# GIS (Geographic Information Systems)

**Objective:** To learn how GIS programs can be used to display information in a format that is easy to read and understand.

## Setup:

1. On your desktop click on the icon to start **My World GIS 4.1**
2. In the **"Welcome To My World GIS!"** window, click on the "Get Started" button.
3. In the **"My World GIS"** window make sure that the Construct tab is selected.
4. In the **"My World GIS"** window go to "File", then "Import Layer From File..."
5. In the **"Import Data File"** window, find the "**NYC_Health.shp**" and then click on the Open button.
6. In the **"Check Projection"** window make sure that "Data Is In Latitude and Longitude" is checked and then click the "OK" button.
7. In the **"My World GIS"** window, with the Construct tab selected, there should be three frames: 'Data Library', 'Layer List' and 'Map'. In the 'Data Library' frame find the folder labeled **NYC_Health.shp** and drag it to the 'Layer List' frame.
8. In the Map frame click on the button that says "Zoom To All"
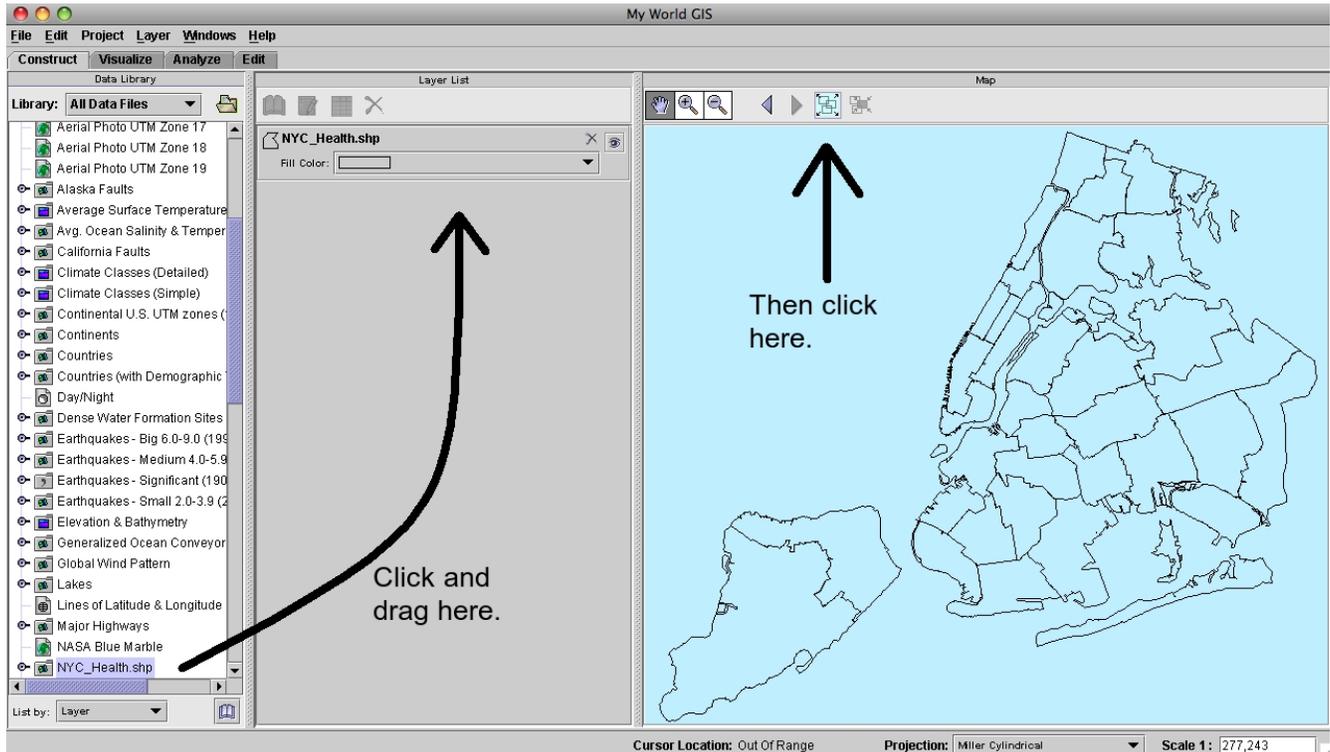


**Question: Which of the 5 boroughs of New York City, has the worst air quality?**

## Part 1:(Understanding the Map and Data Files)

The My World GIS Window has 4 tabs:

Construct -> Is used to add data files to the layer list.

Visualize -> Is used to work with the map adding layers of information.

Analyze and Edit -> Are used to perform complex operations on the data and map, respectively.

**Show Table**

**Lat & Lon**
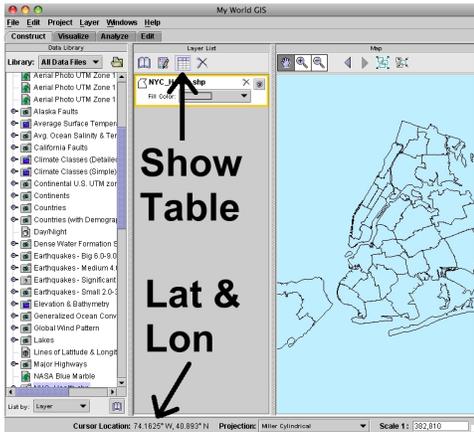
For this exercise you will only need to work under the <u>Construct</u> and <u>Visualize</u> tabs. The data files that you will add to your map are similar to excel spreadsheets. To see the data file for the current map, click on the "<u>Show Table</u>" button in the '<u>Layer List</u>' window. When you are done looking at the table pop-up window close it.

If you place your cursor over the image in the Map window, the Latitude and Longitude of the area under your cursor is displayed at the bottom of the screen. Teachers Preparatory School is located at Latitude, Longitude: (40.66542, -73.91204). See if you can find that location on your map.

## Part 2: (Working With Layers)

1.  Click on the <u>Visualize</u> tab. The Data Library window will disappear, and new buttons will appear at the top of the Layer List and Map windows.
2.  Click on the "<u>Edit Appearance</u>" button in the Layer List window.
3.  In the **Edit Appearance** window click on the <u>Outline Color</u> tab.
4.  From the "<u>Choose Outline Color by</u>" drop down box, select **BOROUGH**.
5.  From the "<u>Colorscheme</u>" drop down box choose **Red-White-Blue**.
6.  Click the <u>Apply</u> button.
7.  Click the <u>Close</u> button.
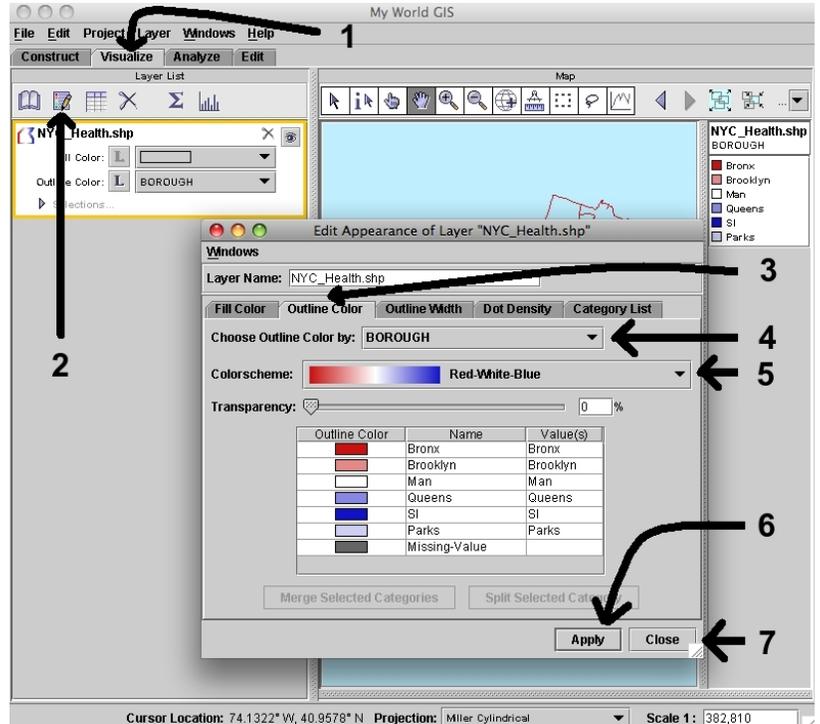


The Boroughs of New York should now be outlined in different colors. Let's adds some more layers.

8.  Click on the Edit Appearance" button again.
9.  In the **Edit Appearance** window click on the <u>Fill Color</u> tab.
10. From the "<u>Choose Fill Color by</u>" drop down box, select **ASTHMA2**.
11. From the "<u>Colorscheme</u>" drop down box choose **Temperature**.
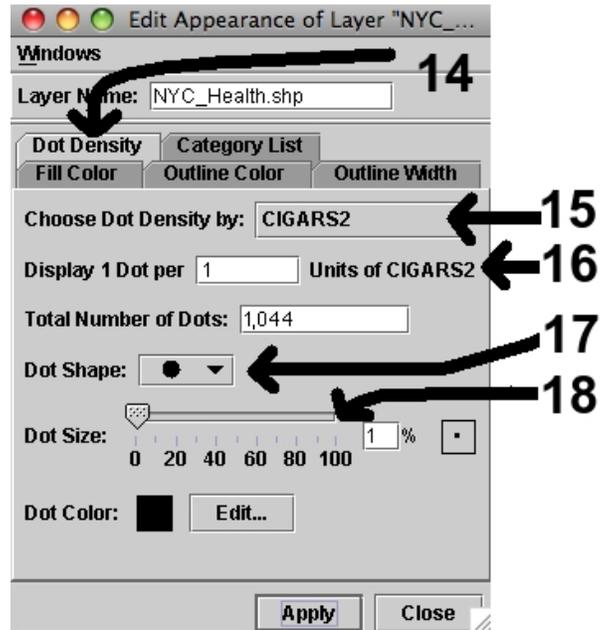12. Click the <u>Apply</u> button and <u>Close</u> button.

The ASTHMA2 title refers to the number of people (as a percentage of all the people living in that district) who, when asked, said that they had had an Asthma attack in the last 12 months.

**Look at your map. Which borough do you think has the highest number of people with asthma?**
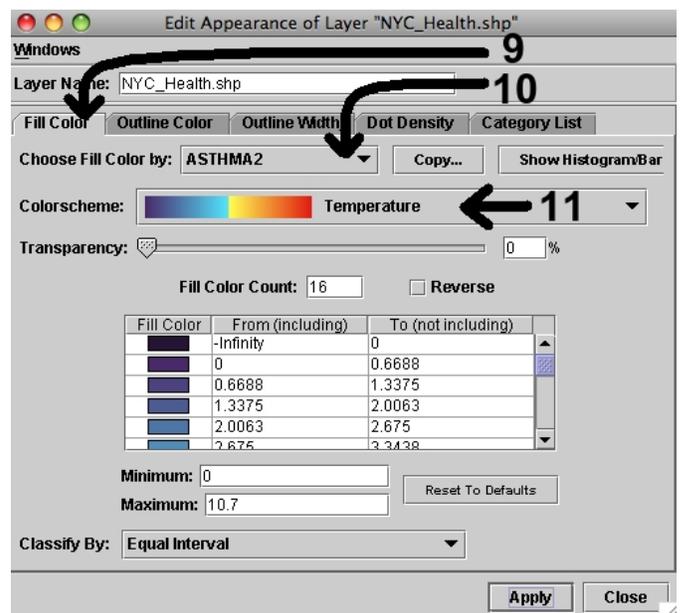
Air Pollution isn't the only factor that can cause or exacerbate asthma. People who are heavy smokers are also more likely to develop asthma and have increased number of asthma attacks. Could the districts with higher asthma rates simply be areas that have a lot more smokers?

13. Click on the Edit Appearance" button again.
14. In the **Edit Appearance** window click on the Dot Density tab.
15. From the "Choose Fill Color by" drop down box, select **CIGARS2**.
16. In the "Display 1 Dot Per" box put the number 1.
17. From the Dot Shape drop down box, choose the circle.
18. On the Dot Size slider bar, move the slider to 1.
19. Set the Dot Color to black.
20. Click the Apply button and Close button.

The CIGARS2 title refers to the number of people (as a percentage of all the people living in that district) who, when asked, said that they smoked more than 10 cigarettes a day. Each dot on the map represents one percent of the people in that neighborhood.

**Look at your map. Do the areas that have higher reports of asthma attacks also have higher numbers of heavy smokers?**

## Part 3: (Printing Your Work)
You might wish to save a GIS map as a picture and import it into other documents.

21. From the main menu, select File and then Layout and Print.
22. You will see a new window called Print Preview. In it will be your map and several other boxes as they would appear if printed on a standard 8.5" x 11" sheet of paper.
23. Each of the boxes in the picture (including the blue map) can be moved. Arrange them so that each can be seen clearly.
24. If you click on the "Add Note" box you will be given a new text box into which you can type data. Add a box and give your page a title. You can change the size of the text by clicking on the "Style" button in the text box.
25. If you think the paper is too big you can change the size by clicking on the "Page Setup" button.
26. When you are satisfied with how your paper looks you can click "Print" and save your image as a JPEG image file.