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ABSTRACT

This report summarizes results from the 1994 National Assessment of Educational Progress (NAEP), specifically those results concerning geography and U. S. history. The 1994 NAEP asked 4th-, 8th-, and 12th-grade students a series of questions designed to assess their knowledge level and skills applications in specific subjects. This report provides an in-depth look at the type of tasks that made up the assessments in geography and U. S. history and how the students performed on those tasks. It makes extensive use of examples of student work and of exercise-level statistics in examining performance in different skills areas and on particular assessment exercises. Specific attention is given to the ways that students use the tools and resources of history and geography. The questions reflected the content and cognitive dimensions deemed essential for an understanding of these subjects. One content dimension included four themes: change and continuity in U.S. democracy: ideas, institutions, practices, and controversies; the gathering and interaction of peoples, cultures, and ideas; economic and technological changes and their relation to society, ideas, and the environment; and the changing role of the United States in the world. A second content dimension covers eight time periods: Three Worlds and Their Meeting in the Americas (beginnings to 1607); Colonization, Settlement, and Communities (1607 to 1763); The Revolution and the New Nation (1763 to 1815); Expansion and Reform (1801 to 1861); Crisis of the Union: Civil War and Reconstruction (1850 to 1877); Development of Modern America (1865 to 1920); Modern America and the World Wars (1914 to 1945); and Contemporary America (1945 to present). At every grade, the overall geography performance of males was higher than that of females; however, in U.S. history overall performances for males and females was significantly different at 12th grade only where males slightly outperformed females. In both subject areas, the

performance of White students was higher than that of Black or Hispanic students. (MJP)

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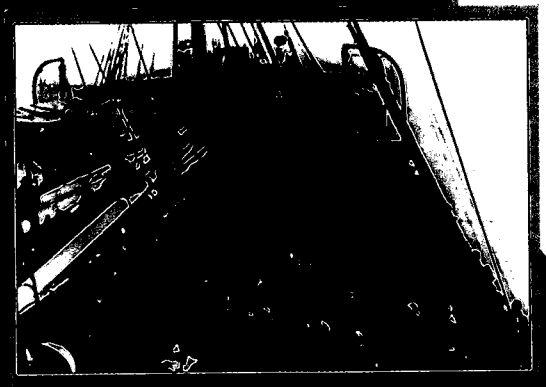
Learning About Our World and Our Past: Using the Tools and Resources of Geography and U.S. History

A Report of the 1994 Assessment



THE NATION'S REPORT CARD

Prepared by Educational Testing Service under a cooperative agreement with the National Center for Education Statistics

U.S. Department of Education
Office of Educational Research and Improvement

NCES 98-518

What is The Nation's Report Card?

THE NATION'S REPORT CARD, the National Assessment of Educational Progress (NAEP), is the only nationally representative and continuing assessment of what America's students know and can do in various subject areas. Since 1969, assessments have been conducted periodically in reading, mathematics, science, writing, history/geography, and other fields. By making objective information on student performance available to policymakers at the national, state, and local levels, NAEP is an integral part of our nation's evaluation of the condition and progress of education. Only information related to academic achievement is collected under this program. NAEP guarantees the privacy of individual students and their families.

NAEP is a congressionally mandated project of the National Center for Education Statistics, the U.S. Department of Education. The Commissioner of Education Statistics is responsible, by law, for carrying out the NAEP project through competitive awards to qualified organizations. NAEP reports directly to the Commissioner, who is also responsible for providing continuing reviews, including validation studies and solicitation of public comment, on NAEP's conduct and usefulness.

In 1988, Congress established the National Assessment Governing Board (NAGB) to formulate policy guidelines for NAEP. The Board is responsible for selecting the subject areas to be assessed from among those included in the National Education Goals; for setting appropriate student performance levels; for developing assessment objectives and test specifications through a national consensus approach; for designing the assessment methodology; for developing guidelines for reporting and disseminating NAEP results; for developing standards and procedures for interstate, regional, and national comparisons; for determining the appropriateness of test items and ensuring they are free from bias; and for taking actions to improve the form and use of the National Assessment.

The National Assessment Governing Board

NATIONAL CENTER FOR EDUCATION STATISTICS

Learning About Our World and Our Past: Using the Tools and Resources of Geography and U.S. History

A Report of the 1994 NAEP Assessment

Evelyn Hawkins
Fran Stancavage
Julia Mitchell
Madeline Goodman
Stephen Lazer

February 1998

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Contents

Chapter 1

Introduction

The National Assessment of Educational Progress (NAEP) is mandated by the United States Congress to survey the educational accomplishments of U.S. students. For more than a quarter of a century, NAEP has assessed the educational achievement of fourth-, eighth-, and twelfth-grade students in selected subject areas, and as such, it is the only nationally representative and continuing assessment of what America's students know and can do. NAEP assessments are based on content frameworks and specifications developed through a national consensus process involving teachers, curriculum experts, parents, and members of the general public. The frameworks are designed to reflect a balance among the emphases suggested by current instructional efforts, curriculum reform, contemporary research, and desirable levels of achievement.

In 1994, NAEP conducted assessments in geography and U.S. history. Both are fields in which students are required to have a strong knowledge base of facts and concepts. Mastery of these subjects also involves the ability to use a variety of tools and resources as well as competence in a range of interpretive skills, including recall, analysis, judgment, application, and evaluation. Among the more important resources used in the study of history are primary source documents, such as the U.S. Constitution, the Declaration of Independence, personal correspondence, pictures, photographs, political cartoons, literature, and other artifacts. Historians interpret primary source documents by placing them in comparative, thematic, and chronological contexts to further their knowledge and understanding of historical events. Among the major tools of the field of geography are maps and atlases. Geographers use a variety of maps to guide their work and to record information. Other tools and resources in history and geography include charts, graphs, tables, and timelines.

While achievement in history and geography involves both knowledge and skills, many past assessments in these areas have tended to focus on the former at the expense of the latter. Conversely, some other assessments have downplayed knowledge in order to emphasize the mastery of skills. The frameworks that guided the 1994 NAEP assessments, by contrast, attempted to achieve a more balanced view of the relationship between knowledge and skills. Specifically, both the geography and U.S. history frameworks portrayed their disciplines as fields in which factual knowledge, use of specialized tools and resources, and interpretive skills are all inseparable components of achievement.

Basic results from the 1994 NAEP assessments in geography and U.S. history have been presented in a series of reports released earlier.[1] These reports were intended for policymakers, educators, and the general public. They focused primarily on overall scale-score and achievement-level results for major populations in the United States, and on general factors related to achievement in history and geography. This current study has a more specific target audience (history and social studies educators) and a different purpose: a more in-depth look at the types of tasks that made up the 1994 NAEP assessments, and at how students performed on those tasks. Specifically, this report examines the ways in which students use the tools and resources of history and geography. Rather than looking at aggregated results, we examine performance in different skills areas and on particular assessment exercises. This report therefore makes extensive use of examples of student work and of exercise-level statistics.

As was mentioned above, this report will examine the success students had working with a range of resource materials similar to those used by professional geographers and historians. History and geography educators view the ability to interpret a broad range of authentic materials as an essential element of learning in these fields.[2] Many questions on both surveys were not based on the types of stimulus discussed in this report; for example, a number of tasks were designed to measure student knowledge and not the ability to interact with textual, quantitative, or graphic materials. Because of the particular focus of this report, no attempt is made to discuss the full range of knowledge and skills assessed as part of the 1994 NAEP geography and U.S. history assessments.

1994 NAEP U.S. History Framework

The framework for the 1994 NAEP U.S. history assessment[3] represented an ambitious vision both of what students should know and be able to do, and of the ways in which those competencies should be assessed. It presented the study of history as an exciting endeavor and emphasized the importance of knowing and understanding history in all its complexity — stressing the relationship between people, events, and ideas in understanding the past. Furthermore, the framework called for an assessment that

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[1] Persky, H. R., Reese, C. M., O'Sullivan, C. Y., Lazer, S., Moore, J., & Shakrani, S. (1996). *NAEP 1994 geography report card.* National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

Beatty, A. S., Reese, C. M., Persky, H. R., & Carr, P. (1996). *NAEP 1994 U.S. history report card.* National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

Williams, P. L., Lazer, S., Reese, C. M., & Carr, P. (1995). *NAEP 1994 U.S. history: A first look.* National Center for Education Statistics. Washington, DC : U.S. Government Printing Office.

Williams, P. L., Lazer, S., Reese, C. M., & Shakrani, S. (1995). *NAEP 1994 geography: A first look.* National Center for Education Statistics. Washington, DC : U.S. Government Printing Office.

[2] Educational Testing Service. (1987) *U.S. history objectives; 1988 assessment.* Princeton, NJ: Author.

[3] National Assessment Governing Board. (1992). *U.S. history framework for the 1994 National Assessment of Educational Progress.* Washington, DC: Author.

reflected the richness of history and historical sources through the use of a variety of grade-appropriate stimulus materials.

The 1994 framework was organized around two content dimensions and one cognitive dimension. One content dimension focused on four themes which represent the major areas of endeavor that have characterized U.S. history. These four themes were:

1. Change and Continuity in American Democracy: Ideas, Institutions, Practices, and Controversies
2. The Gathering and Interaction of Peoples, Cultures, and Ideas
3. Economic and Technolgical Changes and Their Relation to Society, Ideas, and the Environment
4. The Changing Role of America in the World

Because history is concerned with the experiences of people over time, it is critical to establish a basic chronological structure for tracing, reconstructing, and connecting the stories of those experiences. Thus, the second content dimension provided a chronological structure for the many issues included in the four themes. Eight *periods* were identified to focus attention on several major eras of U.S. history. They overlapped at some points in order to permit coherent coverage of major trends and events. The periods were:

1. Three Worlds and Their Meeting in the Americas (Beginnings to 1607)
2. Colonization, Settlement, and Communities (1607 to 1763)
3. The Revolution and the New Nation (1763 to 1815)
4. Expansion and Reform (1801 to 1861)
5. Crisis of the Union: Civil War and Reconstruction (1850 to 1877)
6. The Development of Modern America (1865 to 1920)
7. Modern America and the World Wars (1914 to 1945)
8. Contemporary America (1945 to present)

As Figure 1.1 illustrates, the themes and periods of U.S. history functioned as a matrix. The framework made clear that not all themes were equally important in each period. It also included special recommendations for adapting the assessment for fourth-grade students, who might not have received any formal instruction in U.S. history.

Figure 1.1 **1994 NAEP U.S. History Content Matrix**[4]

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PERIODS	THEMES			
	Change and Continuity in American Democracy: Ideas, Institutions, Practices, and Controversies	The Gathering and Interactions of Peoples, Cultures, and Ideas	Economic and Technological Changes and Their Relation to Society, Ideas, and the Environment	The Changing Role of America in the World
Three Worlds and Their Meeting in the Americas (Beginnings to 1607)				
Colonization, Settlement, and Communities (1607 to 1763)				
The Revolution and the New Nation (1763 to 1815)				
Expansion and Reform (1801 to 1861)				
Crisis of the Union: Civil War and Reconstruction (1850 to 1877)				
The Development of Modern America (1865 to 1920)				
Modern America and the World Wars (1914 to 1945)				
Contemporary America (1945 to Present)				

Note: Not all of the themes were addressed equally in every period.

In addition to themes and periods, the U.S. history framework explicitly considered the ways of thinking and kinds of knowledge that historical study requires. These were divided into the following two general cognitive domains:

1. *Historical Knowledge and Perspective.* This domain includes knowing and understanding people, events, concepts, themes, movements, contexts, and historical sources; sequencing events; recognizing multiple perspectives and

[4] Ibid.

seeing an era or movement through the eyes of different groups; and developing a general conceptualization of U.S. history.

2. *Historical Analysis and Interpretation.* This domain includes explaining issues; identifying historical patterns; establishing cause-and-effect relationships; finding value statements; establishing significance; applying historical knowledge; weighing evidence to draw sound conclusions; making defensible generalizations; and rendering insightful accounts of the past.

1994 NAEP Geography Framework

The 1994 NAEP geography framework[5] reflected the heightened need for geographic knowledge and skills that has arisen as the world has become increasingly interconnected through technological advancement and shared concerns about economic, political, social, and environmental issues. The 1994 geography framework required students to reach far beyond place-name geography. It called for an assessment in which students would demonstrate an ability to work with the tools of geography, which include maps, aerial photographs, atlases, and graphs. The intent was to give students access to information conveyed through these tools, and ask them to use this information to understand and explain complex relationships and systems, such as ecosystems, communications networks, and urban infrastructures. In addition, students were expected to construct geographic representations, such as maps and diagrams, from narrative descriptions.

Like the 1994 history assessment, the NAEP 1994 geography framework was organized by a matrix of two interrelated dimensions: content and the cognitive demands of the discipline. *Content* was divided into the following three areas corresponding to the major branches of geographic study:

1. *Space and Place.* This area includes knowledge of geography as it relates to particular places on Earth, to spatial patterns on Earth's surface, and to physical and human processes that shape such spatial patterns.
2. *Environment and Society.* This area includes knowledge of geography as it relates to the interactions between environment and society.
3. *Spatial Dynamics and Connections.* This area includes knowledge of geography as it relates to spatial connections among people, places, and regions.

[5] National Assessment Governing Board. (1992). *Geography framework for the 1994 National Assessment of Educational Progress.* Washington, DC: Author.

The *cognitive* dimension of the framework specified the kinds of thinking expected of students as they deal with specific geography content. The dimension was organized into the following categories:

1. *Knowing.* Tasks in this area are generally meant to measure students' ability to observe different elements of the landscape and to answer questions by recalling information.
2. *Understanding.* In this area, students are asked to attribute meaning to what has been observed and to explain events.
3. *Applying.* This area of thinking calls on students to use many tools and skills of geography as they attempt to develop a comprehensive understanding of a problem en route to proposing viable solutions.

Figure 1.2 illustrates the matrix formed by the content and cognitive dimensions of the assessment by presenting sample tasks and questions. The assessment addressed each cognitive process in each content area.

Figure 1.2 **1994 NAEP Geography Assessment Framework Dimensions**[6]

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COGNITIVE DIMENSION	CONTENT DIMENSION		
	Space and Place	Environment and Society	Spatial Dynamics and Connections
Knowing	Where is the world's largest tropical rain forest?	What mineral resources are are often extracted by strip mining?	What factors stimulate human migrations?
Understanding	Why are tropical rain forests located near the equator?	Explain the effects of strip mining and shaft mining on the londscape.	Explain the motivations of modern day Mexicans and Cubans for immigrating to the United States.
Applying*	Support the conclusion that tropical rain forests promote wide species variation.	How can both economic and environmental interests be reconciled in an area of strip mining?	Campare current settlement and employment patterns of Cuban and Mexican immigrants in the United States.

Note: Example questions are illustrative only, and are not meant to represent the full array of assessment content.
*This dimension involved a range of higher-order thinking skills.

[6] Ibid.

1994 NAEP Geography and U.S. History Assessments

Guided by these new and more forward-looking frameworks, the 1994 NAEP assessments in geography and U.S. history shared a number of innovative and important characteristics. These included the following:

- Both assessments used a wide range of authentic materials as stimuli for assessment questions. These included an atlas, maps, charts, graphs, tables, text-based primary source documents and literary works, and various art forms, including photographs, paintings, cartoons, and posters. Overall, 76 percent of the questions in the geography assessment and 56 percent in the history assessment involved working with such stimuli.
- Both assessments assessed a range of skills related to these stimuli. In addition to straightforward interpretative exercises, students were frequently asked to synthesize information from multiple stimuli or to use outside knowledge in order to interpret a given stimulus. They might, for example, be asked both to describe the data in a table and to draw on outside knowledge to give factually accurate explanations for the patterns revealed. In this way, stimulus interpretation was not artificially separated from content knowledge.
- Both assessments included performance tasks. In a number of exercises students were asked to create maps or graphs based on narratives or tables of quantitative data.
- Because of the use of performance assessment and the requirement in the frameworks that the geography and history surveys measure broad ranges of content and skills, the overall assessments were too long for any one student to complete. For example, the grade 8 United States history assessment would have taken over four hours for an individual student. For these reasons, NAEP used a design in which participating students took only subsets of the aggregate item pool (specifically, in both geography and U.S. history individual students were tested for 50 minutes).[7] However, it is important to remember that a key feature of this design is that the samples of students who were presented each exercise were representative of the school population at a given grade. This design does not allow for the accurate computation of individual assessment scores; it does allow for the estimation of group performance on the assessment as a whole, on sets of questions, and on individual assessment exercises.

[7] Most students answered between 30 and 35 questions, which represents a subset of the total asked. The total number of questions in the assessment were 90, 125, and 123 at grades 4, 8, and 12 in geography; and 94, 148, and 156 at the three grades in U.S. history.

The 1994 NAEP assessments included multiple-choice questions, short constructed-response questions, and extended constructed-response questions. Table 1.1 shows the distribution of questions by grade and format for both the 1994 NAEP geography and U.S. history assessments.

Table 1.1 **Number of Questions by Grade Level and Format in the 1994 NAEP Geography and U.S. History Assessments**

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	Geography	U.S. History
Grade 4 (total)	**90**	**95**
Multiple-Choice	59	63
Short Constructed-Response	23	26
Extended Constructed-Response	8	6
Grade 8 (total)	**125**	**151**
Multiple-Choice	84	102
Short Constructed-Response	32	37
Extended Constructed-Response	9	12
Grade 12 (total)	**123**	**155**
Multiple-Choice	85	103
Short Constructed-Response	25	33
Extended Constructed-Response	13	19

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 Geography and U.S. History Assessments.

For constructed-response questions, students provided written responses or performed tasks, such as constructing a graph. Each constructed-response question was scored according to a scoring guide that gave varying degrees of credit for correct or partially correct answers. Short constructed-response questions were scored according to three-level scoring guides in which a "Complete" score represented a complete and appropriate answer, a "Partial" score indicated that the response had some, but not all, of the components of an appropriate response, and an "Inappropriate" score represented an answer that had none of the components of an appropriate response.

Extended constructed-response questions were lengthier and more complex exercises that allowed for a finer level of discrimination in scoring the responses. Responses were scored according to four-part scoring guides in which a "Complete" score was assigned to a response that was complete and appropriate; an "Essential" response was less complete but included the most important components of an appropriate response; a "Partial" response included some appropriate components, but fewer or less central ones than those required for an "Essential" score; and an "Inappropriate" response included only inappropriate material.

As with all NAEP assessments, the schools and students participating in the 1994 geography and history assessments were selected through scientifically designed, stratified random sampling procedures. Approximately 19,000 fourth, eighth, and twelfth graders in 1,500 public and nonpublic schools across the country participated in the 1994 geography assessment, and approximately 22,000 fourth, eighth, and twelfth graders in 1,500 public and nonpublic schools participated in the 1994 U.S. history assessment. Detailed reports on the assessment procedures and results of these assessments are presented in two separate publications from the National Center for Education Statistics: *NAEP 1994 U.S. History Report Card* and *NAEP 1994 Geography Report Card.*

Orientation of This Report

To examine students' ability to understand and use a variety of tools and resources, assessment questions were categorized according to the type of tool or resource, if any, that served as the *stimulus* — that is, the textual or graphic material provided to students which was to be considered in the formulation of their responses. Based on the nature of the stimulus, questions were placed into one of six categories:

atlases

maps

primary source documents

charts, graphs, and tables

photographs

art, which included paintings and cartoons.

For this report, questions that did not use a stimulus, used more than one type of stimulus, or used a stimulus that could not easily be classified into one of the six categories established, were excluded from analytical consideration.

Table 1.2 shows that — except for atlas questions (which were restricted to geography) and art questions (which were restricted to U.S. history) — the 1994 NAEP geography and U.S. history assessments both included questions in each of the different stimulus categories. It is also evident from the table, however, that some stimuli are more central to the study of one discipline than to another; for example, there were substantially more map questions in the geography assessment than in the U.S. history assessment, and more primary source documents in the U.S. history assessment than in the geography assessment.

Table 1.2	Number of Questions by Stimulus Type, Assessment, and Grade Level	THE NATION'S REPORT CARD

	Primary Source	Maps	Charts, Graphs and Tables	Photographs	Art	Atlases
Geography						
Grade 4	1	38	3	6	NA	14
Grade 8	4	44	16	7	NA	14
Grade 12	8	48	18	1	NA	15
U.S. History						
Grade 4	16	13	5	10	11	NA
Grade 8	30	9	8	7	17	NA
Grade 12	47	3	10	4	23	NA

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 Geography and U.S. History Assessments.

One set of geography questions at each grade level was based on a *Nystrom Classroom Atlas*.[8] The questions in the atlas block were all categorized as atlas questions, whether they employed maps, charts, or graphs as stimuli. The primary source document category was restricted to only those questions that utilized text-based primary sources. Although photographs and paintings also are kinds of primary sources, they were categorized separately.

In addition to an introduction and a concluding chapter, this report includes five chapters corresponding to specific categories of stimuli (photography and art are discussed together in one chapter). Each chapter begins with a general description of the tool or resource. Teacher and student responses to NAEP questionnaires about classroom practices related to the relevant tools or resources are also provided in many of the chapters.

For the two categories with the largest numbers of questions (maps and primary source documents), the descriptive introduction to the chapter is followed by a discussion of student performance on the group of stimulus questions as a whole and in comparison to all other questions in the geography or U.S. history assessment.[9] The remainder of each chapter is devoted to a detailed discussion of representative exercises. These exercises exemplify the skills that students were required to demonstrate in order to answer the questions included in the specific tool or resource category.[10] Information on how

[8] *World atlas: A resource for students.* (1992 ed). (1990). Chicago, IL.: NYSTROM, Div. of Herff Jones.

[9] This comparison is limited to these two stimulus groups because the number of items included in the other four groups was too small to allow valid comparisons.

[10] Most of the questions in the 1994 NAEP assessments were not released for public review. Therefore, exercises shown in this report were chosen from only the portion of the 1994 NAEP surveys chosen for public release.

students performed on these individual questions is provided along with samples of actual student responses to constructed-response questions. Although there were questions from nearly all of the stimulus groups in each of the assessments, all but one of the chapters (charts, graphs, and tables) focuses on questions from the assessment in which they predominated.

Although the report is structured around particular tools and resources, the reader should bear in mind that many factors besides the stimulus influence question difficulty. Both the content knowledge and the cognitive skills required to respond correctly are inextricably intertwined in the assessment task, as they are in the practice of the disciplines of geography and history. For example, the difficulty of most of the map questions may result from the demand that students use their geographical knowledge and a number of different map reading skills to correctly respond. Similarly in history, the difficulty of any particular item did not necessarily depend on the nature of the stimulus, but rather on the content and conceptual information students needed to have to understand, interpret, and respond fully to the question.

Interpreting NAEP Results

Student responses were analyzed to determine the percentage of students responding correctly to each multiple-choice question and the percentage of students responding in each of the score categories for constructed-response questions. Weighting procedures were then applied to arrive at overall population percentages and percentages for subgroups of students. The percentages are estimates because they are based on samples rather than on the entire population. As such, the results are subject to a measure of uncertainty that is reflected in the standard errors of the estimates. Standard errors provide a measure of how much survey results would be expected to vary if a different but equally valid sample of students were chosen. These standard errors are presented in parentheses along with the estimated percentage-correct scores in tables throughout this report.[11] In the following chapters, all comparisons among question types or between subgroups of students are based on statistical tests that consider both the magnitude of the differences between the average percentages and their standard errors. Throughout this report, differences are discussed only when they are significant from a statistical perspective. This means that observed differences are unlikely to be due to chance factors associated with sampling variability. All differences are significant at the .05 level with appropriate adjustments made for multiple comparisons. The term "significant," therefore, is not necessarily intended to imply judgment about the absolute magnitude or educational

[11] The standard errors in this report should be interpreted in the following fashion: There is a 95 percent probability that a statistic for a population of interest is within two standard errors of the mean reported. For example, if we report that 50 percent of female students answered a question correctly and that the standard error is 0.5, then there is a 95 percent chance that the appropriate statistic falls between 49 and 51 percent.

relevance of the differences. The term is intended to identify statistically dependable population differences as an aid in focusing subsequent dialogue among policy makers, educators, and the public.

Overall Assessment Results

Average percent-correct performance for the assessments as a whole is shown in Table 1.3. Average percent correct, as used here, represents a different summary metric than the scale scores used in NAEP report-cards, and is designed to give readers a concrete sense of student performance on the specific exercises making up the assessments. Average percent correct is determined by obtaining the mean item score for each assessment question and averaging these over the full set of exercises. For multiple choice and dichotomously-scored constructed-response questions that is constructed-response questions scored on a two-part scale, the statistic represents the percentage of students who answered the question correctly. For polytomously-scored exercises that is, short and extended answered questions that are scored on either a three-point or four-point scale, the statistic represents the average score expressed as a percentage of the maximum possible score. Because the NAEP design ensures that each item is administered to a representative subset of the full sample, the averages presented in Table 1.3 provide a consistent estimate of the average item score that would be obtained if students were administered the entire assessment.

At every grade, the overall geography performance of males was higher than that of females; however, in U.S. history overall performance for males and females was significantly different at twelfth-grade only, where males slightly outperformed females. In both subject areas, the performance of White students was higher than that of Black students and Hispanic students.[12]

[12] There were insufficient sample sizes for the American Indian, Asian, and Pacific Islander racial/ethnic subgroups to produce reliable results. Consequently, racial subgroup information is only provided for White, Black, and Hispanic subgroups.

Table 1.3	Average Item Score for 1994 NAEP Geography and U.S. History Assessments	THE NATION'S REPORT CARD

	Geography	U.S. History
Grade 4	**46 (0.5)**	**41 (0.4)**
Male	48 (0.6)	40 (0.5)
Female	45 (0.6)	41 (0.4)
White	51 (0.7)	44 (0.5)
Black	31 (0.8)	31 (0.5)
Hispanic	37 (1.0)	32 (0.9)
Grade 8	**49 (0.3)**	**44 (0.3)**
Male	50 (0.4)	44 (0.4)
Female	48 (0.4)	44 (0.3)
White	54 (0.4)	47 (0.4)
Black	34 (0.8)	34 (0.5)
Hispanic	39 (0.9)	36 (0.5)
Grade 12	**50 (0.4)**	**41 (0.4)**
Male	52 (0.6)	41 (0.4)
Female	48 (0.4)	40 (0.4)
White	54 (0.5)	43 (0.4)
Black	36 (0.7)	30 (0.7)
Hispanic	41 (0.9)	32 (0.6)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 Geography and U.S. History Assessments.

In the chapters that follow, statistically significant differences in performance by gender and racial/ethnic subgroups are noted only when these differences vary from those observed for the geography and U.S. history assessments as a whole.

Chapter 2

Working with Primary Source Documents

Recent pedagogical reforms have emphasized the importance of using primary source documents to educate students about history.[1] Such documents help students acquire factual knowledge about the past, understand the past from differing points of view, and think about how past events influence the present. Appropriately chosen primary source documents are valuable in presenting historical and geographical issues, events, and controversies more authentically and, in some cases, more clearly than are textbooks or other secondary treatments. For example, reading a letter or a journal entry of someone with first-hand experience of a time or event lends tremendous insight into the interaction between human experience and larger historical events. The use of primary source documents helps students to become critical thinkers who can analyze and interpret information and draw conclusions for themselves. Furthermore, since primary sources are the basic resources historians use to construct their view of the past, it is important for students to learn to analyze these sources as a way of formulating their own interpretations of history.[2]

Classroom Instruction

In the 1994 NAEP U.S. history assessment, students and their teachers were asked about various practices in history or social studies instruction. Both students and teachers reported much higher use of textbooks than of primary source documents or other extra written materials.

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[1] Kobrin, D. (1996). *Beyond the textbook: Teaching history using documents and primary sources.* Portsmouth, NH: Heinemann.

Wilson, D. W. (1993). Teaching for the future by reaching into the past. *Teaching History: A Journal of Methods, 18* (1), 3-13.

[2] Porter, P. H. (1994). The student as historian: Teacher's resources. *Social Studies and the Young Learner, 7* (2), 23-26.

As shown in Table 2.1, the majority of fourth-grade students had teachers who reported that their students read textbooks at least once or twice a week.[3] However, when teachers were asked how frequently they used primary source documents, the modal response was "never or hardly ever," and when asked about the frequency of reading extra written materials beyond those included in textbooks, the modal response was "once or twice a month."

The situation at grade 8 was similar, but differed in important ways. The vast majority of eighth graders (87 percent) had teachers who reported assigning textbook reading at least once or twice each week. Eighth graders were substantially less likely than fourth graders to have teachers who reported never or hardly ever using primary source documents in history instruction; they were also more likely to report using such materials on a weekly basis. Most grade 8 students have teachers who report using primary documents once or twice each month. The use of extra written materials beyond those included in textbooks did not significantly vary between the two grades.

Table 2.1 **Teachers' Reports on the Frequency of Use of Materials in Fourth-Grade and Eighth-Grade History Instruction (Percentage of Students)**

THE NATION'S REPORT CARD

	Grade 4	Grade 8
Use of Primary Source Documents		
Almost Every Day	1 (0.4)	2 (0.7)
Once or Twice a Week	8 (1.2)	20 (2.2)
Once or Twice a Month	29 (1.9)	55 (2.3)
Never or Hardly Ever	62 (2.0)	23 (1.9)
Use of Textbooks		
Almost Every Day	43 (2.6)	45 (3.6)
Once or Twice a Week	44 (2.6)	42 (3.2)
Once or Twice a Month	8 (1.4)	9 (1.4)
Never or Hardly Ever	5 (0.9)	5 (1.8)
Use of Extra Written Materials		
Almost Every Day	6 (1.2)	3 (0.6)
Once or Twice a Week	33 (2.2)	33 (2.8)
Once or Twice a Month	46 (2.5)	48 (2.4)
Never or Hardly Ever	15 (1.7)	17 (2.2)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 U.S. History Assessment.

[3] Teachers of twelfth-grade students were not surveyed because twelfth-grade students are not necessarily enrolled in history classes.

As shown in Table 2.2, fourth-, eighth-, and twelfth-grade students reported similar patterns of use of these three types of instructional materials. Fourth- and eighth-grade students provided a somewhat different picture than teachers about the frequency with which primary source documents textbooks and extra written materials are used. However, there was general agreement between teachers and students about the frequency of their use of textbooks compared to their use of primary source documents and extra written materials. Both groups indicated that textbooks are used with greater frequency than the other two sets of materials.

Table 2.2 **Percentage of Students Reporting on Frequency of Use of Materials in History Instruction by Grade Level**

THE NATION'S REPORT CARD

	Grade 4	Grade 8	Grade 12
Use of Primary Source Documents			
Almost Every Day	10 (0.5)	6 (0.3)	4 (0.2)
Once or Twice a Week	17 (0.6)	13 (0.5)	14 (0.5)
Once or Twice a Month	19 (0.7)	22 (0.6)	24 (0.5)
A Few Times a Year	17 (0.8)	24 (0.7)	26 (0.5)
Never	38 (0.9)	35 (0.8)	32 (0.7)
Use of Textbooks			
Almost Every Day	46 (1.5)	51 (1.3)	40 (0.9)
Once or Twice a Week	25 (0.8)	33 (1.1)	40 (0.9)
Once or Twice a Month	8 (0.5)	8 (0.6)	9 (0.5)
A Few Times a Year	8 (0.6)	5 (0.5)	6 (0.4)
Never	13 (0.8)	3 (0.3)	6 (0.5)
Use of Extra Written Materials			
Almost Every Day	12 (0.5)	11 (0.5)	9 (0.4)
Once or Twice a Week	29 (0.9)	29 (0.8)	30 (0.8)
Once or Twice a Month	20 (0.6)	25 (0.6)	24 (0.5)
A Few Times a Year	15 (0.6)	19 (0.6)	18 (0.6)
Never	25 (0.8)	17 (0.6)	18 (0.7)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 U.S. History Assessment.

Primary Source Questions in the 1994 NAEP U.S. History Assessment

The 1994 NAEP U.S. history assessment contained a number of exercises that used primary source materials as stimuli. These materials included core political historical documents, such as the U.S. Constitution and the Declaration of Independence; orations such as Lincoln's Gettysburg Address and Roosevelt's inaugural speech; literary documents such as journal entries, poems, and songs; individual communications such as Nixon's letter of resignation and Chief Seattle's letter to President Pierce regarding the selling of land; and other historical print materials such as newspaper reports, passenger manifests, and product labels. The text-based primary source questions from the 1994 U.S. history assessment form the focus for this chapter; graphics-based primary sources such as photographs and paintings are included in Chapter 5.

In most of the exercises using a primary source stimulus, students were presented with excerpts from primary source documents and were required to draw on their own knowledge of history to accomplish one or more of the following tasks:

- Identify the primary source document, the author of the document, or the date or time period in which it was authored.
- Read, understand, and explain the content or purpose of the primary source document, placing it in appropriate historical context.
- Compare and contrast viewpoints expressed or represented in the primary document or documents.

For example, when given an excerpt from a central historical document or a speech, students could be asked to identify the document or the speaker; or they could be asked to interpret the excerpt in terms of issues or controversies occurring at the time; or they might be asked to explain the position taken by the writer or speaker, making connections between the ideas expressed and the prevailing historical context. For many questions, students were asked to use a combination of these skills. In the 1994 NAEP U.S. history assessment, the total number of questions that required students to use primary source documents was 16 at fourth grade, 30 at eighth grade, and 47 at twelfth grade.

Student Performance on the 1994 U.S. History Primary Source Questions

As shown in Table 2.3, the assessment exercises in the fourth-grade U.S. history assessment that used primary source documents as stimuli were, as a group, less difficult than the other questions in the assessment. The difficulty of the primary source questions increased at the higher grades both in absolute terms and relative to other questions in the assessment. This may be due, in part, to the fact that eighth- and twelfth-grade students were expected to use the primary source materials in progressively more complex ways.

Table 2.3 **Average Item Score for 1994 NAEP U.S. History Assessment**

THE NATION'S REPORT CARD

	Primary Source Questions	All Other Questions
Grade 4	**44 (0.5)**	**40 (0.4)**
Male	43 (0.8)	40 (0.5)
Female	44 (0.6)	40 (0.4)
White	47 (0.6)	44 (0.5)
Black	34 (0.8)	30 (0.5)
Hispanic	34 (1.3)	31 (0.9)
Grade 8	**40 (0.4)**	**44 (0.3)**
Male	39 (0.6)	45 (0.4)
Female	41 (0.4)	44 (0.3)
White	43 (0.5)	48 (0.4)
Black	33 (0.8)	34 (0.5)
Hispanic	34 (0.6)	37 (0.6)
Grade 12	**35 (0.4)**	**43 (0.4)**
Male	35 (0.4)	45 (0.4)
Female	36 (0.5)	42 (0.5)
White	38 (0.4)	46 (0.5)
Black	27 (0.6)	32 (0.7)
Hispanic	27 (0.7)	34 (0.6)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 U.S. History Assessment.

At grade 4, male and female performance was not significantly different on primary source questions or on other questions. Comparisons across gender groups of eighth- and twelfth-grade students, however, show patterns of performance on the primary source questions that differ somewhat compared to the patterns of performance on other questions in the history assessment. At grade 8, female students outperformed male students on the primary source questions while their performance on the other U.S. history questions was not significantly different from their male counterparts. At grade 12, male and female students performed similarly on primary source questions while male students outperformed female students on the other U.S. history questions. The patterns of performance by racial/ethnic subgroups were the same on the primary source questions as they were on all other questions in the U.S. history assessment with one exception: At grade 8, Hispanic students outperformed Black students on non-primary source questions, but their performance on the primary source questions was not significantly different.

Examples of 1994 NAEP U.S. History Primary Source Questions

Although the common feature of the questions being discussed in this chapter is the use of primary source material as a stimulus, the difficulty of each individual question is determined by a variety of factors. These factors may include the student's factual historical knowledge, the student's ability to understand the literary aspects of the primary source (such as vocabulary and the use of metaphors), and the depth of analysis and interpretation the student is expected to apply to the document's content.

In general, one might expect that students would find tasks that ask them to provide factual information about a primary source document easier than questions that ask them to read and then interpret, analyze, or critique such a document. However, this was not necessarily true for all questions. In some cases, questions that required simple recall of factual knowledge proved more difficult, apparently because the primary source excerpts were simply unknown to the students and contextual clues did not provide sufficient help.

Recalling Factual Knowledge

In a number of the primary source questions, students were presented with an excerpt and asked to identify the document from which it was extracted, the author of the document, or the date or period in which the document was authored. These factual questions appear to be quite straightforward. That is, in most cases, the student either had the requisite factual knowledge or not.

Sample U.S. History Question
Grade 4 — Speech: "I Have A Dream"

Questions 14-15 are about the portion of a speech shown below.

I have a dream that one day this nation will rise up and live out the true meaning of its creed: "We hold these truths to be self-evident; that all men are created equal." . . .

I have a dream that one day on the red hills of Georgia the sons of former slaves and the sons of former slaveowners will be able to sit down together at the table of brotherhood . . .

I have a dream that my four little children will one day live in a nation where they will not be judged by the color of their skin but by the content of their character . . .

I have a dream that one day . . . little Black boys and Black girls will be able to join hands with little White boys and girls and walk together as sisters and brothers.

14. The speech was given by

Ⓐ Abraham Lincoln
Ⓑ Gloria Steinem
Ⓒ George Bush
● Martin Luther King, Jr.

The question asks for the name of the speaker from whose speech the excerpt was taken. As with other multiple-choice questions, students may have been able to eliminate the more unlikely options. However, to answer this question correctly with certainty, students needed to know that the excerpt is from a speech given by Martin Luther King, Jr.

The student performance data, which are presented in Table 2.4, indicate that the "I Have A Dream" speech is a well-recognized speech and so is the orator. The large majority of the fourth-grade students in the nation and in different subgroups were able to correctly answer this question. Furthermore, on this question Black students outperformed Hispanic students, and the performance of Black students was not significantly different from the performance of White students. The finding may be viewed as commensurate with the importance and relevance of this speech and Martin Luther King, Jr. in the history of African Americans.

Table 2.4 **Percentage Correct for Speech: "I Have a Dream"**

THE NATION'S REPORT CARD

Grade 4	**87 (1.0)**
Male	86 (1.4)
Female	88 (1.3)
White	90 (1.1)
Black	85 (2.3)
Hispanic	75 (2.9)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 U.S. History Assessment.

Sample U.S. History Question
Grades 4 and 8 — Speech: "A House Divided"

The following question, which also depended on students' recall of factual knowledge, was given to both fourth and eighth graders. It is presented here to show how students perform differently on questions that pose similar cognitive tasks but require different content knowledge.

Questions 11-12 refer to the statement below.

A house divided against itself cannot stand. I believe this government cannot endure permanently half slave and half free. I do not expect the Union to be dissolved—I do not expect the house to fall—but I do expect it will cease to be divided.

11. This statement was made by

- Ⓐ George Washington
- Ⓑ Thomas Jefferson
- ● Abraham Lincoln
- Ⓓ Theodore Roosevelt

To answer this question correctly, students needed to know that the excerpt is from a speech given by Abraham Lincoln. Although this question, like the previous one, asked students to recall or identify the author of the excerpt, fourth-grade students found this question substantially more difficult. As shown in Table 2.5, only 39 percent of all fourth graders answered correctly.

	Grade 4	Grade 8
Total	**39 (1.4)**	**55 (1.6)**
Male	43 (1.9)	56 (2.1)
Female	34 (2.0)	54 (2.1)
White	39 (1.9)	59 (2.1)
Black	37 (3.2)	47 (3.3)
Hispanic	35 (3.7)	47 (4.3)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 U.S. History Assessment.

Most fourth graders have not yet been given formal course work in U.S. history; therefore, it is likely that more fourth graders were able to identify Martin Luther King, Jr.'s speech because the "I Have A Dream" speech has been referenced more often in the media than has Lincoln's "A House Divided" speech. With regard to subgroup differences, although male and female fourth graders' performance was not significantly different on primary source questions overall or on the U.S. history assessment as a whole, on the "House Divided" question, male fourth-grade students outperformed female fourth-grade students.

Eighth-grade students performed somewhat better on this question than did fourth graders, with 55 percent answering correctly. If students did not specifically recognize the orator as Lincoln, the correct answer could have been inferred by recognizing the Civil War theme in the speech and identifying Lincoln as the only person among the response options who is from the correct historical period. The superior performance of eighth-grade students compared to fourth-grade students presumably reflects their greater exposure to U.S. history content, and particularly, in this case, to the history of the Civil War.

Sample U.S. History Question
Grade 8 — Document: "Declaration of Independence"

The following question is another example of a question that depended on students' recall of factual knowledge, but, in this case, students were asked to supply the name of the primary source document.

Questions 4-6 refer to the passage below.

We hold these truths to be self-evident: That all men are created equal; that they are endowed by their Creator with certain unalienable rights; that among these are life, liberty, and the pursuit of happiness. That, to secure these rights, governments are instituted among men, deriving their just powers from the consent of the governed; that, whenever any form of government becomes destructive of these ends, it is the right of the people to alter or to abolish it, and to institute a new government.

—1776

4. The quotation is from the

- (A) Articles of Confederation
- (B) Constitution
- (C) Declaration of Independence
- (D) Missouri Compromise

To answer this question correctly, students needed to know that the passage came from the Declaration of Independence. The insertion of the date "1776" at the bottom of the passage places the document in time and provides an additional contextual clue to the identity of the document. The data in Table 2.6 show that 62 percent of eighth-grade students knew that the quotation was from the Declaration of Independence.

Grade 8	**62 (1.4)**
Male	58 (1.9)
Female	66 (2.0)
White	63 (1.7)
Black	59 (3.6)
Hispanic	57 (3.9)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 U.S. History Assessment.

Of the incorrect responses, the most popular was option B, the Constitution, selected by over a fourth of the students. This probably reflects the fact that students are familiar with the passage and know that it is from an important United States historical document. The Constitution, along with the Declaration of Independence, is much better known than either of the other documents named in the response options.

Reading, Understanding, and Contextualizing Information

Students also were presented with questions using primary sources as stimuli and asked to recognize the primary source, understand its content, and place it in its historical context. In some of these questions, they were asked to interpret the meaning of phrases, literary references, or ideas contained in the primary source. In other questions, students were asked to describe or explain the context within which the primary source document was created. For example, students were presented with songs, poetry, and speeches from past historical periods and asked to explain the meaning of selected lines within them. Or, students were given passages from documents and asked to explain the circumstances or historical context of the documents. Often students were required to use outside knowledge to answer the questions posed.

Sample U.S. History Question
Grade 4 — Speech: "I Have A Dream"

In the following question, students were asked to interpret the meaning of a statement made by Martin Luther King, Jr. and to explain the political and social circumstances in which the speech was written and delivered. To answer this question completely, students needed to know and understand the historical context of the speech.

Questions 14-15 are about the portion of a speech shown below.

I have a dream that one day this nation will rise up and live out the true meaning of its creed: "We hold these truths to be self-evident; that all men are created equal." . . .

I have a dream that one day on the red hills of Georgia the sons of former slaves and the sons of former slaveowners will be able to sit down together at the table of brotherhood . . .

I have a dream that my four little children will one day live in a nation where they will not be judged by the color of their skin but by the content of their character . . .

I have a dream that one day . . . little Black boys and Black girls will be able to join hands with little White boys and girls and walk together as sisters and brothers.

15. The speaker dreamed that one day children would not be judged by the color of their skin. What did the speaker probably mean by this?

Explain what was going on in the country that made the speaker's wishes only "dreams."

For this short constructed-response question, a "Complete" response correctly explained: 1) that not being judged by the color of one's skin refers to an end to racism or the absence of prejudice based on skin color, and 2) that it was a dream for King because at that time segregated housing, schools, transportation, and restaurants still existed. A "Partial" response correctly explained only one part of the question or attempted both explanations but offered responses that were vague or simply repeated what was said in the passage. "Inappropriate" responses did not explain what King meant by being judged by the color of one's skin, nor did they explain the circumstances in the country that made King's wishes a dream. The following are examples of actual student responses in each of the three response categories.

Sample "Complete" Response

15. The speaker dreamed that one day children would not be judged by the color of their skin. What did the speaker probably mean by this?

black people and white people are the same.

Explain what was going on in the country that made the speaker's wishes only "dreams."

white people were getting rights black people were not

Sample "Partial" Response

15. The speaker dreamed that one day children would not be judged by the color of their skin. What did the speaker probably mean by this?

Donot judge by the colorof yourskin its whats inside that counts.

Explain what was going on in the country that made the speaker's wishes only "dreams."

Because wishes always donot come true.

Sample "Inappropriate" Response

15. The speaker dreamed that one day children would not be judged by the color of their skin. What did the speaker probably mean by this?

Martin Luther King, To said
it the speech

Explain what was going on in the country that made the speaker's wishes only "dreams."

because of freedom

As the information provided in Table 2.7 shows, one-fourth of fourth-grade students gave responses that were "Complete." An additional 45 percent of the responses either explained what King meant by being judged by the color of their skin or explained the circumstances that made his wishes still a dream. The answers given by 22 percent of the students were deemed "Inappropriate," and 9 percent gave no answer at all.

	Complete	Partial	Inappropriate	Omit
Grade 4	**25 (1.1)**	**45 (1.2)**	**22 (1.3)**	**9 (0.9)**
Male	22 (1.6)	45 (2.2)	20 (1.9)	14 (1.6)
Female	28 (1.7)	45 (1.8)	23 (1.7)	4 (0.7)
White	28 (1.4)	48 (1.3)	18 (1.4)	6 (0.7)
Black	18 (2.1)	41 (2.9)	26 (2.7)	16 (2.6)
Hispanic	16 (2.6)	30 (3.6)	39 (4.8)	15 (3.4)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 U.S. History Assessment.

A higher percentage of female than male fourth-grade students received a "Complete" score on this question, although on primary source questions in general and on the U.S. history assessment as a whole, male and female students' performance was not significantly different. Also, a higher percentage of White students than Black students were able to provide "Complete" responses. However, there was no significant difference between the percentages of White and Black students who were able to provide "Partial" responses to the question.

Sample U.S. History Question
Grade 8 — Document: "U.S. Constitution, The Fifteenth Amendment"

The following question is another example of a task in which students were required to read the original source, understand its content, recall factual knowledge, and relate the content of the source to its historical context.

Fortieth Congress of the United States of America;

At the third Session,

Begun and held at the city of Washington, on Monday, the seventh day of December, one thousand eight hundred and sixty-eight.

A RESOLUTION

Proposing an amendment to the Constitution of the United States.

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, (two-thirds of both Houses concurring) That the following article be proposed to the legislatures of the several States as an amendment to the Constitution of the United States, which, when ratified by three-fourths of said legislatures shall be valid as part of the Constitution, namely:

Article XV.

Section 1. The right of citizens of the United States to vote shall not be denied or abridged by the United States or by any State on account of race, color, or previous condition of servitude —

Section 2. The Congress shall have power to enforce this article by appropriate legislation —

Schuyler Colfax
Speaker of the House of Representatives

[illegible]
President of the Senate pro tempore.

[illegible]
Clerk of House of Representatives.

[illegible]
Secy of State N.C.

14. Which group was this amendment designed to help?

Why was it proposed at this particular time in United States history?

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To answer this question correctly, students needed to understand that the resolution concerns the Fifteenth Amendment to the Constitution; either to know the purpose of the Fifteenth Amendment or to discern it from the information presented in the primary source document; and to bring in outside knowledge regarding the historical context in which the amendment was proposed and passed. The date of the resolution provides a clue as to the historical period in which the resolution was proposed.

For this short constructed-response question, a "Complete" response: 1) identified former slaves and/or all African American males as people the resolution was designed to help, and 2) identified the end of the Civil War, the Radical Reconstruction, or the "Black Codes" as the reason for the amendment. A "Partial" response either identified who the amendment was designed to help or placed it in its proper historical context, but did not do both. An "Inappropriate" response did neither. The following are examples of student responses.

Sample "Complete" Response

14. Which group was this amendment designed to help? ~~the~~ African-American slaves

Why was it proposed at this particular time in United States history?

It was directly after the Civil War, and the slaves had been freed. It was proposed so that their rights would be clearly defined

Sample "Partial" Response

14. Which group was this amendment designed to help? blacks

Why was it proposed at this particular time in United States history?

It was another way to say America was a free state

Sample "Inappropriate" Response

14. Which group was this amendment designed to help? President

Why was it proposed at this particular time in United States history?

the people was having a hard time choosing who the goleranment was going to be.

The data in Table 2.8 show that eighth-grade students found this question to be very difficult. Only a very small percentage of eighth-grade students were able to provide responses that were scored as "Complete." In fact, over half of the students provided responses that were scored "Inappropriate." In addition, over 20 percent of students chose not to respond to this question.

	Complete	Partial	Inappropriate	Omit
Grade 8	**5 (0.5)**	**17 (1.1)**	**57 (1.6)**	**20 (1.1)**
Male	5 (0.9)	16 (1.4)	55 (2.3)	25 (2.0)
Female	6 (0.9)	19 (1.8)	60 (1.8)	16 (1.2)
White	6 (0.7)	20 (1.3)	57 (1.8)	17 (1.3)
Black	2 (0.9)	11 (2.1)	58 (3.4)	29 (2.8)
Hispanic	3 (1.2)	10 (2.0)	58 (2.4)	30 (2.5)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 U.S. History Assessment.

The low performance level is probably a function of both the character of the stimulus itself and the substantive content of the question. The stimulus presented could have been intimidating for students who were not familiar with actual historical documents. Not only is the document handwritten in a script that is difficult to read, but the language in which the resolution is written is also formal and perhaps unfamiliar to the typical eighth grader.

Sample U.S. History Question
Grades 8 and 12 — Newspaper Report: "City of Charleston"

In many cases in the assessment, two or more questions were based on the same stimulus. The following is an example of such a case.

Questions 8-9 refer to the newspaper report below.

A city of ruins, of desolation, of vacant houses, of widowed women, rotting wharves, of deserted warehouses ... acres of pitiful and voiceless barrenness — that is Charleston.

8. The news report was most likely written in

Ⓐ 1835
Ⓑ 1845
Ⓒ 1855
1865

9. The news report best supports which statement?

Ⓐ Cities on the coast saw the worst of the fighting in the Civil War.
During the Civil War urban areas in the South suffered.
Ⓒ The destruction of cities had little effect on the progress of the Civil War.
Ⓓ The Civil War had little effect on city life in the North.

In the first question, students were asked to identify the date when Charleston may have been so described. The options focused students on the period of and prior to the Civil War. Students needed to know the year the Civil War ended and also that Charleston was burned during the last stages of the war.

As evidenced by the data presented in Table 2.9, less than a third of eighth-grade students were able to answer this question correctly. Apparently, many eighth-grade students either did not understand that the description was of the devastation that occurred to Charleston as a result of the Civil War, or they simply did not know the date of the end of the Civil War.

	Grade 8	Grade 12
Total	**32 (1.4)**	**41 (1.3)**
Male	34 (1.8)	45 (2.0)
Female	30 (2.0)	36 (1.8)
White	34 (1.7)	43 (1.6)
Black	31 (3.1)	37 (3.2)
Hispanic	30 (2.4)	32 (3.2)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 U.S. History Assessment.

A higher percentage of twelfth graders answered this question correctly; however, this group still represented less than half of the students. Further, although twelfth-grade female and male students performed similarly overall on the primary source questions, on this question, male students performed better than female students.

The second question covered the historical context of the newspaper report on Charleston. It attempts to evaluate the students' ability to understand rules of inference. It asks students to use the information in the news report to draw a supportable conclusion. Students needed to recognize that the news report only supports option B. Option A is incorrect because, although Charleston is on the coast and is portrayed in the newspaper report as devastated, the quotation does not provide evidence that coastal fighting was worse than that experienced in other areas. Similarly, for option C, although the news report is about the destruction of an urban area, there is no reference to how this may have affected the progress of the war. And, for option D, there is simply no reference to city life in the North. Student performance information is presented in Table 2.10.

	Grade 8	Grade 12
Total	**47 (1.5)**	**61 (1.6)**
Male	45 (2.0)	61 (2.0)
Female	50 (1.9)	62 (2.1)
White	50 (1.9)	63 (2.0)
Black	43 (3.0)	58 (4.1)
Hispanic	40 (3.0)	51 (4.0)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 U.S. History Assessment.

Here is an example of the phenomenon mentioned earlier: that students at times found certain factual recall questions more difficult than higher-level inferential skills questions. At both grades, a higher percentage of students were able to answer this question correctly than were able to answer the question regarding the time in which the news report was written. Almost half of the eighth-grade students, and more than 60 percent of twelfth-grade students, answered this question correctly. One possible reason that the inferential question was easier than the actual recall question at both grades is that in answering the inferential question, students could draw on their deductive reasoning skills rather than simply their ability to remember historical information.

A substantial number of primary source questions, particularly in the twelfth-grade U.S. history assessment, asked students to compare and contrast differing points of view on a particular issue. In some of these questions, students were presented with two or more primary sources and were required to compare and contrast the positions in those sources. In other questions, students were asked to use outside knowledge to present an opposing view to the one referenced in the primary source(s). To fully respond to most of these questions, students needed outside knowledge about historical themes, ideas, and time periods.

Sample U.S. History Question
Grade 12 — Document: "U.S. Constitution: State Representation"

Article I. Section 2.

"Representatives . . . shall be apportioned among the several states which may be included within this Union, according to their respective numbers . . ."

Article I. Section 3.

"The senate of the United States shall be composed of two senators from each state . . ."

3. An important debate between large states and small states led to the writing of these portions of the Constitution. Identify the issue being debated.

What position on this issue did large states hold, and why did they hold it?

What position on this issue did small states hold, and why did they hold it?

This was a rather straightforward question in that it provided students with the primary source, identified the source as the Constitution, and indicated that the passage was related to an important debate between large and small states. However, having been provided with all this information, students still needed to bring in outside knowledge to fully respond. They needed prior knowledge about the historical debate on state representation in the U.S. Congress, the positions of large and small states, and the fact that these sections of Article I of the Constitution regarding membership of the House of Representatives and Senate were adopted as a solution to that debate.

For this extended constructed-response question, a "Complete" response: 1) identified the issue being debated as state representation in the U.S. Congress; 2) indicated that the position of large states was that representation should be based on population, which would increase the power of large states and, it might be argued, be more democratic; and 3) explained that the position of small states was that representation should be equal for each state, which would increase the power of small states and, it might could be argued, be more consistent with the concept of federalism. An "Essential" response correctly answered two parts of the question, but not the third. A "Partial" response correctly answered one part of the question but not the other two. An "Inappropriate" response did not accurately answer any part of the question. Below are examples of actual student responses to this question.

Sample "Complete" Response

3. An important debate between large states and small states led to the writing of these portions of the Constitution. Identify the issue being debated.

The issue was how to determine representation in Congress; whether by population or by state.

What position on this issue did large states hold, and why did they hold it?

The large states favored via population since they would have control over the legislative process.

What position on this issue did small states hold, and why did they hold it?

Smaller states supported by state because they feared the large state would ignore them in government.

Sample "Essential" Response

3. An important debate between large states and small states led to the writing of these portions of the Constitution. Identify the issue being debated.

Large states believed the larger the state the more representatives. The smaller states argued this cause the wanted equal representation unrelated to size

What position on this issue did large states hold, and why did they hold it?

They wanted more representatives, cause they believed they could overrun the smaller states.

What position on this issue did small states hold, and why did they hold it?

They wanted equal representation not do to size.

Sample "Partial" Response

3. An important debate between large states and small states led to the writing of these portions of the Constitution. Identify the issue being debated.

The issue was the amount of votes each state had Small states felt they had less power than the large

What position on this issue did large states hold, and why did they hold it?

Large state held more power on this issue because they had more people

What position on this issue did small states hold, and why did they hold it?

Small states had less power because of the smaller amount of people.

Sample "Inappropriate" Response

3. An important debate between large states and small states led to the writing of these portions of the Constitution. Identify the issue being debated.

The issue being debated is that Representatives should apportioned among the several states.

What position on this issue did large states hold, and why did they hold it?

The position on this issue is that the senate shall be composed of two senators from each state.

What position on this issue did small states hold, and why did they hold it?

Representative

According to the student response data presented in Table 2.11, 17 percent of students were able to answer each of the three parts of the question appropriately, and an additional 15 percent were able to provide appropriate responses to two of three parts of the question. These 15 percent of students appeared to understand that the basis of the debate was representation in Congress. They had more difficulty in expressing the reasons for the positions taken by either the large or small states. The fact that the question identified the parties to the debate (large versus small states) may have helped students provide more complete answers to this question than they would have been able to provide otherwise.

	Complete	Essential	Partial	Inappropriate	Omit
Grade 12	**17 (1.2)**	**15 (1.0)**	**24 (1.2)**	**30 (1.3)**	**14 (1.1)**
Male	17 (1.6)	15 (1.4)	25 (1.8)	28 (1.7)	15 (1.6)
Female	17 (1.9)	15 (1.2)	23 (1.7)	32 (1.9)	13 (1.2)
White	19 (1.4)	16 (1.4)	27 (1.6)	27 (1.8)	11 (1.3)
Black	10 (2.2)	6 (1.6)	22 (2.6)	42 (2.9)	21 (2.1)
Hispanic	2 (0.9)	18 (2.5)	12 (2.2)	42 (3.3)	27 (3.3)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 U.S. History Assessment.

Sample U.S. History Question
Grade 12 — Documents: "How Crash Affected People"

For the following questions, students were presented with original documents describing Black Thursday, the stock market crash of October 24, 1929. The first document was a newspaper report while the other two documents offered different personal accounts of the day. These materials and tasks were presented as part of a 50-minute assessment unit that focused on the Great Depression.

Students were asked in two different questions to compare and contrast various aspects of the documents and their contents. Although it helped for students to know about and understand the circumstances of the crash and its impacts on society, to answer the questions posed, it was really only necessary to have rudimentary information about the crash. It was, however, essential for students to be able to read and understand the information in the documents and to be able to compare and contrast the information provided.

The first three documents [Documents A-C] are about Black Thursday, the stock market crash of October 24, 1929.

Document A – *The New York Times, October 25, 1929*

> THE MOST DISASTROUS DECLINE in the biggest and broadest stock market of history rocked the financial district yesterday. In the very midst of the collapse five of the country's most influential bankers hurried to the office of J. P. Morgan & Co., and after a brief conference gave out word that they believe the foundations of the market to be sound, that the market smash has been caused by technical rather than fundamental considerations, and that many sound stocks are selling too low.
>
> The decline carried down with it speculators, big and little, in every part of the country, wiping out thousands of accounts. It is probable that if the stockholders of the country's foremost corporations had not been calmed by the attitude of leading bankers and the subsequent rally, the business of the country would have been seriously affected. Doubtless business will feel the effects of the drastic stock shake-out, and this is expected to hit the luxuries most severely.

Document B – *In 1929 Gordon Parks—later a world-famous photographer—was sixteen years old, living alone and attending high school in St. Paul, Minnesota. To support himself he worked part-time as a bellboy at an exclusive club. Here he describes the impact of the stock market crash on his life.*

> By Thursday the entire world knew. "MARKET CRASHES—PANIC HITS NATION!" one headline blared. The newspapers were full of it, and I read everything I could get my hands on, gathering in the full meaning of such terms as Black Thursday, deflation, and depression. I couldn't imagine such financial disaster touching my small world; it surely concerned only the rich. But by the first week of November I too knew differently; along with millions of others across the nation, I was without a job. All that next week I searched for any kind of work that would prevent my leaving school. Again it was, "We're firing, not hiring." "Sorry, sonny, nothing doing here." Finally, on the seventh of November I went to school and cleaned out my locker, knowing it was impossible to stay on. A piercing chill was in the air as I walked back to the rooming house. The hawk had come. I could already feel his wings shadowing me.

Document C – *Arthur Robertson, a stockbroker and banker, remembers the crash.*

> October 1929, yeah. A frenzy. I must have gotten calls from a dozen and a half friends who were desperate. In each case, there was no sense in loaning them the money that they would give the broker. Tomorrow they'd be worse off than yesterday. Suicides, left and right, made a terrific impression on me, of course. People I knew.
>
> One of my friends said to me, "If things keep on as they are, we'll all have to go begging." I asked, "Who from?"
>
> Many brokers did not lose money. They made fortunes on commissions while their customers went broke. The only brokers that got hurt badly were those that gambled on their own—or failed to sell out in time customers' accounts that were underwater. Of course, the brokerage business fell off badly, and practically all pulled in their belts, closed down offices, and threw people out of work.

1. Documents A and C contain different information about the stock market crash. How is the information in the two documents different?

2. The crash affected people from different economic backgrounds in different ways. Compare how Gordon Parks and Arthur Robertson were affected by the crash.

The first question is an extended constructed-response question that focuses on the newspaper report and the personal account by the stockbroker. To receive a "Complete" score, a response to this question needed to show an understanding of the difference between a newspaper account and a personal account or between a contemporary account and a remembrance. Credited responses included information such as that the news account reported on the size of the crash and the reaction of the business community, but tended to underestimate the importance of the crash to individuals. The personal account included information on the effect the crash had on business people and the financial system, and it tended to describe the crash in more human terms. An "Essential" response showed an understanding of both types of documents but was vague or inaccurate about the differences between the perspectives in both accounts. A "Partial" response showed an understanding of only one of the documents and, although it may have identified a difference between the documents, the difference was a relatively unimportant one. An "Inappropriate" response did not correctly identify any of the ways in which the two accounts differed. Examples of student responses in each of the response categories are presented below.

Sample "Complete" Response

1. Documents A and C contain different information about the stock market crash. How is the information in the two documents different?

The information in Document A is given objectively. The detached author reveals what is happening around him in a third person voice. Document C, however, is one man's subjective account of what happened to him. It is told from a personal standpoint in first person.

Sample "Essential" Response

1. Documents A and C contain different information about the stock market crash. How is the information in the two documents different?

The information is different in the two documents because the talks about the different ways the market hurt people. Document A talks about how the market crashed and Document C talks about the people that are hurting.

Sample "Partial" Response

1. Documents A and C contain different information about the stock market crash. How is the information in the two documents different?

Document A is from the New York Times reporters, Document B is written by a sixteen year old male trying to stay in school after the depression during & during or his own

Sample "Inappropriate" Response

1. Documents A and C contain different information about the stock market crash. How is the information in the two documents different?

Document C is diffrent from Document A because C has greater detail, and expressions.

The student response data presented in Table 2.12 show that "Complete" responses were rare. Very few students were able to successfully articulate the salient distinguishing features of the documents (in terms of both content and tone). Over a third of the responses were rated "Essential," an indication that substantially more students understood that the two accounts were different, although it was difficult for them to express the differences clearly.

Table 2.12 **Score Percentages for Documents: "How Crash Affected People"—Question 1**

THE NATION'S REPORT CARD naep

	Complete	Essential	Partial	Inappropriate	Omit
Grade 12	**1 (0.3)**	**37 (1.4)**	**35 (1.4)**	**22 (1.1)**	**5 (0.8)**
Male	1 (0.5)	33 (1.6)	36 (2.0)	24 (1.3)	6 (1.2)
Female	1 (0.3)	41 (2.1)	33 (1.7)	21 (1.7)	5 (0.8)
White	1 (0.4)	40 (1.7)	35 (1.7)	20 (1.3)	4 (0.9)
Black	1 (0.5)	29 (2.8)	34 (2.8)	28 (2.7)	9 (2.1)
Hispanic	0 (0.0)	30 (4.4)	33 (4.1)	26 (3.7)	10 (3.2)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 U.S. History Assessment.

The second question is a short constructed-response question. It focused on the two personal accounts of the crash and asked students to do a close comparative reading of these accounts. A response scored as "Complete" reflected an understanding of the content of both passages and presented appropriate evidence of how both authors were affected by the crash. "Complete" responses included information such as Parks was poor, worked at a country club, got laid off, had to drop out of school, was on his own, and could not find work. Robertson, on the other hand, was affluent and probably not badly hurt at first, did not exactly describe how he was financially affected, watched friends suffer, and had to refuse their requests for loans. A "Partial" response showed an understanding of one of the documents but not both, or showed only a vague or superficial understanding of the content of both. "Inappropriate" responses did not indicate correctly that the two men were affected differently by the crash or provided only incorrect or irrelevant differences. Examples of student responses are provided below.

Sample "Complete" Response

2. The crash affected people from different economic backgrounds in different ways. Compare how Gordon Parks and Arthur Robertson were affected by the crash.

Gordon Parks was devastated. He had to drop out of school. He lost his job. There was no work to be found for him. Arthur Robinson seems to have made money off of the crash is commissions. Obviously, his business was eventually hit, but for the time, the brokerage business was fine.

Sample "Partial" Response

2. The crash affected people from different economic backgrounds in different ways. Compare how Gordon Parks and Arthur Robertson were affected by the crash.

Gordon Parkson lost everything he had and had to quit school Arthur Robertson, because he was a broker didn't lose money

Sample "Inappropriate" Response

2. The crash affected people from different economic backgrounds in different ways. Compare how Gordon Parks and Arthur Robertson were affected by the crash.

Gordon Parks was sixteen years old living alone and attending high school in St. Paul, minnesota. Arthur Robertson a stockbroker and a banker

According to the student performance data presented in Table 2.13, 13 percent of the students were able to understand and describe important differences in the two personal accounts of the crash.

Table 2.13 **Score Percentages for Documents: "How Crash Affected People"—Question 2**

THE NATION'S REPORT CARD

	Complete	Partial	Inappropriate	Omit
Grade 12	**13 (0.8)**	**58 (1.3)**	**24 (0.9)**	**6 (0.7)**
Male	11 (1.2)	55 (2.1)	27 (1.7)	8 (1.0)
Female	14 (1.3)	60 (1.6)	21 (1.5)	5 (0.8)
White	14 (0.9)	61 (1.6)	21 (1.2)	5 (0.8)
Black	9 (1.6)	46 (3.5)	33 (2.8)	12 (2.0)
Hispanic	7 (2.0)	50 (4.5)	28 (2.9)	15 (3.8)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 U.S. History Assessment.

Student performance on these two questions shows that students may have difficulty responding fully to questions that ask them to make distinctions among documents and the kinds of information and perspectives they offer. Students were able to discuss simple content differences, but they performed less well when asked to explain why these differences exist or to describe the differences in more complex terms.

Summary

Student performance on questions based on primary source documents varied widely. Precise statistical explanations of this variation are beyond the scope of this report. However, an examination of the assessment questions suggests that the differing difficulty of the primary source exercises seem related to three factors: the factual knowledge that students were required to bring to the questions, the format of primary source documents presented, and the level of cognitive skills required to respond fully. When the historical content was known or the primary source document was relatively straightforward in presentation of information, higher proportions of students were able to explain contextual circumstances and were able to compare and contrast differing points of view. However, when the format and language of the primary source documents were less familiar, the task became more difficult. For example, although eighth-grade students have probably heard of the Fifteenth Amendment and the circumstances surrounding it, when presented with the original resolution proposing it to states, only a small percentage of students could identify the groups that the amendment was designed to help or explain why it was proposed at the time.

Performance also depended on the complexity of analyses students were required to undertake when answering questions. For example, when asked to compare and contrast the contents of two documents as in the question on the stock market crash, students were generally able to discuss superficial differences with ease. However, they were less able to perform in-depth analyses of the contents and relate these to historical contexts.

Most history education and curriculum specialists believe that primary source documents should be an essential part of history instruction. The use of such documents is viewed by professionals as important for a number of reasons. Primary sources are an effective means of imparting content knowledge. Learning to interpret such documents helps students to develop the critical-reasoning skills valued by historians. Finally, primary sources are also the tools with which professional historians work; if students are to develop historical "habits of mind" they must learn to understand and interpret written materials from the past. However, while there is broad agreement on the importance of primary documents, they have only found a limited place in elementary, middle, and secondary classrooms. And not surprisingly, given this finding, students still found it quite difficult to perform the interpretive tasks involving primary source documents that were presented to them as part of the 1994 NAEP U.S. history survey.

Chapter 3

Working with Maps

A tremendous amount of information can be presented on maps. Maps can show locations of cities, countries, and continents; the topography of different regions; distributions of natural resources and populations; weather and climatic conditions; transportation routes such as highways and city rapid transit lines; and patterns of migration and settlement. Maps and globes are the primary tools of geography. They help in the visualization of space and can be used to communicate complex social and physical data. They are a resource for information about the world, past and present. The ability to access information from maps is a valuable, even essential, skill. It is, therefore, important for students to learn about maps and how to use them.

To be map literate, students must learn to recognize and understand map-making conventions. First, cartographers use symbols on maps to indicate locations of natural and synthetic features. For example, on a highway map, a red line may be used as the symbol for a major interstate while a thin black line indicates a two-lane highway. Pictorial representations on maps usually suggest the features they represent — such as a squiggle for a river, an outline of an airplane for an airport, or a collection of tree outlines for a forest. In addition to these types of symbols, map makers also use colors or shadings to indicate features such as political boundaries, elevation, and natural geographical features. To use a map effectively, therefore, it is important for students to understand the use of symbols and, of course, the essential role of the key that defines the symbols.

A second map-making convention is the use of a scale. Maps are not drawn to actual size. The scale to which a map is drawn generally is indicated on the map either with words, such as "1 inch equals 100 miles," or graphically, with a line marked off into the relevant units. Understanding the use of scale is important in interpreting the information being presented on a map.

A third convention is the use of directional aids, including parallels of latitudes, meridians of longitudes, and compass directions. It is important for students to understand these devices because they are fundamental tools for referencing the location of places in the world and for guiding movement around the world.

Classroom Instruction

As part of the NAEP 1994 geography assessment, students in grades 4, 8, and 12 and teachers of fourth-grade students were asked to provide information about classroom practices related to the study and use of maps and globes.[1] In particular, they were asked about the general use of maps and globes, the measuring of distances on maps, and the use of maps to understand latitude and longitude. Tables 3.1 and 3.2 present teachers' and students' reports on these classroom practices.

Table 3.1 **Teachers' Reports on Frequency of Practices in Geography Instruction (Percentage of Fourth Graders)**

Use of Maps and Globes	
Almost Every Day	29 (2.3)
Once or Twice a Week	54 (2.5)
Once or Twice a Month	17 (2.1)
Never or Hardly Ever	1 (0.3)
Use of Maps to Measure Distances	
Almost Every Day	3 (0.8)
Once or Twice a Week	24 (2.1)
Once or Twice a Month	60 (2.7)
Never or Hardly Ever	14 (1.5)
Use of Maps to Understand Latitude and Longitude	
Almost Every Day	3 (1.0)
Once or Twice a Week	15 (1.5)
Once or Twice a Month	59 (2.7)
Never or Hardly Ever	23 (2.1)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 Geography Assessment.

[1] Teachers of the eighth-grade students were also surveyed about instructional activities, but an apparent misunderstanding during the administration of the survey resulted in serious data limitations; therefore, their responses are not reported. See the *NAEP 1994 geography report card* for a more detailed explanation. Teachers of twelfth-grade students were not surveyed because twelfth-grade students are not necessarily enrolled in classes that teach geography.

Table 3.2	Percentage of Students Reporting on Frequency of Practices in Geography Instruction by Grade Level	THE NATION'S REPORT CARD naep

	Grade 4	Grade 8	Grade 12
Use of Maps and Globes			
Almost Every Day	18 (0.9)	9 (0.6)	7 (0.4)
Once or Twice a Week	32 (0.8)	30 (0.9)	22 (0.7)
Once or Twice a Month	23 (0.8)	33 (0.9)	31 (0.7)
Never	27 (1.0)	28 (1.0)	40 (0.9)
Use of Maps to Measure Distances			
Almost Every Day	10 (0.6)	4 (0.4)	3 (0.3)
Once or Twice a Week	28 (0.9)	21 (0.8)	15 (0.5)
Once or Twice a Month	27 (0.8)	37 (0.7)	27 (0.7)
Never	35 (1.2)	38 (0.9)	56 (0.9)
Use of Maps to Understand Latitude and Longitude			
Almost Every Day	14 (0.8)	7 (0.4)	4 (0.2)
Once or Twice a Week	26 (0.8)	20 (0.9)	12 (0.6)
Once or Twice a Month	28 (0.7)	38 (0.9)	25 (0.7)
Never	32 (1.1)	35 (1.3)	59 (0.9)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 Geography Assessment.

According to teachers of the fourth-grade students, maps and globes were used in nearly all classrooms, with the modal response indicating use once or twice a week. The specific map reading skills of measuring distance and using latitude and longitude were also reported for the majority of classrooms, although the reported frequency of use was lower (the modal response was "once or twice a month"). Fourth-grade students and their teachers differed somewhat in their perceptions of the frequency of these practices in their classes. For example, teachers of 83 percent of fourth graders reported using maps and globes at least once or twice a week while only about half of fourth graders indicated such frequency. On the other hand, fourth-grade students reported higher frequencies of practices such as measuring distances on maps and use of latitude and longitude than did their teachers.

The majority of eighth graders also reported using maps and globes, measuring distances, and using latitude and longitude — with approximately two-thirds indicating that these tended to be used at least once or twice a month. At the twelfth grade, however, while many students still reported using these tools and practices at least monthly, substantial proportions reported no such regular use. A possible reason for this apparent decline in use among upper-level students is the diversification of curriculum in high

school. Depending upon their chosen courses, twelfth-grade students may be less likely to be in classes that utilize maps or globes with any regularity. However, most twelfth-grade students have been taught to use and understand maps in earlier grades.

Map Questions in the 1994 NAEP Geography Assessment

This chapter focuses exclusively on map questions in the 1994 NAEP geography assessment. Although both the geography and U.S. history assessments included questions that used maps as stimuli, maps played an extremely prominent role in the geography assessment. In fact, not counting questions in the atlas block (which are being treated separately for purposes of this report), 44 percent of the questions in the geography assessment across grades 4, 8, and 12 involved the use of maps.

Students were presented with a wide variety of maps in the 1994 geography assessment, including the everyday versions of world maps and many specialized maps, such as maps of public transportation routes, city streets, weather patterns, natural resources, and population densities. Questions that used maps as stimuli measured a variety of knowledge and skills, including the following:

- Map literacy, or an understanding of the syntax and conventions of maps. This includes knowledge about types of map projections; an understanding of conventional components of maps, such as contour lines, lines of latitude and longitude, scales, and compass direction; and the ability to judge the accuracy and appropriateness of map projections for different purposes.
- The use of maps to locate places, such as continents, countries, and cities; to identify natural features, such as mountain ranges, oceans, and deserts; and to recognize geographical routes of importance, such as ocean currents and migration routes.
- The use of maps to obtain and integrate information, such as locations of places, weather patterns, population densities, and elevations of natural geographical features.

- The use of map information and outside information to explain real-world conditions and issues, such as diffusion of modern-day religions or political and economic conflicts.
- The ability to create maps from textual descriptions using accepted map conventions.

In many of the map questions, students were asked to use a combination of these skills in order to respond correctly. For example, a number of questions asked students to locate a place or a natural feature on a map and then explain how its location affected certain historical or geographical events or conditions. In the 1994 NAEP geography assessment, the total number of questions that required students to use maps was 38 at fourth grade, 44 at eighth grade, and 48 at twelfth grade.

Student Performance on the 1994 Geography Map Questions

As the data presented in Table 3.3 show, the difficulty of map questions compared to all other questions differed by grade level. Eighth-grade map questions were similar in difficulty to other questions in the eighth-grade assessment. But at the fourth- and twelfth-grade level, the map questions were easier on average than the other questions. At each grade level, however, the patterns of student performance across gender and racial/ethnic subgroups were about the same for map questions as they were for all other questions in the geography assessment.

Table 3.3 **Average Item Score 1994 NAEP Geography Assessment**

THE NATION'S REPORT CARD

	Map Questions	All Other Questions
Grade 4	**48 (0.6)**	**45 (0.5)**
Male	50 (0.8)	46 (0.6)
Female	46 (0.7)	44 (0.6)
White	53 (0.8)	49 (0.7)
Black	30 (1.0)	32 (0.7)
Hispanic	38 (1.2)	37 (1.1)
Grade 8	**49 (0.4)**	**49 (0.3)**
Male	51 (0.5)	50 (0.4)
Female	48 (0.5)	48 (0.4)
White	54 (0.5)	53 (0.4)
Black	34 (0.7)	35 (0.8)
Hispanic	40 (1.2)	39 (0.8)
Grade 12	**55 (0.5)**	**47 (0.5)**
Male	57 (0.5)	49 (0.6)
Female	52 (0.5)	46 (0.5)
White	59 (0.5)	50 (0.5)
Black	38 (0.9)	34 (0.7)
Hispanic	45 (1.0)	38 (0.9)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 Geography Assessment.

Examples of 1994 NAEP Geography Map Questions

Examples of actual assessment questions from the 1994 NAEP geography assessment are presented below. The examples are not intended to be representative of all map questions. They do, however, show the variety of maps students were asked to read and the variety of skills students were asked to employ to correctly respond to these questions.

Map Literacy

In most of the questions that used maps as stimuli, students were assumed to have knowledge about the use of map conventions, including symbols, scales, and compass directions; the meaning and purposes of latitude and longitude; or the differences among map projections. However, the 1994 geography assessment also included questions that directly assessed students' map literacy. For example, students were asked the names of such map features as contour lines, the equator, lines of latitude, and the Tropic of Cancer. Twelfth-grade students were also asked to judge the appropriateness of map projections — for example, the Mercator and Azimuthal projections — for specific purposes, such as guiding a pilot on a flight from North America to Europe over the north pole.

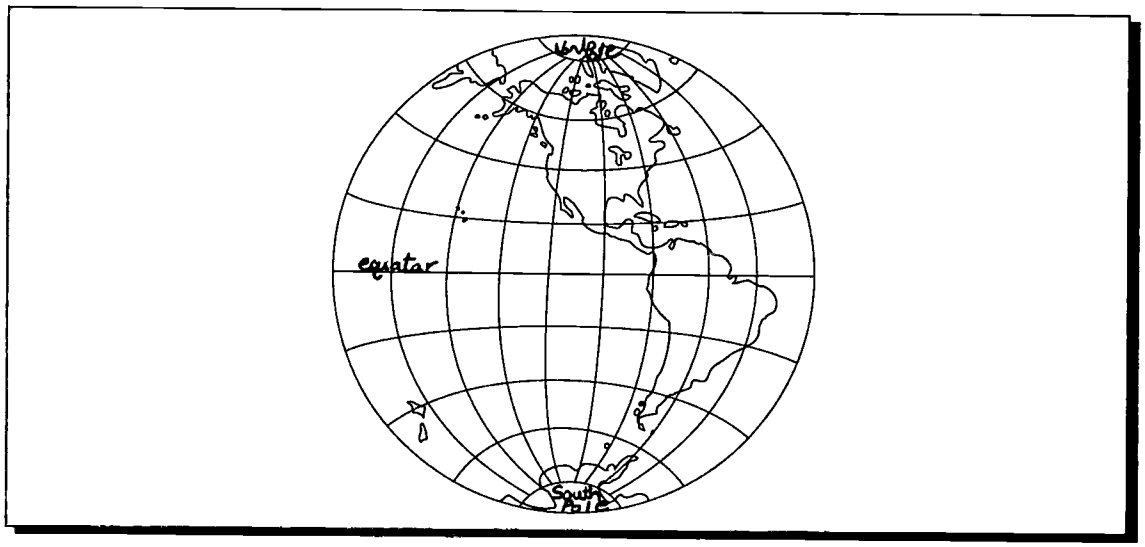
Sample Geography Question
Grade 4 — World Map: Identify Poles and Equator

The following is a relatively straightforward question asking students to locate three important features of a world map. It tested factual knowledge of map conventions.

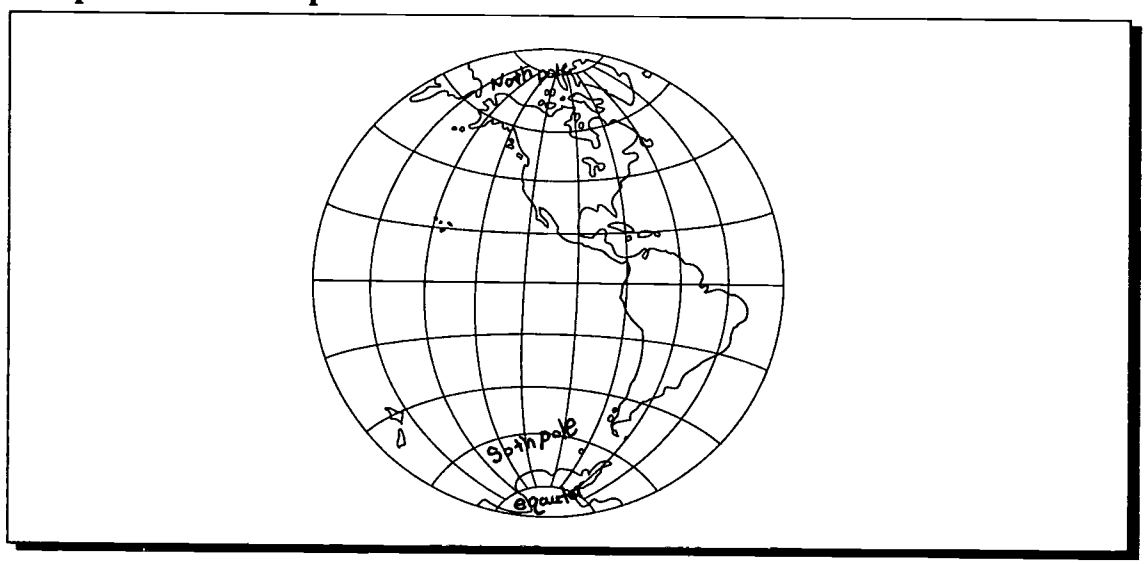
11. On the map above, write the names of the North Pole, the South Pole, and the equator in the correct location.

The question required a short constructed-response. Specifically, to receive a score of "Complete," a student had to have correctly labeled the North Pole, South Pole, and equator on the map. A "Partial" response correctly identified only one or two of the features. An "Inappropriate" response did not correctly locate any of the three features. The following are examples of actual student responses.

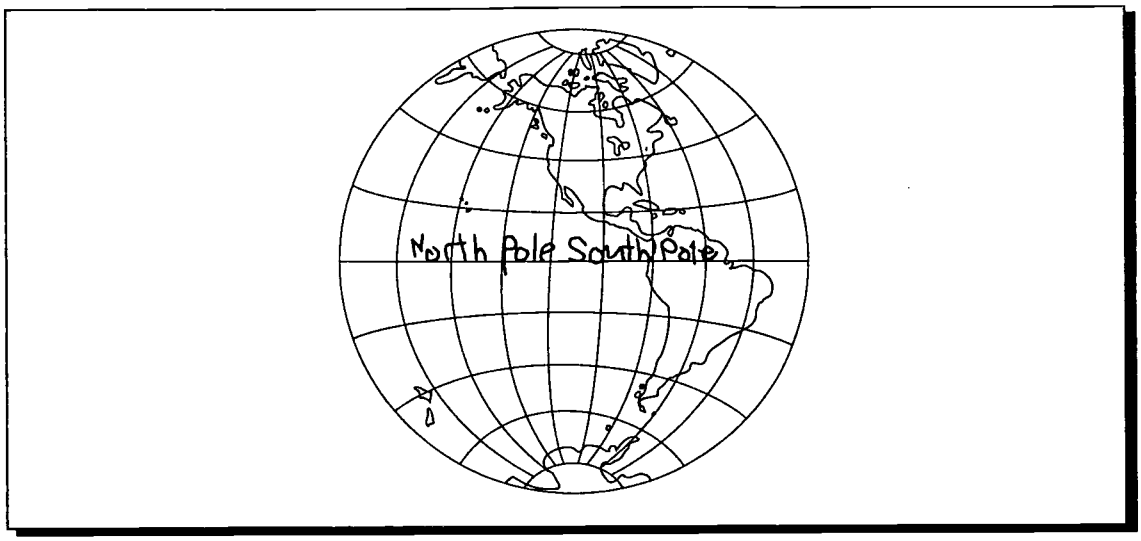
Sample "Complete" Response



Sample "Partial" Response



Sample "Inappropriate" Response



Student performance on this question is presented in Table 3.4. More than half of all fourth graders were able to identify both poles and the equator correctly, and about a quarter more were able to identify at least one of the three features. For responses scored as "Complete," the differences in performance among racial/ethnic groups were in the same direction as they were for geography questions in general. However, the differences between White students and Black students and between White students and Hispanic students were especially large on this item. In addition, there were also differences in the percentages of students of different racial/ethnic groups who did not attempt to answer this question. Thirty-one percent of Black students and 21 percent of Hispanic students, compared to 8 percent of White students, omitted this question.

Table 3.4 **Score Percentages for World Map: Identify Poles and Equator**

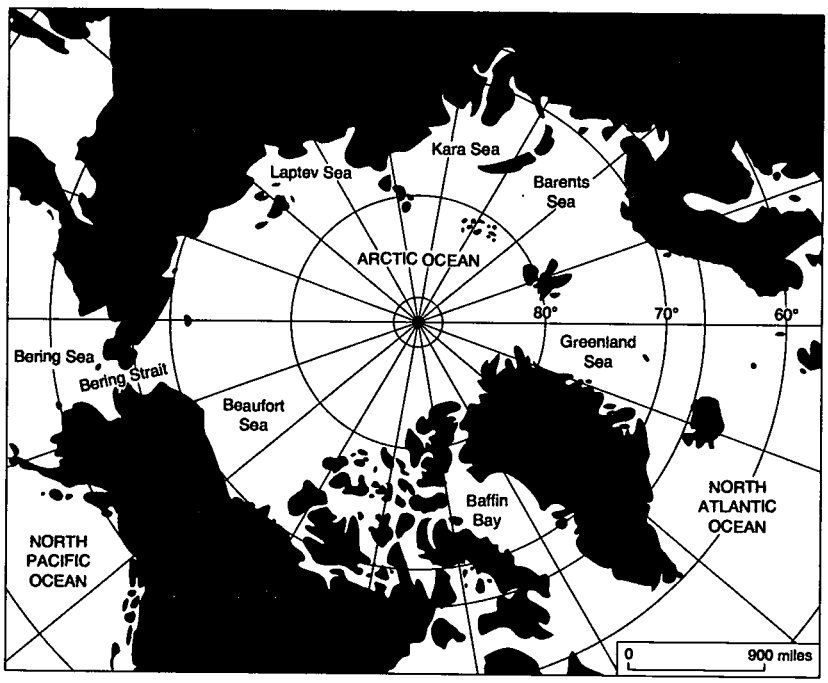
THE NATION'S REPORT CARD

	Complete	Partial	Inappropriate	Omit
Grade 4	**54 (1.5)**	**26 (1.2)**	**7 (0.7)**	**13 (0.8)**
Male	54 (2.0)	25 (1.5)	6 (0.8)	15 (1.2)
Female	54 (2.4)	27 (1.8)	8 (1.4)	10 (1.1)
White	62 (1.6)	25 (1.3)	6 (1.0)	8 (0.8)
Black	28 (3.5)	29 (3.2)	12 (1.6)	31 (3.2)
Hispanic	41 (3.9)	28 (3.7)	10 (2.1)	21 (3.9)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 Geography Assessment.

Sample Geography Question
Grade 8 — Map: Identify Parallels of Latitude

Like the preceding question, the following question asked students to identify a feature of a map. The map, however, was more complex and reflected an expectation that eighth graders would have greater knowledge of maps than fourth graders.



17. Latitude on this map is represented by

- ● circles
- Ⓑ shaded areas
- Ⓒ straight lines
- Ⓓ convergent lines

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In order to answer this question correctly, students needed to know the map convention of latitude and recognize that, on this map projection, latitude is represented by concentric circles. Student performance information is presented in Table 3.5.

Table 3.5 **Percentage Correct for Map: Identify Parallels of Latitude**

THE NATION'S REPORT CARD

Grade 8	**48 (1.4)**
Male	47 (2.1)
Female	49 (2.1)
White	52 (1.5)
Black	33 (3.5)
Hispanic	43 (4.1)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 Geography Assessment.

Nearly half of all eighth graders in the nation appeared to know that latitude is represented by the parallel lines that circle the earth. The most frequently chosen incorrect answer was option C, straight lines; 29 percent of students selected this option. It is possible that these students have some knowledge about latitudes and longitudes, but may have confused the two concepts.

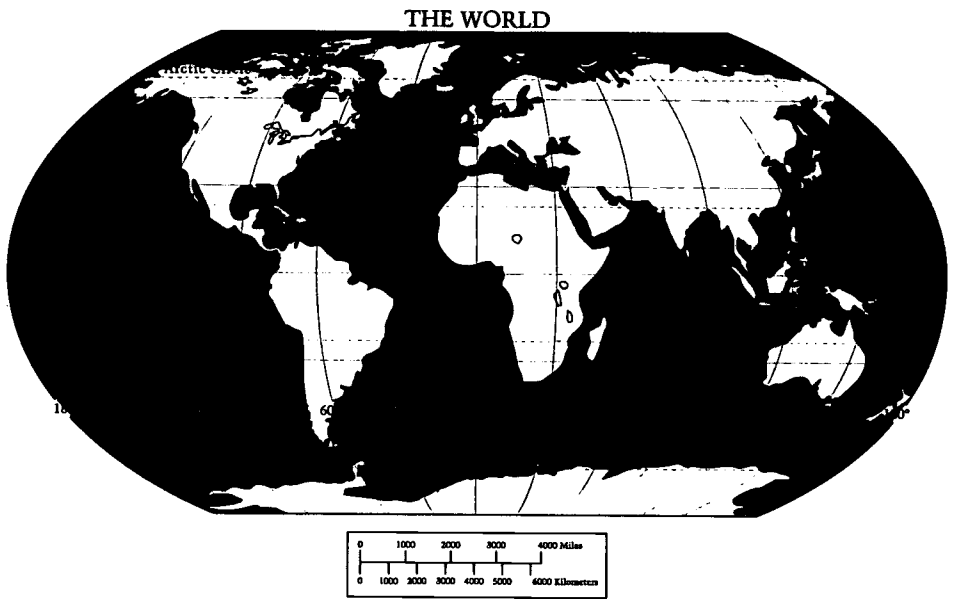
Locating Places and Natural Geographical Features

Many of the questions on the 1994 geography assessment required a demonstration of factual knowledge of places and natural geographical features. Students were asked to identify continents, countries, mountain ranges, rivers, oceans, and deserts. There were a variety of ways the assessment attempted to have students show this content knowledge. Some of these ways are illustrated in the questions presented below.

Sample Geography Question
Grade 4 — World Map: Identify Continents

The stimulus for the following question was a map of the world with none of the locations or natural geographic features identified by name. Students were asked to locate four specific continents and color each a designated color; participants were provided with colored pencils for this purpose.

Questions 1-4 are based on the following map.



1. Use your colored pencils. On the map above:

   – color Australia blue
   – color South America yellow
   – color North America green
   – color Asia red

A "Complete" response to this extended constructed-response question correctly located all four of the continents: Australia, South America, North America, and Asia. An "Essential" response located three of the four continents correctly. A "Partial" response located only one or two of the four continents, and an "Inappropriate'' response located none of the four continents correctly. A continent was considered incorrectly located if the colored-in area included substantial areas that were definitely not part of the continent.

Student performance information is presented in Table 3.6. Just over a tenth of the students were able to correctly locate all four continents: Australia, South America, North America, and Asia. However, half of fourth graders were able to identify at least three of the four continents.

Table 3.6 **Score Percentages for World Map: Identify Continents**

THE NATION'S REPORT CARD

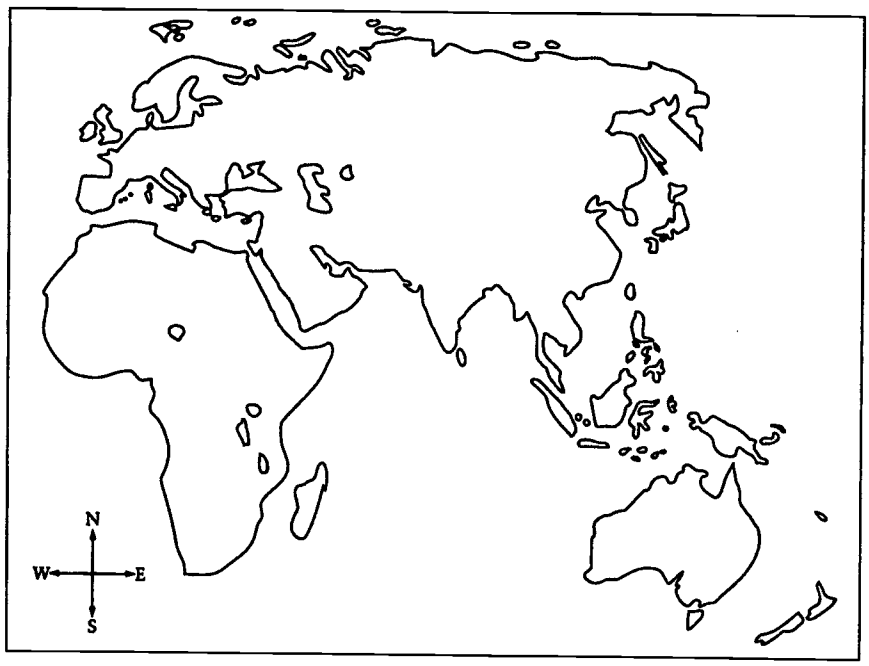
	Complete	Essential	Partial	Inappropriate	Omit
Grade 4	**11 (1.1)**	**40 (1.4)**	**33 (1.3)**	**12 (1.1)**	**5 (0.5)**
Male	11 (1.3)	40 (1.8)	35 (1.8)	9 (1.3)	5 (0.7)
Female	10 (1.5)	39 (1.9)	31 (1.9)	16 (1.5)	4 (0.8)
White	13 (1.5)	44 (1.6)	32 (1.7)	9 (1.3)	2 (0.5)
Black	3 (1.3)	28 (2.5)	32 (3.1)	24 (2.6)	13 (2.1)
Hispanic	4 (1.5)	33 (2.7)	39 (2.8)	16 (2.2)	8 (1.8)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 Geography Assessment.

Sample Geography Question
Grade 12 — Map: Locate Physical Features

Although the following question is similar to the preceding one, the features that the students were asked to locate were substantially less well-known than the continents fourth graders were asked to locate. This reflects the fact that twelfth graders are expected to have a greater body of factual geographical knowledge.

For Question 5, write your answer on the map below.

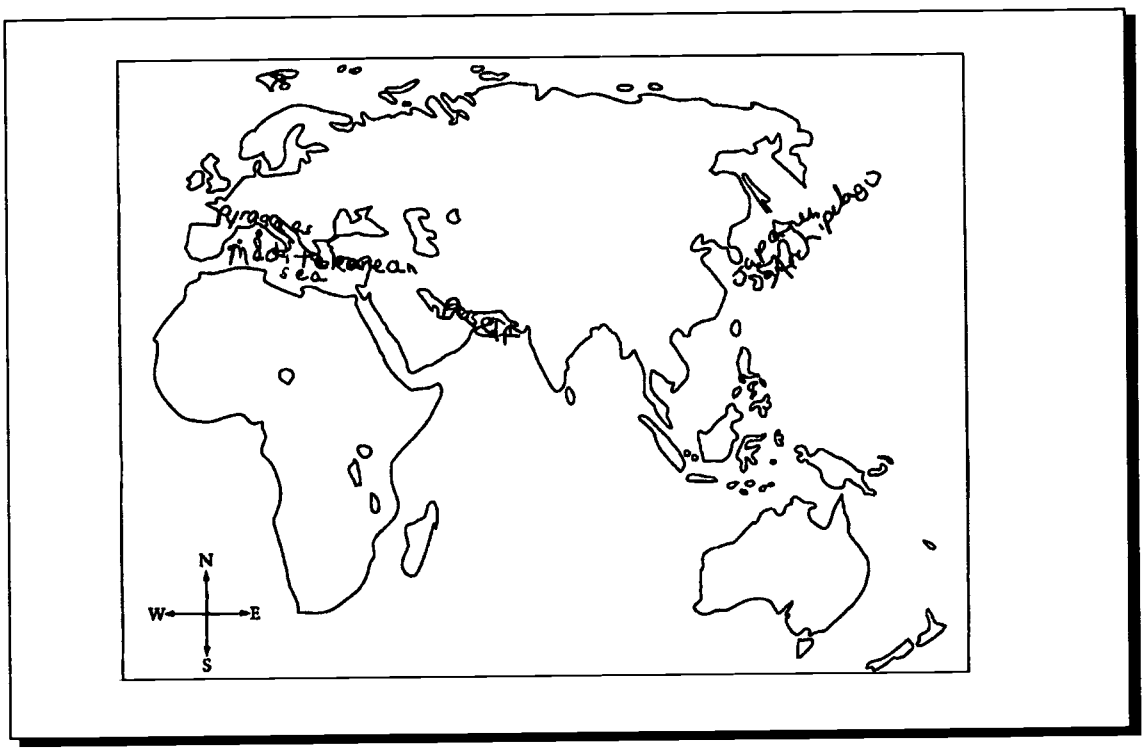


5. Write the number of each of the following physical features in the correct location on the map on page 6.

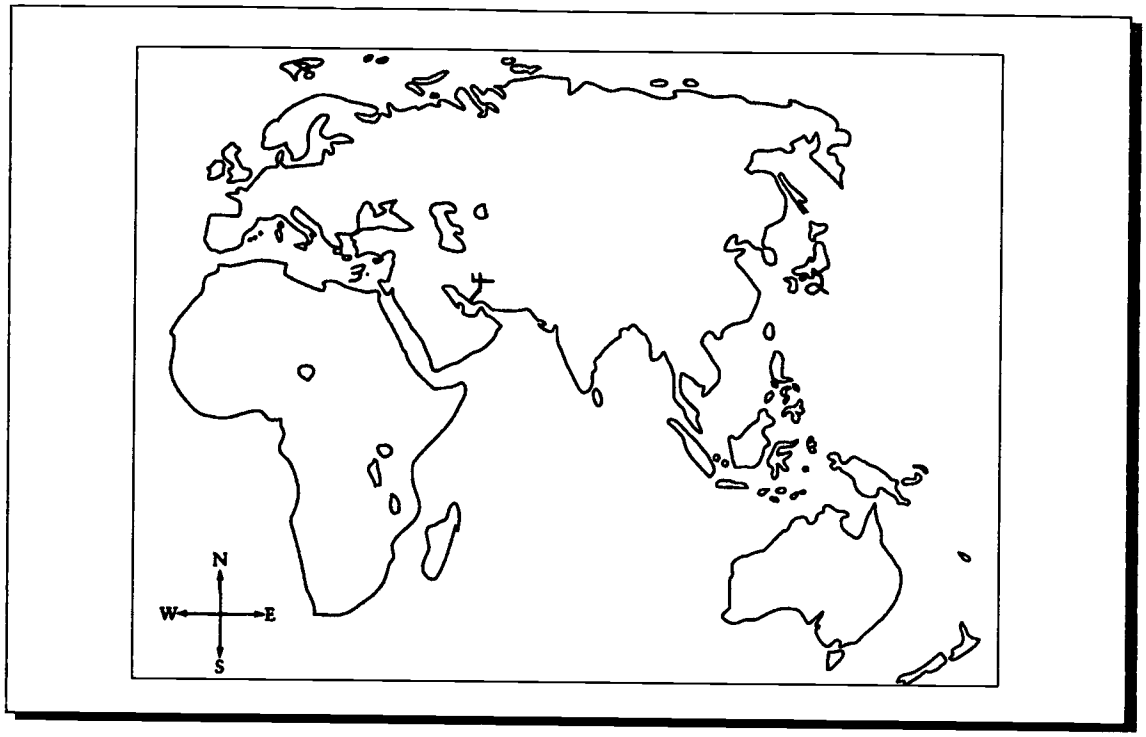
   1 Pyrenees Mountains
   2 The Japanese Archipelago
   3 Mediterranean Sea
   4 Persian Gulf

The scoring criteria paralleled those for the previous question. A "Complete" response correctly identified the locations of all four physical features on the map: the Pyrenees Mountains, the Japanese Archipelago, the Mediterranean Sea, and the Persian Gulf. An "Essential" response correctly labeled three of these four features. A "Partial" response correctly labeled one or two of the four features, and a response that did not correctly identify any of the features was scored as "Inappropriate." Although students were asked to use the associated number to label the map, they were given full credit for writing the names of the features in the correct locations. Examples of student responses are presented below.

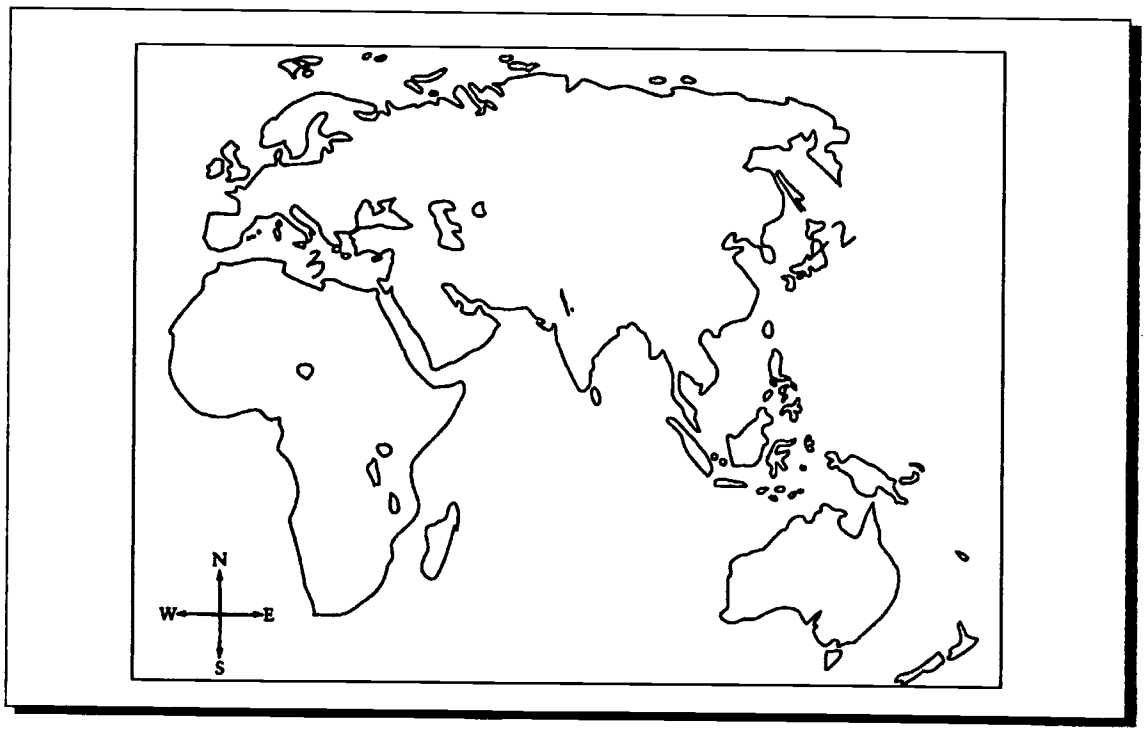
Sample "Complete" Response



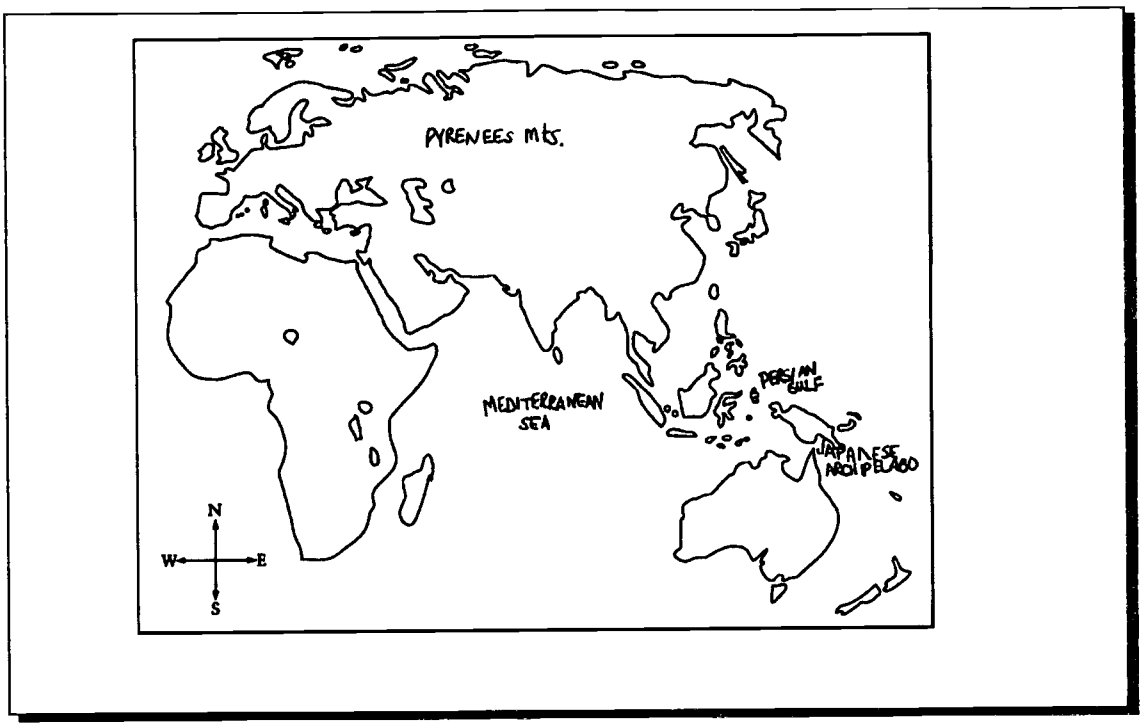
Sample "Essential" Response



Sample "Partial" Response



Sample "Inappropriate" Response



Information on how students performed on this question is presented in Table 3.7. Only a small percentage of twelfth-grade students (9 percent) were able to correctly locate all four physical features on the map. And, although most of the students attempted to answer the question, over a third of twelfth graders were not able to correctly locate even one of the four features. Although many students may have heard of these features, it is evident from their responses that many did not know their exact locations on a map.

Table 3.7 **Score Percentages for Map: Locate Physical Features**

THE NATION'S REPORT CARD

	Complete	Essential	Partial	Inappropriate	Omit
Grade 12	**9 (0.9)**	**14 (1.1)**	**43 (1.6)**	**27 (1.2)**	**7 (0.6)**
Male	11 (1.3)	18 (2.0)	46 (2.2)	20 (1.6)	6 (1.1)
Female	8 (1.1)	11 (1.1)	41 (1.8)	34 (1.6)	7 (0.9)
White	11 (1.2)	16 (1.2)	45 (1.9)	24 (1.4)	5 (0.7)
Black	4 (1.2)	5 (1.5)	33 (3.8)	44 (3.2)	15 (2.5)
Hispanic	6 (1.8)	11 (2.5)	44 (3.8)	28 (3.3)	13 (2.4)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 Geography Assessment.

Obtaining Information from Maps

The geography assessment included numerous questions in which students were asked to draw upon information provided on a map to respond correctly to a question. In most of these questions, students were required to have some level of map literacy; for instance, they had to know how to use map conventions, such as keys, compass directions, scales, or lines of latitude and longitude. In order to answer many of these questions correctly, students also needed to provide other factual geographic knowledge about locations of places and natural features or some conceptual knowledge about geographical phenomena.

Sample Geography Question
Grade 4 — Map: Los Angeles to Salt Lake City

All of the information students needed to answer the following question correctly is provided on the map.

Questions 12-13 are based on the highway map below.

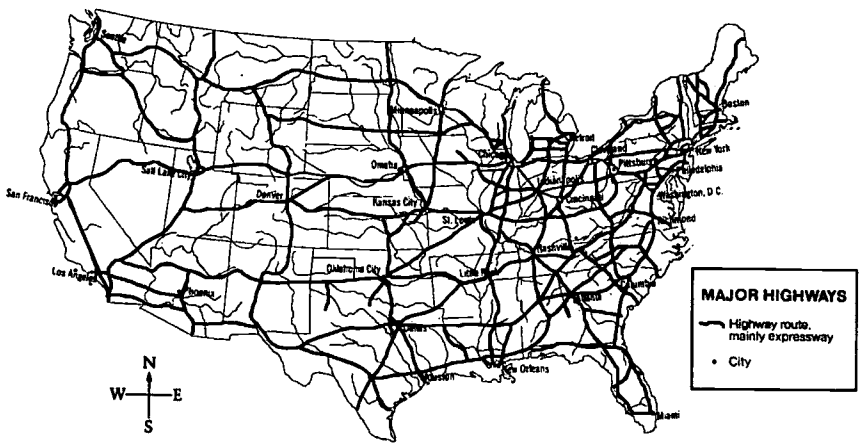


Table by NYSTROM Division of Herff Jones, Inc.

13. To drive from Los Angeles to Salt Lake City in the most direct way, one would travel

- Ⓐ southeast
- Ⓑ southwest
- ● northeast
- Ⓓ northwest

In order to select the correct answer, students needed to understand compass directions and be able to read the highway map. The cities of Los Angeles and Salt Lake City are clearly noted on the map, the highway between those two cities is shown, and compass directions are also included on the map. However, what makes this question more difficult than a simple reading of information on the map is that the direction of travel is not directly east, west, north, or south, but in between two perpendicular directions. Student performance is presented in Table 3.8. The majority of fourth graders appeared to understand compass directions and were able to read the highway map.

Table 3.8 **Percentage Correct for Map: Los Angeles to Salt Lake City**

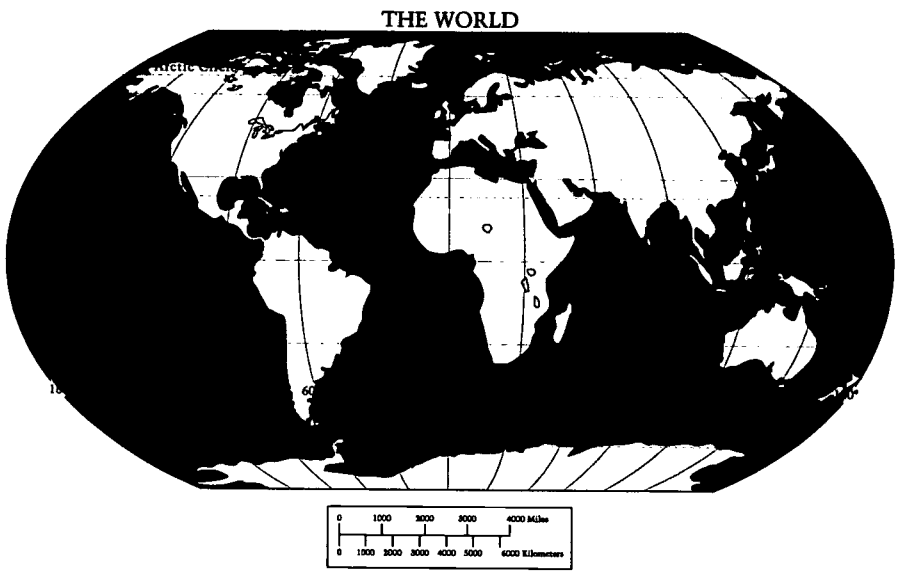
THE NATION'S REPORT CARD naep

Grade 4	**61 (1.3)**
Male	65 (1.7)
Female	57 (2.1)
White	66 (1.7)
Black	42 (3.0)
Hispanic	55 (3.9)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 Geography Assessment.

Sample Geography Question
Grade 4 — World Map: Width of Africa

The following question tested students' map literacy as well as their factual knowledge of a geographical location.



2. About how wide is Africa at its widest point from west to east?

- Ⓐ 650 miles
- Ⓑ 1,500 miles
- ● 3,500 miles
- Ⓓ 7,000 miles

In order to answer the question correctly, students needed to know: 1) which land mass on the map was Africa, 2) the west-to-east direction, because a compass was not provided on the map, and 3) how to use the scale to measure for the widest distance. Student performance is presented in Table 3.9. Thirty-eight percent of students answered this question correctly. Although the question is relatively straightforward, it required students to bring together factual knowledge and knowledge of map conventions.

Table 3.9 **Percentage Correct for World Map: Width of Africa**

THE NATION'S REPORT CARD

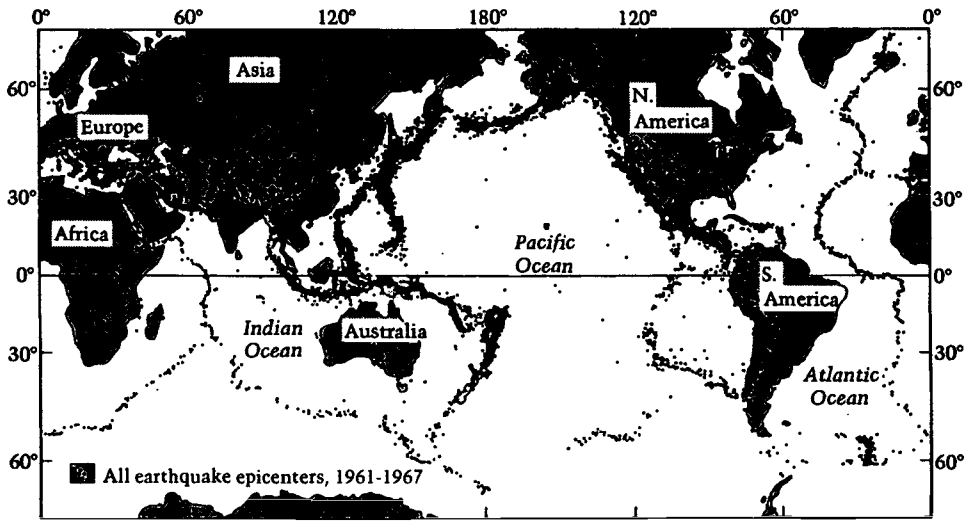
Grade 4	**38 (1.2)**
Male	44 (2.0)
Female	32 (1.4)
White	42 (1.5)
Black	24 (3.3)
Hispanic	34 (3.7)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 Geography Assessment.

Sample Geography Question
Grades 8 and 12 — Earthquake Map: Where Most Occurred

The following is a relatively straightforward question in which students were asked to use the information provided on the map to respond. However, students also needed to use the key to interpret what was presented on the map.

Questions 3-4 are based on the map below showing the distribution of earthquake epicenters around the world between 1961 and 1967.



3. Between 1961 and 1967, the area that had the most earthquakes was the

   Ⓐ Mediterranean basin
   Ⓑ mid-Atlantic Ocean
   Ⓒ Caribbean Sea
   ● Pacific Ocean rim

To answer this question correctly, students needed to use the key to understand that the density of dots indicated the number of earthquake epicenters distributed across the map. As shown in Table 3.10, very high percentages of both eighth and twelfth graders answered this question correctly. As expected, twelfth graders did somewhat better than eighth graders. Although the question was testing students' map literacy, the fact that the Pacific Ocean was clearly labeled and was prominently centered on the map may have helped some students to answer this question correctly. Furthermore, students may have had prior knowledge about the prevalence of earthquake activity in this area and perhaps only needed the map to confirm what they already knew to be the correct answer.

Table 3.10 **Percentage Correct for Earthquake Map: Where Most Occurred**

THE NATION'S REPORT CARD naep

	Grade 8	Grade 12
Total	**84 (0.7)**	**91 (0.9)**
Male	83 (1.2)	92 (1.2)
Female	85 (1.1)	91 (1.2)
White	87 (1.0)	93 (1.0)
Black	75 (2.7)	84 (2.1)
Hispanic	79 (2.5)	87 (3.4)

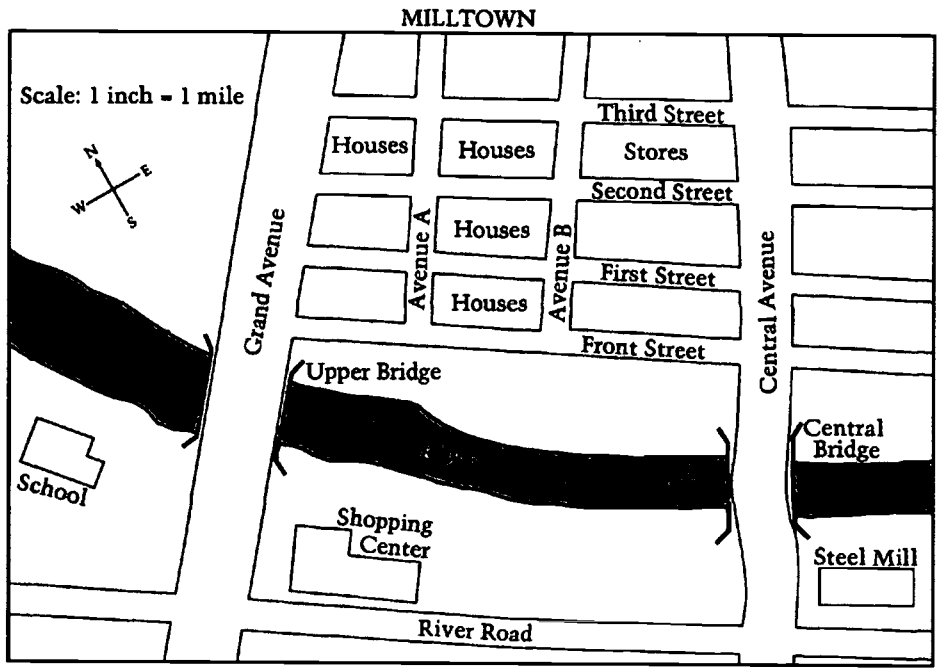
Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 Geography Assessment.

Interpreting and Explaining

In addition to being presented with questions in which the primary skill demonstrated was reading information from maps, students were also presented with questions that required them to combine the information given on the maps with outside knowledge in order to explain such matters as: 1) geographical events, 2) how geographical features can impact people's lives, or 3) relationships between geography and historical occurrences. For example, students were presented with a map of ocean currents and asked to explain how specific currents affected the economy of a given country. Or similarly, students were presented with a map of population migration patterns and asked to explain these patterns based on outside knowledge of history and geography. The outside knowledge students were asked to bring to these questions varied widely. Some of the knowledge was directly related to geographical phenomena while other knowledge was of a social, political, or economic nature.

Sample Geography Question
Grade 4 — Street Map: Bridge Closing

In this and similar questions, students were asked to judge the impact a change in the geographic surroundings would have on people's lives.



4. If Central Bridge is closed for repairs, what will happen in Milltown?

- Ⓐ Traffic will move faster.
- ● Upper Bridge will have more traffic.
- Ⓒ Central Avenue will have more traffic.
- Ⓓ The shopping center will close down.

To answer this question correctly, students needed to be able to read the street map and to have an understanding of traffic patterns. That is, students needed to see that people living in the area from Front Street to Third Street would need to use either the Central Bridge or the Upper Bridge to get to the school, the shopping center, or the steel mill. Therefore, the most likely outcome of a bridge closing on Central Bridge would be that traffic would be diverted to the remaining river crossing, and Upper Bridge would have more traffic. Student performance is presented in Table 3.11. Over half of the students were able to identify the correct answer. The most commonly selected incorrect response was option C, "Central Avenue will have more traffic," with about one-fourth of students selecting it.

Table 3.11 **Percentage Correct for Street Map: Bridge Closing**

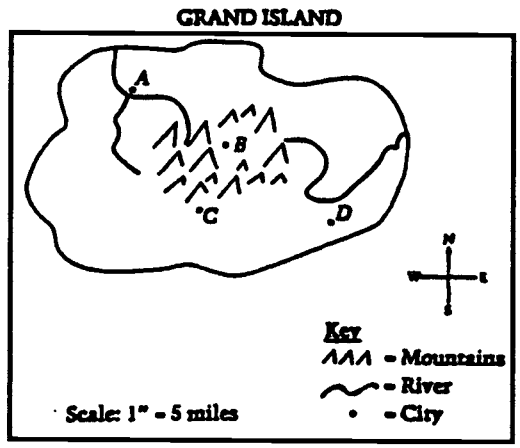
THE NATION'S REPORT CARD

Grade 4	**57 (1.3)**
Male	62 (1.8)
Female	53 (2.0)
White	65 (1.7)
Black	32 (2.8)
Hispanic	47 (4.1)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 Geography Assessment.

Sample Geography Question
Grade 8 — Map: Locate Most Populous City

The following question is representative of many others that asked students to evaluate the impact of geographical features on people's lives. In these types of questions, students needed to understand map conventions and have knowledge of how geography affects people's lives.



10. The island shown on the map above has four cities — A, B, C, and D. Based only on the geographical features shown on the map, which city probably has the largest population?

- ● City A
- Ⓑ City B
- Ⓒ City C
- Ⓓ City D

To answer this question correctly, students needed to be able to use the key on the map to identify the physical surroundings of the four cities, and then apply their knowledge of how natural features such as mountains and rivers influence people's choices about where to live and build cities. Student performance is presented in Table 3.12.

Table 3.12 **Percentage Correct for Map: Locate Most Populous City**

THE NATION'S REPORT CARD naep

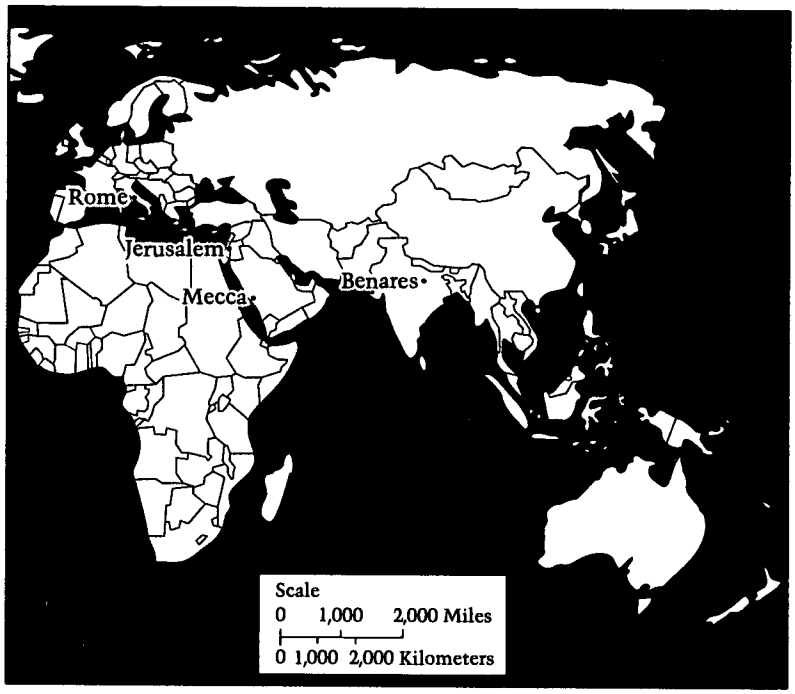
Grade 8	**58 (1.4)**
Male	62 (2.4)
Female	54 (1.9)
White	65 (1.8)
Black	33 (2.7)
Hispanic	46 (4.0)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 Geography Assessment.

Nearly 60 percent of students correctly chose City A. It appears that a majority of eighth-grade students understood the impact of rivers and mountains on growth of cities. There was still a substantial proportion of students, however, who did not understand the question, were not able to read map features, or lacked knowledge of the geographic factors that favor urban development.

Sample Geography Question
Grade 12 — Map: Religious Centers

The following question is representative of a group of questions in which students were asked to consider places identified on a map and decide what common factor characterized all of the places in the set. In order to answer this question correctly, students needed to have outside knowledge about religious centers and be able to read the map.



2. The four locations indicated on the map above are

- Ⓐ capitals of highly industrialized nations
- Ⓑ the world's four most densely populated cities
- Ⓒ areas of highest elevation
- ● religious centers

To correctly answer the question shown here, students needed to know that the four named cities are each of particular importance to a specific world religion. A similar question could have been asked without using a map as a stimulus (for example, "How are Rome, Jerusalem, Mecca, and Benares similar?"), but students with partial knowledge may have been aided by their ability to use the additional clues that the map provided about the cities' locations. In particular, many U.S. students may have been less familiar with the religious associations of Benares than with those of the other three cities. However, if they knew that India was a major Hindu country and saw that Benares was located in India, they could extrapolate from their knowledge of the religious significance of Rome, Jerusalem, and Mecca to correctly select option D. Further, by physically locating the cities, the map could help students draw upon their general geographic knowledge to eliminate other options such as C, "areas of highest elevation."

Student performance is presented in Table 3.13. Over three-fourths of twelfth-grade students were able to answer this question correctly. It appears that students had some knowledge about these cities and were able to use the knowledge they had to select the best answer to the question.

Table 3.13 **Percentage Correct for Map: Religious Centers**

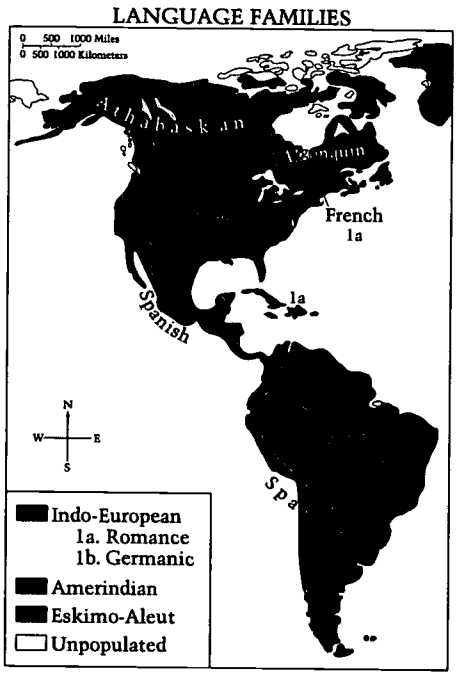
THE NATION'S REPORT CARD naep

Grade 12	**76 (1.2)**
Male	81 (1.6)
Female	71 (1.8)
White	79 (1.4)
Black	68 (2.6)
Hispanic	65 (4.2)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 Geography Assessment.

Sample Geography Question
Grade 8 — Map: Language Patterns

In the following question, the map used shadings to indicate different areas of dominant language families. Students were asked to use the information provided on the map and their outside knowledge about language families and history — specifically, those of indigenous peoples, conquests, and patterns of migration and settlement — to answer the question.



15. What historical trends explain the language patterns shown in the map above? Be as specific as possible in your answer.

This is an extended constructed-response question. A "Complete" response provided a specific historical explanation for the pattern observed, including a discussion of the survival of non-European languages in some regions. Credited responses included the fact that Indo-European languages in North, Central, and South America were brought by the English, French, and Portuguese colonizers after the 15th century and that Amerindian and Eskimo-Aleut languages, spoken in the Americas prior to the 15th century, managed to survive in remote, isolated areas. An "Essential" response provided an explanation of either the colonizing influence or of the languages of the people living in the Americas prior to colonization. A "Partial" response provided a general, rather than a specific, explanation, such as the fact that languages spoken in a country are generally of the country that first owned them. An "Inappropriate" response provided no appropriate explanation of the language patterns shown. Examples of student responses are presented below.

Sample "Complete" Response

15. What historical trends explain the language patterns shown in the map above? Be as specific as possible in your answer.

In Canada the languages are indian because supposedly the indians crossed the Bering Strait which is now gone to the U.S. they speak English because when many different people came it loaned some words of English. For Mexico they speak Spanish because it was discovered by Spain and South America the langues spoken there are from the countries that came there, at Portugal and Spain.

Sample "Essential" Response

15. What historical trends explain the language patterns shown in the map above? Be as specific as possible in your answer.

Some countries were claimed by foreign countries, or takes over by foreign countries Overtime, people began to adapt to its "offical" languages

Sample "Partial" Response

15. What historical trends explain the language patterns shown in the map above? Be as specific as possible in your answer.

The languages are until from the immigration patterns and the different discoveries of each area.

Sample "Inappropriate" Response

15. What historical trends explain the language patterns shown in the map above? Be as specific as possible in your answer.

People who came to the new world probably wanted to live in a place with the same climate and keep a familiar language

Information about student performance is presented in Table 3.14. Very few eighth graders were able to provide even a partially correct response for this question. Over half of the students provided responses that were scored as "Inappropriate," and another 28 percent chose to omit this item. The majority of students who received credit for their responses were able to provide only partial answers. There are a couple of possible reasons why this was a challenging question. First, the topic of language families may not be a common one in students' curricula. Second, the question provided no guidance to students as to the type of historical explanation to consider in explaining the patterns presented on the map. This open-endedness, in light of the unfamiliarity of the topic under discussion, may have made the question particularly difficult for students.

Table 3.14 **Score Percentages for Map: Language Patterns**

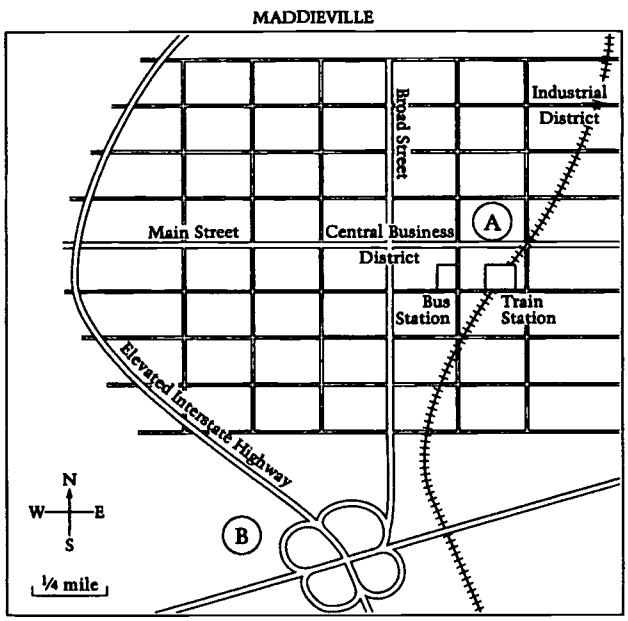
THE NATION'S REPORT CARD naep

	Complete	Essential	Partial	Inappropriate	Omit
Grade 8	**2 (0.3)**	**6 (0.6)**	**12 (1.1)**	**52 (1.6)**	**28 (1.0)**
Male	2 (0.4)	5 (0.9)	12 (1.4)	48 (1.8)	33 (1.6)
Female	2 (0.5)	7 (0.9)	11 (1.4)	56 (2.2)	23 (1.6)
White	2 (0.4)	8 (0.8)	14 (1.3)	51 (1.9)	25 (1.3)
Black	1 (0.4)	3 (1.5)	4 (1.2)	55 (3.2)	38 (2.5)
Hispanic	1 (0.5)	3 (0.9)	8 (1.8)	51 (3.7)	38 (2.9)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 Geography Assessment.

Sample Geography Question
Grade 12 — Map: Letter to Support Shopping Site

The following is one of a number of questions that asked students to consider the impacts of geography on people's lives. This question is unique in that it asks the students themselves to make a choice and to argue convincingly for that choice in a letter to the mayor of the city.



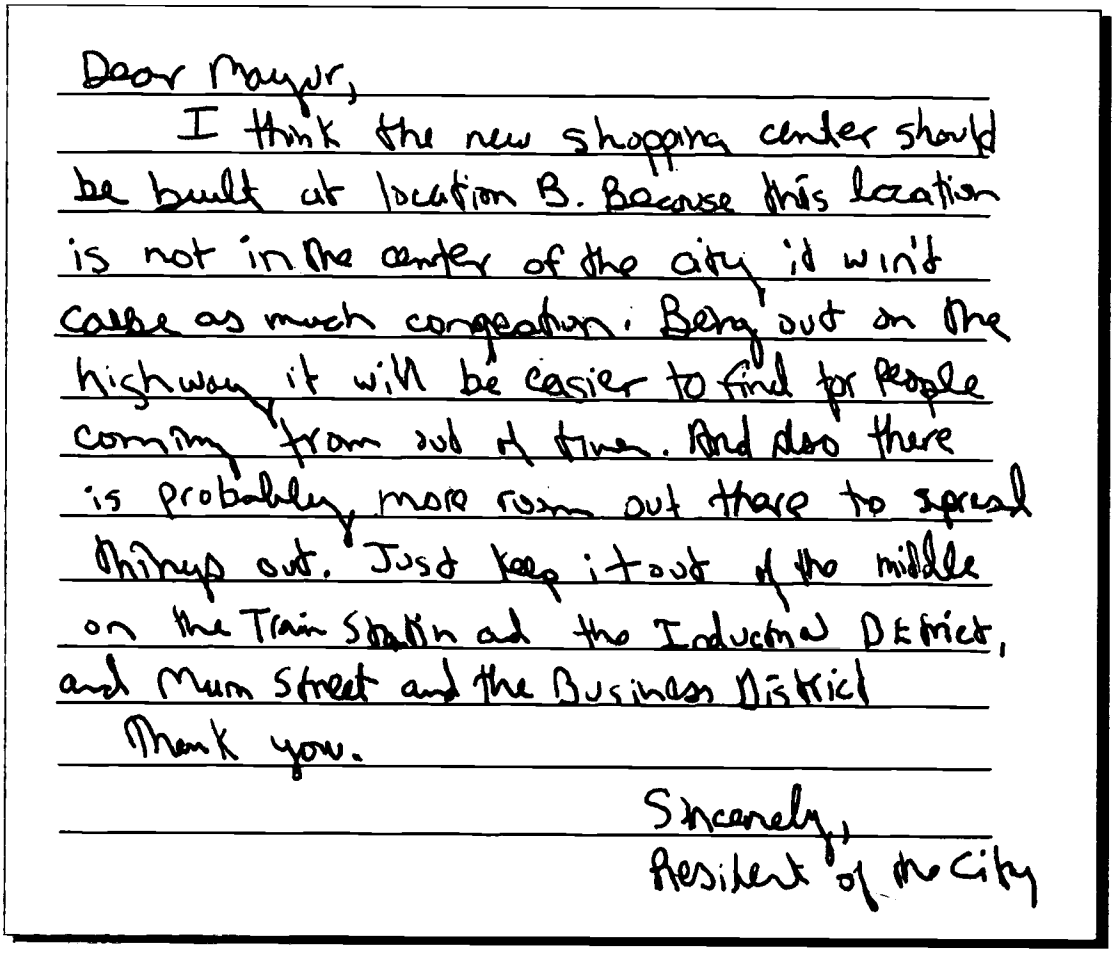
9. Maddieville is building a new shopping center. There is a disagreement in the city council over whether to build the shopping center at site A or at site B on the map on page 10.

As a resident of the city who would like to shop at the new shopping center, write a letter to the mayor in support of either site A or site B. Give three reasons why the site you support is better than the other site.

This is an extended constructed-response question. A response was scored as "Complete" if a student selected a site and provided three appropriate reasons to support this selection. Possible reasons for site A included the fact that it was located near public transportation and near the central business district; it would keep the downtown area vital; it was a site that was familiar to potential customers; and the central location maximized accessibility. Possible reasons for site B were that there was more room to build in that area; land was probably less expensive; parking would be easier for

customers; it was near an interstate that could possibly bring in more customers; it would diffuse congestion in the city; and it could lead to other land development around the mall — for example, a park for recreational purposes. An "Essential" response chose a site and provided two credible reasons for the choice. A "Partial" response chose a site and supported the site with one reason. An "Inappropriate" response may or may not have selected a site, but it did not offer any plausible support for the location. Although students were asked to write a letter they were given credit regardless of whether they responded with a letter format. Examples of student letters to the mayor are presented below.

Sample "Complete" Response



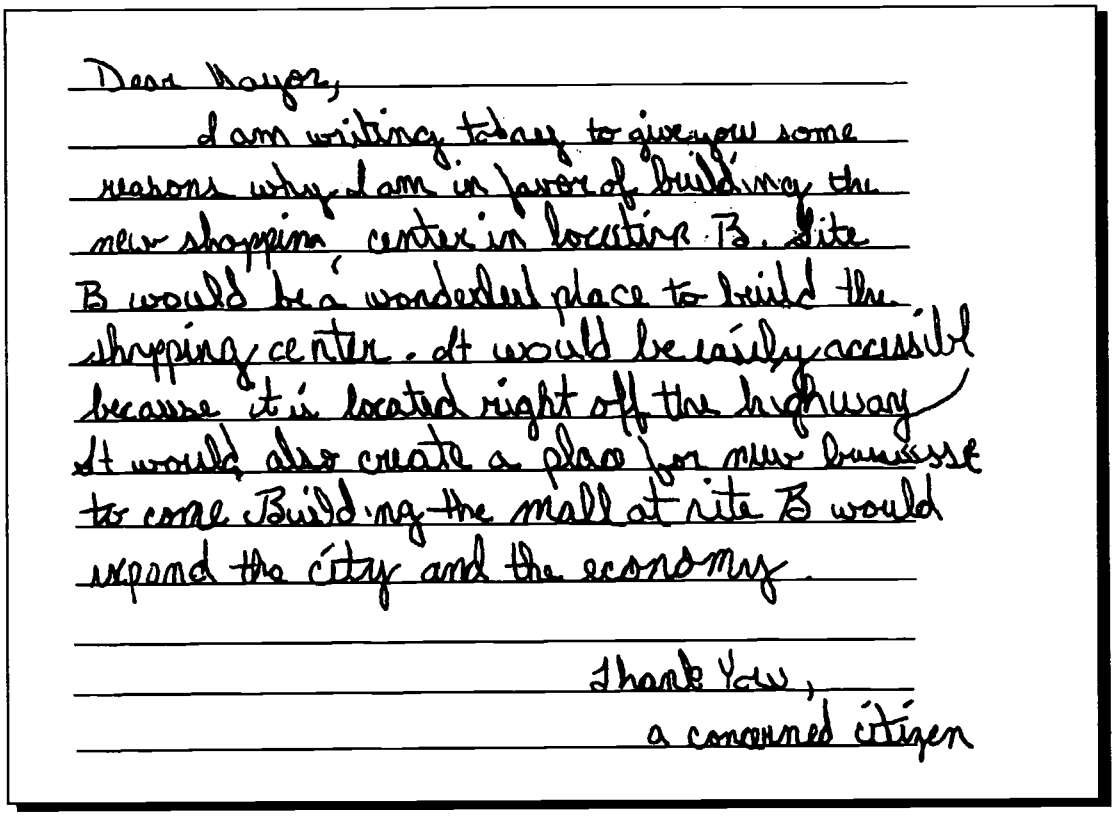
Dear Mayor,

I think the new shopping center should be built at location B. Because this location is not in the center of the city it won't cause as much congestion. Being out on the highway it will be easier to find for people coming from out of town. And also there is probably more room out there to spread things out. Just keep it out of the middle on the Train Station and the Industrial District, and Main Street and the Business District

Thank you.

Sincerely,
Resident of the City

Sample "Essential" Response



Dear Mayor,

I am writing today to give you some reasons why I am in favor of building the new shopping center in location B. Site B would be a wonderful place to build the shopping center. It would be easily accessible because it is located right off the highway. It would also create a place for new businesses to come. Building the mall at site B would expand the city and the economy.

Thank You,
a concerned citizen

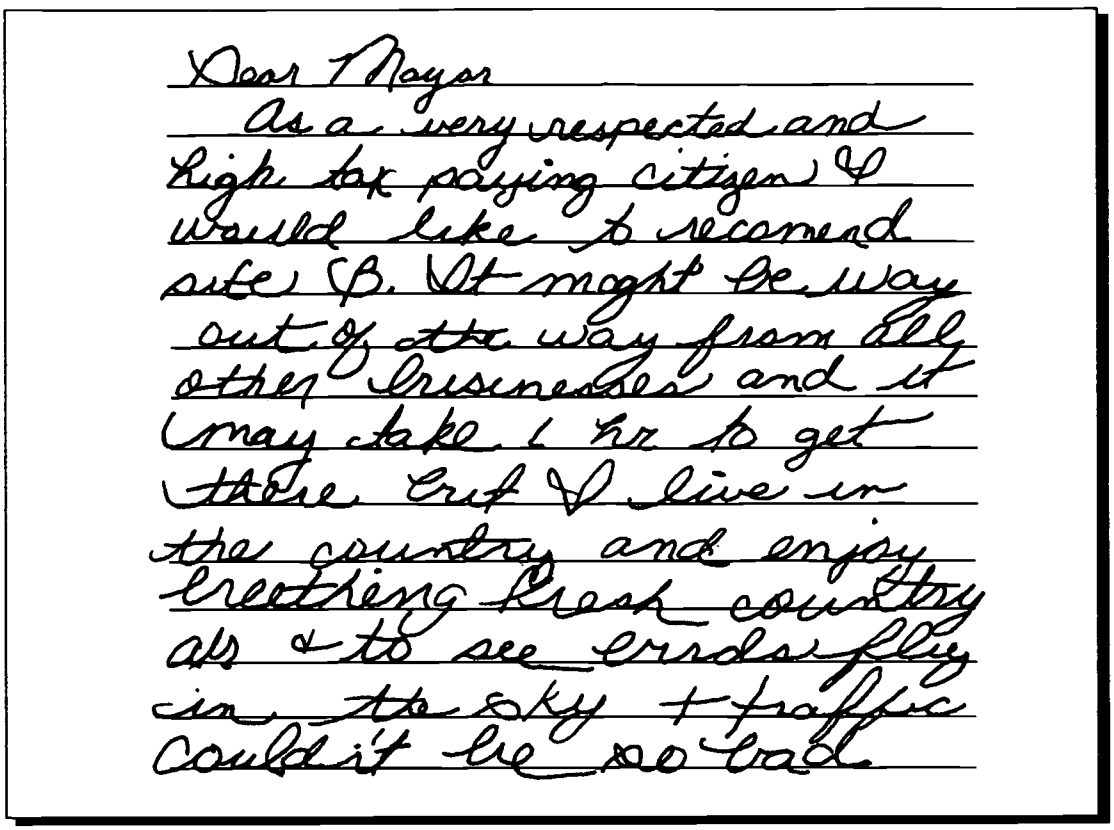
Sample "Partial" Response

Dear Sir;

I as a city resident, would not suggest the shopping center to be built at site B. It is in the middle of nowhere and there are High-ways running through the area. Site A is located in the city, where we can easily use the Train & Bus as our transpottation to get to the mall. I feel that the mall would also lose more bussiness in the city.

Thank-you and I hope you'll consider my opinion in the matter

Sample "Inappropriate" Response



Dear Mayor
As a very respected and
high tax paying citizen I
would like to recomend
site (B. It might be way
out of the way from all
other businesses and it
may take 1 hr to get
there but I live in
the country and enjoy
breathing fresh country
air & to see birds flying
in the sky + traffic
could it be so bad.

Information on student performance is presented in Table 3.15. Fifteen percent of twelfth-grade students were able to provide three appropriate reasons for the site they selected. Another 40 percent were able to provide at least two appropriate reasons for their selection. Only 10 percent of students were not able to provide any appropriate reason in support of their site, while 7 percent omitted the question altogether. Although twelfth-grade male students outperformed females on map questions in general and also on the geography assessment as a whole, on this question a higher percentage of female students provided "Complete" or "Essential" responses than did their male counterparts.

Table 3.15 **Score Percentages for Map: Letter to Support Shopping Site**

THE NATION'S REPORT CARD naep

	Complete	Essential	Partial	Inappropriate	Omit
Grade 12	**15 (1.1)**	**40 (1.3)**	**29 (1.4)**	**10 (0.8)**	**7 (0.7)**
Male	12 (1.4)	36 (2.1)	32 (2.0)	10 (1.2)	9 (1.3)
Female	18 (1.7)	43 (1.5)	26 (1.6)	9 (1.0)	5 (0.7)
White	16 (1.4)	42 (1.7)	29 (1.9)	9 (1.0)	5 (0.8)
Black	9 (2.1)	30 (3.1)	33 (2.8)	18 (2.3)	11 (2.0)
Hispanic	13 (2.1)	35 (4.2)	25 (2.9)	9 (2.1)	19 (3.3)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 Geography Assessment.

Creating Maps

The geography assessment included several questions that asked students to demonstrate their ability to draw maps from textual descriptions. In order to correctly create maps, students needed to have knowledge about maps as well as specific geographic knowledge. Students were asked to create a variety of maps. For example, in one of the questions in the eighth-grade assessment, students were asked to create a weather map from a description of weather conditions in different areas of South America. In another question, students were provided with a description of a town, information about the main street, and the locations of features such as a park and a school. They were then asked to draw a map of the town using an appropriate scale and providing a key to the symbols used.

Sample Geography Question
Grade 4 — Draw Island Map

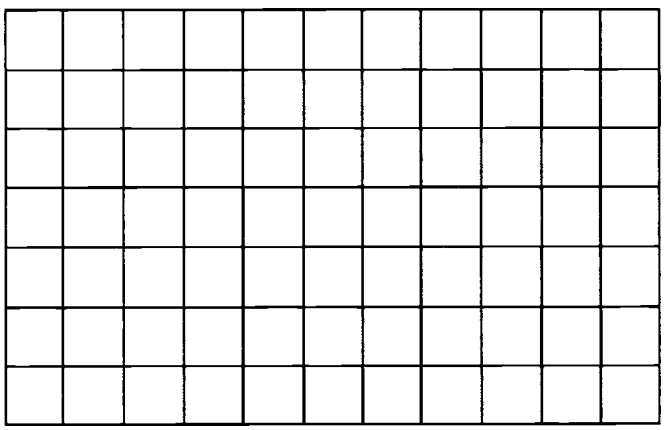
In the following question, students were asked to create a map from a written description. The description was straightforward. To answer the question correctly, however, students needed to know that an island is land wholly surrounded by water, and they needed to be able to use symbols and compass directions to accurately locate specific features on the island.

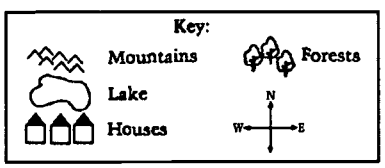
12. 1) In the box below, draw a map of an island.

2) On the island, put in the following details:
- Mountains along the west coast
- A lake in the north
- Houses along the east coast
- Forests in the south

Be sure to use the symbols shown in the key below.

Use your colored pencils to help you draw the map.

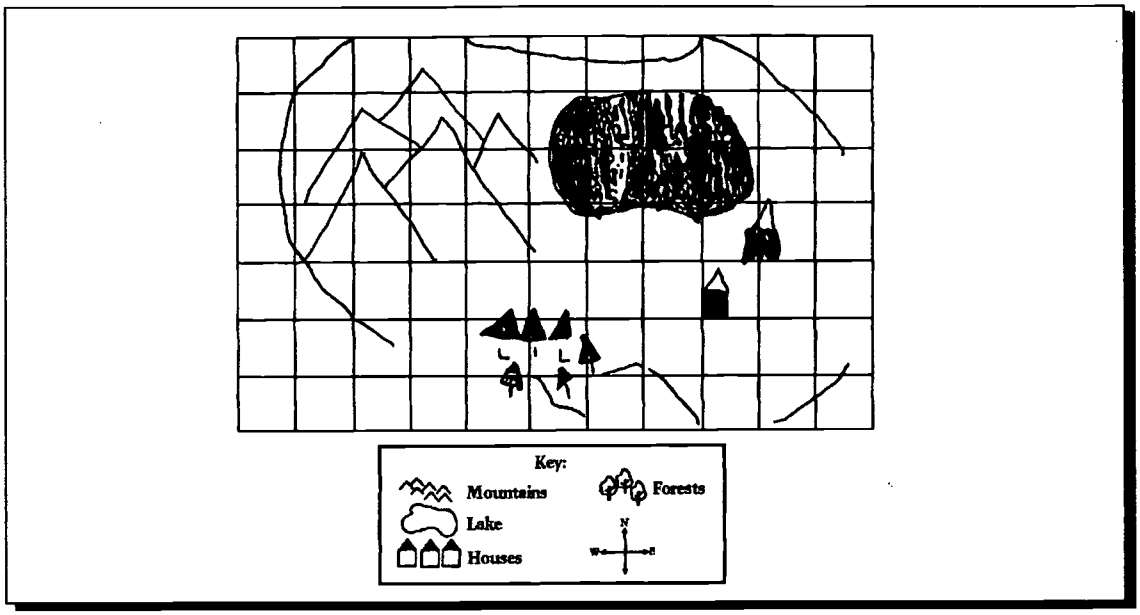




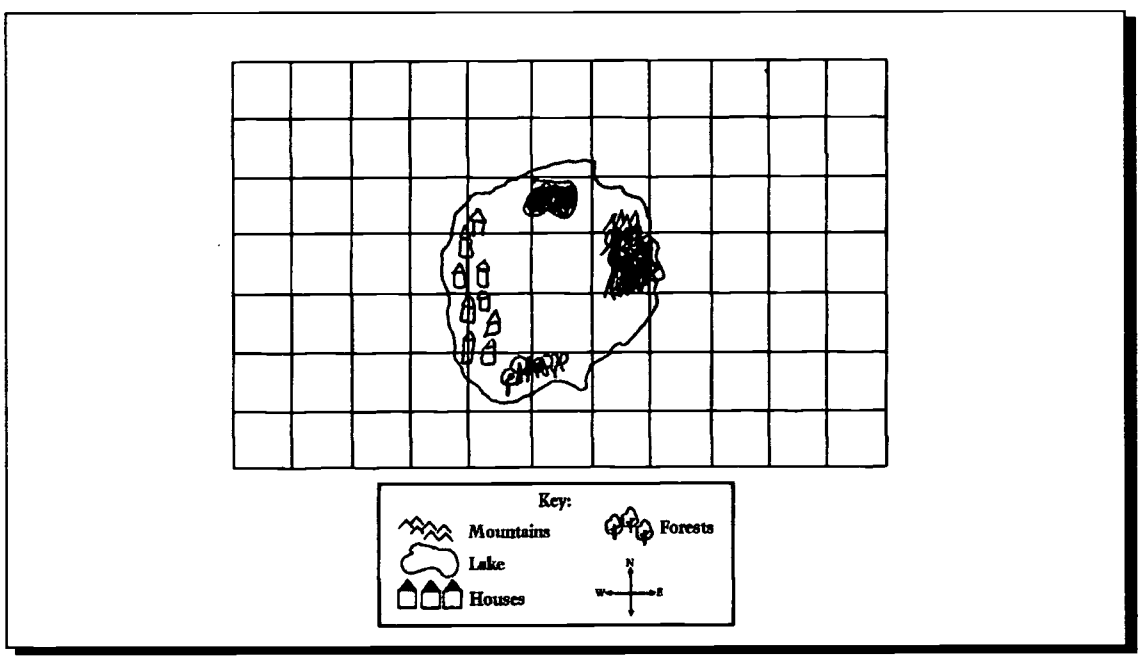
This was an extended constructed-response question. A response scored as "Complete" include all the elements described. These elements included the following: 1) the perimeter of the island enclosed by a continuous line; 2) mountains placed to the west (left) of an imaginary north-to-south line and as close to the western perimeter as possible; 3) a lake constructed to the north of (above) an imaginary east-to-west line; 4) houses drawn to the east (right) of the north-south line, as close to the eastern perimeter as possible; and 5) a forest drawn anywhere within the perimeter, south of (below) the imaginary east-to-west line.

An "Essential" response had three or four of the five elements mentioned above. Also, a response was scored as "Essential" if it correctly included the island and all of the features, but some of the features were not placed correctly. A "Partial" response had one or two of the elements mentioned above. An "Inappropriate" response did not include any of the elements mentioned. Examples of students' responses are presented below.

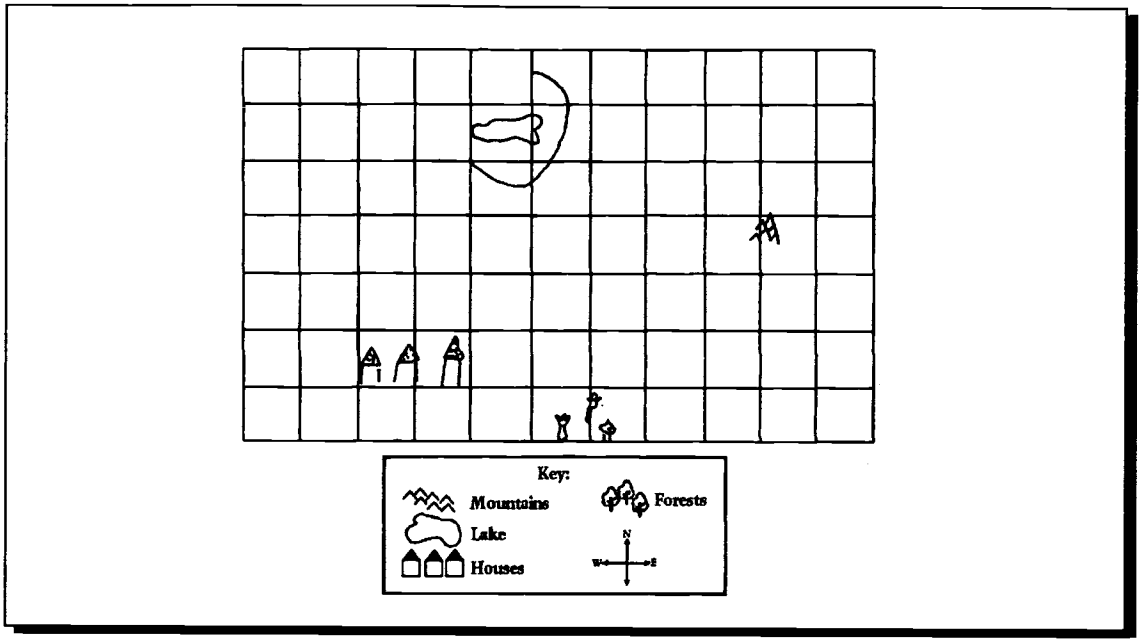
Sample "Complete" Response



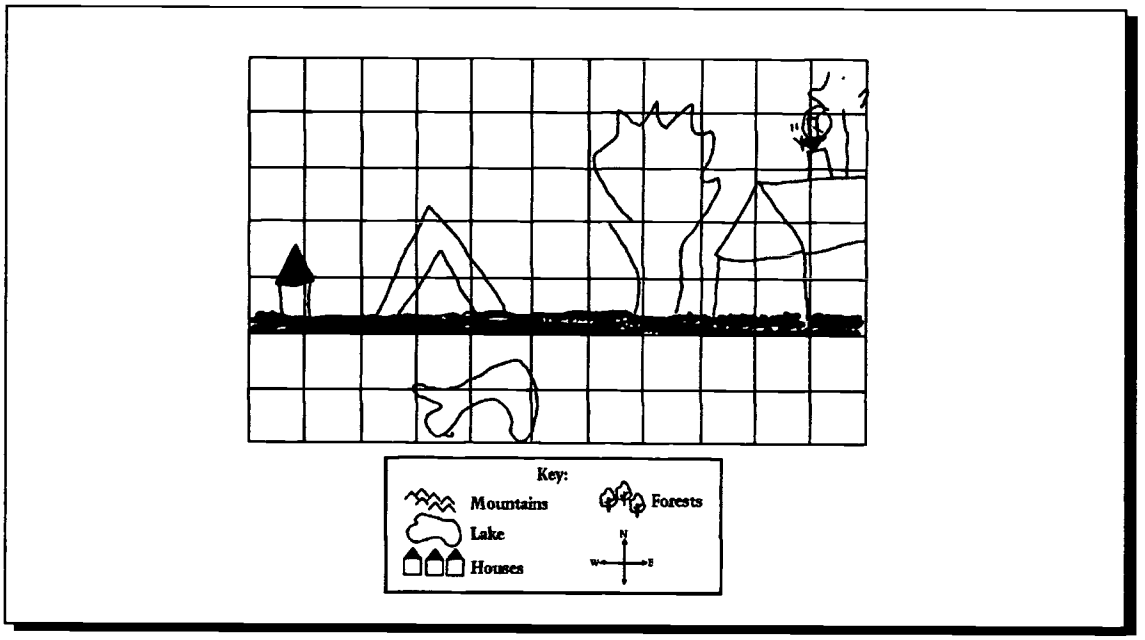
Sample "Essential" Response



Sample "Partial" Response



Sample "Inappropriate" Response



Student performance is presented in Table 3.16. Forty-four percent of fourth-grade students were able to draw an island and correctly place the mountains, lake, houses, and forest. Only a very small percentage omitted the question or drew a map that had no appropriately drawn elements. It thus appears that many fourth-grade students were able to read explicit descriptions of geographic features and translate them to maps.

Table 3.16 **Score Percentages for Draw Island Map**

THE NATION'S REPORT CARD

	Complete	Essential	Partial	Inappropriate	Omit
Grade 4	**44 (1.5)**	**26 (1.6)**	**18 (1.1)**	**6 (0.7)**	**6 (0.8)**
Male	44 (2.0)	25 (2.3)	17 (1.6)	6 (0.9)	8 (1.0)
Female	43 (2.1)	27 (1.8)	19 (1.7)	6 (0.8)	4 (0.7)
White	51 (2.1)	25 (2.0)	15 (1.4)	4 (0.7)	4 (0.7)
Black	17 (2.1)	28 (2.8)	27 (3.1)	14 (2.5)	15 (3.0)
Hispanic	33 (3.9)	26 (4.0)	24 (2.9)	9 (2.3)	8 (2.2)

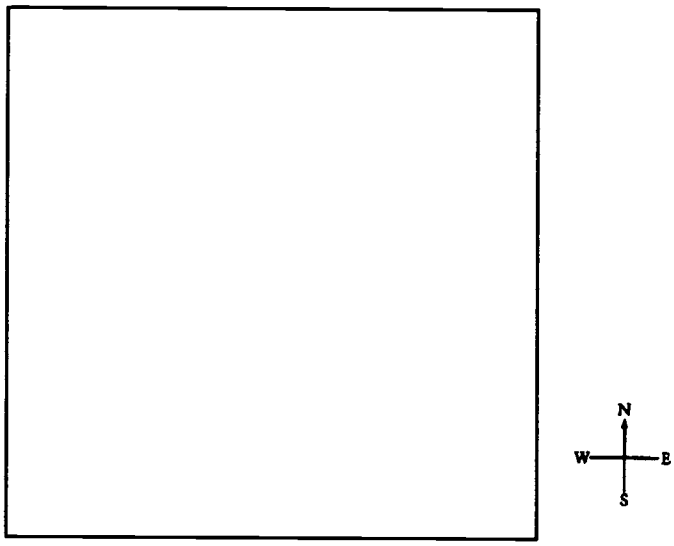
Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 Geography Assessment.

Sample Geography Question
Grades 8 and 12 — Draw Isthmus Map

The following question represents a similar, but more demanding, map drawing exercise that was given to both eighth and twelfth graders. Here, students had to extract the proper map-making directions from the prose account of a traveler rather than being explicitly told what elements to include and where to place them as in the previous example. In this question, students also were asked to include a scale to indicate distance. Students were not asked to provide a key, although a key was a requirement in other, similar questions. This question assessed students' ability to create simple maps, their understanding of compass directions, and their knowledge of the definition of an isthmus.

11. After we anchored our ships in the ocean and went ashore to explore, we marched west. The forest was so thick we could only travel three miles in the first two days. Then we came to the mountains and climbed to the top. A rushing river flowed west out of the mountains. We continued to march two miles west and came down out of the mountains. Two miles further we came to the coast. It was obvious that the area we were exploring was an isthmus.

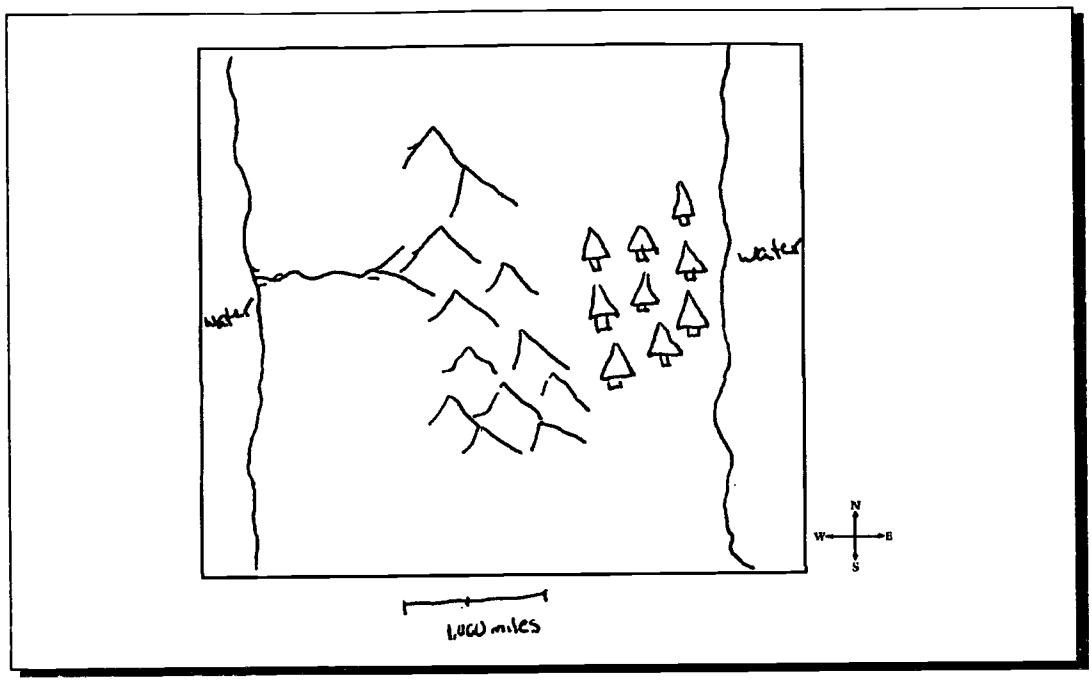
In the box below, draw a map of the region described above. Be sure to include all of the geographical elements mentioned in the description. Include a scale to indicate distances.



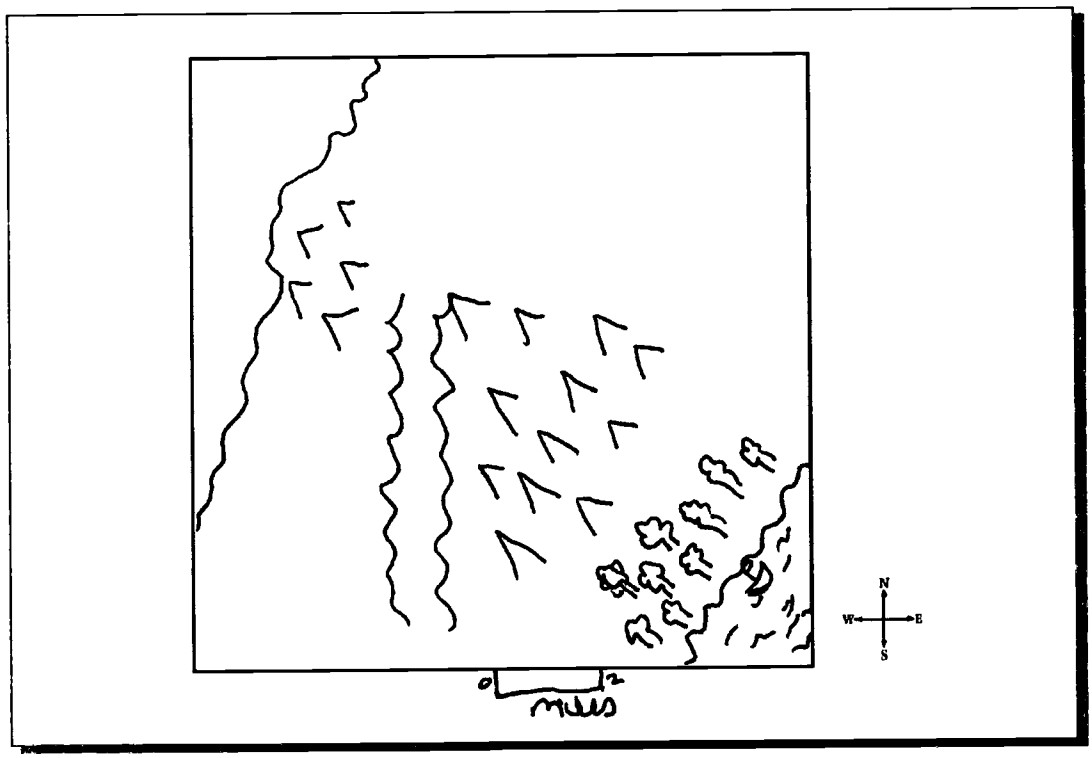
For this extended constructed-response question, "Complete" answers included a map that had four correctly placed features and showed some indication that the map was of an isthmus. Features that could be included were the east coast, the forest, the mountains, the river flowing west, and the west coast. The placement of the different features had to be in the right direction. Although the question asked for a scale, the use of a scale was not necessary to get a "Complete" score. Also, students could receive full credit if they chose to create a relief map.

An "Essential" response included a map with three features correctly placed. If the response showed an island or a peninsula rather than an isthmus, but included three correctly placed features, a response was still scored as "Essential." A "Partial" response included a map with at least two features correctly placed. An "Inappropriate" response did not include a map or showed none of the features correctly placed. Sample student responses are presented below.

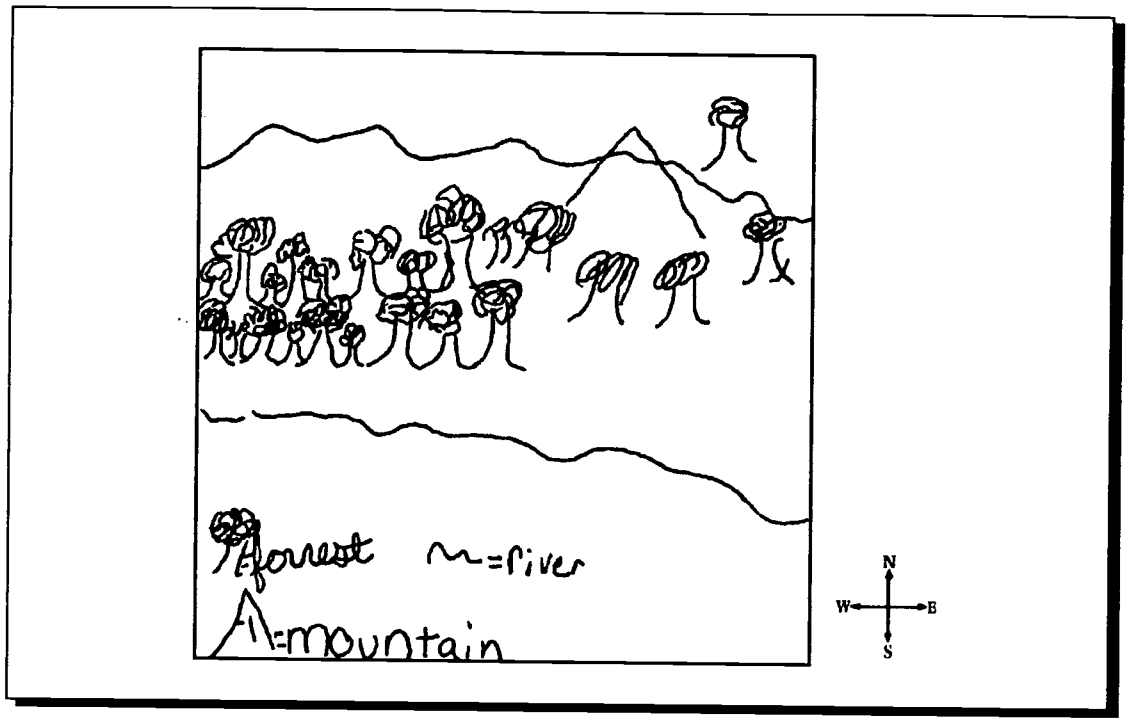
Sample "Complete" Response



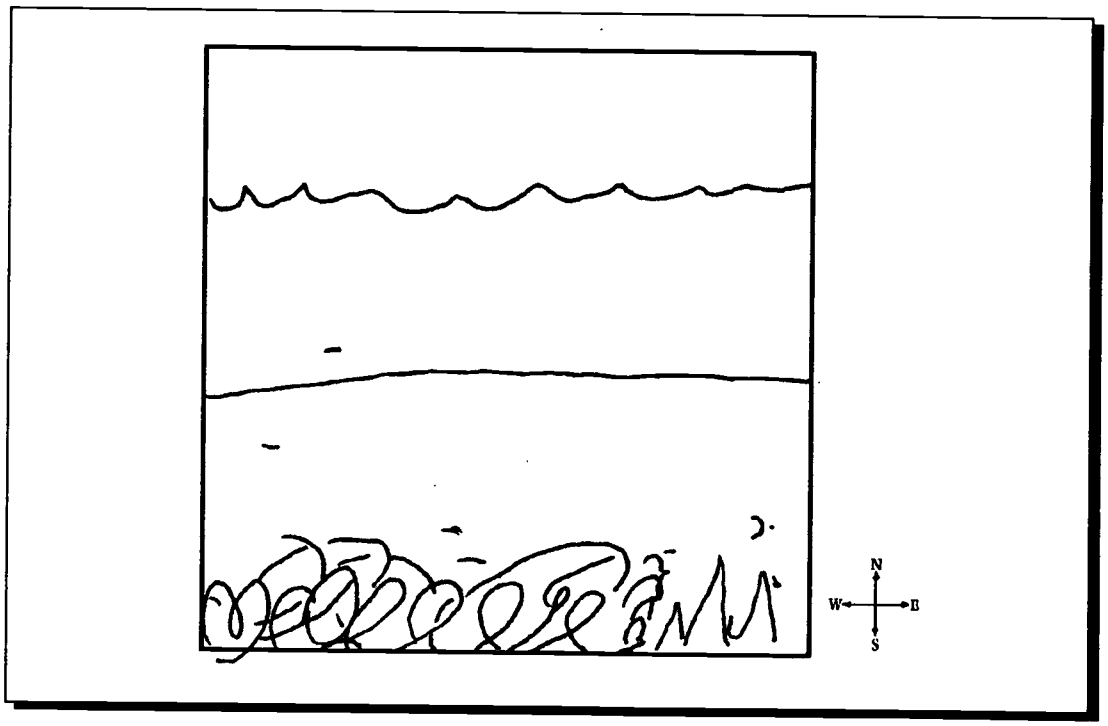
Sample "Essential" Response



Sample "Partial" Response



Sample "Inappropriate" Response



Student performance is presented in Table 3.17 by grade level. Although 15 percent of eighth graders were able to provide a response that was rated as "Complete," 20 percent of the students provided maps that had no correctly drawn features. It appears that 65 percent of eighth-grade students were at least able to understand and correctly draw some of the information provided in the narrative. A larger percentage of twelfth-grade students, 25 percent, were able to provide "Complete" responses, and only a tenth of the twelfth-grade students provided responses that had no correctly drawn features.

Table 3.17 **Score Percentages for Draw Isthmus Map**

THE NATION'S REPORT CARD naep

	Complete	Essential	Partial	Inappropriate	Omit
Grade 8	**15 (1.2)**	**27 (1.2)**	**23 (1.1)**	**20 (1.2)**	**16 (1.0)**
Male	16 (1.4)	28 (1.6)	23 (1.7)	18 (1.7)	16 (1.5)
Female	14 (1.6)	26 (1.8)	23 (1.5)	22 (1.9)	16 (1.5)
White	19 (1.7)	31 (1.5)	23 (1.7)	17 (1.6)	11 (1.2)
Black	3 (0.7)	11 (2.2)	22 (2.9)	29 (2.6)	35 (3.1)
Hispanic	11 (2.5)	18 (2.9)	23 (3.0)	26 (2.6)	23 (2.6)
Grade 12	**25 (1.2)**	**34 (1.4)**	**17 (1.0)**	**10 (0.9)**	**13 (1.0)**
Male	28 (1.9)	34 (1.7)	16 (1.3)	9 (1.4)	12 (1.2)
Female	23 (1.7)	35 (2.0)	18 (1.6)	11 (1.2)	14 (1.2)
White	29 (1.6)	38 (1.8)	16 (1.2)	8 (1.0)	9 (1.1)
Black	7 (1.3)	21 (2.4)	19 (2.6)	19 (2.9)	34 (3.8)
Hispanic	18 (3.5)	26 (3.3)	20 (3.5)	14 (2.4)	22 (2.4)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 Geography Assessment.

Summary

In the 1994 geography assessment, many students in all grades were able to locate places and physical features on maps. The difficulty of questions depended in large part on the level of outside knowledge students had to bring to bear on the question. That is, fewer students were able to answer questions correctly when they required factual knowledge of generally lesser known places or natural features.

Most students at all grade levels appeared to have some degree of map literacy. For example, the majority of fourth graders were able to locate the equator, the north pole, and the south pole; and almost half of eighth graders were able to identify parallels of latitude. However, it appears that there were still many students with low levels of map literacy. For example, many students were able to find the directions north, south, east, or west, but had greater difficulty with directions such as southeast or northeast. Similarly,

many students appeared to understand the concept of a scale, but fewer were adept at using one. Nevertheless, many students understood how to create and use a variety of map conventions. A substantial proportion of students were able to draw a partially correct map from a textual description, but the majority were not able to draw, or were not careful about drawing, the completely correct rendition.

Based on the questions that required students to apply map-based knowledge to explicate human events, it appears that eighth- and twelfth-grade students have been exposed to ideas about how natural geographic features and changes in people's environments impact people's lives and the decisions they make. Many students, however, found it difficult to clearly explain their understanding of these concepts in writing.

Chapter 4

Working with Charts, Graphs, and Tables

Charts, graphs, and tables are tools used to communicate information. When constructed accurately, these tools allow a great deal of data to be summarized succinctly and facilitate the understanding of trends and relationships. The ability to comprehend charts, graphs, and tables has become essential in today's world. These tools are not simply auxiliary aids; they are used to argue positions and to influence decision-making. For example, students regularly encounter charts, graphs, and tables in daily newspapers, on television programs, in school textbooks, and in many other resource materials. To be wise consumers of information presented in the media, and to be effective and ethical users of such tools, today's children must be able to interpret, use, and construct charts, graphs, and tables.

Both the 1994 NAEP geography and U.S. history frameworks emphasized the importance of using charts, graphs, and tables in assessment questions. Assessment developers were called on to craft tasks that measured students' abilities to read and interpret simple quantitative data and to place such data in appropriate contexts. Because achievement in history and geography also includes the ability to communicate one's understanding to others, the frameworks further suggested that students be asked to create charts, graphs, and timelines as part of the NAEP assessments.

Graphic Questions in the 1994 Geography and U.S. History Assessments

Both quantitative and qualitative data were presented in assessment questions involving graphs, tables and charts; however, quantitative data predominated. The emphasis in the assessments was on using such data in conjunction with other factual knowledge to explain matters of geographical and historical significance. More specifically, students were required to do the following:

- Extract information presented in charts, graphs, and tables.
- Identify and interpret trends and patterns represented by the data.
- Explain data in the charts, graphs, and tables by using outside knowledge of geography and history.
- Construct graphic representations of data presented.

The number of questions involving graphs, tables, or charts in the 1994 NAEP geography and U.S. history questions are shown in Table 4.1 below.

Table 4.1 **Number of Questions Involving Graphs, Charts, and Tables on the 1994 NAEP Assessments in Geography and U.S. History**

THE NATION'S REPORT CARD

	Geography	History
Grade 4	5	3
Grade 8	8	16
Grade 12	10	18

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 U.S. History Assessment.

Examples of 1994 NAEP Geography and U.S. History Questions Involving Graphs, Tables, or Charts

Students' performance on individual questions in this category suggests that the difficulty of a particular question was related to three main factors: 1) the students' ability to read and interpret the data in the charts, graphs, or tables; 2) the type and amount of outside content knowledge that students were expected to bring to bear in answering the question; and 3) what students were asked to do with the information in the charts, graphs, and tables — that is, the level of inference at which students were asked to perform. Other things being equal, students were more likely to answer correctly a question that asked them to pick out individual bits of information from a chart, graph, or table than one that asked them to identify a pattern or trend. Furthermore, students were more likely to answer correctly a question that asked them to identify a trend than they were a question that asked them to provide appropriate geographical or historical explanations for that trend.

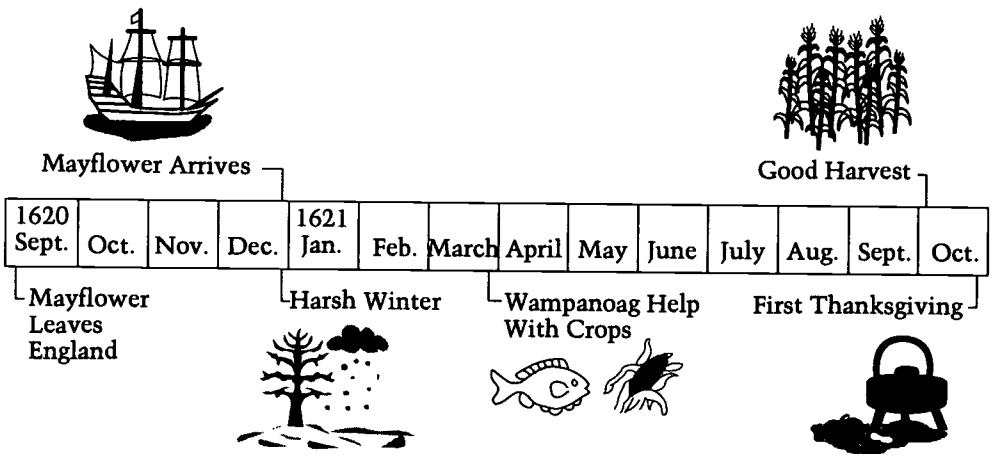
In the 1994 geography and U.S. history assessments, students were presented with a variety of graphic stimuli, including bar charts, line graphs, pie charts, timelines, text tables, and quantitative data tables. Examples of actual assessment questions are shown on the following pages. These examples illustrate how questions can ask students to demonstrate content knowledge as well as reading and interpretive skills. The questions are presented based on the dominant skill required to answer the question correctly—data extraction, trend identification, explanation of the information, or construction of graphic presentations. Also considered is the complexity of the outside content knowledge students were required to bring to the task.

Extracting Information

To correctly respond to the questions highlighted in this section, the dominant skill students needed was the ability to read the data presented in the stimuli. For some questions, all of the information required to answer correctly was contained within the stimulus. In other questions students were required to draw upon their own factual geographical or historical knowledge.

Sample U.S. History Question
Grade 4 — Timeline: Mayflower and Thanksgiving

The following question was about the Pilgrims' journey to and settlement in America. Students were asked to use the timeline to answer the question.



3. What can you tell from the time line?

- Ⓐ The Mayflower took more than one year to sail to Plymouth.
- Ⓑ The Mayflower arrived in Plymouth in 1621.
- ● The first Thanksgiving was not celebrated in the same month as it is today.
- Ⓓ The Pilgrims in Plymouth ate mostly fish.

In order to select the correct option, students had to be able to read and understand the timeline, which indicates that the First Thanksgiving was celebrated in October rather than November, as it is today. In order to eliminate the first two options, they needed to understand from the time line that the Mayflower was at sea for about four months and that it arrived in America before the beginning of 1621. Information on student performance for this question is presented in Table 4.2.

Table 4.2 **Percentage Correct for Timeline: Mayflower and Thanksgiving**

THE NATION'S REPORT CARD

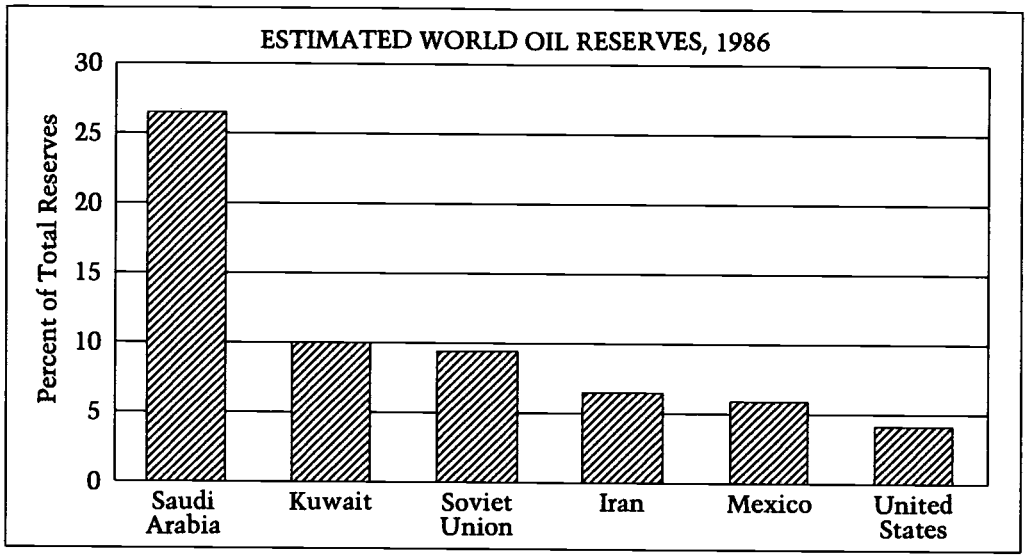
Grade 4	**32 (1.4)**
Male	29 (1.8)
Female	36 (1.9)
White	32 (1.7)
Black	35 (3.0)
Hispanic	27 (3.2)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 U.S. History Assessment.

A third of the fourth graders were able to answer this question accurately, showing that they were able to read the timeline, understand the negative phrasing of the correct response option, and relate it to their outside knowledge that Thanksgiving today is not celebrated in October. However, it appears that many fourth graders were not able to correctly extract the appropriate information from this timeline. Over a third of the students, 38 percent, selected option B, which erroneously states that the Mayflower arrived in 1621. Unlike their overall performance on the U.S. history assessment, female students performed better than male students, and there was no significant difference between racial/ethnic subgroups on this question.

Sample Geography Question
Grade 8 — Bar Graph: Where Are the Largest Oil Reserves?

In the following question, students were expected to read a bar graph and draw on outside factual knowledge to respond.



1. According to the graph above, the largest oil reserves in 1986 were in the

- Ⓐ Gulf of Mexico
- Ⓑ Caribbean region
- ● Persian Gulf region
- Ⓓ Gulf of Guinea

To answer this question correctly, students needed to read the graph to determine which country had the largest oil reserves in 1986, and to apply outside knowledge to properly place the countries in relation to the world regions shown in the answer options. Student performance is presented in Table 4.3.

Table 4.3 **Percentage Correct for Bar Graph: Where Are the Largest Oil Reserves?**

THE NATION'S REPORT CARD naep

Grade 8	**85 (1.0)**
Male	87 (1.3)
Female	82 (1.4)
White	89 (1.3)
Black	76 (1.7)
Hispanic	72 (2.7)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 Geography Assessment.

This question was quite easy for students in grade 8. A large majority of eighth graders appeared able to read a bar graph with categories, in this case countries along the x-axis and percentages along the y-axis. These students also appeared to know that Saudi Arabia is in the Persian Gulf region. The relatively recent focus on that region because of the Persian Gulf War may have helped students recall this geographic fact.

The difficulty of the question was also influenced by the fact that 1986 oil reserves in Saudi Arabia so far outstripped those of any other country. Had the distinctions among countries been less extreme, the students might have had to add together the reserves of the three Gulf region countries in order to verify their answer. The latter task would have made greater demands on their graph reading and quantitative skills.

Sample Geography Question
Grade 12 — Quantitative Table: Population of State X

The following question was part of a set of questions that presented students with two tables of information regarding the population of a hypothetical state. Here we have another example of a question which asks students to extract information from a tabular display.

Questions 7-8 are based on the following tables.

POPULATION OF STATE X

Year	Total Population	Urban	Rural
1850	92,600	7%	93%
1860	378,000	21%	79%
1870	560,200	37%	63%
1880	864,700	42%	58%
1890	1,213,400	49%	51%
1990	1,485,100	52%	48%
1910	2,377,500	62%	38%
1920	3,426,900	68%	32%
1930	5,677,300	73%	27%
1940	6,907,400	71%	29%
1950	10,586,200	81%	19%
1960	15,717,200	86%	14%
1970	19,953,100	91%	9%
1980	23,668,600	91%	9%

PEOPLE WHO MOVED TO STATE X

Years	Number of People Moving into State
1870 - 1880	129,600
1880 - 1890	214,200
1890 - 1900	172,700
1900 - 1910	694,100
1910 - 1920	804,100
1920 - 1930	1,695,200
1930 - 1940	974,600
1940 - 1950	2,399,100
1950 - 1960	2,780,100
1960 - 1970	1,528,000
1970 - 1980	1,462,000

7. During which ten-year period did the percentage of people living in urban areas increase the most?

● 1860-1870
Ⓑ 1890-1900
Ⓒ 1930-1940
Ⓓ 1960-1970

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For this question, all of the data needed to answer the question are included in the first table. The information in the second table is not relevant because it does not separately distinguish the urban population. Having identified the correct data source, students also needed to perform simple mathematics in order to correctly select option A. Specifically, students needed to: 1) recognize that the requisite data were included in columns one and three of the first table; 2) know that for each ten-year period being considered, they needed to subtract the urban percentage of the previous decade from the percentage of the later decade; 3) do the subtraction of whole numbers; and 4) compare differences and select the decade with the largest positive difference. Student performance for this question is presented in Table 4.4.

Table 4.4 **Percentage Correct for Quantitative Table: Population of State X**

THE NATION'S REPORT CARD

Grade 12	**65 (1.3)**
Male	66 (2.0)
Female	65 (1.8)
White	68 (1.6)
Black	53 (3.0)
Hispanic	49 (3.0)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 Geography Assessment.

Nearly two-thirds of the students correctly identified 1860-1870 as the decade during which the population of urban areas increased the most. This performance appears to indicate that a majority of twelfth graders were able to read quantitative information from a table and do simple mathematical operations. The pattern of incorrect answers may provide some insight into why the percentage correct was not higher. Option D was the most popular incorrect option, with 27 percent of all students selecting it. Thus, students might have understood the concept of increasing population but erroneously focused on the "Total Population" column rather than the "Urban" column.

Identifying Patterns and Trends

Both the geography and U.S. history assessments from tables, charts, and graphs included questions that required students to go beyond simply extracting information to identify trends or patterns represented by the data and relate them to outside geographical or historical information or concepts.

Sample Geography Question
Grade 4 — Text Table: What Analysis of Export Chart Shows

The following question was based on a text table of the major exports of three countries. This question asked students to read the table and draw on outside knowledge to respond.

MAJOR EXPORTS OF THREE COUNTRIES		
Country A	Country B	Country C
Oil Natural Gas Coconuts	Cars Televisions Cameras	Computers Airplanes Wheat

6. The situation shown in the chart will probably lead to

- ● trade among all three countries
- Ⓑ trade only between countries A and B
- Ⓒ trade only between countries B and C
- Ⓓ a decision by each country to produce all nine goods listed

In order to answer the question correctly, students needed to read the table and determine that none of the countries had any major exports in common and that at least one of each country's exports would likely be desired by the other two countries. They also had to understand the concepts of exporting and importing. Student performance information is presented in Table 4.5.

Table 4.5 **Percentage Correct for Text Table: What Analysis of Export Chart Shows**

THE NATION'S REPORT CARD naep

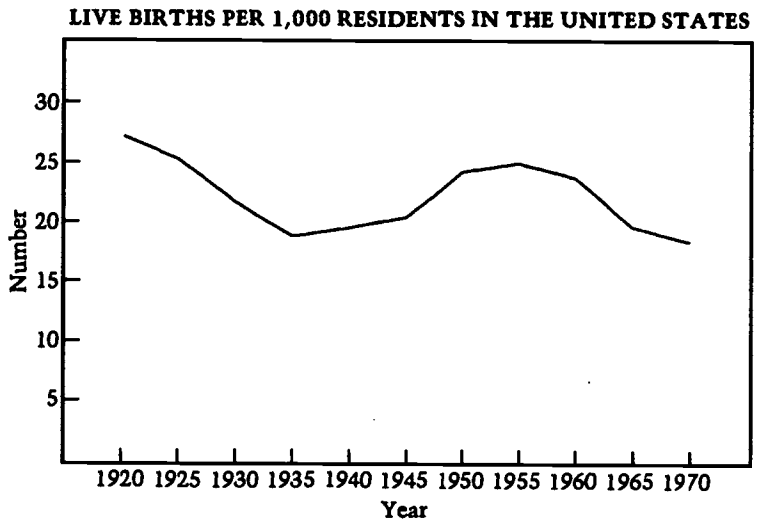
Grade 4	**37 (1.6)**
Male	39 (2.1)
Female	34 (2.2)
White	41 (2.3)
Black	23 (2.5)
Hispanic	26 (3.6)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 Geography Assessment.

A little over one-third of the students answered this question correctly. However, nearly as many students, 36 percent, incorrectly selected option D for their answer. It appears that many students were able to read this text table and determine that none of the countries export the same products; on the other hand, a substantial number apparently did not understand the trade implications of this information.

Sample U.S. History Question
Grade 12 — Line Graph: Live Births in the United States

The following question provided students with a line graph showing the rate of live births in the United States over time. Students were required to read the graph, identify trends in births over time, and recall information about dates of major historical events in the twentieth century in order to identify the correct option.



12. The graph above supports which statement about the birthrate in the United States?

Ⓐ It declined steadily from 1920 to 1950.

Ⓑ It increased rapidly during the Great Depression.

● It increased after the Second World War.

Ⓓ It tended to increase after each war.

In order to answer this question correctly, students needed to read the line graph and have knowledge of the dates of the Great Depression, the year the Second World War ended, and the dates of other significant wars in which the U.S. was involved during the twentieth century. Only option A can be discarded based solely on information provided on the graph, because that option is couched in terms of the decades labeled on the horizontal axis. Student performance on this question is presented in Table 4.6.

Table 4.6	Percentage Correct for Line Graph: Live Births in the United States	THE NATION'S REPORT CARD

Grade 12	**49 (1.5)**
Male	52 (2.1)
Female	46 (1.9)
White	53 (1.8)
Black	31 (2.8)
Hispanic	29 (3.8)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 U.S. History Assessment.

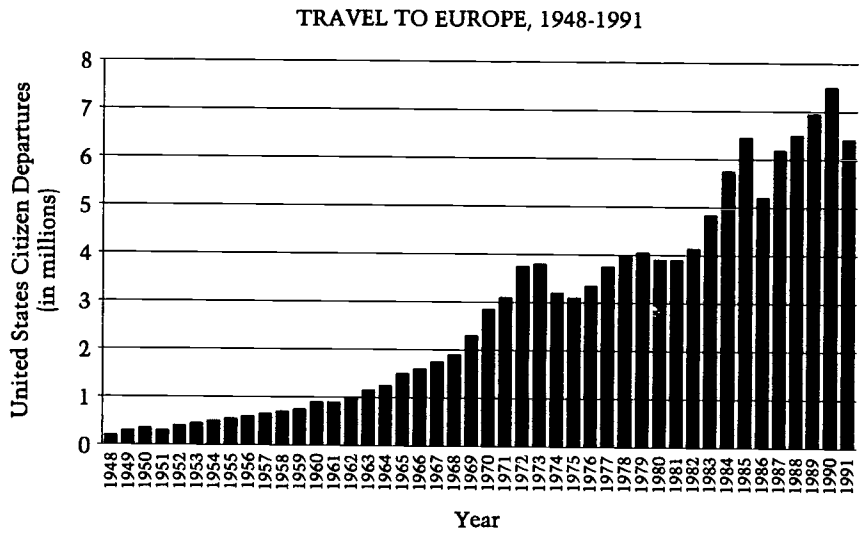
Nearly half of the twelfth-grade students correctly chose option C. It appears that twelfth-grade students were able to read a line graph that plots birthrate by year and also knew, at least approximately, the year the Second World War ended. A substantial proportion of the students (29 percent) chose option D. While we cannot be sure of the reasons for this choice, it seems likely that this option would have been attractive for students who were not clear on the dates associated with the Korean War or the First World War.

Explaining Graphic Data

In addition to extracting information and identifying trends or patterns, students also were presented with questions that asked them to interpret or explain the information or trends they observed in a graph. Students were expected to apply outside historical or geographical knowledge in their explanations.

Sample Geography Question
Grades 8 and 12 — Bar Graph: U.S. Travel to Europe

The following question concerns travel of U.S. citizens to Europe between 1948 and 1991.



9. What is the dominant trend shown in the graph?

Give two major reasons for the trend shown.

This two-part short constructed-response question required students to read the bar graph, which plots number of citizens traveling by year; identify the dominant trend in travel from 1948 to 1991; and explain reasons for the trend using their outside knowledge. The expectations for a "Complete" answer included the correct identification of the major trend (travel to Europe increased over time) and two appropriate reasons for the trend. Acceptable reasons included improvements in travel, such as air travel being more affordable, faster, and safer; increases in tourism because of more leisure time and more consumer affluence; and internationalization of the economy leading to more business and political travel. A "Partial" response identified the increasing trend but gave

no reasons for the trend or provided one reason only. Partial credit also was given to responses that provided two appropriate reasons, but failed to explicitly identify the trend as instructed. An "Inappropriate" response did not correctly and explicitly identify the major trend, although, in some instances, it may have included one appropriate reason for the trend. Sample student responses in each of these three score categories are presented below:

Sample "Complete" Response

9. What is the dominant trend shown in the graph?

The dominant trend shown in the graph is that the United States citizen departures are rising to go to Europe

Give two major reasons for the trend shown.

One major reason is that a lot of trade happens over there in Europe. Another reason is that people know have the money too fly over like to Europe for vacation

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Sample "Partial" Response

9. What is the dominant trend shown in the graph?

The dominant trend shown in the graph is the number of United States citizens going to Europe has increased from 1948 to 1991.

Give two major reasons for the trend shown.

Two major reasons for the trend shown are that more people wants to explore Europe and very few people explored Europe in 1948.

Sample "Inappropriate" Response

9. What is the dominant trend shown in the graph?

It shows how many United States Citizens travel to Europe each year since 1948

Give two major reasons for the trend shown.

Population and transportation

Information on student performance on this question is presented in Table 4.7 for both grades 8 and 12. This question appears to have been quite difficult for students in the eighth grade. Seventeen percent of students chose not to respond to this question at all. More than half provided a response that was scored as "Inappropriate." These eighth-grade students were not able to look at the graph and articulate the fact that the dominant trend was one of increasing travel, let alone provide reasonable explanations for this trend. Fewer than a tenth of the students were able to provide a complete response by correctly characterizing the trend and providing two appropriate reasons.

Twelfth graders performed better on this question than eighth graders. One quarter provided "Complete" responses. On the other hand, a little over a third still gave "Inappropriate" responses, while an additional 7 percent failed to respond at all.

Table 4.7 **Score Percentages for Bar Graph: U.S. Travel to Europe**

THE NATION'S REPORT CARD naep

	Complete	Partial	Inappropriate	Omit
Grade 8	**9 (0.8)**	**22 (1.1)**	**54 (1.5)**	**17 (1.2)**
Male	7 (0.8)	21 (1.7)	55 (1.8)	17 (1.5)
Female	10 (1.4)	22 (1.6)	52 (2.1)	16 (1.6)
White	11 (1.1)	26 (1.7)	50 (1.8)	13 (1.3)
Black	0 (0.4)	11 (1.9)	61 (3.0)	28 (2.6)
Hispanic	3 (1.1)	13 (2.6)	60 (3.4)	24 (2.9)
Grade 12	**26 (1.5)**	**33 (1.5)**	**35 (1.4)**	**7 (0.7)**
Male	25 (1.8)	32 (1.9)	36 (1.7)	7 (1.0)
Female	27 (2.0)	33 (1.9)	33 (2.1)	7 (0.8)
White	30 (1.9)	35 (1.9)	31 (1.8)	4 (0.7)
Black	6 (1.8)	24 (2.5)	55 (3.3)	15 (2.5)
Hispanic	19 (2.7)	24 (2.8)	44 (3.4)	14 (3.1)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 Geography Assessment.

Sample U.S. History Question
Grade 12 — Table: Farm Sizes

Like the preceding question, students were asked in this question to understand the data presented and provide an explanation for any trends or patterns observed. In this question, students were presented with a table containing quantitative data, which they were asked to understand and explain using outside historical information.

AVERAGE FARM SIZE AND TOTAL NUMBER OF FARMS		
Year	Farm Size	Number of Farms
1900	150 acres	6,250,000
1980	425 acres	2,225,000

7. Summarize the changes shown in the table above.

Explain how one invention or development helped cause the changes you have described.

To answer this short constructed-response question correctly, students needed to be able to read the table, recognize that between 1900 and 1980 the average farm size increased while the total number of farms decreased, and provide one reason for the trends in farm size and number of farms. A "Complete" response included a summary that indicated that there were fewer and larger farms in 1980 and clearly explained this change as a result of an historically accurate development. There were numerous acceptable inventions or developments that students could mention in explaining the change. These included: fertilizers that allowed individuals to farm more acres; machinery such as combines, which allowed people to farm large areas; declining prices for farm products, which drove people away from farming; the rise of agribusiness, which made small farming uncompetitive; natural disasters such as droughts and pestilence (e.g., boll weevils) which drove people off the land; high cost of machines and gasoline, which made small farms economically uncompetitive; rising land prices, which led small farmers to sell to developers; and an increase in factory jobs that drew off marginal farmers.

A "Partial" response accurately summarized the data in the table but did not explain how an invention or development caused the changes. Responses were also scored as "Partial" if they did not explicitly summarize the change, but explained it as arising from the effects of an appropriate invention or development. An "Inappropriate" response did not correctly summarize the data, nor did it identify an invention or development that affected the change. Examples of student responses are presented below.

Sample "Complete" Response

7. Summarize the changes shown in the table above.

Between the years 1900 & 1980, the size of farms increased, while the number of them decreased.

Explain how one invention or development helped cause the changes you have described.

One major development was the tractor. This enabled the farmers to get a lot more work done a lot quicker. They could have bigger farms & get the work finished with the tractor as fast as having a small farm and working with but one.

Sample "Partial" Response

7. Summarize the changes shown in the table above.

Farm size went up. Farms went down.

Explain how one invention or development helped cause the changes you have described.

People bought farms and added them together.

Sample "Inappropriate" Response

7. Summarize the changes shown in the table above.

Their were a big change between the Year as of 1900 ! sped up to 1980 and also a big change in the farm size + Number of Farms.

Explain how one invention or development helped cause the changes you have described.

By the year 1900 thier were red money people interested in farming but by the 1980 more people got interested in it even both colors black + white.

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Student performance is presented in Table 4.8. About 30 percent of students were able to provide responses that were scored as "Complete." They were able to correctly summarize the data and provide an explanation for the changes in terms of an invention or a development. Almost three quarters of twelfth graders received a "Complete" or "Partial" score, indicating that they were able at least to summarize the data in the table.

Table 4.8 **Score Percentages for Table: Farm Sizes**

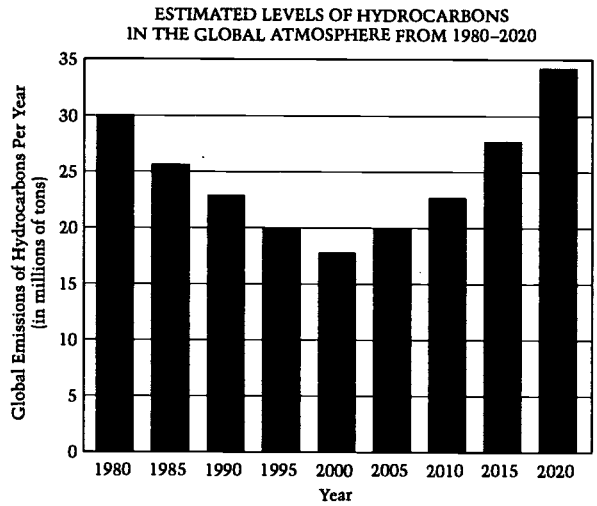
THE NATION'S REPORT CARD naep

	Complete	Partial	Inappropriate	Omit
Grade 12	**29 (1.5)**	**45 (1.6)**	**22 (1.1)**	**4 (0.6)**
Male	31 (1.8)	44 (2.2)	21 (1.4)	5 (1.0)
Female	28 (1.9)	46 (2.0)	23 (1.6)	4 (0.6)
White	32 (1.8)	44 (1.9)	21 (1.3)	3 (0.6)
Black	15 (2.7)	52 (3.4)	26 (3.7)	7 (1.7)
Hispanic	15 (3.2)	45 (4.8)	32 (4.2)	8 (1.7)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 U.S. History Assessment.

Sample Geography Question
Grade 12 — Bar Graphs: Levels of Hydrocarbons

In this question, students were presented with a bar graph of predicted levels of hydrocarbons by year, and were asked to observe a trend and provide two possible explanations for it.



17. The graph shows a prediction made in 1970 of levels of hydrocarbons in the atmosphere. Describe the pattern indicated by the graph.

Explain two factors that could account for the pattern shown.

To correctly answer this extended constructed-response question, students needed to be able to read the graph, identify the decreasing-then-increasing trend, and apply outside knowledge about hydrocarbons and societal behaviors that are related to hydrocarbon levels. In order to receive a "Complete" score, students needed to identify the pattern shown in the graph and provide two appropriate factors that could account for the trend, one linked to a decrease in hydrocarbon emissions and one to an increase. To receive complete credit, the factors had to be explicitly linked to the decrease or the increase. Appropriate reasons for a *decrease* could include environmental regulations, cleaner auto emissions, increased use of public transportation, a slow-down in the economy, and a reduction in the combustion of fossil fuels. Acceptable reasons for an *increase* in hydrocarbons could include increased automobile use, industrialization of less developed countries, increased use of fossil fuels, an increase in the population, and an increase in the decomposition of garbage in landfills.

An "Essential" response identified the correct trends in hydrocarbon levels and provided one factor linked either to a decrease or an increase in hydrocarbons. A "Partial" response identified the trend but provided no appropriate factors; did not identify the correct trend but provided one factor linked correctly to decreasing or increasing levels of hydrocarbons; or provided one or two appropriate factors but did not directly link them to decreasing or increasing trends. An "Inappropriate" response did not identify the correct trend, nor did it provide any appropriate factors. Examples of student responses are provided below.

Sample "Complete" Response

17. The graph shows a prediction made in 1970 of levels of hydrocarbons in the atmosphere. Describe the pattern indicated by the graph.

There will be a decrease until the year 2000, However, this decrease will be mirrored in an increase of almost the same proportion.

Explain two factors that could account for the pattern shown.

The environmental factor will bring a decrease. However, this will bring about a drop is living standards is the pressure will call for renewed energy consumption, and thus more hydrocarbons in the atmosphere.

Sample "Essential" Response

17. The graph shows a prediction made in 1970 of levels of hydrocarbons in the atmosphere. Describe the pattern indicated by the graph.

The production shown by the graph would have one believe that from 1980–2000 hydro-Carbon amissions would decrease, but from 2000–2020 it would steadily increase beyond the original amissions, (1980)

Explain two factors that could account for the pattern shown.

People could use environmentally safe machinery for a period but then slowly their efforts would deteriorate.

Sample "Partial" Response

17. The graph shows a prediction made in 1970 of levels of hydrocarbons in the atmosphere. Describe the pattern indicated by the graph.

That it started off high and slowly decreased and rose again

Explain two factors that could account for the pattern shown.

That production isn't always high.

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Sample "Inappropriate" Response

17. The graph shows a prediction made in 1970 of levels of hydrocarbons in the atmosphere. Describe the pattern indicated by the graph.

The hydrocarbons will go up as time goes on

Explain two factors that could account for the pattern shown.

More pollution getting in the air

Student performance on this question is presented in Table 4.9. Sixty-five percent of twelfth graders received a score of at least "Partial," indicating that they could identify the decreasing-then-increasing trend in the levels of hydrocarbons. However, only a very small percentage of students could provide one or two factors that could account for the pattern shown in the graph. With regard to their presentation of explanatory factors, many students appeared to understand that hydrocarbons had to do with air pollution, but they were not able to craft reasonable causal explanations for why these levels would rise or fall during the next half century.

Table 4.9 **Score Percentages for Bar Graph: Levels of Hydrocarbons**

THE NATION'S REPORT CARD

	Complete	Essential	Partial	Inappropriate	Omit
Grade 12	**1 (0.3)**	**8 (0.9)**	**56 (1.4)**	**27 (1.6)**	**8 (0.9)**
Male	2 (0.4)	10 (1.4)	51 (2.5)	29 (2.4)	9 (1.3)
Female	1 (0.3)	7 (0.9)	61 (1.8)	24 (1.9)	7 (0.9)
White	2 (0.3)	10 (1.1)	59 (1.8)	24 (1.9)	6 (0.8)
Black	0 (0.0)	3 (1.1)	44 (3.2)	39 (3.5)	14 (2.6)
Hispanic	0 (0.0)	3 (1.1)	45 (4.1)	34 (4.1)	18 (4.2)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 Geography Assessment.

Constructing Charts

It is important for students not only to be able to read from already constructed graphs and tables, but to also understand how to take data and present them in various graphical formats.

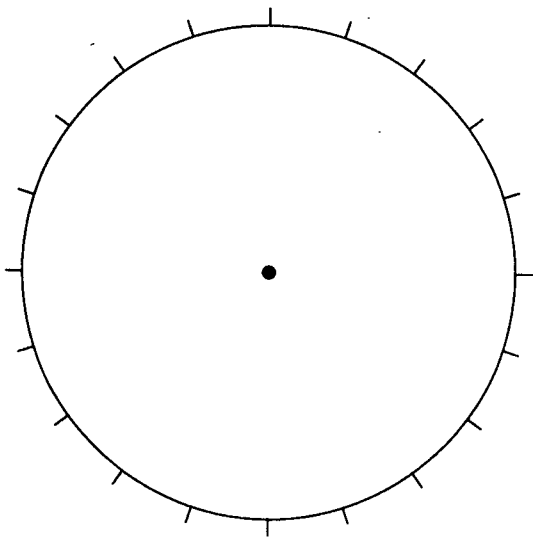
Sample Geography Question
Grades 8 and 12 — Pie Chart: Annual Precipitation for Lakeside

The following question required students to construct a pie chart from data presented in a table.

AVERAGE ANNUAL PRECIPITATION FOR LAKESIDE

Season	Average inches	Percent of Total
Spring	5.0	25
Summer	7.0	35
Fall	4.0	20
Winter	4.0	20
Total	20.0	100

16. Use the information in the table above to construct a pie chart on the figure below. Be sure to label all information. You may use your ruler to draw the chart.

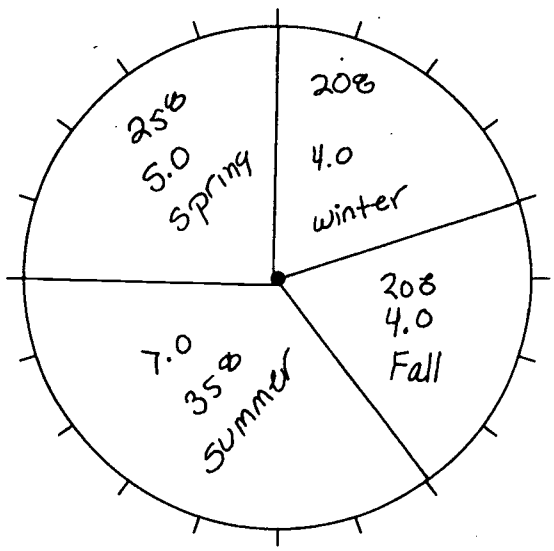


In order to do this task correctly, students needed to be able to read the table; to know that pie charts are used to represent percentages; and to know that the whole pie represents 100 percent. Students also needed to know that a correctly constructed pie chart includes an accurate representation of the percentages as well as labels and other information to identify what is being represented on the chart.

For this short constructed-response question, a "Complete" drawing correctly charted the percentage of rainfall for the four seasons and correctly labeled the parts of the pie with the names of the four seasons. A "Partial" score was given to responses that correctly charted the percentages of one to three seasons, divided up the chart correctly but did not label the chart by season names, or labeled the chart by inches only. An "Inappropriate" response did not properly chart any of the information; it failed to divide the circle into pieces corresponding to the information from the table and did not correctly label the chart. Sample student responses are provided below.

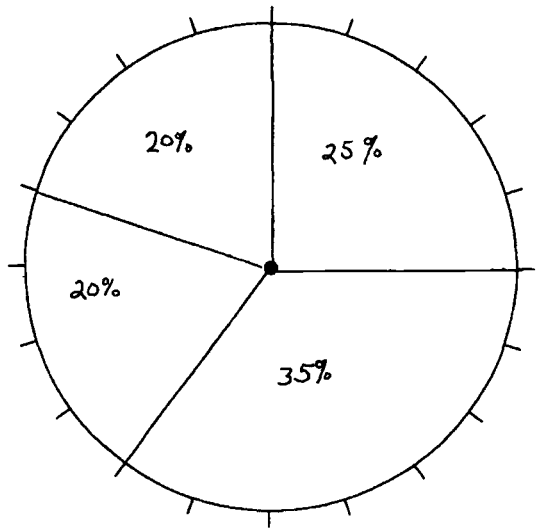
Sample "Complete" Response

16. Use the information in the table above to construct a pie chart on the figure below. Be sure to label all information. You may use your ruler to draw the chart.



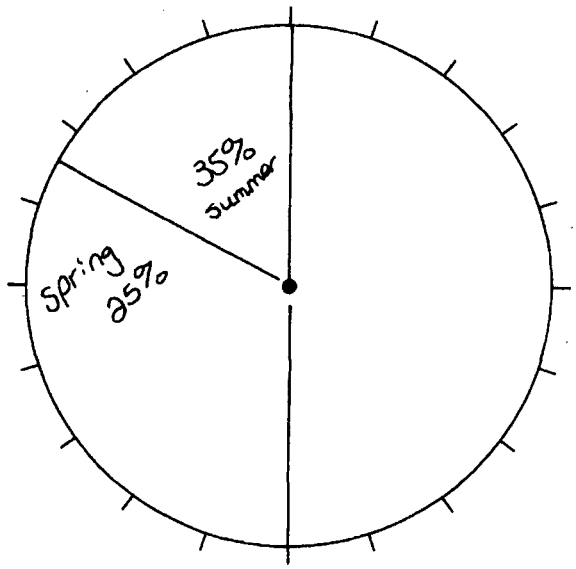
Sample "Partial" Response

16. Use the information in the table above to construct a pie chart on the figure below. Be sure to label all information. You may use your ruler to draw the chart.



Sample "Inappropriate" Response

16. Use the information in the table above to construct a pie chart on the figure below. Be sure to label all information. You may use your ruler to draw the chart.



Information on eighth- and twelfth-grade student performance on this question is presented in Table 4.10. Students at both grade levels performed relatively well on this question. Many students at both grade levels were able to divide a pie chart into appropriately sized segments and knew how to correctly label the segments. One of the main reasons that responses received a "Partial" rating was that students did not label, or incorrectly labeled, their charts. Students providing "Inappropriate" responses appeared not to understand how pie charts are constructed. As expected, twelfth graders were more likely than eighth graders to provide a "Complete" response and less likely to produce an "Inappropriate" response.

Table 4.10 **Score Percentages for Pie Chart: Annual Precipitation for Lakeside**

THE NATION'S REPORT CARD naep

	Complete	Partial	Inappropriate	Omit
Grade 8	**45 (1.5)**	**23 (1.4)**	**32 (1.5)**	**1 (0.3)**
Male	45 (2.0)	22 (1.8)	32 (2.0)	1 (0.4)
Female	44 (1.9)	24 (1.7)	32 (1.9)	1 (0.3)
White	52 (1.9)	23 (1.6)	25 (1.6)	1 (0.3)
Black	13 (2.7)	24 (3.2)	61 (3.7)	2 (1.0)
Hispanic	36 (3.9)	22 (3.4)	41 (3.6)	2 (1.0)
Grade 12	**66 (1.6)**	**17 (0.9)**	**17 (1.2)**	**1 (0.2)**
Male	67 (2.0)	16 (1.7)	15 (2.0)	1 (0.4)
Female	64 (2.1)	17 (1.6)	19 (1.5)	0 (0.1)
White	69 (2.0)	16 (1.2)	14 (1.5)	1 (0.3)
Black	41 (3.6)	21 (2.3)	36 (3.2)	1 (0.7)
Hispanic	54 (4.3)	21 (3.6)	25 (2.7)	0 (0.0)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 Geography Assessment.

Summary

The difficulty of questions involving data in graphs, charts, and tables is a function both of the stimuli and the other features of the questions, such as the outside knowledge students need in order to answer the question and the level of inference or thinking students are asked to apply in answering the question. Many of the students at each grade level appeared able to read and understand data presented in simple graphs and tables. Their performance, however, suggested that they had difficulty when asked to explain the data or information displayed in the graphic.

Chapter 5

Working with Photographs and Historical Art

Both history and geography are fields in which practitioners interpret visual images, such as photographs or various forms of artistic expression. Photographs can help students of geography learn to recognize characteristics of places. Because they can show physical features (such as land forms) or conditions (such as climate) of an area or region, photographs can be more useful than descriptive text for instruction or investigation. Photographs are also useful for showing students different uses of land and different ways that people interact with their environment.

Photographs and art from different historical periods are valuable instructional tools for creating connections between peoples and events across time. As part of the movement in secondary school history instruction to incorporate primary source materials, teachers are using non-textual sources to expose students to different aspects of the past, and to develop critical viewing skills.[1]

Photograph and Art Questions in the 1994 Geography and U.S. History Assessments

The 1994 NAEP U.S. history and geography assessments both contained questions using photographs and art as a stimulus. The U.S. history assessment contained many exercises that used a variety of artworks such as paintings, murals, totem poles, cartoons, posters, magazine covers, and sketches, as stimulus material. Because of the greater variety and frequency of use of these visual stimuli in the history assessment, this chapter will focus on the photography and art used in questions from the U.S. history assessment only. When working with photographs and art in the U.S. history assessment, students were asked to do one or more of the following:

- show basic comprehension of the photograph or work of art
- relate the artwork to historical conditions or events
- use the artwork as an interpretive tool
- compare and contrast works of art

[1] Payne, B. (1993). A word is worth a thousand pictures: Teaching students to think critically in a culture of images. *Social Studies Review, 32* (3), 38-43.

Frequently, two or more questions testing different skills and abilities were based on the same photograph or work of art. The first question often tested basic comprehension of the artwork, while the succeeding questions allowed students to expand on their knowledge or understanding by asking them to relate the art to a geographic or historical context or to interpret, analyze, or evaluate the artwork.

Examples of 1994 U.S. History Photograph and Art Questions

The types of tasks students were asked to perform were quite similar for both photographs and historical art, so the examples that follow will include both types of stimulus materials.

Inducing Information from Photographs or Works of Art

At all grade levels, the assessments included questions in which students were presented with photographs or historical art and asked to identify or describe what they saw. These questions tested students' understanding of the photograph or work of art, often requiring them to deduce facts about individuals and the way they lived from what was shown in the picture. The following exercise was given to fourth graders.

Sample U.S. History Question
Grade 4 — Drawing of Indian Village: How Do They Get Food?

Questions 5-6 are about the drawing below, which shows an American Indian village that was located on the southeast coast of North America.

5. Name TWO ways the people in the village could get food.

   What in the picture helped you to answer the question?

The exercise asked students to name two ways people in the village could get food, and to specify what in the picture led them to this conclusion. The exercise required a short constructed response. A "Complete" response noted at least two of the following:

farming, based on the crops shown throughout the village

hunting, based on the bows and arrows shown in the upper left-hand corner of the picture

gathering of wild foods such as acorns or berries, with some attempt to justify based on the picture

fishing, based on the fish shown in the center of the picture.

A "Partial" response identified only one method of obtaining food, or identified two methods but did not use evidence in the picture as support. An "Inappropriate" response did not identify any of the relevant methods of getting food. Actual student responses in each of these categories are shown below.

Sample "Complete" Response

5. Name TWO ways the people in the village could get food.

1. People in the villages would grow vegetables AND OTHER FOODS.

2. People in the village ALSO HUNTED Bears & Buffalo & deer.

What in the picture helped you to answer the question?

By looking AT ALL THE CROPS AND The guys with bows and arrows.

Sample "Partial" Response

5. Name TWO ways the people in the village could get food.

1. thea could grea crops to make food.

2. go And by it in the town.

What in the picture helped you to answer the question?

The pieces look nice

Sample "Inappropriate" Response

5. Name TWO ways the people in the village could get food.

1. They could get food by walking to stores to get food for their family.

2. They could ride or a horse to get food.

What in the picture helped you to answer the question?

The people helped me answer the questions

Student performance data are presented in Table 5.1. Overall, approximately 97 percent of the fourth graders chose to respond, and more than one-third provided a response that was scored as "Complete." Another 54 percent received a score of "Partial." Less than 10 percent received an "Inappropriate" score. This performance indicates that the majority of students who responded were able to describe how the people in the village could get food, and approximately one-third were also able to explain what evidence from the drawing supported their answer. This performance suggests that fourth graders — though they have not taken a formal U.S. history course — may have studied about Native Americans in their social studies classwork, and/or appear to be able to induce information from visual images and were able to draw on this knowledge to help them understand the picture.

Table 5.1 **Score Percentages for Drawing of Indian Village: How Do They Get Food?**

THE NATION'S REPORT CARD naep

	Complete	Partial	Inappropriate	Omit
Grade 4	**34 (1.6)**	**54 (1.6)**	**9 (0.9)**	**4 (0.4)**
Male	35 (2.1)	51 (2.4)	8 (1.1)	5 (0.7)
Female	33 (2.1)	56 (2.1)	9 (1.2)	2 (0.5)
White	39 (1.8)	53 (2.0)	6 (1.0)	3 (0.5)
Black	22 (2.8)	57 (3.4)	16 (2.3)	6 (0.9)
Hispanic	24 (4.5)	55 (4.0)	14 (2.7)	7 (1.4)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 U.S. History Assessment.

Relating Art to Historical Conditions

Students were also presented with questions that required them to place an artwork or photograph in an historical context. These questions required students to recall and apply knowledge from their history or social studies classes. The following exercises are from the fourth-grade assessment.

Sample U.S. History Question
Grade 4 — Ellis Island Photographs: What Do They Show?

In this exercise students were presented with two photographs of Ellis Island and asked what part of history they could learn about by visiting the island. The first photograph simply shows an aerial view of the island and the buildings that occupy it. The second photograph shows a group of immigrants with their luggage and identification papers.

Frederick Lewis Stock Photos

Lewis Hine Memorial Collection.

12. Look at the pictures of Ellis Island on page 8. What part of history could you learn about by visiting Ellis Island?

- Ⓐ The way the United States became a new country
- Ⓑ The war the United States fought against Spain
- Ⓒ How people lived in North America before Europeans arrived
- ● Some of the people who came to the United States as immigrants

The student performance data are presented in Table 5.2. They show that 30 percent of all students taking the test knew that visiting the island would allow them to learn about people who came to the United States as immigrants (Option D). Analysis of the response data shows that another 33 percent selected Option C, that they would learn how people lived in North America before Europeans arrived.

Table 5.2 **Percentage Correct for Ellis Island Photographs: What Do They Show?**

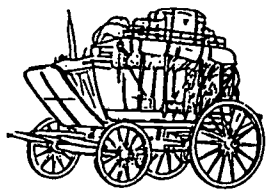
THE NATION'S REPORT CARD

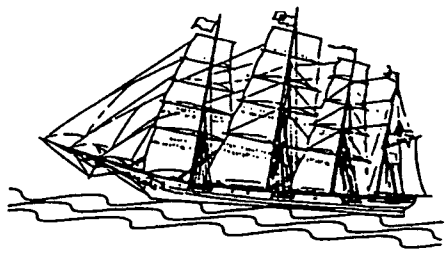
Grade 4	**30 (1.3)**
Male	31 (2.0)
Female	29 (1.9)
White	34 (1.9)
Black	18 (2.3)
Hispanic	20 (2.8)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 U.S. History Assessment.

Sample U.S. History Question
Grade 4 — Drawing: Transportation in United States 100 Years Ago

In this exercise, students were shown drawings of three forms of transportation that were common 100 years ago (a stagecoach, a sailing ship, and a horse and rider) and asked to answer two questions. In the first they were required to name a form of transportation that is common now and explain how it differs from the forms shown in the drawings. In the second they were asked to extend their answer by describing how the method they named is better than forms used 100 years ago. In order to answer these questions, students needed to be able to: 1) identify the objects in the drawing; 2) identify a modern form of transportation; 3) analyze how a form of transportation used today is different from the forms shown in the sketches; and 4) evaluate how such a form of transportation is better than those in the sketches, which requires understanding the limitations of older forms of transport.





3. These pictures show three common forms of transportation to the United States 100 years ago.

   Name one form of transportation that is common now in the United States, and explain how it is different from the forms of transportation shown above.

   Describe one way that the form of transportation you named is better than the forms of transportation that were used 100 years ago.

For a "Complete" response to this extended constructed-response question, students were expected to correctly identify one form of modern transportation and describe how it is both different from and better than one of the forms of transportation shown in the pictures. An "Essential" response correctly identified a modern form of transportation and described either how it was different *or* how it was better. A "Partial" response identified a modern form of transportation but did not answer the rest of the question or described a difference or improvement but failed to explicitly identify a modern form of transport. An "Inappropriate" response failed to identify a modern form of transportation or describe how transportation is different or better today.

Acceptable responses for a type of transportation and how it is different included the following:

- airplane: faster, carries many people, uses gasoline, airlines are a big business
- railroad: faster, carries many people, runs on electricity or hydrocarbon fuel, can be used in almost any weather
- automobile: faster, runs on gasoline, can be used in most weather conditions
- transport boats: larger, run on hydrocarbon fuel rather than wind, are faster than sailboats
- modern forms of transportation are made of different things, like metal or plastic, use computers, etc.
- modern forms of transportation have things like lights, radios, air conditioning, etc.

Acceptable responses for how transportation is better today include:

- travel is faster
- travel is easier/more comfortable/convenient
- distance is a less important factor; travel takes a lot less time, so distance is less of an obstacle
- travel is cheaper today for long journeys
- travel is less dependent on variables of weather (e.g., no wind for sail, mud for carriages/wagons/stagecoaches to get stuck in)
- today's transport often carries more people than were carried in carriages, small sailboats
- current forms of transport can hold more things

Sample "Complete" Response

Name one form of transportation that is common now in the United States, and explain how it is different from the forms of transportation shown above.

A car is diffrent from a carrage because it pelluts more. It also moves faster than a carrage. Unlike a carrage a car has eleltran. inside a motor powering it.

Describe one way that the form of transportation you named is better than the forms of transportation that were used 100 years ago.

A car usually has about 2000 horse power to make it go faster than a carrage A carrage has about 2 horse power with real horses powering it.

Sample "Essential" Response

Name one form of transportation that is common now in the United States, and explain how it is different from the forms of transportation shown above.

a car a car is defrent becaus it has a moter and these can't

Describe one way that the form of transportation you named is better than the forms of transportation that were used 100 years ago.

becaus you don't nav to have noses

Sample "Partial" Response

Name one form of transportation that is common now in the United States, and explain how it is different from the forms of transportation shown above.

we usl boats now still.

Describe one way that the form of transportation you named is better than the forms of transportation that were used 100 years ago.

The way of transportation now is faster

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Sample "Inappropriate" Response

Name one form of transportation that is common now in the United States, and explain how it is different from the forms of transportation shown above.

The stagecoach is sometimes used in the United States. It's different from the boat because boats float on water. The horse is different because it can only carry one person.

Describe one way that the form of transportation you named is better than the forms of transportation that were used 100 years ago.

The stagecoach is better than the transportation years ago because it can carry more people. It can also be special to people sometimes because not many people get to see it.

Information on student performance on this exercise is presented in Table 5.3. Sixty percent of fourth graders provided a response that was scored as either "Complete" or "Essential." Less than 10 percent gave "Partial" responses, and approximately 30 percent gave "Inappropriate" responses or omitted the question entirely. Students giving "Inappropriate" or "Partial" responses appeared to have difficulty understanding the question and making a distinction between *different* and *better*. Students seemed to have a greater understanding of what makes modern transportation different (e.g., uses electricity or gasoline instead of horses) than they did of what makes it better (e.g., faster). Morever, understanding what makes modern transportation better is a somewhat complex task as it requires recalling or inferring inconveniences or other drawbacks associated with the earlier forms of transportation and then contrasting these inconveniences with the conveniences of modern transportation.

Table 5.3 **Score Percentages for Drawing: Transportation in the United States 100 Years Ago**

THE NATION'S REPORT CARD

	Complete	Essential	Partial	Inappropriate	Omit
Grade 4	**36 (1.4)**	**24 (1.1)**	**9 (0.9)**	**21 (1.0)**	**10 (0.8)**
Male	39 (2.0)	24 (1.6)	8 (1.2)	18 (1.3)	12 (1.4)
Female	34 (2.0)	24 (1.5)	10 (1.1)	24 (1.6)	9 (1.1)
White	42 (1.7)	26 (1.5)	8 (0.9)	17 (1.0)	8 (1.0)
Black	17 (1.7)	18 (2.1)	14 (2.6)	33 (3.0)	18 (2.1)
Hispanic	22 (4.2)	22 (3.0)	9 (2.0)	30 (3.8)	17 (2.6)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 U.S. History Assessment.

Sample U.S. History Question
Grades 8 and 12 — Civil Rights Cartoon: Explain When

In this exercise, students were asked to look at a cartoon, choose from four options the decade in which they believed the cartoon was drawn, and give historical evidence to explain why they chose the decade they did.

Questions 16-17 refer to the cartoon below.

There's a long, long trail a-winding

Bruce Shanks in the Buffalo News.

16. Circle the decade in which you believe this cartoon was drawn.

1920's 1940's 1960's 1980's

Citing specific historical evidence, explain why you chose the decade you did.

This question required students to understand that the cartoon depicted something about the progress of the Civil Rights Bill and to associate it with a time period in which its message would have been relevant. For this short constructed-response question, a "Complete" response correctly identified the 1960's as the decade in which the cartoon was drawn and supported this with a specific reason, for example, Martin Luther King, Jr., Malcolm X, Rosa Parks, civil rights legislation, or civil rights demonstrations. Or, the response identified the 1980's and gave a reasonable explanation, such as, "in the 1980's, the spirit of 1960's civil rights legislation remained unfulfilled." A "Partial" response identified either the 1960's or the 1980's as the decade, but gave only a vague explanation for why the cartoon might have been drawn in the decade chosen. An "Inappropriate" response did not identify the 1960's or the 1980's as the decade, and either omitted the explanation or gave an inappropriate explanation.

Sample "Complete" Response[2]

16. Circle the decade in which you believe this cartoon was drawn.

1920's 1940's (1960's) 1980's

Citing specific historical evidence, explain why you chose the decade you did.

The Civil Rights Bill was passed in 1963.

Sample "Partial" Response

16. Circle the decade in which you believe this cartoon was drawn.

1920's 1940's (1960's) 1980's

Citing specific historical evidence, explain why you chose the decade you did.

Because it looks like all the problems that happened in the time

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[2] The fact that the student "misdated" the passage of Civil Rights Bill by one year was not counted as a substantial error.

Sample "Inappropriate" Response

16. Circle the decade in which you believe this cartoon was drawn.

(1920's) 1940's 1960's 1980's

Citing specific historical evidence, explain why you chose the decade you did.

because the bill of rights is holding up a sign that says Civil rights bill.

Information on student performance on this exercise is presented in Table 5.4. This exercise was relatively difficult for eighth graders. Although 99 percent of eighth-grade students responded to this question, only 16 percent provided responses scored as "Complete," and only another 10 percent received a score of "Partial." More than 70 percent could neither identify the 1960's or 1980's as the decade nor explain why the cartoon would have been drawn in these decades.

Table 5.4 **Score Percentages for Civil Rights Cartoon: Explain When**

THE NATION'S REPORT CARD naep

	Complete	Partial	Inappropriate	Omit
Grade 8	**16 (1.1)**	**10 (1.0)**	**73 (1.4)**	**1 (0.3)**
Male	15 (1.5)	11 (1.2)	72 (1.7)	2 (0.6)
Female	17 (1.8)	9 (1.2)	73 (2.1)	1 (0.3)
White	16 (1.5)	11 (1.3)	72 (1.9)	1 (0.4)
Black	19 (2.3)	8 (1.4)	69 (2.7)	3 (1.2)
Hispanic	12 (2.5)	8 (1.9)	79 (2.5)	1 (0.5)
Grade 12	**35 (1.9)**	**12 (1.0)**	**53 (1.9)**	**1 (0.2)**
Male	36 (2.4)	13 (1.5)	50 (2.3)	1 (0.4)
Female	33 (2.2)	11 (1.1)	56 (2.4)	1 (0.2)
White	36 (2.3)	12 (1.1)	51 (2.3)	1 (0.3)
Black	35 (3.0)	15 (3.0)	49 (3.9)	1 (0.5)
Hispanic	20 (3.2)	6 (1.3)	73 (2.8)	1 (0.6)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 U.S. History Assessment.

As expected, twelfth-grade students performed better on this exercise than the eighth graders, although the proportion that were able to provide "Complete" or "Partial" responses was still less than half. Thirty-five percent of twelfth-grade responses were scored as "Complete." Another 12 percent received partial credit.

Using Art as an Interpretive Tool

Another set of questions on the U.S. history assessment required students to use the photograph or artwork as an interpretive tool. For example, students might be asked to interpret, analyze, or evaluate public responses to an event or individual depicted in a cartoon, magazine cover, or painting. Recall of factual knowledge was usually required.

As noted earlier in the chapter, frequently two or more questions testing different skills and abilities were based on the same photograph or artwork. The following question assessing the ability of students to use art as an interpretive tool was based on the civil rights cartoon shown in the previous example and was given to both eighth and twelfth graders.

Sample U.S. History Question
Grades 8 and 12 — Civil Rights Cartoon: What Message?

17. What is the main message of this cartoon?

_____

This question asked students to describe the main message of the cartoon. Students needed to analyze the cartoon, apply their historical knowledge of the progress of civil rights, and write a short constructed response describing why there has been a gap or "long trail" between passing legislation and resolving civil rights issues. A "Complete" response correctly identified the main message of the cartoon as being that the passing of civil rights laws did not mean that civil rights issues were resolved, and that social, economic, and political changes also were necessary. A "Partial" response demonstrated understanding that the cartoon was about problems associated with the Civil Rights Bill but did not explain the cartoon in a specific and precise fashion. An "Inappropriate" response did not indicate that the cartoon referred to problems associated with the civil rights movement in the United States.

Actual student responses in each of these categories are shown below.

Sample "Complete" Response

17. What is the main message of this cartoon?

The struggle between whites and blacks will still continue for a long time. The Civil Rights Bill is just a step toward unprejudice

Sample "Partial" Response

17. What is the main message of this cartoon?

To tell everyone that there should be equal rights between all race of peoples. There is only one way to do this that is to get peace between the people and to understand their cultures.

Sample "Inappropriate" Response

17. What is the main message of this cartoon?

To get the Bill of Rights to where everyone can read and understand them. To communicate with other countries.

Information on student performance on this exercise is presented in Table 5.5. This question was difficult for students at both grade levels. Although approximately 95 percent of students at each grade level responded, only 2 percent of eighth-grade responses and 15 percent of twelfth-grade responses were scored as "Complete." Another 10 percent of eighth-grade and 22 percent of twelfth-grade responses were given partial credit, but the majority of responses at both grade levels were considered "Inappropriate." In other words, these responses did not correctly identify the message of the cartoon as referring to problems in the civil rights movement.

These performance data seem to indicate a lack of familiarity with the Civil Rights Bill and the progress of civil rights in the latter part of the twentieth century and/or difficulty in interpreting the content of political cartoons. Possibly also causing difficulties for students was the sophistication of the cartoon and its vocabulary. "Fulfillment in spirit," for example, may have been an unfamiliar concept to many students.

Table 5.5 **Score Percentages for Civil Rights Cartoon: What Message?**

THE NATION'S REPORT CARD naep

	Complete	Partial	Inappropriate	Omit
Grade 8	**2 (0.4)**	**10 (0.9)**	**82 (1.1)**	**6 (0.7)**
Male	2 (0.6)	9 (1.0)	83 (1.4)	7 (0.9)
Female	2 (0.5)	12 (1.4)	81 (1.8)	5 (1.1)
White	3 (0.5)	10 (1.1)	81 (1.4)	6 (0.9)
Black	2 (0.8)	10 (1.8)	85 (2.3)	4 (1.4)
Hispanic	1 (0.7)	12 (2.2)	78 (2.6)	9 (2.1)
Grade 12	**15 (1.3)**	**22 (1.2)**	**59 (1.5)**	**4 (0.6)**
Male	15 (1.6)	23 (1.7)	57 (2.0)	5 (1.1)
Female	15 (1.9)	22 (1.7)	62 (1.8)	2 (0.5)
White	18 (1.7)	24 (1.5)	55 (1.9)	4 (0.7)
Black	6 (1.6)	16 (2.5)	75 (3.0)	4 (1.5)
Hispanic	7 (1.9)	16 (3.4)	74 (4.3)	3 (1.2)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 U.S. History Assessment.

Sample U.S. History Question
Grade 12 — Cartoon: Why Is the U.S. Upset?

In this question, students were asked to look at a newspaper headline and related cartoon and explain why people in the United States were upset by the event portrayed by these two artifacts.

SOVIETS LAUNCH FIRST MAN-MADE SATELLITE INTO ORBIT

Frank Williams in the Detroit Free Press

14. Give two reasons why many people in the United States were upset by the event shown in the cartoon and the headline.

This question required students to understand the cartoon and headline, place them in an historical context, and based on that context, understand why people in the United States were upset by the events portrayed. Although the gist of public attitude could be inferred from the cartoon, students needed to understand at least some of the circumstances surrounding the groundbreaking Soviet satellite launch in order to provide *two* reasons to explain why many Americans were distressed. Students were required to write a short constructed response. Correct responses could include fear of being technologically behind in a nuclear world, the Cold War, the possibility that the Communist system was out-thinking the American system, concern about American inferiority, fear that Soviets were better educated, concern that the U.S. was not first in space, fear of the Russians, concerns about communism versus capitalism, or other concerns that the satellite launch gave the Russians a strategic advantage. A "Complete" response gave two reasons for U.S. concern, while a "Partial" response gave only one relevant reason why people were upset, and an "Inappropriate" response gave none. It was not necessary for students to mention Sputnik by name in order to get credit.

Actual student responses in each of these categories are shown on the next page.

Sample "Complete" Response

14. Give two reasons why many people in the United States were upset by the events shown in the cartoon and the headline.

The American people were outraged by the thought of inferiority. The propaganda of the time pitted capitalism versus communism; the U.S. was resistant to admit any inferiority to the USSR.

Sample "Partial" Response

14. Give two reasons why many people in the United States were upset by the events shown in the cartoon and the headline.

1. People were upset because Russian science was ahead of American.

Sample "Inappropriate" Response

14. Give two reasons why many people in the United States were upset by the events shown in the cartoon and the headline.

They thought it might have been Racists

Information on student performance on this exercise is presented in Table 5.6. Overall, one-quarter of twelfth-grade students provided a response that was scored as "Complete," and nearly 50 percent received a score of "Partial." This performance indicates that many students were able to identify from the cartoon the event being depicted, recall this event in American history, and understand the response of the public at the time.

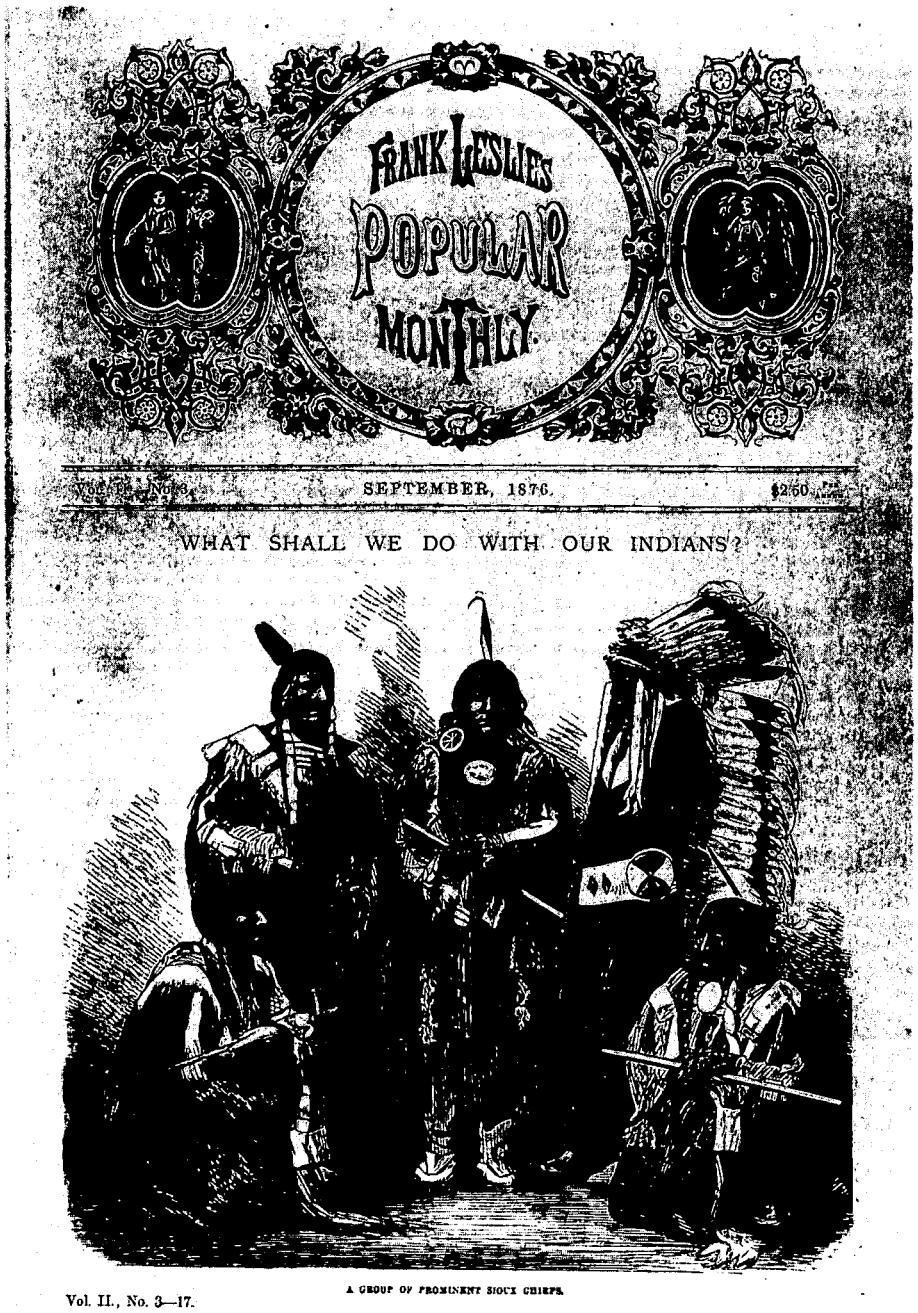
Table 5.6 **Score Percentages for Cartoon: Why Is the U.S. Upset?**

THE NATION'S REPORT CARD

	Complete	Partial	Inappropriate	Omit
Grade 12	**25 (1.3)**	**46 (1.4)**	**18 (1.1)**	**12 (1.0)**
Male	26 (1.5)	51 (1.9)	14 (1.4)	10 (1.2)
Female	23 (1.8)	42 (1.8)	22 (1.8)	13 (1.4)
White	28 (1.6)	48 (1.7)	15 (1.2)	9 (1.0)
Black	6 (1.6)	42 (3.2)	30 (3.1)	22 (2.6)
Hispanic	19 (3.0)	34 (4.0)	28 (5.0)	19 (3.6)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 U.S. History Assessment.

Sample U.S. History Question
Grades 8 and 12 — Magazine Cover: American Indians



Philadelphia Museum of Art:
Purchased: Lola Downin Peck Fund.

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12. Look at the magazine cover. What historical events would have led this question and picture to appear on the cover of a popular magazine in 1876?

What attitudes displayed toward American Indians by other Americans are suggested by this magazine cover?

In this extended constructed-response question students were presented with a magazine cover and asked two questions. The first questions asked what historical events would have led to this magazine cover appearing when it did, and the second question asked what attitudes toward American Indians were suggested by the magazine cover.

A "Complete" response answered both parts of the question and showed an understanding of the problems expressed by the title "What shall we do with our Indians?" and the photograph of Sioux leaders. Citing specific detail, students may have explained that the attitudes of other Americans toward the Indians ranged from sympathy to paternalism to hostility. An "Essential" response answered both parts of the question, but provided only a general statement without any specifics for one part. A "Partial" response correctly answered only one part of the question or gave two answers that were not incorrect but were very vague. An "Inappropriate" response did not correctly answer either part of the question.

Acceptable responses for why the cover would have appeared included:

- Debates about rights to Western lands. As more people moved west to lands they felt they had a right to as Americans, they often seized Indian land illegally. Sioux Indians and other Western tribes reacted with fear and anger because they were losing their lands and ways of life. They often attacked pioneers and settlements.
- A series of battles between Sioux and American forces had led to the placement of the Sioux on small reservations, usually on the poorest land.
- Settlers and hunters slaughtered buffalo for food and sport, depriving Sioux Indians and other Western tribes of a source of food.
- The discovery of gold in the Black Dakota Hills in the mid-1870's brought miners to Indian territories, further threatening Indian lands.
- A terrible battle was fought between desperate Sioux Indians and American forces under General Custer, leading to a temporary, but severe, American defeat (Battle of Little Bighorn).

- Placement of Western Indians on reservations administered by the Bureau of Indian Affairs curtailed traditional Indian ways of life and often submitted Indians to the cruelty and incompetence of untrained government officials. It was clear to some Americans that reservations were not an easy or adequate solution.
- Indian wars (anything warlike - rebellion, reprisals, killings, fighting).
- Geronimo battles.

Acceptable responses for attitudes displayed toward American Indians by other Americans included:

- strong, negative emotions such as hate or wanting to get rid of Indians
- feelings that Indians should be deprived of power, so the country can be settled peacefully and resources in the West that are necessary for industry can be developed
- feelings that Indians should be placed on reservations in order to enable the peaceful White settlement and/or Indian survival
- feelings that Indians should be assimilated into White society, as that will enable them to live peacefully with other Americans and/or learn a "superior" way of life
- concern that Indians have been consistently mistreated by Whites and should be treated fairly
- belief that the fate of Indians is a problem for White Americans to solve
- feelings that Indians are noble, noble savages, or tragic figures
- feelings that Indians are picturesque, exotic, admirable

Sample student responses are shown below.

Sample "Complete" Response

12. Look at the magazine cover. What historical events would have led this question and picture to appear on the cover of a popular magazine in 1876?

Indian uprisings and ambushing of frontier farmers army putting Indians on reservation

What attitudes displayed toward American Indians by other Americans are suggested by this magazine cover?

that they were less than human and far behind rest of the world and they were a nuisance to frontier farmers and settlers and had to be put away on reservations

Sample "Essential" Response

12. Look at the magazine cover. What historical events would have led this question and picture to appear on the cover of a popular magazine in 1876?

French Indian War
When Americans began to invade the west and took all of the land for themselves.

What attitudes displayed toward American Indians by other Americans are suggested by this magazine cover?

That the other Americans considered themselves to be of higher class and standards than the American Indians. American Indians were not acceptable and were not allowed to govern themselves. That Indians were not allowed to live in other Americans society.

Sample "Partial" Response

12. Look at the magazine cover. What historical events would have led this question and picture to appear on the cover of a popular magazine in 1876?

They didn't like the Indians back then because they thought they bothered them and were wandering what they shall do with their Indians.

What attitudes displayed toward American Indians by other Americans are suggested by this magazine cover?

The Americans do not like the Indians and are wanting to get rid of them.

Sample "Inappropriate" Response

12. Look at the magazine cover. What historical events would have led this question and picture to appear on the cover of a popular magazine in 1876?

The Indians new more then the white man then, but they are saying there were to many.

What attitudes displayed toward American Indians by other Americans are suggested by this magazine cover?

That indians are better then white man and the white man is very angry because of the fact that the indians are better.

Information on student performance in grades 8 and 12 is presented in Table 5.7. The majority of students at both grades were able to provide at least a "Partial" response to this question. Approximately one-fourth of eighth-grade students provided a response scored as "Complete" or "Essential," demonstrating an ability to apply their historical knowledge of the problems between American Indians and Whites in the 1870's. Another 39 percent were able to partially answer the question.

Table 5.7 **Score Percentages for Magazine Cover: American Indians**

THE NATION'S REPORT CARD

	Complete	Essential	Partial	Inappropriate	Omit
Grade 8	**8 (0.6)**	**18 (1.0)**	**39 (1.4)**	**24 (1.2)**	**12 (1.1)**
Male	7 (0.8)	18 (1.6)	35 (1.8)	24 (1.6)	17 (1.7)
Female	9 (1.0)	18 (1.3)	42 (2.1)	24 (1.7)	7 (0.8)
White	10 (0.9)	20 (1.2)	41 (1.6)	21 (1.4)	9 (1.1)
Black	3 (1.2)	10 (2.2)	30 (3.6)	35 (3.8)	23 (3.0)
Hispanic	2 (0.8)	15 (2.3)	36 (3.6)	30 (2.7)	18 (2.2)
Grade 12	**21 (1.3)**	**26 (1.3)**	**28 (1.4)**	**13 (0.9)**	**12 (1.0)**
Male	20 (1.9)	28 (1.7)	28 (1.9)	11 (1.4)	13 (1.5)
Female	22 (1.7)	24 (1.8)	28 (2.0)	16 (1.5)	10 (1.3)
White	25 (1.6)	29 (1.6)	27 (1.9)	10 (1.0)	10 (1.2)
Black	9 (1.7)	17 (2.7)	34 (3.0)	24 (3.0)	17 (2.8)
Hispanic	11 (1.9)	18 (3.1)	27 (2.4)	26 (2.7)	19 (2.9)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 U.S. History Assessment.

Comparing and Contrasting Works of Art

In addition to being asked to demonstrate basic comprehension of a photograph or work of art, to place art in an historical context, and to use art as an interpretive tool, students sometimes were asked to look at two photographs or works of art about a single subject and answer questions that required them to identify commonalities and/or differences between the two.

Sample U.S. History Question
Grades 8 and 12 — Paintings: George Washington

The following exercise is an example of a question that required students to compare two works of art. It was administered to both eighth- and twelfth-grade students. Students were presented with pictures of two paintings of George Washington and asked a series of three questions. The first question asked students to describe the intent behind paintings of this type. To respond correctly, students had to study the two paintings of quite different styles and decide what similar theme was being depicted by both of them.

Courtesy, Winterthur Museum

The Metropolitan Museum of Art, Gift of Col. and Mrs. Edgar William Garbisch, 1963 .

3. Early American paintings such as these two of George Washington tended to

- Ⓐ show Washington's interest in science
- Ⓑ show life in a realistic fashion
- ● glorify American political figures
- Ⓓ celebrate Washington's humble origins

Table 5.8 shows student performance on this question. This question was relatively easy at both grade levels. Sixty percent of eighth graders answered this question correctly, as did 83 percent of twelfth graders. Better performance by twelfth graders is to be expected because of their greater exposure to U.S. history courses and to the general concept of artistic intent.

Table 5.8 **Percentage Correct for Paintings: George Washington**

THE NATION'S REPORT CARD

	Grade 8	Grade 12
Total	**60 (1.4)**	**83 (1.0)**
Male	62 (1.9)	83 (1.4)
Female	57 (2.0)	82 (1.6)
White	64 (1.7)	88 (1.2)
Black	45 (2.5)	62 (2.5)
Hispanic	52 (3.5)	74 (3.2)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 U.S. History Assessment.

Summary

Photographs and artwork are useful for conveying complex visual information and for communicating the ideas and sentiments associated with different periods in history. In the 1994 NAEP history assessment, photographs and artworks were used primarily to convey a sense of the culture and attitudes of the past.

Students were required to show basic comprehension, relate the photograph or work of art to historical conditions or events, use the artwork as an interpretive tool, and compare and contrast various pictorial representations. As in other parts of the assessment, the difficulty of the questions increased as students were asked for more inference and interpretation.

Particularly by grade 12, however, many students were able to understand artistic intent as well as the literal meaning of what they were seeing. Here, as elsewhere, questions that required the students to formulate explanations in their own words were among the more difficult.

Chapter 6

Working with Atlases

Atlases are a central tool in the study and practice of geography. These bound collections of maps, tables, charts, and other information represent an essential reference source for students. Learning to use an atlas is an important geographic skill; the variety of maps and other forms of information in atlases can assist students in the visualization of space and can further their understanding of complex social and physical data about geographic areas.

Overall, one block of exercises at each grade of the 1994 NAEP geography assessment involved use of the Nystrom Classroom Atlas. One block of 14 questions was given at grades 4 and 8, while a second block of 15 questions was given at grade 12. The questions required that students analyze a variety of maps, including physical, political, population, land use, landscape, climate, and time zone maps, as well as use graphic and text information. The questions tested a variety of skills. Students usually were referred to a page or group of pages in the atlas and required to observe and extract information presented on different kinds of maps or in graphs, charts, or tables, or to give explanations for patterns apparent on the maps or in the other data.

In the 1994 NAEP geography assessment, atlases allowed for the measurement of a number of skills that are not usually assessed in large-scale surveys. In addition to general map-reading skills and the ability to analyze and evaluate information presented on maps and in graphic formats, the assessment measured specific skills related to atlas use such as the ability to:

- Use reference materials.
- Work with color maps.
- Work with a wide variety of map types, including political, physical, population, and special-purpose maps.
- Synthesize information from more than one map.

Examples of 1994 NAEP Geography Atlas Questions

Although the general skill being discussed in this chapter is the use of an atlas, the difficulty of the questions in the geography assessment was not defined solely by having to use an atlas to locate information. Once they had located the information in the atlas, students needed to employ a number of skills to interpret and understand it. They needed to extract information from the different types of maps, interpret the information found on the maps or in the charts in an atlas, compare different types of maps, and provide explanations for patterns observed in the maps. Some of the atlas questions also required students to use outside knowledge to respond correctly.

Using an Atlas

One or two questions at each grade level directly assessed students' understanding of how to use an atlas to find information either by asking them where something would be found, or by directing them to find a certain type of map (without giving the page number), and then asking a question about information on the map. At the fourth- and eighth-grade levels, students were asked where to find information in the atlas. At the twelfth-grade level, the exercises were more complex and required students to answer questions about the information after they had located it.

Sample Geography Question
Grades 4 and 8 — Atlas: How to Find Dakar

The following question was given to both fourth and eighth graders.

> If you wanted to find out which page in the atlas had a map that showed the city of Dakar, where would you look?
>
> Ⓐ The World Map Projections pages
> ● The Index
> Ⓒ The World Facts page
> Ⓓ The Earth Notes page

This question asked where you would look in an atlas to find out which page had a map showing the city of Dakar. The student performance data, which are presented in Table 6.1, show that the majority of the students in the nation and in the subgroups of interest were able to identify the index as the correct answer, although as might be expected, eighth-grade students performed substantially better than fourth-grade students. A possible explanation for the high performance of most students is that this question tests a general skill of how to find information and is not only specific to the use of an atlas.

Table 6.1 **Percentage Correct for Atlas: How to Find Dakar**

THE NATION'S REPORT CARD

	Grade 4	Grade 8
Total	**73 (1.4)**	**90 (0.7)**
Male	73 (1.6)	90 (1.1)
Female	73 (1.9)	91 (1.0)
White	79 (1.6)	94 (0.7)
Black	58 (3.3)	83 (2.8)
Hispanic	64 (3.1)	79 (2.8)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 Geography Assessment.

Sample Geography Question
Grade 12 — Political Map: Which Countries Are on Equator?

The following question was given to twelfth graders. It is an example of a question that requires students to locate information in a reference source and extract information from the map. It directed students to find the political map of the world in the atlas, and then asked students to specify which group of countries was crossed by the equator.

Find the political map of the world in the atlas. Which group of countries is crossed by the equator?

Ⓐ Mexico, Nigeria, India

Ⓑ Chile, Zimbabwe, Papua New Guinea

Ⓒ Venezuela, Angola, the Philippines

● Brazil, Kenya, Indonesia

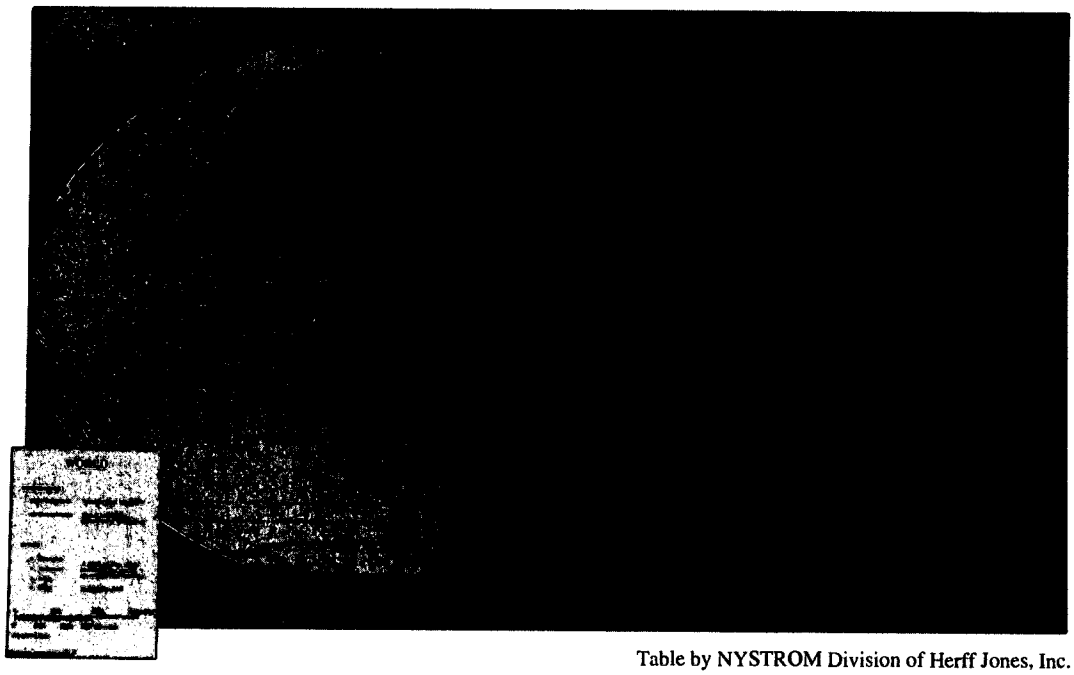

Table by NYSTROM Division of Herff Jones, Inc.

Table 6.2 shows student performance on this question. To respond correctly, students had to locate the correct map, locate the equator and trace it correctly across the two-page map, then check the countries listed in the response options to determine which option included countries crossed by the equator. The task was made somewhat easier by the fact that only the correct response option included *any* countries crossed by equator. The data show that the majority of twelfth-grade students were able to answer this question correctly. Performance of subgroups was relatively high, with no significant differences.

Table 6.2 **Percentage Correct for Political Map: Which Countries on Equator?**

THE NATION'S REPORT CARD

Grade 12	**82 (1.1)**
Male	82 (1.4)
Female	82 (1.6)
White	84 (1.3)
Black	77 (2.6)
Hispanic	75 (3.3)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 Geography Assessment.

Extracting Information from a Variety of Maps

There were a number of questions in the assessment which measured students' ability to extract information from maps. Minimally, students had to have some general knowledge of map conventions and understand the map key in order to answer these questions. In some cases, they were also asked to synthesize information from more than one map. Sometimes students were required to bring in outside knowledge to answer the questions posed.

Sample Geography Question
Grades 4 and 8 — Physical Map: Which Region is Highest?

In this question, students were asked to look at the physical map of Africa on a specific page of the atlas and identify which region in Africa had the highest elevation. The answer choices were phrased in terms of map directions. To answer this question, students needed to know the orientation of the map and understand the map key, which was a color-coded bar with the different colors corresponding to different elevations. Students had to find the color corresponding to the highest elevation on the map and determine which option corresponded to that location on the map.

Look at the physical map of Africa on page 60. Which region in Africa has the highest elevations?

Ⓐ Northern coast

Ⓑ Western coast

Ⓒ Southwestern

● Eastern

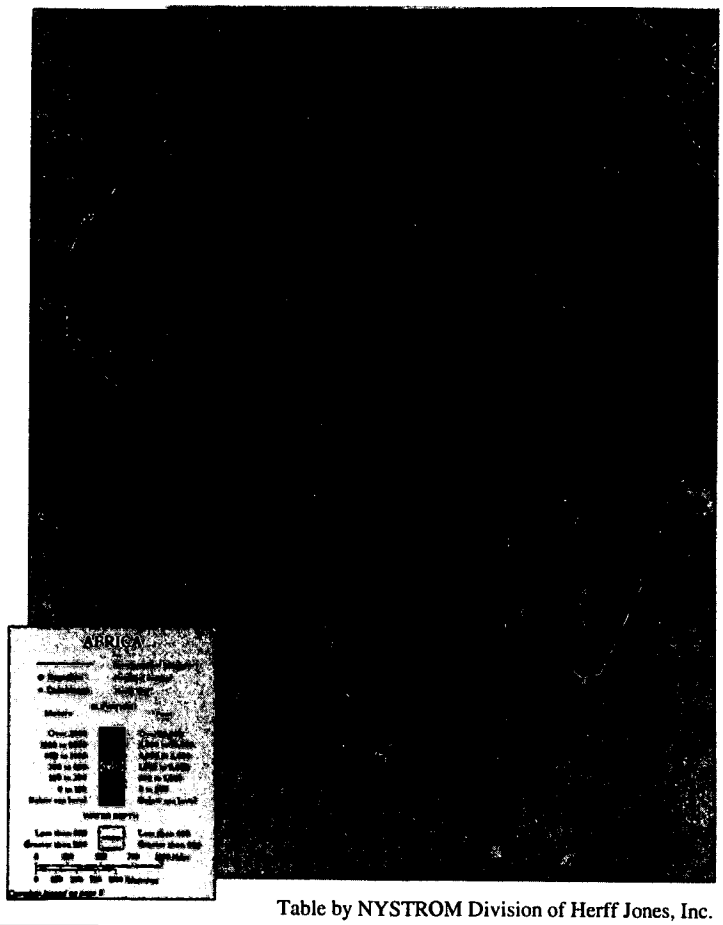

Table by NYSTROM Division of Herff Jones, Inc.

Table 6.3 shows student performance on this question. Forty-three percent of fourth graders answered this question correctly. Eighth graders performed significantly better than fourth graders, most likely reflecting their experience with map-reading and coursework requiring the use of reference materials.

Table 6.3 **Percentage Correct for Physical Map: Which Region Is Highest?**

THE NATION'S REPORT CARD

	Grade 4	Grade 8
Total	**43 (1.4)**	**65 (1.5)**
Male	46 (2.3)	66 (1.9)
Female	41 (1.9)	65 (1.8)
White	49 (1.7)	72 (1.8)
Black	25 (2.8)	46 (4.2)
Hispanic	36 (4.1)	51 (5.2)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 Geography Assessment.

Sample Geography Question
Grades 4 and 8 — Political and Population Maps: Most Dense Population

In this question, students were required to synthesize information from two maps. They were asked to look at the political map of Africa on a specific page in the atlas and then at the population map on a different page in order to identify which country in West Africa was the most densely populated. To answer this question, students needed to understand the map key on the population map, which was a color-coded bar with the different colors corresponding to different populations per square mile, and to understand the country boundaries on the political map. On the population map, students had to find the largest dark colored area, which corresponded to the highest population density; then, on the political map, identify the country to which that densely populated area corresponded.

Look first at the political map of Africa on page 61, and then look at the population map on page 63. Which country in West Africa is the most densely populated?

Ⓐ Liberia

Ⓑ Mauritania

Ⓒ Mali

● Nigeria

Table by NYSTROM Division of Herff Jones, Inc.

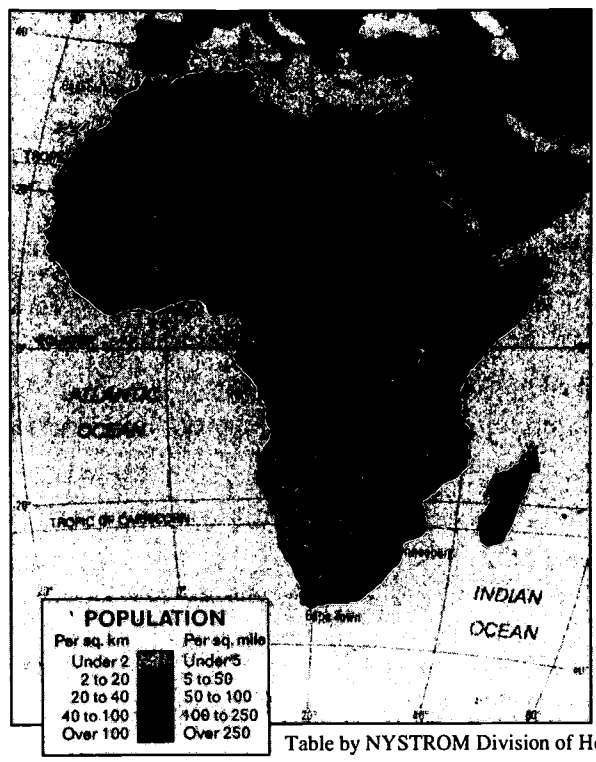

Table by NYSTROM Division of Herff Jones, Inc.

Table 6.4 shows student performance on this question. Thirty-one percent of fourth graders and 52 percent of eighth graders were able to correctly identify Nigeria as the most densely populated country in West Africa. At the fourth-grade level, Mali was the incorrect option most often chosen (23 percent), perhaps because Mali and Nigeria were the only two countries among the response options that included an area of greatest population density (over 250/square mile). However, the population map showed that most of the rest of Nigeria was moderately densely populated as well, whereas the same was not true for Mali. Choices of incorrect options were fairly evenly distributed at the eighth-grade level, suggesting that this same error was not common among eighth graders.

Table 6.4 **Percentage Correct for Political and Population Maps: Most Dense Population**

THE NATION'S REPORT CARD

	Grade 4	Grade 8
Total	**31 (1.2)**	**52 (1.5)**
Male	33 (2.1)	55 (2.1)
Female	29 (1.6)	49 (2.2)
White	32 (1.6)	54 (2.0)
Black	31 (3.0)	46 (2.3)
Hispanic	25 (2.9)	43 (3.7)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 Geography Assessment.

Sample Geography Question
Grade 12 — Atlas Maps: Corn Area Natural Vegetation

In this question, twelfth-grade students were required to synthesize information from two maps. They were asked to look at the natural vegetation map of North America on a specific page in the atlas, and then at the map of corn production on a different page, and to identify the natural vegetation of the major corn-producing areas of the United States.

Look at the natural vegetation map of North America on page 22 of the atlas and the map of corn production in the United States on page 31. What is the natural vegetation of the major corn-producing areas of the United States?

● Grassland and broadleaf forest

Ⓑ Steppe and tundra

Ⓒ Needleleaf forest and Mediterranean

Ⓓ Desert and tropical rain forest

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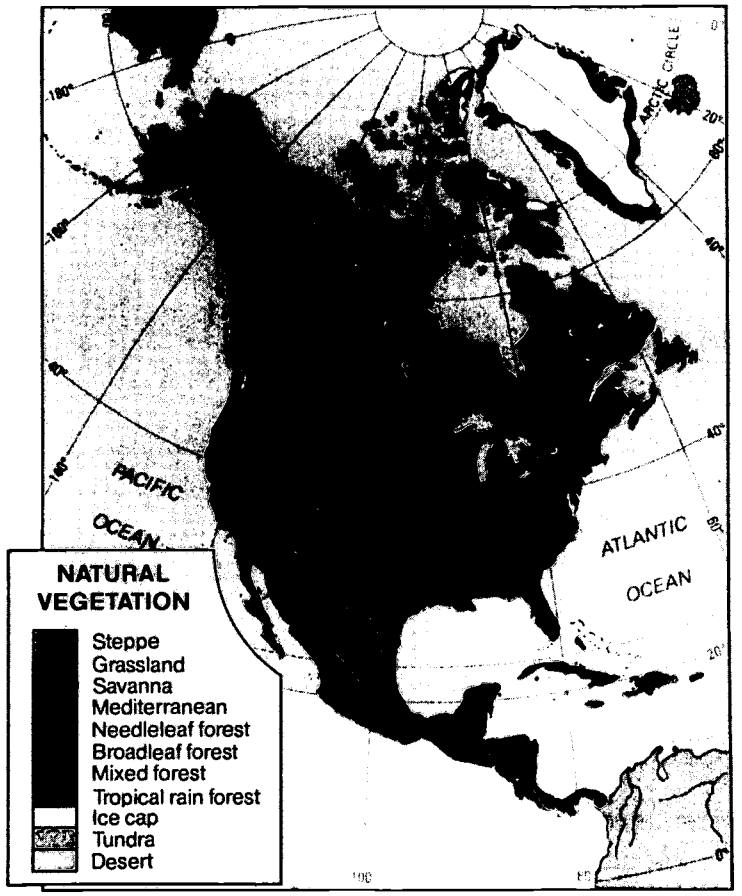

Table by NYSTROM Division of Herff Jones, Inc.

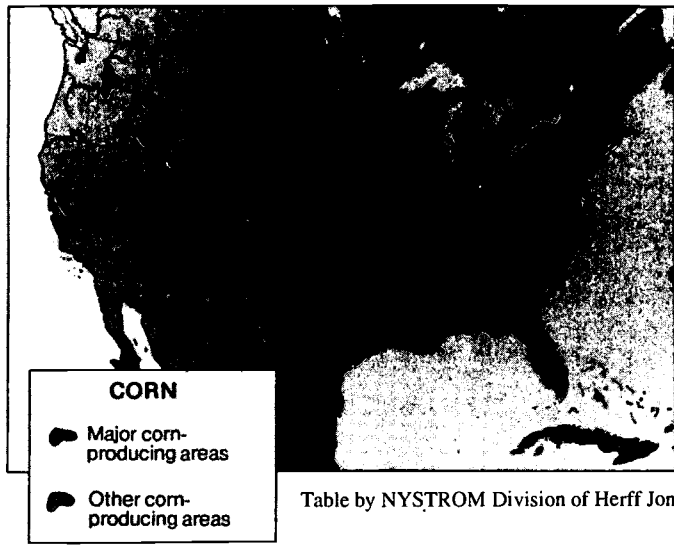

Table by NYSTROM Division of Herff Jones, Inc.

To answer this question, students needed to understand the map keys and synthesize information from both maps. However, the question did not call for fine discriminations in that none of the other answer choices referenced vegetation types that were in any way proximate to the corn-growing region. Furthermore, the question could also be answered based on general knowledge of North American flora without specific reference to the atlas maps. Student performance is presented in Table 6.5 below.

Table 6.5 **Percentage Correct for Atlas Maps: Corn Area Natural Vegetation**

THE NATION'S REPORT CARD naep

Grade 12	**76 (1.5)**
Male	77 (2.1)
Female	76 (2.2)
White	80 (1.7)
Black	66 (3.3)
Hispanic	62 (4.3)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 Geography Assessment.

Performance on this question was relatively high; more than three-quarters of twelfth graders correctly identified grassland and broadleaf forest as the two types of natural vegetation of the major corn-producing areas of the United States.

Explaining and Interpreting Information

In addition to being asked to find maps or other data, extract information from maps, and synthesize information from multiple maps in an atlas, students were also asked to engage in more complex analytical thinking and to provide explanations for patterns or other information they extracted from the maps, tables, or charts. Often this involved applying outside knowledge to the questions posed.

Sample Geography Question
Grades 4 and 8 — Map of China: Why Crowded in One Area

Look at the population and landscape map of China on page 72 of the atlas.

What area of the country is densely populated (crowded)?

Give two reasons why this area of the country is densely populated.

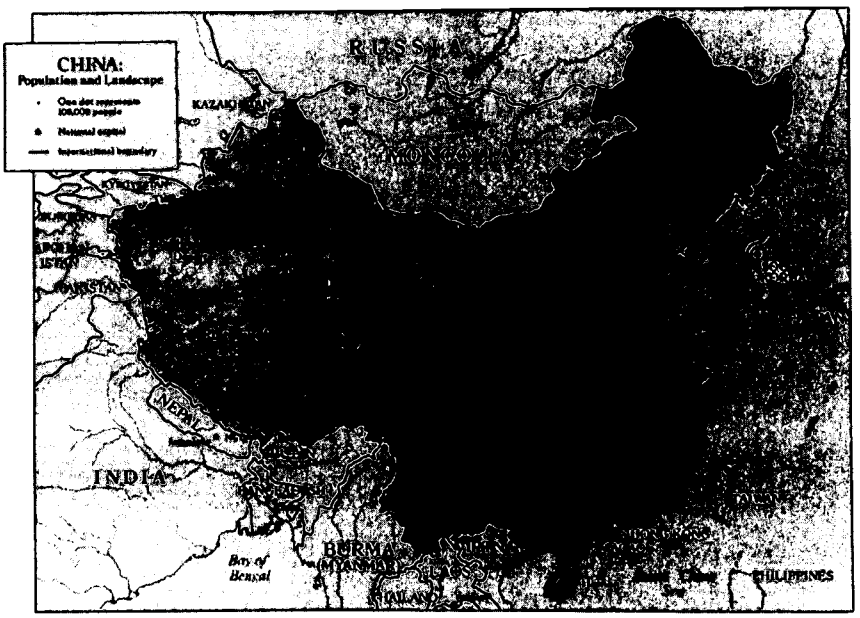

Table by NYSTROM Division of Herff Jones, Inc.

This extended constructed-response question required students to examine the integrated population and landscape map of China and answer two questions, which were scored together. The first question asked which area of the country was densely populated, and the second asked students to give two reasons why this area was densely populated. For a "Complete" response, students were expected to correctly identify one of two areas of population concentration shown on the map (the east coastal area or Sichuan Basin) and to give two appropriate reasons why these areas were so heavily populated. Acceptable reasons were that coastal areas have flat land, suitable for building and agriculture, and they allow for trade with other countries; oceans and rivers are useful for transportation, agriculture, industry, or fishing; much of China is not suitable for settlement; major cities are located in the area; or the area has a lot of business, industry, or agriculture.

An "Essential" response correctly identified one of the areas of population concentration but gave only one acceptable explanation for this settlement pattern. A "Partial" response correctly identified an area of population concentration but offered no appropriate explanation. An "Inappropriate" response neither identified an area of population concentration nor explained why the population would concentrate in such areas. Actual student responses in each of these four rating categories are included below.

Sample "Complete" Response

What area of the country is densely populated (crowded)?

The area that is very densely populated ins the eastern coast of china

Give two reasons why this area of the country is densely populated.

Two reasons this area is densely populatal because the national capital is near and it is close to the water so people can fish.

Sample "Essential" Response

What area of the country is densely populated (crowded)?

Along the coast of the Yellow sea.

Give two reasons why this area of the country is densely populated.

You could export goods easily and import goods easily.

Sample "Partial" Response

What area of the country is densely populated (crowded)?

The area that is is Shanghai because it has many people

Give two reasons why this area of the country is densely populated.

Many people live there and people from other countries might go there

Sample "Inappropriate" Response

What area of the country is densely populated (crowded)?

Asia

Give two reasons why this area of the country is densely populated.

more people

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To correctly answer the first part of the question, students had to read the map key and understand that solid red areas were really clusters of tiny red dots representing population density. For the second part of the question they needed to analyze the various geographic features shown on the map in light of outside knowledge, such as the advantages of settling near the water, to determine what might cause the settlement pattern. Information on student performance on this exercise is presented for both grades 4 and 8 in Table 6.6.

Table 6.6 **Score Percentages for Map of China: Why Crowded in One Area**

THE NATION'S REPORT CARD naep

	Complete	Essential	Partial	Inappropriate	Omit
Grade 4	**5 (0.7)**	**16 (1.0)**	**39 (1.5)**	**24 (1.2)**	**16 (1.2)**
Male	5 (0.9)	17 (1.5)	36 (2.2)	24 (1.6)	19 (1.5)
Female	5 (1.1)	14 (1.2)	42 (2.0)	25 (1.5)	13 (1.6)
White	6 (0.9)	17 (1.4)	42 (2.0)	20 (1.4)	14 (1.4)
Black	2 (0.7)	7 (1.1)	32 (2.6)	38 (3.2)	22 (2.6)
Hispanic	3 (1.1)	12 (2 .4)	34 (4.5)	30 (3.7)	21 (3.4)
Grade 8	**19 (1.4)**	**32 (1.3)**	**31 (1.2)**	**15 (1.2)**	**3 (0.5)**
Male	22 (2.1)	30 (2.0)	31 (1.7)	14 (1.7)	3 (0.6)
Female	17 (1.5)	33 (1.5)	31 (1.7)	16 (1.4)	4 (0.7)
White	22 (1.7)	36 (1.7)	29 (1.5)	12 (1.5)	2 (0.5)
Black	10 (2.0)	17 (2.0)	40 (3.2)	23 (2.8)	10 (2.1)
Hispanic	15 (2.2)	25 (3.3)	36 (3.6)	21 (2.1)	5 (1.2)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 Geography Assessment.

This exercise appears to have been difficult for fourth graders. Almost a quarter of the students provided a response that was scored as "Inappropriate," and 16 percent of fourth graders did not respond at all. Only 21 percent were scored as having a "Complete" or "Essential" answer. Students may have found the question difficult because they had to perform three tasks: locate the highly populated areas on the map, recognize geographic features on the map that would encourage or prevent settlement, and identify the advantages of settling near certain geographic features, such as water or rich agricultural areas.

As expected, eighth graders performed better on this exercise than fourth graders. Half of the students provided a "Complete" or "Essential" response, and only 3 percent omitted the question entirely. Since all but 18 percent of eighth graders received a score of "Partial" or better, it appears that most eighth-grade students could at least read the map key to determine areas of population density.

Sample Geography Question
Grades 4 and 8 — Bar Graph in Atlas: Use and Production of Oil

The following exercise required fourth and eighth graders to extract and interpret information from a bar graph.

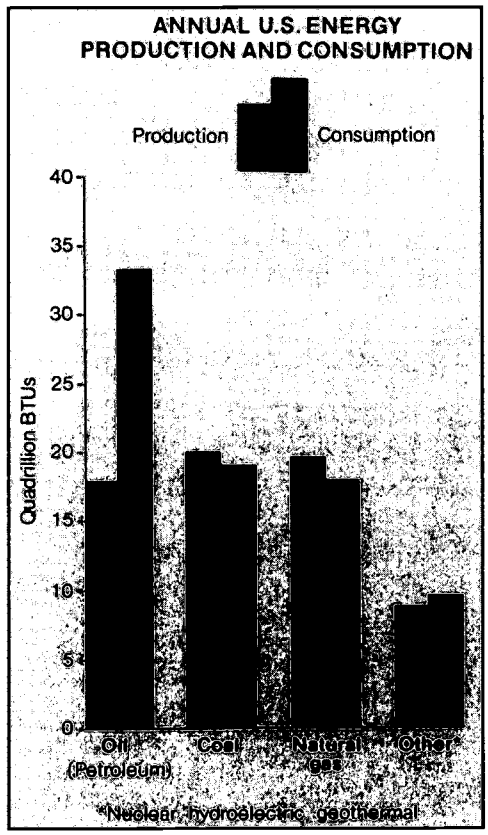

Table by NYSTROM Division of Herff Jones, Inc.

Look at the bar graph on page 31. The graph shows United States energy production and consumption.

Using this graph, compare the United States consumption (use) of oil with its production of oil.

Name one problem that this can cause for the United States.

The directions instructed students to use the bar graph to compare the consumption of oil in the United States with its production, and then to name one problem that this pattern of energy consumption could cause for the United States. This exercise required a short constructed response. A "Complete" response correctly explained that the United States consumes more oil than it produces. It might have specified the range of actual numbers in BTUs that the U.S. produces and consumes. It also explained that the excess of consumption over production could lead to problems such as shortages, dependence on foreign countries, trade imbalance, and a high cost of energy. A "Partial" response correctly explained that the U.S. consumes more oil than it produces, or it identified a problem such as those listed above, but it did not do both. An "Inappropriate" response did neither. No credit was given for simply stating that the U.S. does not have a lot of oil. Actual student responses in each of the three rating categories are included below.

Sample "Complete" Response

The United States consumes more oil than they make

Name one problem that this can cause for the United States.

If other countries ever refused to sell us oil, we would have an oil shortage.

Sample "Partial" Response

U.S only produces between 15 and 20 quadrillion BTUs but consumes btwen 30 and 35

Name one problem that this can cause for the United States.

U.S. is spending more then so they are loosing money

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Sample "Inappropriate" Response

It is either higher or just the same.

Name one problem that this can cause for the United States.

It will use more than cold. Could lose money.

Table 6.7 shows student performance on this exercise. This exercise appears to have been difficult for fourth graders. Almost half of the students provided "Inappropriate" responses, and 29 percent of the fourth graders did not respond at all. The performance of eighth graders was considerably better. More than 40 percent of eighth graders provided responses scored as "Complete," and another 27 percent received a score of "Partial."

Many students, particularly at the eighth grade, appeared able to interpret the bar graph to understand that the United States was using more oil than it produced. Fourth-grade students, however, had particular difficulty drawing upon their outside knowledge to describe problems this could cause for the United States.

Table 6.7 **Score Percentages for Bar Graph in Atlas: Use and Production of Oil**

THE NATION'S REPORT CARD naep

	Complete	Partial	Inappropriate	Omit
Grade 4	**5 (0.6)**	**17 (1.6)**	**49 (1.4)**	**29 (1.8)**
Male	5 (0.9)	19 (2.4)	44 (2.0)	32 (2.3)
Female	4 (0.8)	15 (1.8)	54 (2.1)	27 (2.4)
White	6 (0.9)	21 (2.1)	47 (1.7)	27 (2.0)
Black	0 (0.0)	3 (1.2)	56 (3.9)	42 (3.7)
Hispanic	2 (1.0)	13 (3.5)	52 (4.7)	33 (5.2)
Grade 8	**41 (1.4)**	**27 (1.5)**	**19 (1.0)**	**13 (1.0)**
Male	41 (1.8)	25 (2.5)	18 (1.9)	16 (1.3)
Female	41 (2.2)	29 (1.7)	19 (1.5)	11 (1.4)
White	48 (1.8)	28 (1.7)	16 (1.2)	8 (0.8)
Black	18 (3.6)	25 (2.6)	30 (3.5)	28 (3.3)
Hispanic	22 (2.8)	24 (3.5)	25 (3.3)	29 (4.5)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 Geography Assessment.

Sample Geography Question
Grade 12 — Atlas: Why Is Suez Canal Important?

Study the maps of the Middle East on pages 64 and 65 of the atlas. Using the maps, explain why the Suez Canal is both politically and economically important.

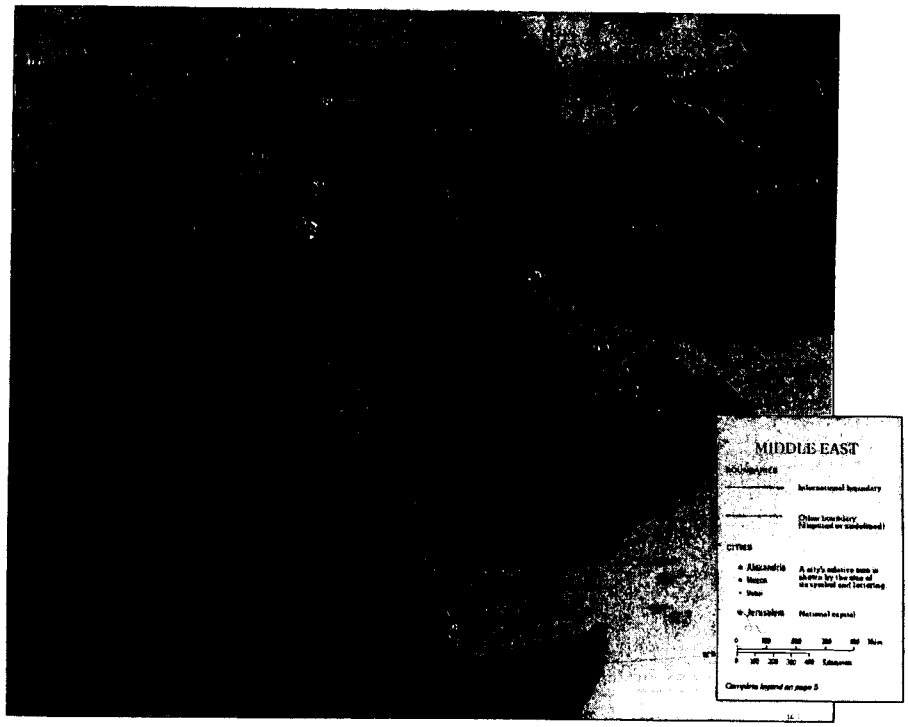


Table by NYSTROM Division of Herff Jones, Inc.

Table by NYSTROM Division of Herff Jones, Inc.

This extended constructed-response question required students to examine various maps of the Middle East and, using information in these maps, explain why the Suez Canal is both politically and economically important. The exercise required students to demonstrate an understanding of the importance of this waterway to the transportation of Middle East oil to international markets.

For a "Complete" response, students were expected to indicate (or imply) the canal's strategic location (the Suez Canal allows access to the Mediterranean and Red Seas) and give one significant political and one significant economic reason why this is so. Acceptable economic reasons specified that the canal allows shipping between Asia and Europe, without the extra cost of traveling around Africa; acceptable political reasons specified that access to the Suez Canal can be used as a bargaining tool by those who control it.

An "Essential" response implied or indicated the canal's strategic location and gave a significant political reason and significant economic reason with little or no explanation of the importance of location. A "Partial" response mentioned the canal's strategic location but did not explain its significance economically or politically. Alternatively, it identified one significant reason with no reference to location. An "Inappropriate" response did not explain the strategic importance of the Suez Canal either politically or economically, nor did it cite location as significant.

Actual student responses in each of these four rating categories are shown on the following two pages.

Sample "Complete" Response

4. Study the maps of the Middle East on the pages 64 and 65 of the atlas. Using the maps, explain why the Suez Canal is both politically and economically important.

The Suez Canal is both politically and economically important. The Suez Canal was built so exports such as petroleum in the Middle East would not have to be carried across land to reach the Mediterranean Sea or by water around Africa. The Suez Canal made it possible to easily transport many goods from Europe to the Middle East and on to India. It still is used for that purpose today.

The Suez Canal has also been the trigger for power struggles. Whoever controls the canal controls all the goods and people that go through. Many countries have fought about the Canal as to take over the Canal.

Sample "Essential" Response

4. Study the maps of the Middle East on pages 64 and 65 of the atlas. Using the maps, explain why the Sez Canal is both politically and economically important.

It is a vital link to countrys such as Saudi Arabia who is a world leading produces in oil to export their commority to their buyers quickly and efficently. It is a short cut for traveling across the world in or on a ship or for shipping goods.

Sample "Partial" Response

4. Study the maps of the Middle East onpages 64 and 65 of the atlas. Using the maps, explain why the Suez Canalo is both politically and economically important.

The Suez Canal is politcally important because one could cross it easily and get to the European middle east countries from Africa or vice versa Economically it provides an easy way for ships to go in or out of these countries for trade.

Sample "Inappropriate" Response

4. Study the maps of the Middle East on pages 64 and 65 of the atlas. Using the maps, explain why the Suez Canal is both politically and economically important.

It's location is surranded by Water.

To correctly answer this question, students had to examine a general political map of the Middle East showing the location of the canal, as well as a specialized map showing major oil fields and tracing the changing boundaries of the Sinai Peninsula, an area which borders the canal. Information about the amount of oil produced by OPEC and other leading petroleum producers was also shown on the same pages. Students had to synethesize all of this information and use it to explain why the Suez Canal is both politically and economically important.

Information on student performance on this exercise is presented in Table 6.8. Almost 40 percent of twelfth-grade students provided a response that was scored as "Complete" or "Essential." Thirty percent gave "Partial" responses, and another 30 percent gave "Inappropriate" responses or omitted the exercise entirely. Most students grasped the importance of the location of the Suez Canal and were able to articulate this in some fashion. Many students were able to identify a reason for the economic importance of the Canal.

Table 6.8 **Score Percentages for Atlas: Why Is Suez Canal Important?**

THE NATION'S REPORT CARD naep

	Complete	Essential	Partial	Inappropriate	Omit
Grade 12	**8 (0.9)**	**31 (1.4)**	**30 (1.2)**	**18 (1.3)**	**12 (1.0)**
Male	11 (1.4)	33 (2.1)	29 (1.9)	17 (1.8)	11 (1.1)
Female	6 (0.9)	29 (2.2)	32 (2.0)	20 (1.5)	13 (1.5)
White	10 (1.2)	34 (1.7)	32 (1.5)	16 (1.7)	8 (1.0)
Black	1 (0.6)	19 (2.0)	26 (3.1)	29 (2.8)	25 (2.8)
Hispanic	6 (1.8)	20 (2.6)	26 (3.1)	23 (2.7)	25 (3.1)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 Geography Assessment.

Sample Geography Question
Grade 12 — Sketch Graph to Show Continent Area

The following exercise from the twelfth-grade assessment required students to interpret tabular data in the atlas and to use that information to construct a graph.

Turn to the World Facts on the inside back cover of the atlas. Using the appropriate information from the tables, sketch bars on the blank graph below to show the approximate areas of the continents listed in square miles (to the nearest million).

Provide a scale to explain your graph.

Asia										
Africa										
Europe										
Antarctica										

WORLD FACTS

LONGEST RIVERS	Miles	Kilometers
Nile, Africa	4,132	6650
Amazon, South America	4,000	6437
Yangtze, Asia	3,915	6300
Mississippi, North America	3,741	6020
Yenisey, Asia	3,443	5540
Huang He, Asia	3,395	5464
Ob, Asia	3,361	5409
Parana, South America	3,032	4880
Congo, Africa	2,900	4700
Amur, Asia	2,761	4444

LARGEST LAKES	AREA	
	sq. mi.	sq. km
Caspian Sea, Asia	143,630	372 000
Lake Superior, North America	31,700	82 103
Lake Victoria, Africa	26,828	69 484
Lake Huron, North America	23,050	59 699
Lake Michigan, North America	22,300	57 757
Aral Sea, Asia	15,444	40 000
Lake Tanganyika, Africa	12,700	32 893
Great Bear Lake, North America	12,275	31 792
Lake Baikal, Asia	12,162	31 499
Lake Nyasa, Africa	11,100	28 749

LARGEST URBAN AREAS	Population
Tokyo-Yokohama, Japan	25,434,000
Mexico City, Mexico	16,901,000
Sao Paulo, Brazil	14,911,000
New York, U.S.	14,598,000
Seoul, South Korea	13,655,000
Osaka-Kobe-Kyoto, Japan	13,582,000
Buenos Aires, Argentina	10,750,000
Calcutta, India	10,482,000
Bombay, India	10,137,000
Rio de Janeiro, Brazil	10,116,000
Moscow, Russia	9,873,000
Los Angeles, U.S.	9,638,000
London, U.K.	9,442,000
Paris, France	8,633,000
Cairo, Egypt	8,595,000
Manila, Philippines	8,485,000
Jakarta, Indonesia	8,122,000
Essen-Dortmund-Duisburg, Ger.	7,604,000
Tehran, Iran	7,354,000
Delhi, India	6,993,000
Shanghai, China	6,698,000
Chicago, U.S.	6,511,000

CONTINENT	LAND AREA sq. mi.	LAND AREA sq. km	Percent of world land area	POPULATION ESTIMATE	Percent of world population
NORTH AMERICA	9,355,000	24 235 800	16.1	416,000,000	8.1
SOUTH AMERICA	6,878,000	17 818 700	11.9	268,000,000	5.2
EUROPE	4,058,000	10 507 800	7.0	685,000,000	13.3
ASIA	17,226,000	44 626 900	29.7	3,009,000,000	58.3
AFRICA	11,667,000	30 225 400	20.1	583,000,000	11.3
OCEANIA*	3,283,000	8 505 000	5.7	198,000,000	3.8
ANTARCTICA	5,500,000	14 248 700	9.5	-----	--

CONTINENT	HIGHEST ELEVATION feet (meters)	LOWEST ELEVATION feet (meters) below sea level
NORTH AMERICA	Mt. McKinley, U.S. 20,320 (6194)	Death Valley, U.S. 282 (86)
SOUTH AMERICA	Mt. Aconcagua, Argentina 22,834 (6960)	Peninsula Valdez, Argentina 131 (40)
EUROPE	Mt. Elbrus, Russia 18,510 (5642)	Caspian Sea, Russia 94 (29)
ASIA	Mt. Everest, Nepal-China 29,028 (8848)	Dead Sea, Israel-Jordan 1,312 (400)
AFRICA	Mt. Kilimanjaro, Tanzania 19,340 (5895)	Lake Assal, Djibouti 512 (156)
OCEANIA*	Jaya Peak, Indonesia 16,500 (5030)	Lake Eyre, Australia 49 (15)
ANTARCTICA	Vinson Massif 16,864 (5140)	-----

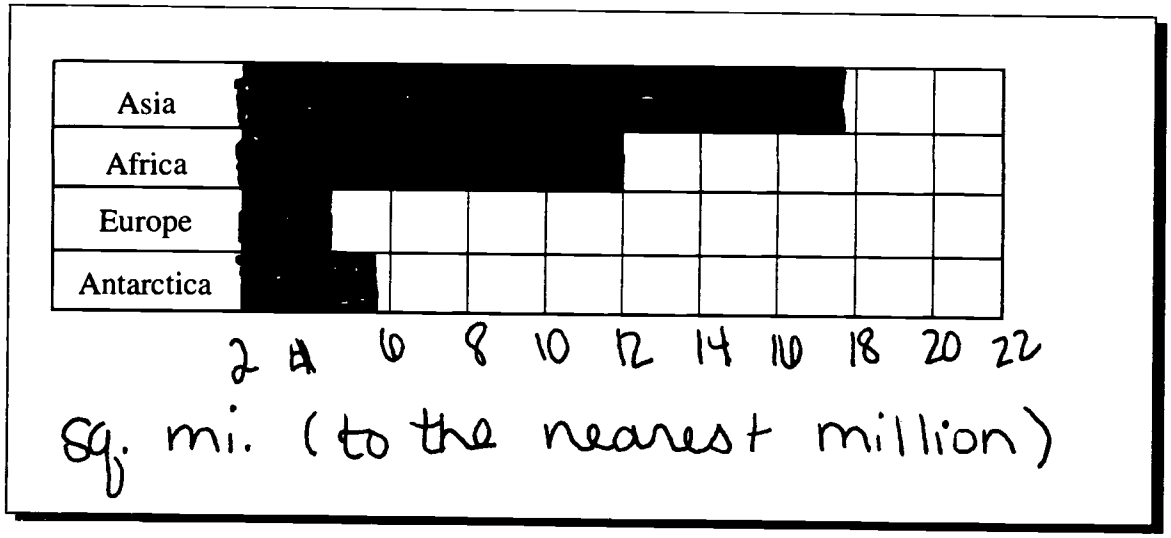
*Australia, New Zealand, and Pacific Islands

Table by NYSTROM Division of Herff Jones, Inc.

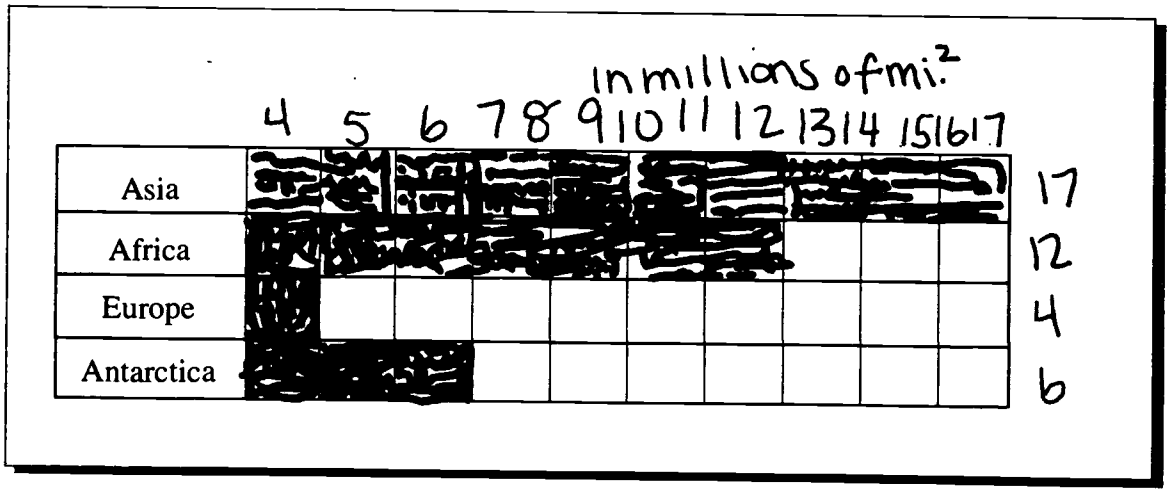
This short constructed-response question required students to review a number of tables presented on one page of the atlas, locate information showing the approximate areas of the continents in square miles, and translate this information into a bar graph. Students were also directed to provide a scale explaining their bar graph.

For a "Complete" response, students were required to accurately draw to scale a bar graph representing the approximate areas of all four listed continents. A "Partial" response contained a graph that accurately displayed the relative proportions of the areas of the continents but was not correct in all details, or contained a graph that accurately reflected the sizes of two or three of the continents but with errors in relative proportion. An "Inappropriate" response did not provide a graph showing approximate areas of any of the continents listed, or provided a sketch but did not give a scale. Actual student responses in each of the three rating categories are included below.

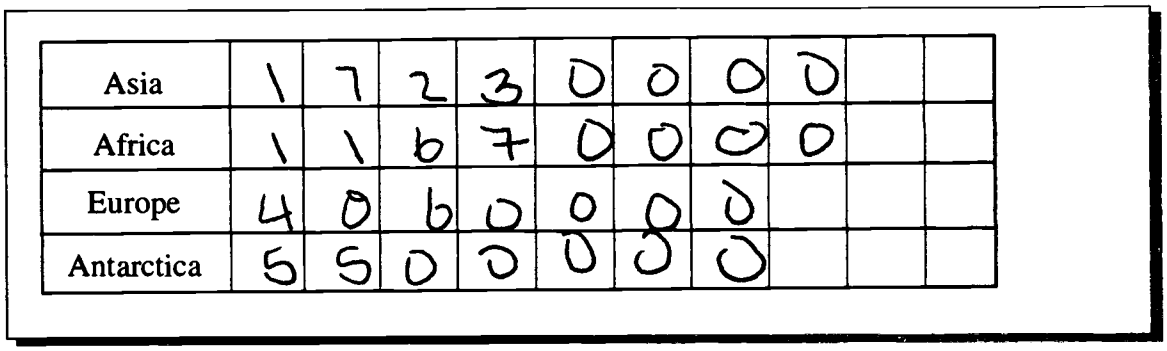
Sample "Complete" Response



Sample "Partial" Response



Sample "Inappropriate" Response



Asia	1	7	2	3	0	0	0	0		
Africa	1	1	6	7	0	0	0	0		
Europe	4	0	6	0	0	0	0			
Antarctica	5	5	0	0	0	0	0			

Information on student performance on this exercise is presented in Table 6.9. A high percentage of twelfth-grade students attempted a response to this item; only 1 percent did not respond at all. Seventy-three percent received at least a score of "Partial" for their response, and 26 percent provided a "Complete" response. The challenges in responding to this question included: 1) locating the table containing the relevant data, 2) appropriately selecting the column that referred to square miles rather than square kilometers, 3) rounding the land area values to millions of square miles, 4) drawing the bar length accordingly, and 5) providing an appropriate scale notation. The majority of students appeared able to locate the relevant information and to generally follow the appropriate conventions for a bar graph. However, substantially fewer were able to complete the full task successfully.

Table 6.9 **Score Percentages for Sketch Graph to Show Continent Area**

THE NATION'S REPORT CARD naep

	Complete	Partial	Inappropriate	Omit
Grade 12	**26 (2.2)**	**47 (1.8)**	**25 (1.7)**	**1 (0.6)**
Male	28 (3.1)	46 (2.4)	25 (2.8)	1 (0.8)
Female	24 (2.7)	49 (2.9)	26 (2.2)	2 (0.7)
White	28 (2.5)	48 (1.9)	23 (2.0)	1 (0.6)
Black	10 (2.7)	42 (4.7)	44 (4.8)	5 (2.7)
Hispanic	7 (3.5)	49 (8.1)	44 (7.1)	0 (0.0)

Standard errors of the estimated percentages appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1994 Geography Assessment.

Summary

The difficulty of the atlas questions is related not only to how well students are able to use an atlas to find information, but also to how well they can: extract information from the map or graphic stimulus, synthesize information from multiple maps or other sources of data, recognize patterns or trends, and analyze and provide reasons for their observations.

The atlas sections proved difficult for students. In many ways, the results of the atlas sections paralleled those of the rest of the assessment. Students showed solid ability to answer questions that involved the use of a single, straightforward map or graphic. Students seemed to have some basic research skills.

However, student performance at each grade level shows that many students still do not have the desired skills. There appears to be a need to provide students with more instruction on using an atlas, the central tool in geography. Students need exposure to and practice with extracting and synthesizing information from a variety of maps. In addition, students seem to need more instruction on the concept of scale, more training in analyzing trends and using outside information to explain the patterns or trends they are observing, and more practice in writing responses that clearly express their ideas. They also seem to have problems with maps other than straightforward or political depictions: relief and physical maps still present problems.

Chapter 7

Conclusions

The 1994 NAEP geography and U.S. history assessments incorporated a number of innovative features to expand the scope of the assessment beyond simple factual recall, to align the assessment tasks with instructional practices, and to make the assessment more engaging to students. This report has focused on one of these features — the use of a variety of tools and resources as stimuli for assessment questions. Many of the tools and resources selected for the assessment are particularly important in the fields of geography and history. For example, atlases and maps are inextricably tied to the study of geography, while primary source documents are of paramount importance in historical studies. Other materials, such as charts, graphs, and tables, are relevant to a wide range of disciplines. The use of these stimulus materials in the assessment allowed the assessment to more realistically measure the skills students should acquire through their study in the fields of geography and history.

Students were asked to demonstrate a variety of skills in response to the questions that incorporated tools and resources as stimuli. For example, questions that asked about map conventions, or that required students to read information from a chart or graph, were among those that focused on direct comprehension of the stimuli. Some questions required factual recall of information not included in the stimulus, while other questions required interpretation and analysis, or application and evaluation of the stimulus information. In many questions, students were asked to use a combination of skills; for example, extracting information about a social trend from a chart and then bringing in outside factual or conceptual knowledge to explain the reasons for the trend. Student performance on the exercises described in this report should not, therefore, be interpreted solely as a reflection of students' ability to read and understand the stimuli. Nevertheless, in general, the stimuli were essential features of the questions, and students had to read and understand them in order to respond correctly.

For the purposes of this report, questions that used a tool or resource as a stimulus were classified into one of six categories and discussed separately in the following groupings:[1]

Primary Source questions — which included questions that used text-based primary source documents as stimuli.

Map questions — which included questions that used a map as a stimulus, exclusive of those that were part of the atlas block.

Graphic questions — which included questions that used a chart, graph, table, or timeline as a stimulus, exclusive of those that were part of the atlas block.

Atlas questions — which referred to a block of questions that used a Nystrom atlas as a resource.

Photograph and Art questions — which included questions that used stimuli such as photographs, paintings, cartoons, and posters.

Although the assessment questions have been categorized in terms of the stimuli they employed, it is important to recognize that the skills students were asked to apply crossed stimulus categories. For example, many questions in each category required that students recall factual or conceptual historical or geographical knowledge. Many questions across categories also required students to use analytical thinking skills to explain or interpret the historical or geographical phenomena depicted in the stimuli.

Student Performance

The complexity of the stimuli presented to students in the 1994 assessments reflected expert judgment regarding the level of expertise that well-prepared students ought to have developed with these tools and resources at each grade level. However, although student performance on the various questions showed that students at all grade levels had some familiarity with the different tools and resources, many students apparently found these questions quite difficult.

[1] Some of the questions in the 1994 geography and U.S. history assessments used stimuli that included materials from more than one tool and resource category. These questions, although very interesting, were few in number and have not been discussed in this report.

Primary Source Questions

Student performance on primary source documents varied depending on the factual knowledge that students were required to have in order to answer the questions, the format of primary source documents presented, and the level of analytical skills required to respond fully to the question. Based on the subset of questions that were presented to students across two grades, it was also evident that students in higher grades were better able to recognize and understand specific primary sources than those in lower grades.

Although many students appeared to have had sufficient exposure to a variety of primary sources to allow them to identify the author of the document or interpret the information provided, they were less able to use the information in the documents to explain historical issues. Students were able to read and understand differing perspectives expressed in primary source documents such as letters, speeches, and news articles, but only at a superficial level.

Map Questions

Most students at all three grade levels seemed to have a basic understanding of maps and the information they provide. For example, the majority of fourth graders were able to locate the equator, the north pole, and the south pole; and almost half of eighth graders were able to identify parallels of latitude. However, it appeared that there were still many students with low levels of map literacy. For example, although many students were able to find the directions north, south, east, or west, they had greater difficulty with directions such as southeast or northeast. Similarly, many students understood the concept of scale but were less adept at using it.

When it came to constructing their own maps, a substantial proportion of students had some knowledge about how to create and use a variety of map conventions. That is, they were able to draw a partially correct map from a textual description. The majority of students, however, were not able to draw, or were not careful about drawing, the completely correct rendition.

Based on their performance, it appeared that many eighth- and twelfth-grade students had been prepared to interpret geographic features on maps and to understand how such features, whether natural or introduced, can impact people's lives and the decisions they make. Many students, however, found it difficult to clearly explain their understanding of these concepts in writing.

Questions Based On Graphs, Charts, and Tables

Many of the students at each of the grade levels were able to correctly extract data from simple graphs, charts, and tables. This suggests that many of these students were exposed to these tools and have a basic understanding of how to use them. However, the more complex the graphs, charts, and tables, the fewer the students who were able to understand the data presented in them. Furthermore, students' performance suggested that it was difficult for most students to bring in outside knowledge to explain the data or phenomena illustrated in the graphic stimuli.

Students in the eighth and twelfth grades were asked to draw a simple pie chart from tabular data. Most of the students were able to produce at least a partially correct pie chart. However, their performance indicated that their understanding of how to construct such a chart was not comprehensive. Many, for example, failed to label the pie segments correctly.

Photograph and Art Questions

Most students in all grade levels were able to extract direct clues to historical events or patterns from pictorial sources. Many were even able to connect the clues in photographs and art to historical contexts and make some simple inferences. At the twelfth grade, in particular, many students were able to understand artistic intent as well as the literal meaning of what they were seeing. As with questions utilizing other types of stimuli, however, when students were required to formulate explanations in their own words, they found the questions more difficult to answer correctly.

Atlas Questions

Based on their performance on the 1994 geography assessment, it might be inferred that students had some but perhaps not enough instruction in the use of an atlas as a resource. Although performance on the atlas questions was expectedly more advanced for students in higher grades, students at all grades appeared to need more practice extracting and synthesizing information from maps. In addition, the need for more instruction on the concept of scale and more training in analyzing trends and using outside information to explain observed patterns or trends was suggested by students' performance on the atlas questions. Furthermore, student responses to the constructed-response atlas questions, and to the constructed-response questions in the assessment overall, suggest that students need more practice expressing their ideas in writing.

Summary

Although the students who participated in the 1994 NAEP assessments in geography and U.S. history were familiar with the different types of tools and resources presented to them, for many students the familiarity lacked depth. That is, most students had some knowledge of what the tool or resource was and what it offered in terms of information, but few students were able to understand how to most effectively and appropriately interact with the tool or resource in order to provide a complete response. Also, the many questions requiring higher order thinking skills and the written expression of ideas were difficult, irrespective of the particular resource or tool involved. In addition, although factual knowledge questions were often easier than questions that asked for explanations, interpretations, or opinions, the level of difficulty still often depended on students' exposure to the content knowledge required rather than on the particular stimulus used in the question.

Tools and resources can invite students to engage more fully with the content of geography and history and can serve to increase students' ability to think analytically. Furthermore, students are expected to be able to understand and use these tools and resources in everyday life as well as in their studies of geography and history. Therefore, it is imperative that students' instruction include more exposure to and a more comprehensive treatment of these types of materials.

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