

Using Google Maps to Teach Math

Teacher: Lea Ann Turner

School District: Temple ISD

Email: leaann.turner@tisd.org

Unit Overview

Students will use Google Maps to explore Math and problem solving with real data. They will learn concepts ranging from addition and subtraction, comparing numbers, finding averages, creating charts, tables, and graphs, elapsed time, and more. The use of Google Maps to teach math allows student ownership in decision making and problem solving as they explore the U.S. through Math.

TEKS

- Technology TEKS 3-5 8(b) Use interactive technology environments, such as simulations, electronic science or mathematics laboratories, virtual museum field trips, or on-line interactive lessons, to manipulate information
- Math TEKS 3-5 Many of the TEKS are applicable depending on grade level and concept taught.

Objectives

- Students will be able to find directions, mileage, and estimated times on Google Maps with 100% accuracy.
- Students will be able to plan trips on Google Maps to find total mileage, remaining mileage, and elapsed time with at least 80% accuracy.
- Students will be able to compare distances on Google maps to find the best destination or route for a trip with 80% accuracy.
- Students will be able to use the information from Google Maps to create tables, charts, and graphs with 80% accuracy.

Time Required

1-2 day lessons, taught throughout the year as different concepts were presented to the students.

Materials Required

- Internet Access
- Presentation device is good to begin the lesson.
- Journals

Procedure

1. Begin by introducing the students to Google Maps. Take a few “trips” using Google Maps where the students choose the starting and ending locations as you enter the data for them. Show them the components of the directions: elapsed time, total mileage, converting between customary and metric, etc.

Using Google Maps to Teach Math

2. Outline what the students will complete for this particular Google Maps lesson. For example:
 - a. Today we are going to find the answer to the question, “How much farther?”
 - b. We need to start with a beginning location, so someone identify a place that we can start.
 - c. Now we need to identify 4 ending locations.
 - d. Use Google Maps and Math Journals to create a table of distances from the beginning location.
 - e. Put the distances in order from closest to farthest (or vice versa).
 - f. Write in your journal 2 ways that you could use this information in a real life situation.
3. Example 2:
 - a. Today we are going to find elapsed time on a road trip.
 - b. We need to use Google Maps to find the amount of time it will take to travel from one location to another.
 - c. Using the data from Google Maps, if we were to begin the trip at _____ o'clock, about what time will we arrive?
 - d. If we need to arrive at a location at _____ o'clock, what time should we leave?
 - e. Create your own road trip on Google Maps. Based on the information you found in your road trip, plan an approximate starting time and ending time for your trip.
4. These are just two examples, there are many more that we will explore during the session.

Closure

Why is this information that we used today an important skill that we will use the rest of our lives? Walk around the room and interview 3 people about how you will use this skill when you grow up.

Evaluation

Rubric that will vary according to skill taught and accuracy of data collected and manipulated by the students.

Extension Activity

- Struggling Students need to work in groups with peers who can help guide them. They need to be encouraged to take the lead in trip decision making, even if the math doesn't make sense at first. This will help them take ownership in the learning. If they are struggling to find locations to begin and end- help them think through where relatives might live or where some of their favorite sports teams are located.
- Students who need enrichment can take longer trips with a variety of locations or trips that take a route for sight-seeing that may take routes that are not direct. They can also be allowed a lot more independence and freedom.