UNIT 1
THINKING GEOGRAPHICALLY

INTRODUCTION TO MAPS

- Types of maps include reference & thematic maps
- Spatial patterns include absolute & relative distance and direction, clustering, dispersal, and elevation
- Map projections distort spatial relationships in shape, area, distance, and direction

GEOGRAPHIC DATA

- Organizations & individuals gather geographic data
- Geospatial technologies include GIS, satellite navigation systems, remote sensing, and online mapping/visualization
- Field observations, media reports, travel narratives, policy documents, personal interviews, landscape analysis, and photographs provide spatial information
- Geospatial data is used for personal, business and organizational, and government decision making purposes

SPATIAL CONCEPTS

- Spatial concepts include absolute and relative location, space, place, flows, distance decay, time-space compression, and pattern

HUMAN-ENVIRONMENT INTERACTIONS

- Concepts of nature and society include sustainability, natural resources, and land use
- Theories regarding the interaction of the natural environment with human societies have evolved from environmental determinism to possibilism

SCALES OF ANALYSIS

- Scales of analysis include global, regional, national, and local
- Patterns and processes at different scales reveal variations in, and different interpretations of, data

REGIONAL ANALYSIS

- Regions are defined on the basis of one or more unifying characteristics or on patterns of activity
- Types of regions include formal, functional, and perceptual/vernacular
- Regional boundaries are transitional and often contested and overlapping
- Geographers apply regional analysis at local, national, and global scales

Unit 1

Unit One		
Thinking Geographically		Essential Knowledge
	Big Idea 1: PSO – Why do geographers study relationships and patterns among and between places?	★ PSO-1.A.1: Spatial concepts include absolute and relative location, space, place, flows, distance decay, time-space compression, and pattern.
		★ PSO-1.B.1: Concepts of nature and society include sustainability, natural resources, and land use.
		★ PSO-1.B.2: Theories regarding the interaction of the natural environment with human societies have evolved from environmental determinism to possibilism.
		★ PSO-1.C.1: Scales of analysis include global, regional, national, and local.
		★ PSO-1.D.1: Patterns and processes at different scales reveal variations in, and different interpretations of, data.
	Big Idea 2: IMP – How do geographers use maps to help them discover patterns and relationships in the world?	★ IMP-1.A.1: Types of maps include reference maps and thematic maps.
		★ IMP-1.A.2: Types of spatial patterns represented on maps include absolute and relative distance and direction, clustering, dispersal, and elevation.
		★ IMP-1.A.3: All maps are selective in information; map projections inevitably distort spatial relationships in shape, area, distance, and direction.
		★ IMP-1:B.1: Data may be gathered in the field by organizations or by individuals.
		★ IMP-1:B.2: Geospatial technologies include geographic information systems (GIS), satellite navigation systems, remote sensing, and online mapping and visualization.
		★ IMP-1:B.3: Spatial information can come from written accounts in the form of field observations, media reports, travel narratives, policy documents, personal interviews, landscape analysis, and photographic interpretation.
		★ IMP-1:C.1: Geospatial and geographical data, including census data and satellite imagery, are used at all scales for personal, business, organizational, and governmental decision-making purposes.
	Big Idea 3: SPS – How do geographers use spatial perspective to analyze complex issues and relationships?	★ SPS-1.A.1: Regions are defined on the basis of one or more unifying characteristics or on patterns of activity.
		★ SPS-1.A.2: Types of regions include formal, functional, and perceptual/vernacular
		★ SPS-1.A.3: Regional boundaries are transitional and often contested and overlapping.
		★ SPS-1.A.4: Geographers apply regional analysis at local, national, and global scales.

Unit 1: Thinking Geographically

Success Criteria:

Topic 1.1: Introduction to Maps

- ❏ Identify types of maps, the information presented in maps, and different kinds of spatial patterns and relationships portrayed in maps.

Topic 1.2: Geographic Data

- ❏ Identify the different methods of geographic data collection.

Topic 1.3: The Power of Geographic Data

- ❏ Explain the geographical effects of decisions made using geographical information.

Topic 1.4: Spatial Concepts

- ❏ Define major geographic concepts that illustrate spatial relationships.

Topic 1.5: Human-Environment Interaction

- ❏ Explain how major geographic concepts illustrate the spatial relationships.

Topic 1.6: Scales of Analysis

- ❏ Define scales of analysis used by geographers.
- ❏ Explain what scales of analysis reveal.

Topic 1.7: Human-Environment Interaction

- ❏ Describe different ways that geographers define regions.

Unit 1: Thinking Geographically

Vocabulary:

- Absolute direction
- Absolute distance
- Absolute location
- Cartographers
- Census
- Core
- Density
- Distance decay
- Distributed
- Ecological perspective
- Environmental determinism
- Flow
- Formal region
- Friction of distance
- Functional region
- Geographic Information System (GIS)
- Global Positioning System (GPS)
- Globalization
- Human geography
- Location
- Map scale
- Mental maps
- Node
- Pattern
- Perceptual region
- Periphery
- Physical geography
- Place
- Possibilism
- Qualitative
- Quantitative
- Reference maps
- Region
- Relative direction
- Relative distance
- Relative location
- Remote sensing
- Scale
- Semi-periphery
- Site
- Situation
- Space
- Spatial perspective
- Sustainability
- Sustainable development
- Theory
- Time-space compression
- Topography
- Vernacular region
- World systems theory

KEY ISSUE 1.1

WHY IS GEOGRAPHY A SCIENCE?

The word *geography*, invented by the ancient Greek scholar Eratosthenes, is based on two Greek words. Geo means “Earth,” and graphy means “to write.” Geography is the study of where things are found on Earth’s surface and the reasons for their locations. Human geographers ask two simple questions: Where are people and activities found on Earth? Why are they found there?

1.1 Key terms

Cartogram A map in which the projection and scale are distorted in order to convey the information of a variable.

Cartography The science of drawing maps

Geospatial Relating to data that is specific to one location

GIS (Geographic Information Systems) Software that captures, manages, analyzes, and displays data that is collected geographically

GPS (Global Positioning System) A system that measures distance from a series of satellites to determine location on the planet

Latitude The numbering system used to indicate the location of parallels drawn on a globe and measuring distance north and south of the equator (00).

Longitude The numbering system used to indicate the location of meridians drawn on a globe and measuring distance east and west of the prime meridian (00).

Map A two-dimensional or flat, representation of Earth's surface or a portion of it.

Map scale The relationship between the size of an object on a map and the size of the actual feature on Earth's surface.

Parallel A circle drawn around the globe parallel to the equator and at right angles to the meridians.

Prime meridian The meridian, designated as 00 longitude, that passes through the Royal Observatory at Greenwich, England.

Projection A method of taking a 3D object and putting in on a 2D plane

Qualitative data Subjective information that is opinion based, is usually descriptive, and often expressed as text

Quantitative data Objective data that is fact based, usually measurable and usually expressed in numbers

Reference Map Maps that emphasizes the location of places (without data attached)

Region A place larger than a point and smaller than a planet that is grouped together because of a measurable or perceived common feature

Region An area distinguished by one or more distinctive characteristics.

Remote sensing The science of making measurements of the earth using sensors on airplanes or satellites

Scale The relationship between the distance on the ground and the corresponding distance on a specific map - also a concept describing how "zoomed in" you are while studying a geographic trait

Scale of Analysis How zoomed in or out you are when looking at geographic data

Thematic maps A map that displays not only locations but maps a topic or theme of information with the location

Surveying Examining and measuring the surface of the Earth for planning, preparing to build, or mapping

Situation A way of describing where a place is based on its relationships with the surrounding areas

Key Issue#: **1.1.1**	Name _____Period_____

Learning Outcome: Summarize geography's basic concepts.

Questions/Main Ideas	Notes
Geography & History	
Place	
Region	
Scale	
Space	
Connection	
Pause and reflect	What are the principal connections from your hometown to other places?

Summary	
Questions for class	1.
	2.
	3.

Key Issue#: **1.1.3**	Name _____Period_____

Learning Outcome: Identify geography's principal contemporary mapping tools.

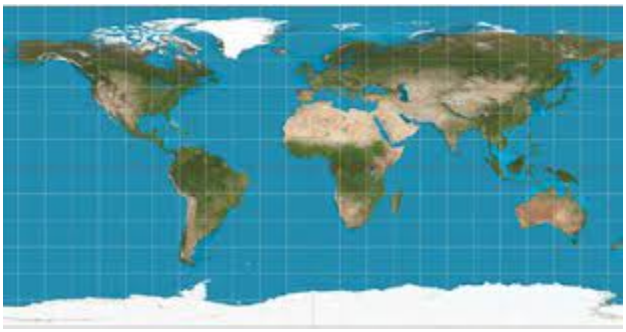
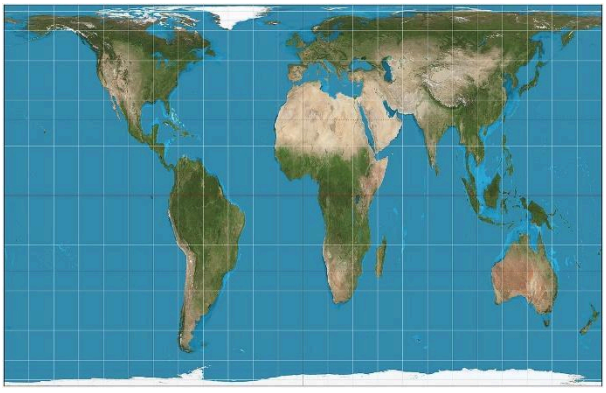
Questions/Main Ideas	Notes
Geographic information system (GIS)	
Photogrammetry	
Remote sensing	
Global Positioning System (GPS)	
Volunteered geographic information (VGI)	
Mashup (layers)	
Pause and reflect	What is an example of a mashup done for your community?

Summary	
Questions for class	1.
	2.
	3.

Key Issue#: **1.1.4**	Name _____Period_____

Learning Outcome: Explain the role of map scale and projection in reading maps.

Questions/Main Ideas	Notes
Map Scale	Ratio Written Graphic
Types of Distortion	**Question:** Describe how distortion changes the perception of the map you Are looking at
Projection	
Winkle Projection	

Goode Homolosine	
Mercator	
Gall-Peters Projection	
Pause & Reflect	Compare the sizes of Greenland and South America on the Four maps on this page. Which of the two landmasses is actually larger?
Summary	
Questions for class	1.
	2.
	3.

Key Issue#: **1.1.5**	Name _____Period_____

Learning outcome: Explain how the geographic grid locates points on earth's surface and helps to tell time.

Questions/Main Ideas	Notes
The Geographic Grid	Meridian Longitude Parallel Latitude Prim Meridian
Types of Maps	Isoline Map Dot Distribution Map Choropleth Map Graduated symbol map Cartogram

Pause and reflect	What is the absolute location of the High School (latitude and longitude)?
Summary	
Questions for class	1.
	2.
	3.