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Concepts to Date

- **Raster** - <https://www.caliper.com/glossary/what-is-raster-data.htm>
- **Vector** - <https://www.caliper.com/glossary/what-is-vector-data.htm>
 - **Discussion of Both:**
 - <https://www.gislounge.com/geodatabases-explored-vector-and-raster-data/>
 - <https://gisgeography.com/spatial-data-types-vector-raster/>
 - <https://www.esri.com/content/dam/esrisites/en-us/media/pdf/teach-with-gis/raster-faster.pdf>
 - <https://gis.stackexchange.com/questions/57142/what-is-the-difference-between-vector-and-raster-data-models>
 - <https://id.land/blog/raster-vs-vector-data-the-ultimate-guide>
 - <https://spatialvision.com.au/blog-raster-and-vector-data-in-gis/>
- **Scale** - <https://www.caliper.com/glossary/what-is-a-map-scale.htm>
- **Data Model** - <https://spatialvision.com.au/blog-raster-and-vector-data-in-gis/>
- **Data Structure** - <https://support.esri.com/en-us/gis-dictionary/data-structure>
- **Cartesian Coordinate Systems** -
 - <https://www.andrews.edu/~rwright/Precalculus-RLW/Text/01-01.html#:~:text=The%20Cartesian%20%2C%20or%20rectangular%20%2C%20coordi>

[nate,as%20\(x%2C%20y\)](#)

- <https://support.esri.com/en-us/gis-dictionary/cartesian-coordinate-system#:~:text=%5Bcoordinate%20systems%5D%20A%20two%2D,by%20an%20x%2Cy%20coordinate>
- Types of Layers
 - Thematic Layer - https://en.mimi.hu/gis/thematic_layer.html
 - Wikipedia has an excellent list of thematic layers:
https://en.wikipedia.org/wiki/Thematic_map#:~:text=Isarithmic%20maps%2C%20also%20known%20as,of%20values%20of%20the%20field.
 - Coropelth - <https://doc.arcgis.com/en/insights/latest/create/choropleth-maps.htm>
 - Proportional Symbol -
https://wiki.gis.com/wiki/index.php/Proportional_symbol_map#:~:text=A%20Proportional%20symbol%20map%20is,to%20represent%20a%20quantitative%20variable.
 - Dot Density - <https://www.axismaps.com/guide/dot-density>
 - Isarithmic (heat) - http://wiki.gis.com/wiki/index.php/Isarithmic_map

Concepts for This Week

- Types of Layers
 - **Thematic** - https://en.mimi.hu/gis/thematic_layer.html
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https://wiki.gis.com/wiki/index.php/Proportional_symbol_map#:~:text=A%20Proportional%20symbol%20map%20is,to%20represent%20a%20quantitative%20variable
 - **Dot Density** - <https://www.axismaps.com/guide/dot-density>
 - **Isarithmic (heat)** - http://wiki.gis.com/wiki/index.php/Isarithmic_map
- **Map Scale** - <https://education.nationalgeographic.org/resource/map-scale/>
- **Map Projections** - <https://www.gislounge.com/map-projection/>
- **Generalization** - <https://support.esri.com/en-us/gis-dictionary/generalization>

Tuesday

We Finally Get Started

So for the past couple of weeks, we've been stuck in a bit of a torpor. I didn't have permissions to show GIS in class unless I brought a windows machine to class. This led to a week of delaying new instruction. Now, I have the permissions for us to really begin running.

What I thought I'd do this week is relatively simple:

1. Introduce Map Concepts
2. Introduce the ArcGIS UI
3. Prompt everyone to explore with an assignment in class.

So on Tuesday, we will explore GIS, on Thursday, we'll do an assignment.

New Concepts

Data

- **Data Model** - <https://spatialvision.com.au/blog-raster-and-vector-data-in-gis/>
- **Data Structure** - <https://support.esri.com/en-us/gis-dictionary/data-structure>

Types of Data

- **Raster** - <https://www.caliper.com/glossary/what-is-raster-data.htm>
- **Vector** - <https://www.caliper.com/glossary/what-is-vector-data.ht>

Concepts About the Makeup of Maps

- **Map Scale** - <https://education.nationalgeographic.org/resource/map-scale/>
- **Map Projections** - <https://www.gislounge.com/map-projection/>
- **Generalization** - <https://support.esri.com/en-us/gis-dictionary/generalization>

Layers

- **Types of Layers**
 - **Thematic** - https://en.mimi.hu/gis/thematic_layer.html
 - Wikipedia has an excellent list of thematic layers:
https://en.wikipedia.org/wiki/Thematic_map
 - **Coropelth** - <https://doc.arcgis.com/en/insights/latest/create/choropleth-maps.htm>
 - **Proportional Symbol** - https://wiki.gis.com/wiki/index.php/Proportional_symbol_map#:~:text=A%20Proportion al%20symbol%20map%20is,to%20represent%20a%20quantitative%20variable
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 - **Isarithmic (heat)** - http://wiki.gis.com/wiki/index.php/Isarithmic_map

Introducing ArcGIS Pro (alternate things)

If the stuff we talk about in class doesn't work for you, give this tutorial a shot:

- Part 1: https://www.youtube.com/watch?v=BbUctneHfKc&t=1558s&ab_channel=GeoDeltaLabs
- Part 2: https://www.youtube.com/watch?v=t7ZnT5NgqIM&ab_channel=GeoDeltaLabs

I also like this collection from RIT's own Brian Tomaszewski:

- https://www.youtube.com/watch?v=zrFm5HzwPNw&list=PLtrmEEvdGsNqsQ5ZpOapSmVQkIIg9Bu5W&ab_channel=GIScience

This is also a great starting tutorial:

- <https://www.youtube.com/playlist?list=PLRrQArPWjCiXlwFR9wN2XAphIbj56GNCi>

UI Tutorial

Here is a general appearance of the mapping windows.

 /images/whole.png

Ribbons - this is the current way that ESRI has decided to collect and organize their commands and structure. At times, depending on the information in the window, you'll see different ribbons show up.

Map Explorer - is the gist of GIS, where the map goes.

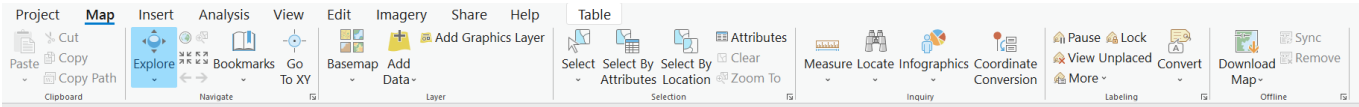
Database Editor - all data on the map, especially entities and vector data, come out of a csv file like R or SPSS or some stats package. You can add fields here, adjust entries, etc.

Python Editor / Jupyter Notebook - This is ESRI's language of choice. Here, you can do all matter of visualization, machine learning, AI, or just geospatial analysis. For examples of python and GIS, see: <https://automating-gis-processes.github.io/2016/Lesson1-Intro-Python-GIS.html>

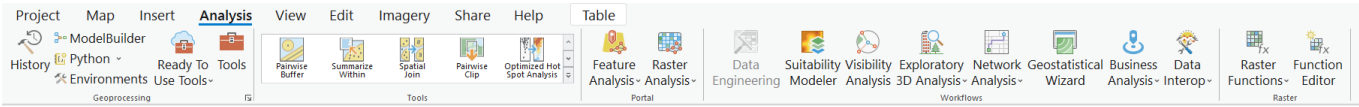
Table of Contents - took this from the GIS website: "The table of contents lists all the layers on the map and shows what the features in each layer represent. The map's table of contents helps you manage the display order of map layers and symbol assignment, as well as set the display and other properties of each map layer."

<https://desktop.arcgis.com/en/arcmap/latest/map/working-with-arcmap/using-the-table-of-contents.htm>

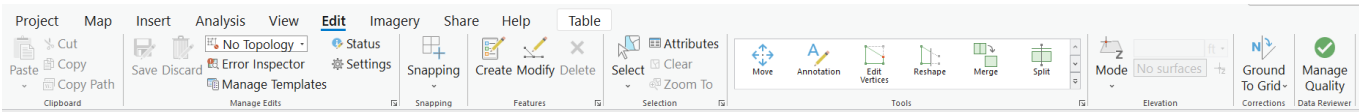
Let's take a brief tour through the ribbons. One *important thing to note here* is that you can customize these much the same way as you can word's ribbons.



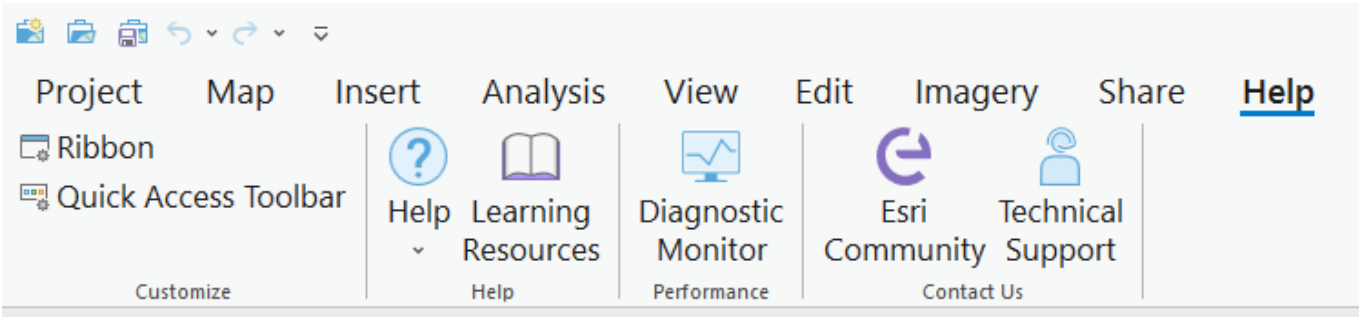
Navigate
Layer
Selection
Inquiry
Labeling
Offline



Geoprocessing
Tools
Portal
Workflows
Raster



Clipboard
Manage Edits
Snapping
Selection
Tools
Elevation
Corrections
Data Reviewer



Customize
Help
Performance
Contact Us



Ortho Mapping

Alignment

Analysis

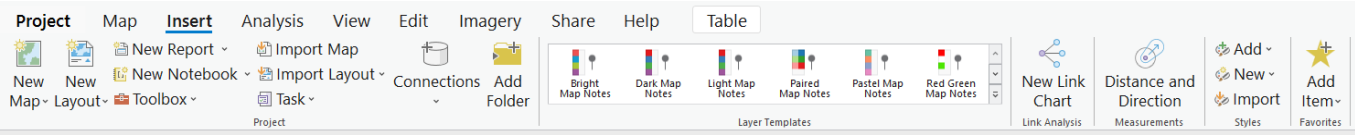
Image Classification

Mensuration

Tools

Share

Motion Imagery



Project

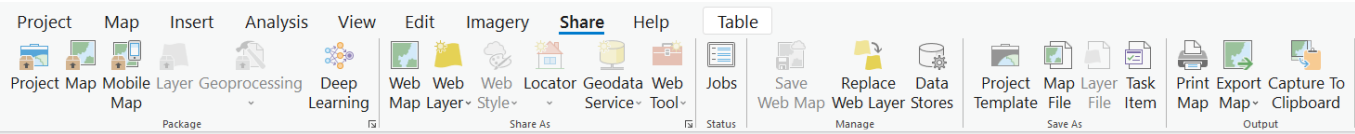
Layer Templates

Link Analysis

Measurements

Styles

Favorites



Package

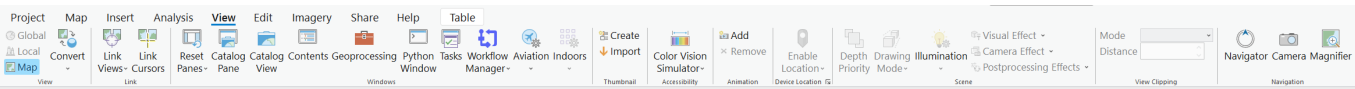
Share As

Status

Manage

Save As

Output



View

Link

Windows

Thumbnail

Accessibility

Annotation

Device Location

Scene

View Clipping

Navigation

Let's Explore Wellington

You can find the data for this here: https://pro.arcgis.com/en/pro-app/latest/get-started/introducing-arcgis-pro.htm?adumkts=social&utm_source=social&aduc=social&adum=external&aduca=social_technical&adusf=youtube

How does it all work?

Types of datafiles

Difference between online vs pro

Thursday

We Apply What We Got Started

Let's Think About Rochester (or your hometown)

Getting Started

What features do we want to highlight?

Doing it