Geography Standard 2: How to use mental maps to organize information about people, places, and environments in a spatial context

The geographically informed person must mentally organize spatial information about people, places, and environments and must be able to call upon and use this information in appropriate contexts. Knowing the locations and characteristics of people, places, and environments is a necessary precursor to—and outcome of—geographic learning and thinking. An effective way of doing this is to develop and use what is called a mental map: an individual’s internalized representation of aspects of Earth’s surface. These maps in the mind are what a person knows about the locations and characteristics of places at a variety of scales, from the local (the layout of a person’s bedroom) to the global (the distribution of oceans and continents across Earth). Mental maps are a mix of objective knowledge and subjective perceptions: precise knowledge about the location of geographic features as well as impressions of places, rough estimates of size and location, and a general sense of the connections between places.

Therefore, Standard 2 contains these themes: Developing Mental Maps, Using Mental Maps, and Individual Perceptions Shape Mental Maps.

Mental maps provide people with essential means of making sense of the world and of storing and recalling information about the patterns of Earth’s physical and human features. These maps represent ever-changing summaries of spatial knowledge and are indicators of how well people know the spatial characteristics of places. We develop and refine our mental maps through learning from teachers and the media and through personal experience, moving from simple to more complex levels of completeness and accuracy, continuing to add layers of information so that our mental maps reflect a growing understanding of a changing world. As people read, hear, observe, and think more about the world around them, they add more detail and structure to their mental maps and accumulate layers of information that can be used in problem solving and decision making. Students must understand the role that perception plays in the creation and development of their understandings of the world.

Students must build their mental maps to develop detailed understandings of peoples, places, and environments. By understanding these themes, students can build and apply the mental maps that are the foundations for learning geography and other subjects.

A spatial understanding of the environments people live in assists with making sense of the world.

Aboriginal Dreaming stories are sometimes told with sand drawings that contain symbols reflecting the locations of campsites and scarce water sources used by generations of people in desert regions of Australia.
Developing Mental Maps

1. The locations, characteristics, patterns, and relationships of physical and human systems are the basis for mental maps at local to global scales

Therefore, the student is able to:

A. Identify from memory and explain the locations, characteristics, patterns, and relationships among human and physical systems, as exemplified by being able to
   - Identify the pattern of human settlement in the world from memory and explain the common physical characteristics where the majority of settlements occur.
   - Identify the locations from memory and explain the connections between major transportation networks and population centers.
   - Identify the locations from memory of historical world civilizations and explain how cultural markers or examples still remain from the past (e.g., Roman place names in Europe, structures or architectural styles, spread of English language through the British empire).

2. Mental maps can change through experience and iterative self-reflection

Therefore, the student is able to:

A. Explain the development of completeness and accuracy in the student's mental map of places and regions, as exemplified by being able to
   - Explain how a new experience or encounter in an unfamiliar location resulted in added details or accuracy of the student's mental map of that place.
   - Explain how the study of maps for game playing added details and accuracy to the student's mental map of a place or region.
   - Explain how using a GPS or Web-based mapping application can aid in the development of a more complete and accurate mental map of places and regions.
Individual Perceptions Shape Mental Maps

4. Mental maps are shaped by individual perceptions of people, places, regions, and environments

Therefore, the student is able to:

A. Compare the mental maps of individuals to identify common factors that influence spatial understanding, perceptions, and preferences, as exemplified by being able to

- Compare mental maps of the state sketched by students to identify examples of spatial understanding such as scale on the maps.
- Compare mental maps sketched by students of the location or region of a historical event to identify the different perceptions students may have from the same information presented in the classroom.
- Compare the details in mental maps sketched by students of their most preferred and least preferred state in which to live.

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Asking students to sketch mental maps of the world can illustrate the level of detail and accuracy in their spatial perceptions of the world. These mental map examples were drawn by 4th grade (above), 8th grade (top right), and 12th grade (lower right) students.


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