

Class 1b:
Introduction to maps

What *is* a map?

- A generalized view of an area, usually some portion of Earth's surface, as seen from above at a greatly reduced size
- Any geographical image of the environment
- A two-dimensional representation of the spatial distribution of selected phenomena

Why make maps?

- To represent a larger area than we can see
- To show a phenomenon or process we can't see with our eyes
- To present information concisely
- To show spatial relationships

How do we read maps?

- Maps are *selective* views of reality
- Size of the map relative to reality (scale)
- What's on the map (symbolization)
- Shape of the map (projection)
- Politics of the map

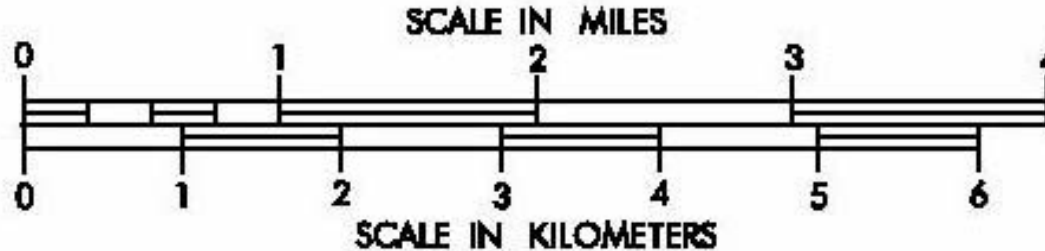
Map scale

- Ratio of the distance on the map to the distance on the ground
- Scale is a fraction
- Larger area covered means larger denominator
- Larger denominator means smaller fraction
- So a *large-scale* map covers a small area

Map scale

- Ratio of the distance on the map to the distance on the ground

1. Graphic:



- Stays the same when photocopied
- Might not be right for the whole map

Map scale

2. Verbal:

1 inch equals 10 miles

- Easy to understand
- Can change if photocopied

Map scale

3. Representative fraction or ratio:

1:24,000

- Units don't matter
- Can change if photocopied

Map symbolization

- Symbols are a code instead of text
- Three kinds: point, line, area
- Consider shape, size, orientation, pattern, color, value

Point symbols

- Every symbol counts as one occurrence
- Qualitative points
 - Indicate location
 - Can also describe that location
- Quantitative points
 - Show a distribution
 - Indicate a value (graduated symbols)

Line symbols

- One-dimensional
- Mostly taken for granted (borders, roads)
- *Isolines* connect same values
- Flow-line maps indicate value by width of line

Area symbols

- Each territory or region has one value
- Differences in kind
- Differences in value
 - *Choropleth* maps
 - Usually, darker indicates more
- Cartograms distort area to show value

Politics of maps

- Remember that maps are selective
- What counts as a country's borders?
- What's "east" or "west"?
- Depends on who's drawing the map

Topographic maps

- Also called quadrangles
- Nearly 54,000 for the U.S.
- Done by the US Geological Survey (USGS) since 1897
- Map out the entire country in a standard fashion

Topographic maps

- Till the 1940s, you climbed to the highest point and plotted what you could see from there
- Aerial photography after WWII
- Two overlapping photos are put in a stereoscope
- 10 photos for each 7.5 minute map

Topographic maps

- Show 2D features, point, line and area; also show 3D via contour lines
- Common symbols are in the appendix of the text
- Note the contour interval at the bottom of the map