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High School Longitudinal Study of 2009 (HSLS:09)

A First Look at Fall 2009 Ninth-Graders' Parents, Teachers, School Counselors, and School Administrators

NCES 2011-355

U.S. DEPARTMENT OF EDUCATION

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Foreword

The findings presented here are a small sample of the rich and extensive data that are part of the High School Longitudinal Study of 2009 (HSLS:09). This First Look focuses on information gathered from ninth-graders' parents, mathematics and science teachers, school counselors, and school administrators.

We hope that the information in this report will be useful to a wide range of readers and will encourage policy analysts and researchers to further explore the HSLS:09 base-year data and the future datasets that will follow.

Jeffrey A. Owings
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Acknowledgments

The authors thank the ninth-graders, their parents, teachers, school counselors, and school administrators who took their time and gave their energy to participate in the High School Longitudinal Study of 2009 (HSLS:09). Additionally, many individuals contributed to the study design and conduct of the HSLS:09. They deserve gratitude for their tireless efforts in developing such a valuable and rich data source.

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Chapter 1. Introduction

1.1 Focus of the Report

The focus of this First Look report is on base-year contextual data from the High School Longitudinal Study of 2009 (HSLS:09). This First Look is intended as a companion to the report, *High School Longitudinal Study of 2009 (HSLS:09): A First Look at Fall 2009 Ninth-Graders* (NCES 2011-327), which focuses on the mathematics assessment and student beliefs, expectations, and exposure to different mathematics and science courses. This companion report introduces the contextual data provided by ninth-graders' parents, mathematics and science teachers, school counselors, and school administrators.

These sources provided information to address the fundamental research questions on which HSLS:09 is based. Data from HSLS:09 inform policymakers and researchers about if, when, and how students decide on secondary courses, choose among postsecondary options, and consider which career(s) to pursue. The study focuses on this complex decision-making process in general, but also places particular emphasis on this process within science, technology, engineering, and mathematics (STEM) fields.

Ninth-graders reported on their own experiences, expectations, plans, and attitudes, but other informants were critical to understanding external influences on students' choices. All contextual sources – parents, mathematics and science teachers, school counselors, and school administrators – answered questions on their demographic and professional backgrounds. The most knowledgeable adult about the ninth-grader's current experiences responded to survey questions through a self-administered online survey or with a telephone interviewer; most often this adult was the parent. The parent survey covers topics such as their expectations, aspirations, and preparations for their ninth-graders' futures, particularly in terms of their students' postsecondary experiences, such as college savings plans.

School staff were asked to provide information on students' educational settings by responding to prompts about the general school and classroom. Therefore, their responses are not necessarily related to individual students. Students' mathematics and science teachers were asked to complete survey questions about their work history, work experiences, and school climate. The school administrator and the head school counselor (or another counselor, if there was no head school counselor or if that counselor was unavailable) also reported on their work history, work experiences, and school climate. School climate encompassed the central goals of the school, resources available for struggling and excelling students, challenges to student and school success, and discipline issues, as well as their own educational expectations for students and their perceptions of others' expectations and behaviors. Each of the four school staff surveys included the same set of school climate questions to allow researchers to triangulate the data and thus construct a more complete picture of the school.

The purpose of this First Look report is to introduce new NCES survey data through the presentation of selected descriptive information. Since this report is purely descriptive in nature, readers

are cautioned not to draw casual inferences based on the bivariate results presented. It is important to note that many of the variables examined in this report may be related to one another, and complex interactions and relationships among the variables have not been explored. The variables examined here are also just a few of those that can be examined in these data; they were selected to demonstrate the range of information available from the study. These findings are examples of estimates that can be obtained from the data and are not designed to emphasize any particular issue. The release of this report is intended to encourage more in-depth analysis of the data using more sophisticated statistical methods.

Further information about the dataset and the methodologies used to collect and process the data can be found in the technical appendix to this report (appendix A) and, with greater detail, in the *HSLS:09 Base-Year Data File Documentation* (NCES 2011-328), available from the NCES website: nces.ed.gov/surveys/HSLS09. Appendix B includes information about the variables used in each table.

1.2 Study Design

HSLS:09 is a nationally representative, longitudinal study of approximately 21,000 ninth-graders in 944 schools who will be followed through their secondary school experiences and postsecondary or early work years. The schools were sampled from public schools, including charter schools, and private schools enrolling both ninth-grade and eleventh-grade students in the 50 United States and the District of Columbia.

In 2009, fall-term ninth-graders were randomly sampled within selected schools to take a mathematics assessment focused on algebraic reasoning and to answer survey questions. All ninth-grade students in the sampled schools were classified as eligible for the study, including students with disabilities and English-language learners who may not have been capable of completing the survey instruments.[1] Table 1 profiles the HSLS:09 students.

The base-year student data are nationally representative of ninth-graders in schools with both ninth and eleventh grades. The base-year dataset also includes 10 individual state-representative samples of students and schools.

Approximately half the eligible selected schools participated, for a realized sample of 944 schools (56 percent weighted response rate; 50 percent unweighted response rate). Of eligible fall ninth-graders, more than 21,000 students participated, which is a response rate of about 86 percent weighted and 85 percent unweighted. Featured in this report, information was also collected from students' parents; mathematics teachers; science teachers; school counselors; and school administrators. The weighted and unweighted response rates at the student level for those respondents are as follows: parents (68 percent weighted; 67 percent unweighted); mathematics teachers (72 percent weighted; 76 percent unweighted); science teachers (70 percent weighted; 72 percent unweighted); school counselors (90 percent weighted; 90 percent unweighted); and school administrators (95 percent weighted; 94 percent unweighted). More information about the sample design can be found in the technical notes in appendix A.

[1] Although the student sample included students with disabilities and English language learners who were deemed not capable of completing the survey instruments, such students are not reflected in the estimates reported in tables of this report because they lack student questionnaire and assessment data.

The survey weights were adjusted for list collection and questionnaire nonresponse, and the data were then weighted to yield national estimates that represent all ninth-grade students enrolled in schools in the United States that included both ninth and eleventh grades and their parents, school counselors, teachers, and administrators. The results of a nonresponse bias analysis conducted for the survey to inform the nonresponse weight adjustments are presented in appendix A.

The first follow-up of HSLS:09 will occur in the spring of 2012 when most student sample members will be in the eleventh grade. Dropouts and early graduates will be followed and all participants will be asked to complete both the survey and an updated version of the mathematics assessment that reflects more complex material. The tests will be aligned so as to facilitate analyses of learning in mathematics. At this first follow-up data collection, participants' parents, school counselors, and school administrators will complete surveys that focus on the transition from the secondary to the postsecondary years.

A brief postsecondary status update will occur in the summer/fall of 2013, asking students about their postsecondary options, choices, and financing plans for these choices. High school transcripts will be collected and coded in the fall of 2013/spring of 2014, and a second follow-up is planned for 2015, when most sample members will be 2 years beyond high school graduation. Additional follow-up data collections for this cohort of ninth-graders are planned.

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Chapter 2.
Selected Findings

Students

- In the United States in 2009-10, among ninth-graders eligible for participation in HSLS:09 (those students who attended schools with both ninth and eleventh grades), approximately 8 percent lived in households where the highest level of the parent or guardian's education was less than high school and 15 percent lived in households where the highest level of education was higher than a bachelor's degree (table 1).

Ninth-Graders' Parents

- About 22 percent of ninth-graders' parents expected their daughters to complete a master's degree, and an additional 25 percent expected their daughters to complete a Ph.D., law, or other professional degree. Approximately 17 percent of ninth-graders' parents expected their sons to complete a master's degree, and an additional 17 percent expected their sons to earn a Ph.D., law, or other professional degree (table 2).

- Among ninth-graders whose parents expected their teenager to enter postsecondary education, about 9 percent of these ninth-graders had parents who reported no plans to help their student pay, another 13 percent had parents who had not thought about whether or not they plan to help their student pay, and another quarter (26 percent) had parents who planned to help pay but had not started to save (table 3).

- Among ninth-graders whose parents expected them to enter postsecondary education and who planned to help pay for this education, 23 percent of White ninth-graders' parents, 12 percent of Black ninth-graders' parents, 8 percent of Hispanic ninth-graders' parents, and 41 percent of Asian ninth-graders' parents reported saving more than $25,000 for their student's postsecondary education (table 4). About 19 percent of ninth-graders who did not report any specific educational expectation (don't know) had parents who reported saving more than $25,000 toward their student's postsecondary education.

Ninth-Graders' Teachers

- Of the ninth-graders in the highest socioeconomic status (SES) category,[2] 22 percent had a relatively new mathematics teacher with 1 to 3 years of experience teaching mathematics and 40 percent had a veteran teacher with more than 10 years' teaching experience (table 5). Of the ninth-graders in the lowest SES category, 33 percent had a relatively new mathematics teacher with 1 to 3 years of experience teaching mathematics and 29 percent had a veteran teacher with more than 10 years' teaching experience.

[2] Please refer to appendix B "Descriptions of Variables Used" for more information on the measure and meaning of socioeconomic status (SES).

- Of the ninth-graders scoring in the highest quintile of the mathematics assessment, 82 percent had mathematics teachers with a regular teaching certificate. Of the ninth-graders in the lowest quintile of the mathematics assessment, 74 percent had mathematics teachers with a regular teaching certificate (table 6).

- Of ninth-graders in the lowest SES category, 23 percent had mathematics teachers and 17 percent had science teachers who indicated that half or more of their ninth-graders were unprepared for the material taught. Of ninth-graders in the highest SES category, 8 percent had mathematics teachers and 7 percent had science teachers who said half or more of their ninth-graders were unprepared for the material taught (table 7).

Ninth-Graders' School Staff

- Of ninth-graders in the lowest SES category, 41 percent had school counselors who reported that the goal the school counseling program emphasized the most was to help ninth-graders plan and prepare for postsecondary schooling (table 8). Of ninth-graders in the highest SES category, 58 percent had counselors who reported their schools' counseling program's most important goal was to help ninth-graders plan and prepare for postsecondary schooling.

- Approximately 43 percent of ninth-graders had school administrators who reported a lack of parental involvement in school as a moderate or serious problem (table 9).

- Of ninth-graders in the lowest SES category, 15 percent had school administrators who reported student absences as a serious problem. Of ninth-graders in the highest SES category, about 4 percent had school administrators who reported student absences as a serious problem (table 10).

- Some school administrators faced hiring challenges. About 11 percent of ninth-graders had school administrators who said they had mathematics vacancies that were difficult to fill or could not be filled (table 11) and 16 percent had science vacancies that were difficult to fill or could not be filled (table 12).

Table 1. Cohort characteristics: Percentage distribution of ninth-graders, by student, family, and school characteristics: 2009

Characteristic	Number of students (thousands)	Percent of population
Total	4,115	100.0
Students' sex		
Male	2,075	50.4
Female	2,040	49.6
Students' race/ethnicity[1]		
White, non-Hispanic	2,167	52.7
Black, non-Hispanic	542	13.2
Hispanic	897	21.8
Asian, non-Hispanic	140	3.4
All other race/ethnicities, non-Hispanic	369	9.0
Students' native language		
English	3,408	82.8
Non-English	707	17.2
Mathematics achievement, by quintile		
Lowest fifth	715	17.4
Middle three-fifths	2,461	59.8
Highest fifth	938	22.8
Students' educational expectation		
High school or less	544	13.2
Some college	295	7.2
Bachelor's degree	752	18.3
Graduate/ professional degree	1,678	40.8
Don't know	846	20.5
Parents' highest education		
Less than high school	339	8.2
High school or GED[2]	1,595	38.8
Associate's degree	662	16.1
Bachelor's degree	902	21.9
Higher than bachelor's degree	617	15.0
Socioeconomic status, by quintile[3]		
Lowest fifth	876	21.3
Middle three-fifths	2,264	55.0
Highest fifth	974	23.7
School sector		
Public	3,818	92.8
Private	297	7.2

[1]Black includes African American, Hispanic includes Latino, and All other races includes American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and Two or more races.
[2]GED represents General Educational Development, an alternate path to attaining a high school credential.
[3]Socioeconomic status (SES) is a measure of a family's relative social position. Further details are provided in appendix B.
NOTE: Estimates are weighted by W1PARENT. Estimates reflect those students who were eligible and capable for the student survey and assessment. Details may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School Longitudinal Study of 2009, Base Year Survey Restricted Use File (NCES 2011-333).

Table 2. Expectations about ninth-graders' education: Percentage distribution of ninth-graders' parents' expectations of student educational attainment, by student, family, and school characteristics: 2009

Characteristic	Less than high school	High school or GED	Complete an associate's degree	Complete a bachelor's degree	Complete a master's degree	Complete a Ph.D., law degree, or other high-level professional degree	Don't know
Total	0.4	9.9	9.0	29.2	19.4	20.9	11.3
Students' sex							
Male	0.3	12.7	10.4	30.4	17.3	16.8	12.0
Female	0.4!	7.0	7.5	27.9	21.6	25.0	10.6
Students' race/ethnicity[1]							
White, non-Hispanic	0.4	9.0	9.6	33.9	20.7	16.9	9.5
Black, non-Hispanic	#	10.4	7.5	20.0	20.6	27.8	13.6
Hispanic	0.6!	12.0	9.7	21.6	16.7	23.8	15.4
Asian, non-Hispanic	#	2.6	2.9	29.4	21.8	33.4	9.9
All other race/ethnicities, non-Hispanic	0.5!	12.1	7.9	32.6	16.1	22.0	8.8
Students' native language							
English	0.3	10.2	9.6	30.8	19.7	19.0	10.4
Non-English	0.6!	8.2	6.2	21.3	17.9	30.2	15.7
Mathematics achievement, by							
Lowest fifth	1.1!	22.2	14.9	21.1	10.5	14.8	15.4
Middle three-fifths	0.3	9.5	9.5	31.8	18.5	18.6	11.8
Highest fifth	#	1.6	3.1	28.2	28.7	31.6	6.9
Students' educational expectation							
High school or less	1.2	29.1	12.6	18.9	10.1	10.1	18.1
Some college	0.4!	13.9	18.8	29.1	12.8	12.0	13.0
Bachelor's degree	0.4!	4.8	8.8	40.1	22.4	14.5	9.0
Graduate/ professional degree	0.1!	3.8	4.9	27.0	23.8	32.0	8.6
Don't know	0.4!	12.8	11.6	30.4	16.4	14.6	13.8
Parents' highest education							
Less than high school	0.7!	22.0	7.3	15.3	7.8	25.7	21.2
High school or GED[2]	0.6!	16.1	11.9	22.8	15.9	16.8	15.9
Associate's degree	0.2!	6.3	12.8	34.9	19.1	18.1	8.5
Bachelor's degree	0.2!	2.7	5.4	42.6	22.4	21.6	5.1
Higher than bachelor's degree	0.1!	1.6	3.5	27.3	30.8	30.7	6.0
Socioeconomic status, by quintile[3]							
Lowest fifth	1.0!	20.5	9.8	15.9	12.1	20.5	20.3
Middle three-fifths	0.3	9.3	11.0	32.0	18.7	18.2	10.6
Highest fifth	0.1!	1.6	3.6	34.6	27.7	27.5	4.9
School sector							
Public	0.4	10.5	9.4	29.0	19.0	20.2	11.6
Private	#	2.1!	4.0	31.1	25.5	29.9	7.4

! Interpret with caution. Standard error is more than 30 percent as large as estimate.
Rounds to zero.
[1]Black includes African American, Hispanic includes Latino, and All other races includes American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and Two or more races.
[2]GED represents General Educational Development, an alternate path to attaining a high school credential
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NOTE: Estimates are weighted by W1PARENT. Estimates reflect those students who were eligible and capable for the student survey and assessment. Details may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School Longitudinal Study of 2009, Base Year Survey Restricted Use File (NCES 2011-333).

Table 3. Saving for college: Percentage distribution of when ninth-graders' parents who expect their child to continue education after high school started saving, by student, family, and school characteristics: 2009

Characteristic	No plans to help student pay for education after high school	When they started saving: Has not started saving	Before first grade	Between first and sixth grades	In the seventh, eighth, or ninth grades	Has not thought about it yet
Total	8.5	25.9	17.9	19.8	15.1	12.8
Students' sex						
Male	8.5	25.5	18.2	21.1	14.2	12.5
Female	8.5	26.4	17.6	18.5	16.0	13.1
Students' race/ethnicity[1]						
White, non-Hispanic	7.6	23.3	22.9	22.9	14.3	8.9
Black, non-Hispanic	6.9	31.3	12.2	17.2	18.3	14.2
Hispanic	11.3	29.7	9.2	14.0	14.2	21.7
Asian, non-Hispanic	12.6	21.6	19.1	14.1	16.2	16.2
All other race/ethnicities, non-Hispanic	8.2	27.3	15.0	20.6	17.0	11.8
Students' native language						
English	7.6	25.9	20.1	21.0	15.3	10.2
Non-English	12.9	26.3	7.5	13.9	14.1	25.2
Mathematics achievement, by quintile						
Lowest fifth	8.6	33.0	9.1	15.0	15.6	18.8
Middle three-fifths	9.0	26.5	16.0	19.7	15.6	13.1
Highest fifth	7.4	20.7	27.3	22.5	13.5	8.7
Students' educational expectation						
High school or less	11.7	33.5	9.5	12.7	15.8	16.8
Some college	10.6	34.3	9.4	13.8	16.2	15.8
Bachelor's degree	7.1	23.7	19.5	22.3	15.9	11.5
Graduate/ professional degree	7.5	23.1	21.5	21.6	15.4	10.8
Don't know	9.8	27.6	15.4	18.9	12.9	15.4
Parents' highest education						
Less than high school	15.7	28.0	3.4	8.5	12.3	32.2
High school or GED[2]	8.9	32.0	10.5	15.3	15.5	17.7
Associate's degree	10.1	28.5	15.1	20.4	15.6	10.3
Bachelor's degree	7.5	20.6	23.7	24.6	16.6	7.1
Higher than bachelor's degree	4.8	17.5	33.5	26.1	12.7	5.3
Socioeconomic status, by quintile[3]						
Lowest fifth	13.6	32.3	6.3	8.7	12.6	26.6
Middle three-fifths	8.6	28.8	14.7	19.8	15.9	12.2
Highest fifth	5.0	15.8	32.2	27.1	15.1	4.8
School sector						
Public	8.8	26.6	16.8	19.4	15.3	13.2
Private	6.1	18.7	29.9	24.1	12.9	8.4

[1]Black includes African American, Hispanic includes Latino, and All other races includes American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and Two or more races.
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NOTE: Estimates are weighted by W1PARENT. Estimates reflect those students who were eligible and capable for the student survey and assessment. Details may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School Longitudinal Study of 2009, Base Year Survey Restricted Use File (NCES 2011-333).

Table 4. Amount saved for college: Percentage distribution of how much ninth-graders' parents who expect their ninth-grader to attain more education after high school and who have started saving have saved, by student, family, and school characteristics: 2009

Characteristic	$2,000 or less	More than $2,000 to $5,000	More than $5,000 to $10,000	More than $10,000 to $25,000	More than $25,000
Total	19.9	19.6	18.0	22.8	19.7
Students' sex					
Male	19.7	19.3	18.5	21.7	20.8
Female	20.0	19.9	17.5	23.8	18.7
Students' race/ethnicity[1]					
White, non-Hispanic	16.0	16.0	19.2	26.3	22.5
Black, non-Hispanic	27.2	27.5	20.1	13.5	11.6
Hispanic	30.8	29.1	14.0	17.8	8.3
Asian, non-Hispanic	11.5	14.2	16.0	17.5	40.8
All other race/ethnicities, non-Hispanic	22.9	21.5	14.7	19.8	21.2
Students' native language					
English	18.2	19.2	18.4	23.9	20.3
Non-English	32.2	22.9	14.9	14.2	15.8
Mathematics achievement, by quintile					
Lowest fifth	31.7	24.1	18.9	14.8	10.6
Middle three-fifths	21.4	21.5	18.2	22.9	15.9
Highest fifth	12.9	14.7	17.2	25.2	29.9
Students' educational expectation					
High school or less	35.9	23.3	18.4	12.4	10.0
Some college	27.0	25.2	20.0	17.0	10.8
Bachelor's degree	17.6	20.9	17.8	23.9	19.7
Graduate/ professional degree	17.2	18.1	18.1	24.2	22.4
Don't know	21.3	19.3	17.1	23.4	18.9
Parents' highest education					
Less than high school	49.2	35.5	6.7 !	7.1 !	1.5 !
High school or GED[2]	29.2	27.5	18.3	15.9	9.1
Associate's degree	21.3	23.6	22.0	21.0	12.1
Bachelor's degree	15.6	15.1	17.7	27.4	24.2
Higher than bachelor's degree	9.3	11.3	16.7	28.4	34.3
Socioeconomic status, by quintile[3]					
Lowest fifth	47.2	30.0	10.8	7.9	4.0
Middle three-fifths	21.8	23.5	20.5	20.6	13.7
Highest fifth	10.3	11.7	16.3	29.6	32.2
School sector					
Public	20.9	20.8	18.3	22.4	17.6
Private	10.7	9.8	15.0	26.1	38.4

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[1]Black includes African American, Hispanic includes Latino, and All other races includes American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and Two or more races.
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SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School Longitudinal Study of 2009, Base Year Survey Restricted Use File (NCES 2011-333).

Table 5. Teacher experience: Percentage distribution of ninth-graders' mathematics and science teachers' number of years teaching high school subject area, by student, family, and school characteristics: 2009

Characteristic	Students' mathematics teachers			Students' science teachers		
	1 to 3 years	4 to 10 years	More than 10 years	1 to 3 years	4 to 10 years	More than 10 years
Total	27.7	37.5	34.7	24.9	38.7	36.4
Students' sex						
Male	27.8	38.9	33.4	25.5	38.8	35.7
Female	27.6	36.2	36.1	24.2	38.6	37.2
Students' race/ethnicity[1]						
White, non-Hispanic	25.5	37.0	37.5	22.7	37.0	40.4
Black, non-Hispanic	33.7	38.6	27.7	28.5	42.7	28.9
Hispanic	30.0	37.2	32.8	28.0	41.5	30.5
Asian, non-Hispanic	19.3	45.5	35.2	18.9	41.0	40.2
All other race/ethnicities, non-Hispanic	29.8	37.3	32.9	28.3	36.3	35.4
Students' native language						
English	27.4	37.3	35.3	24.5	38.1	37.4
Non-English	29.1	38.6	32.2	26.8	41.8	31.3
Mathematics achievement, by quintile						
Lowest fifth	34.0	37.1	28.8	30.5	37.6	31.9
Middle three-fifths	28.1	37.6	34.3	24.7	39.8	35.5
Highest fifth	20.4	37.8	41.7	20.4	36.4	43.2
Students' educational expectation						
High school or less	32.8	37.8	29.4	29.1	37.9	33.0
Some college	30.7	36.3	33.0	27.4	40.9	31.7
Bachelor's degree	27.2	38.0	34.8	24.3	38.5	37.2
Graduate/ professional degree	25.2	37.7	37.1	23.0	38.2	38.8
Don't know	28.3	37.2	34.5	25.4	39.4	35.3
Parents' highest education						
Less than high school	33.0	39.1	27.9	29.9	40.1	30.1
High school or GED[2]	29.7	37.8	32.5	27.3	37.8	34.9
Associate's degree	29.9	38.4	31.7	24.2	37.6	38.2
Bachelor's degree	22.1	36.7	41.1	21.8	41.2	37.0
Higher than bachelor's degree	21.9	36.2	41.9	19.1	39.1	41.8
Socioeconomic status, by quintile[3]						
Lowest fifth	32.6	38.4	29.1	29.0	38.9	32.1
Middle three-fifths	28.2	37.1	34.7	25.6	38.5	35.9
Highest fifth	21.8	38.2	40.0	19.5	39.0	41.6
School sector						
Public	28.1	38.3	33.7	24.9	38.7	36.4
Private	23.3	28.3	48.5	24.6	38.2	37.2

[1]Black includes African American, Hispanic includes Latino, and All other races includes American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and Two or more races.
[2]GED represents General Educational Development, an alternate path to attaining a high school credential.
[3]Socioeconomic status (SES) is a measure of a family's relative social position. Further details are provided in appendix B.
NOTE: Estimates are weighted by W1MATHTCH for the estimates associated with students' mathematics teachers and W1SCITCH for the estimates associated with students' science teachers. Estimates reflect those students who were eligible and capable for the student survey and assessment. Details may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School Longitudinal Study of 2009, Base Year Survey Restricted Use File (NCES 2011-333).

Table 6. Teacher certification: Percentage distribution of ninth-graders' mathematics and science teachers' type of certification, by student, family, and school characteristics: 2009

Characteristic	Students' mathematics teachers			Students' science teachers		
	Regular certificate	Special teaching certificate	Does not hold any of these in this state	Regular certificate	Special teaching certificate	Does not hold any of these in this state
Total	80.1	14.9	5.0	81.3	13.9	4.8
Students' sex						
Male	80.7	13.8	5.5	80.4	15.0	4.6
Female	79.6	16.0	4.4	82.2	12.8	5.0
Students' race/ethnicity[1]						
White, non-Hispanic	83.4	11.4	5.2	83.1	11.7	5.2
Black, non-Hispanic	75.9	19.5	4.5	78.7	16.8	4.4
Hispanic	75.0	20.1	4.9	78.1	17.2	4.7
Asian, non-Hispanic	78.2	15.8	6.0!	81.7	13.4	4.8
All other race/ethnicities, non-Hispanic	79.8	15.9	4.3	81.2	15.3	3.4
Students' native language						
English	81.3	13.6	5.1	81.8	13.4	4.8
Non-English	74.5	21.0	4.5	78.7	16.6	4.7
Mathematics achievement, by quintile						
Lowest fifth	73.9	19.7	6.4	77.0	17.4	5.6
Middle three-fifths	81.6	14.4	4.1	82.0	13.9	4.1
Highest fifth	81.8	11.9	6.3	83.0	10.8	6.2
Students' educational expectation						
High school or less	78.4	16.2	5.4	78.2	18.0	3.8
Some college	78.8	16.6	4.6	81.1	14.7	4.3!
Bachelor's degree	81.5	13.4	5.1	83.4	12.1	4.5
Graduate/ professional degree	81.5	14.0	4.6	81.4	13.2	5.5
Don't know	78.1	16.4	5.5	81.6	13.7	4.8
Parents' highest education						
Less than high school	74.4	19.7	5.9!	77.4	17.1	5.5!
High school or GED[2]	78.9	17.1	4.0	81.0	15.3	3.7
Associate's degree	79.5	16.0	4.5	82.9	13.4	3.7!
Bachelor's degree	82.4	11.0	6.6	82.0	11.4	6.6
Higher than bachelor's degree	81.8	10.3	7.9	81.0	11.2	7.8
Socioeconomic status, by quintile[3]						
Lowest fifth	75.2	19.5	5.3	79.5	16.9	3.6
Middle three-fifths	81.3	15.0	3.8	82.0	14.1	3.8
Highest fifth	81.4	10.4	8.1	80.7	10.7	8.5
School sector						
Public	82.0	15.5	2.5	83.9	14.2	1.9!
Private	56.8	6.9	36.3	48.6	10.5	40.8

! Interpret with caution. Standard error is more than 30 percent as large as estimate.
[1]Black includes African American, Hispanic includes Latino, and All other races includes American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and Two or more races.
[2]GED represents General Educational Development, an alternate path to attaining a high school credential.
[3]Socioeconomic status (SES) is a measure of a family's relative social position. Further details are provided in appendix B.
NOTE: Estimates are weighted by W1MATHTCH for the estimates associated with students' mathematics teachers and W1SCITCH for the estimates associated with students' science teachers. Estimates reflect those students who were eligible and capable for the student survey and assessment. Details may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School Longitudinal Study of 2009, Base Year Survey Restricted Use File (NCES 2011-333).

Table 7. Preparedness for class: Percentage distribution of ninth-graders' mathematics and science teachers' report of the percent of students who are unprepared for the mathematics and/or science class they teach, by student, family, and school characteristics: 2009

	Students' teachers' report of the percent of students unprepared[1] for class					
	Students' mathematics teachers' report on student preparedness			Students' science teachers' report on student preparedness		
Characteristic	25 percent or less	26 to 50 percent	More than 50 percent	25 percent or less	26 to 50 percent	More than 50 percent
Total	57.4	26.7	15.9	61.6	25.3	13.1
Students' sex						
Male	56.5	27.5	16.0	60.0	26.7	13.2
Female	58.4	25.9	15.7	63.2	23.9	12.9
Students' race/ethnicity[2]						
White, non-Hispanic	66.4	21.5	12.1	67.1	22.6	10.2
Black, non-Hispanic	40.7	35.7	23.6	49.0	29.8	21.2
Hispanic	47.3	33.6	19.1	54.4	30.3	15.3
Asian, non-Hispanic	63.8	22.5	13.8	70.3	20.5	9.2
All other race/ethnicities, non-Hispanic	50.5	29.2	20.3	58.6	26.3	15.0
Students' native language						
English	58.8	25.9	15.4	62.2	25.1	12.7
Non-English	51.1	30.5	18.4	58.6	26.5	15.0
Mathematics achievement, by quintile						
Lowest fifth	36.0	38.9	25.0	42.3	36.4	21.3
Middle three-fifths	57.8	26.6	15.6	61.8	25.7	12.5
Highest fifth	77.2	14.8	7.9	78.7	14.2	7.1
Students' educational expectation						
High school or less	40.8	35.6	23.6	47.7	35.0	17.4
Some college	53.4	28.0	18.6	57.0	29.8	13.3
Bachelor's degree	61.3	25.0	13.6	65.8	23.8	10.3
Graduate/ professional degree	65.3	21.2	13.5	67.4	20.7	11.9
Don't know	52.0	31.7	16.2	58.1	27.3	14.5
Parents' highest education						
Less than high school	39.2	36.5	24.3	53.4	29.2	17.4
High school or GED[3]	53.0	30.4	16.6	57.2	28.4	14.4
Associate's degree	54.6	31.1	14.3	59.5	26.7	13.8
Bachelor's degree	70.2	18.0	11.8	73.3	18.8	7.9
Higher than bachelor's degree	74.9	16.8	8.3	76.6	16.3	7.1
Socioeconomic status, by quintile[4]						
Lowest fifth	41.8	35.6	22.6	49.6	33.0	17.4
Middle three-fifths	56.4	27.2	16.3	59.6	26.6	13.8
Highest fifth	74.8	16.8	8.4	77.2	15.5	7.3
School sector						
Public	55.1	28.0	16.9	59.8	26.4	13.8
Private	86.6	10.0	3.4	82.6	13.1	4.3!

! Interpret with caution. Standard error is more than 30 percent as large as estimate.
[1]Student's teachers were asked: "About what percentage of the students in [fall 2009 course] are not adequately prepared to tackle the material you cover?"
[2]Black includes African American, Hispanic includes Latino, and All other races includes American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and Two or more races.
[3]GED represents General Educational Development, an alternate path to attaining a high school credential.
[4]Socioeconomic status (SES) is a measure of a family's relative social position. Further details are provided in appendix B.
NOTE: Estimates are weighted by W1MATHTCH for the estimates associated with students' mathematics teachers and W1SCITCH for the estimates associated with students' science teachers. Estimates reflect those students who were eligible and capable for the student survey and assessment. Details may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School Longitudinal Study of 2009, Base Year Survey Restricted Use File (NCES 2011-333).

Table 8. Goals of counseling program: Percentage distribution of ninth-graders' school counselors reporting the primary goal of the school counseling program, by student, family, and school characteristics: 2009

Characteristic	Helping students plan for their work roles after high school	Helping students with personal growth and development	Helping students plan and prepare for postsecondary schooling	Helping students improve their achievement in high school
Total	4.1!	12.8	48.4	34.6
Students' sex				
Male	4.7!	12.3	47.3	35.7
Female	3.5!	13.4	49.6	33.5
Students' race/ethnicity[1]				
White, non-Hispanic	4.3!	14.5	51.9	29.2
Black, non-Hispanic	3.7!	10.2	42.6	43.4
Hispanic	4.8!	10.1	41.2	43.9
Asian, non-Hispanic	1.8!	8.1	60.6	29.5
All other race/ethnicities, non-Hispanic	2.8!	15.0	49.1	33.1
Students' native language				
English	4.1!	13.5	49.4	33.1
Non-English	4.3!	9.7	43.9	42.1
Mathematics achievement, by quintile				
Lowest fifth	6.5!	13.3	39.8	40.4
Middle three-fifths	4.0!	13.2	48.4	34.4
Highest fifth	2.5!	11.5	55.6	30.4
Students' educational expectation				
High school or less	4.0!	13.6	43.8	38.5
Some college	4.9!	13.5	45.2	36.4
Bachelor's degree	4.0!	13.0	50.5	32.6
Graduate/ professional degree	3.9!	12.2	48.5	35.4
Don't know	4.5!	13.2	50.6	31.8
Parents' highest education				
Less than high school	5.3!	10.1	36.8	47.8
High school or GED[2]	4.9!	13.3	44.3	37.6
Associate's degree	5.4!	14.4	47.6	32.6
Bachelor's degree	2.2!	12.4	54.9	30.5
Higher than bachelor's degree	2.9!	12.2	57.3	27.7
Socioeconomic status, by quintile[3]				
Lowest fifth	4.7!	11.8	40.6	42.9
Middle three-fifths	4.6!	13.7	47.5	34.2
Highest fifth	2.3!	11.8	57.9	28.0
School sector				
Public	4.4!	12.6	46.6	36.5
Private	0.7!	16.1	73.4	9.9

! Interpret with caution. Standard error is more than 30 percent as large as estimate.
[1]Black includes African American, Hispanic includes Latino, and All other races includes American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and Two or more races.
[2]GED represents General Educational Development, an alternate path to attaining a high school credential.
[3]Socioeconomic status (SES) is a measure of a family's relative social position. Further details are provided in appendix B.
NOTE: Estimates are weighted by W1PARENT. Estimates reflect those students who were eligible and capable for the student survey and assessment. Details may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School Longitudinal Study of 2009, Base Year Survey Restricted Use File (NCES 2011-333).

Table 9. Teacher and parent engagement in school: Percent of ninth-graders' school administrators reporting problems with teacher and parent engagement in school, by student, family, and school characteristics: 2009

Characteristic	Percent reporting moderate or serious problem		
	Teacher absences	Lack of resources for teachers	Lack of parent involvement
Total	10.8	21.0	43.4
Students' sex			
Male	11.1	21.3	44.8
Female	10.5	20.7	42.0
Students' race/ethnicity[1]			
White, non-Hispanic	10.0	19.0	37.7
Black, non-Hispanic	14.5	24.8	52.5
Hispanic	10.3	22.5	53.1
Asian, non-Hispanic	13.1	24.0	31.0
All other race/ethnicities, non-Hispanic	11.0	23.6	48.0
Students' native language			
English	10.9	20.3	42.1
Non-English	10.1	24.9	50.1
Mathematics achievement, by quintile			
Lowest fifth	13.6	26.8	58.8
Middle three-fifths	10.9	20.8	44.6
Highest fifth	8.3	17.2	28.7
Students' educational expectation			
High school or less	11.9	24.0	53.5
Some college	12.3	21.3	53.1
Bachelor's degree	10.2	20.8	41.3
Graduate/ professional degree	10.6	19.3	39.0
Don't know	10.4	22.6	44.2
Parents' highest education			
Less than high school	13.1	25.5	64.4
High school or GED[2]	12.7	23.8	51.5
Associate's degree	9.5	19.7	45.2
Bachelor's degree	9.8	18.8	32.4
Higher than bachelor’s degree	7.3	16.1	26.0
Socioeconomic status, by quintile[3]			
Lowest fifth	13.3	24.8	57.5
Middle three-fifths	10.8	21.4	45.8
Highest fifth	8.7	16.9	25.9
School sector			
Public	11.5	21.5	46.3
Private	1.1	14.0	6.2!

! Interpret with caution. Standard error is more than 30 percent as large as estimate.
[1]Black includes African American, Hispanic includes Latino, and All other races includes American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and Two or more races.
[2]GED represents General Educational Development, an alternate path to attaining a high school credential.
[3]Socioeconomic status (SES) is a measure of a family’s relative social position. Further details are provided in appendix B.
NOTE: Estimates are weighted by W1PARENT. Estimates reflect those students who were eligible and capable for the student survey and assessment.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School Longitudinal Study of 2009, Base Year Survey Restricted Use File (NCES 2011-333).

Table 10. Student engagement in school: Percent of ninth-graders' school administrators reporting problems with student engagement in school, by student, family, and school characteristics: 2009

Characteristic	Percent reporting serious problem				
	Student tardiness	Student absences	Student class cutting	Students dropping out	Student apathy
Total	7.6	8.6	3.2!	6.4	10.9
Students' sex					
Male	7.7	9.2	3.1!	6.7	11.2
Female	7.5	7.9	3.3!	6.1	10.7
Students' race/ethnicity[1]					
White, non-Hispanic	5.5	7.5	2.4!	5.2	12.7
Black, non-Hispanic	12.7!	10.9!	6.8!	11.7!	9.2
Hispanic	9.3	9.1	3.6!	5.7	8.6
Asian, non-Hispanic	6.4!	6.2!	2.4!	3.9!	4.7!
All other race/ethnicities, non-Hispanic	10.0!	11.4	2.6!	9.3!	10.2
Students' native language					
English	7.0	8.6	3.1!	6.6	11.7
Non-English	10.3	8.2	3.7!	5.3	7.1
Mathematics achievement, by quintile					
Lowest fifth	11.9	13.5	5.1!	11.0	12.1
Middle three-fifths	7.7	8.5	3.1!	6.4	11.8
Highest fifth	3.9	4.9	2.0!	3.0	7.9
Students' educational expectation					
High school or less	9.8	12.9	4.6!	9.3	12.0
Some college	9.4	13.1	6.7!	8.0	12.8
Bachelor's degree	6.7	7.8	2.5!	6.1	10.8
Graduate/ professional degree	7.0	6.8	2.7!	5.4	9.9
Don't know	7.4	8.4	2.6!	6.3	11.9
Parents' highest education					
Less than high school	13.0	15.1	6.6!	12.1	12.4
High school or GED[2]	10.4	11.5	4.1!	8.9	13.4
Associate's degree	4.9	7.0	2.5!	5.1	10.9
Bachelor's degree	5.6	5.7	2.4!	3.6	8.2
Higher than bachelor’s degree	3.5	3.4	1.2!	2.7	8.1
Socioeconomic status, by quintile[3]					
Lowest fifth	12.9	14.6	5.8!	11.3	12.6
Middle three-fifths	7.1	8.4	3.0!	6.2	11.7
Highest fifth	4.1	3.8	1.5!	2.9	7.8
School sector					
Public	8.1	9.1	3.4!	6.9	11.6
Private	0.6	1.5	0.2!	0.1!	2.5!

! Interpret with caution. Standard error is more than 30 percent as large as estimate.
[1]Black includes African American, Hispanic includes Latino, and All other races includes American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and Two or more races.
[2]GED represents General Educational Development, an alternate path to attaining a high school credential.
[3]Socioeconomic status (SES) is a measure of a family’s relative social position. Further details are provided in appendix B.
NOTE: Estimates are weighted by W1PARENT. Estimates reflect those students who were eligible and capable for the student survey and assessment.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School Longitudinal Study of 2009, Base Year Survey Restricted Use File (NCES 2011-333).

Table 11. Mathematics teacher vacancies: Percentage distribution of ninth-graders' school administrators' reports of mathematics teacher vacancies, by ability to fill, by student, family, and school characteristics: 2009

		Vacancy		
Characteristic	No vacancy	Easy to fill	Somewhat difficult to fill	Difficult or could not fill
Total	45.4	16.6	26.6	11.4
Students' sex				
Male	44.7	16.4	27.3	11.7
Female	46.2	16.8	25.9	11.2
Students' race/ethnicity[1]				
White, non-Hispanic	47.2	17.6	24.4	10.9
Black, non-Hispanic	44.1	13.0	31.3	11.6
Hispanic	42.5	15.6	29.2	12.8
Asian, non-Hispanic	47.1	19.8	27.0	6.1!
All other race/ethnicities, non-Hispanic	42.9	16.9	27.0	13.2
Students' native language				
English	45.8	16.7	26.2	11.2
Non-English	43.4	15.9	28.3	12.4
Mathematics achievement, by quintile				
Lowest fifth	42.5	14.5	29.0	13.9
Middle three-fifths	45.2	16.4	26.5	11.9
Highest fifth	48.2	18.5	25.0	8.3
Students' educational expectation				
High school or less	45.3	14.8	25.8	14.1
Some college	44.6	16.1	25.2	14.1
Bachelor's degree	44.7	16.4	28.3	10.5
Graduate/ professional degree	45.6	17.2	26.8	10.4
Don't know	46.0	16.8	25.5	11.7
Parents' highest education				
Less than high school	40.4	14.1	30.4	15.0
High school or GED[2]	45.7	15.3	26.3	12.6
Associate's degree	42.2	18.4	27.5	12.0
Bachelor's degree	47.5	17.6	24.7	10.2
Higher than bachelor's degree	48.0	17.7	26.8	7.5
Socioeconomic status, by quintile[3]				
Lowest fifth	45.3	15.4	25.5	13.7
Middle three-fifths	44.7	16.6	26.9	11.8
Highest fifth	47.2	17.5	26.7	8.5
School sector				
Public	43.6	17.0	27.7	11.7
Private	68.5	11.4	12.2	8.0!

! Interpret with caution. Standard error is more than 30 percent as large as estimate.
[1]Black includes African American, Hispanic includes Latino, and All other races includes American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and Two or more races.
[2]GED represents General Educational Development, an alternate path to attaining a high school credential.
[3]Socioeconomic status (SES) is a measure of a family's relative social position. Further details are provided in appendix B.
NOTE: Estimates are weighted by W1PARENT. Estimates reflect those students who were eligible and capable for the student survey and assessment. Details may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School Longitudinal Study of 2009, Base Year Survey Restricted Use File (NCES 2011-333).

Table 12. Science teacher vacancies: Percentage distribution of ninth-graders' school administrators' reports of science teacher vacancies, by ability to fill, by student, family, and school characteristics: 2009

Characteristic	No vacancy	Vacancy		
		Easy to fill	Somewhat difficult to fill	Difficult or could not fill
Total	47.5	12.2	24.8	15.5
Students' sex				
Male	46.4	12.8	25.4	15.3
Female	48.5	11.7	24.1	15.7
Students' race/ethnicity[1]				
White, non-Hispanic	51.6	13.0	22.6	12.8
Black, non-Hispanic	40.8	10.0	30.5	18.7
Hispanic	43.1	11.5	26.6	18.8
Asian, non-Hispanic	42.5	14.8	26.9	15.8
All other race/ethnicities, non-Hispanic	44.1	11.8	24.8	19.2
Students' native language				
English	48.3	12.6	24.5	14.6
Non-English	43.7	10.5	25.8	20.0
Mathematics achievement, by quintile				
Lowest fifth	44.6	10.0	27.4	18.0
Middle three-fifths	48.0	12.0	23.7	16.3
Highest fifth	48.2	14.5	25.6	11.7
Students' educational expectation				
High school or less	50.4	9.6	23.4	16.7
Some college	50.5	11.1	22.5	15.9
Bachelor's degree	46.2	12.7	27.0	14.1
Graduate/ professional degree	46.1	13.0	25.0	15.9
Don't know	48.2	12.4	24.1	15.3
Parents' highest education				
Less than high school	45.8	7.0	27.3	19.8
High school or GED[2]	48.4	11.6	23.4	16.6
Associate's degree	46.8	13.1	24.8	15.3
Bachelor's degree	47.3	13.8	24.9	14.0
Higher than bachelor’s degree	46.9	13.7	26.6	12.9
Socioeconomic status, by quintile[3]				
Lowest fifth	48.6	9.4	25.2	16.8
Middle three-fifths	47.4	12.7	23.8	16.2
Highest fifth	46.8	13.7	26.7	12.9
School sector				
Public	46.6	12.4	24.9	16.0
Private	59.0	9.8	22.2	9.1!

! Interpret with caution. Standard error is more than 30 percent as large as estimate.
[1]Black includes African American, Hispanic includes Latino, and All other races includes American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and Two or more races.
[2]GED represents General Educational Development, an alternate path to attaining a high school credential.
[3]Socioeconomic status (SES) is a measure of a family’s relative social position. Further details are provided in appendix B.
NOTE: Estimates are weighted by W1PARENT. Estimates reflect those students who were eligible and capable for the student survey and assessment. Details may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School Longitudinal Study of 2009, Base Year Survey Restricted Use File (NCES 2011-333).

References

Ingels, S.J., Pratt, D.J., Herget, D.R., Burns, L.J., Dever, J.A., Ottem, R., Rogers, J.E., Jin, Y., and Leinwand, S. (2011). *High School Longitudinal Study of 2009 (HSLS:09). Base-Year Data File Documentation* (NCES 2011-328). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

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Appendix A
Technical Notes and Methodology

This section provides information about the base-year study of HSLS:09, as well as information about statistical procedures used in this report.

A.1 Design and Purposes of HSLS:09

HSLS:09 is the fifth in a series of National Center for Education Statistics secondary longitudinal studies. All of the studies monitor the transition of national samples of young people from the high school years to postsecondary years, including further education, participation in the work force, and the assumption of other adult roles.

The core research questions for HSLS:09 explore secondary to postsecondary transition plans and the evolution of those plans; the paths into and out of science, technology, engineering, and mathematics; and the educational and social experiences that are related to these shifts.

The HSLS:09 base-year data collection took place in the 2009-10 school year, with a randomly-selected sample of fall-term ninth-graders in more than 900 public and private high schools with both a ninth and an eleventh grade. Students took a mathematics assessment and survey online. Students' parents, school administrators, and mathematics and science teachers as well as the school's lead counselor completed surveys on the phone or on the Web.

The first follow-up of HSLS:09 will take place in the spring of 2012 when most sample members will be in the spring of the eleventh grade. Dropouts and transfer students will be followed, as well as those who remain in the base-year school. A postsecondary update will take place in the summer of 2013, to learn about the cohort's postsecondary plans and decisions. High school transcripts will be collected in the fall of 2013, and a second follow-up will take place in 2015, when most sample members will be 2 years beyond high school graduation. Further information on study design and purposes can be found in chapter 1 of the *HSLS:09 Base-Year Data File Documentation* (NCES 2011-328).

A.2 Instrumentation

Base-year instrument design for HSLS:09 was guided by a conceptual framework that takes the student as the fundamental unit of analysis and attempts to identify the precursor factors, such as motivation, beliefs, and interests that lead to academic goal-setting and decision-making. It traces the many variables – including perceived opportunities, barriers, and costs—that are associated with students' values and expectations and that factor into students' most basic education-related choices. The study design also acknowledges the importance of social context and the interaction between students and their families, teachers, peers, and the wider community.

Base-year instrument design was also guided by the desire to develop computer-assisted research instruments. The student questionnaire was, for the first time in the history of the study series, electronically administered, as was the student assessment in algebraic reasoning. The contextual questionnaires as well—parent, teacher, school administrator and counselor—were designed for Web self-administration or computer-assisted telephone administration (CATI) by an interviewer.

Computerization of the instruments was desired for several reasons, including its contribution to higher quality data, and to support the accurate assignment of second-stage forms (a two-stage adaptive test was employed).

Student Questionnaire. The content of the student questionnaire included both future locating information and substantive questions. The questionnaire elicited demographic information (for example, sex, race/ethnicity); language background; school experiences in the current and previous school year (including mathematics and science experiences and course enrollment). It also inquired into constructs such as mathematics self-efficacy and identification and high school, postsecondary, and career plans, among other topics.

Parent Questionnaire. The parent questionnaire also included locating and substantive items. Substantive items covered household members and their roles and characteristics; demographic data; information on immigration status and language use; socioeconomic status (education, occupation, income); the student's educational history (including grade retention and change of schools); family interactions; parental involvement in the ninth-grader's learning; and plans and preparations for postsecondary education.

Teacher (mathematics and science) Questionnaire. Teachers were selected by virtue of teaching an HSLS:09 student in mathematics or science. The teacher questionnaire collected background information about the respondent, including both demographic characteristics and educational and professional history. Mathematics and science teachers were asked to evaluate their mathematics or science department and to provide information at the classroom level. In part because of the fall timing of the survey (exposure to the student was comparatively low), teachers were not asked to supply ratings or evaluations of individual HSLS:09 students.

School Administrator Questionnaire. The school questionnaire allowed for two respondents: the factual information sections (1–4) could be delegated to a knowledgeable staff member, but the final section could be completed only by the principal, because its content concerned the principal's background and beliefs. The questionnaire elicited information about school characteristics; the student population; the school's teachers; course offered; and the goals, beliefs, and background of the principal.

Counselor Questionnaire. The counselor questionnaire sought information about school programs and practices, especially as they related to activities to transition students into high school, student programs, and course assignments. The majority of questions inquired about staffing and practices (e.g., counselor certifications and caseloads, basis for assignment to students), resources (enrichment programs, services for struggling students, dropout prevention programs, and so on), and mathematics and science placement (placement criteria for both ninth-graders and upperclassmen in both mathematics and science).

Mathematics Assessment in Algebraic Reasoning. The mathematics assessment was designed to provide a measure of student achievement in algebraic reasoning at two points in time (ninth and eleventh grade). The test framework was designed to assess a cross-section of understandings representative of the major domains of algebra and the key processes of algebra. The test and item specifications describe six domains of algebraic content and four algebraic processes:

- Algebraic Content Domains:
  - The language of algebra
  - Proportional relationships and change
  - Linear equations, inequalities, and functions
  - Nonlinear equations, inequalities, and functions
  - Systems of equations
  - Sequences and recursive relationships
- Algebraic Processes:
  - Demonstrating algebraic skills
  - Using representations of algebraic ideas
  - Performing algebraic reasoning
  - Solving algebraic problems

The assessment was administered by computer using a two-stage design. In the first stage, each student took a common 15-item Stage 1 router test. On the basis of Stage 1 performance, each student was routed to a low, moderate, or high Stage 2 test, each consisting of 25 items. Even though the item pool consisted of 72 items, students were only aware that they were taking a 40-item test. For linking purposes, 12 items were common to both the high and moderate Stage 2 tests and 5 items were common to both the low and moderate Stage 2 tests. The computer program included an online scientific calculator and allowed students to skip and return to items within each stage and to identify items for review within each stage before submitting their answers as finished.

The scores used to describe students' performance on the mathematics assessment are based on Item Response Theory (IRT). The IRT model uses patterns of correct, incorrect, and omitted responses to obtain ability estimates that are comparable across the low-, moderate-, and high-difficulty test forms. Specifically, the IRT three-parameter logistic (3PL) model was used to calibrate the test items and estimate a student's ability. The 3PL model is a mathematical model for estimating the probability that a person will respond correctly to an item. This probability is given as a function of one parameter characterizing the proficiency of a given student and three parameters characterizing the properties of a given item—the item's difficulty, discriminating ability, and a guessing factor. The IRT model accounts for the three characteristics of each test question in estimating a student's ability.

A.3 Sample Design

In the base-year survey of HSLS:09, students were sampled through a two-stage process (table A-1). First, stratified random sampling and school recruitment resulted in the identification and contacting of 1,889 eligible schools. A total of 944 of these schools participated in the study, resulting in a 50.2 percent (weighted) or 50.0 percent unweighted response rate. The target population at the school level was public schools, including public charter schools, and private schools, providing instruction in both ninth and eleventh grades in the 50 United States and the District of Columbia. The target population of students was defined to include all ninth-grade students who attended the study-eligible schools in the fall 2009 term. In the second stage of sampling, ninth-graders were randomly sampled from school enrollment rosters, with 25,206 eligible selections (or about 27 students per school).

All students who met the target population definition were deemed eligible for the study. However, not all students were capable of completing a questionnaire or assessment. Students who, due to language barriers or severe disabilities, were unable to directly participate in the study were retained in the sample and contextual data were sought for them. Their ability to complete the study instruments will be reassessed in the first follow-up. Of the 25,206 eligible students, 24,658 students were classified as questionnaire-capable and 548 as questionnaire-incapable.

HSLS:09 school and student samples are nationally representative, as well as state-representative for a subset of 10 states. For most purposes, the student is the unit of analysis. Data at the school, classroom, or home level may be attached to the student record as contextual data. Several contextual respondent populations were sampled. The school's head administrator comprises one such respondent group. The lead counselor (or the counselor most knowledgeable about the entering ninth-grade class) was identified (with the help of the school), and used as a source of school-level student contextual data. Mathematics and science teachers of HSLS:09 ninth-graders enrolled in the subject were asked to complete a teacher questionnaire. The final source of contextual data was the parent interview. The most knowledgeable adult about the ninth-grader's current experiences responded to survey questions through a self-administered online survey or with a telephone interviewer; most often this adult was the parent.

A.4 Results of School Recruitment and Data Collection

Table A-1 below summarizes the results of school recruitment and instrument completion by each component.

Table A-1. Summary of HSLS:09 base-year response rates: 2009

Instrument	Selected	Participated	Weighted percent	Unweighted percent
School	1,889	944	55.5	50.0
School administrator[1]	944	888	94.9	94.1
School counselor[1]	944	852	91.3	90.3
Student questionnaire[2, 3]	25,206	21,444	85.7	85.1
Student assessment[2, 3]	25,206	20,781	83.0	82.4
Parent questionnaire[2]	25,206	16,995	67.5	67.4
School administrator[2]	25,206	23,800	94.5	94.4
School counselor[2]	25,206	22,790	90.0	90.4
Teacher questionnaire				
Mathematics teacher[4]	23,621	17,882	71.9	75.7
Science teacher[5]	22,597	16,269	70.2	72.0

[1] Weighted estimates use the school base weight.
[2] Weighted estimates use the student base weight.
[3] Among questionnaire-capable students (n = 24,658), some 21,444 completed the student questionnaire, and 20,781 completed the mathematics assessment. Thus 87.0 percent (unweighted) completed the student interview or 87.4 percent weighted. Likewise, 84.3 percent (unweighted) completed a mathematics assessment or 84.7 percent weighted.
[4] Weighted estimates use the student base weight. Results reflect students who were enrolled in a mathematics course.
[5] Weighted estimates use the student base weight. Results reflect students who were enrolled in a science course.
NOTE: All percentages are based on the row under consideration.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School Longitudinal Study of 2009 (HSLS:09) Base Year.

Overall, about half the eligible selected schools participated, for a realized sample of 944 schools (56 percent weighted response rate). More than 21,000 students participated, or about 86 percent (weighted) of eligible selected fall ninth-graders (table A-1). While school cooperation rates were relatively low, important information about nonresponding schools was available from the sampling frame. In an effort to determine the characteristics of schools that did not participate in HSLS:09, such nonrespondent schools (or their associated districts) were also asked to complete a school characteristics questionnaire. This questionnaire gathered information about basic characteristics of the refusing schools, which were also collected in the school administrator questionnaire for participating schools. Among the 945 nonresponding eligible sample schools, a total of 623 completed questionnaires (66 percent) were received. Information was used to make nonresponse adjustments to the school weights. For more information on the derivation of the analytic weights, in particular the adjustments to the school weight, please see Chapter 6, Section 6.3.2 of the *HSLS:09 Base-Year Data File Documentation* (DFD) (NCES 2011-328).

Nonresponse bias analyses were conducted to determine if unit nonresponse from any of the six interview data sources (student, parent/guardian, mathematics teacher, science teacher, school counselor, and school administrator) significantly increased the estimated bias for a set of population estimates. Weighted response rates for mathematics and science teachers as well as parents of the sampled students fell below 85 percent and thus, per NCES standards, were subjected to the bias analysis procedures. The remaining sources were also included for a complete evaluation of HSLS:09. Characteristics associated with the school (e.g., school sector, percent minority) and with the sampled student (e.g., race/ethnicity, sex) were used in the bias tests.

Table A-2 contains a summary of the findings for the data components included in this report before and after the base weights were adjusted for nonresponse. For example, among the 60 tests conducted for student data, 18 percent were identified as having a significant level of bias before the weights were adjusted. This amount falls to almost zero once the weights were adjusted. The proportion of significant bias tests was largest for the school analytic weights (20 percent); however, the median absolute relative bias was reduced by over 6 percentage points.

Overall the unit nonresponse bias analysis detected bias in a limited number of estimates generated with the nonresponse adjusted student weights, the home-life weights, and the mathematics enrollee weights (0 percent, 2 percent, and 2 percent, respectively) (see table A-2). Non-negligible biases were linked to the school and science enrollee weights and were primarily due to domains with relatively small sample sizes.

Specific variables used in the unit nonresponse bias analyses were school sector; ninth-grade enrollment (Asian, Black, Hispanic, Other); whether a charter school; total and ninth-grade enrollment; number of full-time teachers; student to teacher ratio; Census region; school locale (urbanicity); grade span; whether school has a religious affiliation; whether school is a regular secondary; and for the student-based tables, student sex and race. Bias was more an after-adjustment problem for school and science weights than for student, home-life or mathematics course enrollee weights. Using the relative bias estimate (in which bias is expressed on a uniform scale across items) as the criterion, the school weight variables and the science enrollee weight variables with the highest remaining (post-adjustment) bias and were “no religious affiliation”; “school is regular secondary: no”; and “student-teacher ratio >25”.

The analysis procedure for evaluating nonresponse bias can be found in chapter 6, section 6.7, of the *HSLS:09 Base-Year Data File Documentation* (DFD) (NCES 2011-328). Tabular results for the unit nonresponse bias analysis are presented in appendix H, section H.1, of the *HSLS:09 Base-Year Data File Documentation* (DFD) (NCES 2011-328). These tables show unit nonresponse bias both before and after weighting adjustments. See table H-1 for school base weights, table H-2 for student base weights, table H-3 for the home-life (parent) base weights, table H-4 for the science course enrollee base weights, and table H-5 for the mathematics course enrollee weights.

Table A-2. Summary statistics for unit nonresponse bias analyses by HSLS:09 analytic weight

		Significant bias tests [1]		Median absolute relative bias [2]		
Analytic Weight	Number of t tests	Before adjustment (%)	After adjustment (%)	Before adjustment	After adjustment	Change
School	55	45.5	20.0	12.0	5.8	-6.2
Student	60	18.3	0.0	1.2	0.1	-1.1
Student contextual						
Home-life	60	23.3	1.7	1.5	0.6	-0.9
Science enrollee	60	33.3	11.7	6.6	3.9	-2.7
Mathematics enrollee	60	23.3	1.7	5.9	1.3	-4.6

[1] Bias significantly different from zero at the 0.05 level of significance. “Before” and “after” are in reference to the nonresponse weight adjustment.
[2] The relative bias is calculated as the estimated bias divided by the estimated value. The absolute relative bias is the absolute value of the relative bias.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School Longitudinal Study of 2009 (HSLS:09) Base Year.

Of the students participating, approximately 98 percent were surveyed in in-school sessions, and 2 percent outside school. Parent and school staff surveys (administrator, counselor, mathematics teacher, science teacher) were designed for computerized administration in either of two modes—web-based self-administration, or CATI (computerized self-administration).

A.5 Weighting

Analytic weights are used in combination with software that accounts for HSLS:09 complex survey design to produce estimates for the target population, with appropriate standard errors. Five sets of analytic weights were computed for HSLS:09: a school-level weight, a student-level weight, two student-level weights associated with contextual data from science and mathematics courses, and a student-level weight for use with parent-supplied family and home contextual data. In this report, the student-level weight for use with parent-supplied family and home contextual data is used along with the two student-level weights associated with contextual data from science and mathematics courses. For more information on weighting see the *HSLS:09 Base-Year Data File Documentation* (DFD) (Ingels et al. 2011).

Tables 1 through 4 and tables 8 through 13 were weighted by W1PARENT. This weight is used to estimate characteristics associated with the HSLS:09 student target population and include adjustments for school and student nonresponse as well as parent nonresponse using student characteristics.[3]

For tables 5, 6, and 7, ninth-graders' mathematics teacher estimates were weighted by W1MATHTCH. The mathematics teacher weight is used to produce subpopulation estimates for ninth-grade students enrolled in a mathematics course. The weight includes adjustments for school and student nonresponse as well as mathematics teacher nonresponse using only student characteristics. Ninth-graders' science teachers' estimates were weighted by W1SCITCH. This weight is used to produce subpopulation estimates for ninth-grade students enrolled in a science course. The weight includes adjustments for school and student nonresponse as well as science teacher nonresponse using only student characteristics.

A.6 Imputation

Imputation of values for missing items is also an important feature of the HSLS:09 data set. Despite the best efforts of data collectors, some questionnaire items remain unanswered. Completeness of some key student variables in HSLS:09 was also adversely affected by unit nonresponse at the parent level (for example, family income, parental educational attainment, and occupation, all critical components of the socioeconomic status [SES] index), or, more rarely, the failure of questionnaire completers to complete an assessment.

Imputation addresses the problem of missing items. Advantages of using imputed values include the ability to use all study respondent records in an analysis (complete-case analysis) which affords more power for statistical tests. Additionally, if the imputation procedure is effective (i.e., the imputed value is equal to [or close to] the true value) then the analysis results are likely less biased than those produced with the incomplete data file.

HSLS:09 variables in general did not suffer from high levels of item nonresponse. Nevertheless, a set of key analytic variables was identified for item imputation to facilitate complete-case analysis on data obtained from the participating ninth-grade students. Values were assigned in place of missing responses for 18 variables identified from the student and parent questionnaires through single-value imputation. Missing student ability estimates in mathematics (*theta*), the associated standard error of measurement (*sem*) for the theta, and socioeconomic status (SES) values derived from parent responses were replaced with five values using a multiple imputation procedure. Regardless of the method, indicator variables (flags) were created to allow users to easily identify the imputed values.

[3] The use of different analytic weights may result in slightly different point estimates for the same variables within the dataset. The HSLS:09 First Look report, *High School Longitudinal Study of 2009 (HSLS:09): A First Look at Fall 2009 9th-Graders* (NCES 2011-327), weighted the estimates by W1STUDENT. This weight is appropriate to apply in analyses of student-reported data. Because of the contextual focus of this report's analyses, this First Look report weighted the estimates by W1PARENT for parent- and student-provided information. Therefore, estimates in Table 1 of this report may differ slightly from estimates in Table 1 of the student-centered report (NCES 2011-327).

For further information on the HSLS:09 base-year imputations, see the *HSLS:09 Base-Year Data File Documentation* (DFD) (Ingels et al. 2011), available on the HSLS:09 page of the NCES website: nces.ed.gov/surveys/hsls09.

A.7 Disclosure Risk Analysis and Protections

The disclosure treatment methods used to produce the HSLS:09 base-year data files include variable recoding, suppressing, and swapping. Some variables that had values with extremely low frequencies were recoded to ensure that the recoded values occurred with a reasonable frequency. Other variables were recoded from continuous to categorical values. Thus, rare events or characteristics have been masked for certain variables.

Other variables were classified as high risk and were suppressed from the public-use file. The suppressing techniques included removing the response from the file (i.e., reset to a "suppressed" reserve code) or removing records entirely from the public-use file (e.g., student nonrespondents).

A.8 Statistical Procedures in This Report

Comparisons that appear in the selected findings have been tested for statistical significance (set at a probability of .05) to ensure that the differences are larger than those that might be expected because of sampling variation. The conclusions stated in this report are supported by a two-tailed test of statistical significance, specifically, a *t* test. Whether the statistical test is considered significant is determined by calculating a *t* value for the difference between a pair of means or proportions and comparing this value to published tables of values, called critical values. The alpha level is an *a priori* statement of the probability that a difference exists in fact rather than by chance.

The *t* statistic between estimates from various subgroups presented in the tables can be computed by using the following formula:

$$t = \frac{x_1 - x_2}{\sqrt{\left(SE_1^2 + SE_2^2\right)}}$$

where x_1 and x_2 are the estimates to be compared (e.g., the means of sample members in two groups), and SE_1 and SE_2 are their corresponding standard errors. This formula is valid only for independent estimates.

A.9 Survey Standard Errors in This Report

Because the HSLS:09 sample design involved stratification, the disproportionate sampling of certain strata, and clustered (i.e., multistage) probability sampling, the resulting statistics are more variable than they would have been if they had been based on data from a simple random sample of the same size. Variance estimation is provided through two means: BRR (Balanced Repeated Replication) provided on both public- and restricted-use files and a Taylor series linearization (available on the restricted use file). The BRR approach to calculating HSLS:09 standard errors is recommended, although both methods give similar results.

The HSLS:09 analyses included in this report used the BRR procedure to calculate standard errors.

A.10 Definitions of Analysis Variables

A list of definitions and sources for the variables used in this report is presented below. To see the survey instruments (questionnaires) and obtain specific item and response option wording, researchers can consult http://www.nces.ed.gov/surveys/hsls09/index.asp. Versions of the questionnaires with routing logic and flow charts representing how respondents were assigned questions can be found in appendix A of the *HSLS:09 Base-Year Data File Documentation* (NCES 2011-328).

A.10.1 Information from Students' Parents, Teachers, School Counselors, and School Administrators

Students' parents' expectations about ninth-graders' education (X1PAREDEXPCT)

As part of the parent questionnaire, parents were asked: "As things stand now, how far in school do you think [ninth-grader] will actually get?" Therefore, X1PAREDEXPCT indicates the highest level of education the parent questionnaire respondent expects the sample member to achieve. X1PAREDEXPCT is taken from the base-year parent questionnaire; if missing from the base-year parent questionnaire, X1PAREDEXPCT is statistically imputed. The variable was coded as follows:

- Less than high school
- High school or General Educational Development (GED) (includes "start but not complete an associate's degree)
- Complete an associate's degree (includes "start but not complete an bachelor's degree)
- Complete a bachelor's degree (includes "start but not complete an master's degree)
- Complete a master's degree (includes "start but not complete a Ph.D., law degree, or other high-level professional degree)
- Complete a Ph.D., law degree, or other high-level professional degree
- Don't know

Students' parents' saving for college (P1REPPAY)

Parents who indicated they thought their teenager would continue their education after high school provided information on whether or not they plan to help their student pay for education after high school (P1HELPPAY). If they said "yes" then they were asked: "What grade was [he/she] in when you or someone in your family began to financially prepare for [his/her] education after high school? Would you say..." The variable was coded as follows:

- No plans to help child pay for education after high school (if the respondent answered no or has not thought about it to P1HELPPAY)
- Has not started saving
- Before first grade
- Between first and sixth grades
- In the seventh, eighth, or ninth grades

Students' parents' saving for college, how much (P1SAVEDPAY)

If parents indicated they thought their teenager would continue their education after high school they were then asked to provide information on whether or not they plan to help their student pay for education after high school (P1HELPPAY). If they said "yes" they do plan to help their student pay and they also indicated they had started saving (X1PREPPAY) then they were asked: "About how much money have you set aside for [his/her] future educational needs."

Students' teachers' experience (M1MTHYRS912/ N1SCIYRS912)

Students' teachers were asked: "Including this school year, how many years have you taught high school (grades 9-12) [mathematics/science] at any school?" The variable was coded as continuous to represent number of years.

Students' teachers' certification (M1CERTTYPE/ N1CERTTYPE)

Students' mathematics and science teachers were asked: "Which of the following describes the [mathematics/science] teaching certificate you currently hold in [your state]?" The variable was coded as:

- Regular certificate
- Special teaching certificate (includes certificate issued after satisfying all requirements except the completion of a probationary teaching period; certificate that requires some additional coursework or passing a test; and certificate issued to persons who must complete a certification program in order to continue teaching)
- Does not hold any of these certifications in this state

Students' teachers' views of preparation for class (M1UNPREPPCT/ N1UNPREPPCT)

Students' teachers were asked: "About what percentage of the students in [fall 2009 mathematics course] are not adequately prepared to tackle the material you cover?"

Students' counselors' view of goals of the counseling program (C1GOAL1)

Students' counselors were asked: "Which one of the following goals does your school's counseling program emphasize the most?"

Students' administrators' view of student, teacher, and parent engagement

Students' administrators were asked: "To what degree is each of the following matters a problem at [your school]?

- Teacher absences [A1TCHRABSENT]
- Lack of resources for teachers [A1RESOURCES]
- Lack of parent involvement [A1PRNTINV]
- Student tardiness [A1TARDY]
- Student absences [A1STUABSENT]
- Student class cutting [A1CUT]
- Students dropping out [A1DROPOUT]
- Student apathy [A1APATHY]

Students' administrators' report of teacher vacancies (A1FILLMTH/ A1FILLSCI)

Students' administrators were asked: "For the school year 2008-2009, were there high school teaching vacancies in either your mathematics or science departments for which teachers were recruited and interviewed?" (A1MSRECRUIT). If they indicated a vacancy for mathematics and/ or science they were asked: "How easy or difficult was it to fill the high school teaching vacancies in the [mathematics/science] department in your school?" The variable was coded as:

- No vacancy (if administrator answered "no" to X1MSRECRUIT; or for the mathematics estimate only indicate a science vacancy; or for the science estimate only indicated a mathematics vacancy)
- Easy to fill
- Somewhat difficult to fill
- Difficult or could not fill

A.10.2 Student Background Characteristics

Students' sex (X1SEX)

Sex of the sample member is taken from the base-year student questionnaire; if missing, it is supplemented by the parent questionnaire or school-provided sampling roster. If the sex indicated by any of these three sources was inconsistent, coders checked the names attached to each case to determine whether the names were gender-specific, and if so, to determine sex.

Students' race/ethnicity (X1RACE)

A composite rendering of the racial and ethnic group to which a student belongs, based on separate questions about race and Hispanic ethnicity. The categories of X1RACE were collapsed into non-Hispanic White, non-Hispanic Black, Hispanic, non-Hispanic Asian, and all other non-Hispanic races (including non-Hispanic American Indian or Alaska Native, non-Hispanic Native Hawaiian or Other Pacific Islander, and non-Hispanic two or more races). Race/ethnicity is based on data from the student questionnaire, if available; if not available from the student questionnaire, it is based on, in order of preference, data from the school-provided sampling roster or data from the parent questionnaire. The composite variable X1RACE was statistically imputed when it could not be calculated because of missing questionnaire data. More information on the imputations may be found in the HSLS:09 Base-Year Data File Documentation.

Students' native language (X1NATIVELANG)

Indicates whether the student's native language was English or another language, based on a question about the language the student first learned to speak. The composite variable X1NATIVELANG includes codes for multiple non-English languages (including Spanish, a non-Spanish European language, and other options) and was recoded into English and non-English for this report. X1NATIVELANG is statistically imputed if missing from both its sources, S1LANG1ST (whether sample member first learned to speak English, Spanish, or another language) and S1LANG1STOS (non-English language sample member first learned to speak).

Mathematics assessment score

The HSLS:09 base-year mathematics assessment, administered between September 2009 and February 2010, provides a measure of student achievement in algebra for a cohort of ninth-graders. The base-year assessment also serves as the basis for developing a first follow-up test to be administered when most of the ninth-graders are in eleventh grade.

As presented in this report, the mathematics quintile membership is a norm-referenced measure of achievement. The quintile measure divides the weighted (population estimate) achievement distributions into five equal groups based on the mathematics standardized scores. Quintile 1 corresponds to the lowest achieving one-fifth of the population, quintile 5 the highest. To determine the quintile cut-points, the weighted distribution of the standardized scores was divided at the 20th, 40th, 60th, and 80th percentiles. Cut-points were matched to unrounded standardized scores. The W1STUDENT weight was used in establishing quintile cut points, therefore the distribution is not exactly equal percents when different analytic weights are employed. For this report, the middle three quintiles were combined to form one category.

Students' educational expectation (X1STUEDEXPCT)

Indicates the highest level of education the sample member expects to achieve, based on the student reports from the base-year student questionnaire. The variable X1STUEDEXPCT is statistically imputed if missing from the student questionnaire. The composite variable X1STUEDEXPCT was recoded for this report in the following manner:

- High school or less (includes less than high school and high school diploma or GED)
- Some college (includes start an associate's degree; complete an associate's degree; and start a bachelor's degree)
- Bachelor's degree (includes complete a bachelor's degree and start a master's degree)
- Higher than a bachelor's degree (includes graduate/professional degree; complete a master's degree; start Ph.D./M.D./law/other professional degree; and complete Ph.D./M.D./law/other professional degree)
- "Don't know" responses remain in their own category.

Parents' highest level of education (X1PAREDU)

Indicates the highest level of education achieved by either parent living in the sample member's home, based on the base-year parent questionnaire. X1PAREDU is constructed from two composite variables (X1PAR1EDU and X1PAR2EDU) which contain imputed values. The variable was coded as follows:

- High school or less
- High school or GED
- Associate's degree
- Bachelor's degree
- Higher than a bachelor's degree (includes bachelor's degree, master's degree, Education Specialist degree, and Ph.D. or other higher degree).

Socioeconomic status quintile (X1SESQ5)

Socioeconomic status (SES) is a measure of the family's relative position in society. The continuous SES index score is based on five components: education of each parent or guardian or education of the single parent/guardian, where applicable (X1PAR1EDU, X1PAR2EDU); the occupational prestige score of each parent or guardian or the prestige score of the single parent/guardian, where applicable (X1PAR1OCC6, X1PAR2OCC6); and family income (X1FAMINCOME).

In this report, SES is reported in quintiles (fifths). The quintile measure divides the weighted (population estimated) SES distribution into five equal groups. The W1STUDENT weight was used in establishing quintile cut points, therefore the distribution is not exactly equal percents when different analytic weights are employed. Quintile 1 corresponds to the lowest one-fifth of the population, quintile 5 the highest. To determine the quintile cut-points, the weighted distribution of the SES index score was divided at the 20th, 40th, 60th, and 80th percentiles. For this report, the middle three quintiles were combined to form one category.

All SES components derive from the base-year parent questionnaire. The derived variables X1PAR1EDU and X1PAR2EDU indicate the highest level of education achieved by each parent; if missing, X1PAR1EDU is statistically imputed. The categorical variable X1FAMINCOME indicates the sample member's family income from all sources in 2009; if missing, X1FAMINCOME is also statistically imputed. Parent occupational prestige scores were coded from the parents' current or most recent occupation (X1PAR1OCC6, X1PAR2OCC6).

Estimates for each of the five SES components are calculated using the parent responses, the parent analysis weights (W1PARENT), and software that accounts for the complex sample design of the HSLS:09. With these estimates, a standardized survey-based z-score is calculated. The SES composite variable is then calculated for each student as the simple average of these weighted and design-adjusted z-scores. If three or more of the SES components were missing, then SES was statistically imputed along with cases for which there were student data but no parent data.

School sector (X1CONTROL)

The categorical variable X1CONTROL identifies the student's base-year school as being public or private, as indicated in the source data for sampling: the Common Core of Data (CCD) 2007–2008 and the Private School Survey (PSS) 2007–2008.

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Appendix B
Standard Error Tables

Table B-1. Cohort characteristics: Standard errors for percentage distribution of ninth-graders, by student, family, and school characteristics: 2009

Characteristic	Number of students (thousands)	Percent of population
Total	44.91	†
Students' sex		
Male	23.23	0.14
Female	21.98	0.14
Students' race/ethnicity[1]		
White, non-Hispanic	38.91	0.81
Black, non-Hispanic	20.42	0.49
Hispanic	30.99	0.66
Asian, non-Hispanic	6.97	0.17
All other race/ethnicities, non-Hispanic	18.13	0.42
Students' native language		
English	49.90	0.78
Non-English	32.34	0.78
Mathematics achievement, by quintile		
Lowest fifth	31.82	0.77
Middle three-fifths	46.67	0.84
Highest fifth	33.88	0.76
Students' educational expectation		
High school or less	21.54	0.50
Some college	14.08	0.35
Bachelor's degree	24.97	0.54
Graduate/ professional degree	31.46	0.64
Don't know	22.85	0.48
Parents' highest education		
Less than high school	23.96	0.56
High school or GED[2]	40.46	0.92
Associate's degree	24.91	0.53
Bachelor's degree	30.31	0.71
Higher than bachelor's degree	23.34	0.54
Socioeconomic status, by quintile[3]		
Lowest fifth	34.16	0.82
Middle three-fifths	40.87	0.71
Highest fifth	34.74	0.80
School sector		
Public	44.49	0.01
Private	0.43	0.01

† Not applicable.
[1]Black includes African American, Hispanic includes Latino, and All other races includes American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and Two or more races.
[2]GED represents General Educational Development, an alternate path to attaining a high school credential.
[3]Socioeconomic status (SES) is a measure of a family's relative social position. Further details are provided in appendix B.
NOTE: Estimates are weighted by W1PARENT. Estimates reflect those students who were eligible and capable for the student survey and assessment.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School Longitudinal Study of 2009, Base Year Survey Restricted Use File (NCES 2011-333).

Table B-2. Expectations about ninth-graders' education: Standard errors for percentage distribution of ninth-graders' parents' expectations of student educational attainment, by student, family, and school characteristics: 2009

Characteristic	Less than high school	High school or GED	Complete an associate's degree	Complete a bachelor's degree	Complete a master's degree	Complete a Ph.D., law degree, or other high-level professional degree	Don't know
Total	0.09	0.60	0.44	0.64	0.65	0.59	0.45
Students' sex							
Male	0.07	0.80	0.65	0.87	0.72	0.90	0.70
Female	0.16	0.57	0.52	0.94	0.95	0.84	0.67
Students' race/ethnicity[1]							
White, non-Hispanic	0.08	0.48	0.59	0.75	0.68	0.59	0.41
Black, non-Hispanic	†	1.73	1.22	1.66	1.74	2.32	1.51
Hispanic	0.34	1.69	1.13	1.60	1.54	1.32	1.74
Asian, non-Hispanic	†	1.21	1.06	3.01	2.21	3.20	1.90
All other race/ethnicities, non-Hispanic	0.20	1.33	0.86	2.36	1.56	1.55	1.36
Students' native language							
English	0.07	0.63	0.52	0.66	0.75	0.58	0.40
Non-English	0.40	1.07	0.88	1.61	1.34	1.50	1.49
Mathematics achievement, by quintile							
Lowest fifth	0.44	1.33	1.32	1.32	0.93	1.30	1.23
Middle three-fifths	0.07	0.65	0.45	0.80	0.77	0.66	0.58
Highest fifth	†	0.41	0.44	1.05	1.29	1.30	0.91
Students' educational expectation							
High school or less	0.26	2.07	1.16	1.46	1.23	1.40	1.55
Some college	0.19	1.69	2.33	2.67	1.72	1.45	1.59
Bachelor's degree	0.35	0.73	0.87	1.42	1.17	1.02	0.93
Graduate/ professional degree	0.05	0.44	0.50	0.93	1.00	1.03	0.57
Don't know	0.17	1.00	0.96	1.34	1.12	0.98	1.21
Parents' highest education							
Less than high school	0.30	2.88	1.42	2.24	1.31	2.55	2.09
High school or GED[2]	0.19	1.03	0.79	0.96	0.78	0.87	0.89
Associate's degree	0.11	0.79	1.18	1.77	1.31	1.32	0.81
Bachelor's degree	0.14	0.43	0.56	1.24	1.10	0.92	0.59
Higher than bachelor's degree	0.06	0.34	1.02	1.23	1.42	1.41	0.69
Socioeconomic status, by quintile[3]							
Lowest fifth	0.35	1.67	0.88	1.15	1.15	1.39	1.58
Middle three-fifths	0.08	0.57	0.61	0.93	0.88	0.88	0.55
Highest fifth	0.04	0.30	0.68	1.08	1.18	1.02	0.45
School sector							
Public	0.10	0.64	0.47	0.68	0.68	0.64	0.49
Private	†	0.75	0.99	1.73	1.10	1.89	1.19

† Not applicable.
[1]Black includes African American, Hispanic includes Latino, and All other races includes American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and Two or more races.
[2]GED represents General Educational Development, an alternate path to attaining a high school credential.
[3]Socioeconomic status (SES) is a measure of a family's relative social position. Further details are provided in appendix B.
NOTE: Estimates are weighted by W1PARENT. Estimates reflect those students who were eligible and capable for the student survey and assessment.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School Longitudinal Study of 2009, Base Year Survey Restricted Use File (NCES 2011-333).

Table B-3. Saving for college: Standard errors for percentage distribution of when ninth-graders' parents who expect their child to continue education after high school started saving, by student, family, and school characteristics: 2009

Characteristic	No plans to help student pay for education after high school	When they started saving: Has not started saving	Before first grade	Between first and sixth grades	In the seventh, eighth, or ninth grades	Has not thought about it yet
Total	0.40	0.71	0.56	0.59	0.58	0.52
Students' sex						
Male	0.58	0.98	0.78	0.89	0.68	0.71
Female	0.59	0.91	0.73	0.68	0.79	0.71
Students' race/ethnicity[1]						
White, non-Hispanic	0.48	0.69	0.66	0.69	0.63	0.56
Black, non-Hispanic	1.79	1.99	1.38	1.68	1.99	1.90
Hispanic	1.20	2.06	1.29	1.19	1.26	1.63
Asian, non-Hispanic	2.31	2.80	2.95	1.88	1.93	2.18
All other race/ethnicities, non-Hispanic	1.30	2.53	1.49	2.37	1.56	1.49
Students' native language						
English	0.41	0.86	0.61	0.63	0.62	0.52
Non-English	1.25	2.20	1.14	1.36	1.42	1.86
Mathematics achievement, by quintile						
Lowest fifth	1.07	2.08	0.99	1.43	1.50	1.81
Middle three-fifths	0.56	0.90	0.68	0.72	0.72	0.58
Highest fifth	0.65	1.06	1.08	0.97	0.82	0.71
Students' educational expectation						
High school or less	1.88	2.05	1.48	1.69	1.97	2.02
Some college	1.89	2.52	1.46	2.47	2.39	1.76
Bachelor's degree	0.87	1.37	1.19	1.20	1.29	1.26
Graduate/ professional degree	0.46	0.91	0.82	0.78	0.75	0.70
Don't know	0.99	1.68	1.19	1.40	1.08	1.41
Parents' highest education						
Less than high school	2.31	3.19	1.08	1.89	2.18	3.14
High school or GED[2]	0.70	0.95	0.77	0.97	0.93	1.02
Associate's degree	1.31	1.43	1.14	1.39	1.39	0.95
Bachelor's degree	0.68	1.20	1.00	1.07	0.91	0.83
Higher than bachelor's degree	0.52	1.33	1.51	1.16	1.13	0.71
Socioeconomic status, by quintile[3]						
Lowest fifth	1.22	1.68	1.15	0.86	1.48	1.57
Middle three-fifths	0.58	0.80	0.69	0.80	0.72	0.64
Highest fifth	0.51	1.13	1.14	1.04	0.90	0.52
School sector						
Public	0.43	0.71	0.59	0.64	0.63	0.56
Private	0.73	1.65	1.67	1.25	1.14	1.42

[1]Black includes African American, Hispanic includes Latino, and All other races includes American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and Two or more races.
[2]GED represents General Educational Development, an alternate path to attaining a high school credential.
[3]Socioeconomic status (SES) is a measure of a family's relative social position. Further details are provided in appendix B.
NOTE: Estimates are weighted by W1PARENT. Estimates reflect those students who were eligible and capable for the student survey and assessment.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School Longitudinal Study of 2009, Base Year Survey Restricted Use File (NCES 2011-333).

Table B-4. Amount saved for college: Standard errors for percentage distribution of how much ninth-graders' parents who expect their ninth-grader to attain more education after high school and who have started saving have saved, by student, family, and school characteristics: 2009

Characteristic	$2,000 or less	More than $2,000 to $5,000	More than $5,000 to $10,000	More than $10,000 to $25,000	More than $25,000
Total	0.86	0.72	0.73	0.84	0.87
Students' sex					
Male	1.15	0.93	1.01	1.09	1.27
Female	1.14	1.16	1.06	1.07	0.97
Students' race/ethnicity[1]					
White, non-Hispanic	0.84	0.77	0.77	0.86	0.99
Black, non-Hispanic	3.21	3.12	2.49	2.51	2.29
Hispanic	2.90	2.52	2.53	2.45	1.37
Asian, non-Hispanic	2.38	3.22	3.01	3.41	5.50
All other race/ethnicities, non-Hispanic	3.50	2.82	2.30	2.88	3.10
Students' native language					
English	0.76	0.80	0.74	0.89	0.88
Non-English	3.46	3.09	2.40	2.12	2.32
Mathematics achievement, by quintile					
Lowest fifth	4.46	2.64	2.24	2.02	1.93
Middle three-fifths	1.02	1.05	1.04	1.17	0.91
Highest fifth	1.34	1.35	1.44	1.31	1.52
Students' educational expectation					
High school or less	5.07	3.36	3.44	2.12	2.01
Some college	5.53	4.63	3.30	3.00	2.31
Bachelor's degree	1.68	1.69	1.59	1.50	1.52
Graduate/ professional degree	1.13	0.97	1.06	1.16	1.11
Don't know	2.13	2.01	1.61	1.96	1.74
Parents' highest education					
Less than high school	6.05	5.91	2.67	2.29	0.94
High school or GED[2]	1.90	1.87	1.42	1.36	0.96
Associate's degree	2.31	1.92	1.99	2.13	1.47
Bachelor's degree	1.14	1.34	1.37	1.45	1.37
Higher than bachelor's degree	0.98	0.96	1.27	1.69	2.08
Socioeconomic status, by quintile[3]					
Lowest fifth	3.92	3.11	2.08	1.53	1.09
Middle three-fifths	1.18	1.03	1.07	1.18	0.89
Highest fifth	0.82	0.93	0.96	1.22	1.44
School sector					
Public	0.93	0.79	0.79	0.94	0.88
Private	1.52	1.41	1.48	1.58	2.85

[1]Black includes African American, Hispanic includes Latino, and All other races includes American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and Two or more races.
[2]GED represents General Educational Development, an alternate path to attaining a high school credential.
[3]Socioeconomic status (SES) is a measure of a family's relative social position. Further details are provided in appendix B.
NOTE: Estimates are weighted by W1PARENT. Estimates reflect those students who were eligible and capable for the student survey and assessment.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School Longitudinal Study of 2009, Base Year Survey Restricted Use File (NCES 2011-333).

Table B-5. Teacher experience: Standard errors for percentage distribution of ninth-graders' mathematics and science teachers' number of years teaching high school subject area, by student, family, and school characteristics: 2009

Characteristic	Students' mathematics teachers			Students' science teachers		
	1 to 3 years	4 to 10 years	More than 10 years	1 to 3 years	4 to 10 years	More than 10 years
Total	1.57	1.34	1.54	1.47	1.64	1.72
Students' sex						
Male	1.59	1.53	1.53	1.62	1.60	1.65
Female	1.85	1.57	1.82	1.66	2.06	2.01
Students' race/ethnicity[1]						
White, non-Hispanic	1.46	1.63	1.65	1.63	1.74	1.84
Black, non-Hispanic	3.12	3.43	2.70	4.02	5.28	3.69
Hispanic	2.74	2.19	3.02	2.52	3.06	3.00
Asian, non-Hispanic	3.19	3.97	4.04	4.12	4.24	3.41
All other race/ethnicities, non-Hispanic	4.22	2.82	2.90	2.84	2.60	3.03
Students' native language						
English	1.51	1.50	1.54	1.54	1.72	1.79
Non-English	2.91	2.61	3.41	2.45	2.84	2.60
Mathematics achievement, by quintile						
Lowest fifth	2.53	2.11	2.15	3.19	3.28	2.64
Middle three-fifths	1.89	1.50	1.76	1.40	1.80	1.83
Highest fifth	1.98	1.96	2.02	2.22	2.20	1.98
Students' educational expectation						
High school or less	3.07	2.76	2.44	2.21	2.69	2.91
Some college	3.08	2.54	2.59	3.06	3.35	3.06
Bachelor's degree	1.83	1.83	1.90	2.34	2.11	2.12
Graduate/ professional degree	1.94	1.56	1.82	1.53	1.68	1.85
Don't know	1.68	1.66	2.02	1.87	2.41	2.24
Parents' highest education						
Less than high school	3.57	4.40	3.91	3.89	3.85	3.97
High school or GED[2]	2.07	1.77	1.79	1.94	2.38	2.43
Associate's degree	3.01	2.81	2.13	2.17	2.47	2.65
Bachelor's degree	2.04	2.01	2.20	2.01	2.36	2.02
Higher than bachelor’s degree	1.85	2.14	2.12	2.24	2.31	2.29
Socioeconomic status, by quintile[3]						
Lowest fifth	2.47	2.23	2.47	2.41	2.94	3.01
Middle three-fifths	1.71	1.55	1.68	1.52	1.65	1.75
Highest fifth	1.75	1.97	1.77	2.07	2.15	2.16
School sector						
Public	1.74	1.45	1.65	1.55	1.79	1.86
Private	3.94	4.97	3.79	4.69	5.11	4.77

[1]Black includes African American, Hispanic includes Latino, and All other races includes American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and Two or more races.
[2]GED represents General Educational Development, an alternate path to attaining a high school credential.
[3]Socioeconomic status (SES) is a measure of a family’s relative social position. Further details are provided in appendix B.
NOTE: Estimates are weighted by W1MATHTCH for the estimates associated with students' mathematics teachers and W1SCITCH for the estimates associated with students' science teachers. Estimates reflect those students who were eligible and capable for the student survey and assessment.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School Longitudinal Study of 2009, Base Year Survey Restricted Use File (NCES 2011-333).

Table B-6. Teacher certification: Standard errors for percentage distribution of ninth-graders' mathematics and science teachers' type of certification, by student, family, and school characteristics: 2009

Characteristic	Students' mathematics teachers			Students' science teachers		
	Regular certificate	Special teaching certificate	Does not hold any of these in this state	Regular certificate	Special teaching certificate	Does not hold any of these in this state
Total	1.43	1.28	0.53	1.53	1.34	0.71
Students' sex						
Male	1.62	1.38	0.82	1.63	1.42	0.84
Female	1.56	1.54	0.48	1.65	1.45	0.78
Students' race/ethnicity[1]						
White, non-Hispanic	1.15	1.03	0.55	1.42	1.31	0.74
Black, non-Hispanic	3.13	3.17	1.20	3.70	3.23	1.17
Hispanic	3.07	2.63	1.23	2.73	2.20	1.72
Asian, non-Hispanic	3.44	2.79	2.01	3.99	3.85	1.22
All other race/ethnicities, non-Hispanic	2.43	2.42	0.72	2.58	2.36	0.92
Students' native language						
English	1.36	1.23	0.53	1.59	1.34	0.76
Non-English	2.84	2.70	0.85	2.73	2.68	1.02
Mathematics achievement, by quintile						
Lowest fifth	2.72	2.35	1.03	3.69	2.80	1.53
Middle three-fifths	1.43	1.34	0.52	1.41	1.34	0.53
Highest fifth	2.16	1.97	0.92	1.83	1.81	1.03
Students' educational expectation						
High school or less	2.08	1.75	1.10	2.30	1.99	0.97
Some college	2.37	2.34	0.89	2.96	2.75	1.49
Bachelor's degree	1.94	1.96	0.74	2.02	1.60	1.33
Graduate/ professional degree	2.05	1.88	0.65	1.63	1.43	0.86
Don't know	1.88	1.70	0.72	1.85	1.72	0.78
Parents' highest education						
Less than high school	3.64	3.25	2.77	4.13	3.02	2.86
High school or GED[2]	2.02	1.98	0.66	2.16	1.77	0.97
Associate's degree	2.37	2.11	0.93	2.26	1.77	1.14
Bachelor's degree	1.85	1.75	0.84	1.46	1.51	0.91
Higher than bachelor’s degree	2.24	1.59	1.68	2.13	1.83	1.24
Socioeconomic status, by quintile[3]						
Lowest fifth	2.77	2.24	1.42	2.63	2.21	1.14
Middle three-fifths	1.38	1.41	0.45	1.53	1.30	0.74
Highest fifth	1.98	1.54	1.26	1.83	1.60	1.20
School sector						
Public	1.51	1.38	0.51	1.66	1.42	0.65
Private	4.24	1.42	4.38	5.12	3.06	5.04

[1]Black includes African American, Hispanic includes Latino, and All other races includes American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and Two or more races.
[2]GED represents General Educational Development, an alternate path to attaining a high school credential.
[3]Socioeconomic status (SES) is a measure of a family’s relative social position. Further details are provided in appendix B.
NOTE: Estimates are weighted by W1MATHTCH for the estimates associated with students' mathematics teachers and W1SCITCH for the estimates associated with students' science teachers. Estimates reflect those students who were eligible and capable for the student survey and assessment.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School Longitudinal Study of 2009, Base Year Survey Restricted Use File (NCES 2011-333).

Table B-7. Preparedness for class: Standard errors for percentage distribution of ninth-graders' mathematics and science teachers' report of the percent of students who are unprepared for the mathematics and/or science class they teach, by student, family, and school characteristics: 2009

	Students' teachers' report of the percent of students unprepared[1] for class					
	Students' mathematics teachers' report on student preparedness			Students' science teachers' report on student preparedness		
Characteristic	25 percent or less	26 to 50 percent	More than 50 percent	25 percent or less	26 to 50 percent	More than 50 percent
Total	1.58	1.29	1.49	1.78	1.47	1.17
Students' sex						
Male	1.67	1.46	1.26	2.04	1.68	1.28
Female	1.90	1.48	2.00	1.91	1.67	1.37
Students' race/ethnicity[2]						
White, non-Hispanic	1.46	1.35	1.13	1.72	1.42	0.99
Black, non-Hispanic	3.09	3.07	2.79	4.50	3.05	3.18
Hispanic	3.18	2.78	2.47	3.10	2.69	2.14
Asian, non-Hispanic	4.79	3.26	3.88	4.06	4.03	2.29
All other race/ethnicities, non-Hispanic	3.80	2.87	5.17	3.56	3.21	3.83
Students' native language						
English	1.48	1.33	1.27	1.73	1.47	1.15
Non-English	3.49	2.62	3.32	3.28	2.73	2.04
Mathematics achievement, by quintile						
Lowest fifth	2.38	2.19	2.31	3.11	2.50	2.28
Middle three-fifths	1.92	1.47	2.03	1.76	1.55	1.21
Highest fifth	1.97	1.62	1.16	1.67	1.58	0.93
Students' educational expectation						
High school or less	2.85	2.52	3.17	3.43	2.72	2.52
Some college	3.65	2.83	2.77	3.96	3.86	2.46
Bachelor's degree	2.45	1.91	1.80	2.35	2.21	1.32
Graduate/ professional degree	2.02	1.56	1.86	1.81	1.47	1.20
Don't know	1.90	1.75	1.52	2.57	2.10	1.87
Parents' highest education						
Less than high school	5.02	4.14	4.10	5.28	4.52	3.14
High school or GED[3]	2.08	1.84	1.74	2.48	2.04	1.80
Associate's degree	2.85	3.05	3.04	3.22	2.40	1.83
Bachelor's degree	2.25	1.55	1.58	1.78	1.70	1.06
Higher than bachelor's degree	2.01	1.96	1.25	2.06	1.93	1.20
Socioeconomic status, by quintile[4]						
Lowest fifth	2.74	2.28	2.53	3.01	2.71	2.09
Middle three-fifths	1.69	1.45	1.54	1.93	1.55	1.33
Highest fifth	1.80	1.52	1.21	1.63	1.57	1.01
School sector						
Public	1.66	1.39	1.61	1.90	1.59	1.25
Private	2.85	2.23	1.27	3.84	3.47	1.38

[1]Student's teachers were asked: "About what percentage of the students in [fall 2009 course] are not adequately prepared to tackle the material you cover?"
[2]Black includes African American, Hispanic includes Latino, and All other races includes American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and Two or more races.
[3]GED represents General Educational Development, an alternate path to attaining a high school credential.
[4]Socioeconomic status (SES) is a measure of a family's relative social position. Further details are provided in appendix B.
NOTE: Estimates are weighted by W1MATHTCH for the estimates associated with students' mathematics teachers and W1SCITCH for the estimates associated with students' science teachers. Estimates reflect those students who were eligible and capable for the student survey and assessment.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School Longitudinal Study of 2009, Base Year Survey Restricted Use File (NCES 2011-333).

Table B-8. Goals of counseling program: Standard errors for percentage distribution of ninth-graders' school counselors' reports of the primary goal of the school counseling program, by student, family, and school characteristics: 2009

Characteristic	Helping students plan for their work roles after high school	Helping students with personal growth and development	Helping students plan and prepare for postsecondary schooling	Helping students improve their achievement in high school
Total	1.45	1.49	2.74	2.46
Students' sex				
Male	1.77	1.52	2.70	2.54
Female	1.18	1.60	2.93	2.58
Students' race/ethnicity[1]				
White, non-Hispanic	1.44	1.79	2.82	2.30
Black, non-Hispanic	2.20	2.29	5.56	5.41
Hispanic	2.66	2.28	4.34	4.22
Asian, non-Hispanic	0.97	2.21	6.43	5.83
All other race/ethnicities, non-Hispanic	1.32	2.80	3.98	3.78
Students' native language				
English	1.36	1.61	2.72	2.40
Non-English	2.44	2.02	4.22	4.09
Mathematics achievement, by quintile				
Lowest fifth	3.07	1.95	3.27	3.66
Middle three-fifths	1.37	1.62	2.89	2.60
Highest fifth	0.92	1.71	3.27	2.90
Students' educational expectation				
High school or less	1.67	2.16	3.77	3.56
Some college	2.21	2.18	3.59	3.63
Bachelor's degree	1.52	1.72	3.11	2.78
Graduate/ professional degree	1.40	1.58	2.84	2.60
Don't know	1.68	1.85	3.25	2.69
Parents' highest education				
Less than high school	3.12	2.12	4.25	4.44
High school or GED[2]	1.77	1.67	3.25	3.00
Associate's degree	2.20	2.07	3.23	2.93
Bachelor's degree	0.71	1.73	2.95	2.44
Higher than bachelor’s degree	1.31	1.94	3.11	2.68
Socioeconomic status, by quintile				
Lowest fifth	1.88	1.84	3.50	3.41
Middle three-fifths	1.68	1.64	2.91	2.66
Highest fifth	0.89	1.83	2.95	2.50
School sector				
Public	1.56	1.59	2.90	2.62
Private	0.97	4.25	5.18	3.27

[1]Black includes African American, Hispanic includes Latino, and All other races includes American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and Two or more races.
[2]GED represents General Educational Development, an alternate path to attaining a high school credential.
[3]Socioeconomic status (SES) is a measure of a family’s relative social position. Further details are provided in appendix B.
NOTE: Estimates are weighted by W1PARENT. Estimates reflect those students who were eligible and capable for the student survey and assessment.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School Longitudinal Study of 2009, Base Year Survey Restricted Use File (NCES 2011-333).

Table B-9. Teacher and parent engagement in school: Standard errors for percent of ninth-graders' school administrators reporting problems with teacher and parent engagement in school, by student, family, and school characteristics: 2009

Characteristic	Percent reporting moderate or serious problem		
	Teacher absences	Lack of resources for teachers	Lack of parent involvement
Total	1.52	2.23	2.77
Students' sex			
Male	1.58	2.27	2.73
Female	1.54	2.37	3.01
Students' race/ethnicity[1]			
White, non-Hispanic	1.48	2.06	2.54
Black, non-Hispanic	3.43	5.07	6.20
Hispanic	2.32	3.92	4.67
Asian, non-Hispanic	7.46	6.98	6.21
All other race/ethnicities, non-Hispanic	2.26	3.83	4.27
Students' native language			
English	1.50	2.12	2.65
Non-English	2.20	4.14	4.74
Mathematics achievement, by quintile			
Lowest fifth	2.10	3.49	3.75
Middle three-fifths	1.57	2.33	2.99
Highest fifth	1.85	2.22	2.69
Students' educational expectation			
High school or less	1.99	3.01	4.02
Some college	2.26	3.05	3.61
Bachelor's degree	1.59	2.86	2.88
Graduate/ professional degree	1.58	2.11	2.95
Don't know	1.78	2.74	3.18
Parents' highest education			
Less than high school	2.61	4.06	4.35
High school or GED[2]	1.89	2.87	3.41
Associate's degree	1.54	2.56	3.52
Bachelor's degree	1.90	2.26	2.79
Higher than bachelor’s degree	1.63	2.15	2.66
Socioeconomic status, by quintile			
Lowest fifth	2.20	3.25	3.80
Middle three-fifths	1.52	2.42	3.00
Highest fifth	1.80	2.10	2.52
School sector			
Public	1.63	2.38	2.96
Private	1.03	4.24	3.95

[1]Black includes African American, Hispanic includes Latino, and All other races includes American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and Two or more races.
[2]GED represents General Educational Development, an alternate path to attaining a high school credential.
[3]Socioeconomic status (SES) is a measure of a family’s relative social position. Further details are provided in appendix B.
NOTE: Estimates are weighted by W1PARENT. Estimates reflect those students who were eligible and capable for the student survey and assessment.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School Longitudinal Study of 2009, Base Year Survey Restricted Use File (NCES 2011-333).

Table B-10. Student engagement in school: Standard errors for percent of ninth-graders' school administrators reporting problems with student engagement in school, by student, family, and school characteristics: 2009

Characteristic	Percent reporting serious problem				
	Student tardiness	Student absences	Student class cutting	Students dropping out	Student apathy
Total	1.31	1.37	1.15	1.11	1.53
Students' sex					
Male	1.44	1.61	1.34	1.22	1.54
Female	1.31	1.28	1.07	1.12	1.64
Students' race/ethnicity[1]					
White, non-Hispanic	1.11	1.40	0.90	0.98	1.82
Black, non-Hispanic	4.27	3.76	3.31	4.22	2.27
Hispanic	2.42	2.09	1.34	1.51	2.29
Asian, non-Hispanic	2.67	2.49	1.53	1.76	1.49
All other race/ethnicities, non-Hispanic	3.18	3.37	1.20	3.17	1.98
Students' native language					
English	1.27	1.39	1.10	1.15	1.67
Non-English	2.36	1.95	1.64	1.37	1.61
Mathematics achievement, by quintile					
Lowest fifth	2.33	2.84	2.55	2.46	1.94
Middle three-fifths	1.46	1.41	1.11	1.12	1.65
Highest fifth	1.05	1.17	0.84	0.88	1.70
Students' educational expectation					
High school or less	1.88	2.32	1.83	1.89	2.21
Some college	1.97	3.04	3.08	1.80	1.97
Bachelor's degree	1.54	1.45	0.81	1.27	1.77
Graduate/ professional degree	1.28	1.10	0.98	1.04	1.53
Don't know	1.66	1.62	1.07	1.17	1.97
Parents' highest education					
Less than high school	2.83	3.23	3.24	2.59	2.52
High school or GED[2]	1.99	1.92	1.45	1.57	1.87
Associate's degree	1.03	1.40	0.91	1.10	2.11
Bachelor's degree	1.33	1.25	0.98	0.87	1.42
Higher than bachelor's degree	0.97	0.82	0.49	0.71	1.62
Socioeconomic status, by quintile					
Lowest fifth	2.31	2.41	2.17	2.15	1.94
Middle three-fifths	1.31	1.44	1.14	1.10	1.75
Highest fifth	1.08	0.86	0.54	0.68	1.44
School sector					
Public	1.41	1.46	1.24	1.19	1.65
Private	0.77	1.35	0.21	0.27	3.01

[1]Black includes African American, Hispanic includes Latino, and All other races includes American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and Two or more races.
[2]GED represents General Educational Development, an alternate path to attaining a high school credential.
[3]Socioeconomic status (SES) is a measure of a family's relative social position. Further details are provided in appendix B.
NOTE: Estimates are weighted by W1PARENT. Estimates reflect those students who were eligible and capable for the student survey and assessment.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School Longitudinal Study of 2009, Base Year Survey Restricted Use File (NCES 2011-333).

Table B-11. Mathematics teacher vacancies: Standard errors for percentage distribution of ninth-graders' school administrators' reports of mathematics teacher vacancies, by ability to fill, by student, family, and school characteristics: 2009

		Vacancy		
Characteristic	No vacancy	Easy to fill	Somewhat difficult to fill	Difficult or could not fill
Total	2.79	1.78	2.54	1.48
Students' sex				
Male	2.79	1.76	2.62	1.52
Female	3.00	1.98	2.60	1.53
Students' race/ethnicity[1]				
White, non-Hispanic	2.63	1.99	2.14	1.59
Black, non-Hispanic	6.15	2.41	5.51	2.98
Hispanic	4.58	2.87	4.73	2.78
Asian, non-Hispanic	7.13	4.32	7.11	2.18
All other race/ethnicities, non-Hispanic	4.27	2.88	3.66	3.14
Students' native language				
English	2.68	1.79	2.41	1.50
Non-English	4.76	2.89	4.71	2.50
Mathematics achievement, by quintile				
Lowest fifth	3.41	2.23	3.83	2.47
Middle three-fifths	2.94	1.73	2.59	1.54
Highest fifth	3.27	2.46	2.73	1.63
Students' educational expectation				
High school or less	3.78	2.11	2.98	2.21
Some college	3.44	2.42	3.32	1.99
Bachelor's degree	3.13	2.09	2.85	1.65
Graduate/ professional degree	2.96	1.87	2.88	1.47
Don't know	3.20	1.99	2.71	1.77
Parents' highest education				
Less than high school	4.56	2.62	4.81	3.00
High school or GED[2]	3.15	2.00	2.74	1.70
Associate's degree	3.47	2.25	3.13	2.11
Bachelor's degree	3.02	2.01	2.76	1.63
Higher than bachelor’s degree	3.19	2.39	3.06	1.46
Socioeconomic status, by quintile				
Lowest fifth	3.46	2.34	3.16	2.14
Middle three-fifths	3.01	1.92	2.70	1.59
Highest fifth	3.02	2.20	2.87	1.58
School sector				
Public	3.01	1.89	2.74	1.54
Private	5.04	3.74	4.07	3.72

[1]Black includes African American, Hispanic includes Latino, and All other races includes American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and Two or more races.
[2]GED represents General Educational Development, an alternate path to attaining a high school credential.
[3]Socioeconomic status (SES) is a measure of a family’s relative social position. Further details are provided in appendix B.
NOTE: Estimates are weighted by W1PARENT. Estimates reflect those students who were eligible and capable for the student survey and assessment.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School Longitudinal Study of 2009, Base Year Survey Restricted Use File (NCES 2011-333).

Table B-12. Science teacher vacancies: Standard errors for percentage distribution of ninth-graders' school administrators' reports of science teacher vacancies, by ability to fill, by student, family, and school characteristics: 2009

Characteristic	No vacancy	Vacancy		
		Easy to fill	Somewhat difficult to fill	Difficult or could not fill
Total	2.62	1.42	2.37	1.98
Students' sex				
Male	2.57	1.48	2.63	1.99
Female	2.87	1.51	2.31	2.11
Students' race/ethnicity[1]				
White, non-Hispanic	2.42	1.65	2.02	1.67
Black, non-Hispanic	6.28	1.94	5.50	4.93
Hispanic	4.16	2.57	4.33	3.42
Asian, non-Hispanic	6.59	3.43	7.04	4.66
All other race/ethnicities, non-Hispanic	4.10	1.88	3.30	4.36
Students' native language				
English	2.55	1.46	2.24	1.98
Non-English	4.31	2.27	4.35	3.25
Mathematics achievement, by quintile				
Lowest fifth	3.72	1.75	4.18	2.91
Middle three-fifths	2.77	1.42	2.16	2.17
Highest fifth	2.93	2.03	2.78	2.06
Students' educational expectation				
High school or less	3.83	1.66	2.84	2.46
Some college	3.38	1.95	3.15	2.41
Bachelor's degree	2.90	1.72	2.81	2.53
Graduate/ professional degree	2.65	1.52	2.50	2.43
Don't know	3.23	1.62	2.79	2.79
Parents' highest education				
Less than high school	4.17	1.89	4.46	3.34
High school or GED[2]	3.30	1.55	2.67	2.30
Associate's degree	3.21	1.73	2.90	2.64
Bachelor's degree	2.82	1.76	2.68	2.38
Higher than bachelor’s degree	2.95	1.95	2.97	2.35
Socioeconomic status, by quintile				
Lowest fifth	3.46	1.96	3.39	2.39
Middle three-fifths	2.86	1.55	2.38	2.19
Highest fifth	2.82	1.88	2.89	2.45
School sector				
Public	2.85	1.52	2.56	2.13
Private	6.53	2.84	5.69	3.38

[1]Black includes African American, Hispanic includes Latino, and All other races includes American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and Two or more races.
[2]GED represents General Educational Development, an alternate path to attaining a high school credential.
[3]Socioeconomic status (SES) is a measure of a family’s relative social position. Further details are provided in appendix B.
NOTE: Estimates are weighted by W1PARENT. Estimates reflect those students who were eligible and capable for the student survey and assessment.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School Longitudinal Study of 2009, Base Year Survey Restricted Use File (NCES 2011-333).