Things to know about GIS:

Vector versus raster data

Projections

Vector is going to be cleaner at most resolutions.

Basics:

* Science on a Sphere Recommended Resolution: (this is a key thing when dealing with immersive displays – what resolution?) 2048 X 1024 pixels for simple maps, 4096 X 2048 for intricate maps
* Recommended projection is WGS84, EPSG:4326

Things we will do today (using parts of this tutorial: [https://sos.noaa.gov/\_media/cms/docs/qgis\_tutorial.pdf](https://urldefense.proofpoint.com/v2/url?u=https-3A__sos.noaa.gov_-5Fmedia_cms_docs_qgis-5Ftutorial.pdf&d=DwMFaQ&c=nE__W8dFE-shTxStwXtp0A&r=OeBFT-mNSYlZ8WuxBRS_cA&m=1GV89OI7MetnctoB_Vx0OJOS5U0g3UDXyOXeDRE9UUg&s=Udde6FYxaGn8hSKlOsIVhIhzeXbCYFvjmh5aKbz8mrw&e=)):

First map, global choropleth map:

1. Learn how to make a chloropleth map of the world, and attach new data to a shapefile to make more maps. (Shapefile source: [http://thematicmapping.org/downloads/world\_borders.php](https://urldefense.proofpoint.com/v2/url?u=http-3A__thematicmapping.org_downloads_world-5Fborders.php&d=DwMBaQ&c=nE__W8dFE-shTxStwXtp0A&r=OeBFT-mNSYlZ8WuxBRS_cA&m=kevWJ30ZefE_WGXqWefxohEa6tgiO5SOUw_MPqNDf1Y&s=_PhPSNYkXUFlWgh2kkNcBjNR-0UgKWkpUPY0BvozjuA&e=) Datasource: https://www.eia.gov/beta/international/data/browser)
2. Export our map in appropriate SoS format

Second type of map, point map with imagery (or choropleth) basemap:

1. Import a basemap image
2. Use a csv of latitude and longitude to map points (Nuclear Reactors in 2011: https://www.theguardian.com/news/datablog/2011/mar/18/nuclear-reactors-power-stations-world-list-map#data)
3. Export that map in SoS format

Your own map:

1. If time: search for other data to use in making maps and experiment independently

Possible data sources:

International energy statistics:

<https://www.eia.gov/beta/international/data/browser>

Atlas of the Biospheres (shapefiles w/data already added)

<https://nelson.wisc.edu/sage/data-and-models/atlas/maps.php>

Public SoS Data:

<ftp://public.sos.noaa.gov/>

ESRI Data and Maps World:

https://www.esri.com/arcgis-blog/products/product/mapping/esri-data-maps/

A better world shapefile:  
<http://www.arcgis.com/home/item.html?id=d974d9c6bc924ae0a2ffea0a46d71e3d>

Food and Ag Organization of United Nations:

<http://www.fao.org/statistics/databases/en/>

World Bank:

<https://data.worldbank.org/>

World Health Organization:

<https://www.who.int/gho/en/>

NOTES ON DATA:

Emissions data:

<https://edgar.jrc.ec.europa.eu/overview.php?v=booklet2019&dst=CO2pc>

GDP World Bank:

<https://databank.worldbank.org/source/world-development-indicators>

Saint versus St.

One dataset combined Spain and Andorra, another kept these as separate countries. This can be political! Is Palestine its own country or part of Israel?

Get rid of accent marks and other symbols

SOME ARE NOT 2018 – British Commonwealth Territories No GDP? Had to google. Ditto French Guiana, Western Sahara, and Cote d’Ivoire St. Kits, carbon data, but no GDP. St. Martin, listed, but no GDP So these were collected from a variety of data sources, some earlier than 2015

Mostly from CIA factbook data