Paint My Counties: Map Coloring the Counties of AZ

Students learn the counties of Arizona and writing and math too!

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Grade Level 4
4-5

Duration
2 class periods

Overview

In 1983, Arizona went from 14 counties to 15 with the addition of La Paz County. Map coloring is connected to graph theory in mathematics. Combining these geography facts with math skills gives students a chance to use logic to learn the counties.

Purpose

Students will become familiar with the 15 Arizona counties while engaging in a problem-solving math activity.

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.

Arizona Social Studies Standard

Grade 4
Strand 4 Geography
Concept 1 The World in Spatial Terms
PO 1 Use different types of maps to solve problems (e.g. road maps distance, resource maps-products, historical maps-boundaries, thematic maps-climates).

Grade 5
Strand 4 Geography
Concept 1 The World in Spatial Terms
PO 6 Construct maps, charts, and graphs to display geographic information.

Arizona Language Arts Standards

READING STANDARD
Grades 4 and 5
Strand 1 Reading Process
Concept 4 Vocabulary
PO 5 Determine the meanings, pronunciations, syllabication, synonyms, antonyms, and parts of speech of words by using a variety of reference aids, including dictionaries, thesauri, glossaries, and CD-ROM and Internet when available.

Strand 3 Comprehending Informational Text
Concept 3 Persuasive Text
PO 1 Determine the author's position regarding a particular idea, subject, concept, or object

WRITING STANDARD
Grades 4 and 5
Strand 2 Writing Elements
Concept 1 Ideas & Content
PO 3 Use relevant details to provide adequate support for the ideas.

Concept 2 Organization
PO 3 Place details appropriately to support the main idea.

Strand 3 Writing Applications
Concept 4 Persuasive
PO 1 Write persuasive text (e.g., advertisements, paragraphs) that attempts to influence the reader.

Materials

- Practice Maps of Arizona Counties (4 maps on one page) with county names on them. One per student.
- Colored markers, pencils, or crayons.
- 8 1/2 x 11 Map of Arizona Counties with county names on them to be used as a visual for their presentations; one per person or group.
- 3 blank maps of Arizona Counties for each student. One for pretest, one for posttest, and one to use as a study sheet.
- Overhead or large map of Arizona for students to copy the counties of Arizona.
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Objectives

The student will be able to:
- identify the 15 counties of Arizona.
- present a persuasive argument to the class.
- use logic to solve a math problem.

Procedures

SESSION ONE
Set: How many counties are there in Arizona?

1. Ask the students to locate and name the 15 counties of Arizona on a blank copy of the Counties of Arizona Map as a pretest.

2. Distribute Arizona Counties Map worksheets to each student. Students should identify the counties. Give each student a list of the counties. Write each county on a map using an overhead projector. This will be their study sheet.

3. Challenge the students to color their maps using the least amount of colors possible. They should not have any counties that are the same color that border or touch one another. They are to use their practice maps to do this. They may work as individuals, pairs, or as a team. Encourage them to say the counties as much as possible. (Students should find that only 4 colors are needed.) Students select a coloring map for the next day's activity.

4. Students' Mission: "Your school Student Council wants to purchase paints to paint the state of Arizona and its counties on the school grounds. In order to save money, it wants to purchase as few colors as possible. You may not have any counties be the same color that border or touch one another along the side. The paint (one bucket per county) prices are: $3.00 one color, $6.00 second color, $9.00 third color, $12.00 fourth color, $15.00 fifth color, $18.00 sixth color. You may choose the colors. The lowest cost wins the contract. How low can you go?"

SESSION TWO
Students should have some experience in writing a persuasive paragraph.

1. Students review their maps made the previous day.

2. When they have completed their calculations, they are to write a contract stating the color and cost of each county. They should write at least a paragraph to persuade the student council why they should use their services.

3. Students should present their results to the class. The class will decide which design to suggest to the student council.

4. Ask students to name and locate the counties for a post-test using a blank map of the Counties of Arizona.

Assessment

Writing: Use the Six-Trait Writing Rubric for the presentation assessing Ideas/Content, Organization, and Voice. A 4 or higher will be considered mastery on the rubric.

Reading: Have the students assess the persuasive point of view for each presentation. There should be at least 4 points of persuasion. Three accurate points will be considered mastery.

Geography: Give the students a blank map of Arizona and have them write the name of each county in its space. Students should be able to identify at least 80% of the counties.

Extensions

- Students could color a map of the 48 contiguous states of the United States in the same manner as the logic problem.
- Students could choose another state and map color its counties.
- Make or order templates from Rand McNally, purchase paint, and have the winning proposal painted at your school!

Sources

Map Coloring Websites:

Francis, Richard. The Mathematician's Coloring Book. 08892652.

Rand McNally website for purchasing playground maps: http://www.randmcnally.com/

ARIZONA GEOGRAPHIC ALLIANCE