



Schools and Staffing Survey

## Changes in Instructional Hours in Four Subjects by Public School Teachers of Grades 1 Through 4

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### Contents

Introduction .....	1
Data and Purpose .....	1
Findings .....	2
Summary .....	4
Methodology and Technical Notes .....	4
References .....	8
Appendix A. Standard Error Tables .....	9

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### Introduction

There has long been an interest in the use of school time as a means of increasing student achievement. Prior research has focused on the amount of time allocated to instruction and how that time is used (e.g., Berliner 1990; Carroll 1963). Findings support the belief that differences in school and instructional time are related to the amount of curriculum teachers cover and the likelihood of engaging their students in appropriately challenging material, both of which have been linked to student achievement (Berliner 1990; Coates 2003; Dreeben and Gamoran 1986).

Policymakers have also taken a strong interest in the amount and use of school time. In 1983, the National Commission on Excellence in Education published *A Nation at Risk*. The report called for major reforms in the American educational system including adding more time to the school day and school year, along with a primary focus on basic subject matter instruction—English, mathematics, science, social science, and computer science, as well as the arts and foreign languages (National Commission on Excellence in Education 1983).

While the Schools and Staffing Survey (SASS) cannot tell us how much instruction students receive in different subject areas, data from the SASS teacher questionnaires do allow us to examine how much time teachers of self-contained classrooms spend teaching certain subjects.<sup>1</sup> Findings from this report show that combined teacher instructional hours in first-through fourth-grade English, mathematics, social studies, and science increased between the 1987–88 and 2003–04 school years. This was due to individual increases in English and mathematics instruction. Over the same time period, instruction in science and social science saw an overall decrease.

### Data and Purpose

This report describes specific changes in teacher instructional time from 1987–88 through 2003–04. Analyses of these changes are possible because a subset of the teachers who completed the SASS Teacher Questionnaire were asked to report the number of hours per week they spent delivering instruction in four subjects—English (including reading and language arts), mathematics (and arithmetic), social studies (including history), and science—in all five SASS administrations (school years 1987–88, 1990–91, 1993–94, 1999–2000, and 2003–04). Additionally, in 1987–88 and 2003–04, teachers were asked to report the total number of hours per week they spent delivering instruction in all subjects. While examining changes in the number of hours spent on instruction is important, the length of the student school week is included in the analyses so that changes in teacher instructional time can be measured in relation to changes in the length of the student school week. The length of the student school week comes from the SASS School Questionnaire.

SASS data can help answer the following questions:

- Has average teacher instructional time in each of the four subject areas *alone* (English, mathematics, social studies, and science) changed over time?
- Has average teacher instructional time in the four subject areas *combined* (English, mathematics, social studies, and science) changed over time?

<sup>1</sup>Teachers of self-contained classrooms instruct the same group of students all or most of the day in multiple subjects. These teachers were asked to report the amount of instruction they provided in four subjects, which is not necessarily the amount of instruction that their students received. Students may have received additional instruction in these subjects outside the classroom.

- Are teachers spending proportionally more time teaching any, or all, of the four subjects in relation to the total instructional time per week on all subjects and/or to the length of the student school week?

Although SASS collected data on specific subject instruction from all self-contained, team, and “pull-out” teachers in public and private schools, the analyses in this report include only regular, full-time public school teachers (including public charter school teachers) in self-contained classrooms. Among this subset, all self-contained classroom teachers of grades 1 through 4 are included.<sup>2</sup> Teachers of self-contained classrooms were selected because they represent the majority of classroom instruction in the four subject areas at the primary-school level. For detailed information on the selection of the analysis sample, see the Methodology and Technical Notes of this report.

The findings reported below are descriptive and do not infer a cause for reported trends. All comparisons between groups were tested for statistical significance using Student’s *t* statistics to ensure that the differences were larger than might be expected due to sampling variation. Unless stated otherwise, all differences in this report are significant at the  $p < .05$  level. Note that the intervals between SASS administrations vary. This should be considered when comparing trends across years.

## Findings

### Instructional hours overview

Overall, the instructional hours of public school teachers in self-contained classrooms of grades 1 through 4 were domi-

nated by English; this was true for all administrations of SASS (table 1). On average, about one-third of the student school week was used for English instruction, followed, in descending order, by mathematics, social studies, and science. Only in 1993–94 was this pattern interrupted, with no measurable difference between social studies and science instructional hours (each with an average of 3 hours per week). In 2003–04, teachers of grades 1 through 4 provided an average of 11.6 hours of English, 5.4 hours of mathematics, 2.5 hours of social studies, and 2.3 hours of science instruction per week.

### Trends in instructional time in each of the four subjects

**English.** On average, teachers of grades 1 through 4 spent 11 hours per week on English instruction from 1987–88 through 2003–04, with a low of 10.5 hours in 1990–91 and a high of 11.6 hours in 2003–04. The overall increase in English instruction between 1987–88 and 2003–04 (0.6 of an hour or 36 minutes) amounts to about 22 more hours of English instruction over the course of an average 36-week school year. At the 2003–04 rate of 11.6 hours, this would yield about two additional weeks of English instruction.

However, as a percentage of total hours in the student school week, English instruction was not significantly different in 2003–04 than it was in 1987–88 (35.5 percent vs. 35.0 percent) (figure 1). The percentage of the student school week used for English instruction was higher in 2003–04 than in the intervening years (35.5 percent in 2003–04 versus 32.9 percent in 1990–91, 34.0 percent in 1993–94, and 33.6 percent in 1999–2000).

**Mathematics.** The average number of hours of mathematics instruction provided by self-contained teachers of grades

**Table 1. Average number of hours and percentage of the student school week that public school teachers of first- through fourth-grade, self-contained classrooms spent on each of four subjects, total instruction hours per week on four subjects, total time spent delivering all instruction per week, and average length of student school week, by selected characteristics: Selected years 1987–88 through 2003–04**

Characteristic	1987–88		1990–91		1993–94		1999–2000		2003–04	
	Average number of hours	Percent of student school week	Average number of hours	Percent of student school week	Average number of hours	Percent of student school week	Average number of hours	Percent of student school week	Average number of hours	Percent of student school week
English	11.0	35.0	10.5	32.9	10.9	34.0	10.9	33.6	11.6	35.5
Mathematics	4.9	15.4	4.9	15.3	5.3	16.4	5.7	17.4	5.4	16.5
Social studies	2.8	8.7	2.9	9.1	3.0	9.5	2.9	8.9	2.5	7.6
Science	2.6	8.1	2.7	8.4	3.0	9.2	2.6	8.1	2.3	7.1
Total of four subjects	21.2	67.1	21.0	65.8	22.1	69.2	22.1	68.0	21.8	66.7
Total time spent delivering instruction	27.9	88.4	—	—	—	—	—	—	29.6	90.6
Length of student school week	31.6	†	31.9	†	32.1	†	32.6	†	32.6	†

— Not available; data were not collected.

† Not applicable; student school week variable is used as the denominator.

NOTE: Due to school-level nonresponse, estimates in the row reporting “Length of student school week” are not available for all teachers in the sample. The reported estimates are for those teachers from responding SASS schools. Estimates in the “Percentage of student school week” columns are similarly affected. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey (SASS), “Public Teacher Data File,” 1987–88, 1990–91, 1993–94, 1999–2000, and 2003–04; “Public School Data File,” 1987–88, 1990–91, 1993–94, 1999–2000, and 2003–04; “Charter Teacher Data File,” 1999–2000; and “Charter School Data File,” 1999–2000.

<sup>2</sup> Teachers in grades 5 through 8 are more likely to instruct fixed-time-period classes focusing on one subject; thus, instructional time is most likely a function of class organization and subject-matter specialty, not teachers’ decisions.

1 through 4 increased from 4.9 hours per week in 1987–88 to 5.4 hours per week in 2003–04; however, it declined between 1999–2000 and 2003–04 (from 5.7 to 5.4 hours per week). Between the 1987–88 and 2003–04 school years, the additional 30 minutes of mathematics instruction per week would yield approximately 18 hours of additional instruction in a typical 36-week school year, or over 3 extra weeks of instruction at the 2003–04 rate of 5.4 hours per week.

As seen in comparisons of hours of mathematics instruction per week, a similar pattern holds for mathematics instruction as a percentage of the student school week: an overall increase from 1987–88 through 2003–04 (from 15.4 percent to 16.5 percent of the student school week), but a decline between 1999–2000 and 2003–04 (from 17.4 percent to 16.5 percent of the student school week).

**Social studies.** In contrast to English instruction, the average number of hours that teachers of grades 1 through 4 spent on social studies instruction peaked in 1993–94 and then decreased in the two most recent administrations of SASS. In 1987–88, self-contained teachers of students in grades 1 through 4 provided an average of 2.8 hours of social studies instruction per week; in 2003–04, the average was 2.5 hours per week. This decrease of 0.3 of an hour (or 18 minutes per week) would add up to about 11 fewer hours of instruction over the course of a typical 36-week school year. At the average 2003–04 instruction rate of 2.5 hours per week, this would mean more than 4 fewer weeks of social studies instruction.

The same pattern seen in the hours of instruction holds when examining social studies instruction as a percentage of the student school week, with a peak of 9.5 percent of the student week spent on social studies instruction in 1993–94, but an overall decline from 8.7 percent in 1987–88 to 7.6 percent in 2003–04.

**Science.** As with social studies instruction, the average number of hours that teachers of grades 1 through 4 spent on science instruction first increased from 1987–88 through 1993–

94 and then decreased between the two most recent SASS administrations. In 1987–88, science was taught an average of 2.6 hours per week; in 2003–04, the average was 2.3 hours per week. This decrease represents nearly 5 fewer weeks of instruction in science when following a 36-week school calendar and averaging about 2.3 hours of science instruction a week.

Science instruction as a percentage of the student school week followed the same pattern as hours of science instruction, increasing between 1987–88 and 1993–94, but declining from 1993–94 to 2003–04. Overall, there was a decline of 1 percentage point from 1987–88 (8.1 percent) through 2003–04 (7.1 percent).

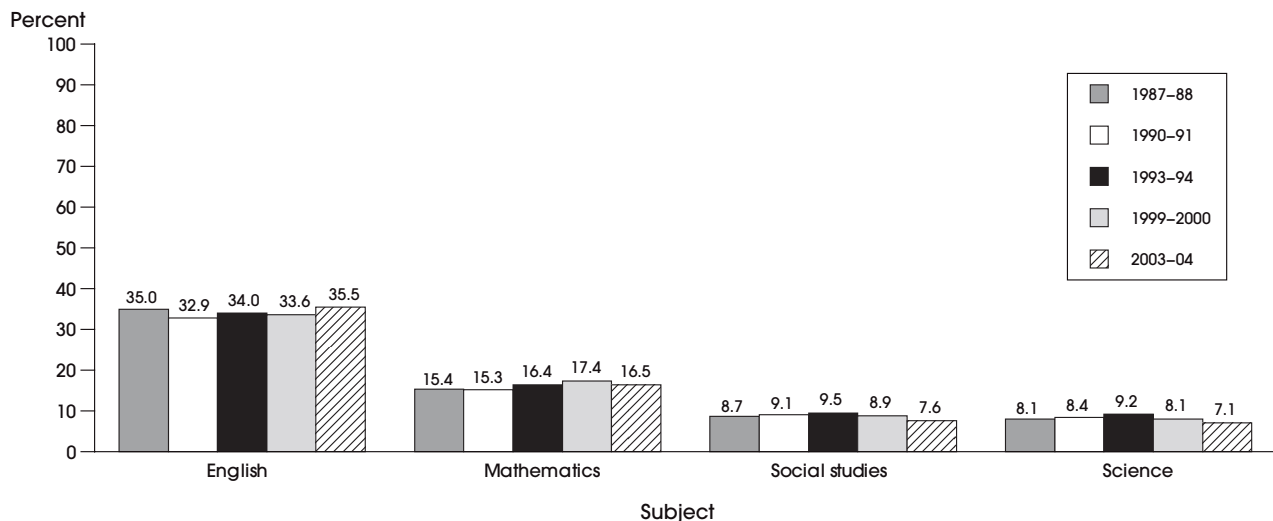
### Trends in instructional time in four subjects combined

Despite overall declines in instructional time in social studies and science, total instructional time in the four subjects combined (English, mathematics, social studies, and science) increased from an average of 21.2 hours per week in 1987–88 to 21.8 hours per week in 2003–04. This overall increase is due to increases in English and mathematics instruction that compensate for the decreases in social studies and science instruction. The 0.6 of an hour (36 minutes) per week increase would result in an extra 21.6 hours of combined instruction in the four subjects over a 36-week school year. At the 2003–04 rate of 21.8 hours per week, this translates to about an extra week of combined instruction in English, mathematics, science, and social studies.

### Trends in instructional time as compared to total instruction and length of student school week

It is possible that both the total weekly instructional time and the length of the student school week increased so that the increase in instructional time in the four subjects did not come at the expense of instructional time in other subjects. In other words, if instruction in the four subjects increased at the same time as the student school week lengthened, it could be that no time was lost on the instruction of other subjects.

**Figure 1. Percentage of the student school week that public school teachers of first- through fourth-grade, self-contained classrooms spent delivering instruction in four subjects: Selected years 1987–88 through 2003–04**



SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey (SASS), "Public Teacher Data File," 1987–88, 1990–91, 1993–94, 1999–2000, and 2003–04; "Public School Data File," 1987–88, 1990–91, 1993–94, 1999–2000, and 2003–04; "Charter Teacher Data File," 1999–2000; and "Charter School Data File," 1999–2000.

**Total weekly instruction.** Teachers were asked to report the total number of hours per week they spent delivering instruction in all subjects—not just for English, mathematics, social studies, and science—only in the 1987–88 and 2003–04 administrations of SASS. Analyses showed that the average total instructional time, both in hours and as a percentage of the student school week, increased—from 27.9 hours in 1987–88 (88.4 percent of the student school week) to 29.6 hours in 2003–04 (90.6 percent of the student school week), a difference of 1.7 hours (or 102 minutes) per week. By this measure, time spent on all instruction increased over this 16-year period, although there are no data to measure trends in the intervening school years.

**Student school week.** As shown in table 1, the average length of the student school week did, in fact, increase—from 31.6 to 32.6 hours—from 1987–88 through 2003–04. Total instructional time in the four subjects also increased over the same period—from 21.2 to 21.8 hours. Although the increase in the school week was larger than the increase in combined instructional time in the four subjects, the percentage of the student school week spent on these four subjects did not decrease significantly. It is important to remember that, despite apparent increases in the length of the student school week, SASS does not contain data that can identify what was added to the school week (e.g., a longer recess or lunch period vs. more instructional time), nor can it be used to determine whether this added time had an impact on learning.

Thus, while absolute hours of instruction in the four subjects increased between 1987–88 and 2003–04, the percentage of the student school week used for instruction in the four subjects did not change significantly.

## Summary

Average instructional time in the four subjects—English, mathematics, social studies, and science—taught by public school teachers in self-contained classrooms of grades 1 through 4 has changed between 1987–88 and 2003–04. Total instructional hours in the four subjects increased by an average of 36 minutes per week between the 1987–88 and 2003–04 school years, whereas instructional time in all subjects increased by an average of 102 minutes per week.

Over the five SASS administrations, changes in instructional time in the individual subjects differ. English and mathematics instruction increased over this time period, while social studies and science instruction decreased. Although there was an overall decrease between the first and last SASS administrations, average instruction in social studies and science grew in the intervening years, peaking in 1993–94. Despite these fluctuations, total instructional time in the four subjects as a percentage of the student school week did not change significantly between 1987–88 and 2003–04; it was about 67 percent of the school week in each year.

Between the most recent years for which data are available—1999–2000 and 2003–04—average instructional time for English increased; average instructional time for math, social studies, and science decreased. Finally, total instructional time in these four subjects did not change significantly between these two years.

Data from the next administration of SASS—in the 2007–08 school year—will provide the next measure of changes in teacher instructional time in these four subject areas.

## Methodology and Technical Notes

This section provides a brief explanation of the methodology for all administrations of the Schools and Staffing Survey (SASS), with a particular focus on the public school teacher and public school elements. For complete information on sampling, data collection, response rates, and potential sources of bias in SASS administrations, please see the following reports, which can be found at <http://nces.ed.gov/pubsearch/getpubcats.asp?sid=003>:

- 1987–88 SASS: *1987–88 Schools and Staffing Survey: Sample Design and Estimation* (NCES 91–127); and *User’s Manual: 1987–88 Schools and Staffing Survey—Public School Data* (NCES 91–136);
- 1990–91 SASS: *1991 Schools and Staffing Survey: Sample Design and Estimation* (NCES 93–449); and *An Exploratory Analysis of Response Rates in the 1990–91 Schools and Staffing Survey (SASS)* (NCES 96–338);
- 1993–94 SASS: *1993–94 Schools and Staffing Survey: Data File User’s Manual: Volume I: Survey Documentation* (NCES 96–142); and *1993–94 Schools and Staffing Survey: Sample Design and Estimation* (NCES 96–089);
- 1999–2000 SASS: *SASS—Schools and Staffing Survey* (NCES 1999–352); and
- 2003–04 SASS: *Characteristics of Schools, Districts, Teachers, Principals, and School Libraries in the United States: 2003–04 Schools and Staffing Survey* (NCES 2006–313); and *Documentation for the 2003–04 Schools and Staffing Survey* (NCES 2006–323).

Questionnaires from all administrations of SASS are available online at <http://nces.ed.gov/surveys/SASS/questionnaire.asp>.

## Overview and history of SASS

SASS is conducted by the U.S. Census Bureau and sponsored by the National Center for Education Statistics (NCES). SASS has been conducted five times: in school years 1987–88, 1990–91, 1993–94, 1999–2000, and 2003–04. For each administration of SASS, NCES has reviewed the content of the questionnaires to expand, retain, or eliminate topics covered in the previous administration. Through these reviews, the survey’s capability for trend analysis is maintained, yet new topics are added to address current concerns. SASS provides valuable data for educators, researchers, and policymakers on public school districts; public (including public charter), private, and Bureau of Indian Affairs (BIA)-funded schools, principals, and teachers; and public and BIA school library media centers. SASS provides data on the characteristics and qualifications of teachers and principals, teacher hiring practices, professional development, class sizes, teacher instruction, and other conditions in schools across the nation.

This report uses data collected by the Public School Teacher Questionnaire and Public School Questionnaire from all five

SASS administrations. Charter schools are a relatively new phenomenon. Sampling and questionnaire design were not tailored to capture information specific to charter schools prior to the 1999–2000 SASS administration. For the 1999–2000 collection, separate samples and instruments were designed for charter schools and charter school teachers and there are separate data files for these populations for that year. In 2003–04, charter school samples and charter specific questions were embedded in the larger public school samples and questionnaires. However, charter schools and charter school teachers can be identified and analyzed separately. Charter school teacher and charter school data are included in the 1999–2000 and 2003–04 analyses.

### Public school and public school teacher estimates and target populations

SASS is designed to produce national, regional, and state estimates for public elementary and secondary schools and related components (i.e., teachers, principals, school districts, and school library media centers). Data from the SASS teacher questionnaires are designed to support comparisons between new and experienced teachers (3 years or less of experience vs. more than 3 years of experience) at the state level and between teachers by race and full- or part-time status at the national level.

### Public school and public school teacher sample design

**Public schools.** The foundation of the public school sampling frame is the Common Core of Data (CCD) public elementary/secondary school universe data file. The CCD file is based on data collected annually by NCES from each state education agency, and it is believed to be the most comprehensive list of public schools at the time of sample selection. Because of its scale, planning for SASS begins two years prior to data collection. Therefore, SASS uses the most recent CCD file available at the time for the sampling frame; the CCD released two years prior to the SASS school year (e.g., the 2003–04 SASS used the 2001–02 CCD file). The SASS public school sample is a stratified probability-proportionate-to-size (PPS) sample. All BIA-funded schools were automatically included in the SASS sample. In 2003–04, this produced a non-BIA-funded sample of 10,202 public schools and a BIA-funded sample of 166 schools.

**Teachers.** The sampling frame for SASS teachers consists of lists of teachers provided by schools in the SASS sample. Teachers are defined as staff who teach a regularly scheduled class to students in grades K–12. Respondents are instructed to exclude teachers of prekindergarten only, teachers of adult

education or postsecondary education only, short-term substitutes, student teachers, teacher aides, day care aides, and librarians who only teach library skills. The sample of teachers is selected from all of the schools that provide teacher lists. On average, three to eight teachers were selected from each school. The maximum number of teachers selected per school was set at 20. The teacher sample size is limited in this way to avoid overburdening the schools, while allowing for a large enough teacher sample to meet the reliability requirements. For more information on the SASS sample selection, see the documents listed in the beginning of the Methodology and Technical Notes section.

Table 2 provides the unweighted sample sizes for all in-scope public school teachers and public schools selected for the full SASS sample in all administrations.

### Data collection

The data collection procedures for all questionnaires administered at the schools changed substantially for the 2003–04 SASS. In previous administrations of SASS, self-administered questionnaires were mailed to the selected schools. Nonrespondents were contacted by telephone, using a computer-assisted telephone interviewing (CATI) instrument. Finally, remaining nonrespondents were assigned to field representatives who contacted them by telephone and/or by personal visits. Under that methodology, most respondents completed self-administered questionnaires, while some were interviewed by telephone.

During the 2003–04 SASS, field representatives were responsible for all of the SASS data collection for each of the sampled schools, and nearly all questionnaires were completed directly by respondents as opposed to telephone interviews.

### Response rates and nonresponse bias analysis

**Unit response rates.** Unit response rates are the rate at which the sampled units respond by substantially completing the questionnaire. The base-weighted unit response rates are the base-weighted number of interviewed cases divided by the base-weighted number of eligible cases. The base weight for each sampled unit is the inverse of the probability of selection. Table 3 provides the base-weighted unit response rates and overall response rates for public school teachers and public schools in all SASS administrations.

**Item response rates.** The weighted item response rates are the final weighted number of sample cases responding to an item

**Table 2. Unweighted sample sizes for the full SASS public school teacher and public school sample: Selected years 1987–88 through 2003–04**

Respondent	1987–88	1990–91	1993–94	1999–2000	2003–04
Public school teachers	56,242	56,051	56,736	61,298	53,188
Public schools	9,317	9,688	9,960	11,136	10,368

NOTE: Sample sizes include all in-scope public school teachers and public schools (including traditional public and public charter sectors where applicable). In 1990–91, 1993–94, 1999–2000, and 2003–04 separate sample sizes were available for public and BIA sectors. However, they are reported together in this table. Separate public and BIA totals were not reported in 1987–88. Totals from 1987–88 can not be confirmed, but were taken from the report *Qualifications of the Public School Teacher Workforce: Prevalence of Out-of-Field Teaching, 1987–88 to 1999–2000 Revised* (NCES 2002–603).

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey (SASS), *Qualifications of the Public School Teacher Workforce: Prevalence of Out-of-Field Teaching, 1987–88 to 1999–2000 Revised* (NCES 2002–603), *1990–91 Schools and Staffing Survey: Data File User's Manual Volume I: Survey Documentation* (NCES 93–144), *1993–94 Schools and Staffing Survey: Data File User's Manual Volume I: Survey Documentation* (NCES 96–142), *1999–2000 Schools and Staffing Survey (SASS) Data File User's Manual* (NCES 2004–303), and *Characteristics of Schools, Districts, Teachers, Principals, and School Libraries in the United States: 2003–04 Schools and Staffing Survey* (NCES 2006–313).

divided by the final weighted number of sample cases eligible to answer the item. Rates are reported for all survey items on the SASS Public School and Public Teacher data files. Also included, where applicable, are response rates of Charter School and Charter Teacher data files.

In 2003–04, the item response rates ranged from 71 to 100 percent on the Public School data file and 44 to 100 percent on the Public Teacher data file. In 1999–2000, the item response rates ranged from 67 to 100 percent on the Public School data file and 39 to 100 percent on the Charter School data file. Also in 1999–2000, item response rates ranged from 48 to 100 percent on the Public Teacher data file and 16 to 100 percent on the Charter Teacher data file. In 1993–94, item response rates on the Public School data file ranged from 83 to 100 percent and 71 to 100 percent on the Public Teacher data file. Ranges in item response rates for 1990–91 and 1987–88 are not available in the SASS documentation; however, items with response rates lower than 75 percent are recorded. No variable used in either administration has a response rate below 75 percent. In fact, no item used in this analysis has a response rate lower than 75 percent.

**Nonresponse bias analysis.** A comprehensive nonresponse bias analysis was conducted for each SASS data file for all survey administrations. Evidence of substantial bias due to unit- or item-level nonresponse was not found in any of the data files. For information on computing different types of response rates see NCES Standard 1–3 (U.S. Department of Education 2003).

### Imputation procedures

SASS is a fully imputed dataset. In general, missing values are filled during one of three stages of imputation: (1) survey data are imputed with a valid response using data from other items in the same questionnaire or from other related sources, (2) data are imputed from items found on the questionnaires of respondents who have certain characteristics in common or from the aggregated answers of similar questionnaires, and (3) the remaining unanswered items are imputed clerically by Census Bureau analysts. A numerical flag is assigned to

each imputed item so that it is possible for data users to identify which items were imputed, how the imputations were performed, and whether or not to include the imputed data in their analysis.

### Weighting, variance estimation, and tests of significance

Each SASS data file contains a final weight and a set of replicate weights. The final weights are needed so that the sample estimates reflect the target survey population when analyzing the data. For these analyses, the final teacher weight was used so that sample estimates reflect the target teacher population. In 1999–2000 and 2003–04, the final weight variable is TFNLWGT. In 1987–88, 1990–91, and 1993–94, the final weight variable is TCHWGT.

In surveys with complex sample designs, such as SASS, direct estimates of sampling errors that assume a simple random sample will typically underestimate the variability in the estimates. The SASS sample design and estimation include procedures that deviate from the assumption of simple random sampling. For this reason, the preferred method of calculating sampling errors is replication. Each SASS data file includes a set of replicate weights designed to produce variance estimates.

The tests of significance used in this analysis are based on Student's *t* statistics. The formula used to compute Student's *t* statistics is as follows:

$$t = \frac{E_1 - E_2}{\sqrt{se_1^2 + se_2^2}}$$

$E_1$  and  $E_2$  are the first and second estimates being compared, and  $se_1$  and  $se_2$  are the corresponding standard errors.

### Analysis sample

The following is a summary of the restrictions made to the full SASS sample in defining the subsample used in this report. The analysis sample for this report includes teachers who

- teach students in one (or more) of grades 1 through 4;
- report self-contained classroom organization;

**Table 3. Base-weighted unit response rates and weighted overall response rates, by respondent: Selected years 1987–88 through 2003–04**

Respondent	1987–88	1990–91	1993–94	1999–2000 <sup>1</sup>	2003–04
Public school teachers					
Base-weighted unit response rate	86.4	90.3	88.2	83.1	84.8
Weighted overall response rate	n/a <sup>2</sup>	85.9	83.8	76.6	75.7
Public schools					
Base-weighted unit response rate	91.9	95.3	92.3	88.5	80.8
Weighted overall response rate	†	†	†	†	†

† Not applicable.

<sup>1</sup> 1999–2000 response rates were calculated separately for public charter school teachers and public charter schools. The base-weighted unit response rate for public charter school teachers was 78.6 percent. The overall response rate for public charter school teachers was 71.8 percent. For public charter schools, the base-weighted unit response rate was 86.1 percent.

<sup>2</sup> The Teacher Listing Form response rates for 1987–88 are not recorded in any of the data file documentation and are unknown.

NOTE: Base-weighted unit response rates were weighted using the inverse of the probability of selection (base weight). The overall response rate is the base-weighted teacher questionnaire response rate multiplied by the base-weighted response rate of the Teacher Listing Form.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey, special tabulations from the "Public School" and "Public Teacher" Documentation Data Files, 2003–04; *Qualifications of the Public School Teacher Workforce: Prevalence of Out-of-Field Teaching, 1987–88 to 1999–2000 Revised* (NCES 2002–603), *1990–91 Schools and Staffing Survey: Data File User's Manual Volume I: Survey Documentation* (NCES 93–144), *1993–94 Schools and Staffing Survey: Data File User's Manual Volume I: Survey Documentation* (NCES 96–142), *1999–2000 Schools and Staffing Survey (SASS) Data File User's Manual* (NCES 2004–303), and *Characteristics of Schools, Districts, Teachers, Principals, and School Libraries in the United States: 2003–04 Schools and Staffing Survey* (NCES 2006–313).

- report a regular, full-time teaching status; and
- teach in a public school (including traditional public and public charter schools).

**Grade range.** The first- through fourth-grade range was chosen because the majority of teachers at this level teach in self-contained classrooms where instructional time is likely to vary. First- through fourth-grade teachers also represent the traditional “primary-level” teachers, as defined by SASS. Teachers of students in grades 5 through 8 are considered upper-elementary and middle school teachers. In these grades, teachers are more likely to instruct departmentalized classes of fixed time periods where instruction is most likely a function of class scheduling and classroom organization, not teachers’ decisions.

Though in a single classroom, self-contained teachers could instruct students in multiple grade levels within the first-through fourth-grade range or students in a grade (or grades) within the range and students in a grade higher and/or lower. Unpublished analyses comparing estimates showed few significant differences between all regular, full-time, self-contained teachers of grades 1 through 4 as compared to those teaching only within the first- through fourth-grade range (i.e., no grade higher or lower). Therefore, teachers with classrooms combining students in grades 1 through 4 and students outside grades 1 through 4 are included in these analyses.

**Classroom organization.** Instruction in the four subject areas occurs by teachers of all classroom organization types; however, this report sought to include the “typical” classroom teacher of the four subject areas. Self-contained teachers were selected because they instruct the same group of students for all or most of the day in multiple subjects and were believed to represent the majority of teachers of grades 1 through 4. Other classroom organization types include departmentalized (instructing several classes of different students in specific subjects), elementary enrichment class (elementary teacher who teaches only one subject), team teaching (two or more teachers in the same class jointly responsible for instruction of a single group of students), and “pull-out” class (instructing selected students taken from regular classes in areas of specific needs).

SASS data on instructional hours were collected only from self-contained, team, and “pull-out” teachers. Team teachers were not analyzed in this report because SASS cannot ac-

count for the total amount of instruction occurring in their classrooms (only one team teacher in any class is included in the survey). “Pull-out” teachers were not examined because of their focus on specialized instruction in one subject (e.g., English/language arts or special education)—“pull-out” teachers would show little variability in instructional hours across subjects.

Preliminary analyses were conducted to confirm that the subsample of self-contained first- through fourth-grade teachers included a stable population of teachers in “average” classrooms. The distribution of classroom organization types was examined for all regular, full-time teachers of grades 1 through 4 over all five SASS administrations. The results show that self-contained teachers consistently make up about two-thirds of this teacher subsample (table 4).

In addition, the distribution of main assignments for teachers in each classroom organization type and each SASS year was run (results for all years available upon request). Several consistent patterns emerged:

- The majority of *departmentalized* teachers fall into four main assignments: elementary education, English/language arts, mathematics/computer science, and arts/music. Data on instructional hours were not collected for departmentalized teachers.
- The majority of *elementary enrichment* teachers fall into either arts/music or health/physical education, with a small portion listing elementary education. Data on instructional hours were not collected for elementary enrichment teachers.
- The large majority of *self-contained* teachers report an elementary education main assignment. A small portion also reports special education.
- The majority of *team* teachers report a main assignment of elementary education. A portion also reports special education.
- Finally, among “*pull-out*” teachers, the majority report either special education or English/language arts.

Results of these preliminary analyses confirm that the findings and conclusions in the report apply to both a stable majority of first- through fourth-grade classroom teachers and the instruction they offer in the four subjects.

**Table 4. Number and percentage of public school teachers who teach any of grades 1 through 4, by classroom organization: Selected years 1987–88 through 2003–04**

Classroom organization	1987–88		1990–91		1993–94		1999–2000		2003–04	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Departmentalized	102,068	12.7	73,725	8.3	54,760	6.3	57,190	5.7	75,568	6.9
Elementary enrichment class	—	—	54,246	6.1	82,826	9.5	75,024	7.5	108,489	9.9
Self-contained class	543,710	67.8	604,298	68.0	581,821	66.6	683,539	68.1	723,046	66.2
Team teaching	44,275	5.5	58,912	6.6	66,996	7.7	76,219	7.6	37,475	3.4
“Pull-out” class	112,278	14.0	97,484	11.0	87,602	10.0	111,500	11.1	147,428	13.5

— Not available; data were not collected.

NOTE: Includes regular, full-time teachers who teach students in any of grades 1, 2, 3, or 4, regardless of whether they teach students in additional grades. SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey (SASS), “Public Teacher Data File,” 1987–88, 1990–91, 1993–94, 1999–2000, and 2003–04; and “Charter Teacher Data File,” 1999–2000.

Unpublished analyses also examined the stability of the first-through fourth-grade *student* population. In SASS, class enrollments are reported by the teacher. Therefore, students can be counted multiple times by teachers of different classroom types (e.g., an art teacher counts the same first-grade students that a self-contained first-grade teacher counts). This makes it difficult to accurately measure student population changes by classroom type. However, average class sizes for teachers in the report subsample were relatively stable across the five administrations; ranging from 20.2 to 23.0 students. These findings, combined with the stability of the teacher population in question, should lessen concerns that changes in teacher or student populations are a cause of changes in instructional time.

**Teaching status.** Part-time teachers, substitute teachers, teacher aides, or other professional staff (e.g., administrators or counselors) were not included in the analysis sample. These teachers and staff either were not asked to report the hours per week they spent teaching different subjects or, if asked, are not comparable to full-time teachers because of the occasional nature or unspecified time frame of their instruction.

**Sector of school.** The analyses include only public school teachers (traditional public and public charter school teachers). Teachers in private schools and BIA-funded schools are not included.

Table 5 shows the public school teacher and public school sample sizes in each administration examined in this report.

**Table 5. Unweighted sample size of regular full-time, first- through fourth-grade public school teachers in self-contained classrooms and their corresponding public schools: Selected years 1987–88 through 2003–04**

Respondent	1987–88	1990–91	1993–94	1999–2000	2003–04
Public school teachers	7,948	7,643	6,739	6,495	5,877
Public schools	7,511	7,403	6,248	5,959	5,508

NOTE: Due to school-level nonresponse, school data are not available for all teachers. Tables in the body of the report are noted where applicable.  
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey (SASS), "Public Teacher Data File," 1987–88, 1990–91, 1993–94, 1999–2000, and 2003–04; "Public School Data File," 1987–88, 1990–91, 1993–94, 1999–2000, and 2003–04; "Charter Teacher Data File," 1999–2000; and "Charter School Data File," 1999–2000.

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## Appendix A. Standard Error Tables

**Table A-1. Standard errors for Table 1: Average number of hours and percentage of the student school week that public school teachers of first- through fourth-grade, self-contained classrooms spent on each of four subjects, total instruction hours per week on four subjects, total time spent delivering all instruction per week, and average length of student school week, by selected characteristics: Selected years 1987–88 through 2003–04**

Characteristic	1987–88		1990–91		1993–94		1999–2000		2003–04	
	Average number of hours	Percent of student school week	Average number of hours	Percent of student school week	Average number of hours	Percent of student school week	Average number of hours	Percent of student school week	Average number of hours	Percent of student school week
English	0.07	0.23	0.08	0.25	0.07	0.26	0.08	0.26	0.11	0.33
Mathematics	0.03	0.09	0.04	0.14	0.04	0.14	0.04	0.15	0.04	0.13
Social studies	0.04	0.12	0.05	0.16	0.04	0.13	0.03	0.11	0.03	0.10
Science	0.04	0.13	0.04	0.14	0.05	0.15	0.03	0.10	0.03	0.10
Total of four subjects	0.10	0.33	0.13	0.43	0.12	0.46	0.12	0.41	0.14	0.46
Total time spent delivering instruction	0.10	0.41	†	†	†	†	†	†	0.10	0.35
Length of student school week	0.05	†	0.06	†	0.06	†	0.06	†	0.07	†

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey (SASS), "Public Teacher Data File," 1987–88, 1990–91, 1993–94, 1999–2000, and 2003–04; "Public School Data File," 1987–88, 1990–91, 1993–94, 1999–2000, and 2003–04; "Charter Teacher Data File," 1999–2000; and "Charter School Data File," 1999–2000.

**Table A-2. Standard errors for Table 4: Number and percentage of public school teachers who teach any of grades 1 through 4, by classroom organization: Selected years 1987–88 through 2003–04**

Classroom organization	1987–88		1990–91		1993–94		1999–2000		2003–04	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Departmentalized	2,672.4	0.28	3,073.7	0.32	3,200.5	0.35	3,662.7	0.35	5,381.9	0.49
Elementary enrichment class	†	†	2,877.7	0.31	3,910.9	0.41	4,033.4	0.40	5,652.7	0.49
Self-contained class	4,964.1	0.43	8,871.2	0.67	11,391.2	0.70	10,826.5	0.66	18,939.3	0.98
Team teaching	2,340.7	0.29	3,704.6	0.41	3,165.3	0.36	4,606.7	0.45	3,821.7	0.35
"Pull-out" class	3,413.5	0.37	3,802.2	0.42	4,051.3	0.39	4,759.5	0.45	9,919.4	0.87

† Not applicable.

NOTE: Includes regular, full-time teachers who teach students in any of grades 1, 2, 3, or 4, regardless of whether they teach students in additional grades. SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey (SASS), "Public Teacher Data File," 1987–88, 1990–91, 1993–94, 1999–2000, and 2003–04; and "Charter Teacher Data File," 1999–2000.