Google Earth in Intermediate Elementary Classrooms*

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Abstract

This module explains the uses of Google Earth in an upper elementary classroom, including some factors which must be taken into account when using a program such as this and some ideas for more creative uses of the program.

1 Overview

1.1 Why Google Earth?

Google Earth can be extremely valuable in upper elementary classrooms in terms of how it can provide students with a better grasp of terrain features and grid coordinates. It uses satellite photos of the Earth to show different views and can be used for anything from finding a location to going on virtual field trip to different areas. There are a number of ways to change the viewpoint, including tilting the horizon and changing the layers shown on the map in order to view or take away roads, buildings, and other objects on the map.

There are two versions of Google Earth which can be used: free and Pro. Both of these versions offer the same satellite imagery and 3-D terrain and building views. Google Earth has added a new feature in which it is possible to view the ocean floor as well. Google Earth Pro goes a little further in that it allows for higher-resolution printing, quick mapping of GIS data, and a Movie Maker tool to be used to make videos of Earth models. Educators can get Google Earth Pro for free by applying for a one-year license. More information can be found here: http://ed-tech-axis.blogspot.com/2008/04/google-earth-pro-for-educators.html[1] .

2 How to Get Started With Google Earth

2.1 Features

Google Earth is free to download onto any computer through the internet. Through it, a person can view aerial photos of the earth or dive into the depths of the ocean. Google Earth 5 includes several more in depth features, such as creating and playing tours (http://earth.google.com/support/bin/static.py?page=guide.cs&guide=22379[2]), using a flight simulator to look around (http://earth.google.com/support/bin/static.py?page=guide.cs&guide=22385[3]

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[1] http://ed-tech-axis.blogspot.com/2008/04/google-earth-pro-for-educators.html

[2] http://earth.google.com/support/bin/static.py?page=guide.cs&guide=22379

[3] http://earth.google.com/support/bin/static.py?page=guide.cs&guide=22385

). These are on top of the normal features such as finding and marking locations (http://earth.google.com/support/bin/static.p
), getting directions and sightseeing (http://earth.google.com/support/bin/static.py?page=guide.cs&guide=22359&topic=22
), and importing data from another device into Google Earth (http://earth.google.com/support/bin/static.py?page=guide.cs&
).

To get started on the program as a whole, Google Earth provides a user guide which links to all of these sites and explains how to get started with the program. It can be found at: http://earth.google.com/support/bin/static.py?pag
.

Google earth also now provides a feature which allows one to look at historical imagery and compare it to the present imagery as can be seen in this example: http://earth.google.com/tour.html#v=3[8] .

3 Classroom Examples

3.1 Google for Educators

http://www.google.com/educators/p_earth_discovery.html[9]

Google, working with Discovery Education, created a website for educators which compiles lesson plans that incorporate Google Earth into the curriculum. This website offers ideas from elementary school all the way through high school. Besides lesson plans, it also offers ideas from teachers about how they incorporated Google Earth into their individual lessons. For a beginning teacher, the two elementary school lesson plans offered on the website (My Summer Vacation and The American Revolution) can offer practice in incorporating this tool. As the teacher progresses in her career, she can look at the teacher-created examples in order to further develop her own ideas in incorporating Google Earth into lesson plans.

3.2 Google Earth Education Community

http://edweb.tusd.k12.az.us/dherring/ge/googleearth.htm[10]

This website offers a place for students and teachers to display and share educational projects they have made using Google Earth. These projects include topics from art, history, literature, and science. Using the satellite imagery, these projects mark different locations which pertain to a specific topic, such as the locations of Jane Austen novels or watersheds throughout a country. These different projects can be used as visual displays of a certain idea.

For example, a Google Earth presentation on North American watersheds can be found here: http://bbs.keyhole.com/ubb/
.

This presentation shows the different watersheds that can be found in North America. Although it does not give information outside of where the watersheds are located, this is one of the ways in which this presentation can be incorporated into the lesson; students can use it as a starting point for finding the watersheds and then further their knowledge on them through research.

This website also offers both student and teachers an area in which, if they feel confident in their abilities, to post their own submission of a topic presentation that used Google Earth. It is a free website that offers teachers presentations to use in their classes in order to teach specific subjects and gives detailed instructions on how students can create such presentations on their own.

[4] http://earth.google.com/support/bin/static.py?page=guide.cs&guide=22364&topic=22367
[5] http://earth.google.com/support/bin/static.py?page=guide.cs&guide=22359&topic=22651
[6] http://earth.google.com/support/bin/static.py?page=guide.cs&guide=22373
[7] http://earth.google.com/support/bin/static.py?page=guide_toc.cs
[8] http://earth.google.com/tour.html#v=3
[9] http://www.google.com/educators/p_earth_discovery.html
[10] http://edweb.tusd.k12.az.us/dherring/ge/googleearth.htm
[11] http://bbs.keyhole.com/ubb/ubbthreads.php?ubb=showthreaded&Number=238839&site_id=1#import

3.3 Using the Google Earth Measurement Tool

Dr. Alice Cristie created a web presentation in which she explained Google Earth and its uses in elementary schools. One of the lesson plans which she created uses the measurement tool in order to find distances of buildings, ships, oceans, and other objects. She gives a detailed view of how this lesson should work here: http://www.alicechristie.org/gearth/measure/index.html[12] .

As she states, using Google Earth makes the distances more real for students; they are measuring actual objects rather than arbitrary pictures on a page. These lessons can be further individualized to students by having them measure distances of things in their own lives, such as their houses or their school.

Her entire website, which explains the uses of Google Earth, can be found at: http://www.alicechristie.org/gearth/[13] .

3.4 Google Earth Lesson

GELessons.com is a website which provides lesson plans and information on how to incorporate Google Earth into the classroom. It ranges from elementary up through high school in terms of these lesson plans. Each of these lesson plans, when pulled up, shows a description of the lesson, the grade level it is meant for, goals and objectives, and skills addressed. It also offers further resources and ideas for expanding the lesson.

One lesson for upper elementary students is called *Where on Earth are you From*: http://www.gelessons.com/lessons/newle .

This lesson plan has students look at their family trees and track their ancestors' movement across the globe. Although it uses Google Earth in the lesson, its main focus is learning about cultural diversity and each other's history. Google Earth is merely a tool which the students use to visually see what they are learning. It also incorporates some math in it in that a part of the lesson concerns measuring distances. A suggestion of a written reflection as an assessment is also provided in the lesson in case the teacher cannot think of a good summative assessment for this lesson. It provides enough detail in the lesson plan for the teacher to use, but still leaves room for individual interpretation.

4 Assessing ... for the Classroom

4.1 Pro's

- Google Earth can be used in conjunction with a Smart Board in order to demonstrate different activities. This will make it easier and more exciting for students to watch demonstrates and can encourage interest
- Activities in Google Earth can be more personalized to the students because they can see landmarks on the map that they know in real life (ex. Their house)
- Students have the opportunity to download the program onto their personal computers if they so choose.
- The features of the program allow for a lot of different uses in classroom activities, both on computers and off.

4.2 Con's

- Assessments on knowledge of Google Earth and how the features can be used in the real world, excluding projects, must necessarily be fully teacher-created.
- Most of the uses of this program are hands-on activities for the students and therefore would require either more computers or more time

[12] http://www.alicechristie.org/gearth/measure/index.html
[13] http://www.alicechristie.org/gearth/
[14] http://www.gelessons.com/lessons/newlessonfiles/wheareyoufrom.html

- For projects, students may not have access to a computer with the program. Time would need to be given during the day to create these projects.

5 Considerations for Teachers

- The basic functions of Google Earth are not difficult to figure out. However, it does take some exploration in order to understand the more complex functions. This exploration must be accounted for in classes where Google Earth is used
- There is a medium risk of distraction when using this program during class time; teachers should make sure that any activities involving Google Earth will maintain student interest so that no one wanders off-topic
- Teachers need to take into account the level each student is at in maturity, intelligence and technological comfortableness when using the program as part f a class. Although the basic mechanisms of the program is fine for the majority of upper elementary students, more advanced students must be given more complicated tasks within the program, such as creating presentations rather than simply drawing on maps.