

# Diary of a Trip from Boerne, Texas, to Matamoros

## *Are We There Yet?*

### **Goals**

Students will build a foundation of basic mathematic skills and develop quantitative reasoning by estimating distance on a historic map and comparing it to the time taken to complete the journey as described in an 1864 diary.

### **Content Area, Grade Level**

Mathematics

Grade 7

### **Time Allotment**

One 45- to 50-minute session

### **Texas Essential Knowledge and Skills (TEKS)**

#### **Mathematics 111.23**

7.9 Measurement. The student solves application problems involving estimation and measurement. The student is expected to estimate measurements and solve application problems involving length (including perimeter and circumference), area, and volume.

7.13 Underlying processes and mathematical tools. The student applies Grade 7 mathematics to solve problems connected to everyday experiences, investigations in other disciplines, and activities in and outside of school. The student is expected to:

- (A) identify and apply mathematics to everyday experiences, to activities in and outside of school, with other disciplines, and with other mathematical topics;
- (B) use a problem-solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness;
- (C) select or develop an appropriate problem-solving strategy from a variety of different types, including drawing a picture, looking for a pattern, systematic guessing and checking, acting it out, making a table, working a simpler problem, or working backwards to solve a problem; and
- (D) select tools such as real objects, manipulatives, paper/pencil, and technology or techniques such as mental math, estimation, and number sense to solve problems.

(14) Underlying processes and mathematical tools. The student communicates about Grade 7 mathematics through informal and mathematical language, representations, and models. The student is expected to:

- (A) communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical, or algebraic mathematical models; and
- (B) evaluate the effectiveness of different representations to communicate ideas.

(15) Underlying processes and mathematical tools. The student uses logical reasoning to make conjectures and verify conclusions. The student is expected to:

- (A) make conjectures from patterns or sets of examples and nonexamples; and
- (B) validate his/her conclusions using mathematical properties and relationships.

### **Resources Needed**

- A copy of *Diary of a Trip from Boerne, Texas, to Matamoros, Mexico: Dec. 21, 1864-Jan. 4, 1865* and glossary of terms (<http://library.uta.edu/k12/historyLessons/>).
- A reproducible copy of *J.H. Colton's Map of Texas, 1864* with journey highlighted (<http://library.uta.edu/k12/historyLessons/>).
- A modern Texas map. Printable versions are available at <http://www.nationalatlas.gov/printable/reference.html#Texas> or you may copy a page from an atlas in your library. You may also use online resources like MapQuest (<http://www.mapquest.com>).

**Note:** Other Texas maps, including historical ones, can be found online at <http://www.lib.utexas.edu/maps/texas.html>.

- Graph paper
- Colored pencils

### **Implementation**

1. Divide the class into cooperative groups of four.
2. Tell students about the journey described in the diary and use the image of an ambulance from the glossary as an example of how they traveled.
3. Give each group a copy of the *J.H. Colton's Map of Texas, 1864* with the journey highlighted and show them the line that represents the journey from Boerne, Texas, to Matamoros, Mexico.

4. Have the groups look at the distances between the major stopping places or stages discussed in the diary and estimate distance traveled. Estimates can be made using the map legend.
5. Instruct the groups to gather information regarding the actual time the Boerne group took to cover the different stages.
6. Invite each group to create a graph that compares the time taken to each stage with the distance traveled.
7. Reconvene the class and have the groups share their graphs. Encourage them to compare and contrast results.

### ***Evaluation***

As a formative assessment instrument, the teacher can circulate among the groups doing their estimates and creating their graphs. The teacher can visually verify participation and cooperation within the small groups. Teacher can also use classroom questioning to verify progress. The teacher can use the production of the graph as a summative assessment.

### ***Extensions/Adaptations***

- Students can research how modern methods of transportation, such as cars and airplanes, would affect the time needed to make the trip.
- Students can graphically compare 1864 travel time to 21<sup>st</sup> century travel time. A helpful site for calculating the actual distance between cities and travel time is MapQuest (<http://www.mapquest.com>).
- Bring in a speaker or re-enactor to talk about life and travel in the pioneer days. Contact your local historical society or history museum for speaker suggestions.

### ***Conclusion***

This lesson will give the students an opportunity to work together collecting information that will be used as they complete their tasks. They will learn how to use mathematical tools to verify facts and present information.