The Tools of the Geographer

Modern Tools in the Study of Geography
Models

- Models are theories established by different geographers developed by geographers based on observations
  - Do not always work in all situations
  - Can be used to compare different areas
Patterns

- Geographers use different maps and models to look for **patterns**
  - Series of similarities or differences
Cartography

- Cartography is The science of map-making
- Two reasons to use maps:
  - As a location reference guide
    - To find location of different places and objects
  - As a communications tool
    - To display and explain information
Principles of Cartography

- Scale – Different levels of looking at the Earth
  - Ex. City, County, Region, Planet
- Projection – Different methods of displaying the spherical earth on flat maps
- Distortion – Changes in the size and shape of different land masses based on the projection
Types of Map Projections

- **Stereographic Conformal**: Distance: 11,557,687 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

- Greenland’s Area: 836,300 sq mi
- South America’s Area: 6,888,000 sq mi
Modern Geographic Technologies

- GPS – Global Positioning System
  - Uses system of satellites to track specific Latitude and Longitude Coordinates

- GIS – Geographic Information Systems
  - Computer software used to capture, store, analyze, and display data
The above map shows the relationship between street locations and the Green Line Light Rail in the Twin Cities.