Map Scale and the Pioneer Journey

Summary

Using a map, ruler and calculator, determine the distance the pioneers traveled from Nauvoo, III. to the Salt Lake Valley.

Time Frame

1 class periods of 45 minutes each

Group Size

Pairs

Life Skills

Thinking & Reasoning

Materials

Each pair of students should have a U.S. map, or individual maps of the following states: Iowa, Nebraska, Wyoming, and Utah. It does not matter if several maps are used with different distance scales. In addition, each student pair should have a ruler (inch and centimeter) and a calculator.

Background for Teachers

Every map has a scale which indicates what distance one inch or half-inch is equal to on the map. Students should be familiar with the idea that every map is scaled differently and the key or legend area of the map should be consulted to see what distance one inch on individual maps stands for.

Intended Learning Outcomes

Students will be able to calculate distances on a map by using the map's scale of distances and a ruler.

Instructional Procedures

Have students guess how many miles it is from a point on the East Coast of the U.S. to a point on the West Coast. After several figures have been guessed and listed on the board, tell the students that you can figure it out exactly using only a ruler.

Pull down a large U.S. map and let students see you measure the distance and do the multiplication on the board to get the actual distance. Check your figure with that from a reference book, such as an encyclopedia, that lists the distance from the U.S. East Coast to the West Coast.

Students should be familiar with the route of the pioneers on the Mormon Trail. Nauvoo, III. can be the starting point. Since the trail was not a straight line, have the students measure distances between points on the trail with geographic or historic significance (eg.; Garden Grove, Mt. Pisgah, Council Bluffs, the odometer start at North Platte, Neb., Chimney Rock, Scott's Bluff, Fort Laramie, Independence Rock, South Pass, Fort Bridger, etc.)

Have the students keep track of the mileage between each of the points of significance by multiplying the inches or half-inches measured by the number of miles for each inch or half-inch. When the figures have been multiplied for the whole trail, students should add all the miles for the sections to get a grand total of the miles traveled between Nauvoo and Salt Lake.

Each student pair should announce to the class the distance in miles they have figured the Mormon Trail to have been. List each pair's figure on the board and look for significant differences. Discuss

what might account for the different distances that the different student pairs came up with. It could be noted that different maps and different scales might not be entirely accurate. Also, a map of a large area (like the whole U.S.) will have large distances for each inch, while a state map would have a smaller number of miles for an inch. When rounding the inches or half-inches, the error will be greater on the larger map with larger numbers of miles for each inch.

Extensions

Students can do the reverse of the lesson above. Students can come up with their own map scale, and create a map of the Mormon Trail that is scaled accurately for the whole trail, and points of interest along the trail.

Assessment Plan

The enrichment activity could be used as an assessment tool.

Authors

Utah LessonPlans