

How Geographers Look at the World

I. Geography Skills Handbook

A. Globes and Maps

1. From 3-D to 2-D
2. Cartographers are mapmakers. They use mathematical formulas to transfer information from the 3 dimensional globes to the 2 dimensional maps.
3. Great Circle Routes: A straight line of true direction—one that runs directly from west to east for example, is not always the shortest distance between two points on Earth.

B. Projections

1. Planar Projection: a planar projection shows the Earth centered in such a way that a straight line coming from the center any other point represents the shortest distance.
2. Cylindrical Projection: A cylindrical projection is based on the projection of the globe onto a cylinder.
3. Conic Projection: A conic projection comes from placing a cone over part of the globe.
4. Common Map Projections: Each type of map projection has advantages and some degree of inaccuracy.
 - a. Winkel Tripel Projection-balance between shape and size of landmasses
 - b. Goode's Interrupted Equal-Area Projection-true size and shape of landmasses but distances are distorted.
 - c. Robinson Projection-minor distortions with polar areas appearing flat.
 - d. Mercator Projection-oldest map projection still used and shows true size and shape of land masses along with true direction.

C. Determining Location

1. Latitude: Lines of latitude, or parallels, circle the Earth parallel to the equator.
2. Major lines of Latitude
 - a. Equator 0° degrees
 - b. Tropic of Cancer 0° to 23.5° degrees north of the equator.
 - c. Arctic Circle 66.5° degrees north to 90° degrees north (North Pole)
 - d. Tropic of Capricorn 0° to 23.5° degrees south of the equator.
 - e. Antarctic Circle 66.5° degrees south to 90° degrees south (South Pole)
3. Longitude: Lines of longitude, or meridians, circle the Earth from pole to pole.
 - a. All corresponding lines of longitude make a Great-Circle Route.
 - b. Prime Meridian is 0° degrees Longitude and passes through Greenwich, England.
 - c. The 180° degree of longitude is opposite the Prime Meridian and the International date-line follows it (with some variations)
4. The Global Grid: Every place has a global address, or absolute location.
5. Northern and Southern Hemispheres: Everything north of the equator is in the Northern Hemisphere.
6. Eastern and Western Hemispheres: The Prime Meridian and the International Date Line divide the Earth into the eastern and western hemispheres.
7. All locations reside in two hemispheres-north or south, along with an east or west.

D. Reading a Map

1. Title: The title tells you what kind of information the map is showing.
2. Scale Bar: The scale bar shows the relationship between map measurements and actual distances on the Earth.
3. Compass Rose: Indicates directions.
4. Cities: Cities represented by a dot.
5. Using a Scale: All maps are drawn to a certain scale.
 - a. small-scale maps: shows large area-but little detail
 - b. large-scale maps: shows a small area –but much more detail
6. Absolute and Relative Location: An exact point where a line of latitude crosses a line of longitude.

E. Physical Maps

1. Water Features: Physical maps show rivers, streams, lakes, and other water features.
2. Landforms: Physical maps may show landforms such as mountains, plains, plateaus, and valleys.
3. Relief and Elevation: Physical maps using shading and texture to show general relief.
4. Physical/Political Features: Some physical maps also show political features such as boundary lines, countries, and states.

F. Political Maps

1. Human-Made Features: Political maps show human-made features such as boundaries, capitals, cities, roads, highways, and railroads.
2. Physical Features: Political maps may show physical features such as relief, rivers, and mountains.
3. Non Subject Area: Area surrounding the subject area of the map is usually a different color to set them apart.

G. Thematic Maps

1. Qualitative Maps: maps that use colors, symbols, lines, or dots to show information related to a specific idea.
2. Flow-Line Maps: Maps that illustrate the movement of people, animals, goods, and ideas as well as physical processes.

H. Geographic Information Systems

1. Modern technology has changed the way maps are made.
2. Overlay of information in layers upon a base (point of interest).

II. The Geographer's Craft

A. The Elements of Geography

1. The World in Spatial Terms: Spatial terms are the links people and places have to one another because of their locations.
 - a. Absolute Location: Can be determined by latitude and longitude coordinates.
 - b. Relative Location: Connect a location with a larger area of region.
2. Places and Regions: A place is a particular space with physical and human meaning. Regions are areas with similar characteristics.
 - a. Formal region: defined by a common characteristic.
 - b. Functional region: defined by a central location and the connections to outlying areas.
 - c. Perceptual region: defined by feelings and ideas and are somewhat subjective.

3. Physical Systems and Human Systems: Physical geography focuses on the study of physical features. Human geography is the study human activities and their relationship to the cultural and physical environments.

- a. How do people interact in their environment to adapt or adapt to it?
- b. How are ecosystems interdependent upon human, plant, and animal characteristics along with the environment?
- c. How are goods, services, and ideas moved from one person or place to another?

4. Environment and Society: Human-environment interaction, or the study of the interrelationship between people and their physical environment, is another theme of geography.

5. The Uses of Geography: Geography provides insight into how physical features and living things developed in the past.

B. Research Methods

1. Direct Observation: Geographers use direct observation to study the Earth and the patterns of human activities that take the place on its surface.

2. Mapping: Cartography involves designing and making maps.

3. Interviewing: Geographers examine people's beliefs and attitudes by interviewing.

4. Analyzing Statistics: Geographers use computers to organize and present this information.

5. Using Technology: GIS are computer tools that process and organize data and satellite images with other types of information.

6. Skills used for thinking like a geographer

- a. Asking geographic questions
- b. Acquiring geographic information
- c. Organizing geographic information
- d. Analyzing geographic information.
- e. Answering geographic questions

C. Geography and Other Subjects

1. Past Environments and Politics: Geographers use historical perspectives to understand what places could have looked like in the past.

2. Society and Culture: Human geographers, or cultural geographers, use the tools of sociology and anthropology to understand cultures around the world.

3. Economics: Geographers study economics to understand how the locations of resources affect the ways people make, transport, and use goods, and how and where services are provided.

D. Geography as a Career

1. Geography skills are useful in so many different situations that geographers have more than a hundred different job titles.