UNIT 1 – PART 2

GEOGRAPHY – ITS NATURE AND PERSPECTIVES

ENDURING UNDERSTANDING (1.C)

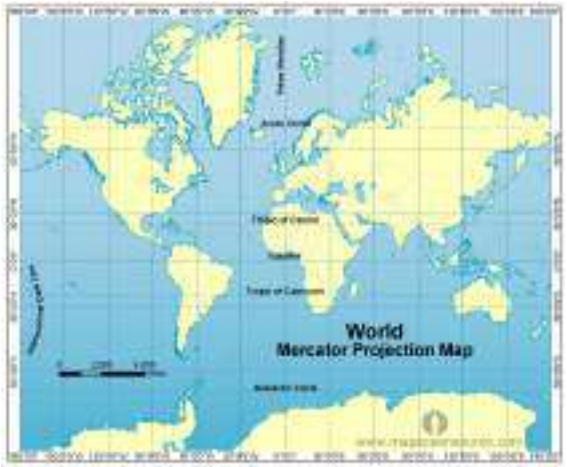
- By the end of this section, you will *understand* that **geographical skills provide a foundation for analyzing world patterns and processes.**

LEARNING OBJECTIVE (1.C.1)

- By the end of this slide, you will *be able to* **use spatial thinking to analyze the human organization of space.**
  - People apply spatial concepts to interpret and understand population and migration; cultural patterns and processes; political organization of space; agriculture, food production, and rural land use; industrialization and economic development; and cities and urban land use.

LEARNING OBJECTIVE (1.C.2)

- By the end of this section, you will *be able to* **use and interpret maps.**
  - Maps are used to represent and identify *spatial patterns* and processes at different scales
  - Types of maps include reference maps and thematic maps
  - All map projections inevitably distort spatial relationships



PART II: PATTERNS AND PROCESSES

- Essential question: What tools and techniques do geographers use to analyze the world?

PART II: PATTERNS AND PROCESSES

- Geographers emphasize spatial **patterns**, general arrangements of things being studied, and the **processes**, the repeated sequences of events, that create them.

MAPS - SCALE

- Scale
  - Maps are a reduction of the actual land it represents
  - **Scale** is the ratio between the size of things in the real world and the size of those same things on the map
  - Three types: cartographic, geographic, and scale of data

MAPS - SCALE

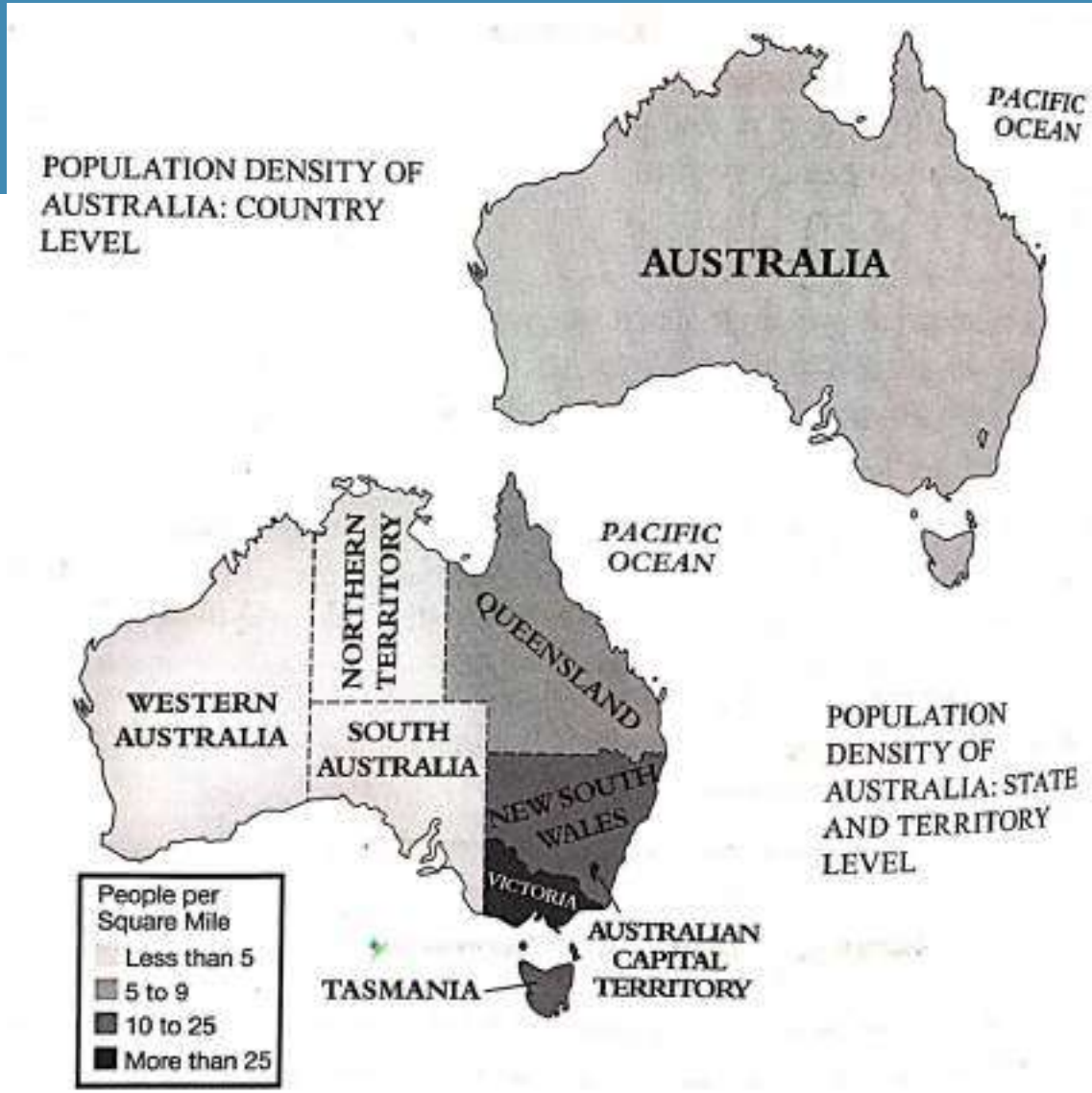
- **Cartographic Scale**
  - Refers to the way the map *communicates* the ratio of its size to the size of what it represents:
    - Words – one inch equals ten miles (2.5 inches would equal 25 miles on the surface of the earth
    - Ratio – 1/200,000 or 1:200,000 (1 unit on the map equals 200,000 units on the ground)
    - Line – length of the line indicates distance on the map

MAPS - SCALE

- **Geographic Scale**
  - Sometimes called *relative scale*, refers to the amount of territory that the map represents
    - Global scale means a map of the entire planet
    - Local scale means a map of a city – school attendance boundaries
    - A rise in unemployment might be explained differently depending on the scale

MAPS - SCALE

- **Scale of the Data**
  - The scale of the maps might be the same but the scale of the data may be different



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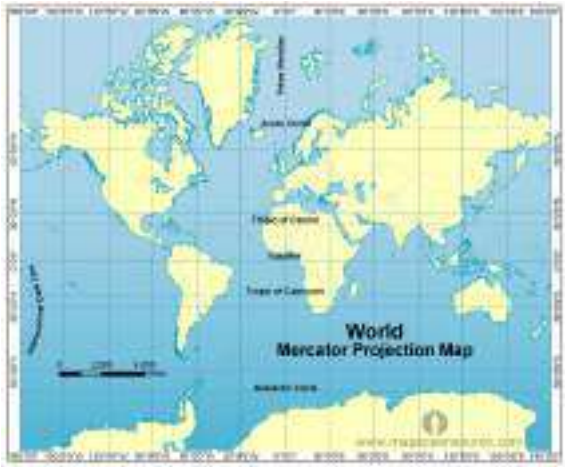


MAPS – REFERENCE AND THEMATIC

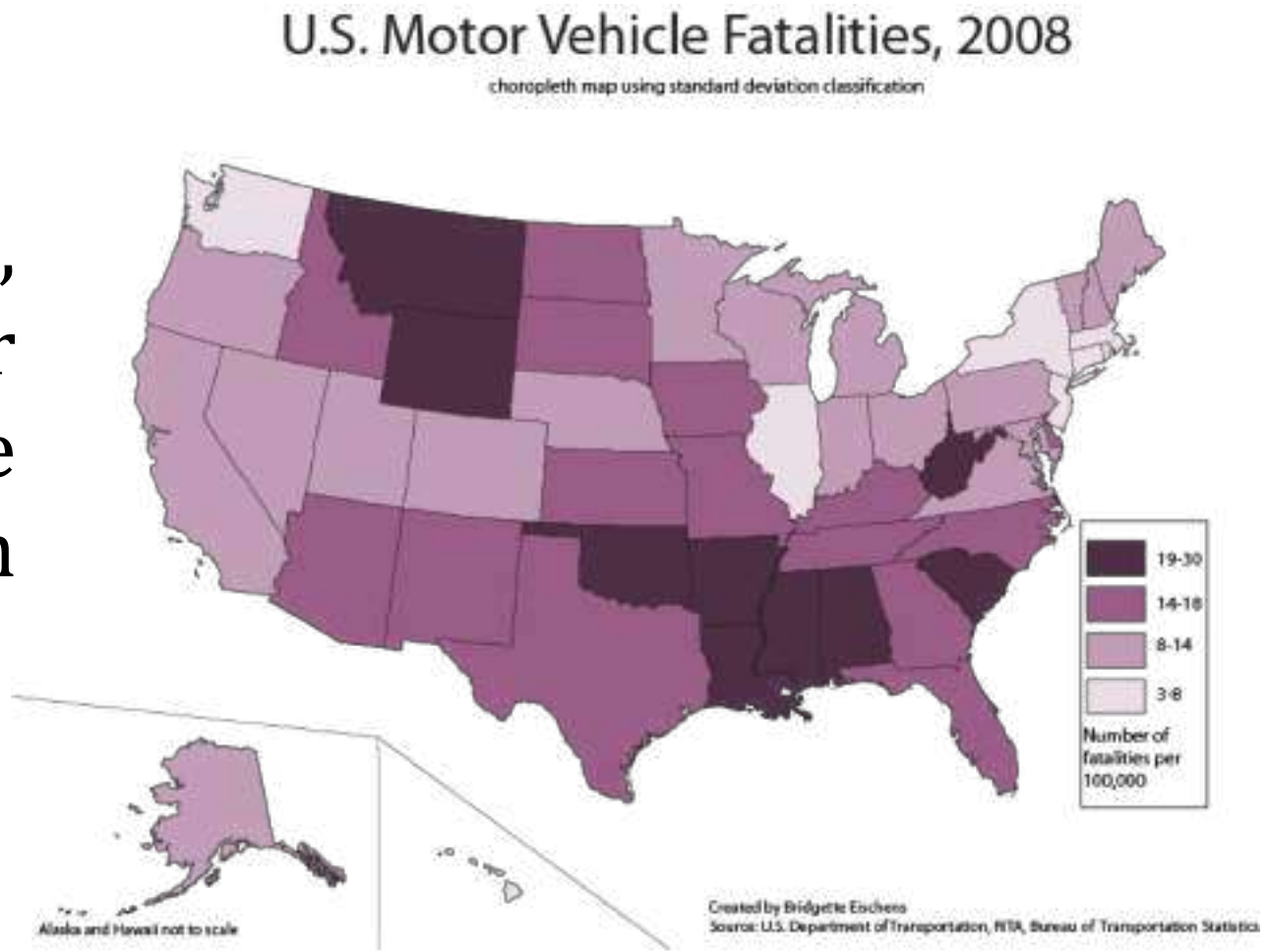
- **Reference Maps**
  - Political – human-created boundaries (states, cities, etc.)
  - Physical – natural features (mountains, rivers, deserts)
  - Road – highways, streets, and alleys
  - Plat – property lines and land ownership
  - Locator – used in books and advertisements to support ad

MAPS – REFERENCE AND THEMATIC

- **Thematic Maps**
  - Show spatial aspects of information or of a phenomenon
  - Four common types
    - Choropleth
    - Dot distribution
    - Graduated symbol
    - Isoline

MAPS –THEMATIC: CHOROPLETH

- **Choropleth**
  - Uses various colors, shades of one color, or patterns to show the location and distribution of spatial data

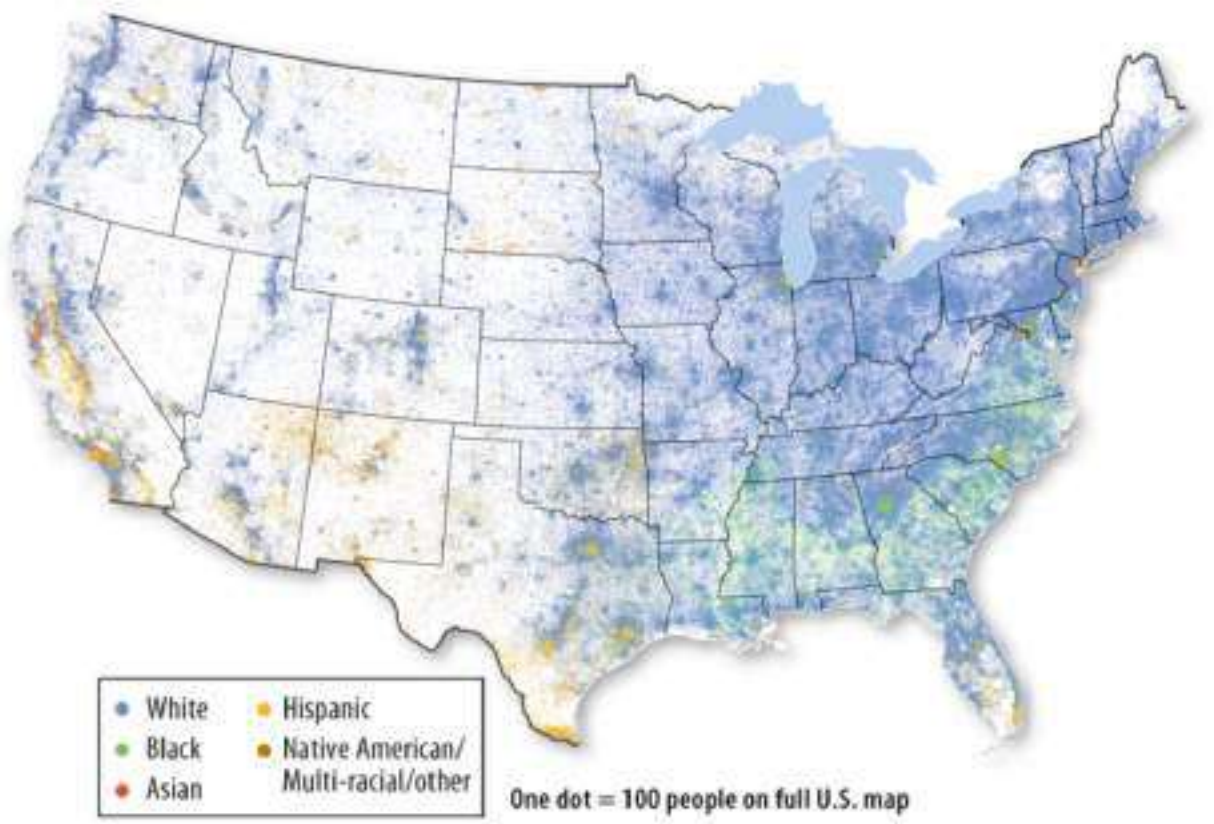


MAPS –THEMATIC: DOT DISTRIBUTION

- **Dot Distribution**
  - Used to show the specific location and distribution of something across the territory of the map
  - Each dot represents a specified quantity

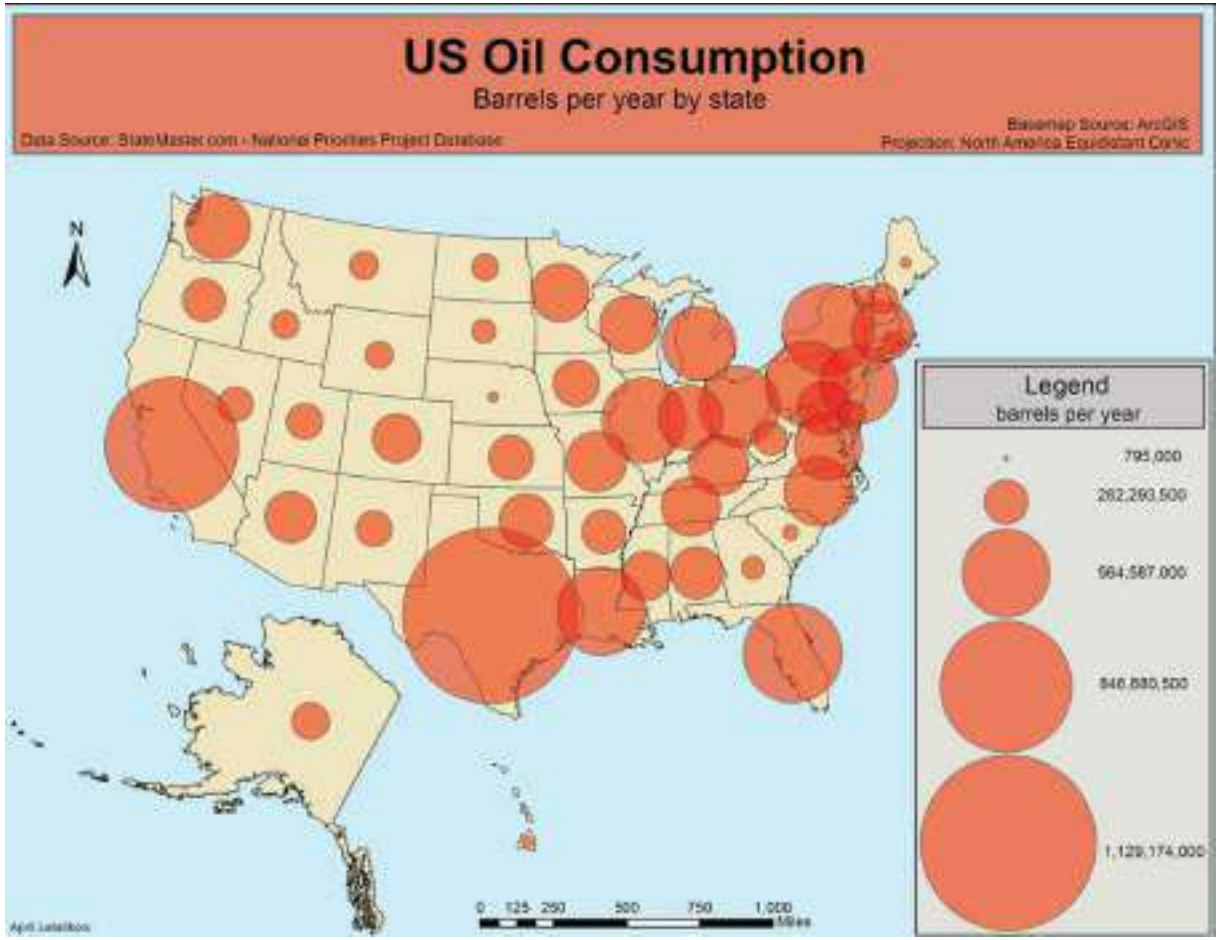
Figure 7-5 **Ethnic Map of the United States**

1 dot equals 1 person on this map based on 2010 Census Block Data.



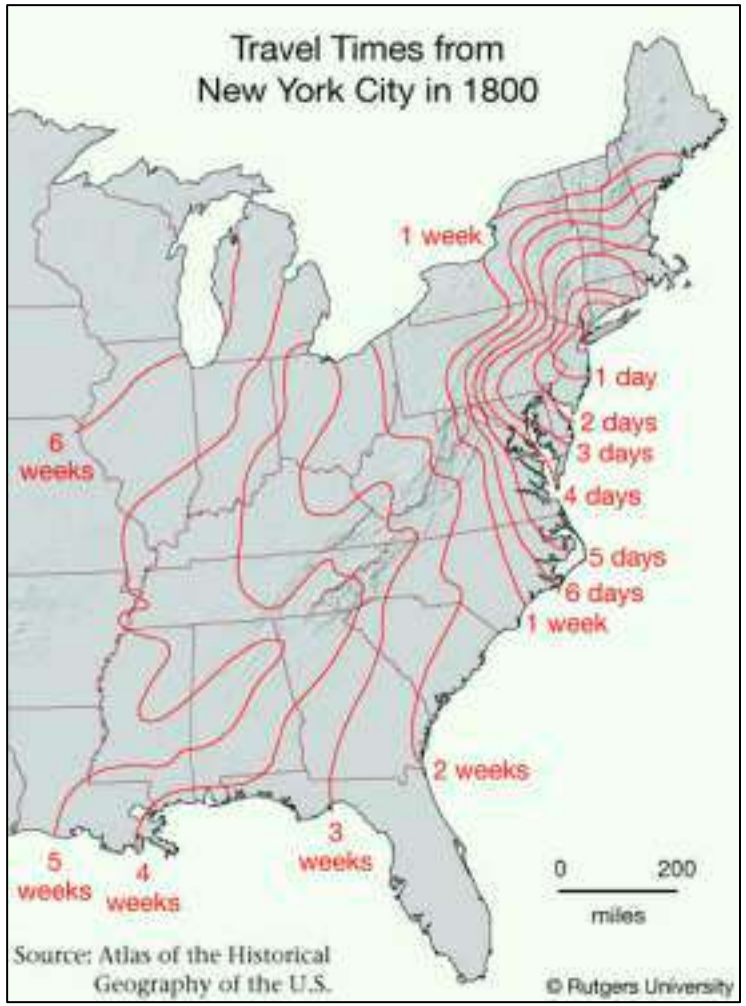
MAPS –THEMATIC: GRADUATED SYMBOL

- **Graduated Symbol**
  - Uses symbols of different sizes to indicate different amounts of something
  - The map key determines the exact amount



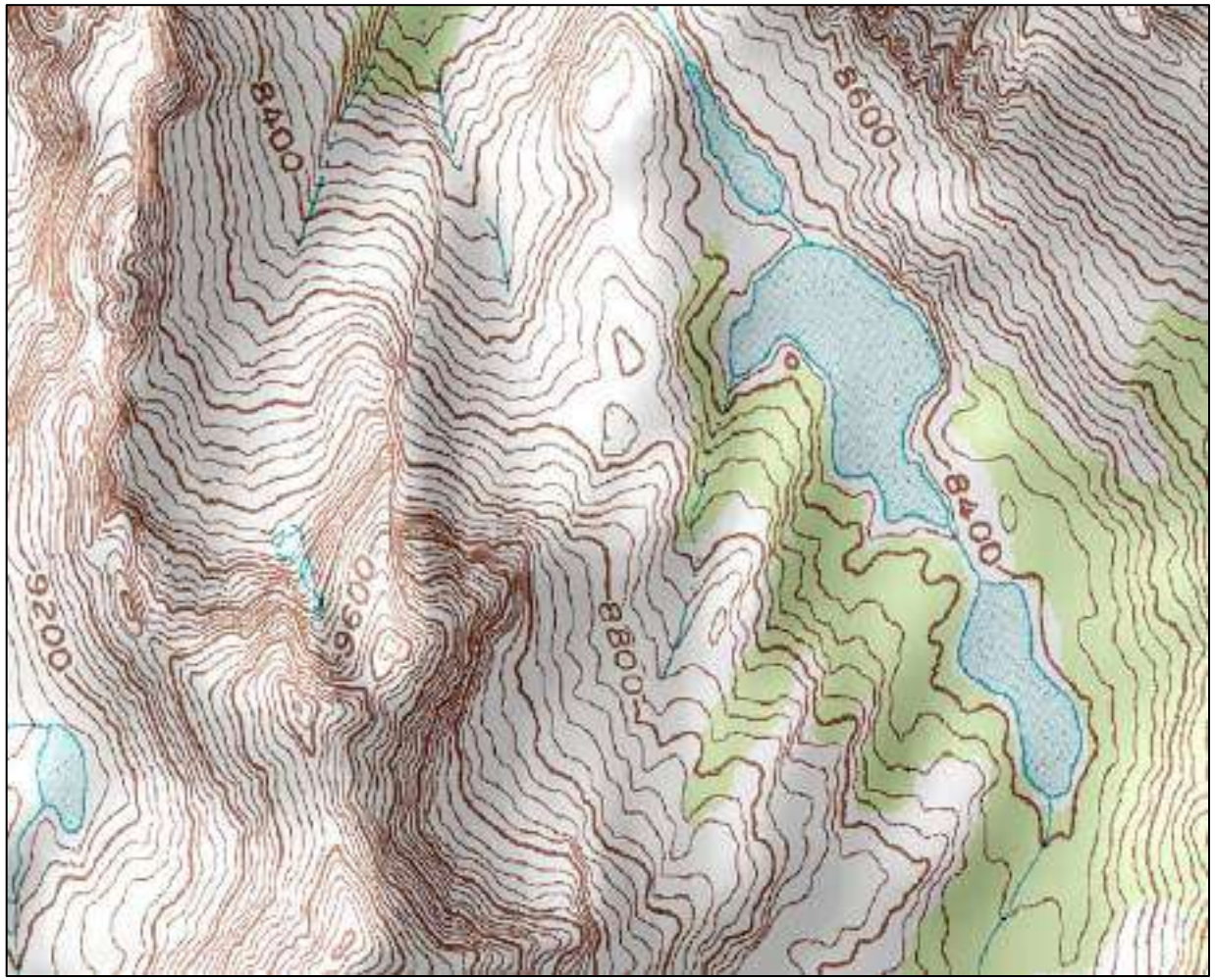
MAPS –THEMATIC: ISOLINE

- **Isoline**
  - Uses lines that connect points of equal value to depict variations in the data across space
  - Where lines are close together, change is rapid
  - Most common type: **topographic map**



MAPS –THEMATIC: ISOLINE

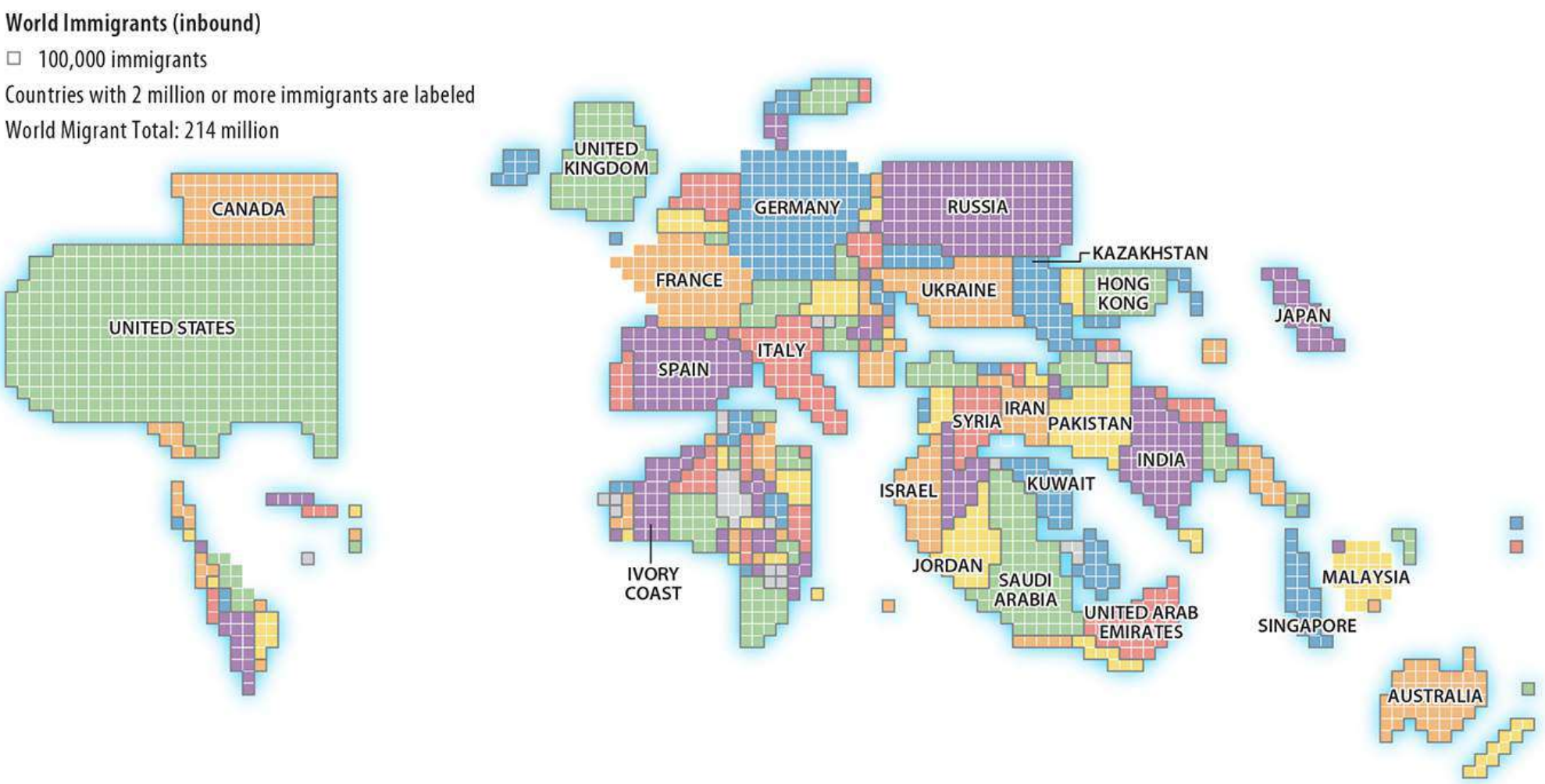
- **Topographic**
  - Popular among hikers
  - Points of equal elevation are connected creating contours that depict surface features



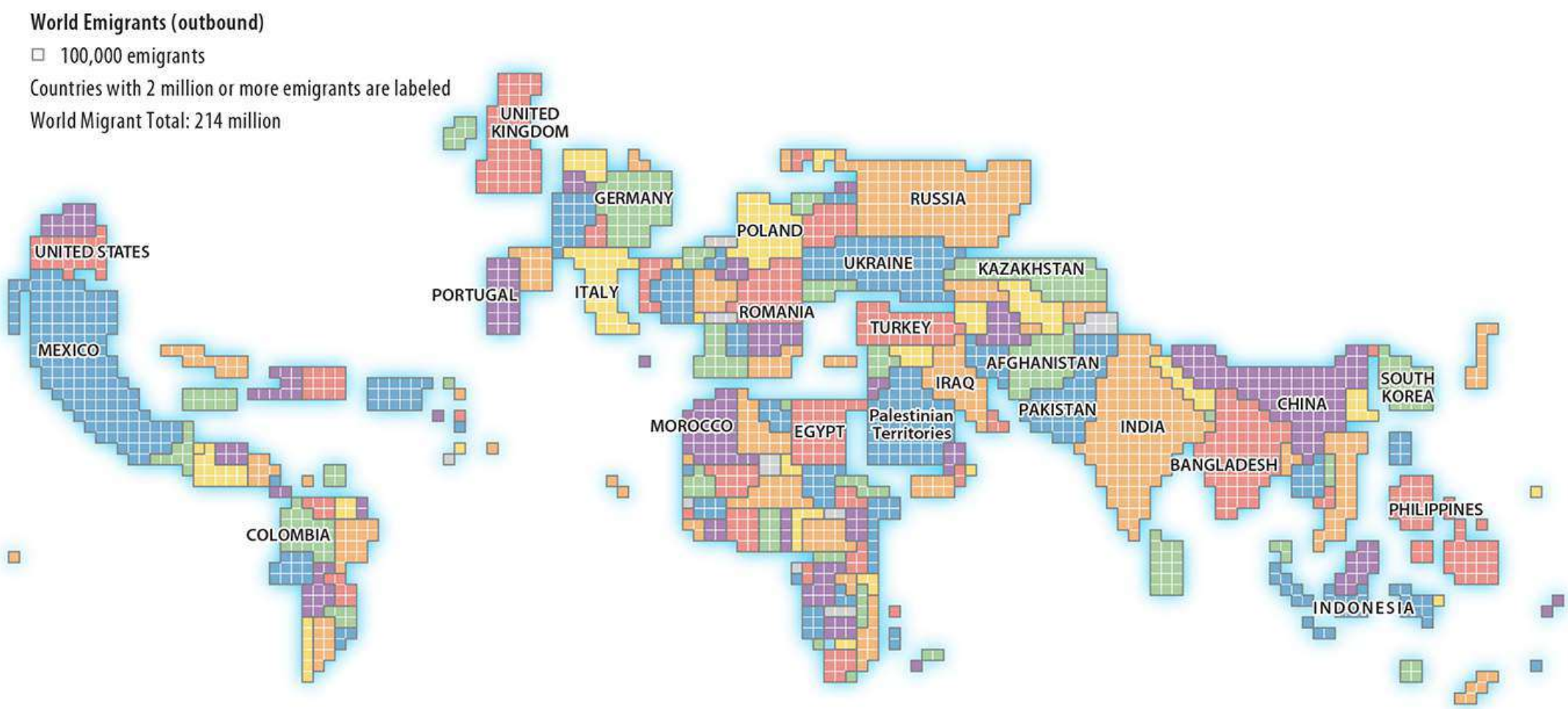
MAPS – CARTOGRAMS

- **Cartograms**
  - Sizes of countries are shown according to some specific statistic
  - Useful because they allow data to be compared, like a graph, and distance and distribution are also visible, like on a traditional map.

MAPS – CARTOGRAMS



MAPS – CARTOGRAMS



LEARNING OBJECTIVE (1.C.2)

- By the end of this section, you will *be able to* **use and interpret maps.**
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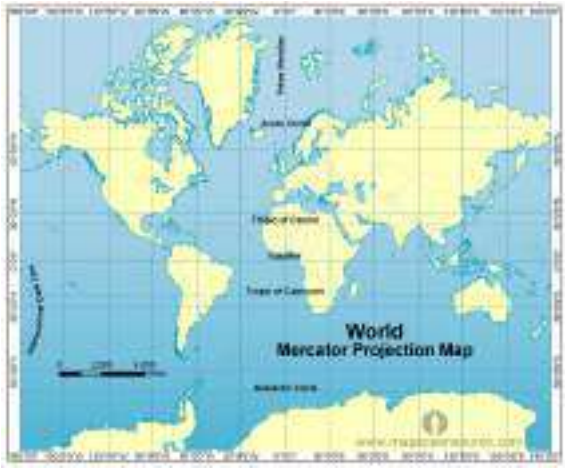
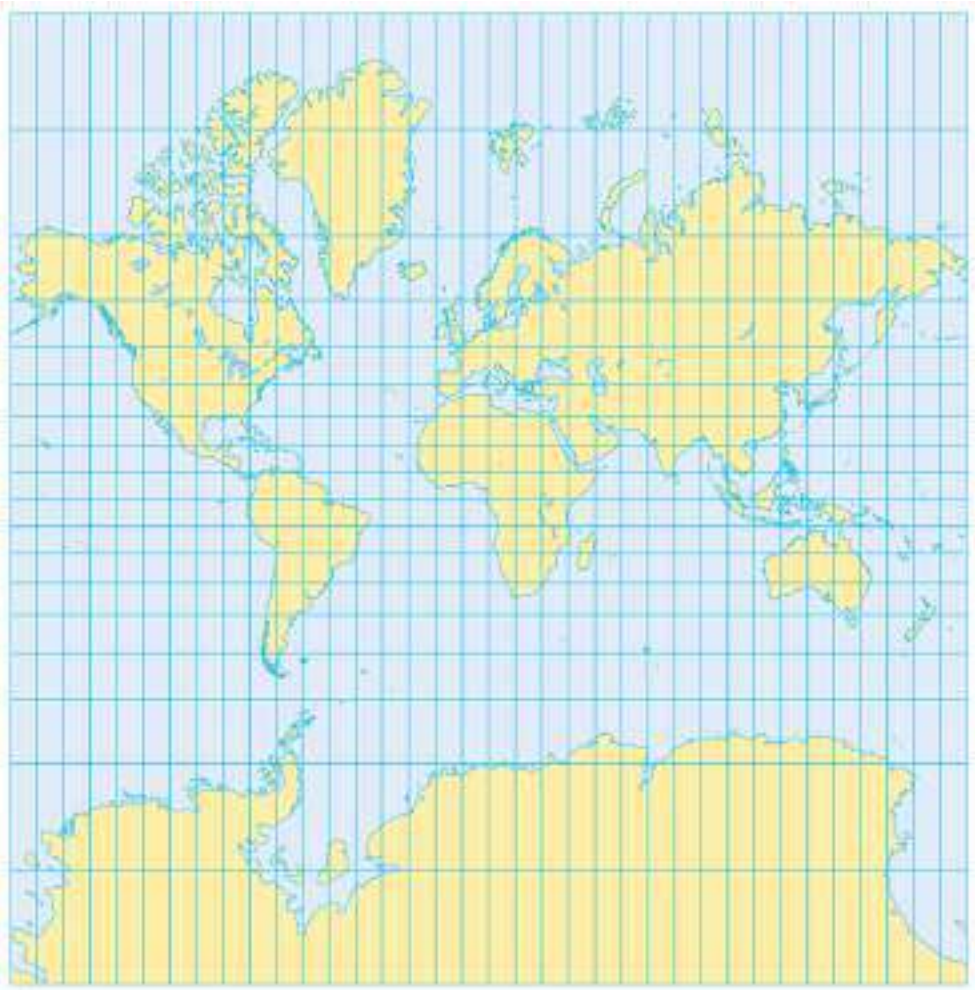


PROJECTIONS

- We know that the earth is round and maps are flat
- Therefore, **all maps distort some aspect of reality** (SADD – shape, area, distance, or direction)
- The process of showing a curved surface on a flat surface is done using a **map projection**
- There are 5 projections you need to know…

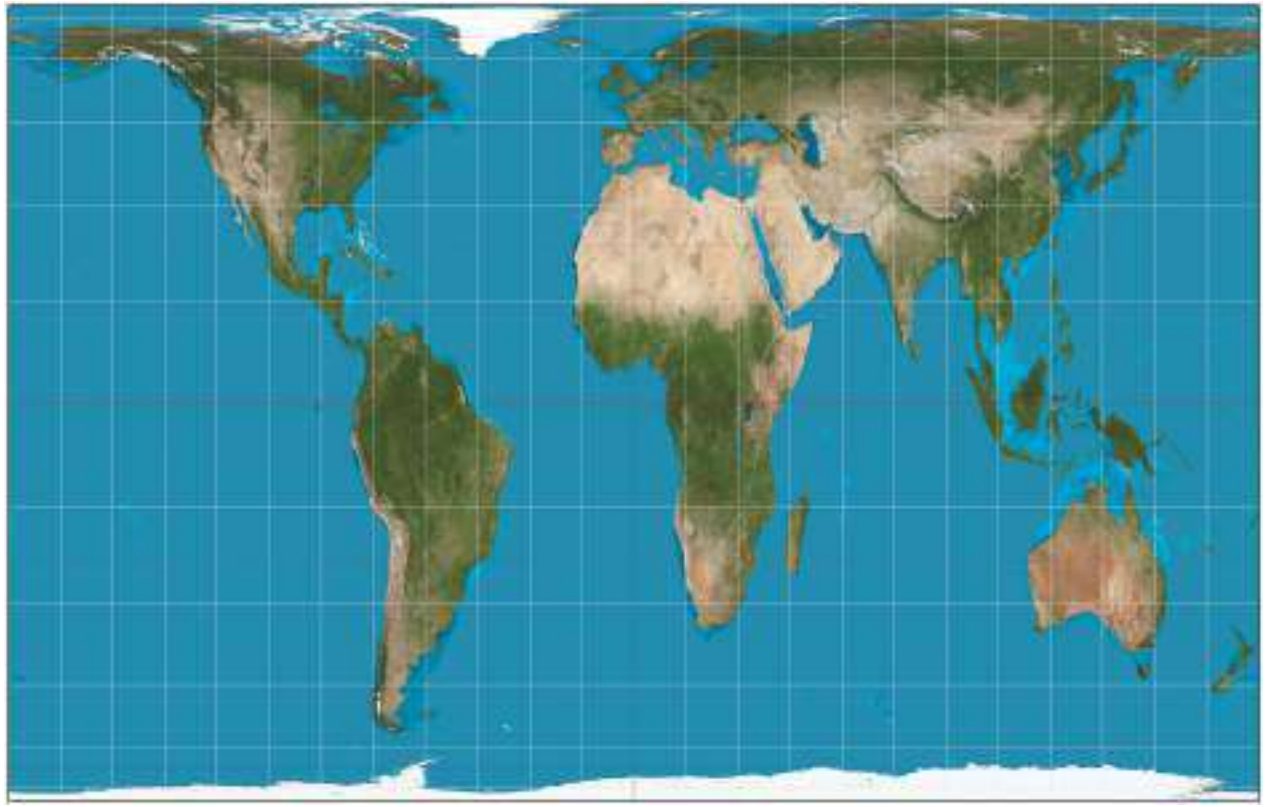
PROJECTIONS - MERCATOR

- **Purpose** – navigation
- **Strengths** – directions are accurate; lines of latitude and longitude meet at right angles
- **Distortion** – distance between lines of longitude appear consistent; land masses near the poles appear large.

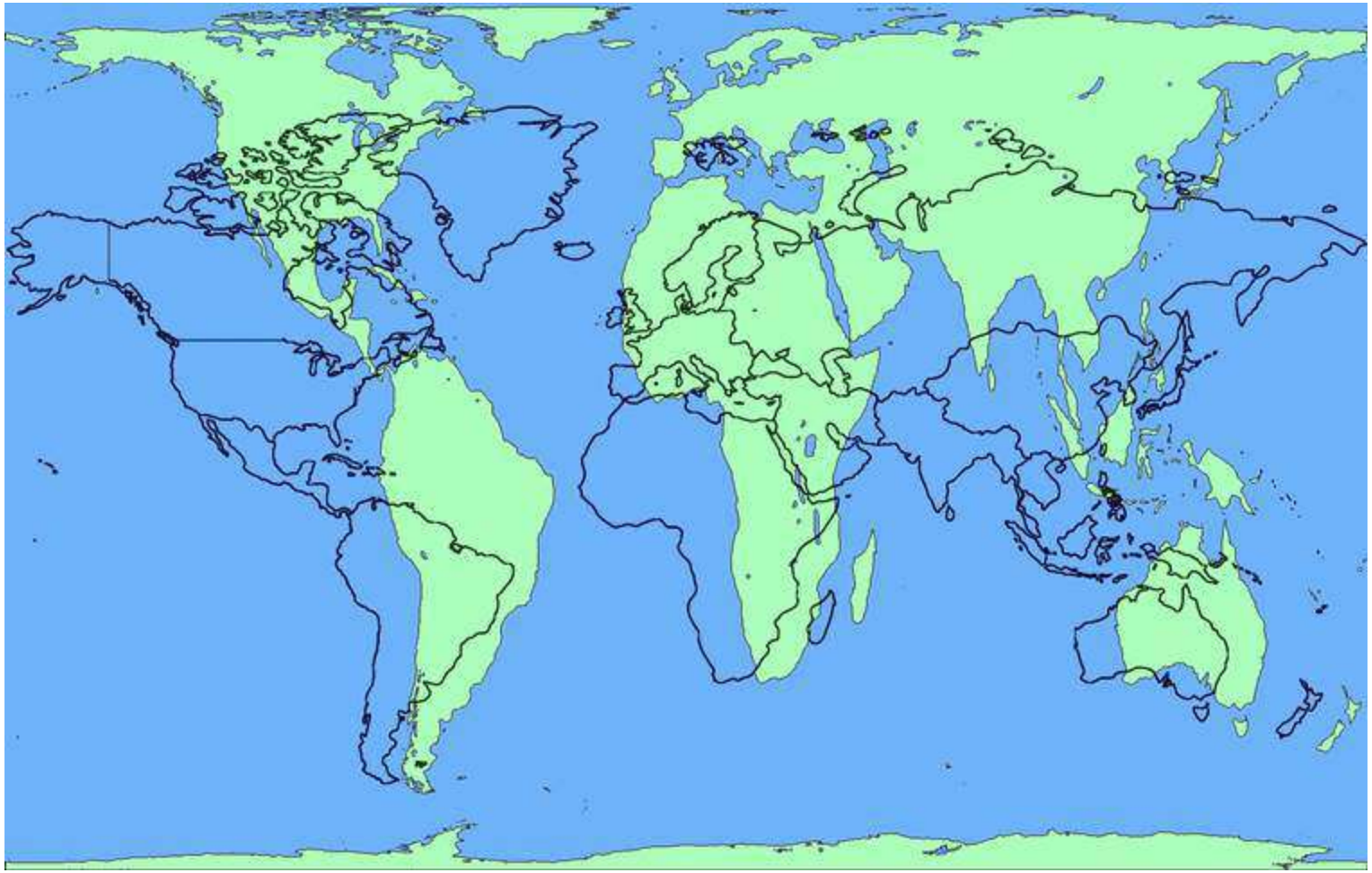


PROJECTIONS - PETERS

- **Purpose** – spatial distributions related to area
- **Strengths** – sizes of land masses are accurate
- **Distortion** – shapes are inaccurate, especially near the poles



PROJECTIONS – PETERS OVER MERCATOR

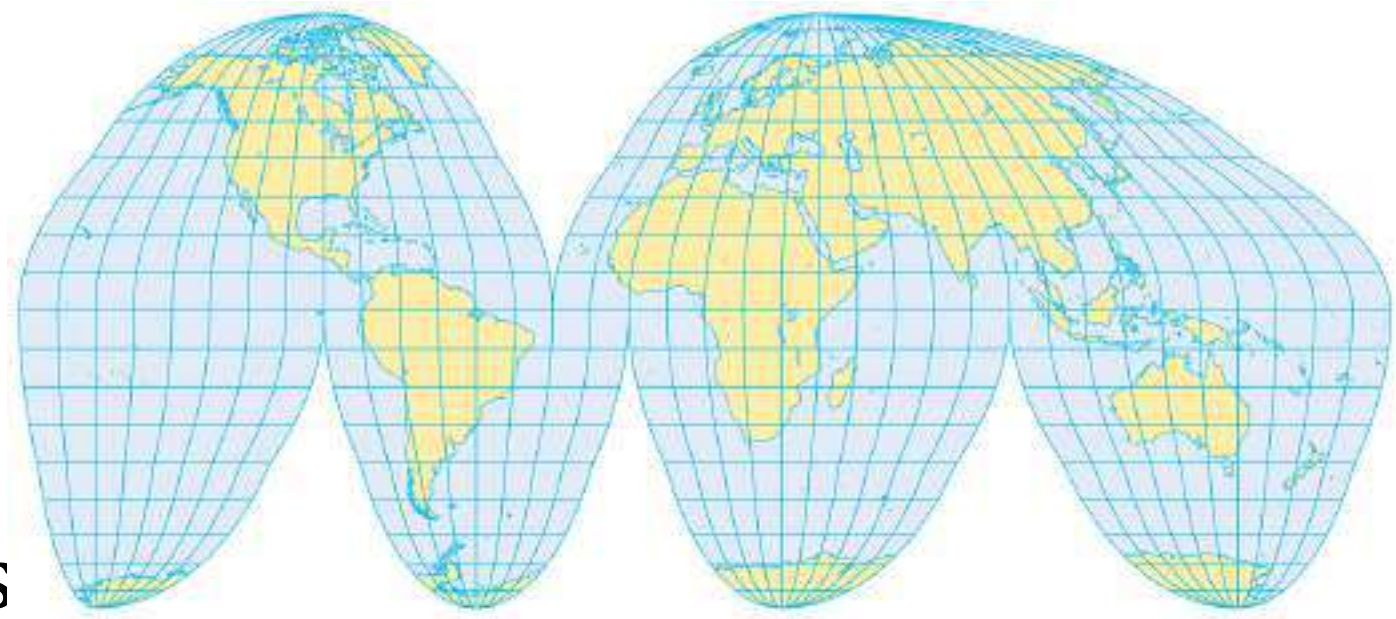


PROJECTIONS - CONIC

- **Purpose** – general use in midlatitude countries
- **Strengths** – lines of longitude converge; lines of latitude are curved; size and shape are close to reality
- **Distortion** – directions are not constant; longitude lines converge at one pole

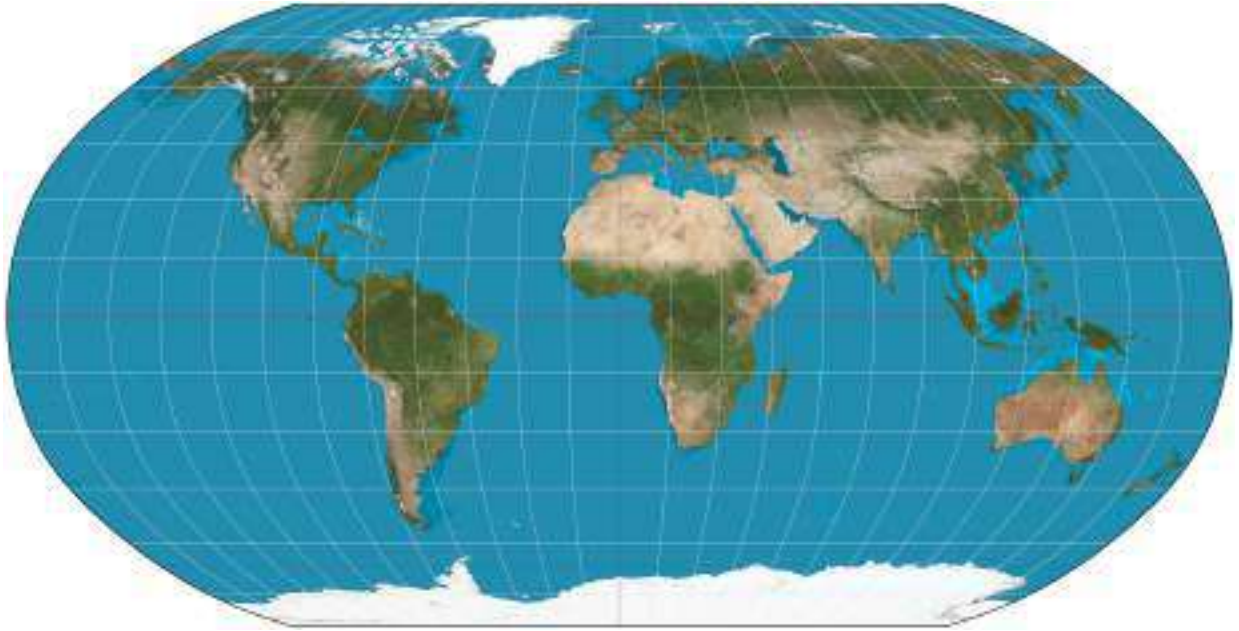
PROJECTIONS – GOODE-HOMOLOSINE

- **Purpose** – spatial distribution
- **Strengths** – area and shape are preserved
- **Distortion** – interrupts the oceans



PROJECTIONS – ROBINSON

- **Strengths** – size is closer to accurate; ocean sizes look more accurate
- **Distortion** – Antarctica looks very large and Greenland looks flattened north to south.



ENDURING UNDERSTANDING (1.C)

- Remember, by the end of this section, you will *understand* that **geographical skills provide a foundation for analyzing world patterns and processes.**

LEARNING OBJECTIVE (1.C.4)

- By the end of this section, you will *be able to* **use and interpret geographic models**
  - Geographers use models as generalizations to think systematically about topics such as land use (e.g., von Thünen model, Latin American city model), industrial location (e.g., Weber model), and the distribution of settlements (e.g., Christaller's central place theory)

MODELS IN GEOGRAPHY

- **Geographic models** are representations of reality or theories about reality to help them see general spatial patterns, focus on the influence of specific factors, and understand variations from place to place.
- Models help explain, describe, and sometimes even predict spatial activity and phenomena.
- Two basic types: spatial and non-spatial

MODELS IN GEOGRAPHY - SPATIAL

- **Spatial models** illustrate theories about spatial distributions
  - Example: agricultural land use – Von Thünen model
  - Example: industrial location – least cost theory
  - Example: distribution of cities – central place theory

MODELS IN GEOGRAPHY – NON-SPATIAL

- **Non-spatial models** illustrate theories and concepts using words, graphs, or tables. They often depict changes over time rather than across space.
  - Example: demographic transition model (DTM)
  - Example: Rostow's modernization model
  - Example: Wallerstein's world-systems theory combines both spatial and non-spatial

FORMULAS AND GRAPHS

- Formulas help geographers understand how the world works and function much like models
- Mathematical calculations used to produce statistics
  - Determine CBR and CDR
  - Doubling times for population
  - Population densities
- Theoretical formulas produce results that are more theoretical
  - Rank-size rule
- Graphs illustrate population structures (pyramids), geographic concepts (distance-decay), and even models (DTM)

USE OF MODELS

- Von Thünen Model
  - Generalization – based on what people did, he developed a general model about agricultural land use
  - Simplification – focused on two variables (transportation and distance)
  - Theoretical – could be applied around the world but would never exactly match reality
- Models are never really right or wrong but are useful in understanding the world

ENDURING UNDERSTANDING (1.C)

- Remember, by the end of this section, you will *understand* that **geographical skills provide a foundation for analyzing world patterns and processes.**

LEARNING OBJECTIVE (1.C.7-8)

- By the end of this section, you will *be able to* **define region as a concept, identify world regions, and understand regionalization processes.**
  - Definition of region
  - Types of regions
  - World regions

- By the end of this section, you will *be able to* **explain and evaluate the regionalization process.**
  - Regional thinking and regionalism

REGIONALIZATION AND REGIONS

- **Regionalization** is the process geographers use to divide and categorize space into smaller areal units – the same way a writer divides a book into chapters and then names (classifies) them.
- Three types of regions
  - Formal
  - Functional
  - Vernacular

TYPES OF REGIONS: FORMAL

- **Formal regions**, sometimes called **uniform regions** or **homogenous regions**, are united by one or more traits
  - Physical – the Sahara, a vast desert in North Africa
  - Cultural – southwestern Nigeria, an area where most people speak Yoruba
  - Economic – Gold Coast of Africa (Ghana), which exports gold

TYPES OF REGIONS: FUNCTIONAL

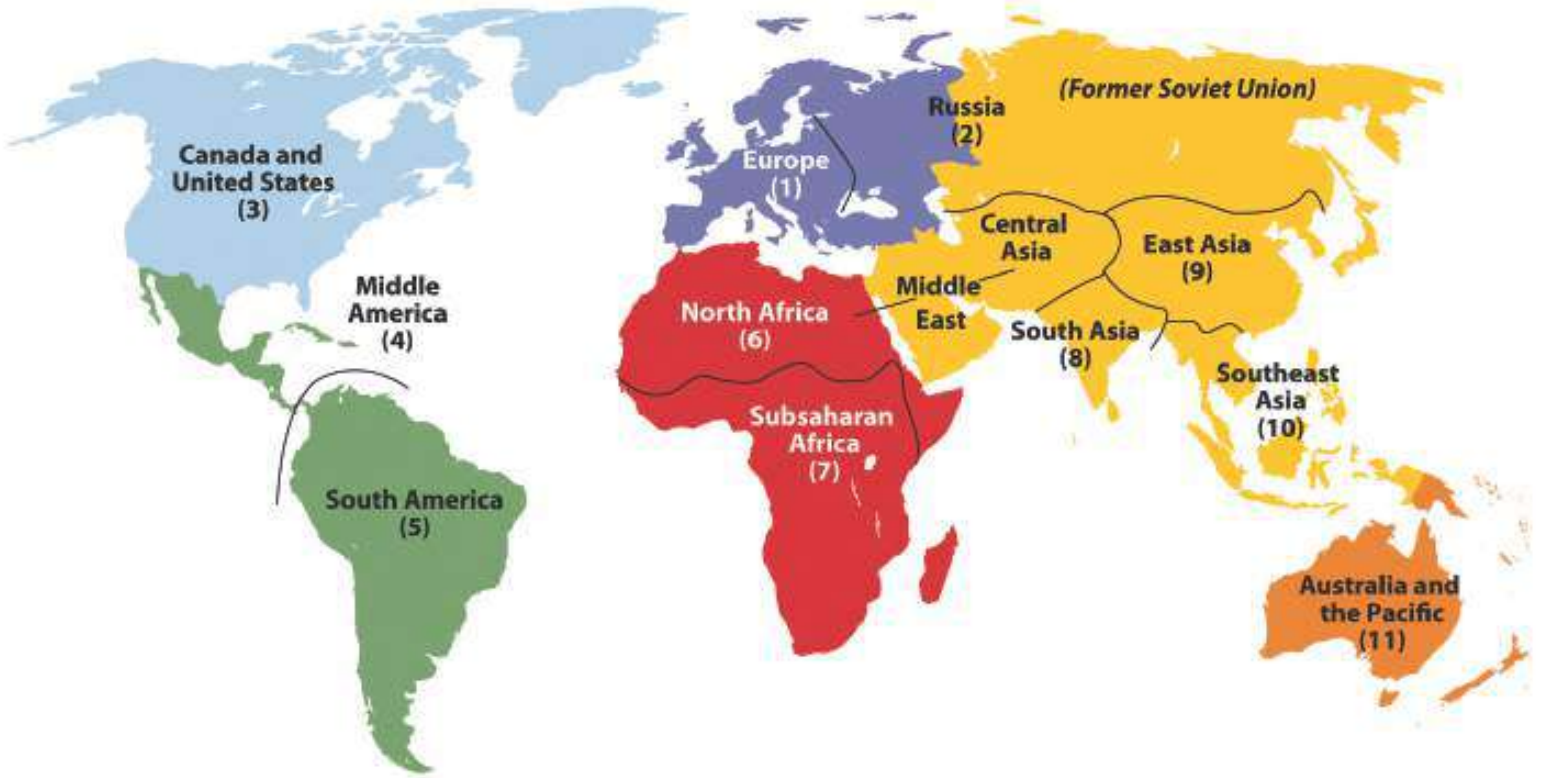
- **Functional regions**, or **nodal regions**, are organized around a focal point and are defined by an activity that occurs across the region
- Often united by communication or transportation that are centered around a **node**
  - Region: pizza delivery area; Node: pizza shop
  - Region: a country; Node: capital city (political node)

TYPES OF REGIONS: PERCEPTUAL

- **Perceptual regions**, or **vernacular regions**, are defined by the informal sense of place that people ascribe to them and vary widely
  - The American "South"
  - The Middle East
  - "Upstate" New York
- The exact boundaries depend upon the person who is defining them

WORLD REGIONS – LARGE REGIONS

- Geographers divide the world into regions and subregions



World Realms

1. Europe
2. Russia
3. USA and Canada
4. Middle America
5. South America
6. North Africa and Southwest Asia
7. Subsaharan Africa
8. South Asia
9. East Asia
10. Southeast Asia
11. Australia and Pacific

WORLD REGIONS – SUBREGIONS

- Subregions are large regions divided into smaller sections
- They share some characteristics with the rest of the larger region but is distinctive in some ways
- Example: Latin America covers parts of North and South America, from Mexico to Chile. As in most Latin American countries, most people in Brazil are Roman Catholics. However, most Brazilians speak Portuguese. Because of its language, Brazil is a distinct **subregion**.

WORLD REGIONS – SUBREGIONS

WORLD REGIONS – SMALLER REGIONS

- Subregions can be divided into smaller regions and can be based on elements of *physical geography*, such as climate and landform, or *human geography*, such as culture, politics, or economics
- Any one place is part of many regions or subregions
- Example: Florida is part of a climate region base on its warm weather, a cultural region known as the *South*, and an economic region known as the Sun Belt.

ENDURING UNDERSTANDING (1.D)

- By the end of this section, you will *understand* that **geospatial technologies increase the capability for gathering and analyzing geographic information with applications to everyday life.**

LEARNING OBJECTIVE (1.D.1)

- By the end of this section, you will *be able to* **use and interpret geospatial data**
  - Geospatial technologies include GIS, GPS, remote sensing, and online mapping and visualization
  - Geospatial data is used at all scales for personal (navigation), business (marketing), and governmental (environmental planning) purposes

GEOSPATIAL DATA

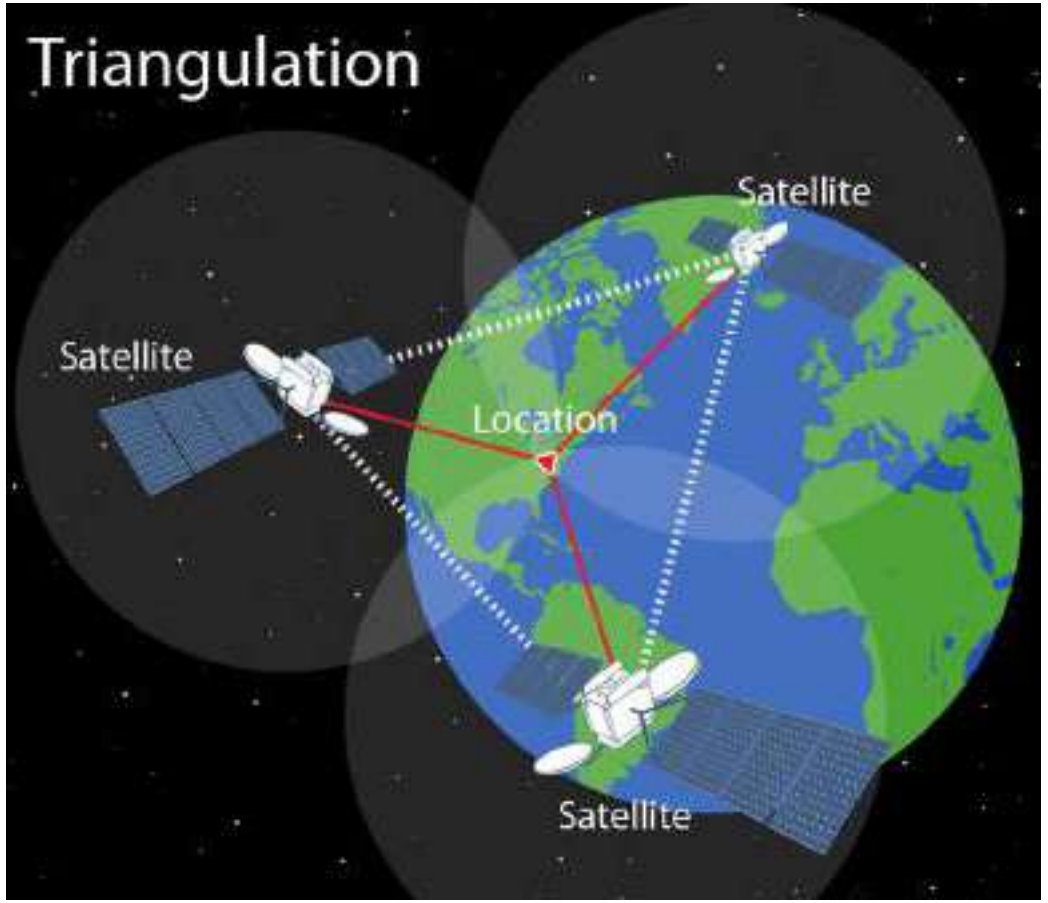
- Geospatial data includes all information that can be tied to a specific place
- Locations, human activities, and traits
- Examples:
  - Where do speakers of Chinese live?
  - How common is poverty in each U.S. county?
  - Where is the dividing line in a city between students who attend one high school and those who attend another?

GEOSPATIAL DATA – OBTAINING DATA

- Much of the data is obtained through **fieldwork** – observing and recording information on location
- Census of the population, interviews, informal observations

GEOSPATIAL DATA – TECHNOLOGIES

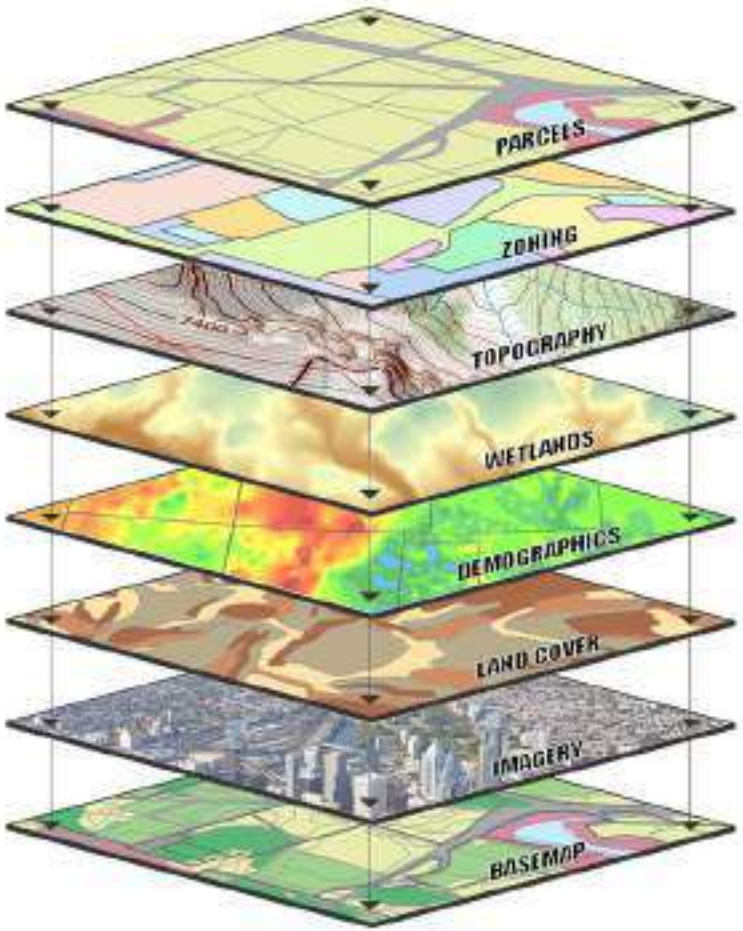
- Global Positioning System (GPS)
  - **Description**: GPS receivers on Earth's surface use the locations of multiple satellites to determine and record a receiver's exact location
  - **Uses**: precisely locating border; navigating ships, aircraft, and cars; mapping lines (trails) or points (fire hydrants)



GEOSPATIAL DATA – TECHNOLOGIES

- Remote Sensing
  - **Description**: the use of cameras or other sensors mounted on aircraft or satellites to collect digital images of the earth's surface
  - **Uses**: determining land cover and use; monitoring environmental changes; assessing spread of spatial phenomena; weather

GEOSPATIAL DATA – TECHNOLOGIES



- Geographic Information Systems (GIS)
  - **Description**: computer system that can store, analyze, and display information from multiple digital maps or geospatial data sets
  - **Uses**: analysis of crime data; effects of pollution; transportation/travel time analysis; urban planning

THE LONDON SUBWAY MAP

- One of the most useful, yet inaccurate, maps
- Shows the value of the concept of *relative location*
- Passengers did not need to know the twists and turns of the track or the actual distance between stops

THE LONDON SUBWAY MAP