



Drexel-SDP GK-12 ACIVITY

Activity: Using Online Maps

Subject Area(s) Measurement

Associated Unit Landforms, module 1

Associated Lesson None

Activity Title Using Online Maps

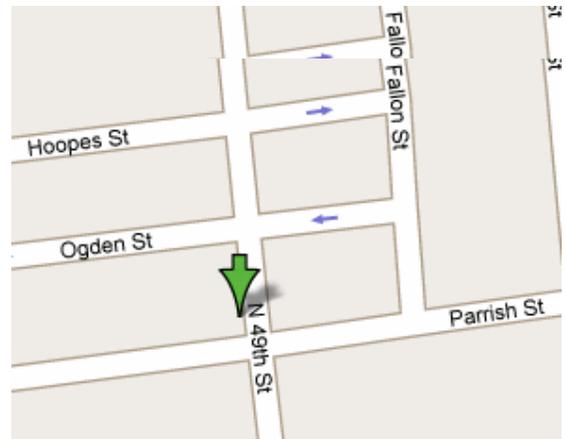
Grade Level 6 (4-6)

Activity Dependency None.

Time Required: 1 Hour

Group Size 1

Expendable Cost per Group \$0



Heading

Image 1

ADA Description: Picture shows the location of Rhoads Elementary School in Philadelphia on Google Maps

Caption: The location of Rhoads Elementary School in Philadelphia on Google Maps

Image file name: map.jpg

Source/Rights: Copyright ©<http://maps.google.com>

Summary

In this activity, students will use Google Maps to find locations such as their school, their home, and their favorite places to visit. We will then identify the relative direction (North, South, East, West) between two locations and estimate the distance.

Engineering Connection

Measurement and scale drawings are crucially important to mechanical engineers. Every car on the road today was once a scale drawing. Similarly, the civil engineers who helped to build our schools also made use of blueprints, the scale drawings representing the scale of the building and all of its doors and windows. In this exercise, students will interpret an online map, a scale representation of their neighborhood.

Keywords

Cartography, measurement, estimation, scale drawings.

Educational Standards (PA)

- Math: Measurement and Estimation 2.3

Pre-Requisite Knowledge

Some practice in using a ruler or tape measure.

Learning Objectives

After this activity, students should be able to:

- **Express directions in terms of North, South, East and West**
- **Estimate the distance between two points on a map by applying the scale.**

Materials List

Each individual needs:

- A computer
- A pencil
- Paper

Introduction / Motivation

Engineers commonly make use of scale drawings to comprehend the details of an engineering design. For example, a jet engine for an airplane will be drawn so that it fits on a single piece of paper. These drawings include labels and legends that describe what each symbol means. In this activity, students will use Google Maps to find locations such as their school, their home, and their favorite places to visit. We will then identify the relative direction (North, South, East, West) between two locations and estimate the distance.

Vocabulary / Definitions

Word	Definition
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Scale drawing	The process of drawing a figure either enlarged or reduced in size from its original size.
Quantitative	The key to the meaning of symbols and pictures on a map.
Qualitative	A figure displaying the orientation of the cardinal directions, north, south, east and west on a map.
Estimate	The sum of the length of the sides of a polygon.

Procedure

Background:

This lesson will be taught after students have demonstrated their ability to read a compass and understand how to determine actual miles from scale units.

Procedure:

Use a projector to explore the web site, <http://maps.google.com> with the class. Then have students log on to the computers and explore the site on their own. Pass out Lab Reports and have students complete the activities listed below. Discuss student's findings.

Step 1: Write down and explain to someone how to get from your school to the movie theater of your choice. Be sure to use direction words such as North, South, East, and West, and distance units such as kilometers or miles (you pick!).

Step 2: Use the scale at the bottom of the map and your thumb or finger as a measuring stick to estimate the distance from your school to the movie theater. What is the estimated distance?

Step 3: What do the Google Maps directions say the actual distance to the movie theater is?
 _____ miles

Step 4: Give a qualitative (verbal, using words such as "acceptable" or "poor") and a quantitative (numerical, using differences and/or percentages) description of how accurate your estimate (in Step 2) is compared to the actual value (in Step 3).

Investigating Questions

Question 1: Zoom all the way out. What is the scale of the map?

_____ miles _____ kilometers

Question 2: Zoom all the way in. What is the scale of the map?

_____ miles _____ kilometers

_____ miles _____ kilometers

Assessment

Pre-Activity Assessment

Perform a quick oral quiz of the vocabulary.

Activity Embedded Assessment

None

Post-Activity Assessment

Students will be required to turn in their completed lab reports. Students will be evaluated on the completeness of their answers as well as their participation in the class discussion. The assessment rubric can be found at the bottom of the project report.

You will be evaluated on a scale from 0 to 4 on:

_____	_____	_____	_____	_____
Scale	Measurement	Compass	Writing	Presentation

Contributors

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