Start ArcMap by clicking the Start button on the Windows taskbar, point to All Programs, point to ArcGIS10, and click ArcMap10.

When ArcMap opens, you see the Getting Started dialog box on top of the main application window. This dialog box allows you to quickly start a new map, open an existing map or template.

In the Getting Started dialog box, under the existing maps section, click “Browse for more...”

In the Open dialog box, navigate to D:\Ge110_2010\Labs\ExploringArcMap and click Exploring ArcMap.mxd, and click Open.
The map shows global elevations. Each of the files in the Table of Contents (Earthquake Seismicity, Gradicule, Plate Boundary...) is called a layer.

The Table of Contents lists the names of the layers in the map. It shows the color or symbol used to draw each layer and tells you, by a check mark, whether or not the layer is visible. The etopo2-land, etopo2 – Ocean, and etopo2hs.tif layers are currently visible.

- In the Table of Contents, click the check box next to the etopo2 – Land layer to turn it off.
- In the Table of Contents, click the etopo2 – Land check box to turn it back on. Click the check box next to Plate Boundary to turn it on as well.

The Plate Boundary layer is checked but you still can’t see the plate boundaries. This is because data is displayed on the map in the order of the layer in the Table of Contents. The Plate Boundary layer is covered by the topography.

- In the Table of Contents, click the Plate Boundary layer name to highlight it. Click and drag the layer to the top of the Table of Contents, then release the mouse button. As you drag the layer, a horizontal black bar indicates its position.
In the Table of Contents, right-click the Plate boundary layer name. A context menu opens. Many ArcMap operations are started from context menus. On the context menu, click Properties to open the Layer Properties dialog box.

In the Layer Properties dialog box, click the General tab. The Layer Properties dialog box has several tabs for setting layer properties. The General tab is where you can set the Layer Name and display scales.

Navigating a Map

On the Tools toolbar, click the Zoom In tool. (Move the mouse pointer over it to see its name).

Move the mouse pointer over the map. The cursor changes to a magnifying glass. Drag a box around an area of interest. The display will zoom to your area of interest.
Move around the globe to become acquainted to the display tools.

Zooming in or out changes the display scale, which is shown on the Standard toolbar. When the map showed the whole world, the scale was about 1:250,000,000. This means that map features are displayed at one two hundred fifty millionths of their actual size. (Scale is also affected by the size of the ArcMap application window).

- Turn on Plate Labels
- In the Table of Contents, right click Plate Labels layer and click Label Features.

The name of each plate appears next to the map feature.

- On the Tools toolbar, click the Identify tool. When you click the tool, the Identify window opens.

- On the map, click the North American Plate. You must click exactly on the point or you will identify something else.

The Identify window shows you the Name and Label

- Close the Identify window
- On the tools toolbar, click Zoom to full extent. Click the Zoom to and drag a box around the Nubia Plate (Africa)
- Click the Bookmarks menu and click Create

Replace the existing text with Nubia Plate, then click OK
- Click on Bookmarks menu again and click India Plate

The display zooms in on the India Plate. Now measure the length of the Himalays along the Northeastern plate boundary.
On the Tools toolbar, click the Measure tool. The Measure Window opens. Click the Choose Units drop-down arrow, point to Distance, and click Kilometers.

Move the mouse pointer over the display. The cursor is a ruler with a small crosshair. Place the crosshair at the beginning of the Himalays and click to begin a line. Move the cursor along the plate boundary, clicking each time the line changes direction, when you reach the end of the line double-click to end the line.

The length of the line is displayed in the Measure window. With this Measure tool you are able to measure the length of a line or an area in several different units of measure.

Click on File > Save to save your project in your student folder.

Looking at feature attributes

In a GIS, a feature on a map may be associated with a great deal of information. This information is stored in an attribute table. A layer’s attribute table contains a row (or record) for every feature in the layer and column (or field) for every attribute or category of information. Earlier when you clicked the North American Plate to identify it, the information you saw in the Identify window was the information stored in the layer attribute table.

In the Table of Contents, right-click the Plate Labels layer and click Open Attribute Table.

There are 11 records, one for each plate boundary. There are four attributes, or fields. The FID field contains a unique identification number for every record. The Shape field describes the feature geometry. Among the other attributes are the Name and Label information. You are able to resize the fields by clicking on the bar between the fields in the gray area. You are also able to rearrange the order of the fields.
Records, as well as fields, can be highlighted. When a record is highlighted in a table, its corresponding feature is highlighted on the map. A highlighted record or feature is said to be selected.

- Move the attribute table away from the map display. Select a record by clicking on the gray tab at the left edge of the table. The record is not highlighted in the attribute table as well as in the map.
- At the top of the attribute table, click the Table Options menu and click Clear Selection. The record is unselected in the table, and the feature is unselected on the map.
- In the Table of Contents, right-click the Graticule layer and click Open Attribute Table.

The attribute table opens. Notice the tabs at the bottom of the Table window. These tabs allow you to quickly switch between different attribute tables.

- Right-click the VALUE field name and click Sort Descending.

Sorting a field is useful for seeing high and low values, but ArcMap can give you more detailed information.

- In the Table of Contents, right-click the Earthquake Seismicity. Right-click the MAG field and click Statistics. The Statistics of earthquake magnitude window opens.

The Statistics box displays the number of records in the table and the minimum and maximum, sum, mean, and standard deviation values. The Frequency distribution chart represents the distribution of values graphically.