



Scale in Space

Using Geographic Scale to Explain Spatial Relationships

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Presented by

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Map Scale

What is it?

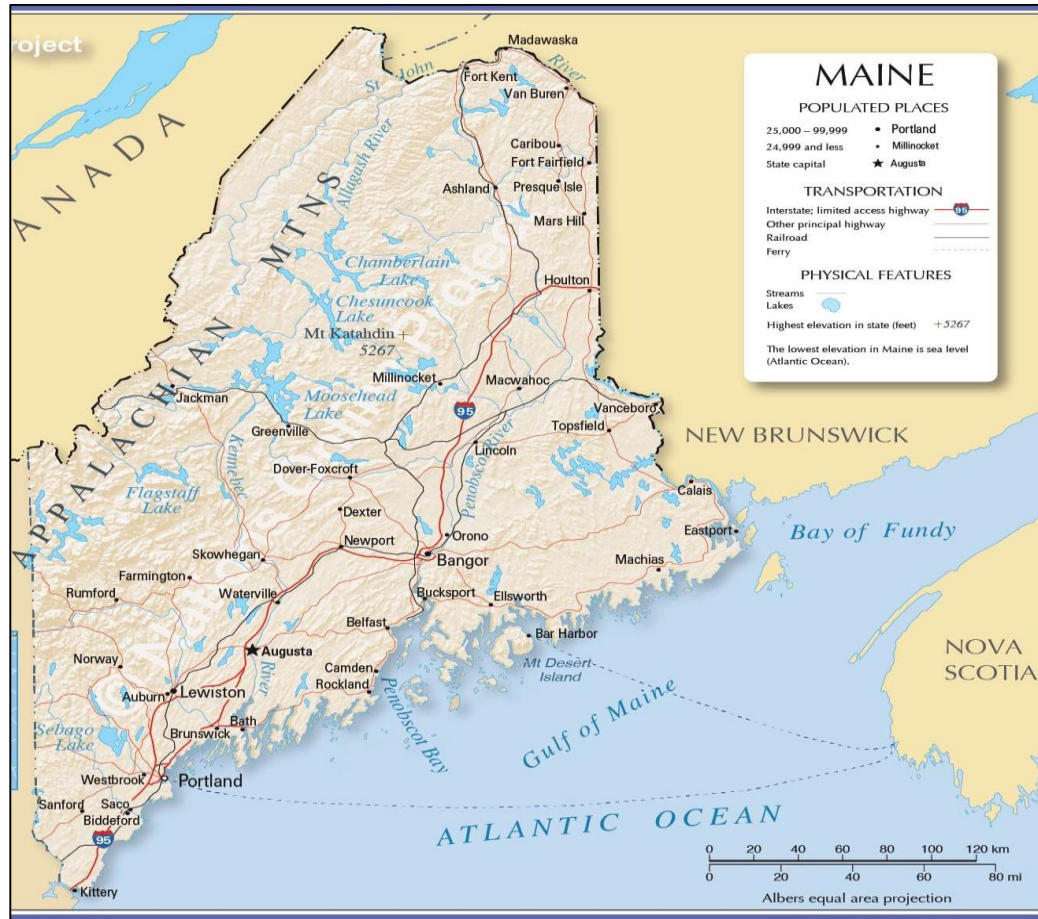
- Explains how distance on the map relates to distance in actual space
 - A scale bar is often used to define the map scale or
 - A numerical ratio
-

Scale Matters

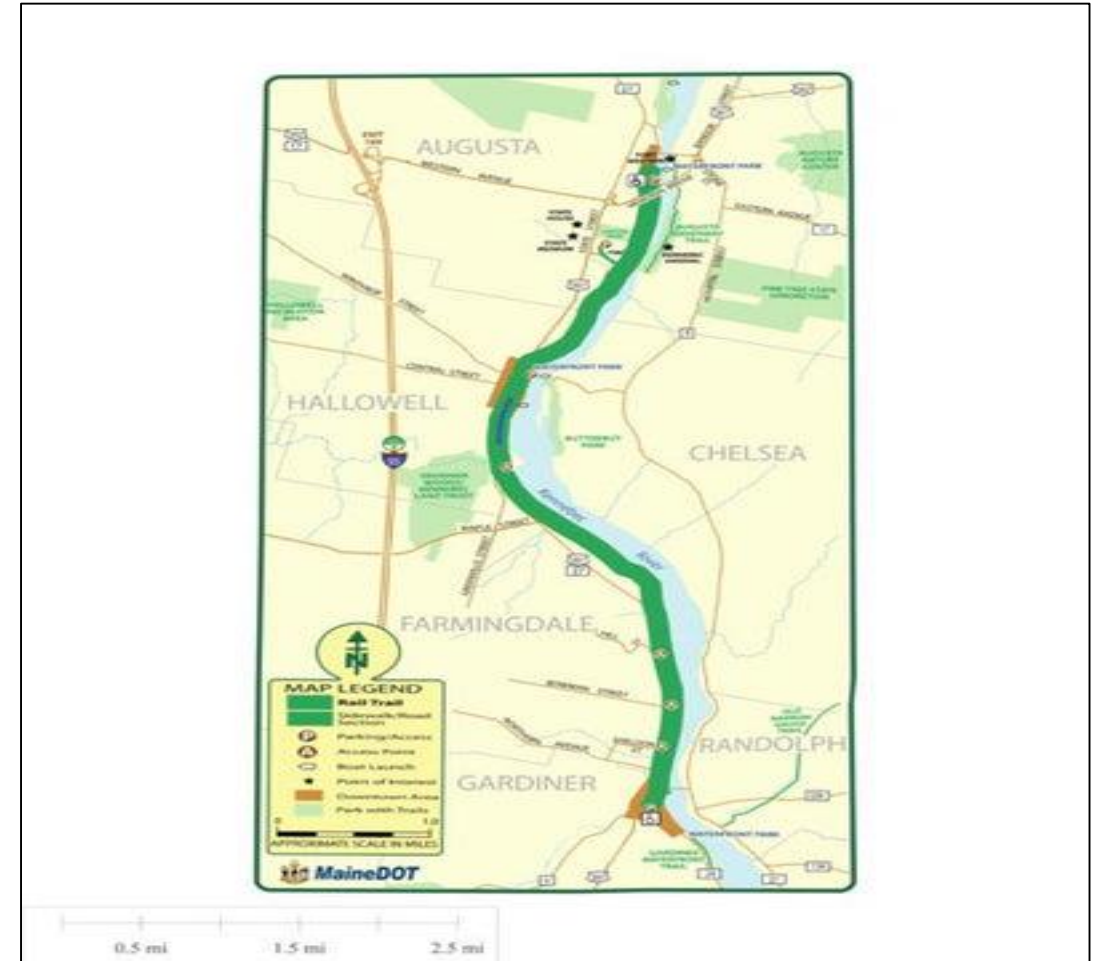
Large Scale or Small Scale?

- Large Scale Map shows detail of a small area
- Small Scale Map shows less detail in a larger area

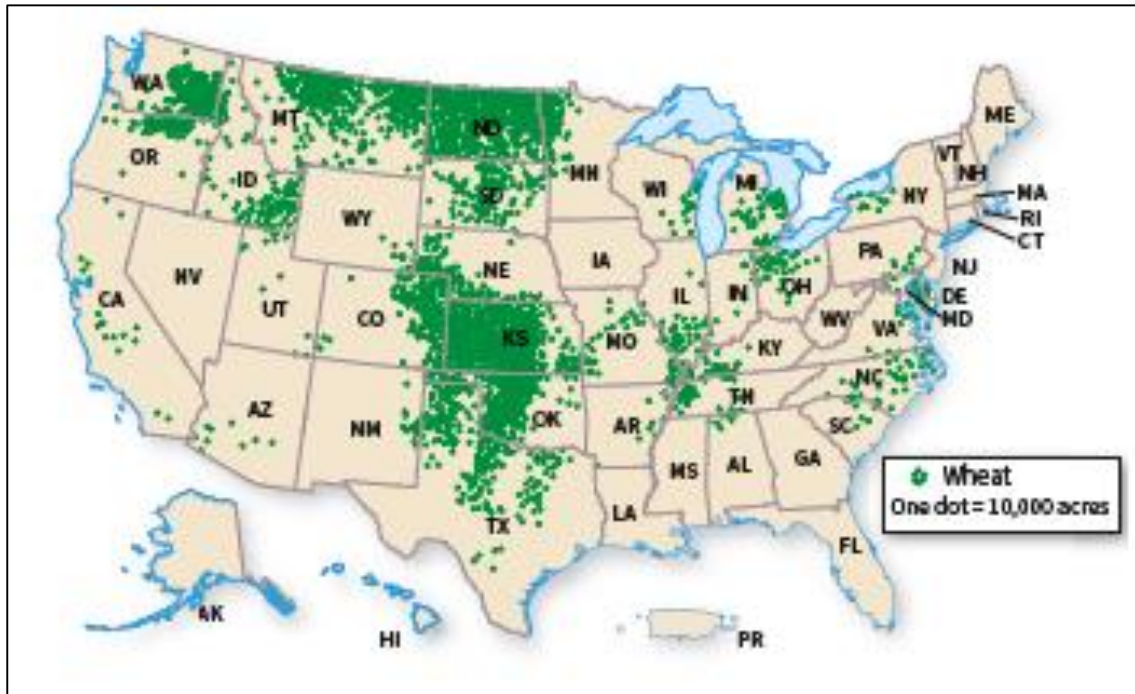
Small scale



Large Scale



Map Scale versus Scale of Analysis



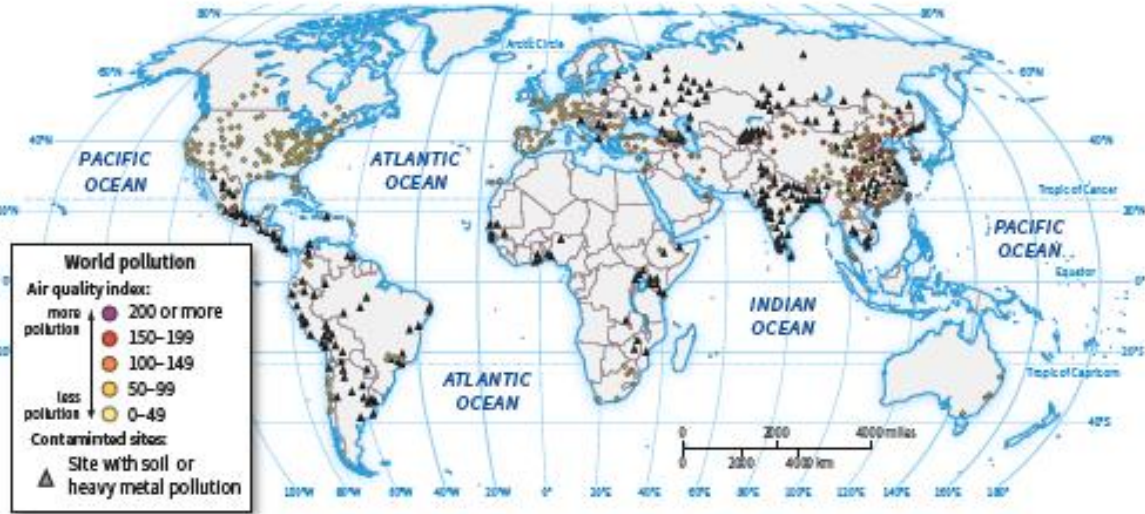
- Map Scale is how large something appears in relation to its actual size
- Scale of Analysis is how the data is aggregated on a map.



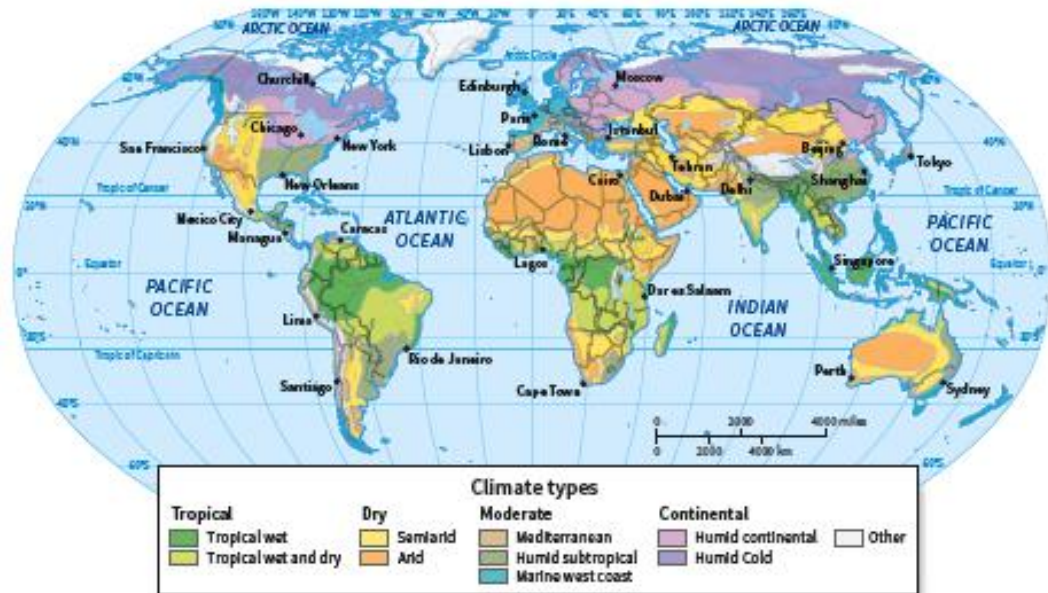
Skill 5-A. **Identify** the scales of analysis presented by maps, quantitative and geospatial data, images, and landscapes.

- Global Scale
- Regional Scale
- National Scale
- Local Scale
- Point to Remember: **What is true at one scale may not be true at another**

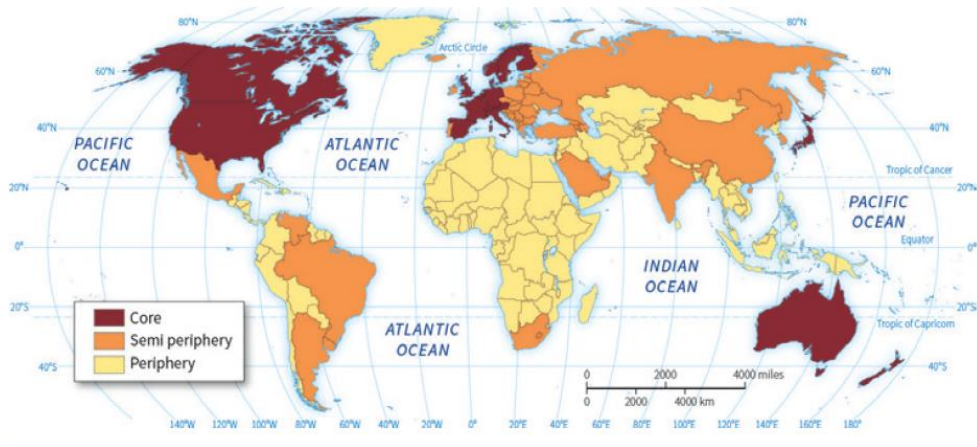
Global Scale



- Global Scale of analysis does not take into effect national or regional boundaries.
- Shows the entire world in its focus and scale.



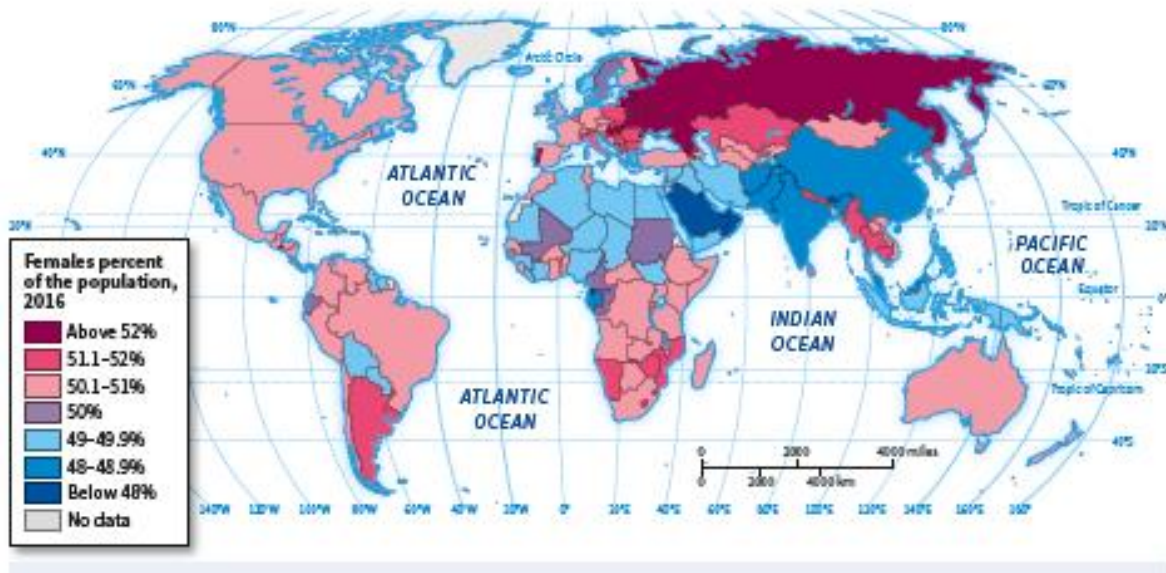
Regional Scale



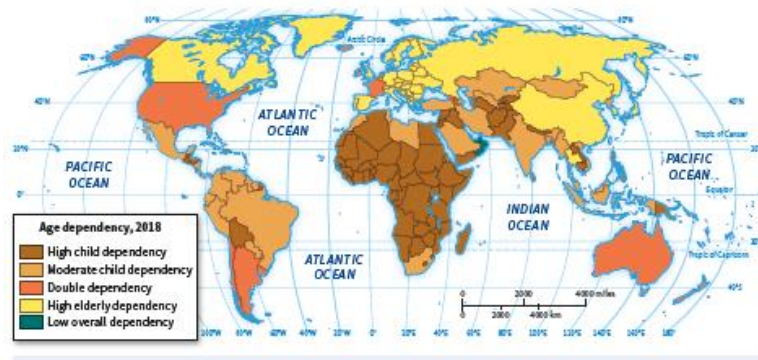
- Looks at human-made regions to determine characteristics.
- Confusing because it can be used both above and below the national scale.
- Sub-national scale (i.e. the South, Midwest, etc.)



National Scale



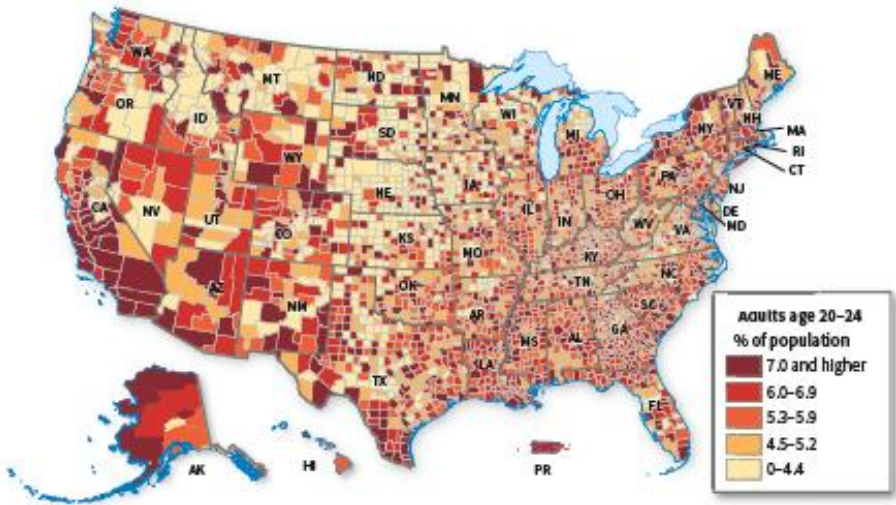
- Looks at data from a country perspective.
- Global map scale (for 2 of the maps) but the scale of analysis is national because it shows country level data.



Local Scale



- Usually seen at the county level analysis maps.
- Dot maps are usually another example of a local scale map.
- Census tract level would also be considered a local scale.



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The Effect of Geographic Scale on Spatial Pattern Analysis

Scale, Patterns, and Process

Skill Categories 2 and 5

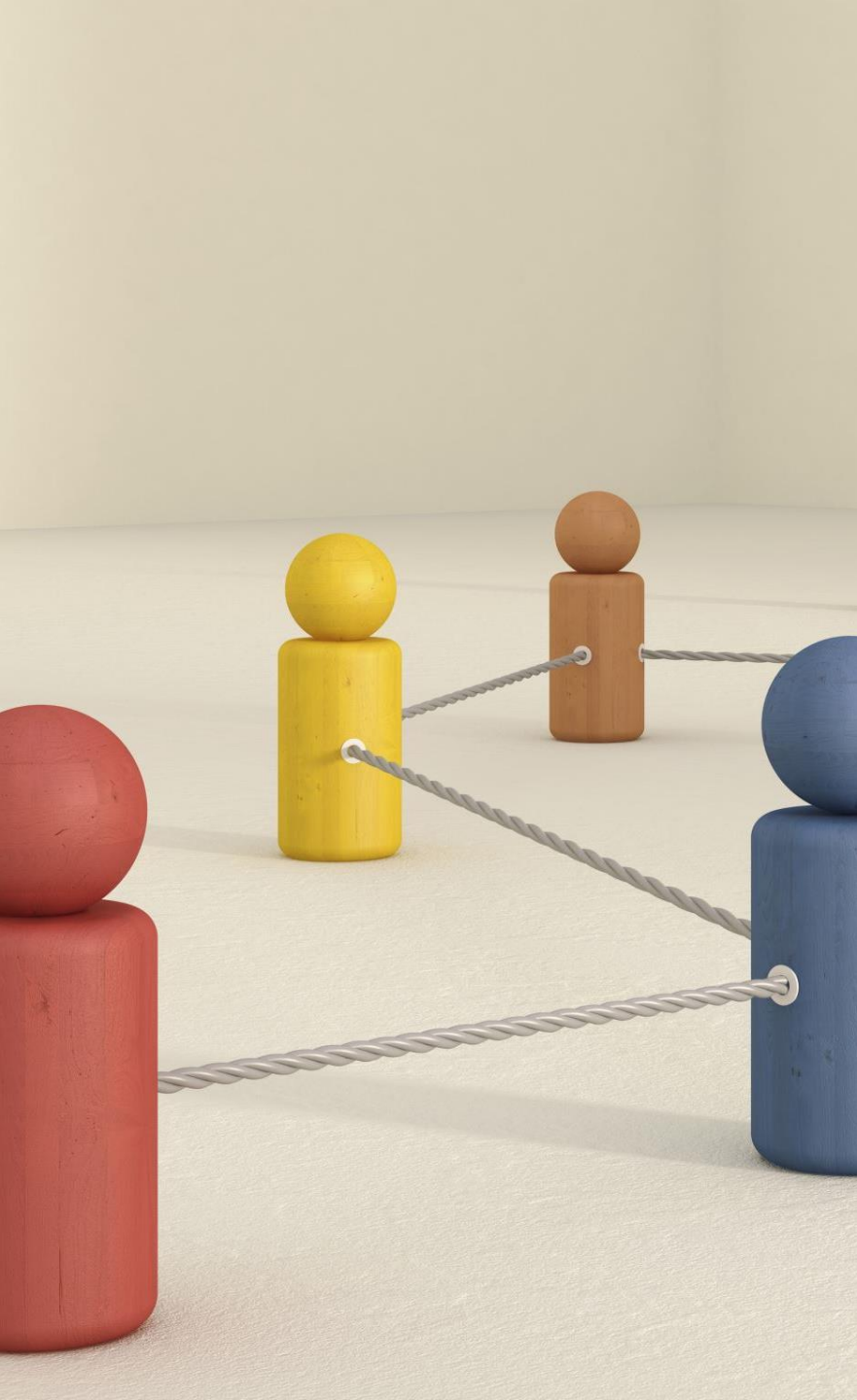
Skill Category 2 targets Spatial Relationships

Skill Category 5 targets Scale analysis

The Task Verbs Related to Spatial Relationships

- Task verbs related to this skill are DESCRIBE & EXPLAIN.
- DESCRIBE means to provide relevant, specific qualities, characteristics & events.
- EXPLAIN requires a detailed account including reasons or causes. An explanation provides information about HOW or WHY a relationship, pattern, position, situation or outcome occurs, using evidence and/or reasoning.





Skill 2-B. Explain spatial relationships in a specified context or region of the world, using geographic concepts, processes, models, or theories.

Population Theory and Earth's Carrying Capacity

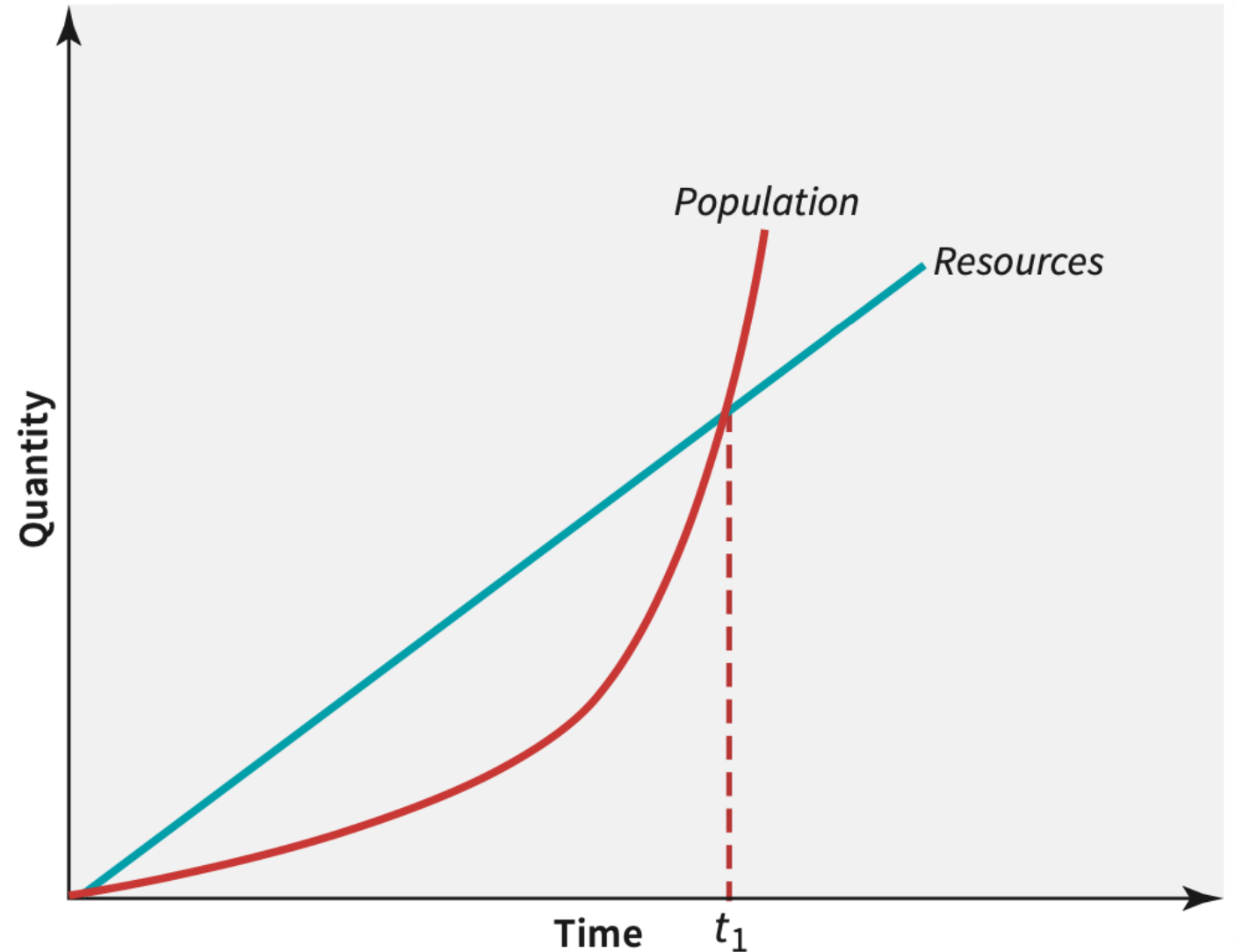
Example using Skill 2B


- Malthusian Theory
 - Carrying Capacity
-

The Malthusian theory of population


Malthus' dismal equation

- Resources (food) grows arithmetically (or linearly)
- Population grows exponentially (or geometrically)





Malthusian Theory and Earth's Carrying Capacity

- 
- Central to the debate surrounding the Malthusian theory of Population
 - What is **carrying capacity** in relation to humans?

Carrying Capacity: The number of people a particular environment or Earth as a whole can support on a sustainable basis.



Earth's carrying capacity

Sometimes one place can expand its carrying capacity by drawing on the resources of another place.

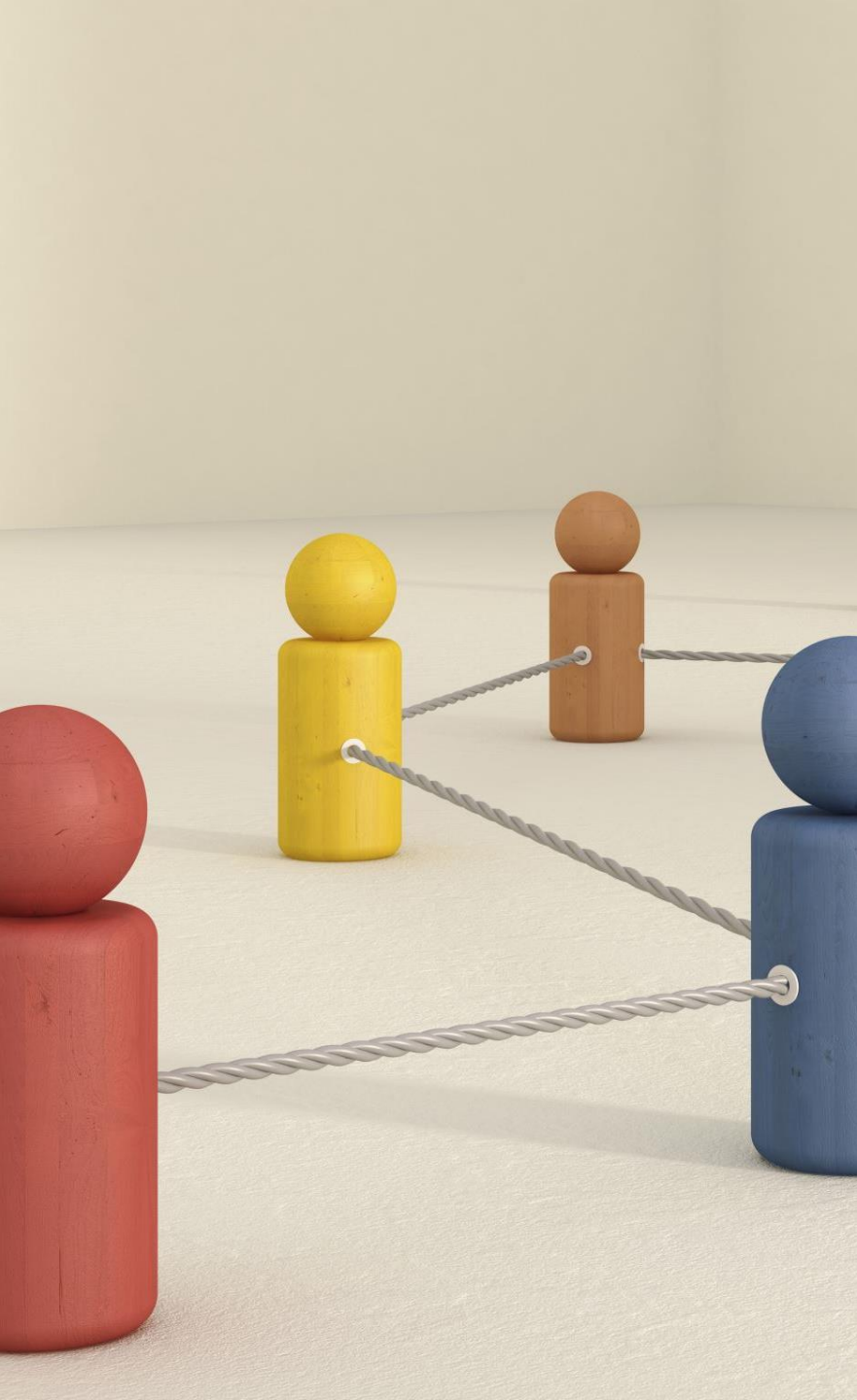


Some Additional Topics That Build on an Understanding of Spatial Relationships

- Causes and Effects of Migration
- Effects of Diffusions
- Agricultural Origins and Diffusions
- Settlement Patterns
- Centripetal Forces
- Economic Sectors and Patterns

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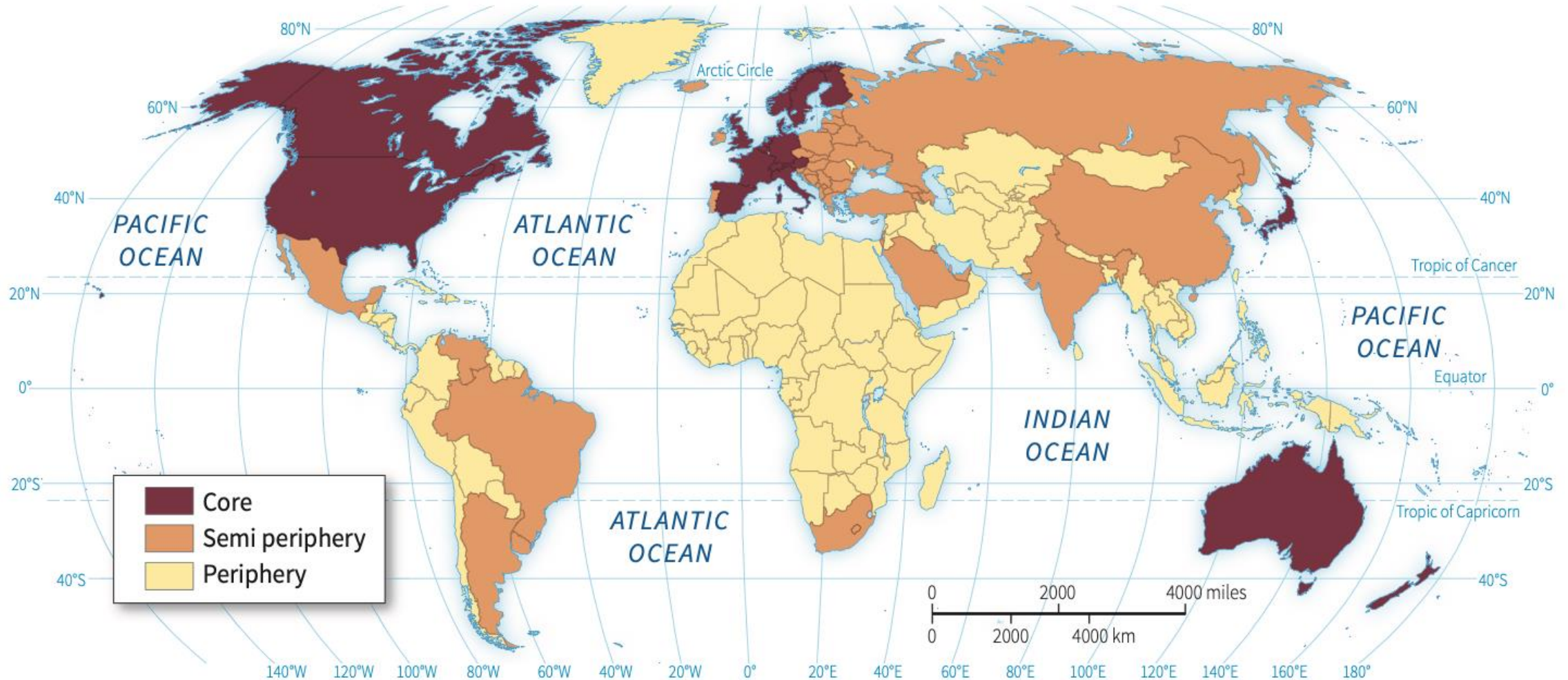
Skill 5-B. Explain spatial relationships across various geographic scales, using geographic concepts, processes, models, or theories.

Political Power and Territoriality

Patterns and Processes

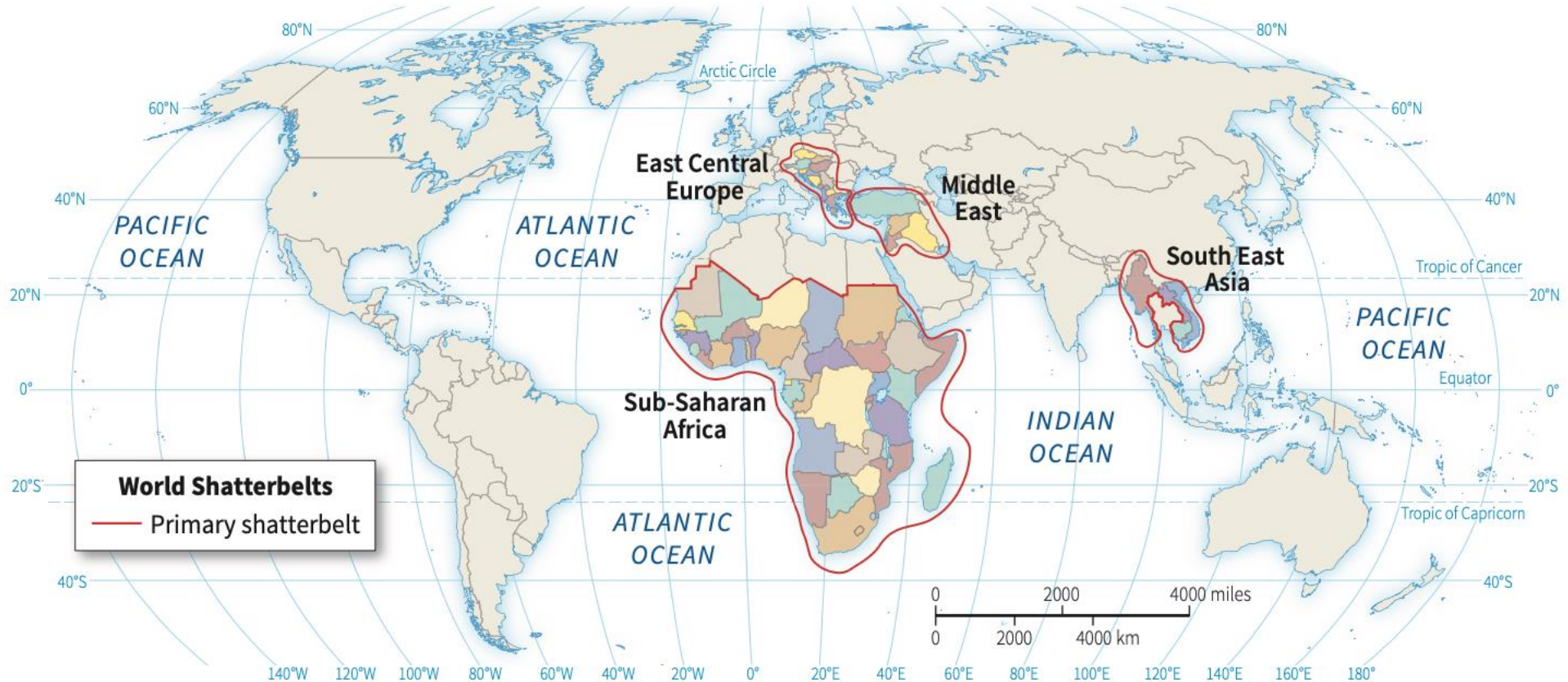
- Core and Periphery
 - Shatterbelts
 - Choke Points
 - Centrifugal forces
-

Concepts geographers use to describe political power



Concepts geographers use to describe political power

Shatterbelt: Region of continuing and persistent fragmentation due to devolution and centrifugal forces.



Centrifugal forces and their impacts on states

Ethnic nationalist movements

- The existence of two or more culturally distinct regions with national boundaries can be a centrifugal force.
- In Myanmar, ethnic Burmans control the state's central territory, military, economy, and political capital, while less powerful ethnic groups located in the hills and mountains along the country's borders are marginalized.



Concepts geographers use to describe political power

Strait of Malacca

- Why is the Strait of Malacca more important to Japan and China than to countries in Africa?



Some Additional Topics That Build on an Understanding of Spatial Relationships Across Geographic Scales

- Contemporary Causes of Diffusion
- The von Thünen Model
- Cities and Globalization
- Trade and the World Economy

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Skill 5-C. Compare geographic characteristics and processes at various scales.



Challenges to Sovereignty

- Devolutionary forces
- Supranational forces

Devolutionary challenges occur at different scales

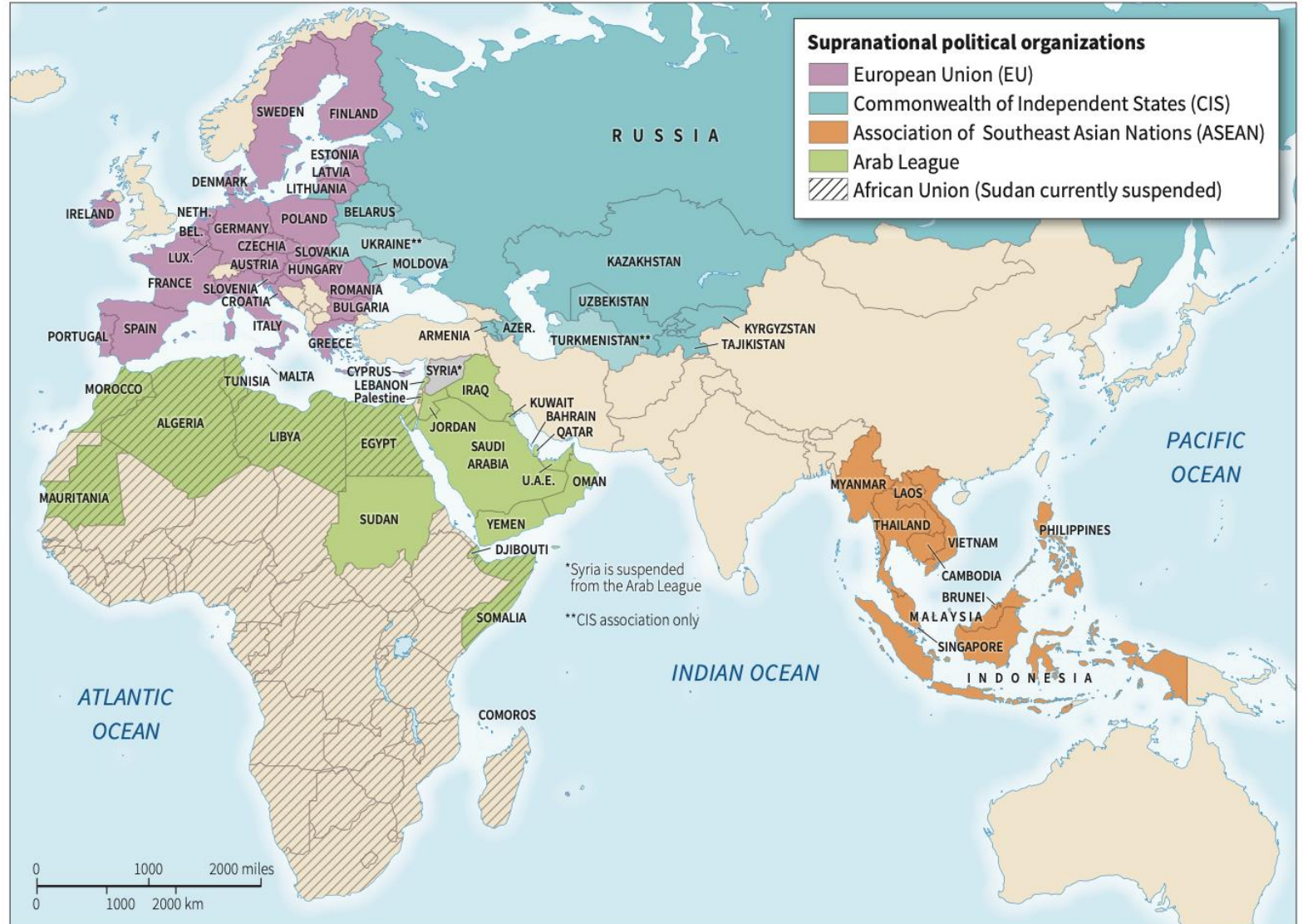
Disintegration of states: South Sudan

- A civil war broke out in Sudan from 1983-2005.
- In 2011, South Sudan voted to secede from Sudan, and the north and south formally separated into two countries.
- Unfortunately, South Sudan's independence did not bring peace, and the South Sudanese Civil War occurred from 2013-2020.



Why supranational organizations form and how they challenge state sovereignty

European Union (EU):
A political, economic, and social union of 28 independent European countries that promotes the free movement of people, goods, services, and capital among its members.



Additional Topics to Compare Geographic Characteristics and Processes at Various Geographic Scales


- Transnational and Environmental Challenges
- Regional Trade Agreements
- Military Alliances
- Failed States
- Stateless Nations



Skill 2E. Explain the degree to which a geographic concept, process, model, or theory effectively explains geographic effects in different contexts and regions of the world.



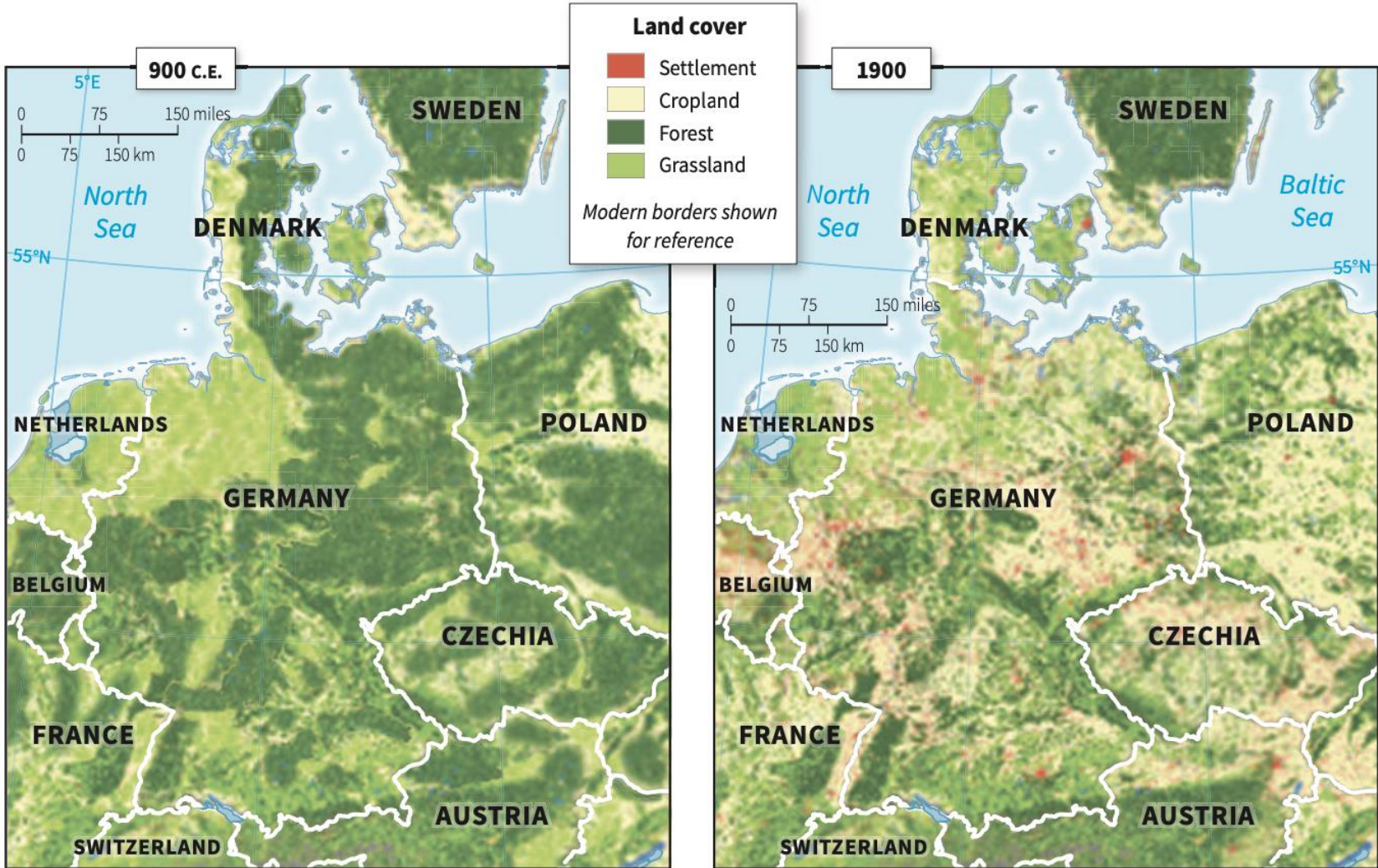
Consequences of Agricultural Practices

- How to they impact to environment?
 - Alter the landscape?
 - Affect Society?
- 

How agricultural practices and land use impact the environment

Land transformation

Deforestation: Clearing and destruction of forests to clear land for agriculture use.

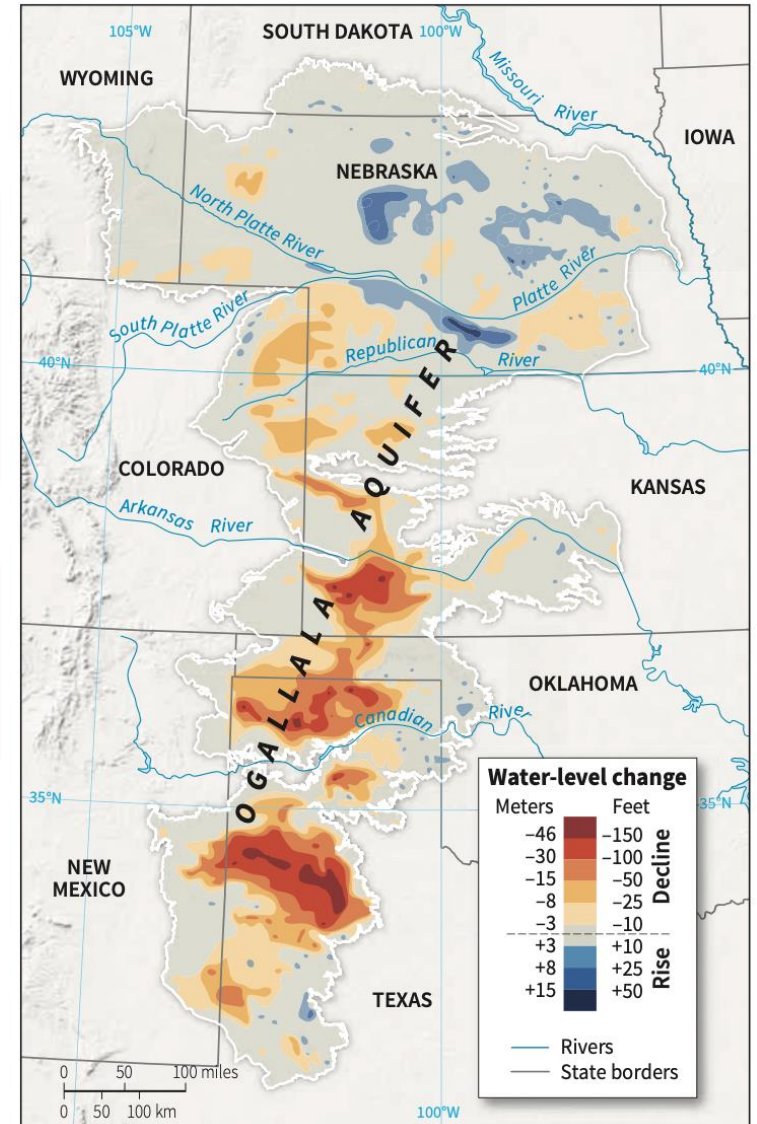


How agricultural practices alter the landscape

Irrigation

Water mining: The use of deep-well drilling technology and powerful industrial pumping systems to remove water in the ground.

Aquifer: Underground water deposited hundreds of thousands of years ago.



Additional Topics to Explain the degree to which a Geographic concept, process, model or theory effectively explains geographic effects in different contexts and regions of the world.

- Agricultural Production Regions and the Globalization of Agriculture
- Changing Diets
- Changes in Women's roles in Agriculture
- Changes in the Uses of Agricultural Products (e.g. biofuels)

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Skill 5-D. Explain the degree to which a geographic concept, process, model, or theory effectively explains geographic effects across geographic various scales.

Sustainable Development

Development that meets present consumption needs without compromising the ability of future generations to meet their consumption needs

- Reduce negative effects of industrialization
 - Ecotourism and sustainable development
 - UNSD Goals and roles in measuring development
-

How ecotourism can promote sustainable development

Ecotourism: Travel to natural areas of ecological value in support of conservation efforts and socially just economic development.

- Natural landscapes, such as tropical forests and coastal marine ecosystems, can bring sustained economic growth if they are protected rather than exploited.
- Tourists should come away enriched by a better understanding of the people, the place, and its environment.

How ecotourism can promote sustainable development

Limits of ecotourism

- The large international corporations that run the airlines, hotels, and travel agencies that move tourists to their green destinations take the largest share of profits.
- Only a very small portion of the revenue contributes to the destination country's GDP, and the majority of the jobs are low-skilled and low-waged.
- Ecotourism lodging often has negative environmental impacts, such as pollution from sewage and fossil fuel consumption.
- Most ecotourism relies on passenger jets to move tourists to their eco-friendly destinations.

Additional Topics to Explain the degree to which a geographic concept, process, model, or theory effectively explains geographic effects across various geographic scales

- Reduce negative effects of industrialization
- United Nations Sustainable Development Goals (UNSDGs) and their roles in measuring development

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Thanks for your participation today.

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