador

La Sierra means “of the sierra”. The area known as *La Sierra* is the Andes Mountain range, which runs like a vertical stripe through the center of the country. Draw a thick vertical stripe through the middle of Ecuador with brown.

El Oriente means “the east”. The area known as *El Oriente* contains the Amazon rainforest in the eastern part of the country. Color the right side of Ecuador green.

La Costa means “of the coast”. The area known as *La Costa* is the low-lying western part of the country. Its coast touches the Pacific Ocean. Color the coast of Ecuador red.



The Galapagos Islands, a chain of islands west of the mainland, also belongs to Ecuador. Color the *Galapagos Islands* yellow.

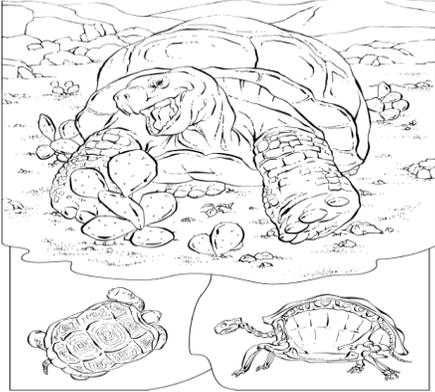
The **Pacific Ocean** surrounds the Galapagos Islands. Color the *Pacific Ocean* blue.

1. What is the western part of Ecuador called? _____
2. What is the eastern part of Ecuador called? _____
3. What is the middle part of Ecuador called? _____
4. What ocean touches Ecuador’s coast? _____
5. Name the islands that belong to Ecuador: _____
6. What does La Costa mean? _____
7. What does El Oriente mean? _____
8. What does La Sierra mean? _____

“South American Adventures”

Lesson Plans: Additional Information

Circle Geometry: the Galapagos Tortoise



The Galapagos Islands are volcanic islands on the equator, off the coast of Ecuador. Because the islands were never connected to the mainland, many species of plants and animals are unique to the Galapagos.

The Galapagos Giant Tortoise eats great quantities of grass, leaves and cactus pads. There are only about 15,000 tortoises left in Galapagos, so there is plenty to eat.

Calculate the area each tortoise eats by FIRST, multiplying the radius by itself, and THEN multiplying that answer by 3.14.

1. The radius is 2 m. What is the area?

Multiply: radius x radius = _____ multiplied by 3.14 = _____ sq m

2. The radius is 3 m. What is the area?

Multiply: radius x radius = _____ multiplied by 3.14 = _____ sq m

3. The radius is 4 m. What is the area?

Multiply: radius x radius = _____ multiplied by 3.14 = _____ sq m

4. The radius is 5 m. What is the area?

Multiply: radius x radius = _____ multiplied by 3.14 = _____ sq m

5. The radius is 6 m. What is the area?

Multiply: radius x radius = _____ multiplied by 3.14 = _____ sq m

“South American Adventures”

Lesson Plans: Additional Information

South American Adventures: Bolivia



Bolivia is named after **Simon Bolivar**, a man who fought for the independence of several South American countries. Bolivia is surrounded by land; however, it does have access to the Atlantic via the Paraguay River.

Lake Titicaca is located on the border of Bolivia and **Peru**. Color the lake blue.

Going south from Lake Titicaca towards Argentina is the **Altiplano**, a high plateau that is part of the **Andes** mountain range. Color the *Altiplano* brown.

Going north-east from Lake Titicaca towards Brazil is the **Amazon rainforest**. Color the *Amazon rainforest* green.

Going south-east along the border of Paraguay and Brazil is the **Paraguay River**. The river gives Bolivia access to the Atlantic Ocean. Trace the *Paraguay River* with purple.

Brazil borders Bolivia on the north and east. Color Brazil yellow.

Peru and **Chile** border Bolivia on the west. Color Peru and Chile orange.

Paraguay and **Argentina** border Bolivia to the south. Color Paraguay and Argentina red.

1. What river gives Bolivia access to the Atlantic Ocean? _____
2. The Altiplano is part of which mountain range? _____
3. Which countries border Bolivia to the west? _____
4. Which countries border Bolivia to the south? _____