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# Google Earth: Cool toy or cool tool?

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## Lesson Plan

### Teaching the Five Themes of Geography Using Google Earth

**A. Goal:** To introduce the five Themes of Geography using an interactive three dimensional computer tool which displays remote imagery and virtual representations of geographic environments of the world.

**B. TEKS Objectives:**

#### High School World Geography

The student is expected to:

**(8A)** Explain the [interrelationships among physical and human processes](#) that shape the geographic characteristics of places such as connections among economic development, urbanization, population growth, and environmental change

**(8B)** Compare ways that humans depend on, adapt to, and modify the physical environment using local, state, national, and international human activities in a variety of cultural and technological contexts

**(9A)** Identify physical or human factors that constitute a [region](#) such as soils, climate, vegetation, language, trade network, river systems, and religion

**(11A)** Map the locations of different types of economic activities

#### Technology Applications

The student is expected to:

**(8A)** participate with electronic communities as a learner, initiator, contributor, and teacher/mentor;

**(8B)** create interactive documents using modeling, simulation, and hypertext.

**C. Materials Needed:**

- Computer workstations for each student or group

- System Requirements

- <http://earth.google.com/userguide/v4/#systemreqs>

- Google Earth Installed on each workstation
  - <http://earth.google.com/index.html>
- Access to Google Earth Imagery and data on the Internet
- Permissions for access through any firewalls, security or filtering methods, help screens or instruction videos as needed.
- Student worksheets

**D. Rationale:** Why use Google Earth?

**E. Time Required:** Two class Periods of 50 minutes each

**F. Directions:**

- 1) Briefly discuss rationale for using Google Earth to explore the Five Themes of Geography
- 2) Explain requirements of assignment, including option of student presentations
- 3) Demonstrate basic functions for using Google Earth
- 4) Distribute worksheets and explain format
- 5) Students complete assignment and save data

**G. Assessment:**

- 1) Worksheet
- 2) Collaborative Learning
- 3) Presentation

**H. Teacher Resources:**

Google Earth Training Videos

<http://earth.google.com/tour.html>

Google Earth Blog

<http://www.gearthblog.com/index.html>

Google Earth Forums: Education

<http://bbs.keyhole.com/ubb/ubbthreads.php?ubb=cfrm&c=6>

Teaching With Google Earth

[http://serc.carleton.edu/sp/library/google\\_earth/index.html](http://serc.carleton.edu/sp/library/google_earth/index.html)

GE Meta Atlas

<http://bbs.keyhole.com/ubb/ubbthreads.php?ubb=showflat&Number=1162054>

Geography Education Standards Project, *Geography for life: National geography standards 1994 / Geography Education Standards Project*. Washington, D.C.: National Geographic Research & Exploration, 1994.

----, *Guidelines for Geographic Education. Elementary and Secondary Schools*. Washington, DC: The Association of American Geographers, 1984. (Microfiche) ERIC Document ED252453

Name \_\_\_\_\_

\_\_\_\_\_Period

Date \_\_\_\_\_

## Google Earth and the 5 Themes of Geography

**Directions:** *With a Partner or your assigned group, answer the questions using Google Earth.*

**Theme 1: Absolute and Relative Location-** Every point on earth has an absolute location determined by latitude and longitude or a street address. Relative location means how a place is related to another place and is described by landmarks, direction, distance, or time.

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1. Identify the **Absolute Location** of your school by writing its longitude and latitude in the spaces provided.

**Latitude** \_\_\_\_\_

**Longitude** \_\_\_\_\_

### Instructions

- Open Google Earth
- Close the Tip Window
- From the menu bar at the top of the page select, *view*, then *grid*
- On the *Layers* panel in the bottom left corner, select, *Roads, Borders and Labels*, and *Terrain*
- Move your cursor over the globe and click in the area of your school
- *Double click* to *Zoom in* on your town and school, continue to double click, or use the scroll wheel on your mouse, or the *Zoom Slider* on the right side of the *3d viewer*
- Once you find your school place your cursor on top of the building, copy the longitude and latitude from the left side of the *Status Bar* at the bottom of the *3D viewer*
- Write the longitude and latitude (coordinates) on your worksheet

Find and label at least two landmarks you could use to give the **Relative Position** of your school as directions for a visitor. List your landmarks below, and then label them on Google Earth.

**Landmark 1** \_\_\_\_\_

**Landmark 2** \_\_\_\_\_

Instructions

- Think of two easily noticed structures or locations you would use to tell someone how to drive to your school.
- Click on the Place Mark Icon at the top of the Google Earth viewer. Move the pushpin that appears, so that it is on top of the landmark the visitor will see first on their way to your school.
- Repeat the process and label your second landmark.
- Label your school using the same tools.

2. Draw a path following you landmarks to the school. How far will the visitor travel following your directions to the school?

Miles traveled \_\_\_\_\_

Instructions

- Click the Show Ruler tool at the top center of the Google Earth Viewer.
- On the popup window, select path.
- Place your cursor box on the road and click once to mark the start of your path.
- Move your cursor along the road. If the road changes direction, click once to change the direction of your path to follow it.
- Click again at your second landmark then click once more at the destination at your school.
- Write down the distance for the entire trip as shown in the right hand side of the Ruler window.

**Theme 2: Place**-All places have characteristics that distinguish them from other places. What characteristics do you think about when you think about your community? Places have both physical or natural characteristics (mountain, rivers, soil, beaches, wildlife, etc.) and human or cultural characteristics (actions of people that result in changes to the environment such as buildings, land use and ownership, roads, communication networks, clothing, and food habits).

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3. Identify and label two **Natural** or **Physical Characteristics** of your community.

1) \_\_\_\_\_

2) \_\_\_\_\_

Instructions

- Use your mouse or your keyboard's arrow buttons to pan around the imagery of your community. Look for natural features such as lakes, rivers, forests, cliffs, mountains etc.
- Label them using the same method as you used for question two and write them on your worksheet.

4. Identify and Label two examples of **Human** or **Cultural Characteristics** of your community.

1) \_\_\_\_\_

2) \_\_\_\_\_

Instructions

- Pan around your community using Google Earth. Look for human or cultural characteristics such as churches, shopping centers, libraries, government buildings, historic areas, landfills, etc.
- Label two of them and write them on your worksheet.

**Theme 3: Region-** An area on the earth's surface that has a certain common or unifying characteristic, such as a common government or language. There are formal regions defined by boundaries such as a political state or country. There are regions defined by a function such as the area where the newspaper is delivered. Last, there are regions created by people's beliefs and ideas, such as The South.

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5. Name three **political** regions in which you live.

1) \_\_\_\_\_

2) \_\_\_\_\_

3) \_\_\_\_\_

Instructions

- Look again at your community and the area surrounding it.
- Using your mouse's scroll wheel or the Zoom Slider on the left side of Google Earth, zoom out and look for the labels and boundaries of government regions which your community is a part.

6. What other type of region is your community a part of?

Instructions

- Zoom back to your community then pan or zoom and identify some type of cultural, linguistic, or functional region in which your community resides.
- Label one of these regions and write the answer on your worksheet.

**Theme 4: Human Environment Interaction-** How do humans and the environment affect each other? This theme looks at both the positive and negative effects of this interaction. The environment can affect humans negatively such as during hurricanes, floods, and earthquakes, but also positively such as having fertile soil for farming or mineral resources for mining. Humans can also change their environment. They can adapt to conditions in the environment by wearing clothes for that climate; they can

modify or change the environment by creating air conditioning systems or buildings dams, and they can depend on the environment, such as using water to drink and for transportation. Human modifications can also cause negative conditions such as when trees are cut down and wind and rain erode the soil.

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7. Describe at least three ways people in your town people have **changed the environment** to meet their needs. Label them on Google Earth.

- 1) \_\_\_\_\_
- 2) \_\_\_\_\_
- 3) \_\_\_\_\_

Instructions

- Locate three changes and label them the same way you did in previous questions. Write down your choices on the worksheet.

8. Name at least one **positive** and one **negative** way people have **interacted with the environment** in your city.

Positive \_\_\_\_\_

Negative \_\_\_\_\_

Instructions

- Again, use Google Earth to locate visible examples of positive and negative influences people have had when interacting with the environment in your community.
- Label them as before.

**Theme 5: Movement-** This theme describes the movement of people, things, ideas, and information. People interact with and are connected to other people, places, and things every day; they travel, they communicate, they send products, and ideas.

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9. A) Name, and label three ways that people and products move around your community.

\_\_\_\_\_

\_\_\_\_\_

B) Name a major method of transportation used by people in New York City that does not involve automobiles. \_\_\_\_\_



Instructions

- In the upper left-hand section of Google Earth, click in the search box labeled "Fly to" in the "Search" pane.
- Type in the location **New York, NY**
- Google Earth will rotate and fly to New York City from your starting place. Zoom in until you can clearly see separate buildings.
- On the left of the Google Earth window, below the "Search" pane and the "My Places" pane you will see the "Layers" pane.
- In the "Layers" pane scroll until you find the "Places of Interest" layer.
- Click on the + sign then scroll down until you find "Transportation and click on it's + sign.
- Scroll a little further until you find the layer marked "Subway." Click on the empty box next to the word then look at the city on Google Earth.

C) Examine the layout of this transportation system using Google Earth. Describe one thing you find interesting about the System. \_\_\_\_\_

D) Do, you think this would work in your community? Yes\_\_\_\_\_ No\_\_\_\_\_

Why or Why not?

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**Reflection**

10. What do you like about using Google Earth to explore the world? Explain.

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Instructions

- Look around New York. Zoom in to examine items in detail.
- In the places panel fins sightseeing and click on the + sign
- Scroll down the list and double click on a location you would like to explore
- Watch as Google earth fly's to that location then explore the area using your mouse or arrow keys to move.