MAP READING 101

Susan A. Smith, OKAGE TC, NBCT
Eisenhower Middle School Lawton,
OK
sasmith@lawtonps.org

Grade Level: 6th

Purpose/Overview:
Using the scale from the map key, students will find the approximate air distance between cities on different maps. This skill will enable them to find any distance on a map or globe.

National Geography Standards (second edition) from *Geography for Life* Geographic Elements & Standards:
The World in Spatial Terms -
1. How to use maps and other geographic representations, geospatial technologies, and spatial thinking to understand and communicate information
2. How to use mental maps to organize information about people, places, and environments in a spatial context

Oklahoma Academic Standards for the Social Studies: 6th Grade World Geography: Western Hemisphere

OAS 2012	OAS 2019
Process and Literacy Skills Standard 1 The student will develop and demonstrate Common Core Social Studies reading literacy skills.	**Read Critically and Interpret Informational Sources** Students will engage in critical, active reading of grade-level appropriate primary and secondary sources related to key social studies concepts, including frequent analysis and interpretation of informational sources.
6.1.C.7 Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts.	**4.A.6-8.2** Integrate the use of visual information (e.g. maps, charts, photographs, videos, political cartoons) with textual information from primary and secondary sources.
Process and Literacy Skills Standard 2 The student will develop and demonstrate Common Core Social Studies writing literacy skills.	**Engage in Evidence-Based Writing** Students will apply effective communication skills by developing a variety of evidence-based written products designed for multiple purposes and tasks, in order to demonstrate their understandings of social studies concepts, ideas, and content.

B.9 Draw evidence from informational texts to support analysis reflection, and research.	**5.A.6-8.2** Compose informative essays and other written products about social studies topics, incorporating evidence (e.g. facts, examples, details) from multiple sources, maintaining an organized, formal structure.
Content Standard 1 The student will analyze data from a geographic perspective using the skills and tools of geography.	**6.1** The student will analyze data from a geographic perspective using the skills and tools of geography.
1.2 Integrate visual information, draw conclusions, and make predictions from geographic data and analyze spatial distribution and patterns by interpreting that data as displayed on globes, graphs, charts, satellite and other forms of visual imagery including data from bar and line graphs, pie charts, thematic maps, population pyramids, climographs, cartograms, contour/relief maps, GIS systems, and diagrams.	**6.1.3** Integrate visual information, draw conclusions, and make predictions from geographic data and analyze spatial distribution and patterns by interpreting that data as displayed on geographic tools.
1.4 Integrate visual information and apply the skill of mental mapping of the political and physical features of Earth's surface and to organize information about people, places, and environments.	**6.1.4** Integrate visual information and develop the skill of mental mapping of the political and physical features of Earth's surface in order to organize information about people, places, and environments.

Geographic Themes:

Location

Objectives:

1. Students will learn and demonstrate how to measure scale between any two locations on maps and globes.
2. When given a list of cities, or geographically important locations in North and South America, students will be able to apply knowledge of scale to measure approximate distances between their locations.

Materials:
Paper strip measuring directions
Paper strips or index cards
Pencils or pens
Two same topic maps with different scales
Outline maps of North and South America (see **Resources**)

Internet access
National Geographic table top maps of North and South America (if available)
The Nystrom Desk Atlas or comparable desk atlas for each pair of students (if available)
"Measuring Mileage" worksheet (included in lesson) Dry
erase markers

Time Frame: 2 to 3 45-minute class periods

Procedures:

1. Teacher asks students who knows what map scale is and selects several to answer.
2. Ask students how to use a measuring implement to find scale and select several to answer. Because this is a skill review, students should be able to identify a scale when they see it on a map or globe.
3. Show on the maps where the scale is found. Explain why the mile and kilometer distances are different.
4. Demonstrate how to measure scale with a paper strip and a pencil. Have students follow along so they are actively participating. Select two cities with which most students are familiar and place a mark on one end of the paper strip for one of the cities. Find the second city and mark the paper strip on that location.
5. Next, place this paper strip under the scale, with the first mark at the zero. If the scale is shorter than the actual distance, mark the end of the scale on the paper strip and the distance this mark represents. Place this distance mark on the zero line and repeat until you reach the second city or location. Write the mileage for each mark, then total your mileage for the whole distance between cities or locations. [**NOTE**: Explain to students that this measurement is the "air distance" between the two locations ("as the crow flies") rather than the driving distance on land.]
6. Repeat this activity on the second map with a different scale. When student realize the mileage is the same, or close to it, discuss why even though scale differs on another map the distance is the same.
7. Hand out copies of the "Measuring Mileage" worksheet. Give students time to work independently, in pairs, or in small groups to find the distances between the other locations on North America and/or South America lists. They may use either map you introduced in the beginning. Once everyone is finished, have students volunteer to come to the front and explain how they arrived at the answers for the location pairs on your list. Make sure they use the correct map for their explanations. Remember that using the paper strip measuring system, the total mileage will be very approximate, whereas the mileage shown on the "Measuring Mileage" answer page will be more precise. Allow some general inconsistencies between the approximate and the precise.
8. For closure students will select two pairs of locations that have the same or nearly the same distance but look different on the map. Instruct them to write why using the visual distance is not an accurate way to arrive at an answer. They will then select two city pairs which do not visually appear to be different but have different distance totals. Allow time for students to volunteer to read or explain their answers.

Assessment Options:

1. Use the answers on the location pairs list each student was given as an application assessment.
2. Their closure activity is the performance-based assessment.

Resources:

Print

World Book Encyclopedia 1992 Volume 13 p. 179; author Judy M. Olson; photos by Steinkamp/Ballogg; "Measuring mileage using a map scale"

Internet

Printable desktop maps of North and South America
http://education.nationalgeographic.com/education/maps/americas-mapmaker-kit/?ar_a=1v

Flight Distance Mileage Calculator
http://www.worldatlas.com/travelaids/flight_distance.htm

How To Measure Distances On A Map
http://geography.about.com/od/understandmaps/ht/htscale1.htm

Extension and Enrichment/Simplification:

Extension:

Present these scenarios to solve: If you are driving on roads with a speed limit of 70 miles per hour, how long will it take you to arrive at each location? How long will the entire trip, not counting overnight stops or gas/food stops, take you to complete?

If your vehicle gets 25 miles per gallon, how many gallons will be required for the entire trip? If gas is $2.50 a gallon, how much will the entire trip cost you for gasoline?

[**NOTE again**: Explain to students that this map measurement exercise is the "air distance" between the two locations ("as the crow flies") rather than the driving distance on land. Or provide students with highway atlases and have them follow roads that provide the most direct route between the two locations for a more accurate estimate of mileage, time, and cost of fuel.]

Enrichment:

Students will select 10 additional pairs of cities from at least five states, provinces, or nations they have not used in your previous assignments. These can be from either North or South America. The last city must be the same city from where they started. Have them determine the mileage from city to city. They may also be asked to use a map scale different from the first assignment.

Simplification:

Rather than using small groups or pairs, use guided practice for the remainder of the North America list. Have students demonstrate their ability to find mileage, using scale for each pair of

locations by coming to the projector to show how they arrived at their answers using the paper strip. This will help the teacher determine if re-teaching is necessary.

Connections:
Math
Reading
Writing