What’s My Piece of the Pie?
Students learn geographic information about South America by creating circle graphs.

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Grade Level
6-7
Duration
2 class periods

National Geography Standards

ELEMENT ONE: THE WORLD IN SPATIAL TERMS
1. How to use maps and other geographic representations, tools, and technologies to acquire, process, and report information from a spatial perspective.

ELEMENT TWO: PLACES AND REGIONS
4. The physical and human characteristics of places.

Arizona Geography Strand

Grade 6-7
CONCEPT 1
World in Spatial Terms
PO 1 Construct maps, chart and graphs to display geographic information.
PO 3 Interpret maps, charts and geographic databases using geographic information.

Grade 7
CONCEPT 2
Places and Regions
PO 1 Describe the human and physical characteristics of places and regions.

Other Arizona Standards

Mathematics Common Core Standards
Ratios of Proportional Relationships
6.RP.3. Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.
  c. Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.
7.RP.3. Use proportional relationships to solve multistep ratio and percent problems.

The Number System
6.NS.2. Fluently divide multi-digit numbers using the standard algorithm.
7.NS.3. Solve real-world and mathematical problems involving the four operations with rational numbers

Standards for Mathematical Practice

• Teacher Key--South America Land Area Table
• Teacher Key--South America Population Table
• Table Rubric
• Graph Rubric
• Student Practice Sheet
• Student Assessment
• Transparency of Student Practice Sheet
• Answer Key—Practice Sheet Multiple Choice
• Answer Key—Student Assessment Multiple Choice
• Colored pencils, crayons, or markers
• Calculators
• Student Sample of a Circle Graph

Overview
Graphs are a great way for students to visualize geographic information. Circle or pie graphs help students visualize information other types of graphs cannot show.

Purpose
In this lesson, students will construct and analyze pie graphs to show the breakdown of population and the amount of land area on the continent of South America.

Materials
• South America Data Table
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Objectives
The student will be able to:

1. Construct a data table showing the land area and population of the countries of South America.

2. Construct a pie graph showing the land area and population of the countries of South America.

3. Interpret and analyze the table and pie graph.

Procedures
Students should be able to determine percentages prior to this lesson.

SESSION ONE
1. Students, with teacher modeling using a transparency of the Student Practice Sheet, will transfer data from South America Data Chart on land area onto the blank data chart on their practice sheets.

2. Students will title their data tables. Explain that data tables need a title so that other people know what the graph is showing.

3. Students will total the land areas and record it on their data tables. Calculators can be used to do this function.

4. Students, with teacher guidance again, will figure the percentage of land area for each country and record it on their data tables. This is done by dividing each country’s area by the total and rounding to the nearest hundredth. For those less than 1%, assign the value of 1%. Use calculators to perform this task of dividing.

5. Students will label their circle graph. Explain that graphs need a title so that other people know what it is showing.

6. Students, with teacher guidance, will construct their graphs. Divide the blank circle graph into 10 sections. Each section equals 10%. They will color the appropriate sections and parts of sections to represent each country’s land area in South America. Explain that they must make a key below their graphs so that people will know what each color represents. Hint: Tell students to begin graphing the larger amounts first and work down as this will allow for enough space on the graph and avoid confusion.

7. Students will answer the multiple choice questions on their practice sheets about how to make a table and graph, and what the information on the table and graph represents.

SESSION TWO
1. Go over the practice sheets and clarify any questions on how to make a table and a graph.

2. Students will now create their own tables and circle graphs to show the population of South America by repeating Steps 1-7. This time, there should be no teacher guidance.

Assessment
Students will use the data from the South America Data Chart to create a table and circle graph showing the breakdown of South America’s population. They will then answer the multiple choice questions about how the table and circle graph are made and questions that interpret and analyze the information on the table and the graph. That table and graph can be graded using the rubric provided.

Mastery for geography is a 3 or higher on the rubrics for the table and graph and one or both questions correct (questions 4 or 5). Mastery for math is a 3 or higher on the rubrics and three
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or more questions correct (questions 1, 2, 3, or 5).

Extensions

Students could graph the GDP of South America.
Students could gather information on another continent or region and graph it.

Sources

The World Factbook: www.bartleby.com