



Racing Around Arizona: Using an Arizona Map to Create a Bicycle Tour Route in Arizona

Author Wayne Gorry
Grade Level 2-3
Duration 2 class periods

National Standards

GEOGRAPHY

Element 1: The World in Spatial Terms.

1. How to use maps and other geographic representations, geospatial technologies, and spatial thinking to understand and communicate information

AZ Standards

MATHEMATICS

Number and Operations in Base Ten

2.NBT.B.5 Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

2.NBT.B.6 Add up to three two-digit numbers using strategies based on place value and properties of operations

2.NBT.B.7 Demonstrate understanding of addition and subtraction within 1000, connecting objects or drawings to strategies based on place value (including multiples of 10), properties of operations, and/or the relationship between

addition and subtraction. Relate the strategy to a written form.

3.NBT.A.2 Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Measurement and Data

2.MD.A.1 Measure the length of an object by selecting and using appropriate tools (e.g., ruler, meter stick, yardstick, measuring tape).

3.MD.B.4 Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch to the nearest quarter-inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.

Arizona Social Science Standards

GEOGRAPHY

The use of geographic representations and tools help individuals understand their world.

2.G1.1 Use and construct maps, graphs, and other geographic representations of familiar and unfamiliar places in the world; and locate physical and human features.

3.G1.1 Use and construct maps and graphs to represent changes in Arizona over time.

Examining human population and movement helps individuals understand past, present, and future conditions on Earth's surface.

2.G3.1 Explain why and how people, goods, and ideas move from place to place.

Racing Around Arizona: Using an Arizona Map to Create a Bicycle Tour

Overview

This lesson uses the Tour de France bicycle race to interest students in creating a tour route in the state of Arizona. Using the Arizona Roads map students will create a route that could be raced over a one-week period. Students will select the route, calculate its distance, record the information on a table and highlight the route on their maps. Students will practice addition skills with two and three digit numbers and create word problems that can be solved using their map and table.

Purpose

The purpose of this lesson is to introduce students to some of the basic uses of road maps: location of places, route finding and calculating distances to destinations. The students should also gain a greater appreciation for their personal location within the state of Arizona. In this lesson, students will have an opportunity to practice math skills in a real-world setting.

Materials

- Arizona Roads map
- Tour de France Bicycle Route map <https://www.criterium-du-dauphine.fr/en/>
- Guidelines for Route Selection
- Proposed Route for Tour de Arizona
- Checklist for Evaluating the Proposed Route for Tour de Arizona
- Using Your Table to Solve Problems
- Assessment for Racing Across Arizona and Answer Key
- Highlighters
- Projection device

Objectives

The student will be able to:

1. Locate cities and towns, plan a trip connecting various towns, and calculate distances for the trip when given the Arizona Roads map.
2. Write and solve word problems using two and three digits after compiling their trips based on the Arizona Roads map.

Procedures

1. Project the map of the Route of the Tour de France bicycle race and share some basic information about the race. A map of the route can be found at: <https://www.criterium-du-dauphine.fr/en/> Racers travel about 2000 miles during the three-week race. Each stage takes the racers from one city in France to another. A typical stage is about 100 or more miles in length.
2. Distribute the Arizona Roads map and show the students how to locate a city on the map using the grid system. Demonstrate how to use the grid coordinates by looking along the top/bottom and sides of the map for the appropriate number or letter. Have them find a few cities to check their understanding of this step.
3. Distribute the Guidelines for Route Selection and Proposed Route for Tour de Arizona worksheets. Have the students work in pairs to plan a 7-day race using the guidelines and the table. The teacher should model the steps of selecting the route for the first day and filling in a projected chart with the appropriate information. Remind students that each cell of the table should be completed to provide details of their tour. For the start and finish for each day, students should provide the grid location. Students will then use the map to calculate the mileage for each day and then add it to the previous day's total to come up with the cumulative mileage.
4. Distribute the Using Your Table to Solve Problems worksheet and have the students create addition and subtraction word problems using the data in their table.

Assessment

The table can be evaluated as an assessment. Each student's table will need to be evaluated individually as each route will be unique. A checklist is included to guide evaluation. Mastery is 75% or six of eight checklist items.

The Assessment for Racing Across Arizona can be used to evaluate both geography and math skills. Mastery for geography is 80% for both items on the assessment. Mastery for math is 80% of the items in question 2.

Extensions

The Tour de France consists of both flat and mountain stages. Have students identify the elevation of each starting and ending point for their tour and calculate the difference in elevation. Would they change their routes?

Racing Around Arizona: Using an Arizona Map to Create a Bicycle Tour

Have students convert the miles to kilometers using Convert-Me.com which provides metric conversion tools useful for converting kilometers to miles and meters to feet for calculating elevation.
<http://www.convert-me.com/en/>

Cycling News website: <http://www.cyclingnews.com>

More Tour de France information:
<https://www.letour.fr/en>

Sources