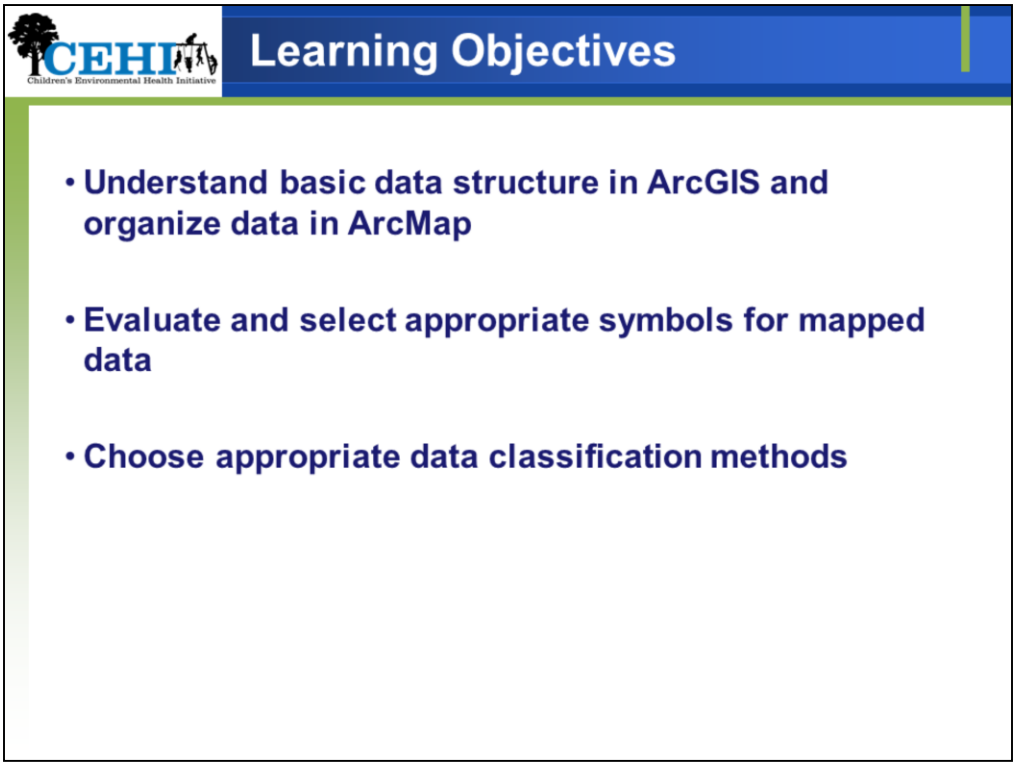
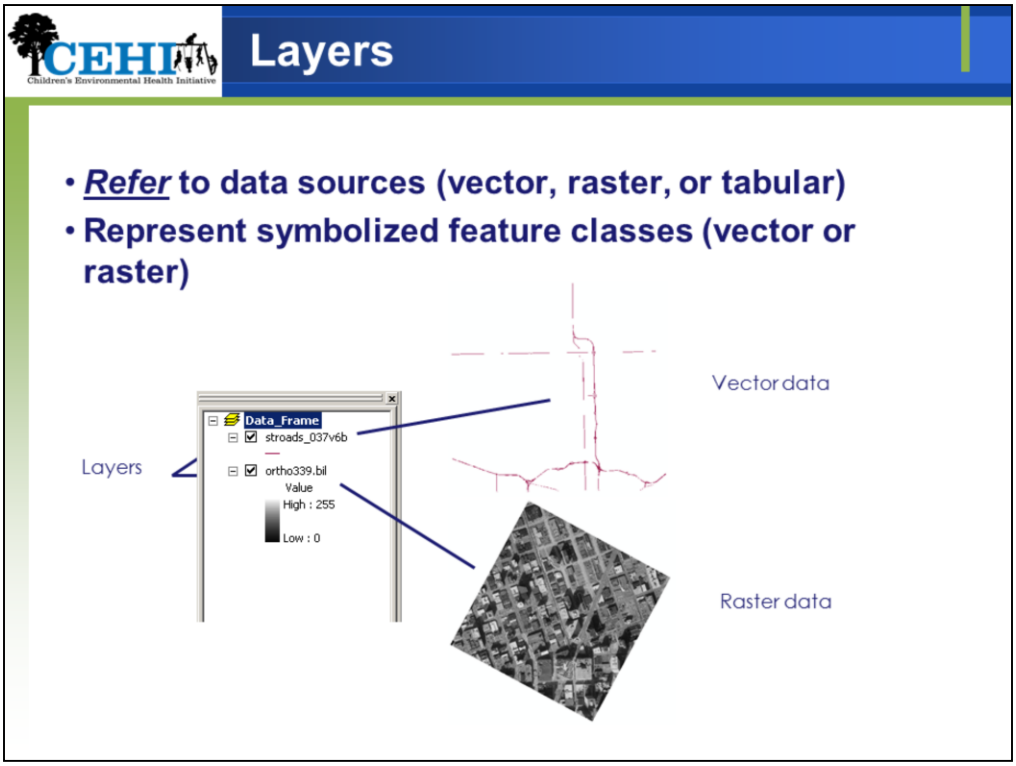
Displaying Data

GIS I: Organizing Principles



By the end of this module, you will be able to…..

- Understand basic data structure in ArcGIS and organize data in ArcMap
- Effectively utilize essential tools in ArcMap
- Adjust layer properties



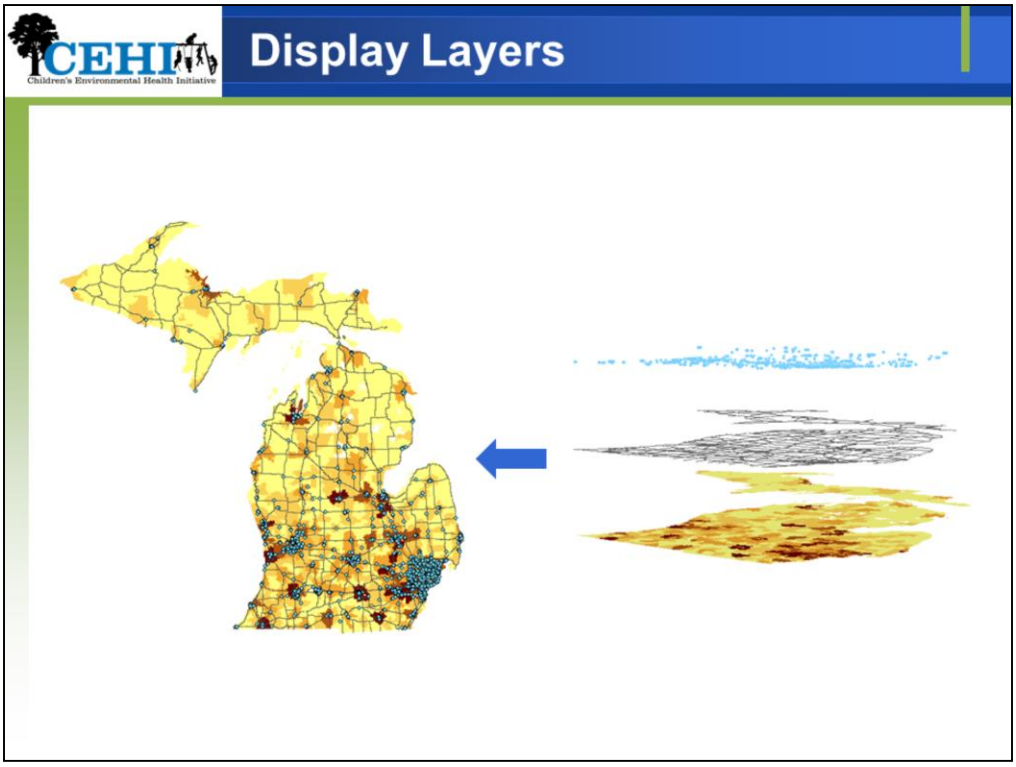
Layers display the geographical information for a map – each layer represents one particular feature. Layers do not store the data, but instead reference the data from **datasets**.

Datasets are **Vector** (coverages, shapefiles, CAD files, geodatabase, SDE databases), **Raster** (grids, images), or **Tabular** datasets (dbfs, INFO, geodatabase tables).

Layers listed in the Table of Contents, either on or off (checkbox).

Layers can be **grouped** together and renamed (one rivers layer and one lakes layer can be grouped as Hydrology).

Use the **add data** icon to add layers.

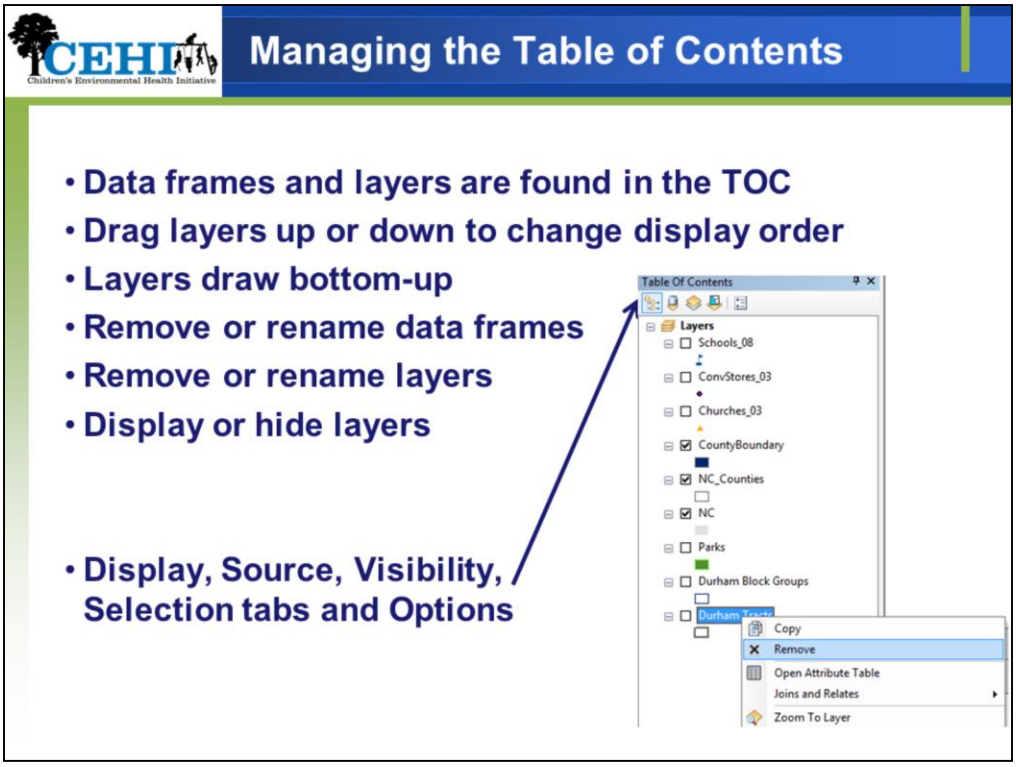


Organize data as layer is handy:

1. Easier to move data
2. Better display control
3. Stackable, create new knowledge

Potential issues:

Data now showing up? Could because of an improper layer order!



Data frames, layers, and legend titles can all be **renamed**. Display **order matters**. Layers can be **removed**. (Right click to get menu).

Tabs:

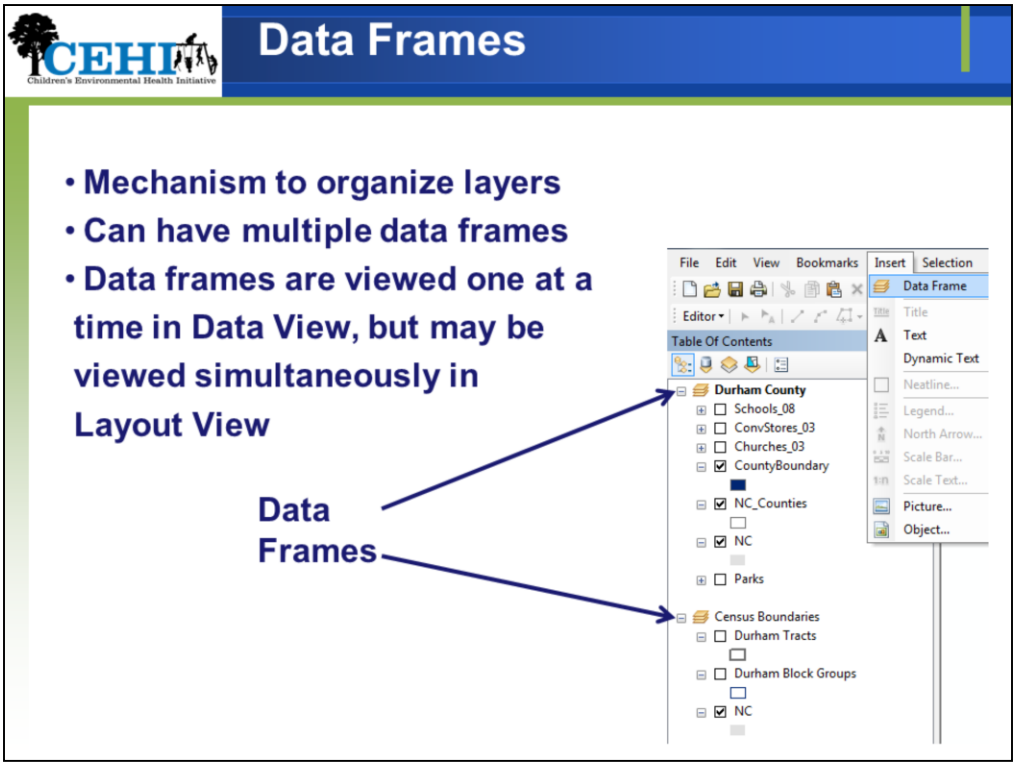
Display tab shows the visual features in the display area. (NEEDS TO BE SELECTED TO REORDER LAYERS)

Source tab shows all referenced data (shapefiles, tables, databases, etc); may not be viewable in display area.

Visibility tab shows what is visible (on) or not visible (off).

Selection tab lets you set selectable layers.

Options tab displays options for your table of contents display.



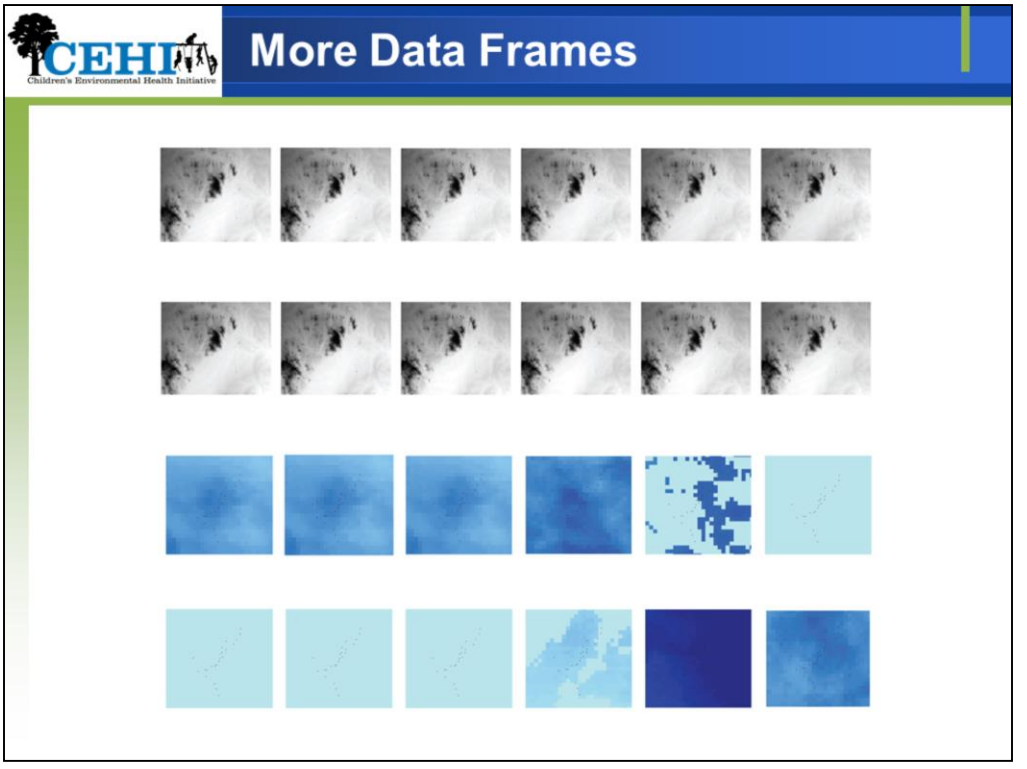
Data frames can be renamed.

Data Frames can be used for multiple maps on the same page (in Layout View) – for comparing maps or inset maps.

In Data View, work with one active Data Frame at a time (right-click Data Frame and select *Activate*).

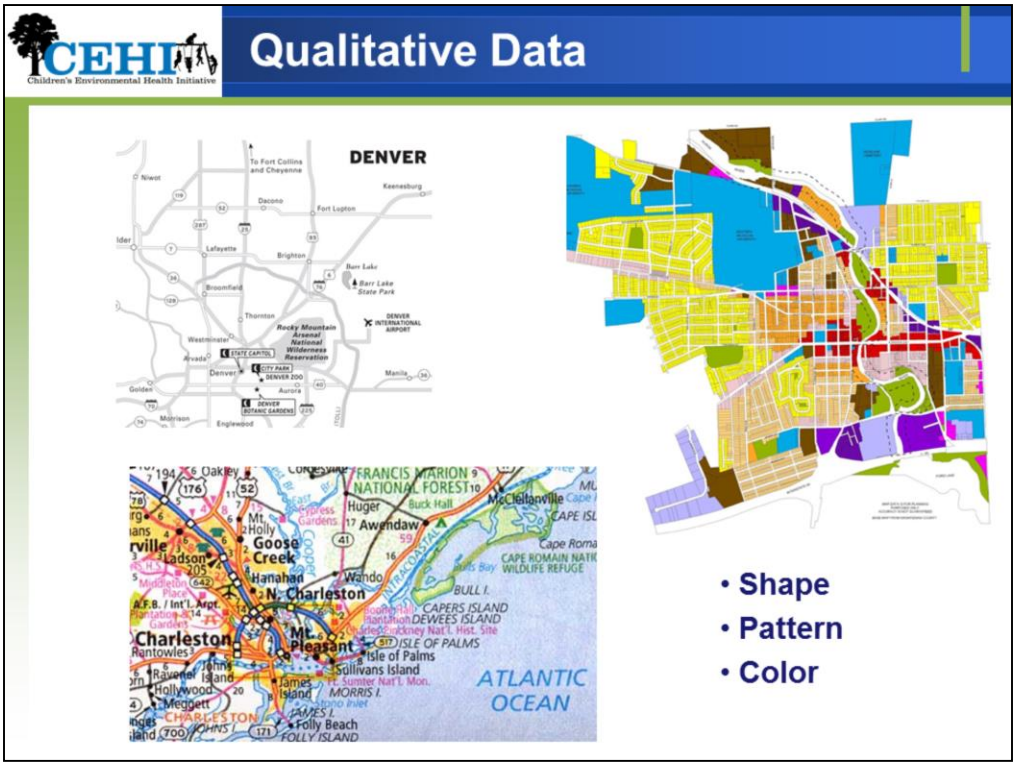
In Layout View, all Data Frames/maps (if multiple) are visible. Only one Frame is active, though. If only one Data Frame, that frame is defaulted as active.

To insert a Data Frame, left-click **Insert** and select **Data Frame**.



Other Advantage of using Data Frames

1. Multiple related Project in the same Map Document
2. Display multiple maps in the same page layout
3. Change of properties in one data frame would not mess up the others

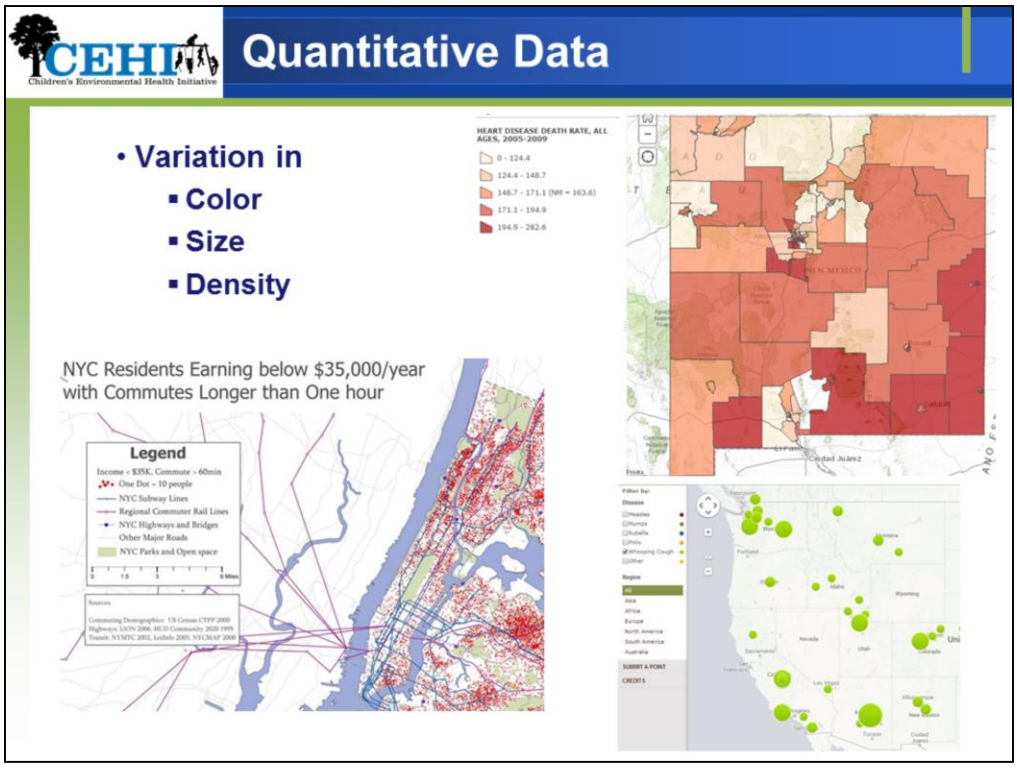


Symbolizing means assigning features colors, markers, sizes, widths, angles, patterns, transparency and other properties by which they can be recognized on a map.

By varying symbol properties, you convey information about features.

With qualitative data we have information that can't be measured. It's descriptive. We have categories, groupings, types.

When we symbolize qualitative characteristics we can use different shapes, patterns, and colors to distinguish between features.

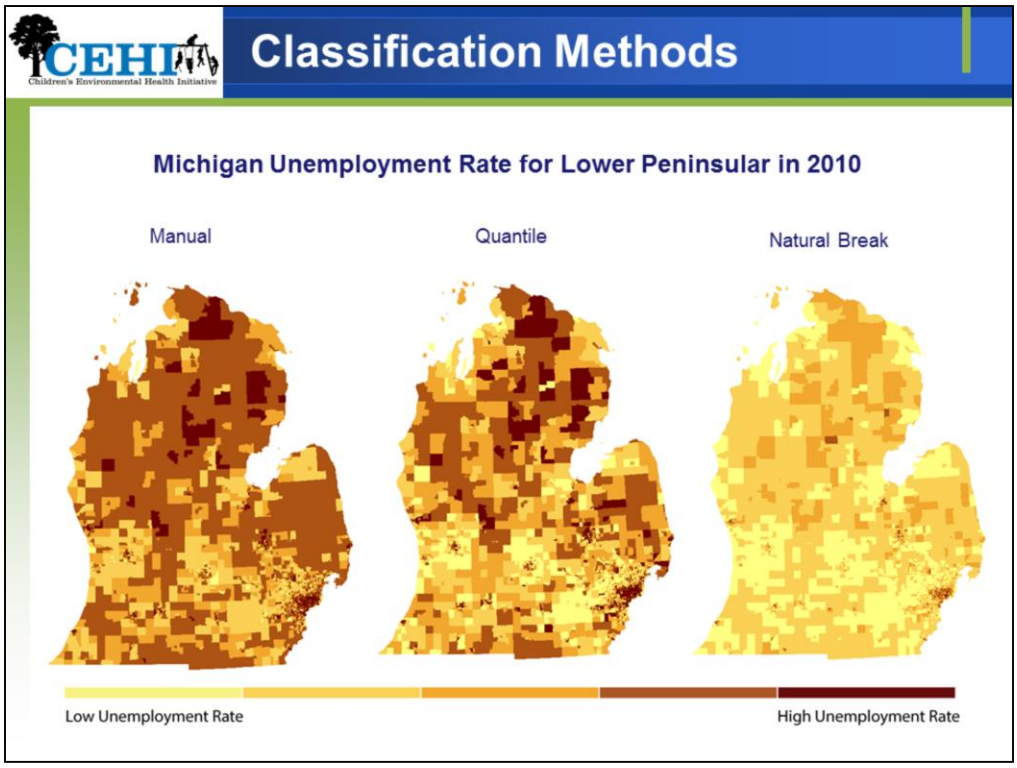


Quantitative data has a value, it represents a magnitude or quantity.

When we symbolize quantitative characteristics we need to show changes or ranges.

Some techniques include:

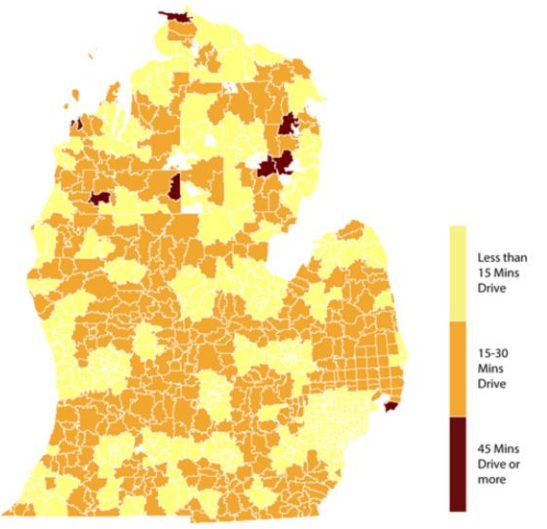
Choropleth – gradation in color
Proportional/Graduated Symbol – gradation in size
Dot density – gradation in density



Classification Method – Changing the method changes how your data is displayed – may tell a different story.

Manual

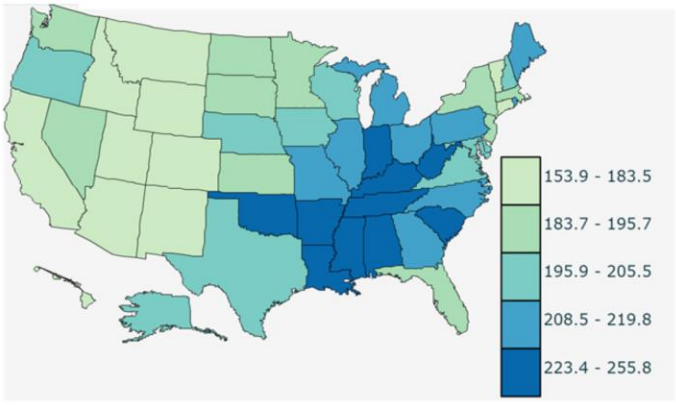
- Prior knowledge is required for Manual Classification
- Classes are meaningful
- May create empty class



Quantile

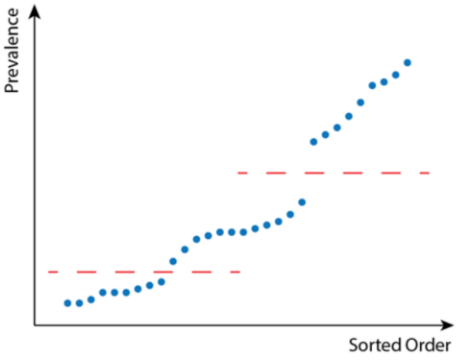
- Each class contains same number of observations
- Smooth data displaying, good for ranks
- Smoothed data may loose details

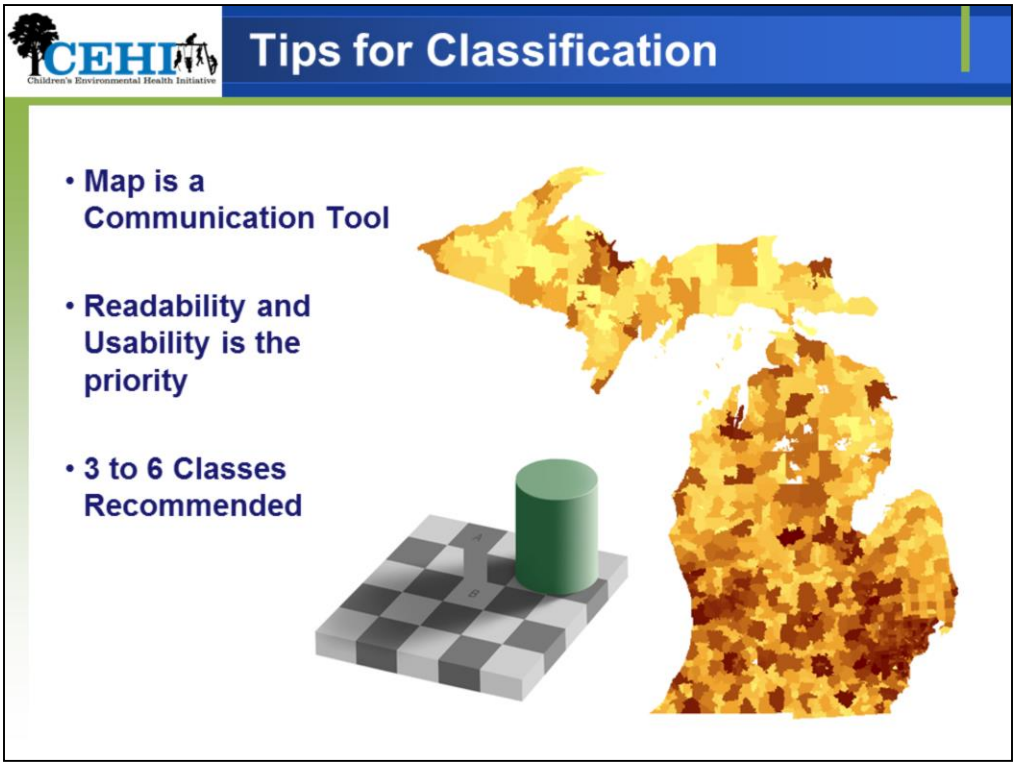
2012 Age Adjusted Cancer Mortality Rate



Natural Break (Jenks)

- Minimize the variance within groups
- Maximize distance between groups
- Good for data with large variance or potential groups
- Not best choice when data is smooth





The map is in ?? classes. Hard to distinguish difference classes by color

More classes are also tends to create color illusion