# ELL Adaptation For

## Paint My Counties: Map Coloring the Counties of AZ

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

<table>
<thead>
<tr>
<th>Author</th>
<th>Author Sara Jenkins (Lesson adapted from Rutgers Discrete Math)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade Level</td>
<td>4 -5</td>
</tr>
<tr>
<td>Duration</td>
<td>2 class periods</td>
</tr>
<tr>
<td>ELL Adaptation by</td>
<td>Denise Dorn</td>
</tr>
</tbody>
</table>

## SIOP Elements

<table>
<thead>
<tr>
<th>Preparation</th>
<th>Scaffolding</th>
<th>Grouping Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adapting content</td>
<td>Guiding practice</td>
<td>Whole class</td>
</tr>
<tr>
<td>Linking to background</td>
<td></td>
<td>Small groups</td>
</tr>
<tr>
<td>Linking to past learning</td>
<td></td>
<td>Partners</td>
</tr>
<tr>
<td>Strategies used</td>
<td>Comprehensible input</td>
<td>Independent</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Integrating Processes</th>
<th>Application</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading</td>
<td>Hands on</td>
<td>Individual</td>
</tr>
<tr>
<td>Writing</td>
<td>Meaningful</td>
<td>Group</td>
</tr>
<tr>
<td>Speaking</td>
<td>Linked to objectives</td>
<td>Written</td>
</tr>
<tr>
<td>Listening</td>
<td>Promotes engagement</td>
<td>Oral</td>
</tr>
</tbody>
</table>

## TESOL Standard(s)

Goal 2, Standard 3

To use English to achieve academically in all content areas: Students will use appropriate learning strategies to construct and apply academic knowledge.

## Arizona ELL I Reading Standard

Identify and manipulate the sounds of speech.  
**Beginning:** Produce English graphemes that correspond to graphemes the student already hears and produces in his or her first language (e.g., for students whose first language is Spanish, consonant sounds such as k, l, m, n, p).  
**Intermediate:** Produce some English graphemes that do not correspond to graphemes the student already hears and produces in his or her first language, including long and short vowels (e.g., for students whose first language is Spanish,)

## Arizona ELL III Reading Standard

Identify and manipulate the sounds of speech:  
**Beginning:** Recognize, decode, and correctly pronounce most English phonemes while reading aloud.  
**Intermediate:** Recognize most common English morphemes in phrases and simple sentences (e.g., basic syllabication rules and phonics).
Paint My Counties

sounds such as th, ll, b)

### Arizona ELL I Writing Standard

**Writing Applications:** The student will express in writing his or her own thinking and ideas.

**Beginning:** The student will respond with drawings to stories dramatized or contextualized by the teacher.

**Intermediate:** The student will relate messages by drawing, by using imitative writing, by dictating to an adult, or by writing key, self-selected words.

### Arizona ELL III Writing Standard

**Writing Applications:** The student will express in writing his or her own thinking and ideas.

**Beginning:** The student will use the writing process to write short, single paragraph personal narratives or friendly letters distinguished by topics and ideas that are broad and simplistic.

**Intermediate:** The student will use the writing process to create essays and formal communications of up to 2 paragraphs in various genres (expository, narrative, research) distinguished by identifiable main ideas that contains general supporting details.

### 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.

### Key Vocabulary

- **County** – An administrative district of a state
- **Border** – A political boundary
- **Paint** – A mixture of pigment and solution (noun); to apply a mixture of pigment and solution to a surface (verb)
- **Touch** – To bring something into contact with something else
- **Purchase** – To buy

### Additional Materials Needed for ELL

- Arizona County Names sheet
- Arizona Playground Map Cost Estimation Sheet
- Vocabulary Cards

### Procedures

Note: As you are doing this lesson, try to use the vocabulary of standardized tests, i.e., least and fewest so students become familiar with them.

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**SESSION ONE**

1. Write content standard on the board: “Learn names and locations of the 15 counties of Arizona.” Read this to students.

2. Write the language standard on the boards: “Present a persuasive argument to the class.” Read this to students.

3. Write the five key vocabulary words on the classroom board or overhead. Ask students if they can provide a definition for each word. For each word, record correct definitions. *(Preparation: Link to past learning)*

4. Ask students if they know how many counties are in Arizona. (15). *(Preparation: Link to past learning)*

5. Ask students if they know any county names in Arizona. Record these on the classroom board. Finish the list of counties and label the list: “Word Bank.” Have students orally rehearse each county name. *(Apache, Cochise, Coconino, Gila, Graham, Greenlee, La Paz, Maricopa, Mohave, Navajo, Pima, Pinal, Santa Cruz, Yavapai, Yuma)* *(Preparation: Link to past learning; Integrating Processes: Speaking, listening)*

6. Ask the students to locate and label the 15 counties of Arizona on a blank copy of the Counties of Arizona Map as a pretest. Tell students they may use the word bank on the classroom board or overhead. *(You can have the class grade this pre-test by projecting an overhead of the Arizona map that had the counties all ready shown).*

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**ELL Adaptation**

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ARIZONA
GEORGRAPHIC ALLIANCE
Paint My Counties

7. Put student in small groups. Give each group colored pencils or markers. Distribute Arizona Counties Map with 4 Arizona maps to the page to each student. (Grouping: Small groups).

8. Use the Internet to locate and project an example of a playground map, as students look at the image, read the Student Mission statement to the class.

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?”
Tell students they will work on a cost estimate tomorrow. (Application: Promotes engagement)

9. Tell students that before they make a cost estimation, they need to try and color their maps using the least or fewest amount of colors possible. They should not have any counties that are the same color that border or touch one another. You should use an overhead of the Arizona Counties Map (blank or labeled) to demonstrate what you mean by not coloring two counties that share a border the same color. They are to use their practice maps to do this. They should work in their group, but each individual must attempt to use as few colors as possible. Tell students to read and repeat each county name as they color the county. Tell students to help each group member pronounce the names correctly. (Students should find that only 4 colors are needed.) (Application: Hands on).

10. Each group of students will choose one colored map for the next day’s activity. They should choose the map with the fewest colors used and has colors that they all like. This choice is the group’s ticket out the door at the end of the period. (Application: Promotes engagement).

11. When a group of students has completed the coloring activity, give each child a blank county worksheet and printed list of the county names so they can continue to practice locating and naming the counties. You can assign additional practice as homework, or you can just let this be an in class activity. (Scaffolding: Independent practice) (Application: Lined to objectives).

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

1. Write content standard on the board: “Learn names and locations of the 15 counties of Arizona.” Read this to students.

2. Write the language standard on the boards: “Present a persuasive argument to the class.” Read this to students.

3. As a whole class, but seated with their group, have volunteers come to the overhead to locate and/or label county map. Allow student group members to prompt each other with answers before the student comes to the overhead. You can vary the task (identify or label) so that Beginning ELL students can provide answers at the oral level. Brainstorm with the whole class that this is a contest and how you would write the paragraph so that yours is chosen by the student council. Discuss words that might persuade the student council to choose you for the project. Write the words on chart paper so students have them to refer to as they write. (Preparation: Strategy; Scaffolding: Guided practice).

4. Distribute an Arizona Playground Map Cost Estimate Sheet to each group. Tell students to read the “Mission Statement”. Tell students to discuss in their groups how they can use the statement to help calculate the cost of making a playground map. After a few minutes, have each group share the strategy they will use. (Scaffolding: Modeling; Integrating Processes: Reading, Speaking, Listening).

5. Give groups time to work on calculations. Tell groups that you want them to check their math before they move to the next step. When they have completed their calculations, they are to write a contract stating the colors they will use and the cost of the project. As a group, they should write at least a paragraph to persuade the student council why they should use their services. Tell groups that their proposal will be graded using the Six-Trait Writing Rubric for the presentation assessing Ideas/Content, Organization, and Voice. (Application: Linked to objectives).

7. When a group completes their proposal, provide additional copies of the county map so students can continue to practice naming and locating the counties. Have group members work in pairs to rehearse/quiz each other on the names and locations of the counties. (Preparation: Strategy)
8. When all groups have completed their calculations and proposals, a student from each group should present their results to the class. The class will decide which design to suggest to the student council.

9. Ask students to name and locate the counties for a post-test using a blank map of the Counties of Arizona. (Application: Linked to objectives).

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.
- **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. ELL students can be assessed orally or can use a numbered word bank, they would put the correct number in each county.

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

Use the Internet to show students and example of a playground map. Possible websites include [http://www.et-group.com/maps.htm](http://www.et-group.com/maps.htm), [www.telecompioneers.org/projects](http://www.telecompioneers.org/projects), [www.gymgeography.com/playground/pictures.htm](http://www.gymgeography.com/playground/pictures.htm) or use any search engine to find examples.