Two Stars and a Car!

Students will learn about the interstate highway system and its symbols. They will also practice determining the mileage between various Arizona cities located on the interstate highways.

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Grade Level
3

Duration
2 class periods

National Geography Standards

ELEMEN ON: 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 Geography Strand

CONCEPT 1 World in Spatial Terms
GRADE 3
PO 2 Interpret political and physical maps using the following elements: alphanumeric grids, title, compass rose, symbols, legend, scale

Other Arizona Standards

Mathematics Common Core Standards
Number and Operations in Base Ten
CONCEPT 2 Numerical Operations
3.NBT.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.

Overview
A road map shows us how to travel from one place to another using a variety of roads. One special road system is the interstate system. These roads not only link together our local cities but also connect cities across the United States. Through the special symbols used in this type of road, students will measure distance between Arizona cities.

Purpose
The purpose of this lesson is to learn about the interstate highway system and its symbols. Students will also practice determining the mileage between various Arizona cities located on the interstate highways.

Materials
• Arizona Road Maps (Note: some road maps use an arrow instead of a star to indicate distance. Check the AZ road map to see what symbol is used. Symbols vary from map to map. This lesson uses a star to represent distance.)
• Handout #1 – Sample Interstate Sign (overhead transparency)
• Handout #2 – Teacher Reading Activity "What is an Interstate Highway?" (overhead transparency)
• 2 Stars and a Car! Student map
• 2 Stars and a Car! Teacher Key map
• Handout #3 – Interstate Road Symbols
• Student Math Activity
• Student Math Activity Answer Key
• Mileage Chart of Six Cities (Extension Activity)
• Two Stars and a Car Assessment
• Two Stars and a Car Assessment Answer Key
• Two Stars and a Car! Student Checklist
Two Stars and a Car!
• Red stick-on stars
• Pencils

Objectives
The student will be able to:

1. Identify an interstate sign and locate the 6 interstate roads in Arizona.

2. Name 6 major cities in Arizona located on interstate highways.

3. Determine the consolidated mileage between the above 6 cities.

Procedures
This lesson is an excellent lesson to use before Racing Around Arizona, another GeoMath lesson.

Prerequisite: Students must know the cardinal directions: north, south, east, and west.

SESSION ONE
1. Display an Arizona road map. Explain that there are many roads on a road map. Show students the key and identify some different types of roads, such as state highways, US highways, Indian roads, etc. Explain that in this lesson students are going to learn about one special road called an "interstate highway."

2. Distribute Handout #1 – Sample Interstate Highway Sign. Ask if any students recognize this sign. If so, ask where they have seen the sign. Have the students describe the sign (shape: shield, colors: blue and red). Sometimes this sign has an arrow near it – why? (Because the arrow tells the driver where the interstate is located.)

3. Distribute Handout #2 – "What is an Interstate Highway?" Read this handout with students. (It can be used as an overhead.)

4. Distribute 2 Stars and a Car! Student map. The lines inside the state boundaries represent the interstate roads. On the interstate roads there are blank interstate signs. Using an overhead, fill in the interstate signs with the correct numbers. Have students fill in their own maps. Start with the even numbers. Explain that these numbers go west to east and lower numbers are at the southern part of the map. Use Teacher Key for reference.
   • Put 8 in I-8.
   • Put 10 in I-10 (students fill in three I-10s to demonstrate how it travels from west to east from California to New Mexico).
   • Put 40 in I-40 (students fill in two I-40s to demonstrate how it travels from west to east from California to New Mexico). Put in the odd numbers. Explain that these numbers go north to south.
   • Put 15 in I-15 (this is a short curve at the top NW corner of Arizona).
   • Put in 17 in I-17 (from Flagstaff to Phoenix).
   • Put in 19 in I-19 (from Tucson to Nogales).

5. Summarize that the interstate highway system was developed to make travel easier from state to state.

SESSION TWO
1. Distribute Handout #3 – Interstate Road Symbols. Read Page 1 to the students. This explains the symbols on an interstate highway. It can be used as an overhead. (NOTE: Page 2 is optional information).

2. Give each student 6 red stick-on stars. Using student maps, name each of the 6 cities on the interstate roads, and have students place a star above each of them as they are named. (If red stick-on stars are not available, students can color in the stars next to each city)

The cities are (from North to South):
Two Stars and a Car!

Kingman, Flagstaff, Winslow, Phoenix, Tucson, Nogales.

(Note: There are other cities on the interstate and many located off of the interstate, but this lesson focuses only on these 6 cities.)

3. Have the students circle the mileage between the cities as you call them out, as follows:
   - Kingman to Flagstaff 143 miles
   - Flagstaff to Winslow 58 miles
   - Flagstaff to Phoenix 146 miles
   - Phoenix to Tucson 111 miles
   - Tucson to Nogales 63 miles

4. Student Math Activity – "Driving the Interstate." Have students practice adding the mileage between the 6 cities on the interstates using their student maps.

Assessment
Choose one or all of the following assessments:

Assessment Activity is 10 multiple-choice questions: #1-5 are geographic content; #6-10 are math content. Mastery is considered 80% or higher.

Student Activity "Driving the Arizona Interstate" can be graded. Mastery is considered 12 correct responses out of the 15 possible.

Two Stars and a Car Student Checklist can be used to help the student gain higher scores.

Extensions
A mileage chart for the 6 cities is included for an extension activity. Using an Arizona state map, review the mileage chart and locate other cities and distances on an interstate highway. Using a US Map, have students compare the interstate system throughout our country. Have them calculate mileage on a road atlas.