The Tools of the Geographer

Maps and Modern Technologies
Patterns

• Geographers look for patterns.
• When they find similarities or differences between places, they ask why.
Geographic Concepts and Models
Cartography

• Definition: The science of map-making

• Two reasons to use maps:
  – As a reference tool (to keep us from getting lost)
  – As a communications tool (to explain where something is distributed)
Map Scales

- Measured in three ways:
  - Ratio (ex. 1 inch=25,000 inches)
  - Written Scale (ex. 1 inch=50 miles)
  - Graphic Scale (ex. bar line – see picture on left)
Projections

- Projection – Transferring locations on Earth’s surface to a flat map
- Can be difficult, as most maps are distorted
  – (sphere vs. flat paper)
Types of Map Distortions

- **Stereographic Conformal**: Distance: 11,567,687 meters
- **Sinusoidal Equalistant**: Distance: 13,043,921 meters
- **Mercator Conformal**: Distance: 16,136,459 meters
- **Platee Caree Equalistant**: Distance: 16,188,361 meters
- **Goode-Homosoline- Equal area**: Distance: 13,216,620 meters
- **Bonne Equal Area**: Distance: 10,836,275 meters
Distortion Example

Which looks bigger based on this map?
Distortion Example

- Greenland’s Area: 836,300 sq mi
- South America’s Area: 6,888,000 sq mi
Satellite-Based Maps

- GPS – Global Positioning System
  - Determines the precise position of areas on Earth
GIS

- GIS – Geographic Information System
  - Computer system that can capture, store, analyze, and display geographic data
  - Can show relationships between different kinds of information