



## Overview of Procedures Used in the NAEP 1998 Civics Assessment

### Introduction

This appendix provides information about the methods and procedures used in NAEP's 1998 civics assessment. The *NAEP 1998 Civics Technical Report* contains more extensive information about these procedures.

This NAEP report is based on results from six fourth-grade civics exercise blocks, eight eighth-grade civics exercise blocks, and eight twelfth-grade civics exercise blocks. In addition, there were two trend blocks at each grade. (Results of the trend study will appear in a separate report.) The assessment in each of the grades was conducted during the 1997-98 school year. More information about the composition of the civics assessment is presented below.

### Background of the Civics Assessment

The 1998 civics assessment measured student achievement based on assessment objectives developed by nationally representative panels of civics educators and concerned citizens. The objectives for each assessment were based on the framework assessment developed by The Council of Chief State School Officers in conjunction with the Center for Civic Education and the American Institutes for Research and approved by the National Assessment Governing Board to reflect content and process in school civics. That is, the objectives for the 1998 civics assessment were not comparable to those of the 1988 assessment, and thus, results are not comparable to those of previous years.

The 1998 civics assessment contained multiple-choice and constructed-response questions measuring aspects of the framework and specifications. Each assessment booklet contained blocks of student background questions as well as civics cognitive questions. The civics assessment contained a range of questions measuring performance on sets of objectives developed by a nationally representative panel of citizens. The framework's purpose was to provide a definition of civics on which to base the NAEP assessment. Developing this framework and the specifications that guided development of the assessment involved the critical input of many people, including representatives of national education organizations, teachers, parents, policymakers, business leaders, and members of the general public. This consensus process was managed by the Council of Chief State School Officers for the National Assessment Governing Board.

NAEP previously assessed students' performance in a civics assessment conducted during the school year ending in 1988. Because of the development of a completely new framework and specifications, direct comparisons between the results of the 1998 assessment and earlier assessment are not possible. However, two blocks of items from the 1988 assessment, based on the old framework, were readministered to a subsample of students at each grade in 1998, making possible a 10-year comparison of performance on certain of the 1988 items. The results will be published in a forthcoming separate report.

The tasks required students to read and answer questions based on a variety of materials. The assessment was designed to evaluate students' ability to recall specific information, make inferences based on an information passage or graphical stimulus (e.g., a political cartoon), or perform more analytical or evaluative tasks such as distinguishing opinion from fact or defending a position. The assessment administered at grade 4 included 90 items, 21 of them constructed-response, at grade 8, 151 items, 28 of them constructed response, and at grade 12, 152 questions, 29 of them requiring constructed responses.

## The Design of the Civics Assessment

The civics assessment consisted of eight different 25-minute segments or “blocks” of content questions at grades 8 and 12, and six at grade 4. Each also contained a small set of background questions that pertained to students’ experiences, instruction, and attitudes related to civics and to the testing experience.

The cognitive blocks were assembled two to a booklet, together with a general background questionnaire, a civics background questionnaire, and a motivation block that were common to all booklets. The general background questionnaire included questions about demographic information and home environment. The blocks were placed in 32 booklets (18 at grade 4), each containing 15 items in grade 4, and all but one containing 19 items (the exception containing 18) in the other two grades.

## Sampling and Data Collection

Sampling and data collection activities for the 1998 civics assessment were conducted by Westat, Inc. Based on procedures used since the inception of NAEP, the data collection for all three grades took place in the winter (January to March 1998).

As with all NAEP national assessments, students in the civics assessment attending both public and nonpublic schools were selected for participation based on a stratified, three-stage sampling plan. The first stage included defining geographic primary sampling units (PSUs), which are typically groups of contiguous counties, but sometimes a single county; classifying the PSUs into strata defined by region and community type; then selecting PSUs with probability proportional to size. In the second stage, both public and nonpublic schools are selected within each PSU that was selected at the first stage. The third stage involved randomly selecting students within a school for participation. (See the forthcoming *NAEP 1998 Technical Report* for further details.) A small number of students selected for participation was excluded because of limited English proficiency or severe disability. However, testing accommodations were offered to facilitate including as many of these students as possible.

The student sample sizes for the civics assessment, as well as the school and student participation rates, are presented in the following tables. The numbers in the tables are based on the full grade samples of students, taken when the grade samples were collected. Student sample sizes appear in Table A.1. School and student participation rates are shown in Table A.2. Although sampled schools that refused to participate were replaced, school cooperation rates were computed based on the schools originally selected for participation in the civics assessment. The student participation rates represent the percentage of students assessed of those invited to be assessed, including those assessed in follow-up sessions when necessary.

**Table A.1**



NAEP civics sample sizes of main assessment and trend assessment, grades 4, 8, and 12: 1998

	Grade 4	Grade 8	Grade 12
<b>Main assessment</b>			
Assessed sample size	5,948	8,212	7,763
Excluded	407	341	247
<b>Trend assessment*</b>			
Assessed sample size	2,088	2,055	2,193
Excluded**	176	186	103

\*Results reported separately.

\*\*Accommodations were offered in the Main Civics Assessment, but were not available in the special trend study, so as to preserve comparability to 1988. About half as many students in the main study were accommodated as were excluded. In the trend samples, most, but not all students who would have been offered accommodations had they been in the main study were excluded, leading to higher exclusion rates in the trend study.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table A.2**



NAEP civics school and student participation rates for the nation, grades 4, 8, and 12: 1998

	Grade 4	Grade 8	Grade 12
<b>Civics main assessment</b>			
School participation rate	88.6%	84.6%	78.0%
Student participation rate	94.8%	92.3%	79.4%

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

The overall response rate (the product of the weighted school participation rate before substitution and the weighted student participation rate) for grade 12 fell below the NCES reporting target of 70 percent. As a result, the background characteristics of both responding schools and all schools were compared to determine whether there was bias evident. The similarities in the distribution lend support to the conclusion that the data are not seriously biased by these low response rates.

## **Students with Disabilities (SD) and Limited English Proficient (LEP) Students**

It is NAEP's intent to assess all selected students from the target population. Therefore, every effort is made to ensure that all selected students who are capable of participating in the assessment are assessed. Some students sampled for participation in NAEP can be excluded from the sample according to carefully defined criteria. These criteria were revised in 1996 to more clearly communicate a presumption of inclusion except under special circumstances. According to these criteria, students with Individualized Education Programs (IEPs) were to be included in the NAEP assessment except in the following cases:

1. The school's IEP team determined that the student could not participate, OR,
2. The student's cognitive functioning was so severely impaired that she or he could not participate.

In cases where a student's IEP required that the student be tested with an accommodation or adaptation and stated that the student could not demonstrate his or her knowledge without that accommodation, the student was provided with the appropriate accommodation.

All LEP students receiving academic instruction in English for three years or more were to be included in the assessment. Those LEP students receiving instruction in English for less than three years were to be included unless school staff judged them incapable of participating in the assessment in English.

The reporting samples in the 1998 civics assessment used these criteria, with provisions made for accommodations. Students with disabilities or with limited English proficiency were included in the sample in the following way. At each grade one test booklet (two blocks) was designated to be the one administered to students requiring accommodations (the booklet was also administered to students not requiring accommodations). The booklet contained relatively few visual stimuli, for the sake of visually impaired students who might participate. Students were given accommodations that matched as closely as possible those provided them in other testing situations by their schools or instructors (most frequently, small group administration). Those students who did not typically need accommodations for testing were not provided with them.

All the scale score and achievement level information in this report is based on a student sample that includes students who were provided with accommodations. The responses of students assessed with accommodations were evaluated according to the same criteria as those of students assessed without accommodations. Data on the individual questions presented in chapter 1, however, do not include responses from accommodated students because the questions only appeared in test booklets that were not administered to students requiring accommodations.

Participation rates for the students with disabilities and LEP samples are presented in Table A.3 for all three grades. This table includes as the denominator the total number of all students who were identified for the assessment, including assessed and excluded students. The columns then show the raw numbers and weighted percentages of SD and LEP students who were identified for the assessment. The numbers and percentage are broken out by those excluded and those assessed, then further broken out into those assessed without accommodations and those assessed with accommodations.

**Table A.3**



Students with disabilities and limited English proficient students in NAEP civics assessment: National sample, public and nonpublic schools combined: 1998

Students that are:	Grade 4		Grade 8		Grade 12	
	Number of students	Weighted percentage of students sampled	Number of students	Weighted percentage of students sampled	Number of students	Weighted percentage of students sampled
<b>SD and LEP Students</b>						
Identified	1,064	15	1,099	13	759	8
Excluded	407	5	341	4	247	2
Assessed	657	10	758	9	512	6
Assessed without accommodations	450	6	537	6	406	5
Assessed with accommodations	207	3	221	3	106	1
<b>Students with disabilities</b>						
Identified	608	11	811	11	513	6
Excluded	213	3	252	3	212	2
Assessed	395	7	559	8	301	4
Assessed without accommodations	216	4	354	4	209	3
Assessed with accommodations	179	3	205	3	92	1
<b>Limited English proficient students</b>						
Identified	493	5	332	3	266	2
Excluded	221	2	116	1	46	▲
Assessed	272	3	216	2	220	2
Assessed without accommodations	240	2	192	2	201	2
Assessed with accommodations	32	▲	24	▲	19	▲

▲ Percentage is between 0.0 and 0.5.

NOTE: The combined SD/LEP portion of the table is not a sum of the separate SD and LEP portions because some students were identified as both SD and LEP. Such students would be counted separately in the bottom portions but counted only once in the top portion. Within each portion of the table, percentages may not sum properly due to rounding.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

Table A.4 displays the numbers and percentages of SD and LEP students assessed with the variety of available accommodations. It should be noted that students assessed with accommodations typically received some combination of accommodations. For example, students assessed in small groups (as compared to standard NAEP sessions of about 30 students) usually received extended time and had directions and/or assessment questions read aloud as needed. In one-on-one administrations, students often received assistance in recording answers, had directions and questions read aloud, and were afforded extra time. Extended time was considered the primary accommodation only when it was the only accommodation provided.

Tables A.4a and A.4b display the accommodations data for students with disabilities and LEP students, respectively. The denominator used to calculate the percentages for each of these tables is the total number of SD or LEP students assessed, as appropriate to the table.

**Table A.4**



SD and LEP students assessed with and without accommodations, NAEP civics assessment: National sample, public and nonpublic schools combined: 1998

	Grade 4		Grade 8		Grade 12	
	Number of students	Weighted percentage of assessed SD/LEP students	Number of students	Weighted percentage of assessed SD/LEP students	Number of students	Weighted percentage of assessed SD/LEP students
<b>Total number of assessed SD/LEP students</b>	657	100	758	100	512	100
<b>Assessed without accommodations</b>	450	64	537	65	406	78
<b>Assessed with accommodations</b>	207	36	221	35	106	22
<b>Primary accommodation:</b>						
Large print	1	▲	1	▲	1	▲
Extended time	51	8	70	11	40	8
Read aloud	6	1	9	1	1	▲
Bilingual dictionary	1	▲	1	▲	2	▲
Small group	125	22	128	20	54	12
One-on-one	15	3	8	1	6	1
Scribe or computer	3	1	2	1	0	0
Other	5	1	2	▲	2	1

▲ Percentage is between 0.0 and 0.5.

SD = Students with Disabilities (the term previously used was IEP)

LEP = Limited English Proficient students

NOTE: Percentages are based on total combined SD and LEP students assessed.

The sum of percentages of students by primary accommodation may not total the overall percentage assessed with accommodations due to rounding.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table A.4a**

Students with disabilities assessed with and without accommodations, NAEP civics assessment: National sample, public and nonpublic schools combined: 1998

	Grade 4		Grade 8		Grade 12	
	Number of students	Weighted percentage of assessed SD students	Number of students	Weighted percentage of assessed SD students	Number of students	Weighted percentage of assessed SD students
<b>Total number of assessed SD students</b>	395	100	559	100	301	100
<b>Assessed without accommodations</b>	216	56	354	60	209	71
<b>Assessed with accommodations</b>	179	44	205	40	92	29
<b>Primary accommodation:</b>						
Large print	1	▲	1	▲	1	▲
Extended time	39	9	60	12	34	10
Read aloud	4	1	8	1	1	▲
Bilingual dictionary	1	▲	0	0	0	0
Small group	114	29	124	24	48	16
One-on-one	12	3	8	2	6	2
Scribe or computer	3	1	2	1	0	0
Other	5	1	2	▲	2	1

▲ Percentage is between 0.0 and 0.5.

SD = Students with Disabilities (the term previously used was IEP)

NOTE: Percentages are based on total SD students assessed.

The sum of percentages of students by primary accommodation may not total the overall percentage assessed with accommodations because of rounding.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table A.4b**

Limited English proficient students assessed with and without accommodations, NAEP civics assessment: National sample, public and nonpublic schools combined: 1998

	Grade 4		Grade 8		Grade 12	
	Number of students	Weighted percentage of assessed LEP students	Number of students	Weighted percentage of assessed LEP students	Number of students	Weighted percentage of assessed LEP students
<b>Total number of assessed LEP students</b>	272	100	216	100	220	100
<b>Assessed without accommodations</b>	240	89	192	90	201	92
<b>Assessed with accommodations</b>	32	11	24	10	19	8
<b>Primary accommodation:</b>						
Large print	0	0	0	0	0	0
Extended time	12	4	12	6	8	3
Read aloud	2	1	3	1	0	0
Bilingual dictionary	0	0	1	▲	2	1
Small group	13	5	8	3	7	3
One-on-one	4	2	0	0	2	1
Scribe or computer	0	0	0	0	0	0
Other	1	▲	0	0	0	0

▲ Percentage is between 0.0 and 0.5.

LEP = Limited English Proficient students

NOTE: Percentages are based on total LEP students assessed.

The sum of percentages of students by primary accommodation may not total the overall percentage assessed with accommodations because of rounding.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

## Scoring the Booklets

Booklets from NAEP 1998 civics assessment were shipped to National Computer Systems (NCS) in Iowa City, Iowa, for processing. Receipt and quality control were managed through a sophisticated bar-coding and tracking system. After all appropriate materials were received from a school, they were forwarded to the professional scoring area, where the responses to constructed-response questions were evaluated by trained staff using guidelines prepared by NAEP. Each constructed-response question had a unique scoring guide that defined the criteria to be used in evaluating students' responses. Subsequent to the professional scoring, the booklets were scanned and all information was transcribed to the NAEP database at ETS. Each processing activity was conducted with rigorous quality control. An overview of the professional scoring follows.

## Scoring the Civics Constructed-Response Questions

Most of the constructed-response questions were scored on a partial credit basis. The scoring guides identified the correct or acceptable answers for each question in each block. The scores for these questions included a 0 for no response and a 1 for an incorrect or "I don't know" response. Completely correct answers received from 2 to 4 points, with intermediate scores awarded for varying degrees of partial credit. Because of the complex nature of the scoring, lengthy training was required. In an orientation period, the readers were trained to follow the procedures for scoring the questions and given an opportunity to become familiar with the scoring guides.

The 1998 grade 8 assessment included 28 questions for which students were required to construct written responses. The scoring guides for the constructed-response questions focused on students' ability to perform various tasks: for example, identifying the intended message of a poster and substantiating their interpretations with examples. The scoring guides for the questions varied somewhat, but typically included the distribution of score points shown below in Table A.5.

**Table A.5**

Labels for score levels of polytomous items, NAEP civics assessment: 1998

Score	3-category item	4-category item
4		Complete
3	Complete	Acceptable
2	Partial	Partial
1	Unacceptable	Unacceptable
0	Off-task, or omitted	Off-task, or omitted

NOTE: The categories falling between "Unacceptable" and "Complete" represent increasing levels of a partially correct response.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

The training program for the assessment scoring was carried out on all assessment questions, one at a time, for each age group and covered the range of student responses. The actual training was conducted by ETS staff assisted by NCS's scoring director and team leaders. Training began with each reader receiving a photocopied packet of materials consisting of a scoring guide, a set of 10–15 anchor papers, and an additional 15–20 response samples to be scored by the reader for practice. The trainers reviewed the scoring guide with the readers, explained all the applicable score points, and elaborated on the rationale used to arrive at a particular score. The readers then reviewed the anchor papers, as the trainers clarified and elaborated on the scoring guide. After this explanation, the practice samples were scored and discussed until the readers were in agreement. If necessary, additional packets of 1998 responses were used for practice scoring.

After some further discussion, scoring of the 1998 responses began. If scoring of a question ran over to a second day, the readers reviewed the scoring guides and scored 10–20 “qualification” sample papers before resuming scoring.

Real-time reliability studies were conducted as part of this scoring, and the results fed back to scoring table leaders to monitor and improve results through rescoring and retraining. For the 1998 material, 25 percent of the constructed responses were scored by a second reader to produce interreader reliability statistics. The reliability information from these studies is shown in Table A.6.

**Table A.6**



Interrater reliabilities for scoring of civics open-ended items, grades 4, 8, and 12: 1998

	Grade 4	Grade 8	Grade 12
Percent exact agreement	89	87	85
Range of percent agreement	81–98	68–96	72–93
Reliability coefficient	.897	.895	.896

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

## Data Analysis and IRT Scaling

After the assessment information had been compiled in the NAEP database, the data were weighted according to the sample design and the population structure. The weighting for the samples reflected the probability of selection for each student as a result of the sampling design, adjusted for nonresponse. Through poststratification, the weighting assured that the representation of certain subpopulations corresponded to figures from the U.S. Census and the Current Population Survey.

Analyses were then conducted to determine the percentage of students who gave various responses to each cognitive and background question. Item response theory (IRT) was used to estimate average proficiency for the nation and for various subgroups of interest within the nation. IRT scaling was performed separately within each grade level for each of the three civics assessment grades.

IRT models the probability of answering a question correctly as a mathematical function of proficiency or skill. The main purpose of IRT analysis is to provide a common scale on which performance can be compared across groups, such as those defined by age, assessment year, or subpopulations (e.g., race/ethnicity or gender).

Students do not receive enough questions about a specific topic to permit reliable estimates of individual performance. Traditional test scores for individual students, even those based on IRT, would contribute to misleading estimates of population characteristics, such as subgroup averages and percentages of students at or above a certain proficiency level. Instead, NAEP constructs sets of plausible values designed to represent the distribution of proficiency in the population.<sup>1</sup> A plausible value for an individual is not a scale score for that individual but may be regarded as a representative value from the distribution of potential scale scores for all students in the population with similar characteristics and identical patterns of item response. Statistics describing performance on the NAEP scales are based on these plausible values. These statistics estimate values that would have been obtained had individual proficiencies been observed, that is, had each student responded to a sufficient number of cognitive questions so that his or her proficiency could be precisely estimated. For the 1998 civics exercises, a single IRT scale was constructed for each grade. These scales had identical means and standard deviations, so that reflecting the assessment design with no common items across grades, cross-grade comparisons are neither meaningful nor possible.

For the civics assessment, a scale ranging from 0 to 300 was created, using a generalized partial-credit (GPC) model.<sup>2</sup> Developed by ETS and first used in 1992, the GPC model permits the scaling of tasks scored according to multi-point rating schemes. The model takes full advantage of the information available from each of the student response categories used for these more complex performance tasks.

As described earlier, the NAEP scales for all the subjects make it possible to examine relationships between students' performance and a variety of background factors measured by NAEP. The fact that a relationship exists between achievement and another variable, however, does not reveal the underlying cause of the relationship, which may be influenced by a number of other variables. Similarly, the civics assessment does not capture the influence of unmeasured variables. The results are most useful when they are considered in combination with other information about the student population and the educational system, such as changes in instruction, changes in the school-age population, and societal demands and expectations.

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<sup>1</sup> For theoretical justification of the procedures employed, see Mislevy, R.J. (1988). Randomization-based inferences about latent variables from complex samples. *Psychometrika*, 56 (2), 177-96.

For computational details, see the forthcoming *NAEP 1998 Technical Report*.

<sup>2</sup> Muraki, E. (1992). A generalized partial-credit model: Application of an EM algorithm. *Applied Psychological Measurement*, 16(2). 159-176.

## NAEP Reporting Groups

This report contains results for the nation and for groups of students within the nation defined by shared characteristics. The subgroups defined by race/ethnicity, parents' education level, gender, and region are defined below.

### Race/Ethnicity

Results are presented for students in different racial/ethnic groups according to the following mutually exclusive categories: White, Black, Hispanic, Asian/Pacific Islander, and American Indian (including Alaskan Native). Some racial/ethnic results are not reported separately because there were too few students in the group. The data for all students, regardless of whether their racial/ethnic group was reported separately, were included in computing the overall national results.

Two questions from the set of general student background questions were used to determine race/ethnicity:

If you are Hispanic, what is your Hispanic background?

- I am not Hispanic.
- Mexican, Mexican American, or Chicano
- Puerto Rican
- Cuban
- Other Spanish or Hispanic background

Students who responded to this question by filling in the second, third, fourth, or fifth oval were considered Hispanic. For students who filled in the first oval, did not respond to the question, or provided information that was illegible or could not be classified, responses to the following question were examined to determine their race/ethnicity:

Which best describes you?

- White (not Hispanic)
- Black (not Hispanic)
- Hispanic (“Hispanic” means someone who is Mexican, Mexican American, Chicano, Puerto Rican, Cuban, or from some other Spanish or Hispanic background.)
- Asian or Pacific Islander (“Asian or Pacific Islander” means someone who is from a Chinese, Japanese, Korean, Filipino, Vietnamese, Asian American, or from some other Asian or Pacific Island background.)
- American Indian or Alaskan Native (“American Indian or Alaskan Native” means someone who is from one of the American Indian tribes, or one of the original people of Alaska.)
- Other (specify) \_\_\_\_\_

## Parents' Education Level

Students were asked to indicate the extent of schooling for each of their parents: did not finish high school, graduated from high school, had some education after high school, or graduated from college. The response indicating the higher level of education for either parent was selected for reporting.

Students were asked to indicate the extent of their mother's education by answering the following three questions:

Did your mother graduate from high school? ("Mother" can be a mother, stepmother, or female guardian.)

- Yes
- No
- I don't know.

Did your mother have some education after high school? ("Mother" can be a mother, stepmother, or female guardian.)

- Yes
- No
- I don't know.

Did your mother graduate from college? ("Mother" can be a mother, stepmother, or female guardian.)

- Yes
- No
- I don't know.

Students were asked the same three questions about their father's education level, as shown below:

Did your father graduate from high school? ("Father" can be a father, stepfather, or male guardian.)

- Yes
- No
- I don't know.

Did your father have some education after high school? ("Father" can be a father, stepfather, or male guardian.)

- Yes
- No
- I don't know.

Did your father graduate from college? (“Father” can be a father, stepfather, or male guardian.)

- Yes
- No
- I don’t know.

**Gender**

Results are reported separately for males and females. Gender was reported by the student.

**Region**

The United States was divided into four regions: Northeast, Southeast, Central, and West. States in each region are shown on the map below. Each state except Virginia is contained entirely in one region. The part of Virginia that is part of the Washington, D.C.-Maryland-Virginia metropolitan statistical area is included in the Northeast region; the remainder of the state is included in the Southeast region.

**Figure A.1**



States included in the four NAEP regions

Northeast	Southeast	Central	West
Connecticut	Alabama	Illinois	Alaska
Delaware	Arkansas	Indiana	Arizona
District of Columbia	Florida	Iowa	California
Maine	Georgia	Kansas	Colorado
Maryland	Kentucky	Michigan	Hawaii
Massachusetts	Louisiana	Minnesota	Idaho
New Hampshire	Mississippi	Missouri	Montana
New Jersey	North Carolina	Nebraska	Nevada
New York	South Carolina	North Dakota	New Mexico
Pennsylvania	Tennessee	Ohio	Oklahoma
Rhode Island	*Virginia	South Dakota	Oregon
Vermont	West Virginia	Wisconsin	Texas
*Virginia			Utah
			Washington
			Wyoming

\* The part of Virginia that is included in the Washington, DC metropolitan area is included in the Northeast region; the remainder of the state is included in the Southeast region.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

## Weighting and Variance Estimation

A complex sample design was used to select the students who were assessed. The properties of a sample selected through a complex design could be very different from those of a simple random sample, in which every student in the target population has an equal chance of selection and in which the observations from different sampled students can be considered to be statistically independent of one another. Therefore, the properties of the sample for the complex data collection design were taken into account during the analysis of the assessment data. Standard errors calculated as though the data had arisen from a simple random sample would generally underestimate sampling error.

One way that the properties of the sample design were addressed was by using sampling weights to account for the fact that the probabilities of selection were not identical for all students. All population and subpopulation characteristics based on the assessment data used sampling weights in their estimation. These weights included adjustments for school and student nonresponse.

The statistics presented in this report are estimates of group and subgroup performance based on samples of students, rather than the values that could be calculated if every student in the nation answered every assessment question. It is therefore important to have measures of the degree of uncertainty of the estimates. Accordingly, in addition to providing estimates of percentages of students and their average scale score, this report provides information about the uncertainty of each statistic.

Two components of uncertainty are accounted for in the variability of statistics based on scale scores: the uncertainty due to sampling only a small number of students relative to the whole population and the uncertainty due to sampling only a relatively small number of questions. The variability of estimates of percentages of students having certain background characteristics or answering a certain cognitive question correctly is accounted for by the first component alone. Because NAEP uses complex sampling procedures, conventional formulas for estimating sampling variability that assume simple random sampling are inappropriate. For this reason, NAEP uses a jackknife replication procedure to estimate standard errors due to sampling from means of paired primary sampling units (PSU's). The jackknife standard error provides a reasonable measure of uncertainty for any information about students that can be observed without error, but each student typically responds to so few questions within any content area that the scale score for any single student would be imprecise. In this case, using plausible values technology makes it possible to describe the performance of groups and subgroups of students, but the underlying imprecision that makes this step necessary adds an additional component of measurement variability to statistics based on NAEP scale scores. Normally, each analysis is done once for each available plausible value, and the

variance of the (usually 5) resulting statistics estimated with the jackknife technique. To replicate the analyses reported here, the secondary analyst must have access to both the plausible values and replicate weights employed. Licenses to use these data are available by application to NCES.

The reader is reminded that, like those from all surveys, NAEP results are also subject to other kinds of errors, including the effects of necessarily imperfect adjustments for student and school nonresponse and other largely unknowable effects associated with the particular instrumentation and data collection methods used. Nonsampling errors can be attributed to a number of sources: inability to obtain complete information about all selected students in all selected schools in the sample (some students or schools refused to participate, or students participated but answered only certain questions); ambiguous definitions; differences in interpreting questions; inability or unwillingness to give correct information; mistakes in recording, coding, or scoring data; and other errors of collecting, processing, sampling, and estimating missing data. The extent of nonsampling errors is difficult to estimate. By their nature, the impacts of such error cannot be reflected in the data-based estimates of uncertainty provided in NAEP reports.

## **Drawing Inferences from the Results**

### **Confidence Intervals Around Means and Percentages**

The use of confidence intervals, based on the standard errors, provides a way to make inferences about the population averages and percentages in a manner that reflects the uncertainty associated with the sample estimates. An estimated sample scale score average  $\pm 2$  standard errors represents about a 95 percent confidence interval for the corresponding population quantity. This means that with 95 percent certainty, the average performance of the entire population of interest is within about  $\pm 2$  standard errors of the sample average.

As an example, suppose that the average scale score of students in a particular group was 156, with a standard error of 1.2. A 95 percent confidence interval for the population quantity would be as follows:

$$\begin{aligned} \text{Average} \pm 2 \text{ standard errors} &= 156 \pm 2(1.2) = 156 \pm 2.4 = \\ &156 - 2.4 \text{ and } 156 + 2.4 = (153.6, 158.4) \end{aligned}$$

Thus, one can conclude with close to 95 percent certainty that the average scale score for the entire population of students in that group is between 153.6 and 158.4.

Similar confidence intervals can be constructed for percentages, provided that the percentages are not extremely large or extremely small. For percentages, confidence intervals constructed in the manner above work best when sample sizes are large, and the percentages being tested have magnitude relatively close

to 50 percent. Statements about group differences should be interpreted with caution if at least one of the groups being compared is small in size and/or if “extreme” percentages are being compared. Percentages,  $P$ , were treated as “extreme” if:

$$P < P_{lim} = \frac{200}{N_{EFF} + 2}, \text{ where the effective sample size is } N_{EFF} = \frac{P(100 - P)}{(SE_{jk})^2}, \text{ and } SE_{jk}$$

is the jackknife standard error of  $P$ .

This “rule of thumb” cutoff leads to flagging a large proportion of confidence intervals that would otherwise include values less than 0 or greater than 100. In either extreme case, the confidence intervals described above are not appropriate, and procedures for obtaining accurate confidence intervals are quite complicated. In this case, the value of  $P$  was reported, but no standard error was estimated and hence no tests were conducted.

As for percentages, confidence intervals for average scale scores are most accurate when sample sizes are large. For some of the subgroups of students for which average scale scores or percentages were reported, student sample sizes could be quite small. For results to be reported for any subgroup, a minimum student sample size of 62 was required. If students in a particular subgroup were clustered within a small number of geographic primary sampling units (PSUs), the estimates of the standard errors might also be inaccurate. So, subgroup data were required to come from a minimum of five PSUs.

## **Comparing Means and Percentages of Different Groups**

How large does a numeric difference in NAEP data have to be in order not to be a merely chance occurrence? Drawing appropriate and justifiable inferences from the data gathered in the NAEP assessment is a particularly complex statistical endeavor because: 1) a sampling design is used for data collection, and 2) no single student takes more than a section of the entire question pool. Judging the statistical differences between subgroups in the NAEP data requires an understanding of the following: confidence intervals (as noted above) and standard errors in the sampling design, the application of the t-test paradigm, the notion of degrees of freedom as applied in a stratified sample, and the application of the concepts of statistical family size in the context of making multiple comparisons. Each of these topics will be touched upon in the following sections. Because of these complexities, quick “rule of thumb” estimates of the significance of differences among, for example, scaled scores in NAEP subgroups in the data tables in this report cannot be relied upon to be accurate.

**T-tests.** In some cases, the differences between groups were not discussed in this report. This happened for one of two reasons: (a) if the comparison involved an extreme percentage (as defined above); or (b) if the standard error for either group was subject to a large degree of uncertainty (i.e., the coefficient of variation is greater than 20 percent, denoted by “\*\*\*” in the tables).<sup>3</sup> In either case, the results of any statistical test involving that group needs to be interpreted with caution, and so the results of such tests are not discussed in this report.

Among the major findings reported for NAEP assessments are mean differences between groups, for example, comparisons of public and private school students. Such comparisons are assessed for statistical significance by a t-test of the form:

$$\frac{|m_i - m_j|}{\sqrt{S_{m_i}^2 + S_{m_j}^2}}$$

Where:

$m_i$  and  $m_j$  are the means for groups i and j, and  $S_{m_i}^2$  and  $S_{m_j}^2$  are the jackknife estimates of sampling variance for groups i and j. The reader should note that this procedure uses a conservative estimate of the standard error of the difference (i.e., one that may overstate sampling variability), since the estimates of the group averages or percentages will be positively correlated to an unknown extent due to the sampling plan. However, since sources of survey error other than sampling (e.g., error associated with item parameter estimation and the error associated with linking results across years) are not accounted for in the standard errors, using these conservative estimates has been considered advisable. Moreover, direct estimation of the standard errors of all reported differences would involve too heavy a computational burden to be implemented in practice.

**Effective degrees of freedom.** Because of the clustered nature of the sample, the “effective degrees of freedom” for this t-test is considerably less than the number of students entering into the comparison, and, indeed, less than the number of PSU pairs that go into its computation. (See the forthcoming *NAEP 1998 Technical Report* for more details.) The degrees

<sup>3</sup> As was discussed in the section “Weighting and Variance Estimation,” estimates of standard errors subject to a large degree of uncertainty are designated by the symbol “\*\*\*”. In such cases, the standard error — and any confidence intervals or significance tests among these standard errors — should be interpreted with caution.

of freedom of this t-test are estimated by an approximation given by Johnson & Rust<sup>4</sup> as follows:

$$df = \frac{\left( \sum_{k=1}^N S_{m_k}^2 \right)^2}{\sum_{k=1}^N \left( \frac{S_{m_k}^4}{df_k} \right)}$$

where the summation is over the two groups being compared. The item,  $df_k$ , is the degree of freedom estimate for the variance of the mean  $m_k$  and is defined by Satterthwaite<sup>5</sup> with a correction term suggested by Johnson and Rust. It is derived by matching estimates of the first two moments of the variance to those of a chi-square random variable.

$$df_k = \left( 3.16 - \frac{2.77}{\sqrt{L}} \right) \frac{\left( \sum_{j=1}^L (m_{jk} - m_k)^2 \right)^2}{\sum_{j=1}^L (m_{jk} - m_k)^4}$$

Here, j stands for jackknife replicate j, and the summations are over all replicates, usually 62 in NAEP. The  $m_{jk}$  term is the mean of subgroup k for the jth jackknife replicate. The term  $m_k$  is the overall mean for subgroup k using the overall weights and the first plausible value.

The number of degrees of freedom for the variance equals the number of independent pieces of information used to generate the variance. In the case of data from NAEP, the pieces of information are the 62 squared differences  $(m_{jk} - m_k)^2$ , each supplying at most one degree of freedom (regardless of how many individuals were sampled within PSUs). If some of the squared differences  $(m_{jk} - m_k)^2$  are much larger than others, the variance estimate of  $m_k$  is predominantly estimating the sum of these larger components, which dominate the remaining terms. The effective degrees of freedom of  $S_{m_k}^2$  in this case will be nearer to the number of dominant terms. The estimate,  $df_k$ , reflects these relationships.

The two formulae above show us that when  $df_k$  is small, the degrees of freedom for the t-test,  $df$ , will also be small. This will tend to be the case when only a few PSU pairs have information about subgroup differences relevant to a t-test. It will also be the case when a few PSU pairs have subgroup differences much larger than other PSU pairs. With a clustered sample and a practical sample size, it is not possible to stratify over every group of potential interest. It is thus inevitable that in a particular assessment for some groups, some pairs

<sup>4</sup> Johnson, E. & Rust, K. (1992). "Effective Degrees of Freedom for Variance Estimates from a Complex Sample Survey," Proceedings of the Section on Survey Research Methods, American Statistical Association, 863-866.

<sup>5</sup> Satterthwaite, F.E. (1941). "Synthesis of Variance," *Psychometrika* 16, 5, 309-316.

within some PSU's will be less well-matched than others. Because this depresses the estimate of effective degrees of freedom, it has a conservative effect on declaring significance for comparisons involving those groups (see p. 35).

**Conducting multiple tests.** In many applications of significance testing, the t-test value is compared to a t-distribution with effective degrees of freedom, as given in the previous section, and is assessed at a nominal level of  $.05/2$  for a two-tailed test. However, in most sections of this report, many different groups are compared (i.e., multiple sets of means are being analyzed). In sets of comparisons, statistical theory indicates that the certainty associated with the entire set of comparisons is less than that attributable to each individual comparison from the set. To hold the significance level for the set of comparisons at a particular level (e.g.,  $.05$ ), adjustments (called “multiple comparison procedures”<sup>6</sup>) must be made to the methods described in the previous section. One such procedure, the False Discovery Rate (FDR) procedure,<sup>7</sup> was used to control the certainty level.

Unlike the other multiple comparison procedures (e.g., the Bonferroni procedure) that control the familywise error rate (i.e., the probability of making even one false rejection in the set of comparisons), the FDR procedure controls the expected proportion of falsely rejected hypotheses. Rather than holding the probability,  $\alpha$ , of even one true null hypothesis being rejected at some level, usually  $.05$ , as does the Bonferroni procedure by setting the critical value for significance at  $.05/m$ , where  $m$  is the number of comparisons in the set, or “family size,” the Benjamini and Hochberg False Discovery Rate controls the expected proportion of true null hypotheses declared significant. The  $FDR = \text{Expectation}(V/R)$ , where  $V = \text{Number of true null hypotheses declared significant}$ , and  $R = \text{Total number of hypotheses declared significant}$ . This is accomplished by ordering the contrasts from most probable to least probable, and testing sequentially, with a systematically decreasing value of  $\alpha$  until a null hypothesis is rejected. That hypothesis and all subsequent hypotheses, which have smaller probability, are declared significant. Familywise procedures are considered conservative for large families of comparisons.<sup>8</sup> Therefore, the FDR procedure is more suitable for multiple comparisons in NAEP than other procedures. A detailed description of the FDR procedure appears in the forthcoming *NAEP 1998 Technical Report*.

<sup>6</sup> Miller, R.G. (1966). *Simultaneous statistical inference*. New York: Wiley.

<sup>7</sup> Benjamini, Y., & Hochberg, Y. (1995). Controlling the false discovery rate: A practical and powerful approach to multiple testing. *Journal of the Royal Statistical Society, Series B, No. 1*, pp. 298–300.

<sup>8</sup> Williams, V.S.L., Jones, L.V., & Tukey, J.W. (1994, December). *Controlling error in multiple comparisons with special attention to the National Assessment of Educational Progress*. Research Triangle Park, NC: National Institute of Statistical Sciences.

The 1998 assessment is the first time NAEP has used the Benjamini-Hochberg procedure to maintain FDR for all multiple comparisons. Prior to the 1996 assessment, the Bonferroni procedure was used for multiple comparisons. Beginning in the 1996 assessment, the Bonferroni procedure was used for multiple comparisons involving small sets of intervals, and FDR for large sets.

The Benjamin and Hochberg FDR application consists of arranging the  $m$  significance tests in order, from lowest to highest probability  $P(1) \leq P(2) \dots \leq P(m)$ . To obtain an overall control of the False Discovery Rate at .05, compare  $P(m)$  — the largest probability with .05. If  $P(m) \leq .05$ , declare all  $m$  comparisons significant. If not, compare  $P(m - 1)$  with  $\frac{m - 1}{m} \cdot (.05)$ . If less than or equal to this criterion, declare  $P(1) - P(m - 1)$  significant. If not, follow the same procedure with  $P(m - 2)$  down through  $P(1)$ . Note that  $P(1) \leq \frac{1}{m} \cdot (.05)$  is the level used in the Bonferroni procedure for all comparisons.

When we conduct multiple comparisons, the family size, or number of comparisons in a set, is a crucial issue. The investigator has a choice between prespecifying a limited number of comparisons, and thus maintaining power, or looking at many contrasts sacrificing power for the chance of finding additional significant contrasts. For example, the Parents' Highest Level of Education Variable has five categories:

- Graduated from college
- Some education after high school
- Graduated from high school
- Did not finish high school
- I don't know.

If we choose Graduation from college as the target category for the set, and contrast mean proficiency of each of the other four categories with the target, our family size is four, and under FDR, any mean difference with probability  $\leq .05/4 = .0125$  will certainly be declared significant. If, on the other hand we want to test all possible contrasts, family size becomes ten, and significance in the lowest probability category is guaranteed only if its probability  $\leq .005$ . This tension between conserving power and identifying a larger number of significant comparisons at the risk of not finding any requires careful thought and balancing. After much discussion, it has been determined that NAEP should use all possible comparisons within a set in conducting multiple comparisons.

## Cautions in Interpretations

As described earlier, the NAEP civics scale makes it possible to examine relationships between students' performance and various background factors measured by NAEP. However, a relationship that exists between achievement and another variable does not reveal the underlying cause of the relationship, which may be influenced by a number of other variables. Similarly, the assessments do not capture the influence of unmeasured variables. The results are most useful when they are considered in combination with other knowledge about the student population and the educational system, such as trends in instruction, changes in the school-age population, and societal demands and expectations.

## Grade-12 Participation Rates and Motivation

NAEP has been described as a “low-stakes” assessment. That is, students receive no individual scores, and their NAEP performance has no effect on their grades, promotions, or graduation. There has been continued concern that this lack of consequences affects participation rates of students and schools, as well as the motivation of students to perform well on NAEP. Of particular concern has been the performance of twelfth graders, who typically have lower student participation rates than fourth and eighth graders and who are more likely to omit responses compared to the younger cohorts.

### Participation Rates

In NAEP, there has been a consistent pattern of lower participation rates for older students. The participation rate in civics for grade 12 students was 79 percent, compared with 95 percent for grade 4 students and 92 percent for grade 8 students. School participation rates (the percentage of sampled schools that participated in the assessment) have also typically decreased with increasing grade level. The school participation rate was 89 percent for the fourth grade, 85 percent for the eighth grade, and 82 percent for the twelfth grade.

The effect of participation rates on student performance, however, is unclear. Students may choose not to participate in NAEP for many reasons, such as a desire to attend regular classes so as not to miss important instruction or fear of not doing well on NAEP. Similarly, there are a variety of reasons for which various schools do not participate. The sampling weights and nonresponse adjustments, described earlier in this appendix, provide an approximate statistical adjustment for nonparticipation. However, the effect of some school and student nonparticipation may have an undetermined effect on results.

## **Motivation**

To the extent that students in the NAEP sample are not trying their hardest, NAEP results may underestimate student performance. The concern increases as students get older and is particularly pronounced for twelfth graders. The students themselves furnish some evidence about their motivation. As part of the background questions, students were asked how important it was to do well on the NAEP writing assessment. They were asked to indicate whether it was very important, important, somewhat important, or not very important to them. The percentage of students indicating they thought it was either important or very important to do well was 88 percent for fourth graders, 59 percent for eighth graders, and 33 percent for twelfth graders.

Several factors may contribute to this pattern. NAEP was administered in the late winter, when high school seniors often have other things on their minds. Another factor that may have contributed to lack of motivation is the fact that the civics assessment consists partly of constructed-response questions which tend to be more time-consuming than multiple-choice questions. As with participation rates, however, the combined effect of these and other factors is unknown.

It is also interesting to note that students who indicated it was very important for them to do well on NAEP did not have the highest average scores. These data further cloud the relationship between motivation and performance on NAEP.

## **Need for Future Research**

More research is needed to delineate the factors that contribute to nonparticipation and lack of motivation. To that end, NCES plans to commission a study of high school transcripts to learn more about the academic performance of twelfth-grade students who do not participate in the assessment. In addition, NCES is currently investigating how various types of incentives can be effectively used to increase participation in NAEP.



## Standard Errors

The comparisons presented in this report are based on statistical tests that consider the magnitude of the difference between group averages or percentages and the standard errors of those statistics. This appendix contains the standard errors for the estimated averages and percentages in all the tables and figures throughout this report. Because NAEP scores and percentages are based on samples rather than the entire population(s), the results are subject to a measure of uncertainty reflected in the standard errors of the estimates. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample.

STANDARD  
ERRORS

**Table B1.1**

Standard errors for civics scale scores by percentiles: 1998



	Average scale score	10th percentile	25th percentile	50th percentile	75th percentile	90th percentile
<b>Grade 4</b>	0.7	1.7	0.9	1.2	0.8	0.7
<b>Grade 8</b>	0.7	1.6	1.2	0.7	0.8	0.8
<b>Grade 12</b>	0.8	1.1	1.2	0.9	0.9	0.7

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B1.2**

Standard errors for percentage of students at or above the civics achievement levels for the nation: 1998

Nation			
Below Basic	At or above Basic	At or above Proficient	Advanced
<b>Grade 4</b>			
1.0	1.0	0.9	0.3
<b>Grade 8</b>			
0.9	0.9	0.8	0.2
<b>Grade 12</b>			
0.9	0.9	0.9	0.4

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Figure B1.4**

Standard errors for percentage of students within each civics achievement level range for the nation: 1998

Nation			
Below Basic	At Basic	At Proficient	At Advanced
<b>Grade 4</b>			
1.0	0.8	0.9	0.3
<b>Grade 8</b>			
0.9	0.7	0.8	0.2
<b>Grade 12</b>			
0.9	0.7	0.8	0.4

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

## Standard Errors for Sample Response Percentages

**Table B1.3** Grade 4: *Functions and purpose of government*

Overall percentage "Acceptable" or better	Standard errors for percentage "Acceptable" or better within achievement level ranges		
	Basic 136–176*	Proficient 177–214*	Advanced 215 and above*
1.5	2.3	2.1	---

\* NAEP civics scale range.

--- Standard error estimate cannot be accurately determined.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B1.4** Grade 4: *Relationship of the U.S. to other nations and to world affairs*

Overall percentage "Correct"	Standard errors for percentage "Correct" within achievement level ranges		
	Basic 136–176*	Proficient 177–214*	Advanced 215 and above*
1.3	2.5	3.4	---

\* NAEP civics scale range.

--- Standard error estimate cannot be accurately determined.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B1.5** Grade 4: *Roles of U.S. citizens in American democracy*

Overall percentage "Correct"	Standard errors for percentage "Correct" within achievement level ranges		
	Basic 136–176*	Proficient 177–214*	Advanced 215 and above*
1.1	2.2	3.7	---

\* NAEP civics scale range.

--- Standard error estimate cannot be accurately determined.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

## Standard Errors for Sample Response Percentages

Table B1.6

**Grade 8: Relationship of the U.S. to other nations  
and to world affairs**

Overall percentage "Correct"	Standard errors for percentage "Correct" within achievement level ranges		
	Basic 134–177*	Proficient 178–212*	Advanced 213 and above*
1.1	1.7	1.8	---

\* NAEP civics scale range.

--- Standard error estimate cannot be accurately determined.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

Table B1.7

**Grade 8: Foundations of the American political system**

Overall percentage "Correct"	Standard errors for percentage "Correct" within achievement level ranges		
	Basic 134–177*	Proficient 178–212*	Advanced 213 and above*
1.3	1.9	3.4	---

\* NAEP civics scale range.

--- Standard error estimate cannot be accurately determined.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

Table B1.8

**Grade 8: Foundations of the American political system**

Overall percentage "Complete"	Standard errors for percentage "Complete" within achievement level ranges		
	Basic 134–177*	Proficient 178–212*	Advanced 213 and above*
0.7	1.0	2.6	---

\* NAEP civics scale range.

--- Standard error estimate cannot be accurately determined.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

Standard Errors for Sample Response Percentages

**Table B1.9**

**Grade 12: Foundations of the American political system**

Overall percentage "Correct"	Standard errors for percentage "Correct" within achievement level ranges		
	Basic 139–173*	Proficient 174–203*	Advanced 204 and above*
1.2	2.1	2.0	---

\* NAEP civics scale range.

--- Standard error estimate cannot be accurately determined.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B1.10**

**Grade 12: Foundations of the American political system**

Overall percentage "Complete"	Standard errors for percentage "Complete" within achievement level ranges		
	Basic 139–173*	Proficient 174–203*	Advanced 204 and above*
1.3	1.7	3.9	6.4

\* NAEP civics scale range.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B1.11**

**Grade 12: Functions and purpose of government**

Overall percentage "Correct"	Standard errors for percentage "Correct" within achievement level ranges		
	Basic 139–173*	Proficient 174–203*	Advanced 204 and above*
1.3	2.2	3.7	7.1

\* NAEP civics scale range.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B2.1**

Standard errors for average civics scale scores by gender: 1998

	Percentage of students	Average scale score
<b>Grade 4</b>		
Male	0.9	1.0
Female	0.9	0.9
<b>Grade 8</b>		
Male	0.6	0.9
Female	0.6	0.8
<b>Grade 12</b>		
Male	0.7	1.1
Female	0.7	0.8

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B2.2**

Standard errors for average civics scale scores by race/ethnicity: 1998

	Percentage of students	Average scale score
<b>Grade 4</b>		
White	0.2	0.9
Black	0.1	1.2
Hispanic	0.2	1.7
Asian/Pacific Islander	0.1	2.5
American Indian	0.2	3.7
<b>Grade 8</b>		
White	0.1	0.9
Black	0.1	1.1
Hispanic	0.1	1.2
Asian/Pacific Islander	0.3	5.8
American Indian	0.3	3.5 *
<b>Grade 12</b>		
White	0.4	0.9
Black	0.3	1.7
Hispanic	0.3	1.3
Asian/Pacific Islander	0.2	4.2
American Indian	0.2	6.3 *

\* Estimate may be unreliable due to small sample size.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B2.3**

Standard errors for average civics scale scores by parents' highest level of education: 1998

	Percentage of students	Average scale score
<b>Grade 4</b>		
Graduated from college	1.1	0.9
Some education after high school	0.6	1.4
Graduated from high school	0.7	1.7
Did not finish high school	0.6	3.1
I don't know.	0.5	2.0
<b>Grade 8</b>		
Graduated from college	0.9	0.8
Some education after high school	0.5	1.0
Graduated from high school	0.6	1.2
Did not finish high school	0.5	3.2
I don't know.	0.2	3.1
<b>Grade 12</b>		
Graduated from college	1.1	0.9
Some education after high school	0.7	1.1
Graduated from high school	0.5	1.2
Did not finish high school	0.3	2.1
I don't know.	0.1	5.3

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B2.4**

Standard errors for average civics scale scores by region: 1998

	Percentage of students	Average scale score
<b>Grade 4</b>		
Northeast	0.6	1.5
Southeast	0.9	0.8
Central	0.4	1.7
West	1.0	1.6
<b>Grade 8</b>		
Northeast	0.6	1.6
Southeast	1.0	1.4
Central	0.2	1.6
West	1.2	1.3
<b>Grade 12</b>		
Northeast	1.0	1.8
Southeast	1.0	1.4
Central	0.7	2.1
West	0.9	0.9

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B2.5**

Standard errors for average civics scale scores by type of location: 1998

	Percentage of students	Average scale score
<b>Grade 4</b>		
Central city	1.3	1.2
Urban fringe/large town	1.8	1.3
Rural/small town	1.6	1.8
<b>Grade 8</b>		
Central city	1.4	1.2
Urban fringe/large town	1.9	1.2
Rural/small town	1.4	1.6
<b>Grade 12</b>		
Central city	1.6	1.4
Urban fringe/large town	1.8	1.3
Rural/small town	1.3	1.4

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B2.6**

Standard errors for average civics scale scores by Free/Reduced-Price School Lunch Program eligibility: 1998

	Percentage of students	Average scale score
<b>Grade 4</b>		
Eligible	1.1	0.9
Not eligible	1.4	1.1
Information not available	1.5	2.2
<b>Grade 8</b>		
Eligible	0.9	1.1
Not eligible	1.7	1.0
Information not available	1.9	2.2
<b>Grade 12</b>		
Eligible	0.8	1.4
Not eligible	2.0	1.0
Information not available	2.1	1.3

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B2.7**

Standard errors for average civics scale scores by type of school: 1998

	Percentage of students	Average scale score
<b>Grade 4</b>		
<b>Public</b>	0.7	0.7
<b>Nonpublic</b>	0.7	1.9
Nonpublic: Catholic	0.6	1.7
Other nonpublic	0.5	4.4
<b>Grade 8</b>		
<b>Public</b>	1.0	0.7
<b>Nonpublic</b>	1.0	2.8
Nonpublic: Catholic	0.8	1.6
Other nonpublic	0.6	5.9
<b>Grade 12</b>		
<b>Public</b>	1.0	0.9
<b>Nonpublic</b>	1.0	1.4
Nonpublic: Catholic	0.9	1.5
Other nonpublic	0.4	3.0

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B3.1**



Standard errors for percentage of students at or above achievement levels in civics by gender: 1998

	Below Basic	At or above Basic	At or above Proficient	Advanced
<b>Grade 4</b>				
Male	1.2	1.2	1.2	0.4
Female	1.0	1.0	1.2	0.4
<b>Grade 8</b>				
Male	1.1	1.1	1.0	0.3
Female	1.2	1.2	1.1	0.3
<b>Grade 12</b>				
Male	1.2	1.2	1.2	0.6
Female	1.2	1.2	1.1	0.4

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Figure B3.1**



Standard errors for percentage of students within each achievement level range in civics by gender: 1998

	Below Basic	At Basic	At Proficient	At Advanced
<b>Grade 4</b>				
Male	1.2	1.3	1.2	0.4
Female	1.0	1.0	1.1	0.4
<b>Grade 8</b>				
Male	1.1	1.1	1.0	0.3
Female	1.2	1.0	1.1	0.3
<b>Grade 12</b>				
Male	1.2	1.0	1.0	0.6
Female	1.2	1.0	1.2	0.4

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B3.2**

Standard errors for percentage of students at or above achievement levels in civics by race/ethnicity: 1998

	Below Basic	At or above Basic	At or above Proficient	Advanced
<b>Grade 4</b>				
White	1.1	1.1	1.3	0.5
Black	1.8	1.8	1.2	0.3
Hispanic	2.2	2.2	0.9	---
Asian/Pacific Islander	3.5	3.5	4.7	1.3
American Indian	4.0	4.0	3.9	---
<b>Grade 8</b>				
White	1.0	1.0	1.1	0.3
Black	1.7	1.7	1.0	---
Hispanic	2.2	2.2	0.8	0.2
Asian/Pacific Islander	5.8	5.8	4.5	1.1
American Indian	5.7	5.7	3.7	---
<b>Grade 12</b>				
White	1.1	1.1	1.2	0.6
Black	2.3	2.3	1.3	0.3
Hispanic	1.9	1.9	1.3	0.4
Asian/Pacific Islander	3.8	3.8	6.2	2.1
American Indian	8.8	8.8	4.3	---

--- Standard error estimate cannot be accurately determined.

SOURCE: National Center for Education Statistics,  
National Assessment of Educational Progress (NAEP),  
1998 Civics Assessment.

**Figure B3.2**

Standard errors for percentage of students within each achievement level range in civics by race/ethnicity: 1998

	<b>Below Basic</b>	<b>At Basic</b>	<b>At Proficient</b>	<b>At Advanced</b>
<b>Grade 4</b>				
White	1.1	1.0	1.2	0.5
Black	1.8	2.3	1.2	0.3
Hispanic	2.2	1.9	0.9	---
Asian/Pacific Islander	3.5	5.8	4.8	1.3
American Indian	4.0	4.6	3.9	---
<b>Grade 8</b>				
White	1.0	1.0	1.0	0.3
Black	1.7	1.6	1.0	---
Hispanic	2.2	2.3	0.8	0.2
Asian/Pacific Islander	5.8	4.1	4.1	1.1
American Indian	5.7	4.3	3.8	---
<b>Grade 12</b>				
White	1.1	0.8	1.1	0.6
Black	2.3	2.1	1.2	0.3
Hispanic	1.9	2.3	1.3	0.4
Asian/Pacific Islander	3.8	4.0	4.8	2.1
American Indian	8.8	8.2	4.1	---

--- Standard error estimate cannot be accurately determined.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B3.3**



Standard errors for percentage of students at or above achievement levels in civics by parents' highest level of education: 1998

	Below Basic	At or above Basic	At or above Proficient	Advanced
<b>Grade 4</b>				
Graduated from college	1.2	1.2	1.2	0.5
Some education after high school	2.3	2.3	1.9	0.6
Graduated from high school	2.8	2.8	2.9	---
Did not finish high school	5.3	5.3	3.2	---
I don't know.	2.6	2.6	2.7	---
<b>Grade 8</b>				
Graduated from college	1.0	1.0	1.2	0.4
Some education after high school	1.5	1.5	1.2	0.2
Graduated from high school	2.0	2.0	1.4	0.2
Did not finish high school	3.8	3.8	1.2	---
I don't know.	4.1	4.1	2.2	---
<b>Grade 12</b>				
Graduated from college	1.0	1.0	1.3	0.8
Some education after high school	1.3	1.3	1.4	0.4
Graduated from high school	1.8	1.8	1.4	0.2
Did not finish high school	2.6	2.6	1.6	---
I don't know.	6.7	6.7	---	---

--- Standard error estimate cannot be accurately determined.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Figure B3.3**



Standard errors for percentage of students within each achievement level range in civics by parents' highest level of education: 1998

	<b>Below Basic</b>	<b>At Basic</b>	<b>At Proficient</b>	<b>At Advanced</b>
<b>Grade 4</b>				
Graduated from college	1.2	0.9	1.2	0.5
Some education after high school	2.3	2.2	2.0	0.6
Graduated from high school	2.8	3.3	2.8	---
Did not finish high school	5.3	6.4	2.2	---
I don't know.	2.6	2.8	2.8	---
<b>Grade 8</b>				
Graduated from college	1.0	1.1	1.2	0.4
Some education after high school	1.5	1.6	1.2	0.2
Graduated from high school	2.0	2.0	1.4	0.2
Did not finish high school	3.8	4.0	1.2	---
I don't know.	4.1	4.2	2.2	---
<b>Grade 12</b>				
Graduated from college	1.0	1.2	1.0	0.8
Some education after high school	1.3	1.4	1.3	0.4
Graduated from high school	1.8	2.3	1.3	0.2
Did not finish high school	2.6	2.2	1.6	---
I don't know.	6.7	6.9	---	---

--- Standard error estimate cannot be accurately determined.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B3.4**

Standard errors for percentage of students at or above achievement levels in civics by region: 1998

	<b>Below Basic</b>	<b>At or above Basic</b>	<b>At or above Proficient</b>	<b>Advanced</b>
<b>Grade 4</b>				
Northeast	1.9	1.9	1.9	0.7
Southeast	1.3	1.3	1.5	0.4
Central	2.4	2.4	2.2	0.7
West	2.0	2.0	1.5	0.3
<b>Grade 8</b>				
Northeast	1.9	1.9	2.1	0.4
Southeast	1.8	1.8	1.5	0.4
Central	1.7	1.7	1.3	0.6
West	1.6	1.6	1.3	0.3
<b>Grade 12</b>				
Northeast	2.3	2.3	1.6	0.5
Southeast	2.1	2.1	1.1	0.6
Central	2.3	2.3	3.2	1.1
West	1.0	1.0	1.3	0.5

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Figure B3.4**



Standard errors for percentage of students within each achievement level range in civics by region: 1998

	<b>Below Basic</b>	<b>At Basic</b>	<b>At Proficient</b>	<b>At Advanced</b>
<b>Grade 4</b>				
Northeast	1.9	1.7	1.9	0.7
Southeast	1.3	1.5	1.3	0.4
Central	2.4	1.8	2.2	0.7
West	2.0	1.9	1.5	0.3
<b>Grade 8</b>				
Northeast	1.9	1.6	2.2	0.4
Southeast	1.8	1.6	1.4	0.4
Central	1.7	1.4	1.4	0.6
West	1.6	1.1	1.3	0.3
<b>Grade 12</b>				
Northeast	2.3	1.4	1.6	0.5
Southeast	2.1	1.6	1.1	0.6
Central	2.3	2.1	2.6	1.1
West	1.0	1.1	1.1	0.5

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B3.5**

Standard errors for percentage of students at or above achievement levels in civics by type of location: 1998

	Below Basic	At or above Basic	At or above Proficient	Advanced
<b>Grade 4</b>				
Central city	1.2	1.2	1.5	0.4
Urban fringe/large town	2.0	2.0	1.3	0.4
Rural/small town	2.1	2.1	2.2	0.7
<b>Grade 8</b>				
Central city	1.6	1.6	1.3	0.3
Urban fringe/large town	1.4	1.4	1.5	0.4
Rural/small town	1.7	1.7	1.5	0.5
<b>Grade 12</b>				
Central city	1.6	1.6	1.6	0.7
Urban fringe/large town	1.6	1.6	1.5	0.5
Rural/small town	2.0	2.0	1.8	0.7

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Figure B3.5**



Standard errors for percentage of students within each achievement level range in civics by type of location: 1998

	<b>Below Basic</b>	<b>At Basic</b>	<b>At Proficient</b>	<b>At Advanced</b>
<b>Grade 4</b>				
Central city	1.2	1.3	1.3	0.4
Urban fringe/large town	2.0	1.6	1.3	0.4
Rural/small town	2.1	1.6	2.3	0.7
<b>Grade 8</b>				
Central city	1.6	1.3	1.3	0.3
Urban fringe/large town	1.4	1.2	1.5	0.4
Rural/small town	1.7	1.2	1.5	0.5
<b>Grade 12</b>				
Central city	1.6	1.3	1.3	0.7
Urban fringe/large town	1.6	1.3	1.4	0.5
Rural/small town	2.0	1.7	1.5	0.7

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B3.6**



Standard errors for percentage of students at or above achievement levels in civics by Free/Reduced-Price School Lunch Program eligibility: 1998

	<b>Below Basic</b>	<b>At or above Basic</b>	<b>At or above Proficient</b>	<b>Advanced</b>
<b>Grade 4</b>				
Eligible	1.3	1.3	0.9	---
Not eligible	1.4	1.4	1.3	0.5
Information not available	3.1	3.1	2.5	0.9
<b>Grade 8</b>				
Eligible	1.6	1.6	0.8	0.2
Not eligible	1.2	1.2	1.2	0.3
Information not available	2.7	2.7	2.1	0.6
<b>Grade 12</b>				
Eligible	2.1	2.1	1.7	0.4
Not eligible	1.1	1.1	1.3	0.5
Information not available	1.6	1.6	1.5	0.7

--- Standard error estimate cannot be accurately determined.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Figure B3.6**



Standard errors for percentage of students within each achievement level range in civics by Free/Reduced-Price School Lunch Program eligibility: 1998

	<b>Below Basic</b>	<b>At Basic</b>	<b>At Proficient</b>	<b>At Advanced</b>
<b>Grade 4</b>				
Eligible	1.3	1.4	1.0	---
Not eligible	1.4	1.3	1.3	0.5
Information not available	3.1	2.9	2.0	0.9
<b>Grade 8</b>				
Eligible	1.6	1.5	0.8	0.2
Not eligible	1.2	0.9	1.2	0.3
Information not available	2.7	2.0	2.1	0.6
<b>Grade 12</b>				
Eligible	2.1	1.8	1.5	0.4
Not eligible	1.1	1.0	1.1	0.5
Information not available	1.6	1.2	1.5	0.7

--- Standard error estimate cannot be accurately determined.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B3.7**

Standard errors for percentage of students at or above achievement levels in civics by type of school: 1998

	Below Basic	At or above Basic	At or above Proficient	Advanced
<b>Grade 4</b>				
<b>Public</b>	1.0	1.0	0.9	0.4
<b>Nonpublic</b>	2.5	2.5	2.4	0.9
Nonpublic: Catholic	1.8	1.8	2.8	1.1
Other nonpublic	6.0	6.0	5.0	1.7
<b>Grade 8</b>				
<b>Public</b>	1.0	1.0	0.8	0.2
<b>Nonpublic</b>	2.8	2.8	2.4	0.7
Nonpublic: Catholic	1.5	1.5	3.0	0.8
Other nonpublic	5.9	5.9	4.3	1.4
<b>Grade 12</b>				
<b>Public</b>	1.0	1.0	1.0	0.4
<b>Nonpublic</b>	1.8	1.8	2.1	1.2
Nonpublic: Catholic	2.0	2.0	2.4	1.3
Other nonpublic	3.9	3.9	3.8	2.7

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Figure B3.7**

Standard errors for percentage of students within each achievement level range in civics by type of school: 1998

	<b>Below Basic</b>	<b>At Basic</b>	<b>At Proficient</b>	<b>At Advanced</b>
<b>Grade 4</b>				
<b>Public</b>	1.0	0.9	1.0	0.4
<b>Nonpublic</b>	2.5	2.5	2.2	0.9
Nonpublic: Catholic	1.8	2.7	2.5	1.1
Other nonpublic	6.0	5.0	4.5	1.7
<b>Grade 8</b>				
<b>Public</b>	1.0	0.7	0.9	0.2
<b>Nonpublic</b>	2.8	2.8	2.4	0.7
Nonpublic: Catholic	1.5	2.4	2.9	0.8
Other nonpublic	5.9	5.2	4.0	1.4
<b>Grade 12</b>				
<b>Public</b>	1.0	0.8	0.9	0.4
<b>Nonpublic</b>	1.8	1.8	1.7	1.2
Nonpublic: Catholic	2.0	1.7	2.1	1.3
Other nonpublic	3.9	3.6	2.9	2.7

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B4.1**

Standard errors for percentage of students, average civics scale scores, and percentage at or above *Proficient* by teacher's highest degree, grades 4 and 8: 1998

<i>What is the highest academic degree you hold?</i>	<b>Grade 4</b>	<b>Grade 8</b>
<b>High School, Associate's Degree, or Vocational Certification</b>		
Percentage of students	0.2	0.2
Average scale score	---	---
Percentage at or above Proficient	---	---
<b>Bachelor's Degree</b>		
Percentage of students	2.3	1.9
Average scale score	1.1	0.9
Percentage at or above Proficient	1.5	1.1
<b>Master's Degree</b>		
Percentage of students	2.0	1.9
Average scale score	1.0	1.2
Percentage at or above Proficient	1.3	1.4
<b>Education Specialist Degree</b>		
Percentage of students	0.8	0.8
Average scale score	5.1	2.9
Percentage at or above Proficient	6.8	3.2
<b>Doctorate or Professional Degree</b>		
Percentage of students	0.4	0.4
Average scale score	---	6.4
Percentage at or above Proficient	---	6.9

--- Standard error estimate cannot be accurately determined.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B4.2**

Standard errors for percentage of students, average civics scale scores, and percentage at or above *Proficient* by teacher's undergraduate major, grades 4 and 8: 1998

<b>What was your undergraduate major?</b>	<b>Grade 4</b>	<b>Grade 8</b>
<b>History</b>		
Percentage of students	0.7	1.7
Average scale score	4.7	1.0
Percentage at or above Proficient	4.3	1.2
<b>Political Science</b>		
Percentage of students	0.4	1.2
Average scale score	---	2.8
Percentage at or above Proficient	---	4.2
<b>Education</b>		
Percentage of students	1.3	2.2
Average scale score	0.8	1.5
Percentage at or above Proficient	1.2	1.9
<b>Other</b>		
Percentage of students	1.1	1.5
Average scale score	2.2	1.5
Percentage at or above Proficient	2.2	1.6

--- Standard error estimate cannot be accurately determined.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B4.3**

Standard errors for percentages of students, average civics scale scores, and percentage at or above *Proficient* by teacher's type of certification, grades 4 and 8: 1998

<i>Type of teaching certification held in main assignment field</i>	Percentage of students	Average scale score	Percentage at or above <i>Proficient</i>
	<b>Grade 4</b>		
Advanced Professional	1.4	2.1	3.0
Regular	1.6	0.8	1.1
Probationary	0.5	4.0	4.9
Temp/Provisional	0.7	4.0	3.0
Other	0.2	---	---
Don't have	0.4	7.0	6.1
	<b>Grade 8</b>		
Advanced Professional	1.9	2.2	2.8
Regular	2.1	0.9	1.0
Probationary	0.5	3.3	3.2
Temp/Provisional	0.6	3.9	4.4
Other	0.2	5.2	7.4
Don't have	0.6	10.7	6.2

--- Standard error estimate cannot be accurately determined.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B4.4**

Standard errors for percentages of students, average civics scale scores, and percentage at or above *Proficient* by years of general teaching experience, grades 4 and 8: 1998

<i>Years of elementary or secondary teaching experience</i>	Percentage of students	Average scale score	Percentage at or above <i>Proficient</i>
	<b>Grade 4</b>		
2 years or less	1.1	2.3	2.9
3-5 years	1.0	2.1	2.8
6-10 years	1.0	1.5	2.0
11-24 years	1.5	1.2	1.3
25 years or more	1.6	1.3	2.2
	<b>Grade 8</b>		
2 years or less	1.0	2.4	2.3
3-5 years	1.5	2.1	2.2
6-10 years	1.4	1.8	2.1
11-24 years	1.8	1.3	1.7
25 years or more	1.8	1.8	1.7

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B4.5**

Standard errors for percentage of students, average civics scale scores, and percentage at or above *Proficient* by years teaching government/civics, grades 4 and 8: 1998

<i>Years of teaching government or civics</i>	Percentage of students	Average scale score	Percentage at or above <i>Proficient</i>
	<b>Grade 4</b>		
None	---	---	---
2 years or less	2.5	1.6	1.9
3-5 years	1.4	2.4	3.0
6-10 years	1.2	2.3	3.2
11-24 years	2.0	1.8	2.4
25 or more years	0.9	2.4	3.1
	<b>Grade 8</b>		
None	2.6	1.6	2.0
2 years or less	2.1	2.0	2.0
3-5 years	1.7	2.9	3.8
6-10 years	2.4	3.0	2.9
11-24 years	1.7	2.5	2.6
25 or more years	1.2	3.2	3.3

--- Standard error estimate cannot be accurately determined.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B4.6**

Standard errors for percentage of students, average civics scale scores, and percentage at or above *Proficient* by amount of time teachers reported spending in professional development workshops in social studies during the last twelve months, grades 4 and 8: 1998

<i>Time spent in professional development workshops in social studies in the past twelve months</i>	Percentage of students	Average scale score	Percentage at or above <i>Proficient</i>
	<b>Grade 4</b>		
None	2.0	1.3	1.7
Less than 6 hours	2.1	1.5	1.8
6-15 hours	1.1	2.3	3.2
16-35 hours	0.8	3.5	3.6
More than 35 hours	0.5	4.4	5.1
	<b>Grade 8</b>		
None	2.1	1.6	1.5
Less than 6 hours	1.8	1.6	1.5
6-15 hours	2.1	1.5	1.5
16-35 hours	1.4	1.8	2.6
More than 35 hours	1.5	2.5	3.8

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B4.7**



Standard errors for percentage of students, average civics scale scores, and percentage at or above *Proficient* by teacher's reported preparation, grades 4 and 8: 1998

<i>How well prepared are you in the following?</i>	Grade 4			Grade 8		
	Percentage of students	Average scale score	Percentage at or above Proficient	Percentage of students	Average scale score	Percentage at or above Proficient
<b>Social studies instruction</b>						
Well prepared	2.0	1.1	1.4	1.7	0.9	1.1
Moderately well prepared	1.8	1.1	1.4	1.6	1.4	1.9
Not well prepared	0.7	3.8	3.4	0.5	5.9	4.7
<b>Using Instructional materials in social studies</b>						
Well prepared	1.8	1.2	1.5	2.6	1.0	1.3
Moderately well prepared	1.6	1.2	1.5	2.5	1.0	1.2
Not well prepared	1.0	2.8	2.3	0.8	4.1	4.2
<b>Classroom climate and governance</b>						
Well prepared	1.6	1.1	1.3	1.9	0.8	1.2
Moderately well prepared	1.5	1.3	1.8	1.7	1.5	1.6
Not well prepared	0.6	2.3	3.0	0.6	3.6	4.2
<b>Using voluntary national standards for civics</b>						
Well prepared	0.8	3.4	4.5	1.3	2.3	2.2
Moderately well prepared	1.4	1.7	2.1	2.5	1.3	1.4
Not well prepared	1.5	0.9	1.2	2.5	1.2	1.3
<b>Using software for social studies</b>						
Well prepared	1.0	3.7	4.2	1.4	2.3	2.7
Moderately well prepared	1.5	1.4	2.1	2.1	1.0	1.1
Not well prepared	1.7	0.9	1.2	2.2	1.4	1.6

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B4.8**



Standard errors for percentage of students, average civics scale scores, and percentage at or above *Proficient* by teacher's reported preparedness to fulfill certain teaching-related tasks, grades 4 and 8: 1998

<i>How well prepared are you in the following:</i>	Grade 4			Grade 8		
	Percentage of students	Average scale score	Percentage at or above Proficient	Percentage of students	Average scale score	Percentage at or above Proficient
<b>Use of telecommunications</b>						
Well prepared	1.3	2.0	2.7	1.7	1.8	1.6
Moderately well prepared	1.8	1.0	1.7	2.2	0.9	1.3
Not well prepared	2.1	1.2	1.6	2.0	1.8	1.9
<b>Use of computers</b>						
Well prepared	1.8	1.6	2.7	1.9	1.6	1.5
Moderately well prepared	1.5	0.8	1.0	2.1	1.0	1.2
Not well prepared	1.4	2.0	2.4	1.3	2.6	2.7
<b>Cooperative group instruction</b>						
Well prepared	1.5	1.0	1.5	2.2	1.1	1.3
Moderately well prepared	1.5	1.2	1.4	2.0	1.3	1.4
Not well prepared	0.5	5.4	5.4	0.9	4.0	3.3
<b>Classroom management and organization</b>						
Well prepared	1.3	0.8	1.2	1.5	0.8	1.1
Moderately well prepared	1.3	2.0	2.2	1.4	2.0	2.2
Not well prepared	0.2	---	---	0.3	6.3	7.3

--- Standard error estimate cannot be accurately determined.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B4.9**

Standard errors for percentage of students, average civics scale scores, and percentage at or above *Proficient* by class time per day spent on social studies instruction, grades 4 and 8: 1998

***How much time do you spend with this class for social studies instruction on a typical day?***

	<b>Grade 4</b>	<b>Grade 8</b>
<b>Less than 30 minutes</b>		
Percentage of students	1.0	0.9
Average scale score	2.0	8.9
Percentage at or above Proficient	2.3	6.6
<b>30-44 minutes</b>		
Percentage of students	1.8	2.5
Average scale score	1.0	1.2
Percentage at or above Proficient	1.3	1.5
<b>45-60 minutes</b>		
Percentage of students	1.9	2.5
Average scale score	2.0	1.2
Percentage at or above Proficient	2.2	1.3
<b>Greater than 60 minutes</b>		
Percentage of students	0.3	0.9
Average scale score	---	2.2
Percentage at or above Proficient	---	2.3

--- Standard error estimate cannot be accurately determined.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B4.10**

Standard errors for percentage of students, average civics scale scores, and percentage at or above *Proficient* by teachers' reports on the availability of resources, grades 4 and 8: 1998

***Which is true about how well your school system provides you with the instructional materials and other resources you need to teach your class?***

	<b>Grade 4</b>	<b>Grade 8</b>
<b>All</b>		
Percentage of students	1.5	1.6
Average scale score	1.7	2.0
Percentage at or above Proficient	2.2	2.3
<b>Most</b>		
Percentage of students	1.6	1.6
Average scale score	1.1	1.1
Percentage at or above Proficient	1.4	1.2
<b>Some</b>		
Percentage of students	1.5	2.1
Average scale score	1.2	1.3
Percentage at or above Proficient	1.4	1.3
<b>None</b>		
Percentage of students	0.2	0.2
Average scale score	---	---

--- Standard error estimate cannot be accurately determined.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B4.11**



Standard errors for percentage of students, average civics scale scores, and percentage at or above *Proficient* by availability of computers, grades 4, 8, and 12: 1998

<i>Are computers available to students in your classes in any of the following ways?</i>	YES			NO		
	Percentage of students	Average scale score	Percentage at or above Proficient	Percentage of students	Average scale score	Percentage at or above Proficient
<b>Grade 4</b>						
Available in all classrooms	1.8	0.9	1.1	1.8	1.9	2.2
Grouped in a separate computer lab available to classes	2.2	0.9	1.0	2.2	2.4	2.3
Available to bring to classrooms when needed	2.8	1.5	1.7	2.8	1.2	1.4
<b>Grade 8</b>						
Available in all classrooms	3.0	1.2	1.3	3.0	1.5	1.4
Grouped in a separate computer lab available to classes	1.7	0.8	0.9	1.7	3.0	1.9
Available to bring to classrooms when needed	2.2	1.3	1.3	2.2	1.0	1.0
<b>Grade 12</b>						
Available in all classrooms	2.2	1.9	2.5	2.2	1.0	1.2
Grouped in a separate computer lab available to classes	1.3	0.9	1.1	1.3	3.7	3.9
Available to bring to classrooms when needed	3.1	1.5	1.9	3.1	1.2	1.3

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B4.12**



Standard errors for percentage of students, average civics scale scores, and percentage at or above *Proficient* by use of computers and the Internet for social studies instruction, as reported by teachers, grades 4 and 8: 1998

	Grade 4			Grade 8		
	Percentage of students	Average scale score	Percentage at or above Proficient	Percentage of students	Average scale score	Percentage at or above Proficient
<b>Availability of computers in social studies class</b>						
Not available	1.3	2.3	2.6	2.3	3.1	2.3
Lab/library but difficult to access	1.3	1.6	2.0	2.3	1.3	1.6
Readily accessed in lab/library	1.5	2.5	3.3	2.3	1.6	1.8
Available in the classroom	2.3	1.2	1.3	1.5	2.1	2.3
<b>Use computer software</b>						
Every day	0.5	---	---	0.4	6.3	7.3
Once or twice a week	0.8	2.7	3.6	1.1	2.5	3.3
Once or twice a month	1.4	1.7	2.1	1.9	1.3	1.3
Never or hardly ever	1.5	0.9	1.2	2.3	1.3	1.4
<b>Access to information through Internet in the classroom</b>						
Every day	0.3	---	---	0.3	---	---
Once or twice a week	0.9	5.0	5.5	1.2	2.3	2.6
Once or twice a month	1.7	2.2	2.6	2.7	1.4	1.5
Never or hardly ever	2.0	0.8	1.2	2.5	1.3	1.4

--- Standard error estimate cannot be accurately determined.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B5.1**



Standard errors for percentage of students, average civics scale scores, and percentage at or above *Proficient* by type of content studied this year as reported by students, grade 4: 1998

<i>During this school year, have you studied any of the following topics?</i>	Yes			No			I Don't know		
	Percentage of students	Average scale score	Percentage at or above Proficient	Percentage of students	Average scale score	Percentage at or above Proficient	Percentage of students	Average scale score	Percentage at or above Proficient
How our government works	1.2	0.9	1.4	1.0	1.2	2.3	0.7	1.0	1.1
Rules/laws of government	1.2	0.8	1.1	1.1	1.3	2.2	0.6	1.5	1.9
Elections and voting	1.2	0.8	1.5	1.3	1.3	2.1	0.6	1.6	1.6
The President/leaders of country	1.1	0.9	1.2	1.0	1.4	2.1	0.7	1.3	1.7
Your community	0.8	0.7	1.0	0.6	1.7	2.7	0.7	1.4	1.6
Rights and responsibilities of citizens	1.2	0.9	1.3	1.0	1.3	2.1	0.7	1.2	1.4
How people solve disagreements	1.1	0.9	1.3	0.8	1.2	2.4	0.8	1.4	1.9

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B5.2**



Standard errors for percentage of students, average civics scale scores, and percentage at or above *Proficient* by type of content studied this year as reported by students, grades 8 and 12: 1998

<i>This year studied</i>	GRADE 8						GRADE 12					
	Yes			No			Yes			No		
	Percentage of students	Average scale score	Percentage at or above Proficient	Percentage of students	Average scale score	Percentage at or above Proficient	Percentage of students	Average scale score	Percentage at or above Proficient	Percentage of students	Average scale score	Percentage at or above Proficient
U.S. Constitution	1.5	0.7	0.9	1.2	2.1	2.3	1.6	0.9	1.2	1.5	1.3	1.6
Congress	1.5	0.7	1.0	1.2	1.9	1.9	1.5	0.9	1.1	1.4	1.3	1.7
President and cabinet	1.5	0.8	1.1	1.3	1.1	1.1	1.5	0.9	1.2	1.4	1.1	1.5
How laws are made	1.4	0.8	1.0	1.3	1.2	1.4	1.5	1.0	1.1	1.4	1.1	1.4
The court systems	1.6	0.8	1.1	1.4	1.2	1.4	1.4	0.9	1.3	1.3	1.1	1.3
State and local government	1.4	0.7	0.9	1.1	1.5	1.6	1.4	0.8	1.2	1.4	1.3	1.6
Political parties, elections, voting	1.3	0.8	1.0	1.1	1.4	1.7	1.4	0.8	1.1	1.4	1.1	1.5
Other countries' government	0.9	0.9	1.0	0.9	0.9	1.2	1.0	1.0	1.2	1.1	0.9	1.4
International organizations	0.8	1.0	0.9	0.9	0.9	1.4	1.1	0.9	1.1	1.2	1.0	1.4

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B5.3**

Standard errors for percentage of students, average civics scale scores, and percentage at or above *Proficient* by frequency of selected instructional activities as reported by teachers, grade 4: 1998

<i>In grade 4, how often do you . . .</i>	Frequency of instructional activity											
	Every day			Once or twice a week			Once or twice a month			Never or hardly ever		
	Percentage of students	Average scale score	Percentage at or above Proficient	Percentage of students	Average scale score	Percentage at or above Proficient	Percentage of students	Average scale score	Percentage at or above Proficient	Percentage of students	Average scale score	Percentage at or above Proficient
Use a social studies textbook?	1.8	0.8	1.5	1.7	1.6	2.0	1.0	4.2	4.3	1.0	3.2	3.6
Use books, newspapers, magazines?	0.8	2.7	2.9	1.7	1.0	1.5	1.5	1.0	1.2	0.9	3.3	3.7
Use primary documents?	0.3	5.2	5.8	0.8	2.6	3.3	1.8	1.7	1.7	1.6	1.0	1.5
Use quantitative data, charts, or graphs?	1.8	1.9	2.3	1.6	1.0	1.4	1.6	1.7	1.9	0.3	5.0	4.8
Use computer software?	0.5	---	---	0.8	2.7	3.6	1.4	1.7	2.1	1.5	0.9	1.2
Use films, videos, filmstrips?	0.1	---	---	1.1	1.8	2.4	1.7	1.0	1.4	1.5	1.6	1.6
Have students complete a worksheet?	0.8	2.7	2.7	1.7	0.9	1.5	1.3	1.9	2.4	0.9	3.4	3.3
Give a lecture?	1.4	1.8	2.1	1.6	1.1	1.5	1.1	2.0	2.4	1.5	2.0	2.7
Have students do a group activity/project?	0.7	3.7	4.2	1.7	1.8	2.1	1.8	1.0	1.3	0.9	2.2	3.0
Have students write a three or more page report?	---	---	---	0.4	7.0	5.1	1.2	1.2	1.6	1.1	1.0	1.3
Have students participate in debates?	0.3	---	---	0.5	2.8	5.4	1.7	1.9	2.1	1.7	1.0	1.4
Have students participate in mock trials?	---	---	---	0.6	8.2	8.2	1.7	1.8	2.1	1.8	0.9	1.2
Have students write letters?	---	---	---	0.5	5.3	4.6	1.5	1.2	1.7	1.6	1.1	1.3

---Standard error estimate cannot be accurately determined.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.



**Table B5.4**

Standard errors for percentage of students, average civics scale scores, and percentage at or above *Proficient* by frequency of selected instructional activities as reported by teachers, grade 8: 1998

<i>In grade 8, how often do you . . .</i>	Frequency of instructional activity											
	Every day			Once or twice a week			Once or twice a month			Never or hardly ever		
	Percentage of students	Average scale score	Percentage at or above Proficient	Percentage of students	Average scale score	Percentage at or above Proficient	Percentage of students	Average scale score	Percentage at or above Proficient	Percentage of students	Average scale score	Percentage at or above Proficient
Use a social studies textbook?	2.2	0.9	1.2	2.3	1.6	1.8	0.6	4.7	4.6	0.6	8.8	6.0
Use books, newspapers, magazines?	0.8	2.0	2.7	2.3	1.2	1.4	2.3	1.3	1.6	1.1	4.2	3.0
Use primary documents?	0.7	5.9	9.8	1.5	1.6	2.3	2.2	1.1	1.1	1.8	2.2	2.0
Use quantitative data, charts, or graphs?	1.9	1.5	2.0	2.2	1.2	1.4	1.9	1.6	2.0	0.5	12.0	7.4
Use computer software?	0.4	6.3	7.3	1.1	2.5	3.3	1.9	1.3	1.3	2.3	1.3	1.4
Use films, videos, filmstrips?	0.4	10.5	6.9	2.2	1.7	2.2	2.2	1.0	1.3	1.6	3.3	2.5
Have students complete a worksheet?	1.5	3.5	4.0	2.0	1.2	1.3	1.7	1.8	2.1	0.8	5.0	4.4
Give a lecture?	2.0	1.1	1.5	2.2	1.1	1.5	1.3	2.4	1.9	1.0	4.0	3.8
Have students do a group activity/project?	1.0	4.3	6.1	2.3	1.2	1.5	2.2	1.2	1.3	0.7	3.0	3.5
Have students write a three or more page report?	---	---	---	0.5	5.2	5.5	2.2	1.1	1.3	2.2	1.4	1.5
Have students participate in debates?	0.5	6.4	4.9	1.3	2.3	2.8	2.4	1.3	1.7	2.2	1.5	1.4
Have students participate in mock trials?	0.2	---	---	1.1	4.0	5.5	2.6	1.4	1.7	2.5	1.2	1.1
Have students write letters?	0.2	---	---	0.5	3.7	3.4	1.9	1.5	1.6	2.1	1.1	1.1

---Standard error cannot be accurately determined.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B5.5**



Summary of standard errors of paired percentages of students and paired scale score means with significant differences between less experienced (two years or less) and experienced (three years or more) teachers by selected types of instructional activities, grade 4: 1998

<i>How often do you use the following resources to teach social studies in this class?</i>	Frequency of instructional activity							
	Every day		Once or twice a week		Once or twice a month		Never or hardly ever	
	Percentage of students	Average scale score	Percentage of students	Average scale score	Percentage of students	Average scale score	Percentage of students	Average scale score
Social studies textbook		↙ 2.7-0.9		↙ 4.2-1.6		↙ 5.9-4.4		
Books, newspapers, magazines				↙ 2.3-1.5		↙ 2.7-1.2		↙ 5.6-4.9
Primary documents				↙ 4.9-2.7		↙ 3.2-1.7		↙ 3.3-1.1
Quantitative data, charts, or graphs		↙ 3.7-2.1		↙ 4.2-1.8		↙ 3.1-1.1		↙ 3.0-2.4
Computer software						↙ 3.1-1.5		↙ 1.8-1.3
Films, videos, filmstrips				↙ 1.9-1.6		↙ 2.5-1.1		
Have students complete a worksheet						↙ 2.9-1.0		↙ 3.8-2.0
Give a lecture		↙ 4.1-2.1		↙ 3.3-1.2				↙ 1.9-1.7
Have students do a group activity/project				↙ 3.6-1.7		↙ 2.8-1.1		↙ 6.4-2.3
Have students write a three or more page report								↙ 2.1-1.2
Have students participate in debates						↙ 2.8-2.1		↙ 4.4-2.0
Have students participate in mock trials						↙ 3.3-1.9		↙ 1.9-1.1
Have students write letters						↙ 2.5-1.6		↙ 2.1-1.4

↙ Indicates a significant difference in favor of experienced teachers.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B5.6**



Summary of standard errors for examples of pairs of percentages of students with significant differences between social studies teachers who participated in social studies workshops in the past year and those who did not, by type of instructional activity, grades 4 and 8: 1998

<i>How often do you use the following resources to teach social studies in this class?</i>	Grade 4		Grade 8	
	Used more	Used less	Used more	Used less
Social studies textbook				↙ 4.2–2.8
Books, newspapers, magazines	↙ 0.7–1.4		↙ 4.4–2.7	
Primary documents	↙ 2.0–2.6		↙ 0.4–1.0	
Quantitative data, charts, or graphs				
Computer software	↙ 1.5–2.2		↙ 3.8–2.3	
Films, videos, filmstrips				
Have students complete a worksheet		↙ 1.1–1.4		
Give a lecture				
Have students do a group activity/project		↙ 2.1–1.3		
Have students write a three or more page report			↙ 4.1–2.6	
Have students participate in debates	↙ 2.1–2.4		↙ 3.7–2.6	
Have students participate in mock trials	↙ 2.5–2.2		↙ 4.4–2.9	
Have students write letters	↙ 2.0–1.9		↙ 2.5–2.5	

↙ Indicates a significant difference in the percentage of students experiencing the instructional activity.  
 SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B5.7**

Standard errors for percentage of students, average civics scale scores, and percentage at or above *Proficient* by frequency of discussion of school studies at home, grades 4, 8, and 12: 1998

<i>How often do you discuss things you have learned at school with someone at home?</i>	Percentage of students	Average scale score	Percentage at or above Proficient
	<b>Grade 4</b>		
Daily	1.0	0.9	1.3
Once or twice a week	0.7	1.3	1.9
Once or twice a month	0.4	2.1	2.9
Never or hardly ever	0.6	1.3	1.5
<b>Grade 8</b>			
Daily	0.7	0.8	1.1
Once or twice a week	0.6	1.3	1.5
Once or twice a month	0.4	1.7	2.2
Never or hardly ever	0.6	1.0	1.1
<b>Grade 12</b>			
Daily	0.6	0.9	1.3
Once or twice a week	0.6	1.0	1.8
Once or twice a month	0.4	1.5	1.9
Never or hardly ever	0.5	1.0	1.2

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B5.8**

Standard errors for percentage of students, average civics scale scores, and percentage at or above *Proficient* by volunteer work status, grade 12: 1998

<i>Did you do volunteer work in your community this year?</i>	<b>Grade 12</b>		
	<b>Percentage of students</b>	<b>Average scale score</b>	<b>Percentage at or above Proficient</b>
Yes, with my school	0.8	1.0	1.4
Yes, on my own	0.8	1.0	1.7
No	0.9	0.9	0.9

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.

**Table B5.9**

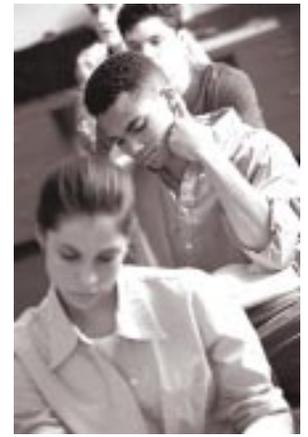
Standard errors for percentage of students, average civics scale scores, and percentage at or above *Proficient* by hours per week working at a job for pay, grade 12: 1998

<i>How many hours do you work at a job for pay?</i>	<b>Grade 12</b>		
	<b>Percentage of students</b>	<b>Average scale score</b>	<b>Percentage at or above Proficient</b>
None	0.9	0.9	1.2
1-5 hours	0.3	2.4	3.1
6-10 hours	0.4	1.7	2.8
11-15 hours	0.4	1.5	2.7
16-20 hours	0.5	1.3	1.7
21 or more hours	0.6	1.1	1.2

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Civics Assessment.



## APPENDIX C



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