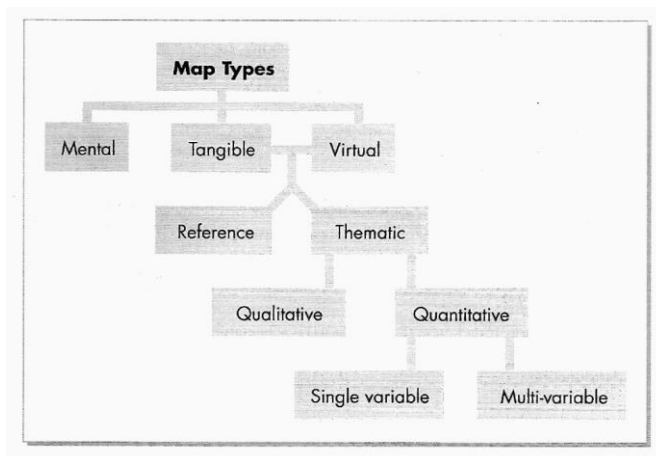


Kinds of Maps



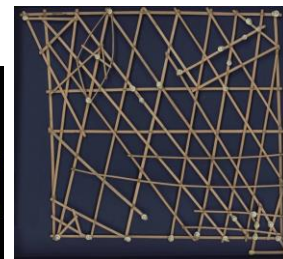
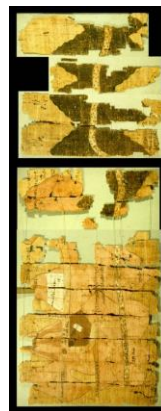
Mental Maps

- Mental abstractions that are not physically present on the geographical landscape can be mapped.
 - ✓ mental images that have spatial attributes
- Developed in our minds over time by the accumulation of many sensory inputs: a person's perception of the world



Tangible Maps

- Paper Maps
- Papyrus Maps
- Marshall Island Stick Charts : to navigate the Pacific Ocean by canoe off the coast of the Marshall Islands
- Sumerian Clay Tablet Maps
- Basically any map you can physically hold or touch.



Virtual Maps

- Maps made for screen viewing, or for projecting
- Dynamic Maps
 - ✓ animated maps
 - <http://www.weather.com/weather/map/interactive///>
 - <http://www.mapsofwar.com/ind/imperial-history.html>
 - ✓ interactive maps
 - <http://www.arcgis.com/apps/MapTour/index.html?appid=a313ccb5b43745f98cf0afea619e5770>
- Static Digital Maps

General Purpose Maps

- Emphasis on location
- Where questions
- Prevalent until mid-1700's, when we were still "filling in" the world map

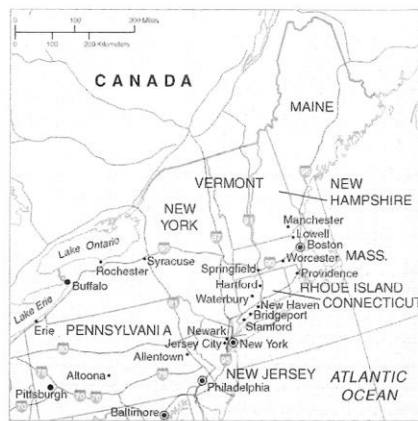


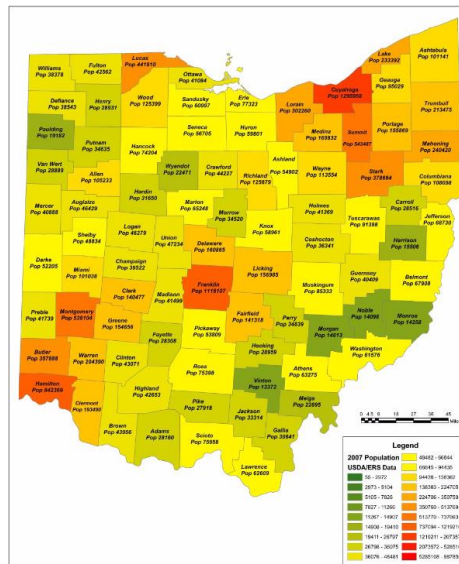
FIGURE 1.4 A GENERAL PURPOSE OR REFERENCE MAP.

Source: Allen 2008, xiii, Map 2.

Thematic Maps

- What is a *thematic map*?
 - ✓ special purpose map designed to illustrate the *structural characteristics* of some geographic distribution
- What are “*structural*” characteristics?
 - ✓ location
 - ✓ distance and direction
 - ✓ change in spatial attributes

Choropleth Map



Qualitative Thematic Map

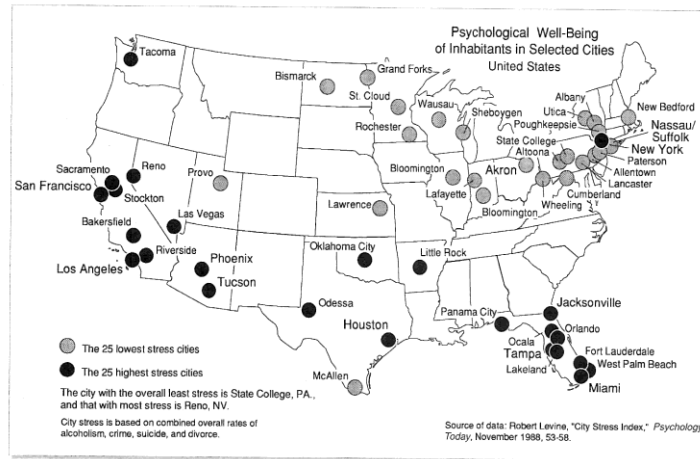
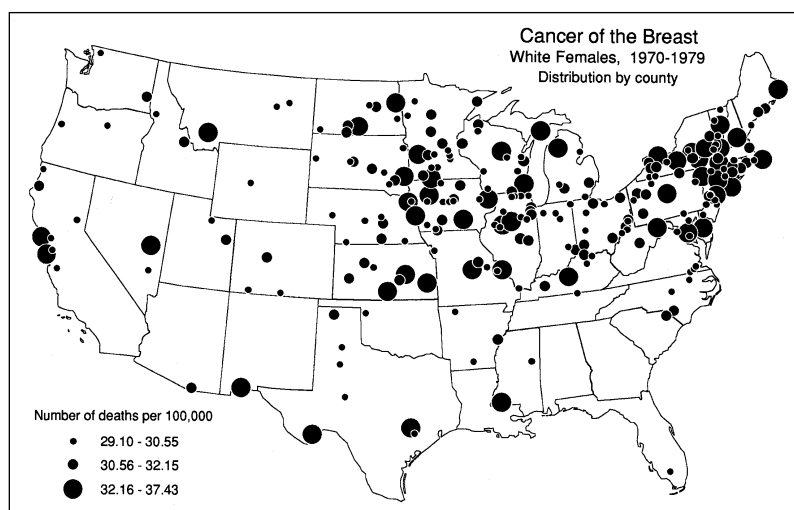


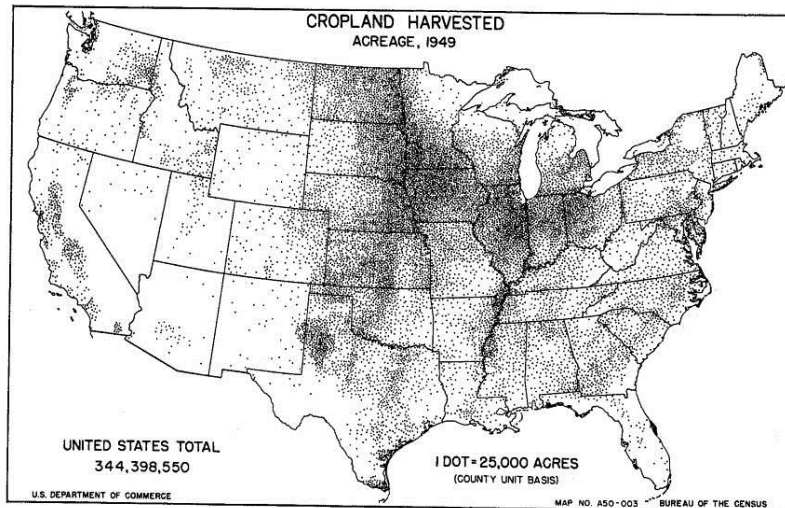
FIGURE 1.5 THEMATIC MAPS PORTRAY A VARIETY OF TOPICS.

Thematic maps often show topical subjects to elicit questions and develop working hypotheses. In this case one might ask why so many so-called Sunbelt cities are in the high-stress category. Sociologist Levine suggests that new arrivals and retirees to these predominately southern cities brought their problems with them.

Proportional Symbol Map (Quantitative)



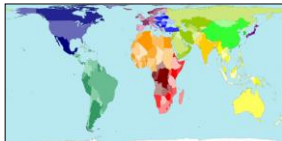
Dot Density Map (Quantitative)



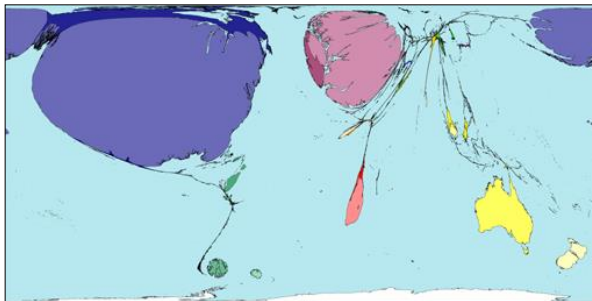
Cartogram

• <http://www-personal.umich.edu/~mejn/election/2016/>

- maps distorted to reflect non-geographic information
- geometry and layout of the cartogram make a strong visual statement

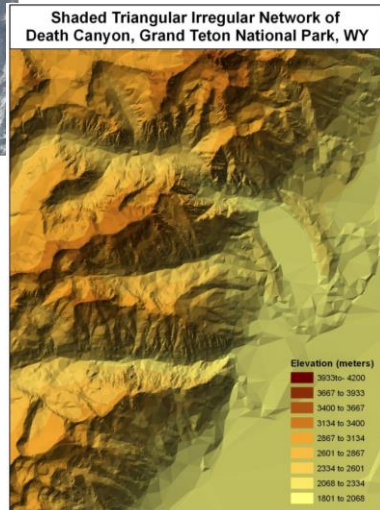
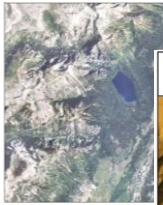


Land area map: the world as we see it

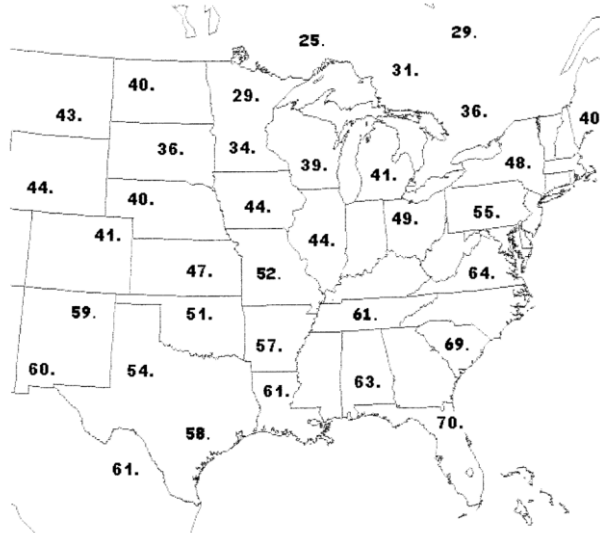


Territory size shows the proportion of all people who speak English as a first language that live in that territory.

Isarithmic Map (Quantitative)



- These maps are used to show quantities that vary smoothly over the earth's surface.
- Also called Isoline/Isopleth maps
- These maps can take two forms:
 - ✓ Lines of equal value ("iso" means equal)
 - ✓ Ranges of similar value are filled with similar colors or patterns.



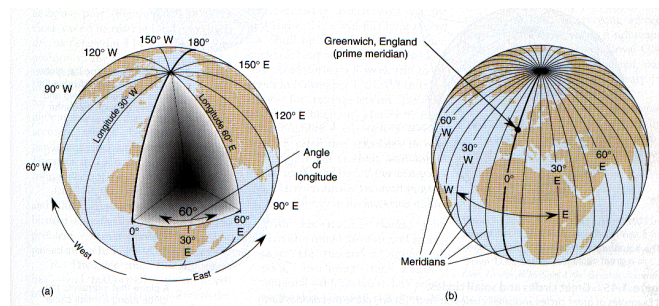
- draw in isolines at 10 degree intervals starting with 30

Some more

- Longitude
- Latitude
- ...

Longitude

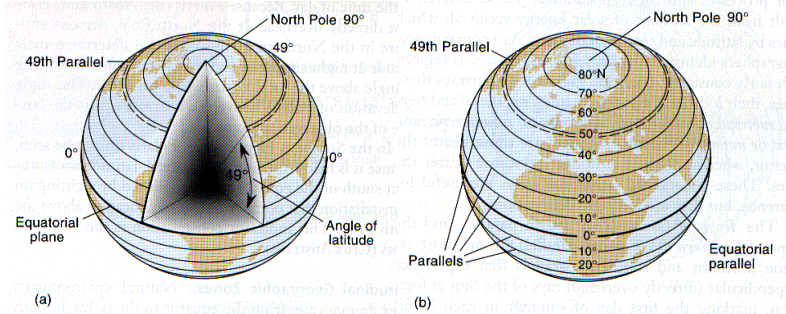
- *Longitude* → angular distance east or west of origin measured from the center of Earth.



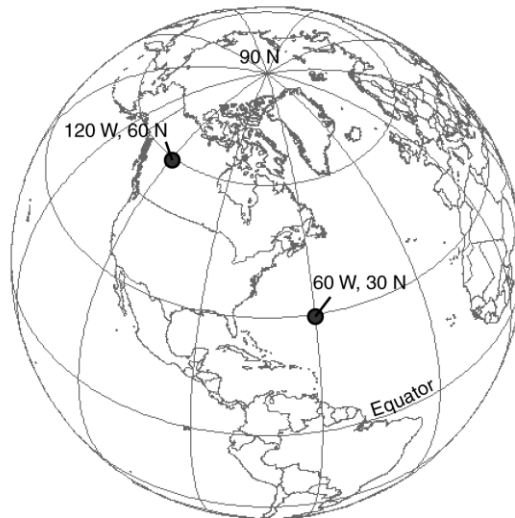
1° of longitude = 111 km (69 miles) at Equator ONLY

Latitude

- *Latitude* → angular distance north or south of equator as measured from center of Earth.



1° of latitude = 69 miles (111 km)



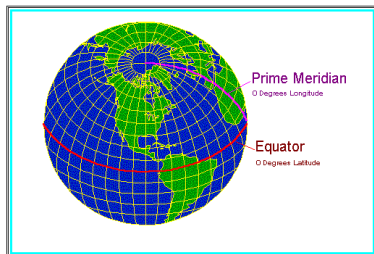
the geographic coordinate system

Where is Oxford, OH?

39° 30' N
84° 44' W

2,733 miles (4,398 km) north of the Equator.

4,327 miles (6,964 km) west of the Prime Meridian.



The International Date Line sits on the 180° line of longitude in the middle of the Pacific Ocean, and is the imaginary line that separates two consecutive calendar days. It is not a perfectly straight line and has been moved over the years to accommodate needs of varied countries in the Pacific Ocean. It bends to include all of island of Kiribati in the Eastern Hemisphere.

Immediately to the left of the International Date Line (*the date*) is always one day ahead of the date (*or day*) immediately to the right of the International Date Line in the Western Hemisphere.

What time is it in [Korea](#)?

Next

- Intro to Geospatial Technologies & GIS
 - ✓ GIS
 - Geographic Information System (or Science)
 - <https://www.youtube.com/watch?v=LHDCRjAxpI0>
 - <https://www.youtube.com/watch?v=rokWdaGc3u4>
 - ✓ ArcGIS
 - ArcMap
 - ArcCatalog