

Overview:

Students become familiar with using the *Google Earth* interface to navigate around the planet. Using the zoom and tilt features, students practice moving around the planet with the navigation controls. Students discover information about locations around Alaska and in their hometowns.

Targeted Alaska Grade Level Expectations:

Geography

- [A1] A student should be able to make and use maps, globes, and graphs to gather, analyze, and report spatial (geographic) information. A student who meets this content standard should use maps and globes to locate places and regions.
- [B1,7] A student should be able to utilize, analyze, and explain information about the human and physical features of places and regions. A student who meets this content standard should know that places have distinctive geographic characteristics. A student who meets this content standard should know understand that a region is a distinct area defined by one or more cultural or physical features.

Technology

- [A1-3] A student should be able to operate technology-based tools. A student who meets this content standard should: use a computer to enter and retrieve information, and use technological tools for learning, communications, and productivity. A student who meets this content standard should use local and worldwide networks.
- [B1] A student should be able to use technology to locate, select, and manage information. A student who meets this content standard should identify and locate information sources using technology.
- [C1] A student should be able to use technology to explore ideas, solve problems, and derive meaning. A student who meets this content standard should use technology to observe, analyze, interpret, and draw conclusions.

Objectives:

Students will:

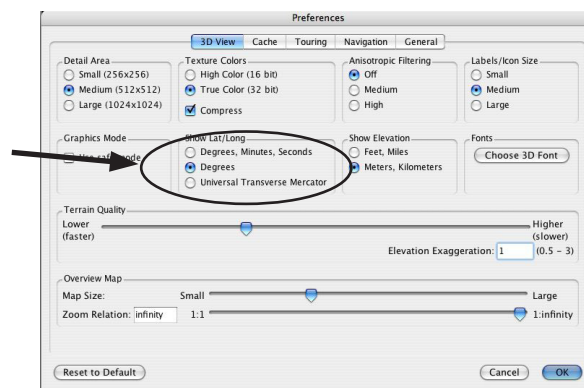
- move, zoom and tilt Earth's surface using *Google Earth*;
- find specific locations in *Google Earth*; and
- discover information associated with places in *Google Earth*.

Materials:

- Computer with Internet connection and *Google Earth* installed
- STUDENT INFORMATION SHEET: "Google Earth"
- STUDENT WORKSHEET: "Google Earth"

Activity Preparation:

1. *Google Earth* is a free program available from *Google*. If it is not already installed, it can be downloaded from <http://earth.google.com>
2. *Google Earth* preferences can be changed to display degree minutes, seconds or decimal degrees. Generally, it is easier to enter coordinates using decimal degrees instead of degrees minutes, seconds.
3. To help students understand the latitude/longitude coordinate system, a grid can be turned on in View → Grid.



Activity Procedure:

1. Students launch *Google Earth* and practice using the navigation controls.
2. Students find specific locations and record information about that place.

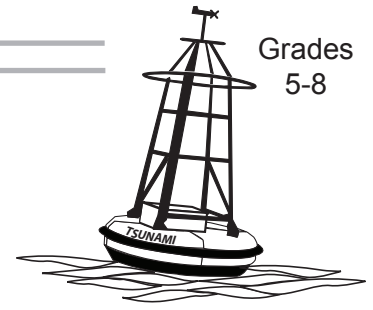
Answers:

1. lat 58.367730° lon -134.579510° elev 63m
2. answers will vary, the teacher must verify
3. 1906
4. answers will vary, the teacher must verify
5. a. Mt. Mckinley or Denali
b. Geophysical Institute at UAF
c. The White House
d. Answers will vary

Google Earth

Student Information Sheet

Grades
5-8



Google refers to *Google Earth* as a 3-D interface to the planet. A virtual globe made up of series of satellite images of Earth called tiles, the program allows the user to fly around a virtual Earth complete with zoom, rotate and tilt features for any area the user is interested in viewing. The level of detail in the individual tiles varies depending on the location. In Alaska, some of the more populated places have good imagery, while other places do not have the same quality.

Navigating Google Earth

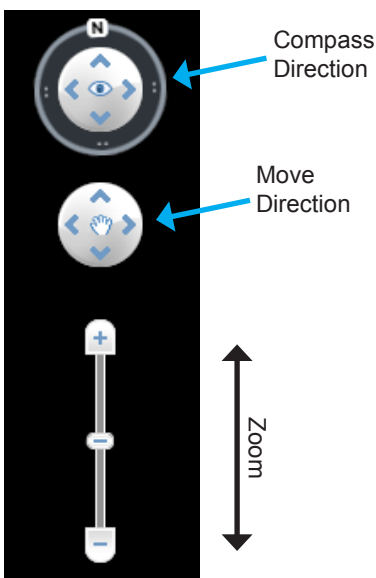
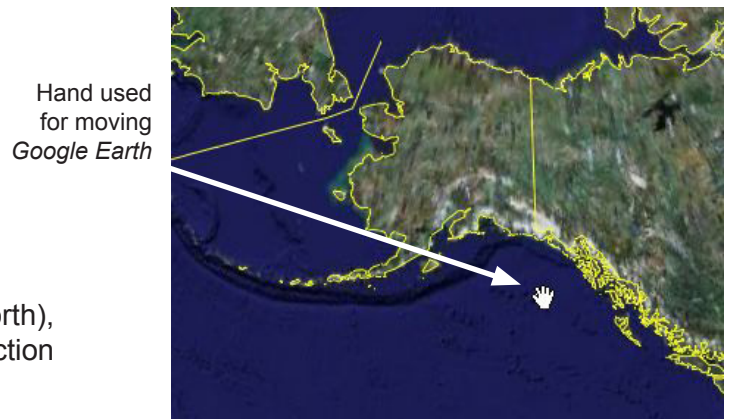
Launch *Google Earth* by double clicking on its icon.

Moving around

Moving around in *Google Earth* can be done in a couple of ways:

- The most common way to move is by using the mouse to move the hand icon. Click on and rotate Earth so that Alaska is visible.
- Another way to move is to use the navigation control in the upper right side of the screen. Click and hold the **Move Direction** arrows to rotate Earth.

If the arrow pointing up is not labeled “N” (North), use the mouse to rotate the compass direction so that the “N” is at the top.



Zooming in and out

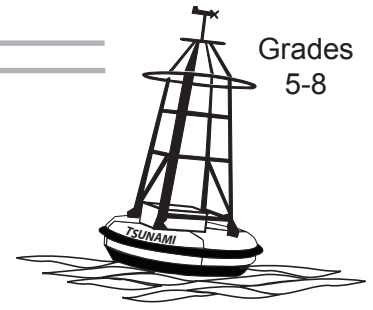
Move the **zoom slider** towards the “+” sign to zoom in. To zoom out, move the slider toward the “-” sign.

As you zoom into Alaska, notice the different tiles that make up the mosaic of the state. Zoom into different areas and observe the differences in the quality of detail in the images.

Google Earth

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Tilt

Zoom into an area and move the **tilt slider** toward the right. The surface of Earth will tilt.

Move the compass around in a complete circle and fly around the area.

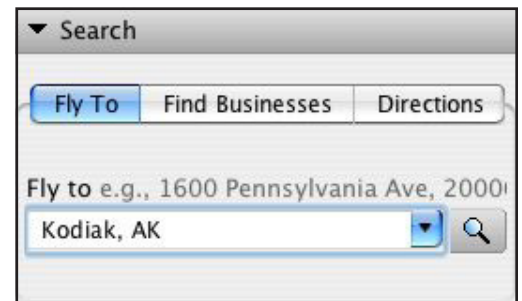
To view Earth from above, move the **tilt slider** to the left.

To practice moving around in *Google Earth* try following the Pipeline from Prudhoe Bay to Valdez.

Finding locations

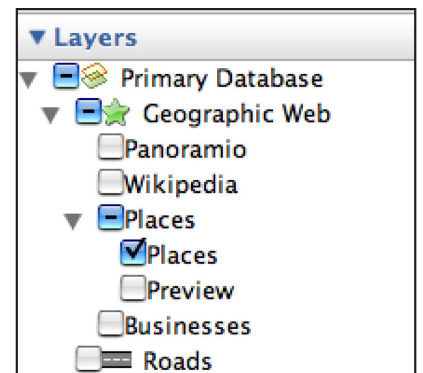
Finding a town, river, etc. is relatively easy if you know its approximate location. For example, to find Anchorage or the Yukon River, zoom in and move around the state of Alaska and you should be able to find them. Try it yourself.

To speed the search, type the location in the Search box. For example, if you are looking for Kodiak, Alaska, type the name in the **Search** box, press return and let *Google Earth* take you there.

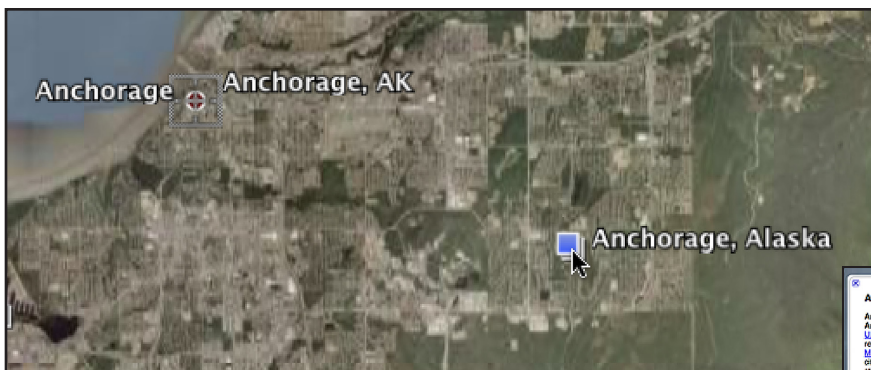


Go back to Anchorage. Move the cursor over the point for Anchorage. At the bottom of the window the latitude, longitude and elevation for that point will be displayed.

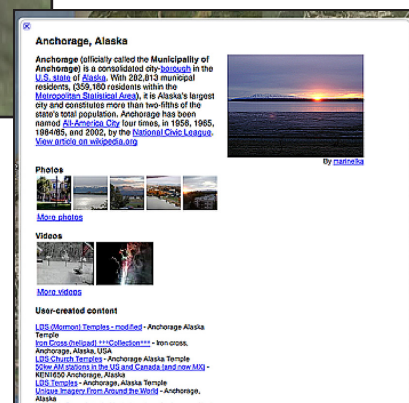
In the Layers sidebar, click on the triangle next to Geographic Web. Click on Places. No other options should be checked.



A blue box title Anchorage, Alaska, can be seen in the window. The view may need to be zoomed in or out to see the blue box.



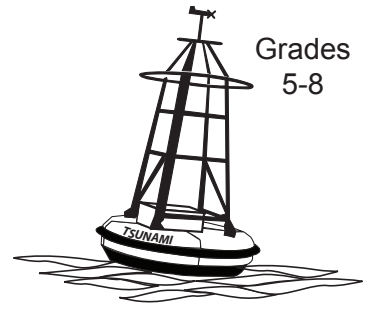
Click on the blue box to show information, photos and links about Anchorage, Alaska



Name: _____

Student Worksheet

Google Earth



Directions: Use *Google Earth* to answer the following questions.

1. Enter "Juneau, AK" in the search box and click magnifying glass. *Google Earth* will zoom to that location and display the name of the town. What are the latitude, longitude and elevation at that point?

Latitude: _____

Longitude: _____

Elevation: _____

2. Enter the name of the town where you live in the search box and click magnifying glass. What are the latitude, longitude and elevation at that point?

Latitude: _____

Longitude: _____

Elevation: _____

3. Click on the blue box for Juneau, Alaska. When did Juneau become the capitol of Alaska?

Date: _____

4. If there is a blue box for your town, click on it to bring up more information. What is the population for your town?

Population: _____

5. Search for other places on *Google Earth* to answer the following questions.

a) Wonder Lake, AK is near which well-known mountain? _____

b) Name the institute located at 903 Koyukuk Dr. _____

c) What building is located at 1600 Pennsylvania Ave, 20006? _____

d) Search for a place of your choice: _____