



Google™



Geo



Education

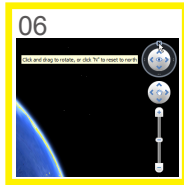
**Google Earth Basics for K-12 Education**

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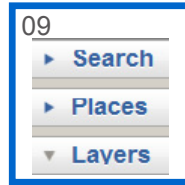
A look at all of the class content at a glance.



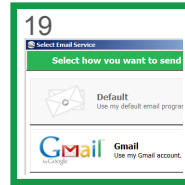
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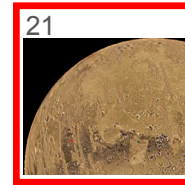
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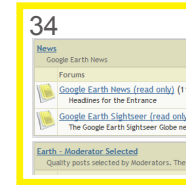
Panels



Sharing



Explore  
Other Worlds



Resources

### :: Overview

Google Earth contains a wealth of geographical data. The full potential for teaching and learning using this software is yet to be realized. Google Earth has been applied in all subject areas, supplementing normal coursework in a way that amazes and inspires students. This course is intended for students with little or no 3d experience, who want to learn how to explore our world in Google Earth.

### :: Prior Skills

To be successful in this course you should already be able to:

- Demonstrate mouse skills including: double-click, single-click, drag, and right-click (context-click).
- Demonstrate fundamental computer skills including: start an application, copy files to desktop, internet navigation.
- You will need a basic 3-button scroll wheel mouse to use Google Earth efficiently.

### :: Learning Objectives

Upon completion of this course you should be able to:

- Search for specific places and fly to them
- Add entities including place-marks, polygons, paths, and image overlays
- Save your work in an organized manor
- Access additional content in the Layers panel and Earth Gallery
- Explore other worlds including: Ocean, Mars, and Moon.
- Share your work via email
- Create a guided tour

## Introduction

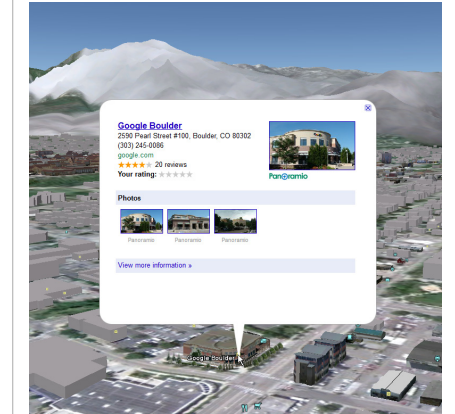
### What is Google Earth?

:: Google Earth allows us to view satellite imagery, maps, terrain, 3D buildings, galaxies in outer space, and even the depths of the ocean all from a seamless 3d digital globe. Google Earth is packed full of rich geographical content including maps, buildings, and historical imagery. We can search for business locations, get directions, add our own 3d buildings, visit ancient rome, and even check the weather all from within free Google Earth.



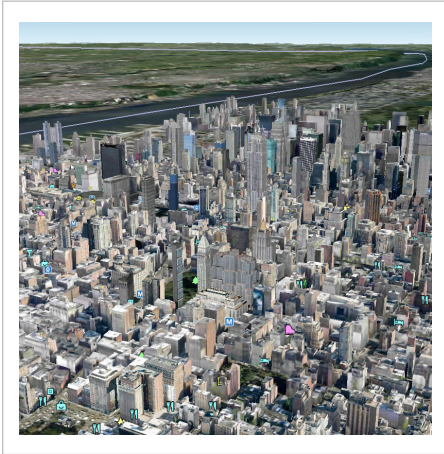
#### 🖱️ Digital 3d Globe

Google Earth allows us to travel anywhere in the world digitally. Access additional content through the layers panel and the Google Earth Gallery.



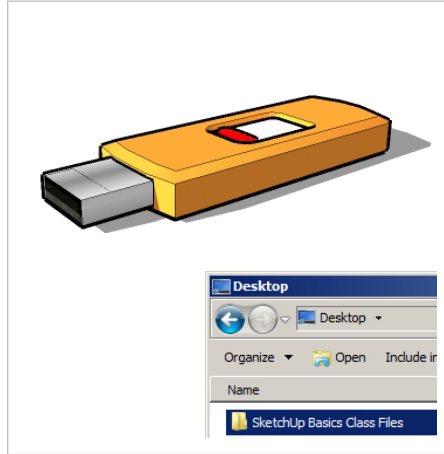
#### 🖱️ Interactive Browser

We can access many of the same features of map in 3d using Google Earth.



### 🖱️ **3d Buildings**

Google Earth allows us to explore cities built in 3d.



### 🖱️ **Copy Class Files**

Copy all class files to your desktop for easy access during class.



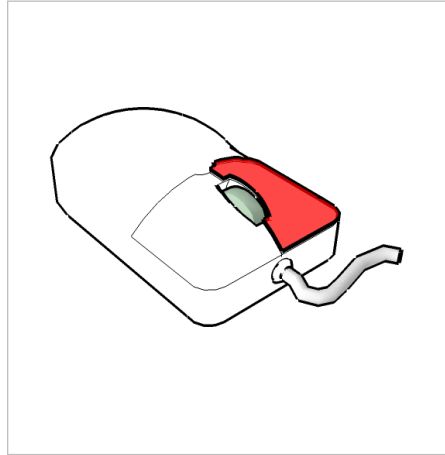
### 🖱️ **Launch Earth**

Open Google Earth from the icon on your desktop, or from the Start bar.

## Navigation

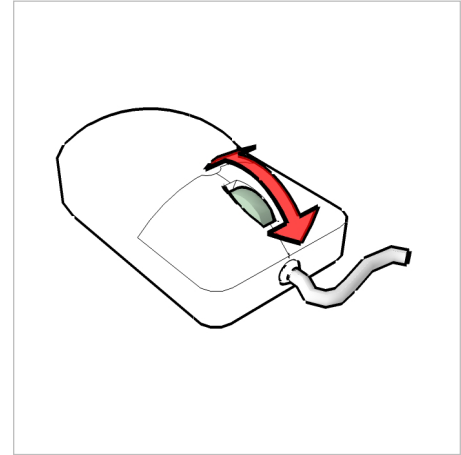
Explore the world with a mouse.

∴ Google Earth is a 3d digital Globe. We can navigate this world with a few simple tools. It is best to use a 3 button scroll wheel mouse, but not absolutely necessary.



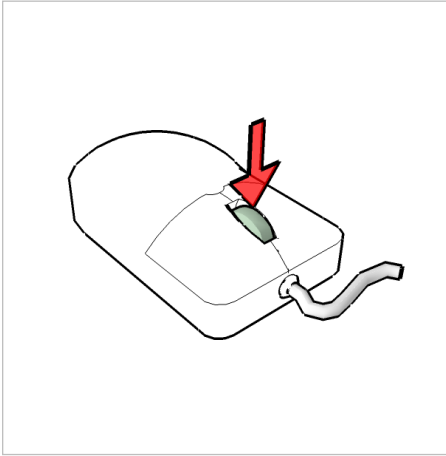
### Pan

Left click and drag to pan the Earth. Also, you can use the arrow keys to pan left, right, up, and down.



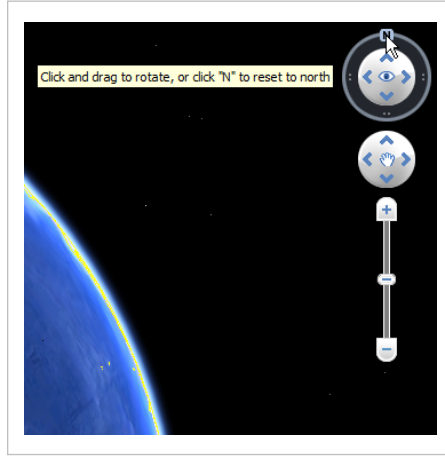
### Zoom

Roll your scroll wheel toward the screen to zoom in, and away from the screen to zoom out. Double left click to zoom in, double right click to zoom out.



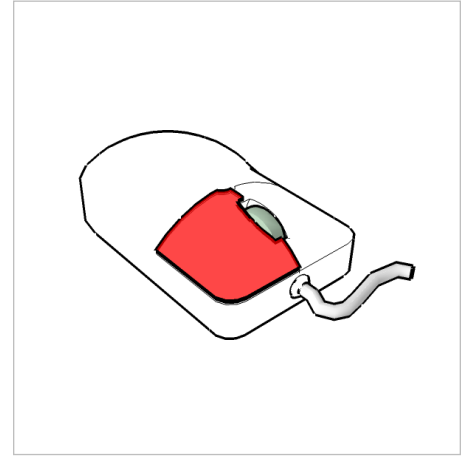
### Tilt

Hold the scroll wheel button down and drag to orbit around a point on the earth. Hold down Shift and use the arrow keys.



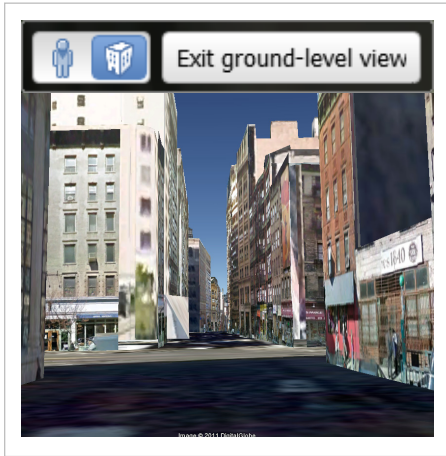
### On Screen Navigation

If you do not have a 3 button scroll wheel mouse use the on screen navigation to zoom, pan, and tilt. Also, you can reset north to the top of the screen by clicking the "N".



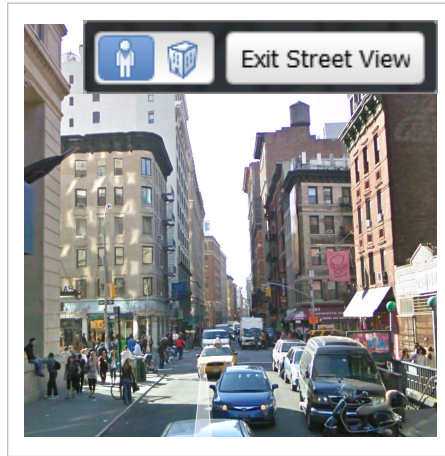
### Right Click and Drag

Right click and drag your mouse towards the bottom of the screen to zoom in a more continuous and fluid motion. Drag towards the top of the screen to zoom out.



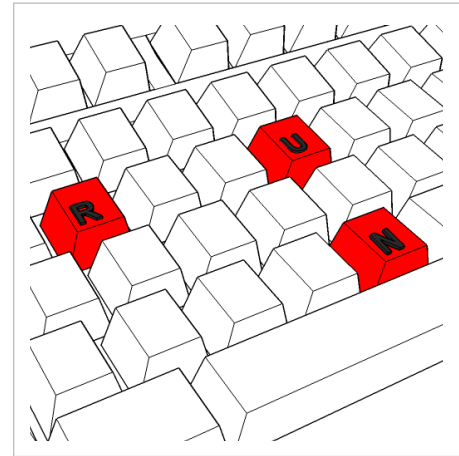
## Ground Level View

Right click and drag on a street until you enter Ground Level View mode. Click and drag to look around.



## Street View

1) Click on the “Street View” button at the top right of the screen. Tap Esc to exit, or click on the “Exit Street View” button at the top right corner of the screen to move back to Google Earth.



## Keyboard Shortcuts

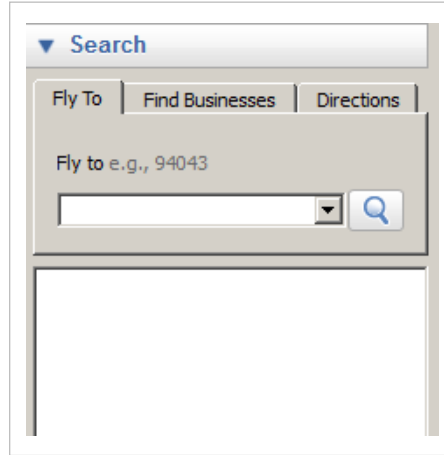
Use keyboard shortcuts to automatically re-orient your view. Press N to set north at the top of your screen. Press U to move back to a direct overhead view. Press R to do both at the same time.



## Panels

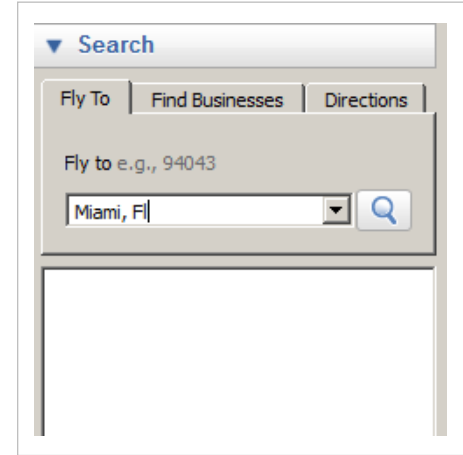
Find, create, and share places in Google Earth.

:: Panels allow us to find, generate, share, save, and explore content in Google Earth. Each of the three panels has a very specific function that further enriches the Google Earth educational experience.



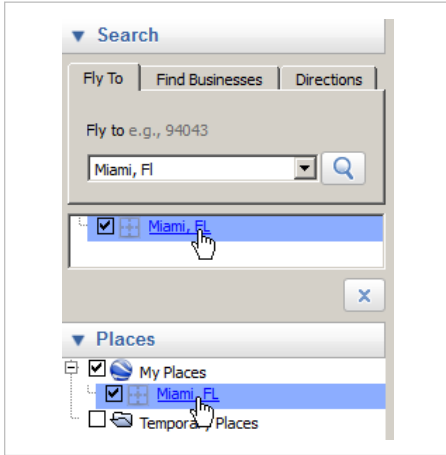
### Search Panel

Use the search panel to find addresses, businesses, landmarks, directions, etc. You can search here just the same as you would in Google Maps.



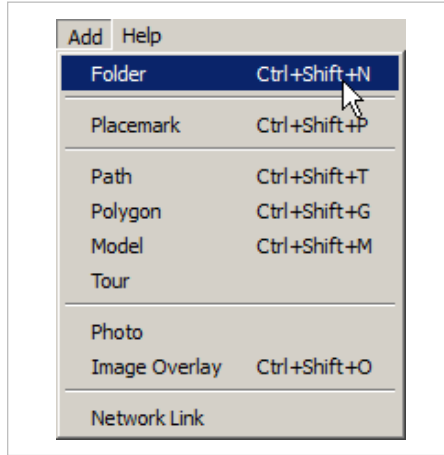
### Search

Type "Miami, Fl" into the "Fly To" field and press Enter. This will automatically take you to Miami, Florida and also list other possible results below as temporary place-marks.



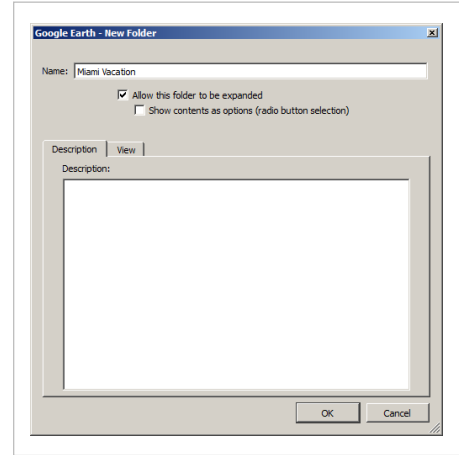
## Places Panel

Once we have found what we are looking for we can save it in the Places Panel. Drag the Miami, FL placemark into “My Places”. Now, every time you open Google Earth you will have access to Miami.



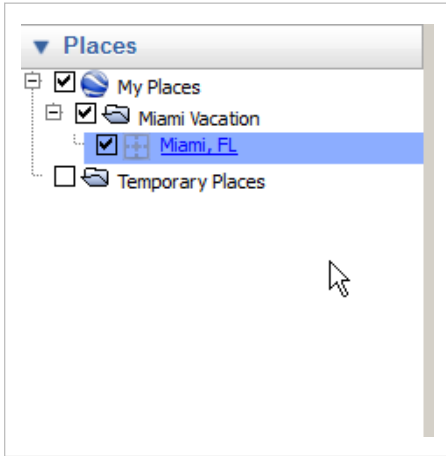
## Organize Places

Keep “My Places” organized with folders just as you would your hard drive. Click on the Add dropdown menu and choose “Folder”.



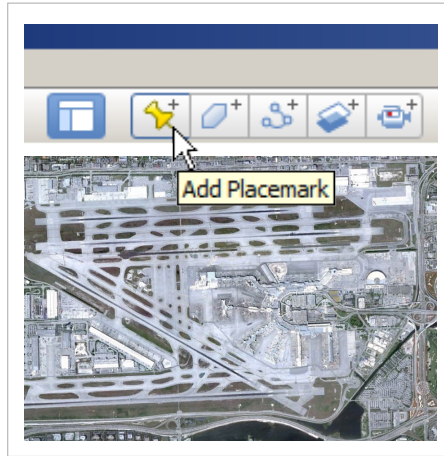
## Folder Title

Give the folder a name such as “Miami Vacation”. Click on “OK” to finish.



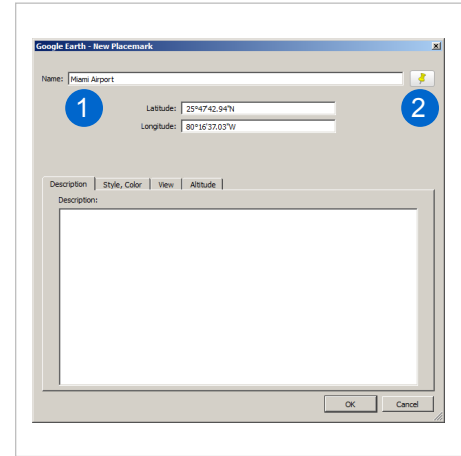
## Organize Places

Click and drag the Miami, FL placemark into the new folder. Now we are organized!



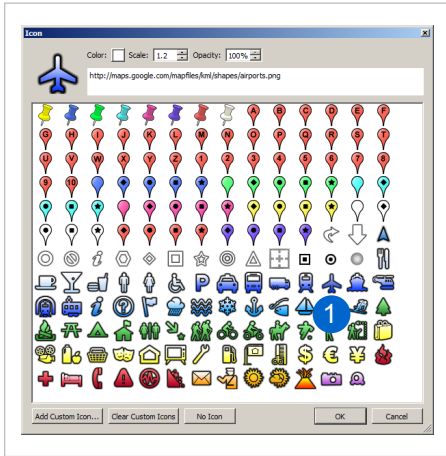
## Add Placemark

Zoom in so you can see the Airport. Click on the Add Placemark icon on the Toolbar.



## Title Placemark

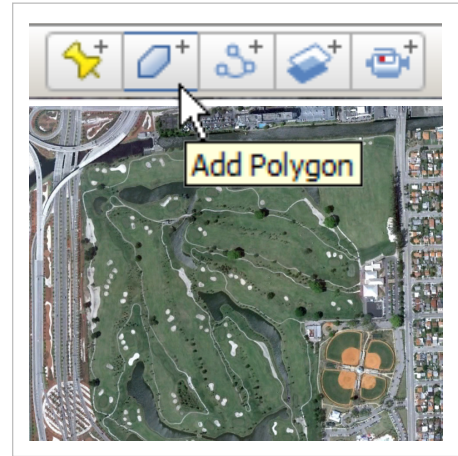
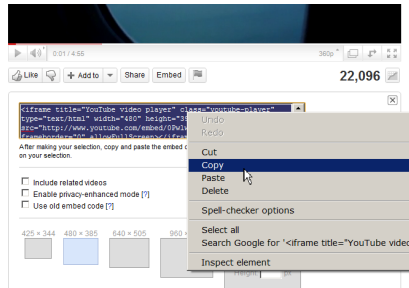
1) Title this placemark "Miami Airport". 2) Next, click on the yellow thumbtack to change the icon.



## Change Icon

Select the Icon that looks like an airplane. Click “OK” to finish, and again in the New Placemark window.

**TIP ::** Placemark balloons are able to show html code. Try searching YouTube for “Miami Airport”. Once you find a video you like, copy the embed html code into a placemark description in Google Earth. Now, anyone who visits that placemark will also see the YouTube video in the information balloon.



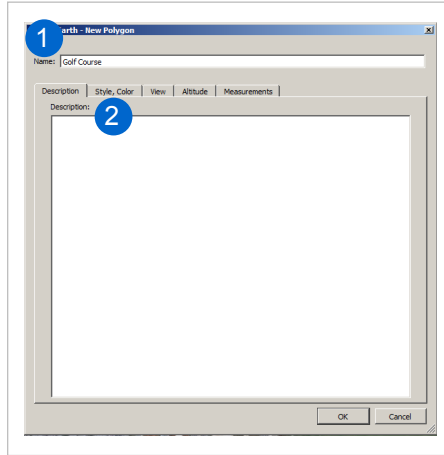
## Add Polygon

Zoom in to the golf course on the south east corner of the airport. Click on the Add Polygon Icon in the Toolbar.



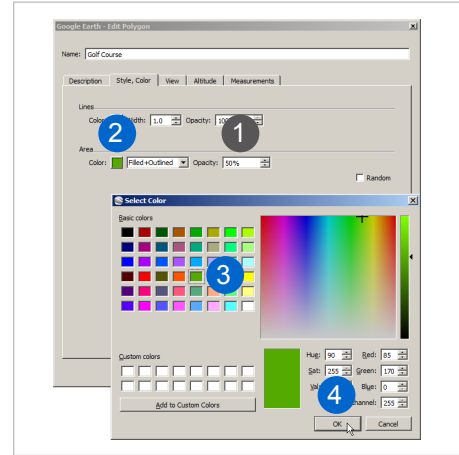
## Draw Polygon

Click to add points to the polygon. Right click to delete points from the polygon. Click and drag to draw smoother curves.



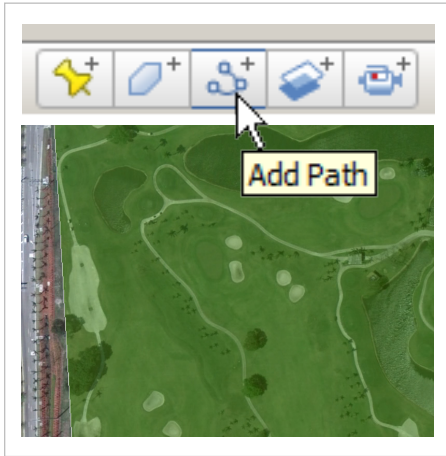
## Name Polygon

1) Give this polygon the name "Golf Course". 2) Next, click on the Style,Color tab in the New Polygon dialogue box.



## Change Style

1) Set the opacity of the fill to 50%.  
2) Click on the colors box. 3) In the Select Color dialogue box choose a green to represent the golf course.  
4) Click on OK in both dialogue boxes to finish.



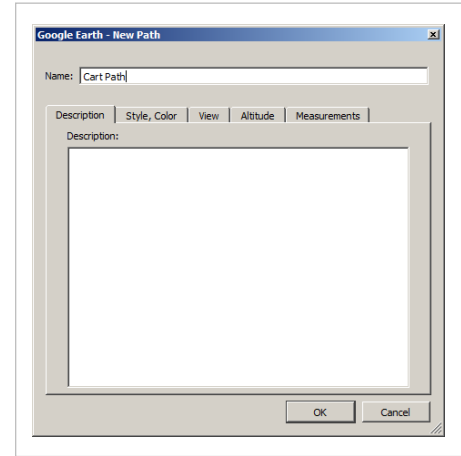
## Add Path

Zoom in so you can clearly see the cart paths. Click on the Add Path icon on the Toolbar.



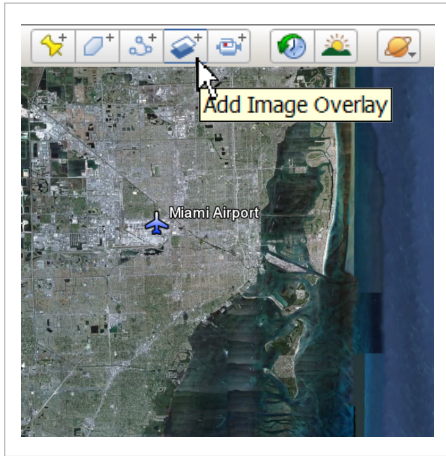
## Add Points

Click to add points to the path. Right click to delete points from the path. Click and drag to draw smoother curves.



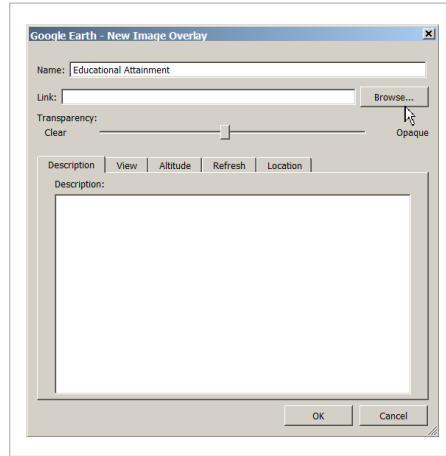
## Name the Path

Give this path the name “Cart Path”. Also, take a moment to explore some of the similar Style,Color options. Click Ok to finish.



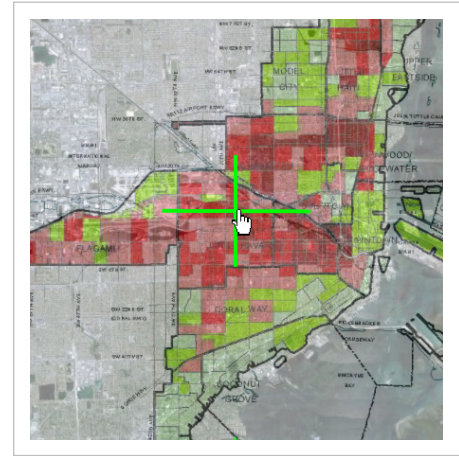
## Add Image Overlay

Zoom out so that you can see the greater Miami Metro area. Click on the Add Image Overlay icon in the Toolbar.



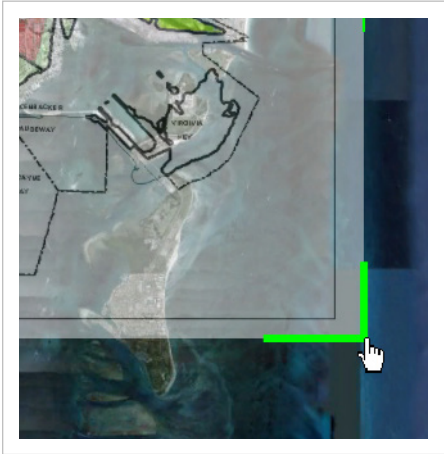
## Properties

1) Give the Image Overlay the name "Educational Attainment". 2) Drag the transparency slider to the middle. 3) Click on "Browse...". Select "Educational Attainment.jpg" from the class files folder.



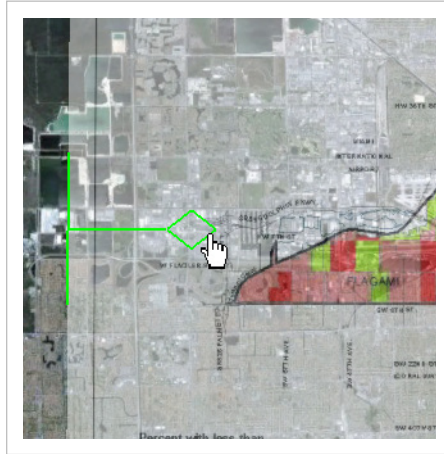
## Move

Click and drag on the green cross in the middle of the overlay to move the Image Overlay.



### Scale

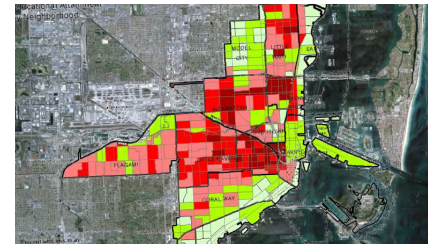
Click and drag on a corner or at the middle of an edge to scale the Image Overlay. Hold down shift and click on the corner to lock the aspect ratio while scaling.



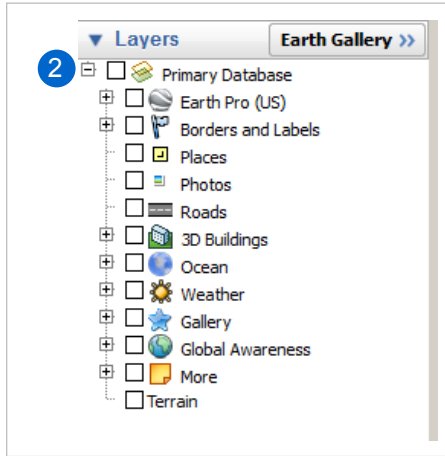
### Rotate

Click and drag on the diamond to rotate the Image Overlay.

**TIP ::** A portable network graphics image file (.png) looks similar to other image file formats, but also contains an alpha channel. This allows us to save transparency within the image. Typically this is accomplished with an image editing program such as photoshop or GIMP. Try swapping the Image Overlay with the Educational Attainment.png image in the Earth Basics Class Files folder on your desktop.

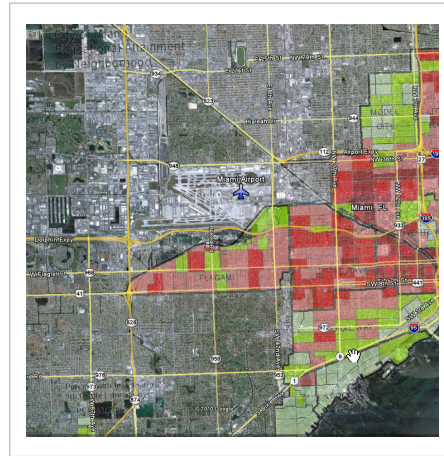






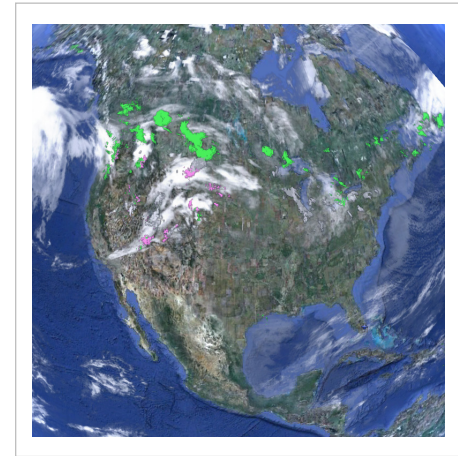
## Layers

1) The Layers Panel is where we can access a wealth of information provided by Google and their partners. 2) Turn off all layers by unchecking the Primary Database.



## Roads

Click on the check box next to the Roads layer to turn it on.



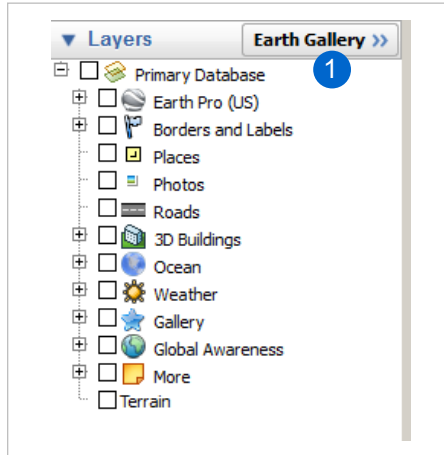
## Weather

Click on the check box next to the Weather layer to turn it on.



## 3D Buildings

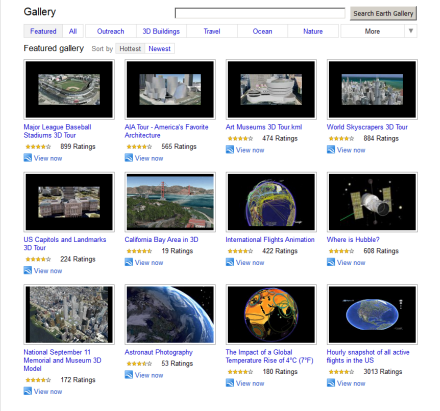
Click on the check box next to the 3d buildings layer to turn it on.



## Earth Gallery

1) Click on the “Earth Gallery” button to access information created by Google and others.

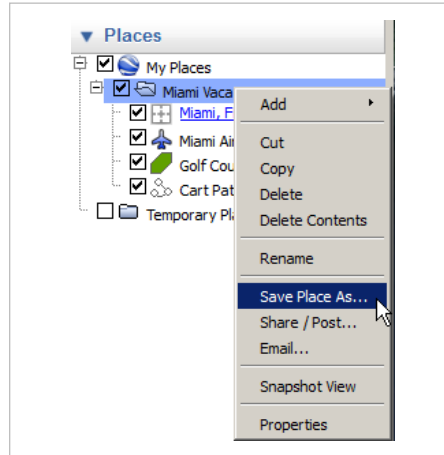
**5 MINUTE EXERCISE** :: Take a moment to explore content in the Earth Gallery. Practice saving these presentations to “My Places”.



## Sharing

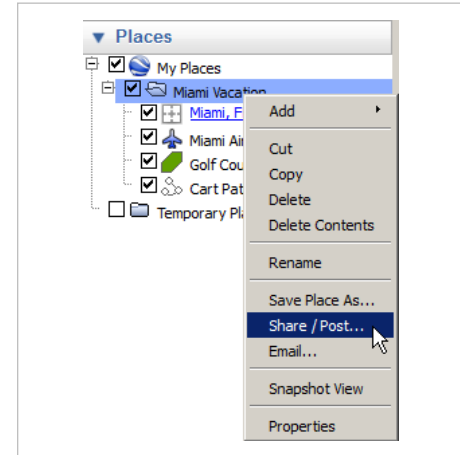
Share your work with students, friends, and colleagues.

:: Once we have explored the Earth and created a presentation we can share it with others by printing, posting, emailing, and even creating a guided tour with voice over!



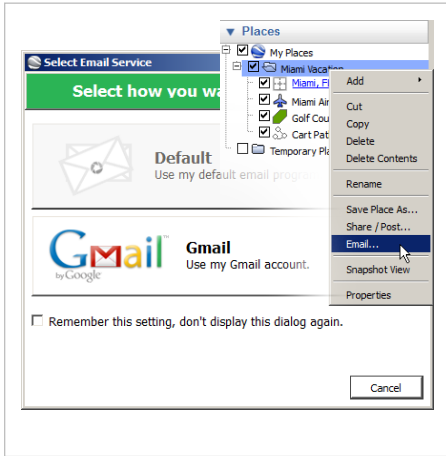
### Save As

Right click on the “Miami Vacation” folder and choose “Save Place As...”. Save the .kmz to the Earth Basics Class Files folder on your desktop.



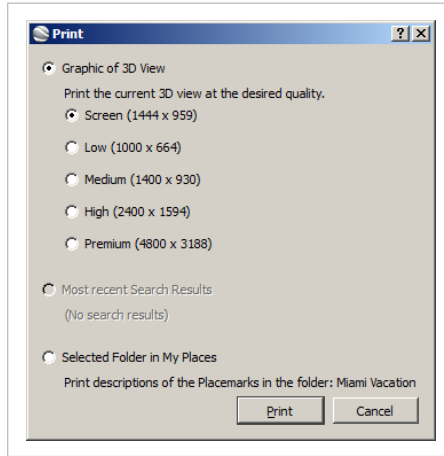
### Share/Post

Right click on the “Miami Vacation” folder and choose “Share/Post...”. Follow the instructions to share your work with the entire Google Earth Community in the appropriate topic.



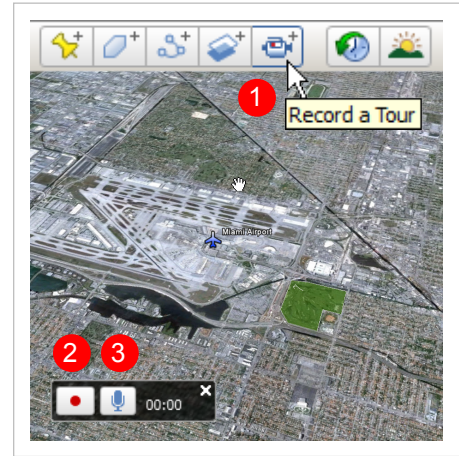
## Email

Right click on the “Miami Vacation” folder and choose “Email...”. Choose whether to use your personal email or Gmail. The Email option is also available on the Toolbar.



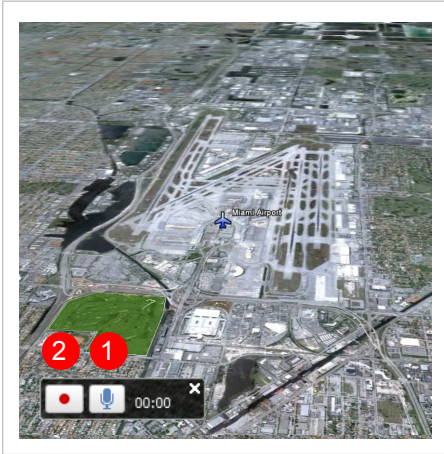
## Print

Click on the File dropdown menu and choose “Print”. Choose what to print and resolution. The free version of Google Earth will only allow you to print up to your screen resolution.



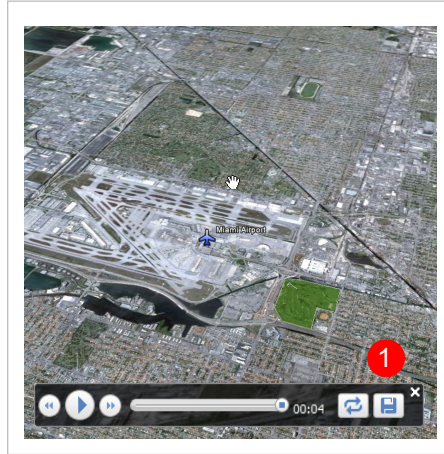
## Record a Tour

1) Click on the “Record a Tour” icon on the Toolbar. 2) Click on the Record button to start recording your camera movements. 3) Click on the microphone to start Recording your voice and camera movements.



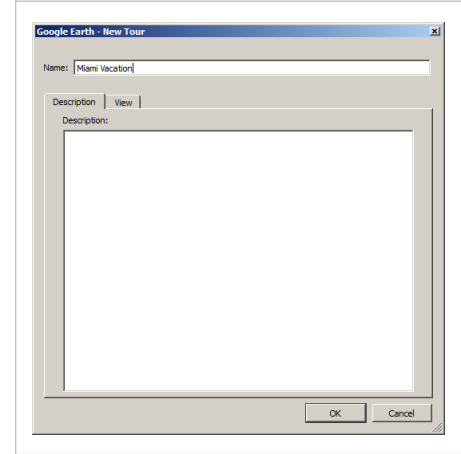
## Record a Tour

1) Click on the Microphone to mute and unmute voice recording. 2) Click on the Record button to finish the recording.



## Playing a Tour

The tour will automatically start playing when you are finished recording. 1) Click on the Disk icon to save the recorded tour to “My Places”.



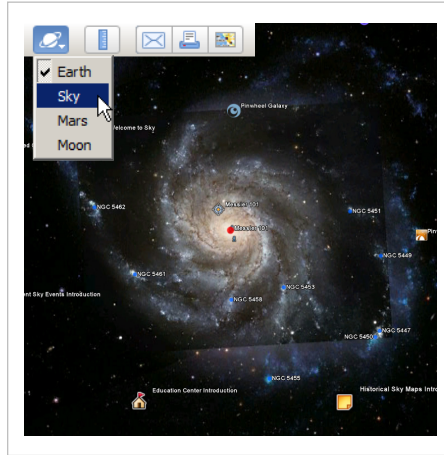
## Name the Tour

In the new tour dialogue box, name the tour “Miami Vacation”. A Tour can be emailed or posted just like a placemark, or any other entity in Google Earth.

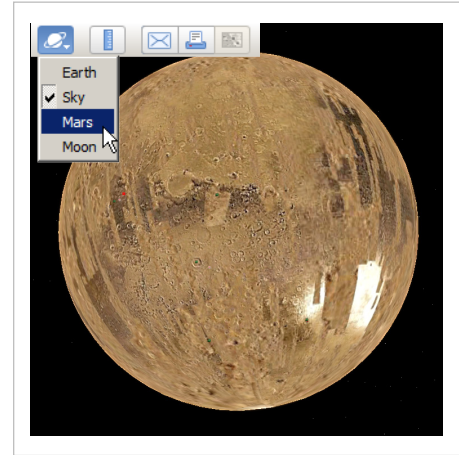
## Explore Other Worlds

Travel through space and under water.

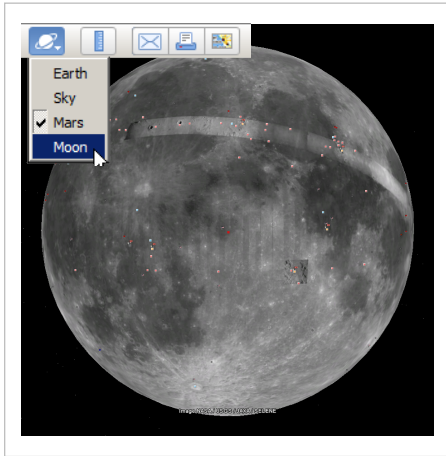
:: Google Earth is so modest, we have access to so much more! Take a look at some other worlds to explore. Use the same navigation, layers, and places... Just like exploring Earth!



Click on the planet icon on the Toolbar at the top of your screen and choose “Sky”. Turn layers on to explore content and learn more about the solar system.

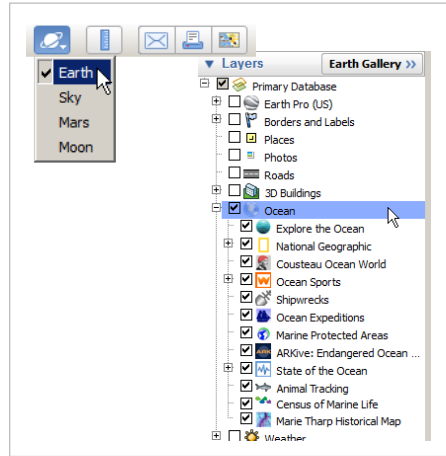


Click on the planet icon on the Toolbar at the top of your screen and choose “Mars”. Turn layers on to explore content and learn more about Mars.



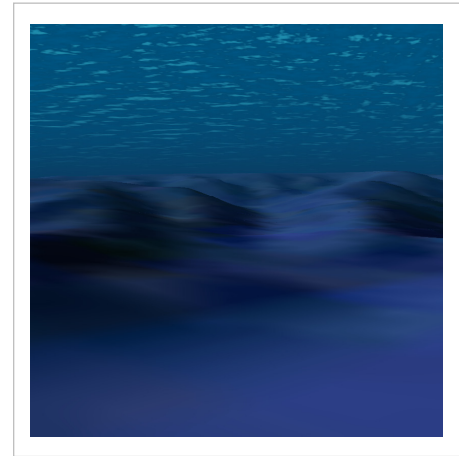
## Moon

Click on the planet icon on the Toolbar at the top of your screen and choose “Moon”. Turn layers on to explore content and learn more about the Moon.



## Ocean

1) Click on the planet icon on the Toolbar at the top of your screen and choose “Earth”. 2) Expand the Ocean Layers by clicking on the plus sign next to “Ocean”, then click on check box to turn all on.

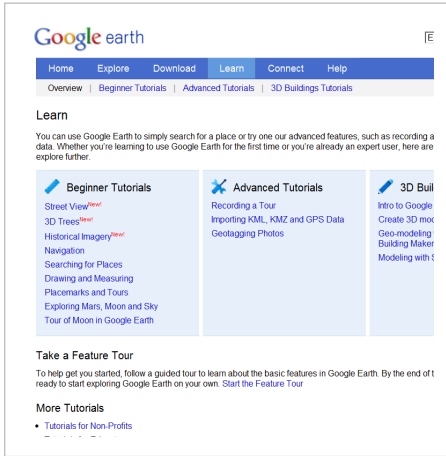


## Ocean Navigation

Use standard navigation to orbit your view under the surface to explore the depths of the ocean. The “Terrain” layer must be turned on to navigate under water.

## Resources

Valuable websites and additional information.

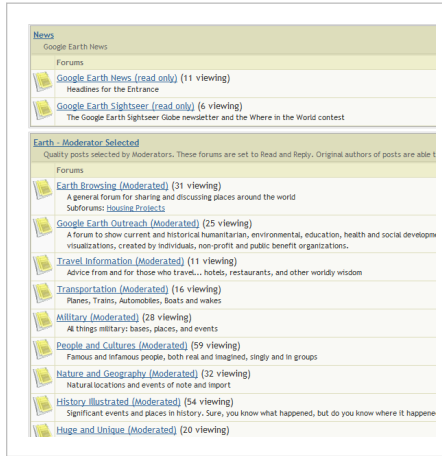


The screenshot shows the Google Earth website's 'Learn' section. At the top, there's a navigation bar with 'Home', 'Explore', 'Download', 'Learn', 'Connect', and 'Help'. Below that, a sub-menu includes 'Overview', 'Beginner Tutorials', 'Advanced Tutorials', and '3D Buildings Tutorials'. The main content area is titled 'Learn' and contains three columns of tutorial links: 'Beginner Tutorials' (Street View, 3D Trees, Historical Imagery, Navigation, Searching for Places, Drawing and Measuring, Placemarks and Tours, Exploring Mars, Moon and Sky, Tour of Moon in Google Earth), 'Advanced Tutorials' (Recording a Tour, Importing KML, KMZ and GPS Data, Geotagging Photos), and '3D Build' (Intro to Google, Create 3D model, Geo-modeling, Building Maker, Modeling with 3D). A 'Take a Feature Tour' section offers a guided tour for new users. At the bottom, there are 'More Tutorials' for non-profits.



### Video Tutorials

<http://www.google.com/earth/learn/>



The screenshot shows the Earth Community forum page. It features a 'News' section with links to 'Google Earth News', 'Google Earth News (read only)', 'Headlines for the Entrance', 'Google Earth Sightseer (read only)', and 'The Google Earth Sightseer Globe newsletter and the Where in the World contest'. Below is the 'Earth - Moderator Selected' section, which lists various forum topics such as 'Earth Browning', 'Suburbs: Housing Projects', 'Google Earth Outreach', 'Travel Information', 'Transportation', 'Military', 'People and Cultures', 'Nature and Geography', 'History Illustrated', and 'Huge and Unique'. Each topic includes a moderation status and a view count.



### Earth Community

<http://bbs.keyhole.com/ubb/>



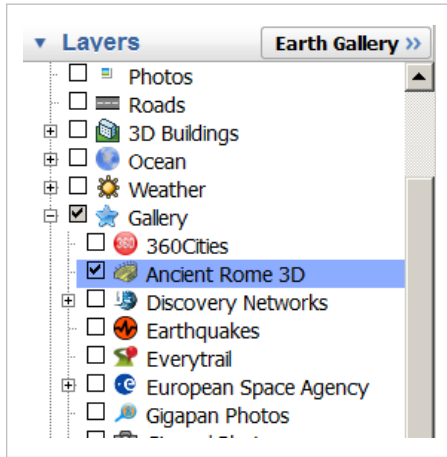
The screenshot shows the Google Lat Long Blog. It features a search bar, a navigation menu, and a main article titled 'Imagery Update - Week of January 24th'. The article discusses the release of new imagery from the L290 launch pad at the Kennedy Space Center, Cape Canaveral Florida. It mentions the Space Shuttle's primary and secondary fuel tanks being made for one of the shuttles, the last planned mission (STS-132), the last mission for Discovery, set to launch on February 23. The article also mentions the shuttle's replacement, the CST-100. The blog includes a 'Community Support' section with links to Google Maps, Google Earth, and Google Places.



### Lat Long Blog

<http://google-latlong.blogspot.com/>





## Rome Reborn

In the Layers panel expand the Gallery collection, then turn on the “Ancient Rome 3D” layer. Double click on the layer name to fly to Rome.



## Lit Trips

<http://www.googlelittrips.org/>



## Google Earth Lessons

<http://gelessons.com/lessons/>

## Notes

Record your own tips, tricks, and strategies.

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