

Geographic Landscapes and Interstate Freeway Development

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Overview: Students will explore the physical landscape of the continental United States to determine the best routes for an interstate freeway system across the country. Using their knowledge of the different types of topography, landforms and waterways, the students will create an annotated map of their proposed freeway routes. The annotations should explain their decisions. The students will then examine the existing national interstate highway system and compare it with their own map. This lesson will help students to become familiar with the topography of the United States, the location of major landforms and key geographic terms. They will also develop an understanding of how these features have influenced settlement patterns in the country.

Grade Level: High School (grades 11 and 12)

Geography Standards Addressed:

a. National Standards:

Standard # 1 - Using maps and other geographic representations, tools and technologies to acquire, process and report information from a spatial perspective;

Standard # 3 - Analyzing the spatial organization of people, places and environments on the Earth's surface;

Standard # 11 - Patterns and networks of economic interdependence on the Earth's surface;

Standard # 14 - How human actions modify the physical environment;

b. Oregon Certificate of Initial Mastery (CIM):

US History - 8th grade Benchmark - understand the rapid growth of transportation networks;

US Geography - 10th grade Benchmark - Understand how transportation and communication patterns have affected the flow and interaction of people, ideas and products;

c. Social Science PASS Proficiency

Geography, A5: Analyzes issues, events, phenomena or problems in terms of the interaction and interdependence of physical and human systems.

Objectives: Given instruction on the topography, key landforms and waterways of the United States, their location and the vocabulary words used to describe them, the students will be able to:

a. Analyze orally or in writing, the topographic map of the United States, identifying key

landforms

- b. On a blank outline map of the United States, using pencil or pen, identify the location of major mountain ranges, rivers, plains, plateaus and basins;
- c. Discuss orally or in writing, the nation's existing interstate freeway system and what geographic landforms were overcome during its construction;
- d. On a blank map of the United States, label general locations for North-South and East-West interstate freeway routes and explain their decisions by annotating their maps;
- e. Compare and discuss orally, the existing interstate freeway system against the student maps and explain the differences;
- f. Define orally or in writing, the different geographic vocabulary terms and locate each on a blank map of the United States;

Materials:

Blank maps of the United States, colored pencils, interstate freeway maps of the United States, topographic maps of the United States, the textbook, paper, pencil, dictionary of geographic terms, overhead projector, transparencies and transparency markers.

Vocabulary: The following geographic terms will be discussed prior to the start of this lesson: altitude, basin, coast, desert, foothill, forest, gorge, mountain, pass, plains, plateau, prairie, ridge, valley and volcano.

Procedures: (This lesson will take two class periods to complete)

1. Teacher leads a class discussion on the topography and key landforms across the nation, their names and illustrates what each one is, how formed and how it separates that particular geographic region of the country from the rest of the nation and pronounces and defines each geographic landform and shows where it is located.
2. Give each student two blank maps of the United States and ask them to mark the different types of landforms and their location - using geographic terminology - on one map. This will be followed by a discussion of the topography of the nation.
3. Ask the class to form into groups of three and make up a system of interstate freeways that connect the north, south, east and west halves of the country and mark them on their second blank map. The students will not be limited to length, location or numbering, but they must connect the country as a whole.
4. Select a member from each group to present his/her group's mapping to the class and explain how and why they chose their routes. After each group has presented to the class, pass out a map of the

existing United States freeway system to the students and ask them to compare their mapping system with the existing one established by the United States government.

5. Individually, students write a one-page essay on how the physical geography of the nation hampers travel and urban growth. Students will also analyze the current freeway system and to suggest how it could be improved.

Assessment:

For the writing assignment, the state scoring guide will be used to assess accuracy, grammar, completeness and topic coverage. For the geography vocabulary and landform understanding, a blank map correctly labeled with all required landform locations, as well as the correctly defined geographic terms, will be scored for accuracy and completeness. Completion of fill-in-the-blank questions will be used to determine the student's knowledge about the interstate freeway system.

Extensions:

This lesson would work well with an economics unit on commerce and how it is conducted between two or more separate regions; with a sociology unit on people, populations and the spreading of cultures across the nation; with a history unit on the birth and growth of this nation using the rivers and early trading paths as sites for freeways and how cities grew up where they did; with a geography unit on the study of landforms and how they were formed across the countryside; with a science unit on the necessary scientific aspects of building interstate freeways through geographic anomalies; with an art unit on painting bridges or tunnels across rivers or through mountains; with a CAD (computer-assisted drawing) unit on designing bridges or tunnels; with a mathematics unit on computing the amounts of concrete needed to construct the freeway system; a vocational unit on welding by building a very small scale sub-structure for a freeway system using new and old techniques for a comparison; a government unit to compare the types of laws passed as populations migrated across the nation; a literature unit on writing a newspaper article for different newspapers as you progress westward.

** Lower grade classes could develop lessons to create a transect of land features you see as you move westward across the country and try to name them. They might learn the names of cities located on major freeway routes and read about the people who live there. They could write the different chambers of commerce and find out about life in the cities from the citizens living there.

Geographic Question Addressed:

How does the topography of the United States affect Interstate Freeway Construction?

What information is collected to answer the geographic question?

The students will compile a vocabulary sheet of all geography terms used in the lesson and use it in conjunction with the textbook. Maps of the United States depicting the geographic landforms and their locations will be compiled and used for reference during the lessons. The names of the geographic anomalies will be discussed and read about individually in class as well as used daily in

classroom discussions. Students will collect atlases to use in class during discussions.

Examples of student organization and presentation of the geographic material:

Correctly labeling a blank map with all required geographic features; correctly matching a vocabulary word with its definition and placing it correctly on the map and writing an essay within established and acceptable Oregon state scoring guidelines.

Concepts and issues for student identification and discussion during analysis:

Applying a cause and effect relationship to geographic landforms and understanding how best to deal with them; Seeing a human vs environment issue and realizing how this has been dealt with in the past may be the cause of the existing problem; Learning how to use technology to improve how man exerts himself upon the environment; Seeing migration relationships along the various continental environments and terrains. Recognizing societal growth patterns along the different spatial regions of the nation;

Additional Information :