2012 National Survey of Science and Mathematics Education: Compendium of Tables

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Disclaimer

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SECTION ONE

INTRODUCTION

Background and Purpose of the Study

In 2012, the National Science Foundation supported the fifth in a series of surveys through a grant to Horizon Research, Inc. (HRI). The first survey was conducted in 1977 as part of a major assessment of science and mathematics education consisting of a comprehensive review of the literature; case studies of 11 districts throughout the United States; and a national survey of teachers, principals, and district and state personnel. A second survey of teachers and principals was conducted in 1985–86 to identify trends since 1977, a third survey was conducted in 1993, and a fourth in 2000.

The 2012 National Survey of Science and Mathematics Education (NSSME) was designed to provide up-to-date information and to identify trends in the areas of teacher background and experience, curriculum and instruction, and the availability and use of instructional resources. A total of 7,752 science and mathematics teachers in schools across the United States participated in this survey. The research questions addressed by the survey are:

1. To what extent do science and mathematics instruction and ongoing assessment mirror current understanding of learning?

2. What influences teachers' decisions about content and pedagogy?

3. What are the characteristics of the mathematics/science teaching force in terms of race, gender, age, content background, beliefs about teaching and learning, and perceptions of preparedness?

4. What are the most commonly used textbooks/programs, and how are they used?

5. What formal and informal opportunities do mathematics/science teachers have for ongoing development of their knowledge and skills?

6. How are resources for mathematics/science education, including well-prepared teachers and course offerings, distributed among schools in different types of communities and different socioeconomic levels?

The design and implementation of the 2012 NSSME involved developing a sampling strategy and selecting samples of schools and teachers; developing and piloting survey instruments;

collecting data from sample members; and preparing data files and analyzing the data. These activities are described below, followed by an overview of the contents of the remainder of the report.

Sample Design and Sampling Error Considerations

The 2012 NSSME is based on a national probability sample of science and mathematics schools and teachers in grades K–12 in the 50 states and the District of Columbia. The sample was designed to allow national estimates of science and mathematics course offerings and enrollment; teacher background preparation; textbook usage; instructional techniques; and availability and use of science and mathematics facilities and equipment. Every eligible school and teacher in the target population had a known, positive probability of being drawn into the sample.

The sample design involved clustering and stratification prior to sample selection. The first stage units consisted of elementary and secondary schools. Science and mathematics teachers constituted the second stage units. The target sample sizes were designed to be large enough to allow sub-domain estimates such as for particular regions or types of community.

The sampling frame for the school sample was constructed from the Common Core of Data and Private School Survey databases—programs of the U.S. Department of Education's National Center for Education Statistics—which include school name and address and information about the school needed for stratification and sample selection. The sampling frame for the teacher sample was constructed from lists provided by sample schools, identifying current teachers and the specific science and mathematics subjects they were teaching.

Because biology is by far the most common science course at the high school level, selecting a random sample of science teachers would result in a much larger number of biology teachers than chemistry or physics teachers. Similarly, random selection of mathematics teachers might result in a smaller than desired sample of teachers of advanced mathematics courses. In order to ensure that the sample would include a sufficient number of advanced science and mathematics teachers for separate analysis, information on teaching assignments was used to create separate domains (e.g., for teachers of chemistry and physics), and sampling rates were adjusted by domain.

The study design included obtaining in-depth information from each teacher about curriculum and instruction in a single randomly selected class. Most elementary teachers were reported by their principals to teach in self-contained classrooms; i.e., they were responsible for teaching all academic subjects to a single group of students. Each such sample teacher was randomly assigned to one of two groups—science or mathematics—and received a questionnaire specific to that subject. Most secondary teachers in the sample taught several classes of a single subject; some taught both science and mathematics. For each such teacher, one class was randomly selected. For example, a teacher who taught two classes of science and three classes of mathematics each day might have been asked to answer questions about his first or second science class or his first, second, or third mathematics class of the day.

Whenever a sample is anything other than a simple random sample of a population, the results must be weighted to take the sample design into account. In the 2012 NSSME, the weight for each respondent was calculated as the inverse of the probability of selecting the individual into the sample multiplied by a non-response adjustment factor.[1] In the case of data about a randomly selected class, the teacher weight was adjusted to reflect the number of classes taught, and therefore, the probability of a particular class being selected. Detailed information about the sample design, weighting procedures, and non-response adjustments used in the 2012 NSSME can be found in Appendix A of the *Report of the 2012 National Survey of Science and Mathematics Education*.[2]

The results of any survey based on a sample of a population (rather than on the entire population) are subject to sampling variability. The sampling error (or standard error) provides a measure of the range within which a sample estimate can be expected to fall a certain proportion of the time. For example, it may be estimated that 7 percent of all elementary mathematics lessons involve the use of computers. If it is determined that the sampling error for this estimate was 1 percent, then according to the Central Limit Theorem, 95 percent of all possible samples of that same size selected in the same way would yield computer usage estimates between 5 percent and 9 percent (that is, 7 percent ± 2 standard error units).

In survey research, the decision to obtain information from a sample rather than from the entire population is made in the interest of reducing costs, in terms of both money and the burden on the population to be surveyed. The particular sample design chosen is the one that is expected to yield the most accurate information for the least cost. It is important to realize that, other things being equal, estimates based on small sample sizes are subject to larger standard errors than those based on large samples. Also, for the same sample design and sample size, the closer a percentage is to zero or 100, the smaller the standard error. The standard errors for the estimates presented in this report are included in parentheses in the tables. All population estimates presented in this report were computed using weighted data.

Instrument Development

As one purpose of the 2012 NSSME was to identify trends in science and mathematics education, the process of developing survey instruments began with the questionnaires that had been used in the earlier national surveys, in 1977, 1985–86, 1993, and 2000. The project Advisory Board, comprised of experienced researchers in science and mathematics education, reviewed these questionnaires and made recommendations about retaining or deleting particular

[1] The aim of non-response adjustments is to reduce possible bias by distributing the non-respondent weights among the respondents expected to be most similar to these non-respondents. In this study, adjustment was made by region, school metro status, grade level, type (public, catholic, other private), and percent minority enrollment.

[2] Banilower, E. R., Smith, P. S., Weiss, I. R., Malzahn, K. A., Campbell, K. M., and Weis, A. M. (2013). *Report of the 2012 National Survey of Science and Mathematics Education.* Chapel Hill, NC: Horizon Research, Inc. Available at http://www.horizon-research.com/2012nssme/research-products/reports/technical-report/

items. Additional items needed to provide important information about the current status of science and mathematics education were also considered.

Preliminary drafts of the questionnaires were sent to a number of professional organizations for review; these included the National Science Teachers Association, the National Council of Teachers of Mathematics, the National Education Association, the American Federation of Teachers, and the National Catholic Education Association.

The survey instruments were revised based on feedback from the various reviewers, field tested, and revised again. The instrument development process was a lengthy one, constantly compromising between information needs and data collection constraints. There were several iterations, including rounds of cognitive interviews with teachers and revision to help ensure that individual items were clear and unambiguous and that the survey as a whole would provide the necessary information with the least possible burden on participants. Copies of the questionnaires are included in this compendium.

Data Collection

HRI secured permission for the study from education officials at various levels. First, notification letters were mailed to the Chief State School Officers. Similar letters were subsequently mailed to superintendents of districts including sampled public schools and diocesan offices of sampled Catholic schools, identifying the schools in the district/diocese that had been selected for the survey. (Information about this pre-survey mail-out is included in Appendix C of the *Report of the 2012 National Survey of Science and Mathematics Education*.) Copies of the survey instruments and additional information about the study were provided when requested.

Principals were asked to log onto the study website and designate a school contact person or "school coordinator." The school coordinator designation page was designed to confirm the principal's contact information, as well as to obtain the name, title, phone number, and email address of the coordinator. Of the 2,000 target slots, 1,504 schools were successfully recruited and 35 were ineligible (e.g., closed or merged with another school) for a response rate of 77 percent.

An incentive system was developed to encourage school and teacher participation in the survey. School coordinators were offered an honorarium of up to $200 ($100 for completing a teacher list and school questionnaire, $15 for completing each program questionnaire (optional), and $10 for each completed teacher questionnaire). Teachers were offered a $25 honorarium for completing the teacher questionnaire.

Survey invitation letters were mailed to teachers beginning in February 2012. In addition to the incentives described, phone calls and emails to school coordinators were used to encourage non-respondents to complete the questionnaires. In May 2012, a final questionnaire invitation mailing was sent to teachers who had not yet completed their questionnaires. The teacher response rate was 77 percent. The response rate for the school program questionnaires was 83

percent. A detailed description of the data collection procedures is included in Appendix D of the *Report of the 2012 National Survey of Science and Mathematics Education*.

Outline of Compendium

The remainder of this compendium of tables of the 2012 National Survey of Science and Mathematics Education is organized into four sections. Sections Two and Three contain tables from the Science Questionnaire and Mathematics Questionnaire completed by teachers. Sections Four and Five consist of tables from the Science Program Questionnaire and the Mathematics Program Questionnaire completed by program representatives at each school. The corresponding questionnaires appear prior to the tables in each section.

Table numbers correspond to the questionnaire item numbers. Results are expressed in terms of percentages or means, with standard errors in parentheses. Teachers were classified by grade range according to the information they provided. Elementary was defined as grades K–5 plus 6th grade self-contained; middle was defined as 6th grade non-self-contained and grades 7–8; high was defined as grades 9–12. At the school level, elementary school was defined as any school containing grade K, 1, 2, 3, 4, and/or 5; middle school was defined as any school containing grade 6, 7, and/or 8; and high school was defined as any school containing grade 9, 10, 11, and/or 12.

SECTION TWO

SCIENCE TEACHER QUESTIONNAIRE

Science Teacher Questionnaire

Science Teacher Questionnaire Tables

2012 NATIONAL SURVEY OF SCIENCE AND MATHEMATICS EDUCATION
SCIENCE TEACHER QUESTIONNAIRE

Section A. Teacher Background and Opinions

1. How many years have you taught prior to this school year: [Enter each response as a whole number (for example: 15).]

a. any subject at the K–12 level? _____
b. science at the K–12 level? _____
c. at this school, any subject? _____

2. At what grade levels do you currently teach science? [Select all that apply.]

□	K–5
□	6–8
□	9–12
□	You do not currently teach science

3. ***[Presented to self-contained teachers only]***
Which best describes the science instruction provided to the entire class?

- Do not consider pull-out instruction that some students may receive for remediation or enrichment.
- Do not consider instruction provided to individual or small groups of students, for example by an English-language specialist, special educator, or teacher assistant.

○	This class receives science instruction ***only*** from you. ***[Presented only to teachers who answered in Q2 that they teach science]***
○	This class receives science instruction from you and another teacher (for example: a science specialist or a teacher you team with). ***[Presented only to teachers who answered in Q2 that they teach science]***

4. ***[Presented to self-contained teachers only]***
Which best describes your science teaching?

○	I teach science all or most days, every week of the year.
○	I teach science every week, but typically three or fewer days each week.
○	I teach science some weeks, but typically not every week. ***[Skip to Q6]***

5. ***[Presented to self-contained teachers only]***
In a typical week, how many days do you teach lessons on each of the following subjects and how many minutes per week are spent on each subject? [Enter each response as a whole number (for example: 5, 150).]

	Number of days per week	Total number of minutes per week
a. Mathematics		
b. Science		
c. Social Studies		
d. Reading/Language Arts		

6. ***[Presented to self-contained teachers only]***

In a typical year, how many weeks do you teach lessons on each of the following subjects and how many minutes per week are spent on each subject? [Enter each response as a whole number (for example: 36, 150).]

	Number of weeks per year	Average number of minutes per week when taught
a. Mathematics		
b. Science		
c. Social Studies		
d. Reading/Language Arts		

7. ***[Presented to non-self-contained teachers only]***

In a typical week, how many different classes of each of the following do you teach?

- If you meet with the *same class of students* multiple times per week, count that class only once.
- If you teach the *same science or engineering course* to multiple classes of students, count each class separately.
- Select one on each row.

	0	1	2	3	4	5	6	7	8	9	10
Science (may include some engineering content)	○	○	○	○	○	○	○	○	○	○	○
Engineering (may include some science content)	○	○	○	○	○	○	○	○	○	○	○

8. ***[Presented to non-self-contained teachers only]***

For each science class you teach, select the course type and enter the number of students enrolled. Enter the classes in the order that you teach them. For teachers on an alternating day block schedule, please order your classes starting with the first class you teach this week. [Select one course type on each row and enter the number of students as a whole number (for example: 25).]

Class	Course Type	Number of Students
Your 1st science class:		
Your 2nd science class:		
…		
Your Nth science class:		

Course Type List	
1	Science (Grades K–5)
2	Life Science (Grades 6–8)
3	Earth Science (Grades 6–8)
4	Physical Science (Grades 6–8)
5	General or Integrated Science (Grades 6–8)
6	Coordinated or Integrated Science including General Science and Physical Science (Grades 9–12)
7	Earth/Space Science (Grades 9–12)
8	Life Science/Biology (Grades 9–12)
9	Environmental Science/Ecology (Grades 9–12)
10	Chemistry (Grades 9–12)
11	Physics (Grades 9–12)

9. ***[Presented to non-self-contained grades 9–12 teachers only]***
For each grades 9–12 science class you teach, select the level that best describes the content addressed in that class.

- Use the descriptions below to help identify the level.
- Select one on each row.

Level	Description
Non-college Prep	A course that does not count towards the entrance requirements of a 4-year college. For example: Life Science.
1st Year College Prep, Including Honors	The first course in a discipline that counts towards the entrance requirements of a 4-year college. For example: Biology, Chemistry I.
2nd Year Advanced	A course typically taken after a 1st year college prep course. For example: Anatomy and Physiology, Advanced Chemistry, Physics II. Include Advanced Placement, International Baccalaureate, and concurrent college and high school credit/dual enrollment.

Class	Course Type	Non-college Prep	1st Year College Prep, Including Honors	2nd Year Advanced
Your 1st science class:	[*course type(s) teacher selected in Q8*]	○	○	○
Your 2nd science class:		○	○	○
…				
Your Nth science class:		○	○	○

10. ***[Presented to non-self-contained teachers only]***
Later in this questionnaire, we will ask you questions about you're your randomly selected science class, which you indicated was [*level and course type teacher selected in Q8/9*]. What is your school's title for this course? _____

11. Have you been awarded one or more bachelor's and/or graduate degrees in the following fields? (With regard to bachelor's degrees, count only areas in which you majored.) [Select one on each row.]

	Yes	No
a. Education, including science education	○	○
b. Natural Sciences and/or Engineering	○	○
c. Other, please specify _____	○	○

12. ***[Presented only to teachers that answered "Yes" to Q11a]***
What type of education degree do you have? (With regard to bachelor's degrees, count only areas in which you majored.) [Select all that apply.]

□	Elementary Education
□	Mathematics Education
□	Science Education
□	Other Education, please specify. _____

13. ***[Presented only to teachers that answered "Yes" to Q11b]***

What type of natural science and/or engineering degree do you have? (With regard to bachelor's degrees, count only areas in which you majored.) [Select all that apply.]

□	Biology/Life Science
□	Chemistry
□	Earth/Space Science
□	Engineering
□	Environmental Science/Ecology
□	Physics
□	Other natural science, please specify _____

14. Did you complete any of the following types of biology/life science courses at the undergraduate or graduate level? [Select one on each row.]

		Yes	**No**
a.	General/introductory biology/life science courses (for example: Biology I, Introduction to Biology)	○	○
b.	Biology/life science courses beyond the general/introductory level	○	○
c.	Biology/life science education courses	○	○

15. ***[Presented only to teachers that answered "Yes" to Q14b]***

Please indicate which of the following biology/life science courses you completed (beyond a general/introductory course) at the undergraduate or graduate level. [Select all that apply.]

□	Anatomy/Physiology
□	Biochemistry
□	Botany
□	Cell Biology
□	Ecology
□	Evolution
□	Genetics
□	Microbiology
□	Zoology
□	Other biology/life science beyond the general/introductory level

16. Did you complete any of the following types of chemistry courses at the undergraduate or graduate level? [Select one on each row.]

		Yes	**No**
a.	General/introductory chemistry courses (for example: Chemistry I, Introduction to Chemistry)	○	○
b.	Chemistry courses beyond the general/introductory level	○	○
c.	Chemistry education courses	○	○

17. ***[Presented only to teachers that answered "Yes" to Q16b]***
Please indicate which of the following chemistry courses you completed (beyond a general/introductory course) at the undergraduate or graduate level. [Select all that apply.]

□	Analytical Chemistry
□	Biochemistry
□	Inorganic Chemistry
□	Organic Chemistry
□	Physical Chemistry
□	Quantum Chemistry
□	Other chemistry beyond the general/introductory level

18. Did you complete any of the following types of physics courses at the undergraduate or graduate level? [Select one on each row.]

		Yes	**No**
a.	General/introductory physics courses (for example: Physics I, Introduction to Physics)	○	○
b.	Physics courses beyond the general/introductory level	○	○
c.	Physics education courses	○	○

19. ***[Presented only to teachers that answered "Yes" to Q18b]***
Please indicate which of the following physics courses you completed (beyond a general/introductory course) at the undergraduate or graduate level. [Select all that apply.]

□	Electricity and Magnetism
□	Heat and Thermodynamics
□	Mechanics
□	Modern or Quantum Physics
□	Nuclear Physics
□	Optics
□	Other physics beyond the general/introductory level

20. Did you complete any of the following types of Earth/space science courses at the undergraduate or graduate level? [Select one on each row.]

		Yes	**No**
a.	General/introductory Earth/space science courses (for example: Earth Science I, Introduction to Earth Science)	○	○
b.	Earth/space science courses beyond the general/introductory level	○	○
c.	Earth/space science education courses	○	○

21. ***[Presented only to teachers that answered "Yes" to Q20b]***
Please indicate which of the following Earth/space science courses you completed (beyond a general/introductory course) at the undergraduate or graduate level. [Select all that apply.]

□	Astronomy
□	Geology
□	Meteorology
□	Oceanography
□	Physical Geography
□	Other Earth/space science beyond the general/introductory level

22. Did you complete any of the following types of environmental science courses at the undergraduate or graduate level? [Select one on each row.]

	Yes	No
a. General/introductory environmental science courses (for example: Environmental Science I, Introduction to Environmental Science)	○	○
b. Environmental science courses beyond the general/introductory level	○	○
c. Environmental science education courses	○	○

23. ***[Presented only to teachers that answered "Yes" to Q22b]***

Please indicate which of the following environmental science courses you completed (beyond a general/introductory course) at the undergraduate or graduate level. [Select all that apply.]

□	Conservation Biology
□	Ecology
□	Forestry
□	Hydrology
□	Oceanography
□	Toxicology
□	Other environmental science beyond the general/introductory level

24. Did you complete one or more engineering courses at the undergraduate or graduate level?

○	Yes
○	No

25. ***[Presented only to teachers that answered "Yes" to Q24b]***

Please indicate which of the following types of engineering courses you completed at the undergraduate or graduate level. [Select all that apply.]

□	Aerospace Engineering
□	Bioengineering/Biomedical Engineering
□	Chemical Engineering
□	Civil Engineering
□	Computer Engineering
□	Electrical Engineering
□	Industrial/Manufacturing Engineering
□	Mechanical Engineering
□	Other types of engineering courses

26. For each of the following areas, indicate the number of semester and/or quarter courses you completed.

- Count *courses* **not** credit hours.
- Include courses taken at the graduate or undergraduate level, as well as courses for which you received college credit while you were in high school.
- Count each course taken in high school for college credit as a one semester college course.
- Count courses that lasted multiple semesters or quarters as multiple courses.
- If your transcripts are not available, provide your best estimates.
- Enter your responses as whole numbers (for example: 3). You may either enter 0 (zero) or leave the box empty wherever applicable.

	Number of SEMESTER college courses	Number of QUARTER college courses
a. Interdisciplinary science (a single course that addresses content across ***multiple*** science subjects, such as biology, chemistry, physics and/or Earth science)		
b. Biology/Life science		
c. Chemistry		
d. Physics		
e. Earth/Space science		
f. Environmental science		
g. Engineering		
h. Mathematics		

27. How many of the undergraduate and graduate level science courses you completed were taken at each of the following types of institutions? (Please do not include science education courses.) [Enter each response as a whole number (for example: 15).]

a. Two-year college, community college, and/or technical school _____
b. Four-year college and/or university _____

28. Which of the following best describes your teacher certification program?

○	An undergraduate program leading to a bachelor's degree and a teaching credential
○	A post-baccalaureate credentialing program (no master's degree awarded)
○	A master's program that also awarded a teaching credential
○	You did not have any formal teacher preparation

29. When did you **last participate** in professional development (sometimes called in-service education) focused on science or science teaching? (Include attendance at professional meetings, workshops, and conferences, as well as professional learning communities/lesson studies/teacher study groups. **Do not** include formal courses for which you received college credit or time you spent **providing** professional development for other teachers.)

○	In the last 3 years
○	4–6 years ago
○	7–10 years ago
○	More than 10 years ago
○	Never

} ***Skip to 33***

30. In the last 3 years have you… [Select one on each row.]

	Yes	No
a. attended a workshop on science or science teaching?	○	○
b. attended a national, state, or regional science teacher association meeting?	○	○
c. participated in a professional learning community/lesson study/teacher study group focused on science or science teaching?	○	○

31. What is the **total** amount of time you have spent on professional development in science or science teaching **in the last 3 years**? (Include attendance at professional meetings, workshops, and conferences, as well as professional learning communities/lesson studies/teacher study groups. **Do not** include formal courses for which you received college credit or time you spent **providing** professional development for other teachers.)

○	Less than 6 hours
○	6–15 hours
○	16–35 hours
○	More than 35 hours

32. Thinking about all of your science-related professional development **in the last 3 years**, to what extent does each of the following describe your experiences? [Select one on each row.]

	Not at all		Somewhat		To a great extent
a. You had opportunities to engage in science investigations.	①	②	③	④	⑤
b. You had opportunities to examine classroom artifacts (for example: student work samples).	①	②	③	④	⑤
c. You had opportunities to try out what you learned in your classroom ***and*** then talk about it as part of the professional development.	①	②	③	④	⑤
d. You worked closely with other science teachers from your school.	①	②	③	④	⑤
e. You worked closely with other science teachers who taught the same grade and/or subject whether or not they were from your school.	①	②	③	④	⑤
f. The professional development was a waste of your time.	①	②	③	④	⑤

33. When did you last take a formal course for **college credit** in each of the following areas? Do not count courses for which you received only Continuing Education Units. [Select one on each row.]

	In the last 3 years	4 – 6 years ago	7 – 10 years ago	More than 10 years ago	Never
a. Science	○	○	○	○	○
b. How to teach science	○	○	○	○	○
c. Student teaching in science	○	○	○	○	○
d. Student teaching in other subjects	○	○	○	○	○

34. ***[Presented only to teachers that have participated in professional development in the last three years as indicated in Q29, OR took a course in "Science" or "How to teach science" in the last three years as indicated in q33a/b]***

Considering all the opportunities to learn about science or the teaching of science (professional development and coursework) **in the last 3 years**, how much was each of the following emphasized? [Select one on each row.]

	Not at all		**Somewhat**		**To a great extent**
a. Deepening your own science content knowledge	①	②	③	④	⑤
b. Learning about difficulties that students may have with particular science ideas and procedures	①	②	③	④	⑤
c. Finding out what students think or already know about the key science ideas prior to instruction on those ideas	①	②	③	④	⑤
d. Implementing the science textbook/module to be used in your classroom	①	②	③	④	⑤
e. Planning instruction so students at different levels of achievement can increase their understanding of the ideas targeted in each activity	①	②	③	④	⑤
f. Monitoring student understanding during science instruction	①	②	③	④	⑤
g. Providing enrichment experiences for gifted students	①	②	③	④	⑤
h. Providing alternative science learning experiences for students with special needs	①	②	③	④	⑤
i. Teaching science to English-language learners	①	②	③	④	⑤
j. Assessing student understanding at the conclusion of instruction on a topic	①	②	③	④	⑤

35. In the last 3 years have you… [Select one on each row.]

	Yes	**No**
a. received feedback about your science teaching from a mentor/coach **formally assigned** by the school or district/diocese?	○	○
b. served as a **formally-assigned** mentor/coach for science teaching? (Please do not include supervision of student teachers.)	○	○
c. supervised a student teacher in your classroom?	○	○
d. taught in-service workshops on science or science teaching?	○	○
e. led a professional learning community/lesson study/teacher study group focused on science or science teaching?	○	○

36. ***[Presented only to grades K–5 teachers; sub-items e, f, and g for self-contained teachers only]***

Many teachers feel better prepared to teach some subject areas than others. How well prepared do you feel to teach each of the following subjects **at the grade level(s) you teach**, whether or not they are currently included in your teaching responsibilities? [Select one on each row.]

	Not adequately prepared	**Somewhat prepared**	**Fairly well prepared**	**Very well prepared**
a. Life Science	①	②	③	④
b. Earth Science	①	②	③	④
c. Physical Science	①	②	③	④
d. Engineering	①	②	③	④
e. Mathematics	①	②	③	④
f. Reading/Language Arts	①	②	③	④
g. Social Studies	①	②	③	④

37. ***[Presented only to grades 6–12 teachers; non-self-contained teachers shown only topics related to their randomly selected class and engineering; self-contained teachers shown all topics]***

Within science many teachers feel better prepared to teach some topics than others. How well prepared do you feel to teach each of the following topics **at the grade level(s) you teach**, whether or not they are currently included in your teaching responsibilities? [Select one on each row.]

	Not adequately prepared	Somewhat prepared	Fairly well prepared	Very well prepared
a. Earth/Space Science				
i. Earth's features and physical processes	①	②	③	④
ii. The solar system and the universe	①	②	③	④
iii. Climate and weather	①	②	③	④
b. Biology/Life Science				
i. Cell biology	①	②	③	④
ii. Structures and functions of organisms	①	②	③	④
iii. Ecology/ecosystems	①	②	③	④
iv. Genetics	①	②	③	④
v. Evolution	①	②	③	④
c. Chemistry				
i. Atomic structure	①	②	③	④
ii. Chemical bonding, equations, nomenclature, and reactions	①	②	③	④
iii. Elements, compounds, and mixtures	①	②	③	④
iv. The Periodic Table	①	②	③	④
v. Properties of solutions	①	②	③	④
vi. States, classes, and properties of matter	①	②	③	④
d. Physics				
i. Forces and motion	①	②	③	④
ii. Energy transfers, transformations, and conservation	①	②	③	④
iii. Properties and behaviors of waves	①	②	③	④
iv. Electricity and magnetism	①	②	③	④
v. Modern physics (for example: special relativity)	①	②	③	④
e. Engineering (for example: nature of engineering and technology, design processes, analyzing and improving technological systems, interactions between technology and society)	①	②	③	④
f. Environmental and resource issues (for example: land and water use, energy resources and consumption, sources and impacts of pollution)	①	②	③	④

38. How well prepared do you feel to do each of the following in your science instruction? [Select one on each row.]

	Not adequately prepared	Somewhat prepared	Fairly well prepared	Very well prepared
a. Plan instruction so students at different levels of achievement can increase their understanding of the ideas targeted in each activity	①	②	③	④
b. Teach science to students who have learning disabilities	①	②	③	④
c. Teach science to students who have physical disabilities	①	②	③	④
d. Teach science to English-language learners	①	②	③	④
e. Provide enrichment experiences for gifted students	①	②	③	④
f. Encourage students' interest in science and/or engineering	①	②	③	④
g. Encourage participation of females in science and/or engineering	①	②	③	④
h. Encourage participation of racial or ethnic minorities in science and/or engineering	①	②	③	④
i. Encourage participation of students from low socioeconomic backgrounds in science and/or engineering	①	②	③	④
j. Manage classroom discipline	①	②	③	④

39. Please provide your opinion about each of the following statements. [Select one on each row.]

	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
a. Students learn science best in classes with students of similar abilities.	①	②	③	④	⑤
b. Inadequacies in students' science background can be overcome by effective teaching.	①	②	③	④	⑤
c. It is better for science instruction to focus on ideas in depth, even if that means covering fewer topics.	①	②	③	④	⑤
d. Students should be provided with the purpose for a lesson as it begins.	①	②	③	④	⑤
e. At the beginning of instruction on a science idea, students should be provided with definitions for new scientific vocabulary that will be used.	①	②	③	④	⑤
f. Teachers should explain an idea to students before having them consider evidence that relates to the idea.	①	②	③	④	⑤
g. Most class periods should include some review of previously covered ideas and skills.	①	②	③	④	⑤
h. Most class periods should provide opportunities for students to share their thinking and reasoning.	①	②	③	④	⑤
i. Hands-on/laboratory activities should be used primarily to reinforce a science idea that the students have already learned.	①	②	③	④	⑤
j. Students should be assigned homework most days.	①	②	③	④	⑤
k. Most class periods should conclude with a summary of the key ideas addressed.	①	②	③	④	⑤

Section B. Your Science Instruction

The rest of this questionnaire is about your science instruction in this class.

40. ***[Presented to non-self-contained teachers only]***
On average, how many minutes per week does this class meet? [Enter your response as a whole number (for example: 300).] _____

41. Enter the number of students for each grade represented in this class. [Enter each response as a whole number (for example: 15).]

Kindergarten	
1st grade	
2nd grade	
3rd grade	
4th grade	
5th grade	
6th grade	
7th grade	
8th grade	
9th grade	
10th grade	
11th grade	
12th grade	

42. For the students in this class, indicate the number of males and females in this class in each of the following categories of race/ethnicity. [Enter each response as a whole number (for example: 15).]

	Males	**Females**
a. American Indian or Alaska Native		
b. Asian		
c. Black or African American		
d. Hispanic/Latino		
e. Native Hawaiian or Other Pacific Islander		
f. White		
g. Two or more races		

43. Which of the following best describes the prior science achievement levels of the students in this class relative to other students in this school?

○	Mostly low achievers
○	Mostly average achievers
○	Mostly high achievers
○	A mixture of levels

44. How much control do you have over each of the following aspects of science instruction in this class? [Select one on each row.]

	No Control		Moderate Control		Strong Control
a. Determining course goals and objectives	①	②	③	④	⑤
b. Selecting textbooks/modules	①	②	③	④	⑤
c. Selecting content, topics, and skills to be taught	①	②	③	④	⑤
d. Selecting teaching techniques	①	②	③	④	⑤
e. Determining the amount of homework to be assigned	①	②	③	④	⑤
f. Choosing criteria for grading student performance	①	②	③	④	⑤

45. Think about your plans for this class for the entire course/year. By the end of the course/year, how much emphasis will each of the following student objectives receive? [Select one on each row.]

	None	Minimal emphasis	Moderate emphasis	Heavy emphasis
a. Memorizing science vocabulary and/or facts	①	②	③	④
b. Understanding science concepts	①	②	③	④
c. Learning science process skills (for example: observing, measuring)	①	②	③	④
d. Learning about real-life applications of science	①	②	③	④
e. Increasing students' interest in science	①	②	③	④
f. Preparing for further study in science	①	②	③	④
g. Learning test taking skills/strategies	①	②	③	④

46. How often do you do each of the following in your science instruction in this class? [Select one on each row.]

	Never	Rarely (for example: A few times a year)	Sometimes (for example: Once or twice a month)	Often (for example: Once or twice a week)	All or almost all science lessons
a. Explain science ideas to the whole class	①	②	③	④	⑤
b. Engage the whole class in discussions	①	②	③	④	⑤
c. Have students work in small groups	①	②	③	④	⑤
d. Do hands-on/laboratory activities	①	②	③	④	⑤
e. Engage the class in project-based learning (PBL) activities	①	②	③	④	⑤
f. Have students read from a science textbook, module, or other science-related material in class, either aloud or to themselves	①	②	③	④	⑤
g. Have students represent and/or analyze data using tables, charts, or graphs	①	②	③	④	⑤
h. Require students to supply evidence in support of their claims	①	②	③	④	⑤
i. Have students make formal presentations to the rest of the class (for example: on individual or group projects)	①	②	③	④	⑤
j. Have students write their reflections (for example: in their journals) in class or for homework	①	②	③	④	⑤
k. Give tests and/or quizzes that are predominantly short-answer (for example: multiple choice, true /false, fill in the blank)	①	②	③	④	⑤
l. Give tests and/or quizzes that include constructed-response/open-ended items	①	②	③	④	⑤
m. Focus on literacy skills (for example: informational reading or writing strategies)	①	②	③	④	⑤
n. Have students practice for standardized tests	①	②	③	④	⑤
o. Have students attend presentations by guest speakers focused on science and/or engineering in the workplace	①	②	③	④	⑤

47. Which best describes the availability of each of the following for small group (4-5 students) work in this class? [Select one on each row.]

	Do not have one per group available	At least one per group available upon request or in another room	At least one per group located in your classroom
a. Personal computers, including laptops	○	○	○
b. Hand-held computers (for example: PDAs, tablets, smartphones, iPads)	○	○	○
c. Internet access	○	○	○
d. Graphing calculators	○	○	○
e. Other calculators	○	○	○
f. Probes for collecting data (for example: motion sensors, temperature probes)	○	○	○
g. Microscopes	○	○	○
h. Classroom response system or "Clickers" (handheld devices used to respond electronically to questions in class)	○	○	○

48. For each of the following, are students expected to provide their own for use in this science class? [Select one on each row.]

	Yes	No
a. Laptop computers	○	○
b. Hand-held computers	○	○
c. Graphing calculators	○	○
d. Other calculators	○	○

49. How often do students use each of the following instructional technologies in this science class? [Select one on each row.]

	Never	Rarely (for example: A few times a year)	Sometimes (for example: Once or twice a month)	Often (for example: Once or twice a week)	All or almost all science lessons
a. Personal computers, including laptops	①	②	③	④	⑤
b. Hand-held computers	①	②	③	④	⑤
c. Internet	①	②	③	④	⑤
d. Calculators ***[Presented to grades K–5 teachers only]***	①	②	③	④	⑤
e. Graphing calculators ***[Presented to grades 6–12 teachers only]***	①	②	③	④	⑤
f. Probes for collecting data	①	②	③	④	⑤
g. Classroom response system or "Clickers"	①	②	③	④	⑤

50. Please indicate the availability of each of the following for your science instruction in this class. [Select one on each row.]

	Not available	Available in another room	Located in your classroom
a. Lab tables	○	○	○
b. Electric outlets	○	○	○
c. Faucets and sinks	○	○	○
d. Gas for burners ***[Presented to grades 9–12 teachers only]***	○	○	○
e. Fume hoods ***[Presented to grades 9–12 teachers only]***	○	○	○

51. How often are students in this class required to take science tests that you did not develop yourself, for example state assessments or district benchmarks? (Do not include Advanced Placement or International Baccalaureate exams or students retaking a test because of failure.)

○	Never
○	Once a year
○	Twice a year
○	Three or four times a year
○	Five or more times a year

52. How much science homework do you assign to this class in a typical **week**? (Do not include time that the class spends getting started on homework during class.)

○	Fewer than 15 minutes per week
○	15–30 minutes per week
○	31–60 minutes per week
○	61–90 minutes per week
○	91–120 minutes per week
○	2–3 hours per week
○	3–4 hours per week
○	More than 4 hours per week

53. Which best describes the instructional materials students **most frequently** use in this class?

Mainly commercially-published textbook(s)	
○	One textbook
○	Multiple textbooks
Mainly commercially-published modules	
○	Modules from a single publisher
○	Modules from multiple publishers
Other	
○	A roughly equal mix of commercially-published textbooks and commercially-published modules most of the time
○	Non-commercially-published materials most of the time ***[Skip to Q58]***

54. Please indicate the title, author, most recent copyright year, and ISBN code of the textbook/module used by the students in this class.

- The 10- or 13-character ISBN code can be found on the copyright page and/or the back cover of the textbook/module.
- Do not include the dashes when entering the ISBN.
- An example of the location of the ISBN is shown to the right.

Title:
First Author:
Year:
ISBN:

55. How would you rate the overall quality of this textbook/the modules used from this publisher?

○	Very poor
○	Poor
○	Fair
○	Good
○	Very good
○	Excellent

56. ***[Presented only to teachers who indicated using one commercially-published textbook or modules from a single publisher in Q53]***
Over the course of the school year, approximately what percentage of the science **instructional time** will students in this class spend using this textbook/these modules?

○	Less than 25%
○	25–49%
○	50–74%
○	75–90%
○	More than 90%

57. ***[Presented only to teachers who indicated using one commercially-published textbook in Q53]***
Approximately what percentage of the chapters in this textbook will students in this class engage with during the school year?

○	Less than 25%
○	25–49%
○	50–74%
○	75–90%
○	More than 90%

58. Science courses may benefit from the availability of particular kinds of ***equipment*** (for example: microscopes, beakers, photogate timers, Bunsen burners). How adequate is the ***equipment*** you have available for teaching this science class?

○	Not adequate
○	
○	Somewhat adequate
○	
○	Adequate

59. Science courses may benefit from the availability of particular kinds of ***instructional technology*** (for example: calculators, computers, probes/sensors). How adequate is the ***instructional technology*** you have available for teaching this science class?

○	Not adequate
○	
○	Somewhat adequate
○	
○	Adequate

60. Science courses may benefit from the availability of particular kinds of ***consumable supplies*** (for example: chemicals, living organisms, batteries). How adequate are the ***consumable supplies*** you have available for teaching this science class?

○	Not adequate
○	
○	Somewhat adequate
○	
○	Adequate

61. Science courses may benefit from the availability of particular kinds of ***facilities*** (for example: lab tables, electric outlets, faucets and sinks). How adequate are the ***facilities*** you have available for teaching this science class?

○	Not adequate
○	
○	Somewhat adequate
○	
○	Adequate

62. In your opinion, how great a problem is each of the following for your science instruction in this class? [Select one on each row.]

	Not a significant problem	**Somewhat of a problem**	**Serious problem**
a. Lack of access to computers	○	○	○
b. Old age of computers	○	○	○
c. Lack of access to the Internet	○	○	○
d. Unreliability of the Internet connection	○	○	○
e. Slow speed of the Internet connection	○	○	○
f. Lack of availability of appropriate computer software	○	○	○
g. Lack of availability of technology support	○	○	○

63. Please rate the effect of each of the following on your science instruction in this class. [Select one on each row.]

	Inhibits effective instruction		**Neutral or Mixed**		**Promotes effective instruction**	**N/A or Don't Know**
a. Current state standards	①	②	③	④	⑤	○
b. District/Diocese curriculum frameworks ***[Not presented to non-Catholic private schools]***	①	②	③	④	⑤	○
c. District/Diocese and/or school pacing guides	①	②	③	④	⑤	○
d. State testing/accountability policies ***[Not presented to non-Catholic private schools]***	①	②	③	④	⑤	○
e. District/Diocese testing/accountability policies ***[Not presented to non-Catholic private schools]***	①	②	③	④	⑤	○
f. Textbook/module selection policies	①	②	③	④	⑤	○
g. Teacher evaluation policies	①	②	③	④	⑤	○
h. College entrance requirements ***[Presented to grades 9–12 teachers only]***	①	②	③	④	⑤	○
i. Students' motivation, interest, and effort in science	①	②	③	④	⑤	○
j. Students' reading abilities	①	②	③	④	⑤	○
k. Community views on science instruction	①	②	③	④	⑤	○
l. Parent expectations and involvement	①	②	③	④	⑤	○
m. Principal support	①	②	③	④	⑤	○
n. Time for you to plan, individually and with colleagues	①	②	③	④	⑤	○
o. Time available for your professional development	①	②	③	④	⑤	○

Section C. Your Most Recently Completed Science Unit in this Class

The questions in this section are about the most recently completed science unit in this class.

- Depending on the structure of your class and the instructional materials you use, a unit may range from a few to many class periods.
- Do not be concerned if this unit was not typical of your instruction.

64. How many class periods were devoted to instruction on the **most recently completed science unit**? [Enter your response as a whole number (for example: 15).] _____

65. Which of the following best describes the content of this unit?

○	Earth/Space Science
○	Life Science/Biology
○	Environmental Science/Ecology
○	Chemistry
○	Physics
○	Engineering

66. What science ideas and/or skills were addressed in this unit? _____

67. ***[Presented only to teachers who indicated using commercially-published textbooks/modules in Q53]*** Was this unit based primarily on the commercially-published textbook/modules you described earlier as the one used most often in this class?

○	Yes ***[Skip to Q70]***
○	No

68. Was this unit based on a commercially-published textbook/module?

○	Yes
○	No ***[Skip to Q74]***

69. Please indicate the title, author, most recent copyright year, and ISBN code of that textbook/module.

- The 10- or 13-character ISBN code can be found on the copyright page and/or the back cover of the textbook/module.
- Do not include the dashes when entering the ISBN.
- An example of the location of the ISBN is shown to the right.

Title:
First Author:
Year:
ISBN:

70. Please indicate the extent to which you did each of the following while teaching this unit. [Select one on each row.]

	Not at all		Somewhat		To a great extent
a. You used the textbook/module to guide the overall structure and content emphasis of the unit.	①	②	③	④	⑤
b. You followed the textbook/module to guide the detailed structure and content emphasis of the unit.	①	②	③	④	⑤
c. You picked what is important from the textbook/module and skipped the rest.	①	②	③	④	⑤
d. You incorporated activities (for example: problems, investigations, readings) from other sources to supplement what the textbook/module was lacking.	①	②	③	④	⑤

71. ***[Presented only to teachers who answered "2–5" in Q70c]***

During this unit, when you skipped activities (for example: problems, investigations, readings) in your textbook/module, how much was each of the following a factor in your decisions? [Select one on each row.]

	Not a factor	A minor factor	A major factor
a. The science ideas addressed in the activities you skipped are not included in your pacing guide and/or current state standards.	①	②	③
b. You did not have the materials needed to implement the activities you skipped.	①	②	③
c. The activities you skipped were too difficult for your students.	①	②	③
d. Your students already knew the science ideas or were able to learn them without the activities you skipped.	①	②	③
e. You have different activities for those science ideas that work better than the ones you skipped.	①	②	③

72. ***[Presented only to teachers who answered "2–5" in Q70d]***

During this unit, when you supplemented the textbook/module with additional activities, how much was each of the following a factor in your decisions? [Select one on each row.]

	Not a factor	A minor factor	A major factor
a. Your pacing guide indicated that you should use supplemental activities.	①	②	③
b. Supplemental activities were needed to prepare students for standardized tests.	①	②	③
c. Supplemental activities were needed to provide students with additional practice.	①	②	③
d. Supplemental activities were needed so students at different levels of achievement could increase their understanding of the ideas targeted in each activity.	①	②	③

73. How well prepared did you feel to do each of the following as part of your instruction on this particular unit? [Select one on each row.]

	Not adequately prepared	Somewhat prepared	Fairly well prepared	Very well prepared
a. Anticipate difficulties that students may have with particular science ideas and procedures in this unit	①	②	③	④
b. Find out what students thought or already knew about the key science ideas	①	②	③	④
c. Implement the science textbook/module to be used during this unit ***[Presented only to teachers who indicated using commercially-published textbooks/modules in Q67/68]***	①	②	③	④
d. Monitor student understanding during this unit	①	②	③	④
e. Assess student understanding at the conclusion of this unit	①	②	③	④

74. Which of the following did you do during this unit? [Select all that apply.]

□	Administered an assessment, task, or probe at the beginning of the unit to find out what students thought or already knew about the key science ideas
□	Questioned individual students during class activities to see if they were "getting it"
□	Used information from informal assessments of the entire class (for example: asking for a show of hands, thumbs up/thumbs down, clickers, exit tickets) to see if students were "getting it"
□	Reviewed student work (for example: homework, notebooks, journals, portfolios, projects) to see if they were "getting it"
□	Administered one or more quizzes and/or tests to see if students were "getting it"
□	Had students use rubrics to examine their own or their classmates' work
□	Assigned grades to student work (for example: homework, notebooks, journals, portfolios, projects)
□	Administered one or more quizzes and/or tests to assign grades
□	Went over the correct answers to assignments, quizzes, and/or tests with the class as a whole

Section D. Your Most Recent Science Lesson in this Class

The next three questions refer to the most recent science lesson in this class, whether or not that instruction was part of the unit you've just been describing. Do not be concerned if this lesson included activities and/or interruptions that are not typical (for example: a test, students working on projects, a fire drill).

75. How many minutes was that lesson? [Enter your response as a non-zero whole number (for example: 50).] _____

76. Of these minutes, how many were spent on the following: [Enter each response as a whole number (for example: 15).]

a. Non-instructional activities (for example: attendance taking, interruptions) ____
b. Whole class activities (for example: lectures, explanations, discussions)____
c. Small group work ___
d. Students working individually (for example: reading textbooks, completing worksheets, taking a test or quiz) ___

77. Which of the following activities took place during that science lesson? [Select all that apply.]

□	Teacher explaining a science idea to the whole class
□	Whole class discussion
□	Students completing textbook/worksheet problems
□	Teacher conducting a demonstration while students watched
□	Students doing hands-on/laboratory activities
□	Students reading about science
□	Students using instructional technology
□	Practicing for standardized tests
□	Test or quiz
□	None of the above

Section E. Demographic Information

78. Indicate your sex:

○	Male
○	Female

79. Are you of Hispanic or Latino origin?

○	Yes
○	No

80. What is your race? [Select all that apply.]

□	American Indian or Alaska Native
□	Asian
□	Black or African American
□	Native Hawaiian or Other Pacific Islander
□	White

81. In what year were you born? [Enter your response as a whole number (for example: 1969). Do not use commas.] _____

Thank you!

SCIENCE TEACHER QUESTIONNAIRE TABLES

Table STQ 1
Number of Years Science Teachers Spent Teaching Prior to This School Year

	Mean Number of Years		
	Elementary	Middle	High
Any subject at the K–12 level	12.8 (0.4)	13.5 (0.6)	12.4 (0.3)
Science at the K–12 level	11.5 (0.4)	11.2 (0.5)	12.3 (0.3)
At this school, any subject	8.4 (0.4)	8.4 (0.4)	8.6 (0.2)

Table STQ 2
Grade Levels Taught by Science Teachers

	Percent of Teachers
Grades K–5	75 (0.8)
Grades 6–8	14 (0.7)
Grades 9–12	14 (0.6)

Table STQ 3
Instructional Arrangements for Science in Self-Contained Elementary School Classes

	Percent of Teachers
This class receives science instruction only from you	82 (1.7)
This class receives science instruction from you and another teacher (e.g., a science specialist or a teacher you team with)	18 (1.7)

Table STQ 4
Frequency with Which Self-Contained Elementary School Teachers Provide Science Instruction

	Percent of Teachers
I teach science all or most days, every week of the year	22 (1.8)
I teach science every week, but typically three or fewer days each week	40 (1.8)
I teach science some weeks, but typically not every week	38 (2.0)

Table STQ 5 and 6
Average Number of Minutes per Day Spent Teaching Each Subject in Self-Contained Elementary School Classes†

	Average Number of Minutes
Reading/Language Arts	87.7 (1.3)
Mathematics	55.4 (0.8)
Science	19.9 (0.4)
Social Studies	17.3 (0.4)

† Only teachers who indicated they teach reading/language arts, mathematics, science, and social studies to one class of students are included in these analyses.

Table STQ 7.1
Number of Sections of Science and Engineering Classes Taught per Week by Elementary School Teachers

	Percent of Teachers[†]			
	Science		Engineering	
0 Sections	—	—	90	(3.0)
1 Section	16	(4.4)	2	(2.0)
2 Sections	40	(7.5)	2	(1.9)
3 Sections	12	(3.5)	2	(1.2)
4 Sections	15	(4.4)	2	(1.2)
5 Sections	5	(2.0)	0	(0.2)
6 Sections	5	(2.7)	0	(0.1)
7 Sections	1	(0.7)	1	(0.5)
8 Sections	1	(1.2)	0	---[‡]
9 Sections	1	(0.4)	0	---[‡]
10 Sections	5	(2.2)	1	(1.1)

[†] Only classes taught by non-self-contained teachers are included in this analysis.

[‡] No teachers in the sample selected this response option. Thus, it is not possible to calculate the standard error of this estimate.

Table STQ 7.2
Number of Sections of Science and Engineering Classes Taught per Week by Middle School Teachers

	Percent of Teachers			
	Science		Engineering	
0 Sections	—	—	94	(1.0)
1 Section	5	(0.9)	3	(1.0)
2 Sections	11	(1.8)	1	(0.3)
3 Sections	12	(1.6)	1	(0.2)
4 Sections	24	(2.1)	0	(0.2)
5 Sections	24	(1.9)	1	(0.3)
6 Sections	19	(1.6)	1	(0.3)
7 Sections	3	(0.5)	0	(0.1)
8 Sections	0	(0.2)	0	---[†]
9 Sections	1	(0.6)	0	---[†]
10 Sections	1	(0.4)	0	---[†]

[†] No teachers in the sample selected this response option. Thus, it is not possible to calculate the standard error of this estimate.

Table STQ 7.3
Number of Sections of Science and Engineering Classes Taught per Week by High School Teachers

	Percent of Teachers			
	Science		Engineering	
0 Sections	—	—	95	(0.6)
1 Section	4	(0.9)	2	(0.4)
2 Sections	9	(1.3)	1	(0.3)
3 Sections	17	(1.3)	0	(0.2)
4 Sections	16	(1.3)	0	(0.1)
5 Sections	32	(1.9)	0	(0.2)
6 Sections	18	(1.3)	0	(0.1)
7 Sections	3	(0.5)	0	(0.0)
8 Sections	0	(0.2)	0	---†
9 Sections	0	(0.2)	0	---†
10 Sections	0	(0.2)	0	(0.1)

† No teachers in the sample selected this response option. Thus, it is not possible to calculate the standard error of this estimate.

There is no table for STQ 8.

There is no table for STQ 9.

There is no table for STQ 10.

Table STQ 11
Subjects of Science Teachers' Degrees

	Percent of Teachers					
	Elementary		Middle		High	
Education, including Science Education	80	(1.4)	76	(2.1)	65	(1.4)
Natural Sciences and/or Engineering	4	(0.7)	26	(2.0)	61	(1.6)
Other Subject	39	(2.1)	38	(2.5)	31	(1.3)

Table STQ 12
Science Teachers with Education Degrees

	Percent of Teachers†					
	Elementary		Middle		High	
Elementary Education	74	(1.5)	42	(2.6)	2	(0.5)
Mathematics Education	2	(0.5)	5	(1.1)	4	(0.8)
Science Education	2	(0.5)	27	(1.9)	48	(1.4)
Other Education	19	(1.6)	24	(2.2)	21	(1.1)

† Teachers indicating in Q11 that they do not have an education degree are treated as not having a degree in these areas.

Table STQ 13
Science Teachers with Natural Science and/or Engineering Degrees

	Percent of Teachers†					
	Elementary		Middle		High	
Biology/Life Science	1	(0.4)	15	(1.4)	37	(1.5)
Chemistry	0	(0.1)	3	(0.8)	12	(0.9)
Earth/Space Science	0	(0.0)	4	(0.9)	4	(0.5)
Engineering	0	(0.2)	1	(0.3)	5	(0.6)
Environmental Science/Ecology	0	(0.2)	3	(0.6)	3	(0.5)
Physics	0	(0.2)	1	(0.2)	6	(0.8)
Other natural science	1	(0.3)	5	(0.9)	7	(0.8)

† Teachers indicating in Q11 that they do not have a natural science and/or engineering degree are treated as not having a degree in these areas.

Table STQ 14
Biology/Life Science College Courses Completed by Science Teachers

	Percent of Teachers					
	Elementary		Middle		High	
General/introductory biology/life science courses (e.g., Biology I, Introduction to Biology)	90	(1.1)	96	(0.9)	91	(0.9)
Biology/life science courses beyond the general/introductory level	34	(1.7)	65	(2.6)	79	(1.2)
Biology/life science education courses	52	(1.7)	58	(2.8)	52	(1.5)

Table STQ 15
Advanced Biology/Life Science College Courses Completed by Science Teachers

	Percent of Teachers†					
	Elementary		Middle		High	
Anatomy/Physiology	11	(1.1)	36	(2.1)	54	(1.5)
Biochemistry	3	(0.7)	16	(1.5)	43	(1.5)
Botany	5	(0.8)	26	(2.0)	44	(1.4)
Cell Biology	4	(0.8)	28	(2.0)	48	(1.5)
Ecology	6	(0.9)	33	(2.1)	50	(1.5)
Evolution	3	(0.7)	14	(1.5)	27	(1.2)
Genetics	3	(0.6)	24	(1.9)	54	(1.2)
Microbiology	6	(0.9)	23	(1.7)	48	(1.4)
Zoology	4	(0.7)	25	(1.8)	40	(1.4)
Other biology/life science beyond the general/introductory level	19	(1.6)	35	(2.4)	47	(1.5)

† Teachers indicating in Q14 that they have not taken biology/life science courses beyond the general/introductory level are treated as not having taken any of these courses.

Table STQ 16
Chemistry College Courses Completed by Science Teachers

	Percent of Teachers					
	Elementary		Middle		High	
General/introductory chemistry courses (e.g., Chemistry I, Introduction to Chemistry)	47	(1.8)	72	(2.3)	93	(1.1)
Chemistry courses beyond the general/introductory level	8	(1.0)	35	(2.3)	74	(1.3)
Chemistry education courses	9	(1.0)	15	(1.3)	21	(1.1)

Table STQ 17
Advanced Chemistry College Courses Completed by Science Teachers

	Percent of Teachers†					
	Elementary		Middle		High	
Analytical Chemistry	1	(0.2)	7	(1.3)	29	(1.5)
Biochemistry	2	(0.6)	14	(1.4)	40	(1.4)
Inorganic Chemistry	2	(0.5)	17	(1.7)	46	(1.7)
Organic Chemistry	4	(0.8)	25	(2.0)	64	(1.5)
Physical Chemistry	2	(0.5)	11	(1.1)	26	(1.4)
Quantum Chemistry	0	(0.1)	2	(0.6)	8	(0.8)
Other chemistry beyond the general/introductory level	1	(0.5)	8	(1.0)	19	(0.9)

† Teachers indicating in Q16 that they have not taken chemistry courses beyond the general/introductory level are treated as not having taken any of these courses.

Table STQ 18
Physics College Courses Completed by Science Teachers

	Percent of Teachers					
	Elementary		Middle		High	
General/introductory physics courses (e.g., Physics I, Introduction to Physics)	32	(1.7)	61	(2.3)	86	(1.1)
Physics courses beyond the general/introductory level	2	(0.6)	15	(1.5)	36	(1.6)
Physics education courses	9	(0.9)	14	(1.1)	17	(1.0)

Table STQ 19
Advanced Physics College Courses Completed by Science Teachers

	Percent of Teachers†					
	Elementary		Middle		High	
Electricity and Magnetism	1	(0.4)	8	(1.2)	21	(1.1)
Heat and Thermodynamics	1	(0.3)	6	(0.8)	21	(1.1)
Mechanics	1	(0.3)	6	(1.1)	22	(1.1)
Modern or Quantum Physics	0	(0.2)	3	(0.5)	16	(1.0)
Nuclear Physics	0	(0.2)	1	(0.3)	9	(0.8)
Optics	0	(0.2)	3	(0.5)	13	(1.1)
Other physics beyond the general/introductory level	1	(0.4)	8	(1.2)	20	(1.4)

† Teachers indicating in Q18 that they have not taken physics courses beyond the general/introductory level are treated as not having taken any of these courses.

Table STQ 20
Earth/Space Science College Courses Completed by Science Teachers

	Percent of Teachers					
	Elementary		Middle		High	
General/introductory Earth/space science courses (e.g., Earth Science I, Introduction to Earth Science)	65	(2.0)	75	(2.3)	61	(1.7)
Earth/space science courses beyond the general/introductory level	11	(1.2)	28	(1.8)	30	(1.4)
Earth/space science education courses	23	(1.4)	27	(1.8)	14	(1.0)

Table STQ 21
Advanced Earth/Space Science College Courses Completed by Science Teachers

	Percent of Teachers†					
	Elementary		Middle		High	
Astronomy	4	(0.8)	16	(1.3)	17	(1.1)
Geology	7	(0.9)	22	(1.6)	23	(1.2)
Meteorology	1	(0.5)	9	(1.0)	11	(1.0)
Oceanography	2	(0.4)	10	(1.4)	10	(0.9)
Physical Geography	6	(0.9)	14	(1.2)	11	(0.9)
Other Earth/space science beyond the general/introductory level	3	(0.7)	10	(1.0)	13	(1.0)

† Teachers indicating in Q20 that they have not taken Earth/space science courses beyond the general/introductory level are treated as not having taken any of these courses.

Table STQ 22
Environmental Science College Courses Completed by Science Teachers

	Percent of Teachers					
	Elementary		Middle		High	
General/introductory environmental science courses (e.g., Environmental Science I, Introduction to Environmental Science)	33	(1.8)	57	(2.5)	56	(1.1)
Environmental science courses beyond the general/introductory level	4	(0.8)	23	(1.7)	27	(1.3)
Environmental science education courses	12	(1.2)	20	(1.9)	13	(0.9)

Table STQ 23
Advanced Environmental Science College Courses Completed by Science Teachers

	Percent of Teachers†					
	Elementary		Middle		High	
Conservation Biology	1	(0.3)	8	(1.1)	10	(1.0)
Ecology	2	(0.5)	17	(1.6)	21	(1.3)
Forestry	0	(0.2)	3	(0.6)	5	(0.6)
Hydrology	0	(0.2)	4	(0.8)	5	(0.6)
Oceanography	1	(0.4)	6	(0.8)	9	(0.9)
Toxicology	0	(0.1)	2	(0.4)	3	(0.5)
Other environmental science beyond the general/introductory level	2	(0.5)	10	(1.1)	13	(0.9)

† Teachers indicating in Q22 that they have not taken environmental science courses beyond the general/introductory level are treated as not having taken any of these courses.

Table STQ 24
Science Teachers Having Completed One or More Engineering College Courses

	Percent of Teachers	
Elementary	1	(0.4)
Middle	7	(1.1)
High	14	(1.0)

Table 25
Engineering College Courses Completed by Science Teachers

	Percent of Teachers[†]		
	Elementary	Middle	High
Aerospace Engineering	0 (0.1)	0 (0.2)	1 (0.3)
Bioengineering/Biomedical Engineering	0 ---[‡]	1 (0.2)	1 (0.2)
Chemical Engineering	0 (0.1)	1 (0.5)	3 (0.4)
Civil Engineering	0 (0.0)	1 (0.4)	2 (0.4)
Computer Engineering	0 (0.2)	1 (0.3)	3 (0.6)
Electrical Engineering	1 (0.3)	2 (0.6)	4 (0.6)
Industrial/Manufacturing Engineering	0 (0.2)	1 (0.2)	1 (0.3)
Mechanical Engineering	0 (0.1)	1 (0.4)	5 (0.6)
Other types of engineering courses	0 ---[‡]	3 (0.6)	4 (0.4)

[†] Teachers indicating in Q24 that they have not taken any engineering courses are treated as not having taken any of these courses.

[‡] No teachers in the sample selected this response option. Thus, it is not possible to calculate the standard error of this estimate.

Table STQ 26
College Courses[†] Completed by Science Teachers

	Percent of Teachers		
	Elementary	Middle	High
Interdisciplinary science (a single course that addresses content across multiple science subjects, such as biology, chemistry, physics and/or Earth science)	69 (1.9)	65 (2.8)	49 (1.7)
Biology/Life science	90 (1.1)	96 (0.9)	91 (0.9)
Chemistry	47 (1.8)	72 (2.3)	93 (1.1)
Physics	32 (1.7)	61 (2.3)	86 (1.1)
Earth/Space science	65 (2.0)	75 (2.3)	61 (1.7)
Environmental science	33 (1.8)	57 (2.5)	56 (1.1)
Engineering	1 (0.4)	7 (1.1)	14 (1.0)
Mathematics	94 (0.9)	94 (1.0)	93 (1.2)

[†] A number of respondents to Q26 appear to have provided contact hours/credits rather than number of courses. Thus, it is not possible to report the number of courses taken with confidence and the percentage of teachers taking at least one course in each area is presented instead.

Table STQ 27
Science College Courses[†] Completed by Science Teachers at Various Institutions

	Percent of Courses		
	Elementary	Middle	High
Two-year college, community college, and/or technical school	18 (1.5)	14 (1.3)	8 (0.9)
Four-year college and/or university	82 (1.5)	86 (1.3)	92 (0.9)

[†] A number of respondents to Q27 appear to have provided contact hours/credits rather than number of courses. Thus, it is not possible to report the number of courses taken at various institutions with confidence. However, assuming respondents entered the same type of data for both two-year and four-year institutions, it is possible to calculate the percentage of courses taken at each.

Table STQ 28
Science Teachers' Paths to Certification

	Percent of Teachers					
	Elementary		Middle		High	
An undergraduate program leading to a bachelor's degree and a teaching credential	61	(2.6)	47	(3.6)	34	(2.0)
A post-baccalaureate credentialing program (no master's degree awarded)	13	(1.8)	23	(2.5)	30	(1.9)
A master's program that also awarded a teaching credential	25	(2.3)	26	(3.1)	28	(1.8)
You did not have any formal teacher preparation	1	(0.5)	4	(1.5)	8	(1.3)

Table STQ 29
Science Teachers' Most Recent Participation in Science-Focused† Professional Development

	Percent of Teachers					
	Elementary		Middle		High	
In the last 3 years	59	(2.0)	82	(2.3)	85	(1.3)
4–6 years ago	16	(1.4)	6	(1.2)	7	(0.7)
7–10 years ago	5	(0.8)	3	(1.0)	2	(0.3)
More than 10 years ago	5	(0.8)	4	(1.3)	1	(0.4)
Never	15	(1.4)	6	(1.4)	5	(1.0)

† Includes professional development focused on science or science teaching.

Table STQ 30
Science Teachers Participating in Various Professional Development Activities in the Last Three Years

	Percent of Teachers†					
	Elementary		Middle		High	
Attended a workshop on science or science teaching	84	(1.8)	91	(1.7)	90	(1.2)
Attended a national, state, or regional science teacher association meeting	8	(1.2)	35	(2.8)	44	(1.7)
Participated in a professional learning community/lesson study/ teacher study group focused on science or science teaching	55	(2.4)	75	(2.5)	73	(1.6)

† Only teachers indicating in Q29 that they participated in professional development in the last three years are included in this analysis.

Table STQ 31
Time Spent by Science Teachers on Science-Focused† Professional Development in the Last Three Years

	Percent of Teachers‡					
	Elementary		Middle		High	
None‡	41	(2.0)	18	(2.3)	15	(1.4)
Less than 6 hours	24	(1.4)	12	(2.0)	8	(1.2)
6–15 hours	22	(1.7)	24	(1.8)	20	(1.1)
16–35 hours	8	(0.9)	20	(2.0)	21	(1.4)
More than 35 hours	4	(0.7)	27	(2.0)	36	(1.1)

† Includes professional development focused on science or science teaching.

Table STQ 32.1
Elementary School Science Teachers' Description of Science-Focused[†] Professional Development in the Last Three Years

	Percent of Teachers[‡]				
	Not at All		Somewhat		To a Great Extent
	1	2	3	4	5
You had opportunities to engage in science investigations	15 (2.5)	7 (1.6)	30 (3.2)	23 (2.8)	25 (2.7)
You had opportunities to examine classroom artifacts (e.g., student work samples)	20 (3.1)	15 (2.6)	34 (3.3)	17 (2.7)	15 (2.5)
You had opportunities to try out what you learned in your classroom and then talk about it as part of the professional development	24 (3.1)	16 (2.0)	26 (3.1)	16 (2.6)	18 (2.7)
You worked closely with other science teachers from your school	21 (2.8)	18 (2.4)	26 (2.8)	15 (2.6)	20 (2.6)
You worked closely with other science teachers who taught the same grade and/or subject whether or not they were from your school	25 (3.0)	14 (2.7)	24 (2.4)	17 (2.7)	20 (2.5)
The professional development was a waste of your time	58 (3.5)	21 (2.7)	14 (2.6)	5 (1.6)	3 (1.3)

[†] Includes professional development focused on science or science teaching.

[‡] Only elementary school teachers indicating in Q29 that they participated in professional development in the last three years are included in this analysis.

Table STQ 32.2
Middle School Science Teachers' Description of Science-Focused[†] Professional Development in the Last Three Years

	Percent of Teachers[‡]				
	Not at All		Somewhat		To a Great Extent
	1	2	3	4	5
You had opportunities to engage in science investigations	8 (1.3)	7 (1.7)	33 (3.2)	25 (3.4)	27 (3.2)
You had opportunities to examine classroom artifacts (e.g., student work samples)	14 (2.1)	14 (1.9)	32 (3.6)	23 (3.4)	17 (3.4)
You had opportunities to try out what you learned in your classroom and then talk about it as part of the professional development	14 (3.0)	11 (1.7)	24 (3.9)	29 (3.6)	22 (3.3)
You worked closely with other science teachers from your school	8 (3.0)	6 (1.9)	24 (3.3)	24 (2.6)	37 (2.9)
You worked closely with other science teachers who taught the same grade and/or subject whether or not they were from your school	9 (2.3)	12 (2.3)	26 (3.1)	23 (2.8)	31 (3.2)
The professional development was a waste of your time	60 (3.0)	22 (2.7)	13 (2.0)	4 (1.0)	1 (0.5)

[†] Includes professional development focused on science or science teaching.
[‡] Only middle school teachers indicating in Q29 that they participated in professional development in the last three years are included in this analysis.

Table STQ 32.3
High School Science Teachers' Description of Science-Focused[†] Professional Development in the Last Three Years

	Percent of Teachers[‡]				
	Not at All		Somewhat		To a Great Extent
	1	2	3	4	5
You had opportunities to engage in science investigations	16 (2.1)	12 (1.3)	28 (2.3)	25 (2.7)	19 (1.9)
You had opportunities to examine classroom artifacts (e.g., student work samples)	15 (1.7)	18 (1.9)	34 (2.2)	20 (1.9)	13 (1.6)
You had opportunities to try out what you learned in your classroom and then talk about it as part of the professional development	11 (1.8)	15 (2.1)	27 (2.2)	28 (2.1)	19 (1.6)
You worked closely with other science teachers from your school	10 (1.8)	8 (1.5)	20 (1.8)	25 (2.1)	37 (2.6)
You worked closely with other science teachers who taught the same grade and/or subject whether or not they were from your school	9 (1.9)	11 (1.7)	22 (2.1)	32 (2.5)	26 (1.9)
The professional development was a waste of your time	52 (2.3)	23 (2.1)	17 (1.8)	4 (0.8)	3 (0.8)

[†] Includes professional development focused on science or science teaching.
[‡] Only high school teachers indicating in Q29 that they participated in professional development in the last three years are included in this analysis.

Table STQ 33.1
Elementary School Science Teachers' Most Recent Participation in a Formal Course for College Credit in Various Areas

	Percent of Teachers				
	In the last 3 years	4–6 years ago	7–10 years ago	More than 10 years ago	Never
Science	8 (0.9)	17 (1.6)	17 (1.4)	57 (2.0)	1 (0.3)
How to teach science	11 (1.1)	15 (1.5)	14 (1.4)	49 (1.9)	11 (1.1)
Student teaching in science	7 (0.8)	11 (1.3)	10 (1.2)	42 (1.9)	30 (1.6)
Student teaching in other subjects	11 (1.1)	15 (1.5)	13 (1.3)	53 (1.9)	8 (0.9)

Table STQ 33.2
Middle School Science Teachers' Most Recent Participation in a Formal Course for College Credit in Various Areas

	Percent of Teachers				
	In the last 3 years	4–6 years ago	7–10 years ago	More than 10 years ago	Never
Science	22 (2.4)	14 (1.4)	19 (2.1)	44 (2.7)	1 (0.5)
How to teach science	21 (2.1)	14 (1.3)	16 (1.8)	38 (2.6)	11 (1.7)
Student teaching in science	10 (1.4)	8 (1.3)	12 (1.6)	42 (2.7)	27 (2.3)
Student teaching in other subjects	10 (1.7)	10 (1.4)	11 (1.5)	49 (2.7)	21 (1.8)

Table STQ 33.3
High School Science Teachers' Most Recent Participation in a Formal Course for College Credit in Various Areas

	Percent of Teachers				
	In the last 3 years	4–6 years ago	7–10 years ago	More than 10 years ago	Never
Science	24 (1.2)	19 (1.1)	18 (1.2)	38 (1.2)	1 (0.5)
How to teach science	25 (1.4)	16 (1.1)	14 (1.1)	29 (1.2)	16 (1.4)
Student teaching in science	10 (1.2)	10 (0.8)	12 (0.9)	41 (1.2)	28 (1.5)
Student teaching in other subjects	6 (0.8)	5 (0.8)	6 (0.7)	29 (1.3)	55 (1.5)

Table STQ 34.1
Elementary School Science Teachers' Perceptions of Topics Emphasized During Professional Development/Coursework in the Last Three Years

	Percent of Teachers[†]				
	Not at All		Somewhat		To a Great Extent
	1	2	3	4	5
Deepening your own science content knowledge	9 (1.7)	11 (2.0)	43 (3.0)	26 (2.5)	11 (2.0)
Learning how to use hands-on activities/manipulatives for science instruction	19 (2.4)	15 (2.2)	35 (3.1)	25 (2.4)	6 (1.3)
Finding out what students think or already know about the key science ideas prior to instruction on those ideas	12 (2.2)	12 (2.0)	35 (2.9)	29 (2.9)	12 (2.1)
Implementing the science textbook/ module to be used in your classroom	21 (2.3)	14 (2.3)	25 (3.3)	22 (2.7)	18 (2.4)
Planning instruction so students at different levels of achievement can increase their understanding of the ideas targeted in each activity	9 (2.0)	14 (2.5)	29 (2.6)	31 (3.0)	16 (2.1)
Monitoring student understanding during science instruction	9 (1.8)	13 (2.1)	33 (2.7)	29 (2.5)	16 (2.5)
Providing enrichment experiences for gifted students	21 (2.4)	19 (2.4)	28 (2.4)	22 (2.4)	10 (1.8)
Providing alternative science learning experiences for students with special needs	28 (2.8)	21 (2.5)	29 (2.7)	17 (2.4)	5 (1.3)
Teaching science to English-language learners	38 (2.8)	20 (2.2)	22 (2.5)	12 (2.0)	9 (1.6)
Assessing student understanding at the conclusion of instruction on a topic	8 (1.8)	12 (1.8)	33 (2.7)	31 (2.5)	16 (2.6)

[†] Only elementary school teachers indicating in Q29 that they participated in professional development or indicating in Q33 that they took a college course in "Science" or "How to teach science" in the last three years are included in this analysis.

Table STQ 34.2
Middle School Science Teachers' Perceptions of Topics Emphasized During Professional Development/Coursework in the Last Three Years

	Percent of Teachers[†]									
	Not at All			Somewhat				To a Great Extent		
	1		2		3		4		5	
Deepening your own science content knowledge	6	(1.7)	14	(3.2)	29	(3.9)	32	(4.1)	19	(2.5)
Learning how to use hands-on activities/manipulatives for science instruction	7	(2.0)	18	(3.7)	32	(3.3)	29	(2.8)	14	(1.8)
Finding out what students think or already know about the key science ideas prior to instruction on those ideas	4	(0.9)	12	(2.7)	38	(3.8)	31	(3.2)	15	(2.3)
Implementing the science textbook/ module to be used in your classroom	17	(2.6)	23	(3.2)	30	(3.4)	17	(2.1)	14	(2.4)
Planning instruction so students at different levels of achievement can increase their understanding of the ideas targeted in each activity	2	(0.7)	6	(1.8)	29	(3.6)	38	(3.9)	25	(3.0)
Monitoring student understanding during science instruction	5	(1.4)	14	(3.3)	27	(2.6)	33	(3.1)	21	(2.5)
Providing enrichment experiences for gifted students	15	(3.3)	26	(3.7)	29	(3.9)	20	(2.7)	10	(1.2)
Providing alternative science learning experiences for students with special needs	15	(2.5)	27	(3.9)	31	(3.8)	16	(1.9)	9	(1.7)
Teaching science to English-language learners	44	(3.9)	20	(2.6)	19	(3.2)	12	(2.0)	6	(1.3)
Assessing student understanding at the conclusion of instruction on a topic	3	(1.1)	13	(3.1)	29	(3.6)	37	(3.2)	17	(2.2)

[†] Only middle school teachers indicating in Q29 that they participated in professional development or indicating in Q33 that they took a college course in "Science" or "How to teach science" in the last three years are included in this analysis.

Table STQ 34.3
High School Science Teachers' Perceptions of Topics Emphasized During Professional Development/Coursework in the Last Three Years

	Percent of Teachers[†]				
	Not at All		Somewhat		To a Great Extent
	1	2	3	4	5
Deepening your own science content knowledge	11 (1.5)	12 (1.4)	29 (2.0)	24 (1.7)	24 (1.8)
Learning how to use hands-on activities/manipulatives for science instruction	7 (2.0)	13 (1.5)	31 (2.2)	32 (2.2)	18 (1.9)
Finding out what students think or already know about the key science ideas prior to instruction on those ideas	9 (2.0)	15 (1.5)	33 (2.1)	29 (2.0)	15 (1.7)
Implementing the science textbook/module to be used in your classroom	24 (1.7)	20 (1.6)	27 (1.8)	17 (1.6)	12 (1.4)
Planning instruction so students at different levels of achievement can increase their understanding of the ideas targeted in each activity	5 (1.1)	11 (1.8)	29 (1.5)	32 (1.9)	24 (1.9)
Monitoring student understanding during science instruction	9 (2.0)	11 (1.3)	26 (1.8)	33 (2.4)	22 (1.9)
Providing enrichment experiences for gifted students	21 (2.3)	18 (1.8)	29 (2.1)	22 (2.0)	11 (1.3)
Providing alternative science learning experiences for students with special needs	23 (2.2)	22 (1.7)	27 (2.0)	20 (1.9)	9 (1.2)
Teaching science to English-language learners	43 (2.5)	23 (1.9)	16 (1.7)	11 (1.5)	7 (1.0)
Assessing student understanding at the conclusion of instruction on a topic	7 (1.1)	7 (0.9)	29 (1.8)	32 (1.8)	26 (2.1)

[†] Only high school teachers indicating in Q29 that they participated in professional development or indicating in Q33 that they took a college course in "Science" or "How to teach science" in the last three years are included in this analysis.

Table STQ 35
Science Teachers Participating in Various Professional Activities in the Last Three Years

	Percent of Teachers		
	Elementary	Middle	High
Received feedback about your science teaching from a mentor/coach formally assigned by the school or district/diocese	24 (2.5)	47 (3.5)	54 (2.4)
Served as a formally assigned mentor/coach for science teaching, not including supervision of student teachers	5 (1.0)	17 (2.2)	24 (2.2)
Supervised a student teacher in your classroom	38 (2.5)	24 (2.5)	23 (1.7)
Taught in-service workshops on science or science teaching	3 (0.9)	15 (2.1)	17 (1.9)
Led a professional learning community/lesson study/teacher study group focused on science or science teaching	4 (1.0)	19 (2.5)	26 (2.1)

Table STQ 36
Elementary School Science Teachers' Perceptions of their Preparedness to Teach Various Subjects

	Percent of Teachers							
	Not Adequately Prepared		Somewhat Prepared		Fairly Well Prepared		Very Well Prepared	
Life Science	4	(0.6)	21	(1.6)	46	(1.9)	29	(1.6)
Earth Science	4	(0.6)	25	(1.8)	45	(1.8)	26	(1.5)
Physical Science	8	(1.1)	32	(2.1)	42	(1.9)	17	(1.2)
Engineering	73	(1.7)	18	(1.6)	5	(0.8)	3	(0.6)
Mathematics	1	(0.4)	3	(0.6)	20	(1.5)	76	(1.6)
Reading/Language Arts	1	(0.4)	1	(0.4)	16	(1.2)	82	(1.3)
Social Studies	2	(0.5)	13	(1.2)	41	(1.9)	44	(1.8)

There is no elementary school table for STQ 37.1.

Table STQ 37.2
Middle School Science Teachers'
Perceptions of their Preparedness to Teach Various Subjects

	Percent of Teachers[†]			
	Not Adequately Prepared	Somewhat Prepared	Fairly Well Prepared	Very Well Prepared
Earth/Space Science				
Earth's features and physical processes	2 (0.4)	9 (1.7)	38 (2.6)	51 (2.9)
The solar system and the universe	6 (0.9)	19 (2.6)	39 (3.0)	36 (2.6)
Climate and weather	6 (1.1)	16 (2.5)	36 (2.6)	42 (3.0)
Biology/Life Science				
Cell biology	7 (1.8)	13 (1.8)	31 (2.8)	49 (2.6)
Structures and functions of organisms	5 (1.4)	11 (2.0)	32 (2.5)	52 (3.1)
Ecology/ecosystems	3 (1.3)	16 (2.0)	33 (2.6)	48 (2.6)
Genetics	8 (1.5)	20 (2.6)	31 (2.2)	41 (2.5)
Evolution	13 (2.2)	23 (2.2)	32 (2.4)	33 (2.5)
Chemistry				
Atomic structure	10 (1.9)	17 (2.4)	29 (2.2)	45 (2.4)
Chemical bonding, equations, nomenclature, and reactions	18 (2.4)	23 (2.3)	28 (2.6)	31 (2.0)
Elements, compounds, and mixtures	6 (1.1)	16 (2.8)	26 (2.5)	53 (2.6)
The Periodic Table	5 (0.9)	16 (2.4)	30 (2.5)	49 (2.3)
Properties of solutions	7 (1.3)	23 (2.4)	36 (2.6)	33 (2.3)
States, classes, and properties of matter	3 (0.6)	8 (1.4)	32 (2.5)	58 (2.5)
Physics				
Forces and motion	3 (0.6)	20 (2.7)	34 (2.7)	42 (2.7)
Energy transfers, transformations, and conservation	6 (1.4)	21 (2.5)	36 (2.5)	37 (2.6)
Properties and behaviors of waves	9 (1.3)	32 (2.6)	37 (2.8)	23 (2.5)
Electricity and magnetism	9 (1.4)	35 (2.7)	33 (2.6)	23 (2.5)
Modern physics (e.g., special relativity)	37 (2.8)	39 (3.0)	19 (1.7)	5 (1.3)
Engineering (e.g., nature of engineering and technology, design processes, analyzing and improving technological systems, interactions between technology and society)	46 (2.5)	34 (2.5)	14 (1.6)	5 (0.8)
Environmental and resource issues (e.g., land and water use, energy resources and consumption, sources and impacts of pollution)	5 (1.4)	28 (3.4)	33 (3.0)	35 (3.0)

[†] Teachers were shown only those topics related to their randomly selected class, with the exception of engineering which was presented to all teachers.

Table STQ 37.3
High School Science Teachers' Perceptions of their Preparedness to Teach Various Subjects

	Percent of Teachers[†]			
	Not Adequately Prepared	Somewhat Prepared	Fairly Well Prepared	Very Well Prepared
Earth/Space Science				
Earth's features and physical processes	12 (2.9)	18 (2.3)	24 (2.7)	47 (3.1)
The solar system and the universe	13 (2.2)	20 (2.8)	26 (2.9)	41 (3.2)
Climate and weather	13 (3.0)	18 (2.7)	29 (3.3)	39 (3.8)
Biology/Life Science				
Cell biology	5 (1.2)	7 (1.3)	20 (1.9)	68 (2.2)
Structures and functions of organisms	5 (1.3)	6 (1.9)	25 (2.4)	64 (2.5)
Ecology/ecosystems	4 (1.2)	11 (1.5)	29 (2.1)	56 (2.4)
Genetics	5 (1.2)	6 (1.2)	26 (2.2)	63 (2.5)
Evolution	6 (1.1)	11 (1.5)	31 (2.3)	52 (2.5)
Chemistry				
Atomic structure	0 (0.3)	4 (1.9)	15 (2.0)	80 (2.3)
Chemical bonding, equations, nomenclature, and reactions	0 (0.3)	7 (1.9)	16 (1.9)	77 (2.5)
Elements, compounds, and mixtures	0 (0.3)	4 (1.9)	12 (1.7)	83 (2.2)
The Periodic Table	1 (0.4)	3 (1.9)	14 (1.7)	82 (2.2)
Properties of solutions	1 (0.5)	9 (2.1)	24 (2.1)	66 (2.5)
States, classes, and properties of matter	1 (0.4)	4 (2.0)	15 (1.7)	80 (2.4)
Physics				
Forces and motion	2 (0.8)	6 (1.8)	21 (2.6)	71 (3.0)
Energy transfers, transformations, and conservation	2 (0.8)	8 (2.2)	27 (3.4)	62 (3.3)
Properties and behaviors of waves	4 (1.0)	11 (2.1)	34 (3.4)	51 (3.1)
Electricity and magnetism	8 (1.7)	14 (2.3)	35 (3.3)	43 (2.8)
Modern physics (e.g., special relativity)	23 (2.9)	27 (3.1)	31 (3.1)	19 (2.1)
Engineering (e.g., nature of engineering and technology, design processes, analyzing and improving technological systems, interactions between technology and society)	46 (1.6)	33 (1.6)	13 (1.1)	8 (0.8)
Environmental and resource issues (e.g., land and water use, energy resources and consumption, sources and impacts of pollution)	6 (1.4)	23 (3.6)	34 (3.7)	37 (3.8)

[†] Teachers were shown only those topics related to their randomly selected class, with the exception of engineering which was presented to all teachers.

Table STQ 38.1
Elementary School Science Teachers'
Perceptions of their Preparedness for Each of a Number of Tasks

	Percent of Teachers			
	Not Adequately Prepared	Somewhat Prepared	Fairly Well Prepared	Very Well Prepared
Plan instruction so students at different levels of achievement can increase their understanding of the ideas targeted in each activity	7 (1.4)	25 (2.3)	40 (2.4)	28 (2.4)
Teach science to students who have learning disabilities	17 (2.0)	30 (2.3)	38 (2.6)	15 (2.0)
Teach science to students who have physical disabilities	25 (2.2)	33 (2.1)	30 (2.5)	13 (1.9)
Teach science to English-language learners	24 (2.4)	26 (2.2)	35 (2.5)	15 (1.9)
Provide enrichment experiences for gifted students	11 (1.8)	31 (2.5)	37 (2.5)	21 (2.3)
Encourage students' interest in science and/or engineering	8 (1.3)	25 (2.2)	42 (2.4)	25 (2.1)
Encourage participation of females in science and/or engineering	10 (1.5)	20 (1.9)	40 (2.3)	30 (2.3)
Encourage participation of racial or ethnic minorities in science and/or engineering	11 (1.7)	21 (1.9)	38 (2.5)	30 (2.2)
Encourage participation of students from low socioeconomic backgrounds in science and/or engineering	8 (1.3)	21 (2.0)	40 (2.2)	31 (2.2)
Manage classroom discipline	0 (0.3)	3 (1.2)	25 (2.3)	72 (2.3)

Table STQ 38.2
Middle School Science Teachers'
Perceptions of their Preparedness for Each of a Number of Tasks

	Percent of Teachers			
	Not Adequately Prepared	Somewhat Prepared	Fairly Well Prepared	Very Well Prepared
Plan instruction so students at different levels of achievement can increase their understanding of the ideas targeted in each activity	2 (0.4)	18 (3.0)	51 (3.5)	29 (3.0)
Teach science to students who have learning disabilities	6 (1.5)	30 (3.2)	41 (3.3)	23 (2.9)
Teach science to students who have physical disabilities	12 (2.2)	33 (3.6)	38 (3.3)	17 (2.7)
Teach science to English-language learners	23 (3.1)	39 (3.4)	25 (2.7)	13 (2.4)
Provide enrichment experiences for gifted students	8 (2.0)	28 (4.1)	41 (3.9)	23 (2.9)
Encourage students' interest in science and/or engineering	2 (0.7)	13 (3.0)	47 (4.0)	39 (3.3)
Encourage participation of females in science and/or engineering	2 (0.7)	11 (2.1)	41 (3.4)	46 (3.6)
Encourage participation of racial or ethnic minorities in science and/or engineering	3 (1.0)	21 (2.7)	40 (3.3)	36 (3.5)
Encourage participation of students from low socioeconomic backgrounds in science and/or engineering	2 (0.6)	13 (1.8)	49 (3.9)	36 (3.8)
Manage classroom discipline	1 (0.3)	5 (1.7)	34 (3.3)	60 (3.6)

Table STQ 38.3
High School Science Teachers'
Perceptions of their Preparedness for Each of a Number of Tasks

	Percent of Teachers							
	Not Adequately Prepared		Somewhat Prepared		Fairly Well Prepared		Very Well Prepared	
Plan instruction so students at different levels of achievement can increase their understanding of the ideas targeted in each activity	1	(0.2)	18	(2.1)	44	(2.1)	38	(1.9)
Teach science to students who have learning disabilities	8	(1.5)	34	(2.5)	37	(2.3)	21	(1.8)
Teach science to students who have physical disabilities	12	(1.3)	31	(2.2)	37	(2.0)	21	(1.8)
Teach science to English-language learners	27	(2.0)	32	(1.9)	27	(1.9)	14	(1.3)
Provide enrichment experiences for gifted students	9	(1.8)	20	(1.7)	37	(2.2)	33	(2.0)
Encourage students' interest in science and/or engineering	1	(0.4)	11	(2.0)	35	(2.1)	53	(2.2)
Encourage participation of females in science and/or engineering	3	(0.6)	10	(1.9)	32	(1.9)	55	(2.2)
Encourage participation of racial or ethnic minorities in science and/or engineering	3	(0.6)	15	(2.1)	38	(2.0)	44	(2.0)
Encourage participation of students from low socioeconomic backgrounds in science and/or engineering	3	(0.7)	15	(2.0)	38	(2.0)	44	(2.1)
Manage classroom discipline	2	(0.9)	5	(0.9)	34	(2.1)	59	(2.3)

Table STQ 39.1
Elementary School Science Teachers' Opinions about Teaching and Learning

	Percent of Teachers									
	Strongly Disagree		Disagree		No Opinion		Agree		Strongly Agree	
Students learn science best in classes with students of similar abilities	6	(0.9)	48	(2.0)	14	(1.2)	27	(1.4)	5	(0.8)
Inadequacies in students' science background can be overcome by effective teaching	1	(0.5)	4	(0.7)	6	(0.8)	67	(1.7)	22	(1.4)
It is better for science instruction to focus on ideas in depth, even if that means covering fewer topics	1	(0.4)	14	(1.3)	14	(1.3)	51	(1.7)	21	(1.4)
Students should be provided with the purpose for a lesson as it begins	1	(0.4)	3	(0.6)	4	(0.6)	45	(1.9)	48	(1.8)
At the beginning of instruction on a science idea, students should be provided with definitions for new scientific vocabulary that will be used	1	(0.4)	8	(1.0)	5	(0.8)	48	(1.9)	38	(1.8)
Teachers should explain an idea to students before having them consider evidence that relates to the idea	3	(0.6)	37	(1.8)	15	(1.5)	31	(1.9)	14	(1.2)
Most class periods should include some review of previously covered ideas and skills	1	(0.4)	2	(0.6)	5	(0.9)	57	(1.7)	34	(1.6)
Most class periods should provide opportunities for students to share their thinking and reasoning	1	(0.4)	0	(0.2)	1	(0.3)	39	(1.8)	59	(1.8)
Hands-on/laboratory activities should be used primarily to reinforce a science idea that the students have already learned	4	(0.8)	33	(1.8)	9	(1.1)	26	(1.7)	27	(1.7)
Students should be assigned homework most days	7	(0.9)	35	(2.0)	20	(1.3)	29	(2.0)	9	(1.3)
Most class periods should conclude with a summary of the key ideas addressed	1	(0.4)	0	(0.1)	3	(0.6)	49	(2.0)	48	(2.0)

Table STQ 39.2
Middle School Science Teachers' Opinions about Teaching and Learning

	Percent of Teachers									
	Strongly Disagree		Disagree		No Opinion		Agree		Strongly Agree	
Students learn science best in classes with students of similar abilities	2	(1.0)	34	(2.4)	15	(2.0)	39	(2.4)	9	(1.4)
Inadequacies in students' science background can be overcome by effective teaching	0	(0.2)	5	(1.1)	6	(1.3)	72	(2.3)	16	(1.5)
It is better for science instruction to focus on ideas in depth, even if that means covering fewer topics	0	(0.3)	11	(1.6)	12	(1.4)	50	(2.5)	27	(2.0)
Students should be provided with the purpose for a lesson as it begins	0	(0.1)	4	(0.7)	7	(1.3)	47	(2.6)	43	(2.6)
At the beginning of instruction on a science idea, students should be provided with definitions for new scientific vocabulary that will be used	1	(0.2)	11	(1.6)	10	(1.5)	50	(2.4)	28	(2.2)
Teachers should explain an idea to students before having them consider evidence that relates to the idea	3	(0.7)	34	(2.4)	22	(2.4)	30	(2.2)	11	(1.4)
Most class periods should include some review of previously covered ideas and skills	0	(0.2)	4	(1.1)	7	(1.3)	60	(2.3)	29	(2.2)
Most class periods should provide opportunities for students to share their thinking and reasoning	0	(0.1)	1	(0.7)	4	(0.9)	46	(2.3)	48	(2.5)
Hands-on/laboratory activities should be used primarily to reinforce a science idea that the students have already learned	4	(1.1)	26	(2.2)	14	(2.1)	33	(2.7)	24	(2.1)
Students should be assigned homework most days	7	(1.2)	36	(2.1)	24	(2.1)	29	(2.3)	4	(0.8)
Most class periods should conclude with a summary of the key ideas addressed	0	(0.1)	1	(0.7)	6	(0.9)	54	(2.4)	38	(2.5)

Table STQ 39.3
High School Science Teachers' Opinions about Teaching and Learning

	Percent of Teachers									
	Strongly Disagree		Disagree		No Opinion		Agree		Strongly Agree	
Students learn science best in classes with students of similar abilities	1	(0.3)	23	(1.3)	11	(1.1)	46	(1.8)	20	(1.1)
Inadequacies in students' science background can be overcome by effective teaching	0	(0.1)	8	(0.8)	8	(0.8)	66	(1.2)	18	(1.1)
It is better for science instruction to focus on ideas in depth, even if that means covering fewer topics	1	(0.3)	14	(0.8)	13	(0.9)	47	(1.5)	26	(1.5)
Students should be provided with the purpose for a lesson as it begins	1	(0.2)	3	(0.4)	8	(1.0)	50	(1.5)	38	(1.5)
At the beginning of instruction on a science idea, students should be provided with definitions for new scientific vocabulary that will be used	1	(0.2)	15	(1.2)	14	(0.9)	45	(1.8)	25	(1.2)
Teachers should explain an idea to students before having them consider evidence that relates to the idea	4	(0.6)	36	(1.3)	22	(1.3)	31	(1.6)	8	(0.9)
Most class periods should include some review of previously covered ideas and skills	0	(0.1)	5	(0.8)	8	(0.9)	60	(1.6)	26	(1.4)
Most class periods should provide opportunities for students to share their thinking and reasoning	0	(0.1)	1	(0.3)	7	(0.8)	53	(1.7)	39	(1.6)
Hands-on/laboratory activities should be used primarily to reinforce a science idea that the students have already learned	5	(0.7)	27	(1.4)	12	(1.2)	34	(1.6)	21	(1.3)
Students should be assigned homework most days	3	(0.5)	27	(1.2)	22	(1.2)	37	(1.4)	10	(1.0)
Most class periods should conclude with a summary of the key ideas addressed	0	(0.2)	2	(0.4)	10	(1.0)	59	(1.4)	29	(1.4)

Table STQ 40
Average Minutes per Week Science Classes Meet

	Average Number of Minutes†	
Elementary	202.7	(21.1)
Middle	265.5	(16.9)
High	285.8	(5.6)

† Only non-self-contained classes are included in this analysis.

Table STQ 41
Average Number of Students in Science Classes†

	Average Number of Students	
Elementary	21.9	(0.2)
Middle	23.6	(0.4)
High	21.7	(0.3)

Table STQ 42
Race/Ethnicity of Students in Science Classes

	Percent of Students		
	Elementary	Middle	High
American Indian or Alaskan Native	1 (0.2)	1 (0.4)	1 (0.3)
Asian	3 (0.3)	4 (0.7)	6 (0.5)
Black or African American	14 (1.1)	16 (1.1)	13 (0.8)
Hispanic/Latino	20 (1.7)	16 (1.1)	14 (0.9)
Native Hawaiian or Other Pacific Islander	1 (0.3)	1 (0.2)	1 (0.1)
White	57 (1.8)	60 (1.7)	63 (1.2)
Two or more races	5 (0.7)	3 (0.4)	3 (0.3)

Table STQ 43
Prior Science Achievement Level of Students in Science Classes

	Percent of Classes		
	Elementary	Middle	High
Mostly low achievers	10 (1.3)	14 (2.0)	13 (1.1)
Mostly average achievers	37 (1.8)	33 (2.0)	30 (1.3)
Mostly high achievers	9 (1.1)	13 (1.6)	28 (1.3)
A mixture of levels	45 (2.0)	39 (2.3)	29 (1.4)

Table STQ 44.1
Elementary School Science Classes Where Teachers Report Having Control Over Various Curriculum and Instruction Decisions

	Percent of Classes				
	No Control		Moderate Control		Strong Control
	1	2	3	4	5
Determining course goals and objectives	39 (2.8)	15 (1.7)	22 (2.3)	10 (1.5)	14 (2.0)
Selecting textbooks/modules	44 (3.2)	22 (2.2)	21 (2.3)	8 (1.3)	5 (1.1)
Selecting content, topics, and skills to be taught	39 (2.7)	20 (2.6)	19 (2.0)	12 (1.6)	10 (1.8)
Selecting teaching techniques	1 (0.4)	2 (0.6)	16 (1.9)	29 (2.5)	53 (2.5)
Determining the amount of homework to be assigned	2 (1.1)	1 (0.5)	11 (2.0)	22 (1.7)	64 (2.7)
Choosing criteria for grading student performance	5 (1.3)	7 (1.6)	23 (2.7)	22 (1.9)	43 (3.3)

Table STQ 44.2
Middle School Science Classes Where Teachers Report Having Control Over Various Curriculum and Instruction Decisions

	Percent of Classes									
	No Control			Moderate Control					Strong Control	
	1		2		3		4		5	
Determining course goals and objectives	28	(2.8)	16	(2.9)	20	(2.6)	15	(2.4)	21	(3.0)
Selecting textbooks/modules	31	(2.7)	14	(2.2)	29	(3.3)	12	(2.5)	14	(2.7)
Selecting content, topics, and skills to be taught	23	(2.9)	20	(3.2)	20	(2.6)	17	(2.4)	20	(2.9)
Selecting teaching techniques	0	(0.3)	1	(0.4)	8	(2.2)	24	(2.7)	67	(3.6)
Determining the amount of homework to be assigned	0	(0.2)	1	(0.5)	7	(2.1)	16	(2.3)	75	(3.2)
Choosing criteria for grading student performance	2	(0.6)	2	(0.8)	14	(2.3)	24	(2.7)	58	(3.5)

Table STQ 44.3
High School Science Classes Where Teachers Report Having Control Over Various Curriculum and Instruction Decisions

	Percent of Classes									
	No Control			Moderate Control					Strong Control	
	1		2		3		4		5	
Determining course goals and objectives	15	(1.2)	12	(1.2)	22	(1.6)	16	(1.6)	36	(2.3)
Selecting textbooks/modules	25	(2.0)	12	(1.1)	18	(1.6)	13	(1.5)	33	(2.6)
Selecting content, topics, and skills to be taught	13	(1.3)	12	(1.3)	24	(1.8)	16	(1.6)	35	(2.7)
Selecting teaching techniques	0	(0.2)	1	(0.4)	7	(1.1)	19	(1.6)	73	(2.0)
Determining the amount of homework to be assigned	0	(0.3)	0	(0.3)	7	(1.1)	16	(1.4)	76	(1.9)
Choosing criteria for grading student performance	1	(0.4)	2	(0.7)	12	(1.4)	24	(1.5)	61	(2.3)

Table STQ 45.1
Emphasis Given in Elementary School Science Classes to Various Instructional Objectives

	Percent of Classes							
	None		Minimal Emphasis		Moderate Emphasis		Heavy Emphasis	
Memorizing science vocabulary and/or facts	5	(0.8)	42	(2.1)	43	(2.3)	10	(1.3)
Understanding science concepts	1	(0.3)	5	(0.7)	36	(2.1)	59	(2.2)
Learning science process skills (e.g., observing, measuring)	1	(0.3)	10	(1.1)	43	(2.0)	47	(2.1)
Learning about real-life applications of science	1	(0.3)	9	(0.9)	44	(2.2)	46	(2.3)
Increasing students' interest in science	1	(0.3)	4	(0.7)	39	(1.8)	56	(2.0)
Preparing for further study in science	1	(0.4)	16	(1.4)	48	(2.1)	35	(2.0)
Learning test taking skills/strategies	9	(1.3)	29	(1.7)	40	(2.0)	22	(1.6)

Table STQ 45.2
Emphasis Given in Middle School
Science Classes to Various Instructional Objectives

	Percent of Classes			
	None	Minimal Emphasis	Moderate Emphasis	Heavy Emphasis
Memorizing science vocabulary and/or facts	1 (0.5)	30 (1.7)	58 (2.1)	10 (1.2)
Understanding science concepts	0 (0.1)	0 (0.2)	19 (2.1)	80 (2.1)
Learning science process skills (e.g., observing, measuring)	0 (0.2)	6 (0.9)	40 (2.3)	54 (2.3)
Learning about real-life applications of science	0 (0.2)	6 (0.8)	48 (2.1)	45 (2.3)
Increasing students' interest in science	0 (0.2)	6 (1.5)	36 (2.1)	57 (2.2)
Preparing for further study in science	0 (0.1)	11 (1.0)	49 (2.1)	40 (2.1)
Learning test taking skills/strategies	1 (0.4)	24 (1.9)	51 (2.1)	24 (1.7)

Table STQ 45.3
Emphasis Given in High School
Science Classes to Various Instructional Objectives

	Percent of Classes			
	None	Minimal Emphasis	Moderate Emphasis	Heavy Emphasis
Memorizing science vocabulary and/or facts	1 (0.3)	32 (1.5)	54 (1.7)	13 (1.3)
Understanding science concepts	0 ---[†]	1 (0.3)	19 (1.2)	80 (1.2)
Learning science process skills (e.g., observing, measuring)	0 (0.1)	9 (0.9)	42 (1.6)	49 (1.6)
Learning about real-life applications of science	0 (0.1)	8 (0.7)	47 (1.5)	45 (1.5)
Increasing students' interest in science	0 (0.1)	7 (0.8)	43 (1.4)	50 (1.4)
Preparing for further study in science	1 (0.5)	10 (0.9)	44 (1.3)	46 (1.3)
Learning test taking skills/strategies	2 (0.4)	26 (1.4)	50 (1.5)	22 (1.2)

[†] No teachers in the sample selected this response option. Thus, it is not possible to calculate the standard error of this estimate.

Table STQ 46.1
Elementary School Science Classes in which Teachers Report Various Activities in their Classrooms

	Percent of Classes									
	Never		Rarely (e.g., a few times a year)		Sometimes (e.g., once or twice a month)		Often (e.g., once or twice a week)		All or almost all science lessons	
Explain science ideas to the whole class	0	---[†]	2	(0.5)	10	(1.0)	38	(1.8)	50	(1.8)
Engage the whole class in discussions	0	---[†]	2	(0.4)	8	(0.8)	33	(1.6)	57	(1.6)
Have students work in small groups	0	(0.2)	5	(0.8)	22	(1.6)	45	(2.0)	28	(1.9)
Do hands-on/laboratory activities	2	(0.5)	12	(1.3)	32	(1.6)	39	(1.8)	16	(1.5)
Engage the class in project-based learning (PBL) activities	8	(1.4)	27	(1.8)	34	(1.9)	21	(1.9)	9	(1.3)
Have students read from a science textbook, module, or other science-related material in class, either aloud or to themselves	9	(1.2)	16	(1.8)	28	(2.1)	33	(2.1)	15	(1.3)
Have students represent and/or analyze data using tables, charts, or graphs	2	(0.5)	14	(1.5)	40	(1.8)	36	(2.0)	8	(0.9)
Require students to supply evidence in support of their claims	5	(0.7)	13	(1.1)	28	(1.9)	39	(2.0)	15	(1.4)
Have students make formal presentations to the rest of the class (e.g., on individual or group projects)	16	(1.5)	44	(2.1)	28	(1.7)	9	(1.0)	4	(0.7)
Have students write their reflections (e.g., in their journals) in class or for homework	10	(1.0)	18	(1.4)	29	(1.7)	31	(2.1)	13	(1.2)
Give tests and/or quizzes that are predominantly short-answer (e.g., multiple choice, true/false, fill in the blank)	15	(1.3)	19	(1.7)	34	(2.1)	25	(2.0)	6	(0.9)
Give tests and/or quizzes that include constructed-response/open-ended items	19	(1.5)	24	(1.7)	36	(2.2)	16	(1.5)	6	(0.7)
Focus on literacy skills (e.g., informational reading or writing strategies)	6	(0.9)	15	(1.3)	31	(1.7)	31	(1.8)	17	(1.5)
Have students practice for standardized tests	32	(2.1)	26	(1.9)	23	(2.0)	15	(1.5)	4	(0.8)
Have students attend presentations by guest speakers focused on science and/or engineering in the workplace	51	(1.8)	39	(1.8)	8	(0.9)	2	(0.4)	1	(0.4)

[†] No teachers in the sample selected this response option. Thus, it is not possible to calculate the standard error of this estimate.

Table STQ 46.2
Middle School Science Classes in which
Teachers Report Various Activities in their Classrooms

	Percent of Classes									
	Never		Rarely (e.g., a few times a year)		Sometimes (e.g., once or twice a month)		Often (e.g., once or twice a week)		All or almost all science lessons	
Explain science ideas to the whole class	0	---[†]	0	(0.2)	3	(0.9)	42	(2.3)	54	(2.2)
Engage the whole class in discussions	0	(0.1)	1	(0.3)	7	(1.0)	44	(2.3)	48	(2.5)
Have students work in small groups	0	(0.1)	1	(0.4)	20	(1.9)	54	(2.2)	25	(2.0)
Do hands-on/laboratory activities	2	(0.9)	3	(0.5)	33	(2.3)	52	(2.7)	10	(1.4)
Engage the class in project-based learning (PBL) activities	4	(0.7)	28	(2.0)	45	(2.5)	17	(1.6)	6	(1.2)
Have students read from a science textbook, module, or other science-related material in class, either aloud or to themselves	4	(1.1)	11	(1.3)	29	(2.1)	44	(2.1)	12	(2.0)
Have students represent and/or analyze data using tables, charts, or graphs	0	(0.1)	9	(1.4)	37	(1.8)	47	(2.0)	8	(1.3)
Require students to supply evidence in support of their claims	1	(0.7)	7	(1.3)	28	(2.4)	46	(2.3)	17	(1.8)
Have students make formal presentations to the rest of the class (e.g., on individual or group projects)	6	(1.1)	40	(2.0)	44	(2.3)	9	(1.4)	1	(0.3)
Have students write their reflections (e.g., in their journals) in class or for homework	9	(1.1)	20	(1.7)	27	(1.7)	31	(2.1)	13	(1.5)
Give tests and/or quizzes that are predominantly short-answer (e.g., multiple choice, true/false, fill in the blank)	2	(0.5)	7	(1.0)	47	(2.3)	35	(2.3)	9	(1.4)
Give tests and/or quizzes that include constructed-response/open-ended items	3	(0.5)	13	(1.4)	48	(2.2)	28	(1.6)	8	(1.5)
Focus on literacy skills (e.g., informational reading or writing strategies)	3	(0.7)	20	(1.6)	32	(2.0)	34	(2.0)	10	(1.5)
Have students practice for standardized tests	13	(1.5)	35	(2.5)	30	(2.2)	18	(1.8)	5	(1.2)
Have students attend presentations by guest speakers focused on science and/or engineering in the workplace	45	(2.3)	42	(2.4)	9	(2.2)	2	(0.7)	1	(0.4)

[†] No teachers in the sample selected this response option. Thus, it is not possible to calculate the standard error of this estimate.

Table STQ 46.3
High School Science Classes in which
Teachers Report Various Activities in their Classrooms

	Percent of Classes									
	Never		Rarely (e.g., a few times a year)		Sometimes (e.g., once or twice a month)		Often (e.g., once or twice a week)		All or almost all science lessons	
Explain science ideas to the whole class	0	(0.1)	0	(0.1)	5	(0.7)	39	(1.5)	56	(1.6)
Engage the whole class in discussions	1	(0.5)	3	(0.5)	14	(1.0)	45	(1.6)	38	(1.5)
Have students work in small groups	0	(0.3)	2	(0.5)	14	(1.2)	61	(1.5)	22	(1.4)
Do hands-on/laboratory activities	1	(0.3)	4	(0.8)	25	(1.3)	62	(1.7)	8	(0.7)
Engage the class in project-based learning (PBL) activities	9	(1.0)	33	(1.6)	40	(1.6)	15	(1.0)	3	(0.5)
Have students read from a science textbook, module, or other science-related material in class, either aloud or to themselves	10	(0.9)	24	(1.3)	28	(1.5)	30	(1.6)	7	(0.8)
Have students represent and/or analyze data using tables, charts, or graphs	0	(0.2)	8	(1.0)	34	(1.4)	50	(1.6)	8	(0.7)
Require students to supply evidence in support of their claims	1	(0.3)	8	(0.8)	30	(1.3)	43	(1.7)	18	(1.0)
Have students make formal presentations to the rest of the class (e.g., on individual or group projects)	11	(0.9)	47	(1.6)	34	(1.5)	7	(0.9)	2	(0.5)
Have students write their reflections (e.g., in their journals) in class or for homework	25	(1.5)	28	(1.4)	25	(1.1)	14	(1.1)	7	(0.7)
Give tests and/or quizzes that are predominantly short-answer (e.g., multiple choice, true/false, fill in the blank)	3	(0.4)	11	(0.9)	43	(1.4)	35	(1.5)	9	(0.8)
Give tests and/or quizzes that include constructed-response/open-ended items	3	(0.4)	11	(0.9)	46	(1.5)	32	(1.3)	8	(0.8)
Focus on literacy skills (e.g., informational reading or writing strategies)	9	(0.9)	31	(1.4)	35	(1.6)	21	(1.4)	4	(0.6)
Have students practice for standardized tests	19	(1.3)	33	(1.5)	28	(1.2)	15	(1.1)	5	(0.5)
Have students attend presentations by guest speakers focused on science and/or engineering in the workplace	51	(1.6)	41	(1.5)	6	(0.8)	2	(0.4)	1	(0.2)

Table STQ 47.1
Availability of Instructional Technology in Elementary School Science Classrooms

	Percent of Classes		
	Do not have one per group available	At least one per group available upon request or in another room	At least one per group located in your classroom
Personal computers, including laptops	31 (2.4)	36 (3.4)	33 (3.0)
Hand-held computers (e.g., PDAs, tablets, smartphones, iPads)	80 (2.3)	13 (2.0)	6 (1.4)
Internet access	16 (1.9)	34 (3.2)	51 (3.0)
Graphing calculators	91 (2.3)	8 (2.2)	2 (0.7)
Other calculators	31 (2.9)	21 (2.8)	48 (2.7)
Probes for collecting data (e.g., motion sensors, temperature probes)	68 (3.1)	24 (2.6)	8 (1.9)
Microscopes	52 (3.2)	33 (2.9)	15 (3.0)
Classroom response system or "Clickers" (handheld devices used to respond electronically to questions in class)	59 (3.8)	24 (3.0)	17 (3.2)

Table STQ 47.2
Availability of Instructional Technology in Middle School Science Classrooms

	Percent of Classes		
	Do not have one per group available	At least one per group available upon request or in another room	At least one per group located in your classroom
Personal computers, including laptops	25 (2.9)	52 (3.2)	23 (2.6)
Hand-held computers (e.g., PDAs, tablets, smartphones, iPads)	81 (2.2)	12 (1.8)	7 (1.4)
Internet access	15 (2.4)	42 (3.2)	43 (3.3)
Graphing calculators	70 (2.9)	20 (2.5)	10 (2.2)
Other calculators	17 (2.3)	29 (3.1)	55 (3.0)
Probes for collecting data (e.g., motion sensors, temperature probes)	57 (2.9)	30 (2.8)	13 (1.9)
Microscopes	18 (1.9)	47 (3.1)	35 (3.0)
Classroom response system or "Clickers" (handheld devices used to respond electronically to questions in class)	54 (2.7)	26 (2.3)	21 (2.3)

Table STQ 47.3
Availability of Instructional Technology in High School Science Classrooms

	Percent of Classes		
	Do not have one per group available	At least one per group available upon request or in another room	At least one per group located in your classroom
Personal computers, including laptops	21 (1.6)	48 (2.1)	31 (2.3)
Hand-held computers (e.g., PDAs, tablets, smartphones, iPads)	80 (1.5)	13 (1.1)	7 (1.2)
Internet access	14 (1.3)	41 (2.2)	46 (2.3)
Graphing calculators	56 (2.3)	21 (1.7)	22 (1.9)
Other calculators	23 (2.1)	23 (1.8)	54 (2.1)
Probes for collecting data (e.g., motion sensors, temperature probes)	36 (2.5)	35 (1.9)	28 (2.1)
Microscopes	19 (1.9)	41 (2.4)	40 (2.2)
Classroom response system or "Clickers" (handheld devices used to respond electronically to questions in class)	53 (2.3)	28 (1.6)	19 (1.9)

Table STQ 48
Expectations that Students Will Provide their Own Instructional Technologies in Science Classes

	Percent of Classes		
	Elementary	Middle	High
Laptop computers	2 (0.8)	2 (0.9)	8 (1.1)
Hand-held computers	1 (0.7)	3 (1.3)	7 (1.0)
Graphing calculators	1 (0.6)	7 (1.6)	25 (1.7)
Other calculators	4 (1.0)	24 (2.5)	46 (2.3)

Table STQ 49.1
Frequency of Instructional Technology Use in Elementary School Science Classes

	Percent of Classes				
	Never	Rarely (e.g., a few times a year)	Sometimes (e.g., once or twice a month)	Often (e.g., once or twice a week)	All or almost all science lessons
Personal computers, including laptops	35 (2.5)	24 (2.9)	19 (2.3)	19 (2.9)	2 (0.7)
Hand-held computers	81 (2.6)	10 (1.8)	7 (2.0)	2 (0.8)	0 (0.2)
Internet	12 (1.7)	24 (2.7)	32 (2.8)	25 (2.8)	6 (1.7)
Calculators	52 (3.0)	23 (2.6)	17 (2.5)	7 (1.7)	1 (0.4)
Graphing calculators†	— —	— —	— —	— —	— —
Probes for collecting data	62 (3.2)	17 (2.0)	13 (1.9)	7 (2.2)	0 (0.2)
Classroom response system or "Clickers"	72 (3.3)	13 (1.9)	6 (1.2)	6 (2.4)	2 (1.4)

† Item presented only to middle and high school teachers.

Table STQ 49.2
Frequency of Instructional Technology Use in Middle School Science Classes

	Percent of Classes									
	Never		Rarely (e.g., a few times a year)		Sometimes (e.g., once or twice a month)		Often (e.g., once or twice a week)		All or almost all science lessons	
Personal computers, including laptops	18	(2.8)	23	(2.5)	37	(2.8)	20	(2.2)	3	(0.6)
Hand-held computers	77	(2.3)	11	(1.6)	7	(1.5)	3	(1.1)	1	(0.5)
Internet	7	(2.0)	21	(2.6)	39	(3.1)	26	(2.6)	6	(1.3)
Calculators†	—	—	—	—	—	—	—	—	—	—
Graphing calculators	79	(2.8)	12	(1.6)	8	(2.0)	1	(0.5)	0	(0.1)
Probes for collecting data	55	(2.8)	30	(3.3)	13	(2.0)	2	(0.6)	0	(0.2)
Classroom response system or "Clickers"	66	(2.3)	17	(1.9)	11	(1.7)	5	(1.0)	1	(0.3)

† Item presented only to elementary school teachers.

Table STQ 49.3
Frequency of Instructional Technology Use in High School Science Classes

	Percent of Classes									
	Never		Rarely (e.g., a few times a year)		Sometimes (e.g., once or twice a month)		Often (e.g., once or twice a week)		All or almost all science lessons	
Personal computers, including laptops	15	(1.5)	19	(1.5)	36	(2.2)	23	(2.0)	8	(1.1)
Hand-held computers	69	(1.7)	14	(1.2)	8	(1.0)	7	(1.1)	2	(0.6)
Internet	6	(1.1)	19	(1.6)	40	(2.4)	26	(1.9)	9	(1.2)
Calculators†	—	—	—	—	—	—	—	—	—	—
Graphing calculators	55	(2.6)	17	(1.6)	9	(1.3)	9	(1.0)	10	(1.3)
Probes for collecting data	40	(2.8)	24	(1.7)	27	(2.1)	8	(1.1)	1	(0.2)
Classroom response system or "Clickers"	68	(2.2)	17	(1.6)	10	(1.5)	4	(0.8)	1	(0.5)

† Item presented only to elementary school teachers.

Table STQ 50.1
Availability of Resources in Elementary School Science Classes

	Percent of Classes					
	Not available		Available in another room		Located in your classroom	
Lab tables	72	(3.0)	20	(2.7)	9	(1.5)
Electric outlets	10	(1.6)	5	(1.6)	85	(1.9)
Faucets and sinks	17	(2.3)	19	(2.4)	64	(2.8)
Gas for burners†	—	—	—	—	—	—
Fume hoods†	—	—	—	—	—	—

† Item presented only to high school teachers.

Table STQ 50.2
Availability of Resources in Middle School Science Classes

	Percent of Classes		
	Not available	Available in another room	Located in your classroom
Lab tables	20 (3.1)	16 (2.4)	64 (3.5)
Electric outlets	5 (2.1)	7 (2.4)	88 (3.1)
Faucets and sinks	8 (2.1)	17 (2.7)	75 (3.1)
Gas for burners†	— —	— —	— —
Fume hoods†	— —	— —	— —

† Item presented only to high school teachers.

Table STQ 50.3
Availability of Resources in High School Science Classes

	Percent of Classes		
	Not available	Available in another room	Located in your classroom
Lab tables	6 (1.4)	16 (1.7)	78 (2.2)
Electric outlets	1 (0.8)	5 (0.8)	93 (1.1)
Faucets and sinks	3 (1.0)	14 (1.6)	83 (2.0)
Gas for burners	13 (1.7)	23 (1.8)	64 (2.5)
Fume hoods	18 (1.9)	44 (2.0)	38 (2.2)

Table STQ 51
Frequency of Required External Science Testing in Science Classes

	Percent of Classes		
	Elementary	Middle	High
Never	50 (2.3)	21 (1.6)	30 (1.5)
Once a year	17 (1.6)	28 (2.2)	35 (1.6)
Twice a year	8 (1.2)	13 (1.8)	13 (1.0)
Three or four times a year	16 (1.6)	23 (2.0)	14 (1.1)
Five or more times a year	9 (1.6)	15 (1.4)	9 (0.9)

Table STQ 52
Amount of Homework Assigned in Science Classes per Week

	Percent of Classes		
	Elementary	Middle	High
Fewer than 15 minutes per week	73 (2.8)	22 (2.2)	9 (1.1)
15–30 minutes per week	17 (2.5)	29 (2.7)	17 (1.6)
31–60 minutes per week	7 (2.0)	30 (2.6)	34 (2.1)
61–90 minutes per week	2 (1.2)	14 (2.1)	24 (1.8)
91–120 minutes per week	0 (0.2)	3 (0.8)	7 (1.1)
2–3 hours per week	0 ---†	0 (0.2)	6 (0.9)
3–4 hours per week	0 (0.3)	2 (1.6)	2 (0.4)
More than 4 hours per week	0 ---†	0 (0.2)	2 (0.6)

† No teachers in the sample selected this response option. Thus, it is not possible to calculate the standard error of this estimate.

Table STQ 53
Instructional Materials Used in Science Classes

	Percent of Classes		
	Elementary	Middle	High
One commercially-published textbook most of the time	26 (2.0)	34 (2.3)	52 (1.7)
Multiple commercially-published textbooks most of the time	5 (0.8)	11 (1.0)	7 (0.7)
Modules from a single publisher most of the time	12 (1.5)	11 (1.9)	2 (0.4)
Modules from multiple publisher most of the time	4 (1.0)	3 (0.7)	2 (0.4)
A roughly equal mix of commercially-published textbooks and commercially-published modules most of the time	22 (1.7)	20 (2.0)	15 (1.2)
Non-commercially-published instructional materials most of the time	31 (2.1)	20 (1.9)	23 (1.2)

Table STQ 54a
Most Recent Copyright Year of
Instructional Materials Used in Science Classes

	Percent of Classes[†]		
	Elementary	Middle	High
2012	6 (1.5)	7 (1.5)	4 (0.7)
2011	6 (2.0)	3 (1.6)	3 (0.5)
2010	6 (1.1)	4 (0.7)	7 (1.0)
2009	5 (1.1)	6 (2.0)	7 (1.1)
2008	6 (1.1)	8 (1.6)	9 (1.3)
2007	14 (2.5)	21 (1.8)	9 (1.2)
2006 or earlier	58 (3.0)	52 (2.6)	60 (1.9)

[†] Only classes of teachers indicating in Q53 that they use commercially-published textbooks/modules are included in this analysis.

Table STQ 54b.1
Market Share of Commercial Textbook/Module Publishers Used in Elementary School Science Classes

	Percent of Classes[†]	
Houghton Mifflin Harcourt	47	(3.4)
McGraw-Hill	16	(2.4)
Pearson	15	(2.4)
Delta Education	11	(1.9)
National Geographic Society	4	(1.8)
Carolina Biological Supply Company	2	(0.8)
Discover Education	0	(0.4)
Scholastic	1	(0.4)
A Beka Book	0	(0.2)
ACSI Science	0	(0.2)
Answers in Genesis	0	(0.2)
Apologia Educational Ministries Inc.	0	(0.2)
Arizona Department of Education	0	(0.2)
Battle Creek Outreach Staff	0	(0.2)
Bob Jones University Press	0	(0.2)
Evan-Moor Educational Publishers	0	(0.2)
Fearon Teacher Aids	0	(0.2)
HarperCollins Children's Books	0	(0.2)
John Wiley & Sons	0	(0.2)
Kendall Hunt	0	(0.2)
People's Publishing	0	(0.2)
Turtleback	0	(0.2)
United Publishing Company, Inc.	0	(0.2)
AIMS Education Foundation	0	(0.1)
Christian Schools International	0	(0.1)
Core Knowledge Foundation	0	(0.1)

[†] Only classes of elementary school teachers indicating in Q53 that they use commercially-published textbooks/modules are included in this analysis.

Table STQ 54b.2
Market Share of Commercial Textbook/Module Publishers Used in Middle School Science Classes

	Percent of Classes[†]	
Houghton Mifflin Harcourt	33	(2.9)
Pearson	31	(2.9)
McGraw-Hill	25	(2.6)
Lab-Aids	2	(1.6)
Delta Education	1	(0.7)
Carolina Biological Supply Company	2	(0.6)
CPO Science	1	(0.5)
ACSI Science	0	(0.3)
Bob Jones University Press	0	(0.3)
Cengage Learning	0	(0.2)
It's About Time	1	(0.2)
Kendall Hunt	0	(0.2)
National Geographic Society	0	(0.2)
Region 4 Education Service Center	0	(0.2)
Science Curriculum Inc.	0	(0.2)
Lawrence Hall of Science	0	(0.1)

[†] Only classes of middle school teachers indicating in Q53 that they use commercially-published textbooks/modules are included in this analysis.

Table STQ 54b.3
Market Share of Commercial Textbook/Module Publishers Used in High School Science Classes

	Percent of Classes†	
Pearson	43	(2.2)
Houghton Mifflin Harcourt	22	(1.5)
McGraw-Hill	18	(1.3)
Cengage Learning	6	(0.8)
Bob Jones University Press	1	(0.7)
John Wiley & Sons	1	(0.4)
Kendall Hunt	1	(0.4)
It's About Time	1	(0.3)
Sinauer Associates	0	(0.3)
W. H. Freeman	1	(0.3)
Apologia Educational Ministries Inc.	0	(0.2)
CPO Science	1	(0.2)
Delta Education	1	(0.2)
Ingram	1	(0.2)
Interstate Publishers	0	(0.2)
Jones and Bartlett Publishers, Inc.	0	(0.2)
Mosby-Year Book	0	(0.2)
Paradigm Pub International	0	(0.2)
University of Hawaii	0	(0.2)
American Book Company	0	(0.1)
Amsco	0	(0.1)
Cambridge University Press	0	(0.1)
Garland Science	0	(0.1)
International Thomson Publishing	0	(0.1)
Kinetic Books	0	(0.1)
Merrill	0	(0.1)
Monterey Bay Aquarium Press	0	(0.1)
Saunders College Publishers	0	(0.1)
Science Curriculum Inc.	0	(0.1)
United Publishing Company, Inc.	0	(0.1)
Cord Communications	0	(0.0)
J M Lebel Enterprises Ltd.	0	(0.0)
Lab-Aids	0	(0.0)
Lawyers & Judges Publishers	0	(0.0)
W. W. Norton	0	(0.0)
William C Brown Publishers	0	(0.0)

† Only classes of high school teachers indicating in Q53 that they use commercially-published textbooks/modules are included in this analysis.

Table STQ 55
Perceived Quality of Instructional Materials Used Most Often in Science Classes

	Percent of Classes†					
	Elementary		Middle		High	
Very poor	6	(2.6)	2	(1.5)	1	(0.5)
Poor	4	(1.4)	3	(1.0)	3	(0.8)
Fair	19	(2.6)	18	(2.5)	20	(2.6)
Good	32	(2.9)	32	(3.5)	32	(2.3)
Very good	32	(3.7)	36	(3.3)	33	(2.6)
Excellent	7	(1.8)	8	(2.6)	11	(1.5)

† Only classes of teachers indicating in Q53 that they use one or multiple commercially-published textbooks/modules are included in this analysis.

Table STQ 56
Percentage of Instructional Time Spent Using Instructional Materials during the Science Course

	Percent of Classes†		
	Elementary	Middle	High
Less than 25 %	15 (3.2)	25 (5.1)	46 (2.8)
25–49 %	27 (3.4)	22 (3.3)	26 (2.3)
50–74 %	22 (4.0)	26 (3.2)	15 (2.4)
75–90 %	23 (3.5)	13 (2.6)	9 (1.6)
More than 90 %	13 (3.0)	13 (4.6)	3 (1.4)

† Only classes of teachers indicating in Q53 that they use one commercially-published textbook or modules from a single publisher are included in this analysis.

Table STQ 57
Percentage of Textbook/Modules Covered during the Science Course

	Percent of Classes†		
	Elementary	Middle	High
Less than 25 %	13 (3.3)	3 (1.3)	8 (1.7)
25–49 %	8 (2.6)	15 (3.9)	18 (2.4)
50–74 %	27 (4.7)	35 (4.7)	33 (2.8)
75–90 %	29 (4.7)	31 (5.0)	33 (3.4)
More than 90 %	23 (4.4)	16 (4.8)	8 (1.6)

† Only classes of teachers indicating in Q53 that they use one commercially-published textbook or modules from a single publisher are included in this analysis.

Table STQ 58
Adequacy of Equipment† for Science Instruction

	Percent of Classes				
	Not Adequate		Somewhat Adequate		Adequate
	1	2	3	4	5
Elementary	20 (1.7)	14 (1.4)	31 (1.6)	16 (1.4)	19 (2.0)
Middle	13 (1.8)	9 (1.0)	31 (2.3)	24 (1.7)	24 (1.9)
High	6 (0.9)	6 (0.8)	25 (1.5)	29 (1.5)	33 (1.5)

† For example, microscopes, beakers, photogate timers, Bunsen burners.

Table STQ 59
Adequacy of Instructional Technology† for Science Instruction

	Percent of Classes				
	Not Adequate		Somewhat Adequate		Adequate
	1	2	3	4	5
Elementary	15 (1.5)	14 (1.5)	39 (1.9)	16 (1.4)	16 (1.8)
Middle	12 (1.5)	16 (1.7)	34 (2.3)	21 (1.8)	17 (1.6)
High	10 (1.0)	10 (0.8)	31 (1.7)	26 (1.6)	24 (1.6)

† For example, calculators, computers, probes/sensors.

Table STQ 60
Adequacy of Consumable Supplies† for Science Instruction

	Percent of Classes				
	Not Adequate		Somewhat Adequate		Adequate
	1	2	3	4	5
Elementary	22 (1.6)	17 (1.3)	30 (1.8)	15 (1.4)	16 (1.5)
Middle	17 (1.8)	15 (1.7)	27 (2.1)	20 (1.8)	22 (1.7)
High	8 (1.0)	9 (1.0)	23 (1.3)	28 (1.3)	33 (1.7)

† For example, chemicals, living organisms, batteries.

Table STQ 61
Adequacy of Facilities† for Science Instruction

	Percent of Classes				
	Not Adequate		Somewhat Adequate		Adequate
	1	2	3	4	5
Elementary	24 (1.8)	16 (1.7)	27 (1.7)	14 (1.4)	17 (2.0)
Middle	15 (2.0)	12 (1.8)	17 (1.5)	19 (2.1)	38 (2.5)
High	8 (1.0)	6 (0.8)	16 (1.1)	22 (1.3)	49 (1.7)

† For example, lab tables, electric outlets, faucets and sinks.

Table STQ 62.1
Elementary School Science Classes for which Teachers Report Technology Problems

	Percent of Classes		
	Not a Significant Problem	Somewhat of a Problem	Serious Problem
Lack of access to computers	60 (2.7)	28 (2.5)	12 (1.5)
Old age of computers	64 (2.5)	25 (2.2)	11 (1.7)
Lack of access to the Internet	81 (2.4)	14 (2.0)	5 (1.1)
Unreliability of the Internet connection	79 (2.2)	15 (1.9)	6 (1.2)
Slow speed of the Internet connection	72 (2.6)	21 (2.4)	7 (1.3)
Lack of availability of appropriate computer software	54 (2.9)	34 (2.5)	12 (1.8)
Lack of availability of technology support	63 (2.9)	28 (2.9)	9 (1.4)

Table STQ 62.2
Middle School Science Classes
for which Teachers Report Technology Problems

	Percent of Classes		
	Not a Significant Problem	Somewhat of a Problem	Serious Problem
Lack of access to computers	42 (3.0)	36 (2.7)	21 (2.9)
Old age of computers	53 (3.2)	23 (2.1)	25 (3.1)
Lack of access to the Internet	71 (3.0)	18 (2.2)	11 (2.4)
Unreliability of the Internet connection	63 (3.1)	27 (2.6)	9 (2.0)
Slow speed of the Internet connection	55 (3.2)	30 (2.7)	15 (2.7)
Lack of availability of appropriate computer software	53 (3.1)	33 (2.5)	15 (2.3)
Lack of availability of technology support	55 (2.9)	32 (2.7)	14 (2.0)

Table STQ 62.3
High School Science Classes
for which Teachers Report Technology Problems

	Percent of Classes		
	Not a Significant Problem	Somewhat of a Problem	Serious Problem
Lack of access to computers	51 (2.4)	37 (2.2)	12 (1.6)
Old age of computers	58 (2.1)	28 (1.8)	14 (1.7)
Lack of access to the Internet	73 (2.2)	20 (1.7)	7 (1.4)
Unreliability of the Internet connection	66 (2.6)	24 (2.0)	10 (1.5)
Slow speed of the Internet connection	61 (2.3)	27 (2.2)	12 (1.5)
Lack of availability of appropriate computer software	54 (2.3)	36 (2.0)	10 (1.6)
Lack of availability of technology support	59 (2.5)	28 (2.5)	12 (1.5)

Table STQ 63.1
Elementary School Science Classes for which Teachers Report the Effect of Various Factors on Science Instruction

	Percent of Classes											
	Inhibits Effective Instruction				Neutral or Mixed				Promotes Effective Instruction		N/A or Don't Know	
	1		2		3		4		5			
Current state standards	2	(0.7)	4	(1.0)	25	(2.2)	21	(2.5)	43	(2.6)	4	(1.0)
District/Diocese curriculum frameworks†	3	(0.9)	5	(1.4)	26	(2.1)	21	(2.4)	39	(2.6)	5	(1.2)
District/Diocese and/or school pacing guides	4	(1.1)	7	(1.3)	27	(2.2)	22	(2.1)	27	(2.5)	13	(2.4)
State testing/accountability policies†	6	(1.2)	10	(1.7)	33	(2.6)	14	(1.7)	19	(2.2)	18	(2.6)
District/Diocese testing/ accountability policies	5	(1.2)	11	(1.9)	31	(2.7)	13	(1.8)	21	(2.4)	19	(2.6)
Textbook/module selection policies†	7	(1.4)	13	(2.1)	29	(2.3)	17	(1.8)	21	(2.0)	14	(2.3)
Teacher evaluation policies	3	(0.8)	6	(1.3)	36	(2.5)	16	(1.7)	26	(2.5)	14	(2.1)
College entrance requirements‡	—	—	—	—	—	—	—	—	—	—	—	—
Students' motivation, interest, and effort in science	2	(0.7)	4	(1.1)	14	(1.7)	19	(1.9)	58	(2.2)	2	(0.6)
Students' reading abilities	5	(1.0)	17	(2.0)	20	(2.5)	26	(2.3)	31	(2.4)	2	(0.7)
Community views on science instruction	2	(0.8)	8	(1.4)	36	(2.3)	15	(1.9)	20	(2.1)	19	(2.4)
Parent expectations and involvement	5	(1.1)	9	(1.6)	33	(2.2)	18	(2.0)	24	(2.5)	11	(2.0)
Principal support	3	(0.8)	4	(0.9)	22	(2.2)	20	(2.4)	46	(3.1)	6	(1.1)
Time for you to plan, individually and with colleagues	10	(1.3)	17	(1.9)	17	(1.9)	17	(2.3)	36	(2.5)	3	(0.8)
Time available for your professional development	10	(1.5)	15	(1.9)	24	(1.9)	19	(2.2)	28	(2.3)	4	(0.9)

† Item presented only to public and Catholic schools.
‡ Item presented only to high school teachers.

Table STQ 63.2
Middle School Science Classes for which
Teachers Report the Effect of Various Factors on Science Instruction

	Percent of Classes											
	Inhibits Effective Instruction				Neutral or Mixed				Promotes Effective Instruction		N/A or Don't Know	
	1		2		3		4		5			
Current state standards	6	(1.3)	7	(2.5)	21	(2.6)	19	(2.2)	46	(3.5)	1	(0.6)
District/Diocese curriculum frameworks†	3	(0.8)	8	(2.7)	22	(2.9)	21	(3.2)	39	(3.0)	6	(1.2)
District/Diocese and/or school pacing guides	5	(1.1)	8	(2.5)	31	(3.5)	15	(1.7)	29	(2.8)	13	(2.0)
State testing/accountability policies†	11	(1.7)	16	(3.7)	31	(2.9)	16	(2.8)	18	(3.4)	7	(1.6)
District/Diocese testing/ accountability policies†	6	(1.2)	13	(3.9)	35	(3.1)	14	(2.1)	19	(3.3)	12	(1.9)
Textbook/module selection policies	6	(1.3)	9	(1.3)	30	(3.1)	19	(3.0)	25	(3.4)	11	(2.4)
Teacher evaluation policies	4	(0.9)	5	(1.6)	39	(4.0)	20	(2.3)	27	(3.0)	5	(1.2)
College entrance requirements‡	—	—	—	—	—	—	—	—	—	—	—	—
Students' motivation, interest, and effort in science	5	(1.0)	13	(2.9)	16	(2.1)	26	(3.5)	40	(3.8)	0	(0.3)
Students' reading abilities	8	(1.2)	23	(2.9)	20	(2.3)	23	(3.3)	25	(3.1)	1	(0.3)
Community views on science instruction	4	(0.8)	8	(1.5)	34	(3.4)	23	(3.3)	22	(2.7)	9	(1.5)
Parent expectations and involvement	7	(1.4)	19	(3.2)	29	(3.7)	18	(2.6)	24	(2.9)	2	(0.7)
Principal support	3	(0.8)	4	(1.0)	16	(2.6)	23	(3.3)	53	(3.6)	2	(0.6)
Time for you to plan, individually and with colleagues	9	(2.3)	14	(2.9)	13	(1.8)	22	(3.6)	40	(3.3)	1	(0.5)
Time available for your professional development	8	(2.3)	14	(2.9)	21	(2.7)	25	(3.5)	30	(3.0)	1	(0.5)

† Item presented only to public and Catholic schools.
‡ Item presented only to high school teachers.

Table STQ 63.3
High School Science Classes for which
Teachers Report the Effect of Various Factors on Science Instruction

	Percent of Classes											
	Inhibits Effective Instruction				Neutral or Mixed				Promotes Effective Instruction		N/A or Don't Know	
	1		2		3		4		5			
Current state standards	3	(0.7)	8	(1.5)	32	(1.9)	21	(1.5)	28	(1.6)	8	(1.4)
District/Diocese curriculum frameworks†	4	(0.7)	5	(0.9)	28	(1.9)	19	(1.5)	28	(1.7)	15	(1.5)
District/Diocese and/or school pacing guides	5	(0.9)	8	(1.2)	26	(2.0)	16	(1.4)	20	(1.4)	25	(2.0)
State testing/accountability policies†	9	(1.6)	14	(1.3)	36	(2.2)	15	(1.2)	10	(1.2)	15	(1.3)
District/Diocese testing/ accountability policies†	7	(1.1)	10	(1.3)	34	(2.2)	15	(1.5)	12	(1.3)	21	(1.5)
Textbook/module selection policies	5	(0.9)	8	(1.6)	30	(1.8)	20	(1.7)	22	(2.0)	15	(1.5)
Teacher evaluation policies	2	(0.5)	5	(0.8)	36	(2.0)	21	(1.7)	25	(1.5)	11	(1.5)
College entrance requirements	1	(0.4)	3	(0.9)	30	(1.9)	22	(2.0)	30	(1.7)	14	(1.7)
Students' motivation, interest, and effort in science	7	(1.0)	13	(1.3)	18	(1.6)	24	(1.5)	37	(2.1)	2	(0.6)
Students' reading abilities	10	(1.2)	17	(1.9)	22	(2.2)	21	(1.6)	29	(2.3)	2	(0.5)
Community views on science instruction	2	(0.6)	9	(1.3)	36	(2.0)	20	(1.6)	23	(1.8)	11	(1.2)
Parent expectations and involvement	4	(0.8)	13	(1.5)	29	(1.9)	21	(1.6)	28	(2.0)	4	(0.8)
Principal support	2	(0.6)	3	(0.7)	20	(1.8)	22	(1.4)	50	(2.0)	3	(0.7)
Time for you to plan, individually and with colleagues	8	(1.4)	11	(1.5)	20	(1.8)	22	(2.1)	36	(2.3)	3	(0.7)
Time available for your professional development	6	(0.8)	13	(2.0)	28	(2.1)	19	(1.6)	30	(2.2)	5	(0.8)

† Item presented only to public and Catholic schools.

Table STQ 64
Average Number of Class Periods
Devoted to the Most Recently Completed Science Unit

	Average Number of Periods
Elementary	12.3 (0.5)
Middle	15.3 (0.5)
High	11.4 (0.2)

Table STQ 65
Focus of the Most Recently Completed Science Unit

	Percent of Classes		
	Elementary	Middle	High
Earth/Space Science	40 (2.1)	34 (2.2)	9 (0.9)
Life Science/Biology	35 (2.2)	31 (2.5)	39 (1.5)
Environmental Science/Ecology	8 (1.1)	7 (1.2)	5 (0.7)
Chemistry	4 (0.9)	12 (1.5)	27 (1.0)
Physics	12 (1.2)	15 (1.5)	18 (1.1)
Engineering	2 (0.4)	1 (0.3)	0 (0.2)

There is no table for STQ 66.

Table STQ 67
Most Recent Science Unit Based Primarily on Previously Indicated Commercially-Published Textbook/Module

	Percent of Classes[†]
Elementary	71 (2.4)
Middle	63 (2.3)
High	66 (1.8)

[†] Only classes of teachers indicating in Q53 that they use commercially-published textbooks/modules in their most recent unit are included in this analysis.

Table STQ 68
Most Recent Science Unit Based Primarily on Any Commercially-Published Textbook/Module

	Percent of Classes
Elementary	52 (2.4)
Middle	58 (2.3)
High	57 (1.5)

There is no table for STQ 69.

Table STQ 70.1
Ways Textbooks/Modules Were Used in the Most Recently Completed Unit in Elementary School Science Classes

	Percent of Classes[†]				
	Not at All		Somewhat		To a Great Extent
	1	2	3	4	5
You used the textbook/module to guide the overall structure and content emphasis of the unit	2 (0.7)	2 (0.7)	19 (2.5)	34 (2.8)	43 (3.3)
You followed the textbook/module to guide the detailed structure and content emphasis of the unit	3 (0.8)	5 (1.1)	27 (2.4)	33 (2.4)	32 (2.7)
You picked what is important from the textbook/module and skipped the rest	18 (2.1)	16 (2.3)	25 (2.4)	26 (2.1)	16 (1.9)
You incorporated activities (e.g., problems, investigations, readings) from other sources to supplement what the textbook/module was lacking	7 (1.5)	8 (1.4)	21 (1.9)	32 (2.4)	33 (2.5)

[†] Only classes of elementary school teachers indicating in Q67/68 that they used commercially-published textbooks/modules in their most recent unit are included in this analysis.

Table STQ 70.2
Ways Textbooks/Modules Were Used in the Most Recently Completed Unit in Middle School Science Classes

	Percent of Classes[†]				
	Not at All		Somewhat		To a Great Extent
	1	2	3	4	5
You used the textbook/module to guide the overall structure and content emphasis of the unit	2 (0.8)	4 (1.0)	28 (2.4)	28 (2.4)	37 (2.9)
You followed the textbook/module to guide the detailed structure and content emphasis of the unit	4 (1.0)	8 (1.5)	37 (2.9)	25 (2.4)	26 (2.8)
You picked what is important from the textbook/module and skipped the rest	11 (2.1)	15 (2.2)	25 (2.5)	27 (2.3)	22 (2.5)
You incorporated activities (e.g., problems, investigations, readings) from other sources to supplement what the textbook/module was lacking	4 (1.7)	4 (1.0)	18 (2.3)	30 (2.0)	45 (2.7)

[†] Only classes of middle school teachers indicating in Q67/68 that they used commercially-published textbooks/modules in their most recent unit are included in this analysis.

Table STQ 70.3
Ways Textbooks/Modules Were Used in the Most Recently Completed Unit in High School Science Classes

	Percent of Classes†				
	Not at all		Somewhat		To a Great Extent
	1	2	3	4	5
You used the textbook/module to guide the overall structure and content emphasis of the unit	1 (0.4)	4 (0.7)	32 (1.9)	36 (2.0)	27 (2.2)
You followed the textbook/module to guide the detailed structure and content emphasis of the unit	5 (0.8)	13 (1.1)	37 (2.1)	30 (2.0)	15 (1.7)
You picked what is important from the textbook/module and skipped the rest	11 (1.6)	13 (1.2)	24 (1.8)	29 (1.9)	22 (1.7)
You incorporated activities (e.g., problems, investigations, readings) from other sources to supplement what the textbook/module was lacking	3 (1.3)	3 (0.5)	16 (1.5)	36 (1.9)	43 (2.0)

† Only classes of high school teachers indicating in Q67/68 that they used commercially-published textbooks/modules in their most recent unit are included in this analysis.

Table STQ 71.1
Reasons Parts of the Textbook/Module Were Skipped in Elementary School Science Classes

	Percent of Classes†		
	Not a Factor	A Minor Factor	A Major Factor
The science ideas addressed in the activities you skipped are not included in your pacing guide and/or current state standards	34 (3.5)	39 (4.2)	27 (3.6)
You did not have the materials needed to implement the activities you skipped	38 (3.4)	35 (3.8)	27 (3.4)
The activities you skipped were too difficult for your students	50 (4.0)	36 (3.9)	14 (2.5)
Your students already knew the science ideas or were able to learn them without the activities you skipped	40 (3.8)	37 (4.7)	23 (4.2)
You have different activities for those science ideas that work better than the ones you skipped	16 (2.8)	38 (4.1)	46 (4.4)

† Only classes of elementary school teachers indicating in Q67/68 that they used commercially-published textbooks/modules in their most recent unit and indicating in Q70 that they "picked what was important from the textbook/module and skipped the rest" at all are included in this analysis.

Table STQ 71.2
Reasons Parts of the Textbook/Module Were Skipped in Middle School Science Classes

	Percent of Classes[†]		
	Not a Factor	A Minor Factor	A Major Factor
The science ideas addressed in the activities you skipped are not included in your pacing guide and/or current state standards	35 (5.0)	27 (2.9)	38 (5.0)
You did not have the materials needed to implement the activities you skipped	39 (5.2)	39 (5.3)	22 (4.0)
The activities you skipped were too difficult for your students	53 (5.0)	40 (4.8)	7 (1.8)
Your students already knew the science ideas or were able to learn them without the activities you skipped	44 (4.1)	35 (3.3)	21 (4.4)
You have different activities for those science ideas that work better than the ones you skipped	11 (3.2)	35 (5.3)	54 (5.1)

[†] Only classes of middle school teachers indicating in Q67/68 that they used commercially-published textbooks/modules in their most recent unit and indicating in Q70 that they "picked what was important from the textbook/module and skipped the rest" at all are included in this analysis.

Table STQ 71.3
Reasons Parts of the Textbook/Module Were Skipped in High School Science Classes

	Percent of Classes[†]		
	Not a Factor	A Minor Factor	A Major Factor
The science ideas addressed in the activities you skipped are not included in your pacing guide and/or current state standards	40 (3.1)	32 (3.0)	29 (2.8)
You did not have the materials needed to implement the activities you skipped	51 (3.1)	33 (3.1)	16 (2.1)
The activities you skipped were too difficult for your students	51 (3.1)	35 (2.9)	15 (2.4)
Your students already knew the science ideas or were able to learn them without the activities you skipped	43 (2.9)	38 (2.9)	18 (2.5)
You have different activities for those science ideas that work better than the ones you skipped	12 (1.8)	31 (2.8)	57 (3.2)

[†] Only classes of high school teachers indicating in Q67/68 that they used commercially-published textbooks/modules in their most recent unit and indicating in Q70 that they "picked what was important from the textbook/module and skipped the rest" at all are included in this analysis.

Table STQ 72.1
Reasons Why the Textbook/Module Was Supplemented in Elementary School Science Classes

	Percent of Classes[†]		
	Not a Factor	A Minor Factor	A Minor Factor
Your pacing guide indicated that you should use supplemental activities	42 (3.2)	37 (3.1)	21 (3.3)
Supplemental activities were needed to prepare students for standardized tests	51 (4.1)	30 (3.6)	20 (4.0)
Supplemental activities were needed to provide students with additional practice	14 (2.1)	44 (4.2)	42 (4.2)
Supplemental activities were needed so students at different levels of achievement could increase their understanding of the ideas targeted in each activity	7 (1.6)	36 (4.0)	57 (4.1)

[†] Only classes of elementary school teachers indicating in Q67/68 that they used commercially-published textbooks/modules in their most recent unit and indicating in Q70 that they "incorporated activities (e.g., problems, investigations, readings) from other sources to supplement what the textbook/module was lacking" at all are included in this analysis.

Table STQ 72.2
Reasons Why the Textbook/Module Was Supplemented in Middle School Science Classes

	Percent of Classes[†]		
	Not a Factor	A Minor Factor	A Minor Factor
Your pacing guide indicated that you should use supplemental activities	51 (4.6)	35 (4.0)	14 (2.5)
Supplemental activities were needed to prepare students for standardized tests	37 (5.4)	37 (4.7)	26 (3.2)
Supplemental activities were needed to provide students with additional practice	6 (2.4)	39 (4.4)	55 (3.5)
Supplemental activities were needed so students at different levels of achievement could increase their understanding of the ideas targeted in each activity	4 (1.2)	25 (3.5)	71 (3.6)

[†] Only classes of middle school teachers indicating in Q67/68 that they used commercially-published textbooks/modules in their most recent unit and indicating in Q70 that they "incorporated activities (e.g., problems, investigations, readings) from other sources to supplement what the textbook/module was lacking" at all are included in this analysis.

Table STQ 72.3
Reasons Why the Textbook/Module Was Supplemented in High School Science Classes

	Percent of Classes[†]		
	Not a Factor	A Minor Factor	A Minor Factor
Your pacing guide indicated that you should use supplemental activities	63 (2.5)	28 (2.6)	9 (1.7)
Supplemental activities were needed to prepare students for standardized tests	47 (3.3)	34 (2.9)	19 (2.2)
Supplemental activities were needed to provide students with additional practice	7 (1.6)	34 (3.2)	59 (3.5)
Supplemental activities were needed so students at different levels of achievement could increase their understanding of the ideas targeted in each activity	8 (1.4)	30 (2.9)	62 (2.8)

[†] Only classes of high school teachers indicating in Q67/68 that they used commercially-published textbooks/modules in their most recent unit and indicating in Q70 that they "incorporated activities (e.g., problems, investigations, readings) from other sources to supplement what the textbook/module was lacking" at all are included in this analysis.

Table STQ 73.1
Elementary School Science Classes Taught by Teachers Feeling Prepared for Each of a Number of Tasks in the Most Recent Unit

	Percent of Classes			
	Not Adequately Prepared	Somewhat Prepared	Fairly Well Prepared	Very Well Prepared
Anticipate difficulties that students will have with particular science ideas and procedures in this unit	3 (0.6)	16 (1.3)	54 (1.8)	28 (1.8)
Find out what students thought or already knew about the key science ideas	1 (0.4)	13 (1.3)	48 (1.9)	38 (1.8)
Implement the science textbook/module to be used during this unit[†]	1 (0.5)	8 (1.4)	52 (2.6)	39 (2.7)
Monitor student understanding during this unit	1 (0.3)	9 (1.0)	45 (2.0)	46 (2.2)
Assess student understanding at the conclusion of this unit	1 (0.4)	10 (1.3)	43 (1.8)	46 (2.2)

[†] Item presented only to elementary school teachers indicating in Q67/68 that they used commercially-published textbooks/ modules in their most recent unit.

Table STQ 73.2
Middle School Science Classes Taught by Teachers
Feeling Prepared for Each of a Number of Tasks in the Most Recent Unit

	Percent of Classes							
	Not Adequately Prepared		Somewhat Prepared		Fairly Well Prepared		Very Well Prepared	
Anticipate difficulties that students will have with particular science ideas and procedures in this unit	1	(0.5)	13	(1.6)	47	(2.3)	39	(2.3)
Find out what students thought or already knew about the key science ideas	1	(0.3)	15	(1.8)	43	(2.2)	41	(2.4)
Implement the science textbook/module to be used during this unit†	1	(0.4)	9	(1.8)	38	(2.9)	51	(2.9)
Monitor student understanding during this unit	0	(0.2)	6	(1.0)	42	(2.3)	51	(2.2)
Assess student understanding at the conclusion of this unit	0	(0.1)	5	(1.0)	35	(2.4)	59	(2.5)

† Item presented only to middle school teachers indicating in Q67/68 that they used commercially-published textbooks/ modules in their most recent unit.

Table STQ 73.3
High School Science Classes Taught by Teachers
Feeling Prepared for Each of a Number of Tasks in the Most Recent Unit

	Percent of Teachers							
	Not Adequately Prepared		Somewhat Prepared		Fairly Well Prepared		Very Well Prepared	
Anticipate difficulties that students will have with particular science ideas and procedures in this unit	1	(0.3)	8	(0.9)	43	(1.5)	49	(1.5)
Find out what students thought or already knew about the key science ideas	1	(0.2)	12	(1.1)	45	(1.4)	42	(1.4)
Implement the science textbook/module to be used during this unit†	1	(0.3)	8	(1.2)	39	(2.1)	52	(2.3)
Monitor student understanding during this unit	0	(0.1)	6	(0.8)	37	(1.4)	57	(1.6)
Assess student understanding at the conclusion of this unit	0	(0.1)	3	(0.6)	33	(1.6)	64	(1.6)

† Item presented only to high school teachers indicating in Q67/68 that they used commercially-published textbooks/modules in their most recent unit.

Table STQ 74
Science Classes in which Teachers Used Various Assessment Methods in the Most Recent Unit

	Percent of Classes		
	Elementary	Middle	High
Administered an assessment, task, or probe at the beginning of the unit to find out what students thought or already knew about the key science ideas	54 (2.0)	62 (2.1)	53 (1.4)
Questioned individual students during class activities to see if they were "getting it"	94 (0.9)	95 (1.4)	97 (0.5)
Used information from informal assessments of the entire class (e.g., asking for a show of hands, thumbs up/thumbs down, clickers, exit tickets) to see if students were "getting it"	87 (1.3)	86 (1.8)	80 (1.3)
Reviewed student work (e.g., homework, notebooks, journals, portfolios, projects) to see if they were "getting it"	89 (1.4)	96 (0.7)	94 (0.7)
Administered one or more quizzes and/or tests to see if students were "getting it"	52 (2.5)	82 (1.7)	81 (1.3)
Had students use rubrics to examine their own or their classmates' work	14 (1.5)	27 (2.0)	18 (1.2)
Assigned grades to student work (e.g., homework, notebooks, journals, portfolios, projects)	60 (1.8)	94 (0.9)	92 (0.7)
Administered one or more quizzes and/or tests to assign grades	56 (2.4)	90 (1.5)	91 (0.7)
Went over the correct answers to assignments, quizzes, and/or tests with the class as a whole	62 (2.2)	89 (1.7)	88 (1.0)

Table STQ 75
Duration of the Most Recent Science Lesson

	Average Number of Minutes
Elementary	45.6 (1.3)
Middle	56.3 (1.1)
High	63.2 (0.9)

Table STQ 76
Time Spent on Different Activities in the Most Recent Science Lesson

	Average Percent of Class Time		
	Elementary	Middle	High
Non-instructional activities (e.g., attendance taking, interruptions)	6 (0.3)	10 (0.3)	9 (0.3)
Whole class activities (e.g., lectures, explanations, discussions)	43 (0.8)	40 (0.9)	43 (0.6)
Small group work	32 (0.9)	31 (1.2)	30 (0.7)
Students working individually (e.g., reading textbooks, completing worksheets, taking a test or quiz)	19 (0.6)	20 (0.9)	18 (0.6)

Table STQ 77
Science Classes Participating in Various Activities in the Most Recent Lesson

	Percent of Classes		
	Elementary	Middle	High
Teacher explaining a science idea to the whole class	89 (1.2)	89 (1.4)	90 (0.9)
Whole class discussion	91 (1.1)	77 (1.8)	67 (1.4)
Students completing textbook/worksheet problems	43 (1.8)	51 (2.2)	59 (1.6)
Teacher conducting a demonstration while students watched	40 (2.0)	32 (2.4)	32 (1.4)
Students doing hands-on/manipulative activities	52 (1.9)	50 (2.3)	39 (1.5)
Students reading about science	53 (2.2)	50 (2.1)	35 (1.5)
Students using instructional technology	22 (1.5)	30 (2.0)	27 (1.4)
Practicing for standardized tests	5 (0.8)	9 (1.2)	10 (0.8)
Test or quiz	12 (1.2)	22 (2.0)	20 (1.4)
None of the above	0 (0.1)	0 (0.3)	1 (0.3)

Table STQ 78
Sex of Science Teachers

	Percent of Teachers		
	Elementary	Middle	High
Male	6 (0.8)	30 (2.0)	46 (1.4)
Female	94 (0.8)	70 (2.0)	54 (1.4)

Table STQ 79
Science Teachers of Hispanic or Latino Origin

	Percent of Teachers
Elementary	8 (1.4)
Middle	5 (1.0)
High	4 (0.6)

Table STQ 80
Race of Science Teachers

	Percent of Teachers		
	Elementary	Middle	High
American Indian or Alaska Native	1 (0.4)	1 (0.3)	2 (0.4)
Asian	2 (0.5)	2 (0.8)	3 (0.6)
Black or African American	6 (1.2)	6 (1.3)	4 (0.5)
Native Hawaiian or Other Pacific Islander	1 (0.3)	0 (0.2)	1 (0.3)
White	92 (1.4)	91 (1.4)	93 (0.7)

Table STQ 81
Age of Science Teachers

	Percent of Teachers		
	Elementary	**Middle**	**High**
Less than 31 years old	18 (1.5)	11 (1.0)	16 (1.4)
31–40 years old	29 (1.8)	28 (2.2)	30 (1.3)
41–50 years old	25 (1.8)	28 (2.1)	24 (1.3)
51–60 years old	20 (1.4)	26 (2.5)	22 (1.3)
More than 60 years old	8 (1.1)	7 (1.5)	7 (1.0)

SECTION THREE

MATHEMATICS TEACHER QUESTIONNAIRE

Mathematics Teacher Questionnaire

Mathematics Teacher Questionnaire Tables

2012 NATIONAL SURVEY OF SCIENCE AND MATHEMATICS EDUCATION
MATHEMATICS TEACHER QUESTIONNAIRE

Section A. Teacher Background and Opinions

1. How many years have you taught prior to this school year: [Enter each response as a whole number (for example: 15).]

a. any subject at the K–12 level? _____
b. mathematics at the K–12 level? _____
c. at this school, any subject? _____

2. At what grade levels do you currently teach mathematics? [Select all that apply.]

□	K–5
□	6–8
□	9–12
□	You do not currently teach mathematics

3. ***[Presented to self-contained teachers only]***

Which best describes the mathematics instruction provided to the entire class?

- Do not consider pull-out instruction that some students may receive for remediation or enrichment.
- Do not consider instruction provided to individual or small groups of students, for example by an English-language specialist, special educator, or teacher assistant.

○	This class receives mathematics instruction ***only*** from you. ***[Presented only to teachers who answered in Q2 that they teach mathematics]***
○	This class receives mathematics instruction from you and another teacher (for example: a mathematics specialist or a teacher you team with). ***[Presented only to teachers who answered in Q2 that they teach mathematics]***

4. ***[Presented to self-contained teachers only]***

Which best describes your mathematics teaching?

○	I teach mathematics all or most days, every week of the year.
○	I teach mathematics every week, but typically three or fewer days each week.
○	I teach mathematics some weeks, but typically not every week.

5. ***[Presented to self-contained teachers only]***

Which best describes your science teaching?

○	I teach science all or most days, every week of the year.
○	I teach science every week, but typically three or fewer days each week.
○	I teach science some weeks, but typically not every week. ***[Skip to Q7]***
○	I do not teach science.

6. ***[Presented to self-contained teachers only]***

In a typical week, how many days do you teach lessons on each of the following subjects and how many minutes per week are spent on each subject? [Enter each response as a whole number (for example: 5, 150).]

	Number of days per week	Total number of minutes per week
a. Mathematics		
b. Science		
c. Social Studies		
d. Reading/Language Arts		

[SKIP to Q8]

7. ***[Presented to self-contained teachers only]*** In a typical year, how many weeks do you teach lessons on each of the following subjects and how many minutes per week are spent on each subject? [Enter each response as a whole number (for example: 36, 150).]

	Number of weeks per year	Average number of minutes per week when taught
a. Mathematics		
b. Science		
c. Social Studies		
d. Reading/Language Arts		

8. ***[Presented to non-self-contained teachers only]***

In a typical week, how many different mathematics classes do you teach?

- If you meet with the *same class of students* multiple times per week, count that class only once.
- If you teach the *same mathematics course* to multiple classes of students, count each class separately.

1	2	3	4	5	6	7	8	9	10
○	○	○	○	○	○	○	○	○	○

9. ***[Presented to non-self-contained teachers only]***

For each mathematics class you teach, select the course type and enter the number of students enrolled in the class.

Grades 9–12 Course Type	Example Courses
Non-college prep mathematics courses	Developmental Math; High School Arithmetic; Remedial Math; General Math; Vocational Math; Consumer Math; Basic Math; Business Math; Career Math; Practical Math; Essential Math; Pre-Algebra; Introductory Algebra; Algebra 1 Part 1; Algebra 1A; Math A; Basic Geometry; Informal Geometry; Practical Geometry
Formal/College-prep Mathematics Level 1 courses	Algebra 1; Integrated Math 1; Unified Math I; Algebra 1 Part 2; Algebra 1B; Math B
Formal/College-prep Mathematics Level 2 courses	Geometry; Plane Geometry; Solid Geometry; Integrated Math 2; Unified Math II; Math C
Formal/College-prep Mathematics Level 3 courses	Algebra 2; Intermediate Algebra; Algebra and Trigonometry; Advanced Algebra; Integrated Math 3; Unified Math III
Formal/College-prep Mathematics Level 4 courses	Algebra 3; Trigonometry; Pre-Calculus; Analytic/Advanced Geometry; Elementary Functions; Integrated Math 4; Unified Math IV; Calculus (not including college level/AP); any other College Prep Senior Math with Algebra 2 as a prerequisite
Mathematics courses that might qualify for college credit	Advanced Placement Calculus (AB, BC); Advanced Placement Statistics; IB Mathematics standard level; IB Mathematics higher level; concurrent college and high school credit/dual enrollment

Class	Course Type	Number of Students
Your 1st mathematics class:		
Your 2nd mathematics class:		
…		
Your Nth mathematics class:		

Course Type List	
1	Mathematics (Grades K–5)
2	Remedial Mathematics 6
3	Regular Mathematics 6
4	Accelerated/Pre-Algebra Mathematics 6
5	Remedial Mathematics 7
6	Regular Mathematics 7
7	Accelerated Mathematics 7
8	Remedial Mathematics 8
9	Regular Mathematics 8
10	Accelerated Mathematics 8
11	Algebra 1, Grade 7 or 8
12	Non-college prep mathematics course (Grades 9–12)
13	Formal/College-prep Mathematics Level 1 course (Grades 9–12)
14	Formal/College-prep Mathematics Level 2 course (Grades 9–12)
15	Formal/College-prep Mathematics Level 3 course (Grades 9–12)
16	Formal/College-prep Mathematics Level 4 course (Grades 9–12)
17	Mathematics course that might qualify for college credit (Grades 9–12)

10. ***[Presented to non-self-contained teachers only]***
Later in this questionnaire, we will ask you questions about you're your randomly selected mathematics class, which you indicated was [*course type teacher selected in Q9*]. What is your school's title for this course? _____

11. Have you been awarded one or more bachelor's and/or graduate degrees in the following fields? (With regard to bachelor's degrees, count only areas in which you majored.) [Select one on each row.]

	Yes	No
a. Education, including mathematics education	○	○
b. Mathematics	○	○
c. Computer Science	○	○
d. Engineering	○	○
e. Other, please specify._____	○	○

12. ***[Presented only to teachers that answered "Yes" to Q11a]***
What type of education degree do you have? (With regard to bachelor's degrees, count only areas in which you majored.) [Select all that apply.]

□	Elementary Education
□	Mathematics Education
□	Science Education
□	Other Education, please specify. _____

13. For each of the following areas, indicate the number of semester and/or quarter mathematics courses you completed.

- Count *courses* **not** credit hours.
- Include courses taken at the graduate or undergraduate level, as well as courses for which you received college credit while you were in high school.
- Count each course taken in high school for college credit as a one semester college course.
- Count courses that lasted multiple semesters or quarters as multiple courses.
- If your transcripts are not available, provide your best estimates.
- Enter your responses as whole numbers (for example: 3). You may either enter 0 (zero) or leave the box empty wherever applicable.

	Number of SEMESTER college courses	**Number of QUARTER college courses**
a. Mathematics content for elementary school teachers		
b. Mathematics content for middle school teachers		
c. Mathematics content for high school teachers		
d. Integrated mathematics (a single course that addresses content across ***multiple*** mathematics subjects, such as algebra and geometry)		
e. College algebra/trigonometry/functions		
f. Abstract algebra (for example: groups, rings, ideals, fields) ***[Presented to grades 6–12 teachers only]***		
g. Linear algebra (for example: vectors, matrices, eigenvalues) ***[Presented to grades 6–12 teachers only]***		
h. Calculus		
i. Advanced calculus ***[Presented to grades 6–12 teachers only]***		
j. Real analysis ***[Presented to grades 6–12 teachers only]***		
k. Differential equations ***[Presented to grades 6–12 teachers only]***		
l. Analytic/Coordinate Geometry (for example: transformations or isometries, conic sections) ***[Presented to grades 6–12 teachers only]***		
m. Axiomatic Geometry (Euclidean or non-Euclidean) ***[Presented to grades 6–12 teachers only]***		
n. College geometry ***[Presented to grades K–5 teachers only]***		
o. Probability		
p. Statistics		
q. Number theory (for example: divisibility theorems, properties of prime numbers) ***[Presented to grades 6–12 teachers only]***		
r. Discrete mathematics (for example: combinatorics, graph theory, game theory)		
s. Other upper division mathematics		

14. For each of the following areas, indicate the number of semester and/or quarter courses you completed.

- Count *courses* **not** credit hours.
- Include courses taken at the graduate or undergraduate level, as well as courses for which you received college credit while you were in high school.
- Count each course taken in high school for college credit as a one semester college course.
- Count courses that lasted multiple semesters or quarters as multiple courses.
- If your transcripts are not available, provide your best estimates.
- Enter your responses as whole numbers (for example: 3). You may either enter 0 (zero) or leave the box empty wherever applicable.

	Number of SEMESTER college courses	Number of QUARTER college courses
a. Computer science		
b. Engineering		
c. Science		

15. How many of the undergraduate and graduate level mathematics courses you completed were taken at each of the following types of institutions? (Please do not include mathematics education courses.) [Enter each response as a whole number (for example: 15).]

a. Two-year college, community college, and/or technical school _____
b. Four-year college and/or university _____

16. Which of the following best describes your teacher certification program?

○	An undergraduate program leading to a bachelor's degree and a teaching credential
○	A post-baccalaureate credentialing program (no master's degree awarded)
○	A master's program that also awarded a teaching credential
○	You do not have any formal teacher preparation

17. When did you **last participate** in professional development (sometimes called in-service education) focused on mathematics or mathematics teaching? (Include attendance at professional meetings, workshops, and conferences, as well as professional learning communities/lesson studies/teacher study groups. **Do not** include formal courses for which you received college credit or time spent **providing** professional development for other teachers.)

○	In the last 3 years
○	4–6 years ago
○	7–10 years ago
○	More than 10 years ago
○	Never

} ***Skip to Q21***

18. In the last 3 years have you… [Select one on each row.]

	Yes	No
a. attended a workshop on mathematics or mathematics teaching?	○	○
b. attended a national, state, or regional mathematics teacher association meeting?	○	○
c. participated in a professional learning community/lesson study/teacher study group focused on mathematics or mathematics teaching?	○	○

19. What is the **total** amount of time you have spent on professional development in mathematics or mathematics teaching **in the last 3 years**? (Include attendance at professional meetings, workshops, and conferences, as well as professional learning communities/lesson studies/teacher study groups. **Do not** include formal courses for which you received college credit or time spent **providing** professional development for other teachers.)

○	Less than 6 hours
○	6–15 hours
○	16–35 hours
○	More than 35 hours

20. Thinking about all of your mathematics-related professional development **in the last 3 years**, to what extent does each of the following describe your experiences? [Select one on each row.]

	Not at all		**Somewhat**		**To a great extent**
a. You had opportunities to engage in mathematics investigations.	①	②	③	④	⑤
b. You had opportunities to examine classroom artifacts (for example: student work samples).	①	②	③	④	⑤
c. You had opportunities to try out what you learned in your classroom ***and*** then talk about it as part of the professional development.	①	②	③	④	⑤
d. You worked closely with other mathematics teachers from your school.	①	②	③	④	⑤
e. You worked closely with other mathematics teachers who taught the same grade and/or subject whether or not they were from your school.	①	②	③	④	⑤
f. The professional development was a waste of your time.	①	②	③	④	⑤

21. When did you last take a formal course for **college credit** in each of the following areas? Do not count courses for which you received only Continuing Education Units. [Select one on each row.]

	In the last 3 years	**4 – 6 years ago**	**7 – 10 years ago**	**More than 10 years ago**	**Never**
a. Mathematics	○	○	○	○	○
b. How to teach mathematics	○	○	○	○	○
c. Student teaching in mathematics	○	○	○	○	○
d. Student teaching in other subjects	○	○	○	○	○

22. ***[Presented only to teachers that have participated in professional development in the last three years as indicated in Q17, OR took a course in "Mathematics" or "How to teach mathematics" in the last three years as indicated in q21a/b]***

Considering all the opportunities to learn about mathematics or the teaching of mathematics (professional development and coursework) **in the last 3 years**, how much was each of the following emphasized? [Select one on each row.]

	Not at all		**Somewhat**		**To a great extent**
a. Deepening your own mathematics content knowledge	①	②	③	④	⑤
b. Learning how to use hands-on activities/manipulatives for mathematics instruction	①	②	③	④	⑤
c. Learning about difficulties that students may have with particular mathematical ideas and procedures	①	②	③	④	⑤
d. Finding out what students think or already know about the key mathematical ideas prior to instruction on those ideas	①	②	③	④	⑤
e. Implementing the mathematics textbook/program to be used in your classroom	①	②	③	④	⑤
f. Planning instruction so students at different levels of achievement can increase their understanding of the ideas targeted in each activity	①	②	③	④	⑤
g. Monitoring student understanding during mathematics instruction	①	②	③	④	⑤
h. Providing enrichment experiences for gifted students	①	②	③	④	⑤
i. Providing alternative mathematics learning experiences for students with special needs	①	②	③	④	⑤
j. Teaching mathematics to English-language learners	①	②	③	④	⑤
k. Assessing student understanding at the conclusion of instruction on a topic	①	②	③	④	⑤

23. In the last 3 years have you… [Select one on each row.]

	Yes	**No**
a. received feedback about your mathematics teaching from a mentor/coach **formally assigned** by the school or district/diocese?	○	○
b. served as a **formally assigned** mentor/coach for mathematics teaching? (Please do not include supervision of student teachers.)	○	○
c. supervised a student teacher in your classroom?	○	○
d. taught in-service workshops on mathematics or mathematics teaching ?	○	○
e. led a professional learning community/lesson study/teacher study group focused on mathematics or mathematics teaching?	○	○

24. ***[Presented to self-contained teachers only]***

Many teachers feel better prepared to teach some subjects/topics than others. How well prepared do you feel to teach each of the following **at the grade level(s) you teach**, whether or not they are currently included in your teaching responsibilities? [Select one on each row.]

	Not adequately prepared	Somewhat prepared	Fairly well prepared	Very well prepared
a. Number and Operations	①	②	③	④
b. Early Algebra	①	②	③	④
c. Geometry	①	②	③	④
d. Measurement and Data Representation	①	②	③	④
e. Science	①	②	③	④
f. Reading/Language Arts	①	②	③	④
g. Social Studies	①	②	③	④

25. ***[Presented to non-self-contained teachers only]***

Within mathematics many teachers feel better prepared to teach some topics than others. How prepared do you feel to teach each of the following topics **at the grade level(s) you teach**, whether or not they are currently included in your curriculum? [Select one on each row.]

	Not adequately prepared	Somewhat prepared	Fairly well prepared	Very well prepared
a. The number system and operations	①	②	③	④
b. Algebraic thinking	①	②	③	④
c. Functions	①	②	③	④
d. Modeling	①	②	③	④
e. Measurement	①	②	③	④
f. Geometry	①	②	③	④
g. Statistics and probability	①	②	③	④
h. Discrete mathematics	①	②	③	④

26. How well prepared do you feel to do each of the following in your mathematics instruction? [Select one on each row.]

	Not adequately prepared	Somewhat prepared	Fairly well prepared	Very well prepared
a. Plan instruction so students at different levels of achievement can increase their understanding of the ideas targeted in each activity	①	②	③	④
b. Teach mathematics to students who have learning disabilities	①	②	③	④
c. Teach mathematics to students who have physical disabilities	①	②	③	④
d. Teach mathematics to English-language learners	①	②	③	④
e. Provide enrichment opportunities for gifted students	①	②	③	④
f. Encourage students' interest in mathematics	①	②	③	④
g. Encourage participation of females in mathematics	①	②	③	④
h. Encourage participation of racial or ethnic minorities in mathematics	①	②	③	④
i. Encourage participation of students from low socioeconomic backgrounds in mathematics	①	②	③	④
j. Manage classroom discipline	①	②	③	④

27. Please provide your opinion about each of the following statements. [Select one on each row.]

	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
a. Students learn mathematics best in classes with students of similar abilities.	①	②	③	④	⑤
b. Inadequacies in students' mathematics background can be overcome by effective teaching.	①	②	③	④	⑤
c. It is better for mathematics instruction to focus on ideas in depth, even if that means covering fewer topics.	①	②	③	④	⑤
d. Students should be provided with the purpose for a lesson as it begins.	①	②	③	④	⑤
e. At the beginning of instruction on a mathematical idea, students should be provided with definitions for new vocabulary that will be used.	①	②	③	④	⑤
f. Teachers should explain an idea to students before having them investigate the idea.	①	②	③	④	⑤
g. Most class periods should include some review of previously covered ideas and skills.	①	②	③	④	⑤
h. Most class periods should provide opportunities for students to share their thinking and reasoning.	①	②	③	④	⑤
i. Hands-on activities/manipulatives should be used primarily to reinforce a mathematical idea that the students have already learned.	①	②	③	④	⑤
j. Students should be assigned homework most days.	①	②	③	④	⑤
k. Most class periods should conclude with a summary of the key ideas addressed.	①	②	③	④	⑤

Section B. Your Mathematics Instruction

The rest of this questionnaire is about your mathematics instruction in this class.

28. ***[Presented to non-self-contained teachers only]***
On average, how many minutes per week does this class meet? [Enter your response as a whole number (for example: 300).] _____

29. Enter the number of students for each grade represented in this class. [Enter each response as a whole number (for example: 15).]

Kindergarten	
1st grade	
2nd grade	
3rd grade	
4th grade	
5th grade	
6th grade	
7th grade	
8th grade	
9th grade	
10th grade	
11th grade	
12th grade	

30. For the students in this class, indicate the number of males and females in each of the following categories of race/ethnicity. [Enter each response as a whole number (for example: 15).]

	Males	**Females**
a. American Indian or Alaska Native		
b. Asian		
c. Black or African American		
d. Hispanic/Latino		
e. Native Hawaiian or Other Pacific Islander		
f. White		
g. Two or more races		

31. Which of the following best describes the prior mathematics achievement levels of the students in this class relative to other students in this school?

○	Mostly low achievers
○	Mostly average achievers
○	Mostly high achievers
○	A mixture of levels

32. How much control do you have over each of the following aspects of mathematics instruction in this class? [Select one on each row.]

	No Control		Moderate Control		Strong Control
a. Determining course goals and objectives	①	②	③	④	⑤
b. Selecting textbooks/modules	①	②	③	④	⑤
c. Selecting content, topics, and skills to be taught	①	②	③	④	⑤
d. Selecting teaching techniques	①	②	③	④	⑤
e. Determining the amount of homework to be assigned	①	②	③	④	⑤
f. Choosing criteria for grading student performance	①	②	③	④	⑤

33. Think about your plans for this class for the entire course/year. By the end of the course/year, how much emphasis will each of the following student objectives receive? [Select one on each row.]

	None	Minimal emphasis	Moderate emphasis	Heavy emphasis
a. Learning mathematical procedures and/or algorithms	①	②	③	④
b. Learning to perform computations with speed and accuracy	①	②	③	④
c. Understanding mathematical ideas	①	②	③	④
d. Learning mathematical practices (for example: considering how to approach a problem, justifying solutions)	①	②	③	④
e. Learning about real-life applications of mathematics	①	②	③	④
f. Increasing students' interest in mathematics	①	②	③	④
g. Preparing for further study in mathematics	①	②	③	④
h. Learning test taking skills/strategies	①	②	③	④

34. How often do you do each of the following in your mathematics instruction in this class? [Select one on each row.]

	Never	Rarely (for example: a few times a year)	Sometimes (for example: once or twice a month)	Often (for example: once or twice a week)	All or almost all mathematics lessons
a. Explain mathematical ideas to the whole class	①	②	③	④	⑤
b. Engage the whole class in discussions	①	②	③	④	⑤
c. Have students work in small groups	①	②	③	④	⑤
d. Provide manipulatives for students to use in problem-solving/investigations	①	②	③	④	⑤
e. Have students read from a mathematics textbook/program or other mathematics-related material in class, either aloud or to themselves	①	②	③	④	⑤
f. Have students consider multiple representations in solving a problem (for example: numbers, tables, graphs, pictures)	①	②	③	④	⑤
g. Have students explain and justify their method for solving a problem	①	②	③	④	⑤
h. Have students compare and contrast different methods for solving a problem	①	②	③	④	⑤
i. Have students develop mathematical proofs	①	②	③	④	⑤
j. Have students present their solution strategies to the rest of the class	①	②	③	④	⑤
k. Have students write their reflections (for example: in their journals) in class or for homework	①	②	③	④	⑤
l. Give tests and/or quizzes that are predominantly short-answer (for example: multiple choice, true/false, fill in the blank)	①	②	③	④	⑤
m. Give tests and/or quizzes that include constructed-response/open-ended items	①	②	③	④	⑤
n. Focus on literacy skills (for example: informational reading or writing strategies)	①	②	③	④	⑤
o. Have students practice for standardized tests	①	②	③	④	⑤
p. Have students attend presentations by guest speakers focused on mathematics in the workplace	①	②	③	④	⑤

35. Which best describes the availability of each of the following for small group (4-5 students) work in this class? [Select one on each row.]

	Do not have one per group available	At least one per group available upon request or in another room	At least one per group located in your classroom
a. Personal computers, including laptops	○	○	○
b. Hand-held computers (for example: PDAs, tablets, smartphones, iPads)	○	○	○
c. Internet access	○	○	○
d. Four-function calculators	○	○	○
e. Scientific calculators	○	○	○
f. Graphing calculators	○	○	○
g. Probes for collecting data (for example: motion sensors, temperature probes)	○	○	○
h. Classroom response system or "Clickers" (handheld devices used to respond electronically to questions in class)	○	○	○

36. For each of the following, are students expected to provide their own for use in this mathematics class? [Select one on each row.]

	Yes	No
a. Laptop computers	○	○
b. Hand-held computers	○	○
c. Four-function calculators	○	○
d. Scientific calculators	○	○
e. Graphing calculators	○	○

37. How often do students use each of the following instructional technologies in this mathematics class? [Select one on each row.]

	Never	Rarely (for example: A few times a year)	Sometimes (for example: once or twice a month)	Often (for example: once or twice a week)	All or almost all mathematics lessons
a. Personal computers, including laptops	①	②	③	④	⑤
b. Hand-held computers	①	②	③	④	⑤
c. Internet	①	②	③	④	⑤
d. Four-function calculators	①	②	③	④	⑤
e. Scientific calculators	①	②	③	④	⑤
f. Graphing calculators	①	②	③	④	⑤
g. Probes for collecting data	①	②	③	④	⑤
h. Classroom response system or “Clickers”	①	②	③	④	⑤

38. How often are students in this class required to take mathematics tests that you did **not** develop yourself, for example state assessments or district benchmarks? Do **not** include Advanced Placement or International Baccalaureate exams or students retaking a test because of failure.

○	Never
○	Once a year
○	Twice a year
○	Three or four times a year
○	Five or more times a year

39. How much mathematics homework do you assign to this class in a typical **week**? (Do not include time that the class spends getting started on homework during class.)

○	Fewer than 15 minutes per week
○	15–30 minutes per week
○	31–60 minutes per week
○	61–90 minutes per week
○	91–120 minutes per week
○	2–3 hours per week
○	3–4 hours per week
○	More than 4 hours per week

40. Which best describes the instructional materials students **most frequently** use in this class?

○	One commercially-published textbook or program most of the time
○	Multiple commercially-published textbooks/programs most of the time ***[Skip to Q42]***
○	Non-commercially-published instructional materials most of the time ***[Skip to Q46]***

41. Please indicate the title, author, most recent copyright year, and ISBN code of the textbook/program used by the students in this class.

- The 10- or 13-character ISBN code can be found on the copyright page and/or the back cover of your textbook/program.
- Do not include the dashes when entering the ISBN.
- An example of the location of the ISBN is shown to the right.

Title:
First Author:
Year:
ISBN:
[Skip to Q43]

42. Please indicate the title, author, most recent copyright year, and ISBN code of the commercially-published textbook/program used most often by the students in this class.

- The 10- or 13-character ISBN code can be found on the copyright page and/or the back cover of your textbook/program.
- Do not include the dashes when entering the ISBN.
- An example of the location of the ISBN is shown to the right.

Title:
First Author:
Year:
ISBN:

43. How would you rate the overall quality of this textbook/program?

○	Very poor
○	Poor
○	Fair
○	Good
○	Very good
○	Excellent

44. ***[Presented only to teachers who indicated using one commercially-published textbook/program in Q40]***

Over the course of the school year, approximately what percentage of the mathematics **instructional time** will students in this class spend using this textbook/program?

○	Less than 25%
○	25–49%
○	50–74%
○	75–90%
○	More than 90%

45. ***[Presented only to teachers who indicated using one commercially-published textbook/program in Q40]***

Approximately what percentage of the chapters/units in this textbook/program will students in this class engage with during the school year?

○	Less than 25%
○	25–49%
○	50–74%
○	75–90%
○	More than 90%

46. Mathematics courses may benefit from the availability of particular resources. Considering what you have available, how adequate is each of the following for teaching this mathematics class? [Select one on each row.]

	Not Adequate		**Somewhat Adequate**		**Adequate**
a. Instructional technology (for example: calculators, computers, probes/sensors)	①	②	③	④	⑤
b. Measurement tools (for example: protractors, rulers)	①	②	③	④	⑤
c. Manipulatives (for example: pattern blocks, algebra tiles)	①	②	③	④	⑤
d. Consumable supplies (for example: graphing paper, batteries)	①	②	③	④	⑤

47. In your opinion, how great a problem is each of the following for your mathematics instruction in this class? [Select one on each row.]

	Not a significant problem	**Somewhat of a problem**	**Serious problem**
a. Lack of access to computers	○	○	○
b. Old age of computers	○	○	○
c. Lack of access to the Internet	○	○	○
d. Unreliability of the Internet connection	○	○	○
e. Slow speed of the Internet connection	○	○	○
f. Lack of availability of appropriate computer software	○	○	○
g. Lack of availability of technology support	○	○	○

48. Please rate the effect of each of the following on your mathematics instruction in this class. [Select one on each row.]

	Inhibits effective instruction		**Neutral or Mixed**		**Promotes effective instruction**	**N/A or Don't Know**
a. Current state standards	①	②	③	④	⑤	○
b. District/Diocese curriculum frameworks ***[Not presented to non-Catholic private schools]***	①	②	③	④	⑤	○
c. District/Diocese and/or school pacing guides	①	②	③	④	⑤	○
d. State testing/accountability policies ***[Not presented to non-Catholic private schools]***	①	②	③	④	⑤	○
e. District/Diocese testing/accountability policies ***[Not presented to non-Catholic private schools]***	①	②	③	④	⑤	○
f. Textbook/program selection policies	①	②	③	④	⑤	○
g. Teacher evaluation policies	①	②	③	④	⑤	○
h. College entrance requirements ***[Presented to grades 9–12 teachers only]***	①	②	③	④	⑤	○
i. Students' motivation, interest, and effort in mathematics	①	②	③	④	⑤	○
j. Students' reading abilities	①	②	③	④	⑤	○
k. Community views on mathematics instruction	①	②	③	④	⑤	○
l. Parent expectations and involvement	①	②	③	④	⑤	○
m. Principal support	①	②	③	④	⑤	○
n. Time for you to plan, individually and with colleagues	①	②	③	④	⑤	○
o. Time available for your professional development	①	②	③	④	⑤	○

Section C. Your Most Recently Completed Mathematics Unit in this Class

The questions in this section are about the most recently completed mathematics unit in this class.

- Depending on the structure of your class and the instructional materials you use, a unit may range from a few to many class periods.
- Do not be concerned if this unit was not typical of your instruction.

49. How many class periods were devoted to instruction on the **most recently completed mathematics unit**? [Enter your response as a whole number (for example: 15).] _____

50. Which of the following best describes the content focus of this unit?

○	Number and Operations
○	Measurement and Data Representation
○	Algebra
○	Geometry
○	Probability
○	Statistics
○	Trigonometry
○	Calculus

51. What mathematical ideas and/or skills were addressed in this unit? _____

52. ***[Presented only to teachers who indicated using commercially-published textbooks/programs in Q40]***

Was this unit based primarily on the commercially-published textbook/program you described earlier as the one most used in this class?

○	Yes ***[Skip to Q55]***
○	No

53. Was this unit based on a commercially-published textbook/program?

○	Yes
○	No ***[Skip to Q59]***

54. Please indicate the title, author, most recent copyright year, and ISBN code of that textbook/ program.

- The 10- or 13-character ISBN code can be found on the copyright page and/or the back cover of the textbook/module.
- Do not include the dashes when entering the ISBN.
- An example of the location of the ISBN is shown to the right.

Title:
First Author:
Year:
ISBN:

55. Please indicate the extent to which you did each of the following while teaching this unit. [Select one on each row.]

	Not at all		Somewhat		To a great extent
a. You used the textbook/program to guide the overall structure and content emphasis of the unit.	①	②	③	④	⑤
b. You followed the textbook/program to guide the detailed structure and content emphasis of the unit.	①	②	③	④	⑤
c. You picked what is important from the textbook/program and skipped the rest.	①	②	③	④	⑤
d. You incorporated activities (for example: problems, investigations, readings) from other sources to supplement what the textbook/program was lacking.	①	②	③	④	⑤

56. ***[Presented only to teachers who answered "2–5" in Q55c]***

During this unit, when you skipped activities (for example: problems, investigations, readings) in your textbook/program, how much was each of the following a factor in your decisions? [Select one on each row.]

	Not a factor	A minor factor	A major factor
a. The mathematical ideas addressed in the activities you skipped are not included in your pacing guide and/or current state standards.	①	②	③
b. You did not have the materials needed to implement the activities you skipped.	①	②	③
c. The activities you skipped were too difficult for your students.	①	②	③
d. Your students already knew the mathematical ideas or were able to learn them without the activities you skipped.	①	②	③
e. You have different activities for those mathematical ideas that work better than the ones you skipped.	①	②	③

57. ***[Presented only to teachers who answered "2–5" in Q55d]***

During this unit, when you supplemented the textbook/program with additional activities, how much was each of the following a factor in your decisions? [Select one on each row.]

	Not a factor	A minor factor	A major factor
a. Your pacing guide indicated that you should use supplemental activities.	①	②	③
b. Supplemental activities were needed to prepare students for standardized tests.	①	②	③
c. Supplemental activities were needed to provide students with additional practice.	①	②	③
d. Supplemental activities were needed so students at different levels of achievement could increase their understanding of the ideas targeted in each activity.	①	②	③

58. How well prepared did you feel to do each of the following as part of your instruction on this particular unit? [Select one on each row.]

	Not adequately prepared	Somewhat prepared	Fairly well prepared	Very well prepared
a. Anticipate difficulties that students will have with particular mathematical ideas and procedures in this unit	①	②	③	④
b. Find out what students thought or already knew about the key mathematical ideas	①	②	③	④
c. Implement the mathematics textbook/ program to be used during this unit ***[Presented only to teachers who indicated using a commercially-published textbook/program in Q52/53]***	①	②	③	④
d. Monitor student understanding during this unit	①	②	③	④
e. Assess student understanding at the conclusion of this unit	①	②	③	④

59. Which of the following did you do during this unit? [Select all that apply.]

□	Administered an assessment, task, or probe at the beginning of the unit to find out what students thought or already knew about the key mathematical ideas
□	Questioned individual students during class activities to see if they were "getting it"
□	Used information from informal assessments of the entire class (for example: asking for a show of hands, thumbs up/thumbs down, clickers, exit tickets) to see if students were "getting it"
□	Reviewed student work (for example: homework, notebooks, journals, portfolios, projects) to see if they were "getting it"
□	Administered one or more quizzes and/or tests to see if students were "getting it"
□	Had students use rubrics to examine their own or their classmates' work
□	Assigned grades to student work (for example: homework, notebooks, journals, portfolios, projects)
□	Administered one or more quizzes and/or tests to assign grades
□	Went over the correct answers to assignments, quizzes, and/or tests with the class as a whole

Section D. Your Most Recent Mathematics Lesson in this Class

The next three questions refer to the most recent mathematics lesson in this class, whether or not that instruction was part of the unit you've just been describing. Do not be concerned if this lesson included activities and/or interruptions that are not typical (for example: a test, students working on projects, a fire drill).

60. How many minutes was that lesson? [Enter your response as a non-zero whole number (for example: 50).] _____

61. Of these minutes, how many were spent on the following: [Enter each response as a whole number (for example: 15).]

a. Non-instructional activities (for example: attendance taking, interruptions) ____
b. Whole class activities (for example: lectures, explanations, discussions) ____
c. Small group work ___
d. Students working individually (for example: reading textbooks, completing worksheets, taking a test or quiz) ___

62. Which of the following activities took place during that mathematics lesson? [Select all that apply.]

□	Teacher explaining a mathematical idea to the whole class
□	Whole class discussion
□	Students completing textbook/worksheet problems
□	Teacher conducting a demonstration while students watched
□	Students doing hands-on/manipulative activities
□	Students reading about mathematics
□	Students using instructional technology
□	Practicing for standardized tests
□	Test or quiz
□	None of the above

Section E. Demographic Information

63. Indicate your sex:

○	Male
○	Female

64. Are you of Hispanic or Latino origin?

○	Yes
○	No

65. What is your race? [Select all that apply.]

□	American Indian or Alaska Native
□	Asian
□	Black or African American
□	Native Hawaiian or Other Pacific Islander
□	White

66. In what year were you born? [Enter your response as a whole number (for example: 1969). Do not use commas.] _____

Thank you!

MATHEMATICS TEACHER QUESTIONNAIRE TABLES

Table MTQ 1
Number of Years Mathematics Teachers Spent Teaching Prior to This School Year

	Mean Number of Years		
	Elementary	Middle	High
Any subject at the K–12 level	13.6 (0.4)	12.8 (0.4)	13.7 (0.3)
Mathematics at the K–12 level	12.7 (0.4)	11.1 (0.4)	13.4 (0.3)
At this school, any subject	9.1 (0.3)	8.1 (0.4)	8.7 (0.2)

Table MTQ 2
Grade Levels Taught by Mathematics Teachers

	Percent of Teachers
Grades K–5	75 (0.6)
Grades 6–8	15 (0.6)
Grades 9–12	14 (0.4)

Table MTQ 3
Instructional Arrangements for Mathematics in Self-Contained Elementary School Classes

	Percent of Teachers
This class receives mathematics instruction only from you	79 (1.8)
This class receives mathematics instruction from you and another teacher (e.g., a mathematics specialist or a teacher you team with)	21 (1.8)

Table MTQ 4
Frequency with Which Self-Contained Elementary School Teachers Provide Mathematics Instruction

	Percent of Teachers
I teach mathematics all or most days, every week of the year	99 (0.4)
I teach mathematics every week, but typically three or fewer days each week	1 (0.3)
I teach mathematics some weeks, but typically not every week	0 (0.2)

Table MTQ 5
Frequency with Which Self-Contained Elementary School Teachers Provide Science Instruction

	Percent of Teachers
I teach science all or most days, every week of the year	24 (1.6)
I teach science every week, but typically three or fewer days each week	33 (1.6)
I teach science some weeks, but typically not every week	37 (1.9)
I do not teach science	7 (0.8)

Table MTQ 6 and 7
Average Number of Minutes per Day Spent Teaching Each Subject in Self-Contained Elementary School Classes†

	Average Number of Minutes
Reading/Language Arts	87.7 (1.3)
Mathematics	55.4 (0.8)
Science	19.9 (0.4)
Social Studies	17.3 (0.4)

† Only teachers who indicated they teach reading/language arts, mathematics, science, and social studies to one class of students are included in these analyses.

Table MTQ 8
Number of Sections of Mathematics Classes Taught per Week

	Percent of Teachers†		
	Elementary	Middle	High
1 Section	13 (4.0)	3 (0.7)	5 (1.2)
2 Sections	43 (5.5)	15 (2.0)	8 (0.8)
3 Sections	24 (4.5)	22 (2.0)	18 (1.1)
4 Sections	8 (2.5)	19 (1.7)	14 (1.3)
5 Sections	8 (2.6)	24 (2.0)	32 (1.7)
6 Sections	2 (1.1)	14 (1.3)	20 (1.2)
7 Sections	0 ---‡	2 (0.5)	3 (0.4)
8 Sections	0 ---‡	0 (0.1)	0 (0.1)
9 Sections	0 ---‡	0 (0.0)	0 (0.1)
10 Sections	2 (1.1)	1 (0.5)	0 (0.1)

† Only classes taught by non-self-contained teachers are included in this analysis.
‡ No teachers in the sample selected this response option. Thus, it is not possible to calculate the standard error of this estimate.

There is no table for MTQ 9.

There is no table for MTQ 10.

Table MTQ 11
Subjects of Mathematics Teachers' Degrees

	Percent of Teachers		
	Elementary	Middle	High
Education, including Mathematics Education	90 (1.0)	82 (1.6)	71 (1.4)
Mathematics	4 (0.5)	23 (1.7)	52 (1.5)
Computer Science	1 (0.4)	4 (0.9)	4 (0.5)
Engineering	0 (0.2)	2 (0.5)	6 (0.7)
Other Subject	43 (1.9)	45 (2.3)	40 (1.8)

Table MTQ 12
Mathematics Teachers with Education Degrees

	Percent of Teachers[†]					
	Elementary		Middle		High	
Elementary Education	84	(1.1)	46	(2.3)	6	(0.7)
Mathematics Education	2	(0.3)	26	(2.0)	54	(1.7)
Science Education	1	(0.3)	5	(1.1)	2	(0.4)
Other Education	22	(1.4)	29	(2.1)	18	(1.1)

[†] Teachers indicating in Q11 that they do not have an education degree are treated as not having a degree in these areas.

Table MTQ 13
Mathematics College Courses[†] Completed by Mathematics Teachers

	Percent of Teachers					
	Elementary		Middle		High	
Mathematics for elementary school teachers	95	(0.7)	62	(2.1)	19	(1.3)
Mathematics for middle school teachers	12	(1.2)	56	(2.3)	31	(1.6)
Mathematics content for high school teachers	2	(0.6)	27	(1.8)	71	(1.8)
Integrated mathematics (a single course that addresses content across multiple mathematics subjects, such as algebra and geometry)	43	(1.7)	40	(2.0)	34	(1.7)
College algebra/trigonometry/functions	55	(1.6)	68	(2.1)	65	(1.8)
Abstract algebra (e.g., groups, rings, ideals, fields)[‡]	—	—	28	(1.6)	67	(1.7)
Linear algebra (e.g., vectors, matrices, eigenvalues)[‡]	—	—	39	(1.9)	80	(1.7)
Calculus	19	(1.4)	63	(2.3)	93	(0.9)
Advanced calculus[‡]	—	—	37	(2.1)	79	(1.6)
Real analysis[‡]	—	—	18	(1.7)	44	(1.7)
Differential equations[‡]	—	—	22	(1.5)	62	(1.7)
Analytic/Coordinate Geometry (e.g., transformations or isometries, conic sections)[‡]	—	—	26	(1.9)	53	(1.7)
Axiomatic Geometry (Euclidean or non-Euclidean)[‡]	—	—	21	(1.6)	55	(1.7)
College geometry[††]	24	(1.5)	—	—	—	—
Probability	24	(1.5)	39	(2.2)	56	(1.7)
Statistics	46	(1.6)	69	(2.1)	83	(1.5)
Number theory (e.g., divisibility theorems, properties of prime numbers)[‡]	—	—	32	(2.0)	54	(1.9)
Discrete mathematics (e.g., combinatorics, graph theory, game theory)[‡]	—	—	26	(1.7)	52	(1.8)
Other upper division mathematics	10	(1.0)	19	(1.5)	43	(1.5)

[†] A number of respondents to Q13 appear to have provided contact hours/credits rather than number of courses. Thus, it is not possible to report the number of courses taken with confidence and the percentage of teachers taking at least one course in each area is presented instead.

[‡] Item presented only to middle and/or high school teachers.

[††] Item presented only to elementary school teachers.

Table MTQ 14
College Courses† Completed by Mathematics Teachers

	Percent of Teachers					
	Elementary		Middle		High	
Computer science	50	(2.1)	61	(2.1)	77	(1.7)
Engineering	1	(0.4)	9	(1.2)	19	(1.4)
Science	93	(0.8)	89	(1.3)	87	(1.0)

† A number of respondents to Q14 appear to have provided contact hours/credits rather than number of courses. Thus, it is not possible to report the number of courses taken with confidence and the percentage of teachers taking at least one course in each area is presented instead.

Table MTQ 15
Mathematics College Courses† Completed by Mathematics Teachers at Various Institutions

	Percent of Courses					
	Elementary		Middle		High	
Two-year college, community college, and/or technical school	17	(1.4)	12	(1.4)	9	(0.8)
Four-year college and/or university	83	(1.4)	88	(1.4)	91	(0.8)

† A number of respondents to Q15 appear to have provided contact hours/credits rather than number of courses. Thus, it is not possible to report the number of courses taken at various institutions with confidence. However, assuming respondents entered the same type of data for both two-year and four-year institutions, it is possible to calculate the percentage of courses taken at each.

Table MTQ 16
Mathematics Teachers' Paths to Certification

	Percent of Teachers					
	Elementary		Middle		High	
An undergraduate program leading to a bachelor's degree and a teaching credential	63	(2.2)	55	(3.1)	48	(2.3)
A post-baccalaureate credentialing program (no master's degree awarded)	14	(1.9)	17	(2.1)	20	(1.8)
A master's program that also awarded a teaching credential	22	(2.0)	25	(2.7)	22	(1.6)
You do not have any formal teacher preparation	1	(0.4)	3	(1.1)	10	(1.9)

Table MTQ 17
Mathematics Teachers' Most Recent Participation in Mathematics-Focused† Professional Development

	Percent of Teachers					
	Elementary		Middle		High	
In the last 3 years	87	(1.3)	89	(1.6)	88	(1.0)
4–6 years ago	7	(0.9)	4	(0.7)	6	(0.6)
7–10 years ago	1	(0.4)	1	(0.5)	2	(0.4)
More than 10 years ago	1	(0.3)	2	(0.6)	1	(0.3)
Never	3	(0.7)	4	(1.0)	4	(0.7)

† Includes professional development focused on mathematics or mathematics teaching.

Table MTQ 18
Mathematics Teachers Participating in Various Professional Development Activities in the Last Three Years

	Percent of Teachers[†]					
	Elementary		Middle		High	
Attended a workshop on mathematics or mathematics teaching	91	(1.0)	92	(1.4)	89	(1.0)
Attended a national, state, or regional mathematics teacher association meeting	10	(1.0)	32	(2.5)	38	(1.5)
Participated in a professional learning community/lesson study/teacher study group focused on mathematics or mathematics teaching	66	(1.7)	76	(2.2)	73	(2.1)

[†] Only teachers indicating in Q17 that they participated in professional development in the last three years are included in this analysis.

Table MTQ 19
Time Spent by Mathematics Teachers on Mathematics-Focused[†] Professional Development in the Last Three Years

	Percent of Teachers					
	Elementary		Middle		High	
None[‡]	13	(1.3)	11	(1.6)	12	(1.0)
Less than 6 hours	21	(1.6)	11	(1.8)	11	(1.0)
6–15 hours	35	(1.6)	24	(2.1)	24	(1.4)
16–35 hours	20	(1.5)	23	(1.6)	22	(1.1)
More than 35 hours	11	(1.0)	31	(1.9)	32	(1.5)

[†] Includes professional development focused on mathematics or mathematics teaching.

[‡] Includes those teachers indicating in Q17 that they had not participated in professional development in the last three years.

Table MTQ 20.1
Elementary School Mathematics Teachers' Descriptions of Mathematics-Focused† Professional Development in the Last Three Years

	Percent of Teachers‡									
	Not at All				Somewhat				To a Great Extent	
	1		2		3		4		5	
You had opportunities to engage in mathematics investigations	8	(1.3)	7	(1.3)	40	(2.4)	26	(1.8)	20	(1.7)
You had opportunities to examine classroom artifacts (e.g., student work samples)	14	(1.6)	13	(1.5)	30	(2.2)	26	(2.0)	18	(1.8)
You had opportunities to try out what you learned in your classroom and then talk about it as part of the professional development	14	(1.8)	12	(1.7)	28	(2.5)	28	(2.6)	18	(1.9)
You worked closely with other mathematics teachers from your school	8	(1.3)	9	(1.4)	28	(2.3)	29	(2.2)	25	(2.0)
You worked closely with other mathematics teachers who taught the same grade and/or subject whether or not they were from your school	14	(1.8)	13	(1.5)	24	(2.3)	29	(2.2)	21	(2.1)
The professional development was a waste of your time	56	(2.1)	21	(1.7)	18	(1.6)	4	(0.9)	1	(0.5)

† Includes professional development focused on mathematics or mathematics teaching.
‡ Only elementary school teachers indicating in Q17 that they participated in professional development in the last three years are included in this analysis.

Table MTQ 20.2
Middle School Mathematics Teachers' Descriptions of Mathematics-Focused† Professional Development in the Last Three Years

	Percent of Teachers‡									
	Not at All				Somewhat				To a Great Extent	
	1		2		3		4		5	
You had opportunities to engage in mathematics investigations	9	(1.8)	10	(1.7)	31	(2.6)	32	(3.0)	19	(2.7)
You had opportunities to examine classroom artifacts (e.g., student work samples)	13	(2.3)	13	(2.3)	30	(2.9)	28	(3.0)	17	(2.2)
You had opportunities to try out what you learned in your classroom and then talk about it as part of the professional development	11	(2.4)	13	(2.1)	25	(2.4)	34	(2.6)	17	(1.9)
You worked closely with other mathematics teachers from your school	7	(2.2)	7	(1.3)	16	(2.1)	26	(3.3)	44	(3.1)
You worked closely with other mathematics teachers who taught the same grade and/or subject whether or not they were from your school	14	(2.8)	8	(1.5)	20	(2.0)	23	(2.9)	35	(3.4)
The professional development was a waste of your time	56	(3.4)	25	(2.9)	15	(2.3)	3	(1.0)	1	(0.3)

† Includes professional development focused on mathematics or mathematics teaching.
‡ Only middle school teachers indicating in Q17 that they participated in professional development in the last three years are included in this analysis.

Table MTQ 20.3
High School Mathematics Teachers' Descriptions of Mathematics-Focused[†] Professional Development in the Last Three Years

	Percent of Teachers[‡]									
	Not at All			Somewhat			To a Great Extent			
	1		2		3		4		5	
You had opportunities to engage in mathematics investigations	10	(1.8)	10	(1.3)	38	(2.3)	26	(1.7)	16	(1.3)
You had opportunities to examine classroom artifacts (e.g., student work samples)	11	(1.8)	18	(2.0)	34	(1.9)	24	(1.9)	12	(1.3)
You had opportunities to try out what you learned in your classroom and then talk about it as part of the professional development	13	(1.9)	14	(1.8)	27	(2.1)	29	(2.1)	17	(1.8)
You worked closely with other mathematics teachers from your school	6	(1.7)	7	(1.3)	19	(1.6)	30	(2.3)	38	(2.1)
You worked closely with other mathematics teachers who taught the same grade and/or subject whether or not they were from your school	10	(2.1)	12	(1.6)	22	(1.6)	31	(2.3)	25	(1.7)
The professional development was a waste of your time	48	(2.4)	23	(1.8)	21	(2.0)	5	(0.7)	2	(0.6)

[†] Includes professional development focused on mathematics or mathematics teaching.
[‡] Only high school teachers indicating in Q17 that they participated in professional development in the last three years are included in this analysis.

Table MTQ 21.1
Elementary School Mathematics Teachers' Most Recent Participation in a Formal Course for College Credit in Various Areas

	Percent of Teachers									
	In the last 3 years		4–6 years ago		7–10 years ago		More than 10 years ago		Never	
Mathematics	12	(1.1)	17	(1.4)	20	(1.3)	50	(1.7)	1	(0.3)
How to teach mathematics	14	(1.3)	17	(1.4)	18	(1.2)	46	(1.7)	5	(0.7)
Student teaching in mathematics	8	(0.9)	11	(1.1)	16	(1.1)	50	(1.6)	14	(1.2)
Student teaching in other subjects	10	(0.9)	13	(1.2)	16	(1.1)	56	(1.7)	6	(0.7)

Table MTQ 21.2
Middle School Mathematics Teachers' Most Recent Participation in a Formal Course for College Credit in Various Areas

	Percent of Teachers									
	In the last 3 years		4–6 years ago		7–10 years ago		More than 10 years ago		Never	
Mathematics	19	(1.4)	20	(1.5)	18	(1.6)	43	(1.8)	1	(0.4)
How to teach mathematics	19	(1.5)	17	(1.4)	16	(1.5)	35	(2.2)	13	(1.7)
Student teaching in mathematics	10	(1.2)	10	(0.8)	12	(1.5)	42	(2.2)	27	(2.1)
Student teaching in other subjects	8	(1.3)	10	(0.8)	11	(1.5)	43	(2.1)	27	(1.8)

Table MTQ 21.3
High School Mathematics Teachers' Most Recent Participation in a Formal Course for College Credit in Various Areas

	Percent of Teachers									
	In the last 3 years		4–6 years ago		7–10 years ago		More than 10 years ago		Never	
Mathematics	18	(1.1)	19	(1.1)	15	(1.0)	48	(1.8)	0	(0.1)
How to teach mathematics	20	(1.1)	15	(1.0)	13	(0.9)	40	(1.5)	13	(1.6)
Student teaching in mathematics	9	(0.8)	10	(0.9)	11	(0.9)	49	(1.7)	21	(1.6)
Student teaching in other subjects	5	(0.8)	4	(0.6)	5	(0.6)	30	(1.1)	56	(1.4)

Table MTQ 22.1
Elementary School Mathematics Teachers' Perceptions of Topics Emphasized During Professional Development/Coursework in the Last Three Years

	Percent of Teachers[†]									
	Not at All				Somewhat				To a Great Extent	
	1		2		3		4		5	
Deepening your own mathematics content knowledge	10	(1.5)	11	(1.3)	36	(2.5)	26	(2.3)	17	(1.7)
Learning how to use hands-on activities/ manipulatives for mathematics instruction	1	(0.6)	2	(0.9)	16	(2.0)	40	(2.6)	40	(2.6)
Learning about difficulties that students may have with particular mathematical ideas and procedures	4	(1.1)	12	(1.7)	35	(2.5)	32	(2.6)	16	(2.2)
Finding out what students think or already know about the key mathematical ideas prior to instruction on those ideas	5	(1.1)	15	(1.5)	38	(2.3)	31	(2.3)	11	(1.8)
Implementing the mathematics textbook/ program to be used in your classroom	10	(1.9)	10	(1.5)	25	(2.3)	30	(2.3)	25	(2.6)
Planning instruction so students at different levels of achievement can increase their understanding of the ideas targeted in each activity	3	(0.9)	8	(1.4)	30	(2.4)	36	(2.5)	23	(2.4)
Monitoring student understanding during mathematics instruction	3	(0.9)	8	(1.5)	33	(2.4)	33	(2.3)	24	(2.4)
Providing enrichment experiences for gifted students	13	(1.8)	22	(2.2)	29	(2.4)	26	(2.5)	11	(1.7)
Providing alternative mathematics learning experiences for students with special needs	11	(1.7)	24	(2.3)	31	(2.6)	23	(2.2)	10	(1.5)
Teaching mathematics to English-language learners	33	(3.0)	23	(2.4)	24	(2.3)	13	(1.7)	7	(1.6)
Assessing student understanding at the conclusion of instruction on a topic	3	(1.0)	9	(1.4)	29	(2.3)	38	(2.7)	20	(2.2)

[†] Only elementary school teachers indicating in Q17 that they participated in professional development years or indicating in Q21 that they took a college course in "Mathematics" or "How to teach mathematics" in the last three are included in this analysis.

Table MTQ 22.2
Middle School Mathematics Teachers' Perceptions of Topics Emphasized During Professional Development/Coursework in the Last Three Years

	Percent of Teachers[†]				
	Not at All		Somewhat		To a Great Extent
	1	2	3	4	5
Deepening your own mathematics content knowledge	14 (2.6)	11 (1.6)	31 (3.5)	26 (2.9)	17 (2.3)
Learning how to use hands-on activities/ manipulatives for mathematics instruction	2 (0.6)	5 (1.0)	25 (3.2)	38 (3.0)	29 (3.1)
Learning about difficulties that students may have with particular mathematical ideas and procedures	5 (1.2)	10 (1.7)	34 (3.2)	34 (2.8)	17 (2.1)
Finding out what students think or already know about the key mathematical ideas prior to instruction on those ideas	7 (1.9)	18 (2.6)	38 (3.5)	26 (3.0)	11 (2.0)
Implementing the mathematics textbook/ program to be used in your classroom	21 (2.6)	18 (2.0)	23 (2.8)	20 (2.5)	19 (2.9)
Planning instruction so students at different levels of achievement can increase their understanding of the ideas targeted in each activity	3 (1.0)	7 (1.5)	25 (3.1)	40 (3.1)	24 (2.9)
Monitoring student understanding during mathematics instruction	5 (1.3)	9 (1.9)	32 (3.2)	34 (3.2)	20 (2.5)
Providing enrichment experiences for gifted students	15 (2.4)	23 (2.5)	32 (2.8)	19 (2.4)	12 (2.3)
Providing alternative mathematics learning experiences for students with special needs	14 (2.1)	19 (2.8)	28 (2.5)	25 (3.0)	14 (2.0)
Teaching mathematics to English-language learners	39 (3.3)	23 (2.8)	19 (2.4)	12 (1.7)	8 (1.5)
Assessing student understanding at the conclusion of instruction on a topic	5 (1.1)	12 (2.3)	27 (3.4)	37 (3.4)	20 (2.4)

[†] Only middle school teachers indicating in Q17 that they participated in professional development or indicating in Q21 that they took a college course in "Mathematics" or "How to teach mathematics" in the last three years are included in this analysis.

Table MTQ 22.3
High School Mathematics Teachers' Perceptions of Topics Emphasized During Professional Development/Coursework in the Last Three Years

	Percent of Teachers[†]				
	Not at All		Somewhat		To a Great Extent
	1	2	3	4	5
Deepening your own mathematics content knowledge	15 (1.4)	15 (1.5)	36 (2.1)	19 (1.5)	15 (1.5)
Learning how to use hands-on activities/ manipulatives for mathematics instruction	6 (0.9)	9 (1.3)	30 (2.1)	33 (2.0)	23 (1.8)
Learning about difficulties that students may have with particular mathematical ideas and procedures	6 (0.9)	16 (1.7)	33 (2.0)	32 (2.1)	14 (1.5)
Finding out what students think or already know about the key mathematical ideas prior to instruction on those ideas	9 (1.3)	21 (1.4)	38 (1.8)	24 (1.6)	8 (1.1)
Implementing the mathematics textbook/ program to be used in your classroom	20 (1.9)	21 (1.8)	27 (1.7)	21 (1.8)	11 (1.1)
Planning instruction so students at different levels of achievement can increase their understanding of the ideas targeted in each activity	6 (0.9)	10 (1.1)	31 (2.1)	36 (2.2)	18 (1.5)
Monitoring student understanding during mathematics instruction	5 (0.8)	13 (1.3)	33 (1.7)	34 (1.9)	15 (1.3)
Providing enrichment experiences for gifted students	22 (1.8)	28 (2.0)	29 (2.0)	15 (1.5)	6 (1.2)
Providing alternative mathematics learning experiences for students with special needs	16 (1.3)	25 (1.5)	29 (1.6)	22 (1.7)	8 (1.1)
Teaching mathematics to English-language learners	42 (2.0)	23 (1.6)	17 (1.7)	13 (1.6)	4 (0.6)
Assessing student understanding at the conclusion of instruction on a topic	7 (1.3)	12 (1.6)	32 (1.6)	35 (2.2)	14 (1.5)

[†] Only high school teachers indicating in Q17 that they participated in professional development or indicating in Q21 that they took a college course in "Mathematics" or "How to teach mathematics" in the last three years are included in this analysis.

Table MTQ 23
Mathematics Teachers Participating in Various Professional Activities in the Last Three Years

	Percent of Teachers		
	Elementary	Middle	High
Received feedback about your mathematics teaching from a mentor/coach formally assigned by the school or district/diocese	46 (2.2)	57 (3.0)	54 (2.2)
Served as a formally assigned mentor/coach for mathematics teaching, not including supervision of student teachers	10 (1.5)	22 (2.5)	22 (1.8)
Supervised a student teacher in your classroom	35 (2.3)	24 (2.6)	23 (2.0)
Taught in-service workshops on mathematics or mathematics teaching	6 (1.2)	14 (2.1)	15 (1.4)
Led a professional learning community/lesson study/teacher study group focused on mathematics or mathematics teaching	8 (1.4)	21 (2.4)	25 (1.9)

Table MTQ 24.1
Self-Contained Elementary School Mathematics Teachers' Perceptions of their Preparedness to Teach Various Subjects

	Percent of Teachers			
	Not Adequately Prepared	Somewhat Prepared	Fairly Well Prepared	Very Well Prepared
Number and Operations	0 (0.1)	2 (0.4)	21 (1.3)	77 (1.4)
Early Algebra	5 (0.7)	13 (1.2)	36 (1.7)	46 (2.0)
Geometry	3 (0.6)	10 (1.0)	33 (1.7)	54 (1.9)
Measurement and Data Representation	1 (0.4)	9 (1.0)	33 (1.9)	56 (2.0)
Science	3 (0.5)	16 (1.3)	43 (1.6)	38 (2.0)
Reading/Language Arts	0 (0.0)	2 (0.5)	20 (1.3)	77 (1.3)
Social Studies	2 (0.4)	13 (1.4)	39 (1.8)	47 (1.8)

There is no middle school table for MTQ 24.2.

There is no high school table for MTQ 24.3.

Table MTQ 25.1
Non-Self-Contained Elementary School Mathematics Teachers' Perceptions of their Preparedness to Teach Various Subjects

	Percent of Teachers			
	Not Adequately Prepared	Somewhat Prepared	Fairly Well Prepared	Very Well Prepared
The number system and operations	0 ---[†]	2 (1.3)	16 (3.4)	81 (3.6)
Algebraic thinking	1 (0.8)	5 (2.0)	37 (4.7)	57 (5.3)
Functions	6 (2.5)	8 (2.5)	31 (5.0)	54 (5.8)
Modeling	0 (0.2)	7 (2.6)	34 (4.9)	59 (5.0)
Measurement	0 (0.2)	6 (2.4)	30 (5.1)	64 (4.6)
Geometry	0 (0.3)	6 (2.7)	33 (5.2)	60 (5.1)
Statistics and probability	3 (1.6)	17 (3.9)	30 (4.5)	50 (5.4)
Discrete mathematics	18 (3.7)	26 (4.8)	35 (4.7)	21 (4.5)

[†] No teachers in the sample selected this response option. Thus, it is not possible to calculate the standard error of this estimate.

Table MTQ 25.2
Middle School Mathematics Teachers'
Perceptions of their Preparedness to Teach Various Subjects

	Percent of Teachers			
	Not Adequately Prepared	Somewhat Prepared	Fairly Well Prepared	Very Well Prepared
The number system and operations	0 (0.2)	1 (0.4)	11 (1.3)	88 (1.4)
Algebraic thinking	0 (0.1)	3 (0.7)	21 (1.8)	76 (1.9)
Functions	2 (0.5)	10 (1.2)	29 (1.9)	60 (1.9)
Modeling	1 (0.4)	12 (1.5)	38 (2.2)	49 (2.3)
Measurement	0 (0.1)	6 (1.3)	28 (2.0)	66 (2.1)
Geometry	2 (0.5)	8 (1.4)	28 (1.7)	62 (2.0)
Statistics and probability	2 (0.5)	11 (1.1)	39 (2.0)	48 (2.2)
Discrete mathematics	17 (1.5)	27 (1.7)	38 (2.1)	18 (1.5)

Table MTQ 25.3
High School Mathematics Teachers'
Perceptions of their Preparedness to Teach Various Subjects

	Percent of Teachers			
	Not Adequately Prepared	Somewhat Prepared	Fairly Well Prepared	Very Well Prepared
The number system and operations	0 (0.2)	1 (0.3)	9 (1.0)	90 (1.1)
Algebraic thinking	0 (0.2)	1 (0.3)	7 (0.9)	91 (0.9)
Functions	0 (0.2)	3 (0.9)	13 (1.1)	84 (1.5)
Modeling	1 (0.3)	10 (1.3)	31 (1.6)	58 (2.0)
Measurement	0 (0.1)	4 (0.6)	17 (1.2)	79 (1.2)
Geometry	2 (0.3)	7 (0.7)	21 (1.4)	70 (1.4)
Statistics and probability	7 (0.8)	25 (1.4)	38 (1.3)	30 (1.2)
Discrete mathematics	14 (1.1)	28 (1.4)	32 (1.3)	25 (1.2)

Table MTQ 26.1
Elementary School Mathematics Teachers' Perceptions of their Preparedness for Each of a Number of Tasks

	Percent of Teachers			
	Not Adequately Prepared	Somewhat Prepared	Fairly Well Prepared	Very Well Prepared
Plan instruction so students at different levels of achievement can increase their understanding of the ideas targeted in each activity	1 (0.6)	12 (1.6)	45 (2.6)	42 (2.2)
Teach mathematics to students who have learning disabilities	8 (1.2)	32 (2.3)	37 (2.6)	23 (2.1)
Teach mathematics to students who have physical disabilities	22 (2.0)	32 (2.2)	30 (2.2)	16 (1.6)
Teach mathematics to English-language learners	20 (2.2)	28 (2.4)	28 (2.4)	23 (2.2)
Provide enrichment opportunities for gifted students	6 (1.1)	23 (2.2)	44 (2.5)	27 (2.2)
Encourage students' interest in mathematics	1 (0.4)	8 (1.2)	44 (2.2)	48 (2.3)
Encourage participation of females in mathematics	2 (0.7)	9 (1.3)	33 (1.9)	56 (2.2)
Encourage participation of racial or ethnic minorities in mathematics	4 (0.9)	13 (1.5)	34 (2.1)	50 (2.1)
Encourage participation of students from low socioeconomic backgrounds in mathematics	2 (0.6)	11 (1.5)	35 (1.9)	52 (2.2)
Manage classroom discipline	0 ---†	2 (0.6)	29 (2.2)	69 (2.1)

† No teachers in the sample selected this response option. Thus, it is not possible to calculate the standard error of this estimate.

Table MTQ 26.2
Middle School Mathematics Teachers' Perceptions of their Preparedness for Each of a Number of Tasks

	Percent of Teachers			
	Not Adequately Prepared	Somewhat Prepared	Fairly Well Prepared	Very Well Prepared
Plan instruction so students at different levels of achievement can increase their understanding of the ideas targeted in each activity	3 (1.6)	21 (2.6)	40 (2.7)	36 (2.7)
Teach mathematics to students who have learning disabilities	11 (2.1)	30 (2.7)	32 (2.6)	27 (3.0)
Teach mathematics to students who have physical disabilities	22 (2.9)	22 (1.8)	35 (2.9)	21 (2.7)
Teach mathematics to English-language learners	26 (3.2)	30 (3.0)	27 (2.8)	17 (2.1)
Provide enrichment opportunities for gifted students	8 (1.6)	24 (2.8)	35 (3.2)	33 (3.2)
Encourage students' interest in mathematics	3 (1.3)	13 (1.9)	39 (2.8)	46 (3.0)
Encourage participation of females in mathematics	3 (1.7)	7 (0.9)	34 (2.9)	56 (2.9)
Encourage participation of racial or ethnic minorities in mathematics	5 (1.8)	14 (2.2)	33 (3.0)	48 (2.8)
Encourage participation of students from low socioeconomic backgrounds in mathematics	5 (2.0)	12 (1.8)	30 (2.6)	53 (3.1)
Manage classroom discipline	1 (0.3)	5 (1.1)	33 (2.9)	61 (2.9)

Table MTQ 26.3
High School Mathematics Teachers' Perceptions of their Preparedness for Each of a Number of Tasks

	Percent of Teachers			
	Not Adequately Prepared	Somewhat Prepared	Fairly Well Prepared	Very Well Prepared
Plan instruction so students at different levels of achievement can increase their understanding of the ideas targeted in each activity	2 (0.6)	18 (1.8)	48 (2.2)	31 (1.9)
Teach mathematics to students who have learning disabilities	9 (1.3)	32 (1.8)	39 (1.9)	19 (1.6)
Teach mathematics to students who have physical disabilities	15 (1.6)	32 (1.7)	36 (2.1)	17 (1.4)
Teach mathematics to English-language learners	25 (1.8)	33 (2.2)	30 (1.9)	13 (1.2)
Provide enrichment opportunities for gifted students	7 (0.9)	29 (2.2)	41 (2.0)	23 (1.8)
Encourage students' interest in mathematics	1 (0.3)	14 (1.4)	46 (1.8)	39 (2.2)
Encourage participation of females in mathematics	2 (0.6)	12 (1.5)	35 (1.8)	51 (2.2)
Encourage participation of racial or ethnic minorities in mathematics	3 (0.7)	16 (1.6)	41 (2.0)	39 (2.0)
Encourage participation of students from low socioeconomic backgrounds in mathematics	2 (0.6)	17 (1.5)	41 (1.9)	40 (2.2)
Manage classroom discipline	0 (0.2)	6 (1.2)	35 (2.1)	58 (2.3)

Table MTQ 27.1
Elementary School Mathematics Teachers' Opinions about Teaching and Learning

	Percent of Teachers									
	Strongly Disagree		Disagree		No Opinion		Agree		Strongly Agree	
Students learn mathematics best in classes with students of similar abilities	4	(0.6)	35	(1.7)	10	(1.0)	39	(1.6)	12	(1.1)
Inadequacies in students' mathematics background can be overcome by effective teaching	0	(0.2)	5	(0.7)	7	(0.9)	65	(1.6)	23	(1.3)
It is better for mathematics instruction to focus on ideas in depth, even if that means covering fewer topics	0	---†	10	(1.1)	12	(1.2)	48	(1.3)	30	(1.6)
Students should be provided with the purpose for a lesson as it begins	0	(0.1)	1	(0.4)	3	(0.5)	43	(1.5)	52	(1.6)
At the beginning of instruction on a mathematical idea, students should be provided with definitions for new vocabulary that will be used	0	(0.2)	5	(0.7)	5	(0.8)	44	(1.7)	46	(1.7)
Teachers should explain an idea to students before having them investigate the idea	2	(0.5)	33	(1.6)	17	(1.2)	30	(1.6)	18	(1.3)
Most class periods should include some review of previously covered ideas and skills	0	---†	1	(0.3)	3	(0.5)	56	(1.7)	40	(1.7)
Most class periods should provide opportunities for students to share their thinking and reasoning	0	(0.2)	1	(0.3)	2	(0.5)	40	(1.7)	57	(1.7)
Hands-on activities/manipulatives should be used primarily to reinforce a mathematical idea that the students have already learned	6	(0.9)	34	(1.6)	7	(0.8)	27	(1.3)	25	(1.5)
Students should be assigned homework most days	1	(0.3)	16	(1.4)	15	(1.2)	46	(1.5)	21	(1.4)
Most class periods should conclude with a summary of the key ideas addressed	0	(0.1)	1	(0.3)	4	(0.8)	46	(1.6)	49	(1.7)

† No teachers in the sample selected this response option. Thus, it is not possible to calculate the standard error of this estimate.

Table MTQ 27.2
Middle School Mathematics Teachers' Opinions about Teaching and Learning

	Percent of Teachers									
	Strongly Disagree		Disagree		No Opinion		Agree		Strongly Agree	
Students learn mathematics best in classes with students of similar abilities	1	(0.4)	21	(1.9)	9	(1.1)	51	(2.4)	18	(1.7)
Inadequacies in students' mathematics background can be overcome by effective teaching	0	(0.2)	10	(1.4)	7	(0.8)	67	(2.0)	16	(1.7)
It is better for mathematics instruction to focus on ideas in depth, even if that means covering fewer topics	1	(0.4)	8	(1.2)	9	(1.4)	48	(2.2)	34	(2.1)
Students should be provided with the purpose for a lesson as it begins	0	(0.1)	3	(0.7)	5	(1.1)	45	(2.2)	47	(2.2)
At the beginning of instruction on a mathematical idea, students should be provided with definitions for new vocabulary that will be used	0	(0.1)	7	(0.9)	9	(1.2)	42	(2.1)	41	(2.7)
Teachers should explain an idea to students before having them investigate the idea	3	(0.7)	35	(1.9)	24	(1.6)	26	(1.8)	11	(1.4)
Most class periods should include some review of previously covered ideas and skills	0	(0.1)	4	(0.9)	6	(0.9)	55	(2.8)	36	(2.9)
Most class periods should provide opportunities for students to share their thinking and reasoning	0	---†	1	(0.5)	4	(0.7)	46	(2.3)	49	(2.2)
Hands-on activities/manipulatives should be used primarily to reinforce a mathematical idea that the students have already learned	5	(1.2)	35	(2.0)	20	(1.7)	27	(2.0)	13	(1.4)
Students should be assigned homework most days	1	(0.4)	12	(1.6)	11	(1.2)	50	(2.1)	26	(2.0)
Most class periods should conclude with a summary of the key ideas addressed	0	---†	1	(0.4)	5	(0.9)	51	(2.3)	42	(2.3)

† No teachers in the sample selected this response option. Thus, it is not possible to calculate the standard error of this estimate.

Table MTQ 27.3
High School Mathematics Teachers' Opinions about Teaching and Learning

	Percent of Teachers									
	Strongly Disagree		Disagree		No Opinion		Agree		Strongly Agree	
Students learn mathematics best in classes with students of similar abilities	1	(0.3)	14	(1.0)	8	(0.8)	53	(1.6)	24	(1.6)
Inadequacies in students' mathematics background can be overcome by effective teaching	1	(0.3)	13	(1.1)	9	(0.8)	64	(1.6)	12	(1.1)
It is better for mathematics instruction to focus on ideas in depth, even if that means covering fewer topics	0	(0.2)	10	(0.9)	11	(0.9)	50	(1.5)	28	(1.4)
Students should be provided with the purpose for a lesson as it begins	0	(0.2)	5	(0.7)	10	(0.8)	53	(1.5)	32	(1.5)
At the beginning of instruction on a mathematical idea, students should be provided with definitions for new vocabulary that will be used	0	(0.1)	8	(0.8)	11	(0.7)	51	(1.6)	30	(1.5)
Teachers should explain an idea to students before having them investigate the idea	4	(0.6)	38	(1.6)	21	(1.4)	29	(1.5)	8	(1.0)
Most class periods should include some review of previously covered ideas and skills	0	(0.1)	5	(0.7)	8	(0.8)	62	(1.7)	25	(1.7)
Most class periods should provide opportunities for students to share their thinking and reasoning	0	(0.1)	1	(0.3)	6	(0.7)	56	(1.7)	37	(1.6)
Hands-on activities/manipulatives should be used primarily to reinforce a mathematical idea that the students have already learned	2	(0.3)	32	(1.3)	27	(1.6)	31	(1.4)	8	(0.8)
Students should be assigned homework most days	1	(0.3)	8	(1.1)	9	(0.9)	52	(1.4)	30	(1.4)
Most class periods should conclude with a summary of the key ideas addressed	0	(0.0)	1	(0.3)	8	(0.8)	58	(1.5)	33	(1.5)

Table MTQ 28
Average Minutes per Week Mathematics Classes Meet

	Average Number of Minutes†	
Elementary	299.5	(13.7)
Middle	286.6	(7.3)
High	284.6	(5.6)

† Only non-self-contained classes are included in this analysis.

Table MTQ 29
Average Number of Students in Mathematics Classes

	Average Number of Students	
Elementary	21.4	(0.2)
Middle	22.1	(0.4)
High	21.4	(0.3)

Table MTQ 30
Race/Ethnicity of Students in Mathematics Classes

	Percent of Students		
	Elementary	Middle	High
American Indian or Alaskan Native	1 (0.2)	1 (0.3)	1 (0.2)
Asian	3 (0.3)	5 (0.8)	5 (0.5)
Black or African American	15 (1.4)	17 (1.4)	12 (0.6)
Hispanic/Latino	21 (1.7)	16 (1.2)	15 (0.9)
Native Hawaiian or Other Pacific Islander	1 (0.2)	0 (0.1)	1 (0.1)
White	55 (1.6)	58 (1.9)	63 (1.1)
Two or more races	4 (0.3)	3 (0.4)	3 (0.3)

Table MTQ 31
Prior Mathematics Achievement Level of Students in Mathematics Classes

	Percent of Classes		
	Elementary	Middle	High
Mostly low achievers	12 (1.0)	27 (1.8)	24 (1.1)
Mostly average achievers	35 (1.6)	24 (1.8)	28 (1.5)
Mostly high achievers	9 (0.9)	24 (1.7)	26 (1.1)
A mixture of levels	45 (1.5)	26 (1.8)	22 (1.1)

Table MTQ 32.1
Elementary School Mathematics Classes Where Teachers Report Having Control Over Various Curriculum and Instruction Decisions

	Percent of Classes				
	No Control		Moderate Control		Strong Control
	1	2	3	4	5
Determining course goals and objectives	44 (2.3)	15 (1.8)	19 (1.7)	10 (1.6)	12 (1.5)
Selecting textbooks/programs	46 (2.4)	24 (2.2)	17 (1.9)	10 (1.5)	3 (0.8)
Selecting content, topics, and skills to be taught	47 (2.3)	17 (2.1)	18 (2.1)	10 (1.3)	8 (1.1)
Selecting teaching techniques	3 (1.1)	3 (0.7)	19 (2.0)	30 (2.0)	44 (2.5)
Determining the amount of homework to be assigned	3 (0.8)	3 (0.7)	16 (1.9)	22 (2.1)	56 (2.6)
Choosing criteria for grading student performance	9 (1.3)	10 (1.5)	28 (2.0)	24 (2.2)	29 (2.4)

Table MTQ 32.2
Middle School Mathematics Classes Where Teachers Report Having Control Over Various Curriculum and Instruction Decisions

	Percent of Classes									
	No Control			Moderate Control					Strong Control	
	1		2		3		4		5	
Determining course goals and objectives	26	(2.2)	14	(1.6)	24	(2.3)	12	(1.5)	24	(2.1)
Selecting textbooks/programs	34	(2.7)	18	(2.2)	26	(2.4)	10	(1.3)	13	(2.3)
Selecting content, topics, and skills to be taught	25	(1.9)	15	(1.8)	24	(2.7)	14	(2.3)	23	(2.2)
Selecting teaching techniques	1	(0.3)	1	(0.5)	8	(2.1)	20	(2.1)	70	(2.6)
Determining the amount of homework to be assigned	2	(1.6)	1	(0.4)	5	(0.9)	16	(2.0)	77	(2.4)
Choosing criteria for grading student performance	5	(1.8)	3	(0.9)	17	(2.1)	19	(1.9)	56	(2.7)

Table MTQ 32.3
High School Mathematics Classes Where Teachers Report Having Control Over Various Curriculum and Instruction Decisions

	Percent of Classes									
	No Control			Moderate Control					Strong Control	
	1		2		3		4		5	
Determining course goals and objectives	18	(1.4)	12	(1.3)	26	(1.7)	15	(1.6)	28	(2.1)
Selecting textbooks/programs	32	(1.8)	15	(1.4)	19	(1.5)	14	(1.5)	20	(2.1)
Selecting content, topics, and skills to be taught	16	(1.6)	15	(1.3)	26	(1.8)	19	(1.5)	24	(1.9)
Selecting teaching techniques	0	(0.3)	1	(0.3)	6	(0.9)	22	(1.7)	72	(1.8)
Determining the amount of homework to be assigned	1	(0.4)	1	(0.4)	7	(1.0)	16	(1.6)	75	(2.0)
Choosing criteria for grading student performance	2	(0.5)	3	(0.8)	17	(1.4)	23	(1.8)	55	(2.1)

Table MTQ 33.1
Emphasis Given in Elementary School Mathematics Classes to Various Instructional Objectives

	Percent of Classes							
	None		Minimal Emphasis		Moderate Emphasis		Heavy Emphasis	
Learning mathematical procedures and/or algorithms	1	(0.3)	9	(0.9)	45	(1.9)	44	(1.9)
Learning to perform computations with speed and accuracy	2	(0.4)	16	(1.3)	47	(1.7)	36	(1.9)
Understanding mathematical ideas	0	(0.1)	2	(0.5)	29	(1.4)	69	(1.4)
Learning mathematical practices (e.g., considering how to approach a problem, justifying solutions)	0	(0.2)	7	(0.8)	41	(1.5)	51	(1.5)
Learning about real-life applications of mathematics	0	(0.1)	10	(1.2)	44	(1.8)	45	(1.7)
Increasing students' interest in mathematics	0	(0.2)	10	(1.1)	40	(1.8)	50	(1.7)
Preparing for further study in mathematics	2	(0.5)	11	(0.9)	41	(1.8)	47	(1.8)
Learning test taking skills/strategies	2	(0.5)	19	(1.3)	42	(1.5)	37	(1.5)

Table MTQ 33.2
Emphasis Given in Middle School
Mathematics Classes to Various Instructional Objectives

	Percent of Classes							
	None		Minimal Emphasis		Moderate Emphasis		Heavy Emphasis	
Learning mathematical procedures and/or algorithms	1	(0.5)	7	(0.9)	42	(2.1)	49	(2.2)
Learning to perform computations with speed and accuracy	1	(0.4)	25	(1.6)	51	(2.1)	24	(1.8)
Understanding mathematical ideas	0	(0.2)	1	(0.3)	29	(2.0)	70	(2.0)
Learning mathematical practices (e.g., considering how to approach a problem, justifying solutions)	0	(0.2)	6	(0.9)	40	(2.2)	54	(2.3)
Learning about real-life applications of mathematics	0	---[†]	11	(1.4)	47	(1.9)	42	(1.9)
Increasing students' interest in mathematics	0	(0.1)	12	(1.2)	50	(2.1)	37	(1.9)
Preparing for further study in mathematics	1	(0.4)	8	(1.0)	34	(2.0)	57	(2.2)
Learning test taking skills/strategies	1	(0.3)	16	(1.6)	47	(2.4)	36	(2.5)

[†] No teachers in the sample selected this response option. Thus, it is not possible to calculate the standard error of this estimate.

Table MTQ 33.3
Emphasis Given in High School
Mathematics Classes to Various Instructional Objectives

	Percent of Classes							
	None		Minimal Emphasis		Moderate Emphasis		Heavy Emphasis	
Learning mathematical procedures and/or algorithms	0	(0.1)	6	(0.7)	45	(1.5)	48	(1.5)
Learning to perform computations with speed and accuracy	2	(0.4)	29	(1.2)	51	(1.4)	18	(1.2)
Understanding mathematical ideas	0	(0.0)	2	(0.4)	30	(1.3)	69	(1.4)
Learning mathematical practices (e.g., considering how to approach a problem, justifying solutions)	0	(0.1)	6	(0.8)	39	(1.4)	55	(1.3)
Learning about real-life applications of mathematics	1	(0.3)	16	(1.2)	54	(1.6)	29	(1.3)
Increasing students' interest in mathematics	1	(0.3)	19	(1.2)	52	(1.7)	27	(1.4)
Preparing for further study in mathematics	1	(0.2)	9	(0.8)	35	(1.5)	55	(1.6)
Learning test taking skills/strategies	2	(0.3)	22	(1.2)	48	(1.6)	28	(1.3)

Table MTQ 34.1
Elementary School Mathematics Classes in which Teachers Report Various Activities in their Classrooms

	Percent of Classes									
	Never		Rarely (e.g., a few times a year)		Sometimes (e.g., once or twice a month)		Often (e.g., once or twice a week)		All or almost all mathematics lessons	
Explain mathematical ideas to the whole class	0	(0.2)	0	(0.2)	2	(0.4)	20	(1.6)	77	(1.7)
Engage the whole class in discussions	0	(0.2)	1	(0.2)	3	(0.7)	20	(1.5)	76	(1.6)
Have students work in small groups	0	(0.2)	2	(0.5)	13	(1.1)	51	(1.9)	34	(1.8)
Provide manipulatives for students to use in problem-solving/investigations	0	---[†]	2	(0.4)	16	(1.1)	47	(1.9)	34	(1.9)
Have students read from a mathematics textbook/program or other mathematics-related material in class, either aloud or to themselves	14	(1.1)	22	(1.6)	23	(1.5)	24	(1.4)	18	(1.5)
Have students consider multiple representations in solving a problem (e.g., numbers, tables, graphs, pictures)	1	(0.2)	3	(0.6)	18	(1.3)	44	(1.6)	33	(1.9)
Have students explain and justify their method for solving a problem	0	(0.1)	2	(0.4)	10	(0.9)	39	(1.7)	49	(1.7)
Have students compare and contrast different methods for solving a problem	2	(0.4)	7	(0.8)	25	(1.7)	41	(1.5)	25	(1.5)
Have students develop mathematical proofs	28	(1.6)	20	(1.5)	22	(1.2)	20	(1.5)	10	(1.5)
Have students present their solution strategies to the rest of the class	3	(0.5)	8	(0.8)	25	(1.3)	38	(1.6)	26	(1.5)
Have students write their reflections (e.g., in their journals) in class or for homework	22	(1.4)	25	(1.4)	28	(1.4)	17	(1.5)	9	(1.2)
Give tests and/or quizzes that are predominantly short-answer (e.g., multiple choice, true/false, fill in the blank)	11	(1.2)	13	(1.2)	29	(1.8)	35	(1.7)	12	(1.4)
Give tests and/or quizzes that include constructed-response/open-ended items	13	(1.2)	15	(1.2)	33	(1.7)	30	(1.7)	9	(1.0)
Focus on literacy skills (e.g., informational reading or writing strategies)	11	(1.0)	20	(1.5)	30	(1.6)	25	(1.9)	15	(1.4)
Have students practice for standardized tests	17	(1.4)	24	(1.4)	29	(1.8)	22	(1.4)	9	(1.1)
Have students attend presentations by guest speakers focused on mathematics in the workplace	79	(1.5)	16	(1.4)	3	(0.5)	2	(0.6)	1	(0.3)

[†] No teachers in the sample selected this response option. Thus, it is not possible to calculate the standard error of this estimate.

Table MTQ 34.2
Middle School Mathematics Classes in which Teachers Report Various Activities in their Classrooms

	Percent of Classes									
	Never		Rarely (e.g., a few times a year)		Sometimes (e.g., once or twice a month)		Often (e.g., once or twice a week)		All or almost all mathematics lessons	
Explain mathematical ideas to the whole class	0	---[†]	1	(0.2)	2	(0.5)	26	(1.8)	71	(1.8)
Engage the whole class in discussions	0	---[†]	1	(0.3)	6	(1.0)	34	(1.7)	59	(1.9)
Have students work in small groups	1	(0.2)	6	(0.9)	23	(1.8)	46	(2.3)	24	(1.6)
Provide manipulatives for students to use in problem-solving/investigations	1	(0.4)	18	(1.3)	48	(1.9)	28	(1.8)	4	(0.9)
Have students read from a mathematics textbook/program or other mathematics-related material in class, either aloud or to themselves	9	(1.0)	32	(1.9)	25	(2.0)	24	(1.8)	10	(1.3)
Have students consider multiple representations in solving a problem (e.g., numbers, tables, graphs, pictures)	0	(0.2)	4	(0.6)	21	(1.5)	51	(2.1)	24	(1.7)
Have students explain and justify their method for solving a problem	0	(0.2)	3	(1.0)	11	(1.1)	37	(1.8)	48	(1.9)
Have students compare and contrast different methods for solving a problem	1	(0.3)	11	(1.4)	26	(1.8)	43	(1.9)	19	(1.5)
Have students develop mathematical proofs	28	(1.8)	30	(2.0)	25	(2.1)	12	(1.5)	5	(0.9)
Have students present their solution strategies to the rest of the class	2	(0.5)	10	(1.0)	28	(1.7)	39	(1.8)	21	(1.8)
Have students write their reflections (e.g., in their journals) in class or for homework	26	(1.9)	31	(1.9)	22	(1.6)	15	(1.5)	6	(0.9)
Give tests and/or quizzes that are predominantly short-answer (e.g., multiple choice, true/false, fill in the blank)	8	(1.2)	19	(1.4)	34	(1.9)	30	(2.1)	8	(0.9)
Give tests and/or quizzes that include constructed-response/open-ended items	4	(0.7)	12	(1.5)	33	(1.9)	38	(2.4)	13	(1.4)
Focus on literacy skills (e.g., informational reading or writing strategies)	14	(1.3)	35	(1.8)	29	(1.8)	18	(1.8)	5	(0.8)
Have students practice for standardized tests	4	(0.8)	21	(2.2)	35	(2.0)	29	(2.0)	10	(1.5)
Have students attend presentations by guest speakers focused on mathematics in the workplace	76	(1.8)	18	(1.4)	4	(1.0)	1	(0.3)	1	(0.5)

[†] No teachers in the sample selected this response option. Thus, it is not possible to calculate the standard error of this estimate.

Table MTQ 34.3
High School Mathematics Classes in which Teachers Report Various Activities in their Classrooms

	Percent of Classes									
	Never		Rarely (e.g., a few times a year)		Sometimes (e.g., once or twice a month)		Often (e.g., once or twice a week)		All or almost all mathematics lessons	
Explain mathematical ideas to the whole class	0	(0.2)	1	(0.3)	3	(0.6)	24	(1.3)	72	(1.4)
Engage the whole class in discussions	0	(0.2)	3	(0.6)	12	(0.9)	36	(1.4)	48	(1.3)
Have students work in small groups	1	(0.5)	8	(0.9)	28	(1.2)	43	(1.5)	20	(1.3)
Provide manipulatives for students to use in problem-solving/investigations	7	(0.7)	34	(1.4)	40	(1.3)	15	(1.0)	3	(0.5)
Have students read from a mathematics textbook/program or other mathematics-related material in class, either aloud or to themselves	18	(1.1)	34	(1.1)	23	(1.1)	18	(1.2)	8	(0.8)
Have students consider multiple representations in solving a problem (e.g., numbers, tables, graphs, pictures)	1	(0.3)	6	(0.6)	29	(1.3)	45	(1.5)	19	(1.0)
Have students explain and justify their method for solving a problem	0	(0.2)	3	(0.6)	17	(1.2)	44	(1.4)	36	(1.6)
Have students compare and contrast different methods for solving a problem	2	(0.3)	10	(0.9)	33	(1.4)	41	(1.4)	14	(1.0)
Have students develop mathematical proofs	24	(1.2)	33	(1.4)	26	(1.3)	13	(1.0)	4	(0.6)
Have students present their solution strategies to the rest of the class	4	(0.6)	17	(1.1)	34	(1.4)	33	(1.2)	12	(1.0)
Have students write their reflections (e.g., in their journals) in class or for homework	43	(1.5)	30	(1.2)	16	(1.1)	8	(0.9)	3	(0.4)
Give tests and/or quizzes that are predominantly short-answer (e.g., multiple choice, true/false, fill in the blank)	13	(1.2)	25	(1.2)	26	(1.1)	26	(1.1)	10	(0.8)
Give tests and/or quizzes that include constructed-response/open-ended items	4	(1.0)	9	(0.8)	30	(1.4)	38	(1.5)	18	(1.0)
Focus on literacy skills (e.g., informational reading or writing strategies)	23	(1.3)	38	(1.3)	25	(1.2)	11	(0.9)	4	(0.4)
Have students practice for standardized tests	9	(0.8)	25	(1.4)	34	(1.3)	22	(1.3)	9	(0.9)
Have students attend presentations by guest speakers focused on mathematics in the workplace	78	(1.2)	18	(1.1)	3	(0.4)	1	(0.3)	0	(0.1)

Table MTQ 35.1
Availability of Instructional Technology in Elementary School Mathematics Classrooms

	Percent of Classes		
	Do not have one per group available	**At least one per group available upon request or in another room**	**At least one per group located in your classroom**
Personal computers, including laptops	32 (2.5)	32 (2.5)	36 (3.0)
Hand-held computers (e.g., PDAs, tablets, smartphones, iPads)	83 (2.2)	11 (1.8)	6 (1.2)
Internet access	20 (1.9)	25 (2.0)	55 (2.6)
Four-function calculators	42 (3.0)	13 (1.8)	45 (3.0)
Scientific calculators	84 (2.2)	9 (1.6)	7 (1.5)
Graphing calculators	89 (1.9)	10 (1.8)	1 (0.4)
Probes for collecting data (e.g., motion sensors, temperature probes)	81 (2.0)	16 (1.9)	2 (0.7)
Classroom response system or "Clickers" (handheld devices used to respond electronically to questions in class)	61 (2.6)	28 (2.5)	12 (1.8)

Table MTQ 35.2
Availability of Instructional Technology in Middle School Mathematics Classrooms

	Percent of Classes		
	Do not have one per group available	**At least one per group available upon request or in another room**	**At least one per group located in your classroom**
Personal computers, including laptops	32 (2.5)	43 (2.6)	25 (2.6)
Hand-held computers (e.g., PDAs, tablets, smartphones, iPads)	79 (2.5)	16 (2.3)	5 (1.2)
Internet access	20 (2.0)	40 (2.9)	40 (2.9)
Four-function calculators	23 (2.0)	14 (2.1)	63 (2.7)
Scientific calculators	31 (2.7)	16 (1.7)	53 (2.8)
Graphing calculators	50 (2.9)	21 (2.4)	29 (2.6)
Probes for collecting data (e.g., motion sensors, temperature probes)	82 (2.1)	16 (2.0)	2 (0.7)
Classroom response system or "Clickers" (handheld devices used to respond electronically to questions in class)	47 (3.0)	25 (2.0)	28 (2.8)

Table MTQ 35.3
Availability of Instructional Technology in High School Mathematics Classrooms

	Percent of Classes		
	Do not have one per group available	At least one per group available upon request or in another room	At least one per group located in your classroom
Personal computers, including laptops	42 (2.3)	39 (2.1)	18 (1.6)
Hand-held computers (e.g., PDAs, tablets, smartphones, iPads)	83 (1.4)	12 (1.2)	6 (0.9)
Internet access	30 (1.9)	38 (1.8)	32 (1.6)
Four-function calculators	39 (1.9)	13 (1.5)	48 (2.0)
Scientific calculators	26 (1.7)	16 (1.6)	58 (2.0)
Graphing calculators	17 (1.7)	17 (1.6)	66 (2.3)
Probes for collecting data (e.g., motion sensors, temperature probes)	74 (2.2)	22 (1.8)	4 (0.8)
Classroom response system or "Clickers" (handheld devices used to respond electronically to questions in class)	56 (2.5)	27 (2.0)	17 (1.6)

Table MTQ 36
Expectations that Students Will Provide their Own Instructional Technologies in Mathematics Classes

	Percent of Classes		
	Elementary	Middle	High
Laptop computers	3 (0.9)	4 (0.9)	7 (1.1)
Hand-held computers	3 (0.8)	3 (0.9)	6 (0.9)
Four-function calculators	5 (1.3)	23 (2.4)	23 (1.8)
Scientific calculators	3 (0.8)	22 (2.2)	38 (2.0)
Graphing calculators	3 (0.7)	8 (1.9)	30 (2.0)

Table MTQ 37.1
Frequency of Instructional Technology Use in Elementary School Mathematics Classes

	Percent of Classes				
	Never	Rarely (e.g., a few times a year)	Sometimes (e.g., once or twice a month)	Often (e.g., once or twice a week)	All or almost all mathematics lessons
Personal computers, including laptops	33 (1.9)	11 (1.7)	20 (2.2)	30 (2.3)	6 (1.2)
Hand-held computers	84 (2.1)	5 (1.1)	6 (1.5)	4 (1.0)	2 (0.5)
Internet	22 (1.8)	15 (1.8)	21 (2.1)	34 (2.4)	9 (1.3)
Four-function calculators	56 (2.7)	15 (2.0)	17 (2.0)	11 (1.6)	2 (0.7)
Scientific calculators	92 (1.7)	3 (1.2)	1 (0.4)	3 (1.2)	1 (0.5)
Graphing calculators	97 (1.2)	3 (1.2)	0 ---†	0 (0.0)	0 ---†
Probes for collecting data	87 (1.9)	7 (1.2)	6 (1.2)	0 (0.3)	0 ---†
Classroom response system or "Clickers"	71 (2.3)	16 (1.9)	9 (1.4)	4 (1.1)	1 (0.5)

† No teachers in the sample selected this response option. Thus, it is not possible to calculate the standard error of this estimate.

Table MTQ 37.2
Frequency of Instructional Technology Use in Middle School Mathematics Classes

	Percent of Classes									
	Never		Rarely (e.g., A few times a year)		Sometimes (e.g., once or twice a month)		Often (e.g., once or twice a week)		All or almost all mathematics lessons	
Personal computers, including laptops	31	(2.5)	25	(2.4)	21	(2.2)	20	(2.8)	2	(0.7)
Hand-held computers	77	(2.4)	12	(1.6)	6	(1.3)	4	(1.3)	1	(0.7)
Internet	23	(2.3)	24	(2.2)	27	(2.3)	23	(2.7)	3	(0.7)
Four-function calculators	31	(2.2)	15	(1.9)	14	(2.1)	21	(2.0)	19	(2.4)
Scientific calculators	37	(2.5)	10	(1.6)	13	(1.5)	16	(2.1)	24	(2.4)
Graphing calculators	62	(3.0)	17	(1.8)	8	(1.3)	6	(1.6)	8	(1.4)
Probes for collecting data	82	(2.1)	14	(1.8)	2	(0.6)	1	(0.6)	0	(0.3)
Classroom response system or "Clickers"	59	(2.7)	17	(1.9)	13	(1.8)	8	(1.4)	3	(0.8)

Table MTQ 37.3
Frequency of Instructional Technology Use in High School Mathematics Classes

	Percent of Classes									
	Never		Rarely (e.g., A few times a year)		Sometimes (e.g., once or twice a month)		Often (e.g., once or twice a week)		All or almost all mathematics lessons	
Personal computers, including laptops	46	(2.3)	27	(1.8)	17	(1.6)	6	(0.9)	4	(0.8)
Hand-held computers	78	(1.8)	13	(1.5)	5	(1.0)	2	(0.6)	2	(0.5)
Internet	31	(2.0)	31	(1.8)	26	(2.0)	8	(1.0)	4	(0.9)
Four-function calculators	52	(2.3)	10	(1.1)	5	(0.9)	10	(1.3)	22	(1.9)
Scientific calculators	33	(1.8)	7	(0.9)	8	(1.1)	15	(1.4)	38	(2.1)
Graphing calculators	18	(1.7)	7	(1.0)	11	(1.3)	18	(1.6)	46	(2.3)
Probes for collecting data	83	(2.1)	13	(1.7)	3	(0.7)	1	(0.4)	0	---[†]
Classroom response system or "Clickers"	72	(2.2)	14	(1.6)	10	(1.2)	4	(0.7)	1	(0.3)

[†] No teachers in the sample selected this response option. Thus, it is not possible to calculate the standard error of this estimate.

Table MTQ 38
Frequency of Required External Mathematics Testing in Mathematics Classes

	Percent of Classes					
	Elementary		Middle		High	
Never	9	(0.9)	2	(0.4)	21	(1.3)
Once a year	14	(1.3)	19	(2.2)	28	(1.3)
Twice a year	7	(0.9)	10	(1.4)	15	(1.0)
Three or four times a year	38	(1.7)	38	(2.4)	22	(1.2)
Five or more times a year	31	(1.7)	31	(1.7)	14	(1.1)

Table MTQ 39
Amount of Homework Assigned in Mathematics Classes per Week

	Percent of Classes					
	Elementary		Middle		High	
Fewer than 15 minutes per week	16	(1.9)	5	(0.8)	7	(1.0)
15–30 minutes per week	19	(2.0)	13	(2.6)	8	(1.2)
31–60 minutes per week	35	(2.6)	28	(2.9)	22	(1.7)
61–90 minutes per week	17	(1.8)	29	(2.9)	27	(1.8)
91–120 minutes per week	9	(1.3)	14	(1.5)	13	(1.1)
2–3 hours per week	3	(0.9)	8	(1.4)	17	(1.6)
3–4 hours per week	1	(0.5)	1	(0.4)	4	(0.6)
More than 4 hours per week	0	---†	1	(0.3)	2	(0.4)

† No teachers in the sample selected this response option. Thus, it is not possible to calculate the standard error of this estimate.

Table MTQ 40
Instructional Materials Used in Mathematics Classes

	Percent of Classes					
	Elementary		Middle		High	
One commercially-published textbook or program most of the time	62	(2.2)	55	(2.4)	65	(1.4)
Multiple commercially-published textbooks/programs most of the time	23	(1.6)	27	(2.1)	16	(0.9)
Non-commercially-published instructional materials most of the time	15	(1.5)	19	(1.8)	19	(1.0)

Table MTQ 41a and 42a
Most Recent Copyright Year of
Instructional Materials Used in Mathematics Classes

	Percent of Classes†					
	Elementary		Middle		High	
2012	5	(1.2)	4	(1.1)	4	(0.5)
2011	9	(1.5)	6	(0.9)	7	(0.7)
2010	4	(0.9)	6	(0.8)	4	(0.6)
2009	24	(2.0)	8	(1.2)	9	(0.8)
2008	12	(1.5)	19	(2.3)	10	(1.1)
2007	16	(1.6)	17	(2.1)	15	(1.3)
2006 or earlier	30	(2.4)	40	(2.4)	52	(1.9)

† Only classes of teachers indicating in Q40 that they use one or multiple commercially-published textbooks/programs are included in this analysis.

Table MTQ 41b.1 and 42b.1
Market Share of Commercial Textbook/Program
Publishers Used in Elementary School Mathematics Classes

	Percent of Classes†	
Houghton Mifflin Harcourt	35	(2.7)
Pearson	33	(3.0)
McGraw-Hill	29	(2.5)
A Beka Book	1	(0.3)
Carolina Biological Supply Company	1	(0.6)
Delta Education	0	(0.2)
Frank Schaffer Publications	0	(0.1)
Math Solutions Publications	0	(0.1)
Mimosa Publications	0	(0.1)
Purposeful Design	0	(0.1)
Sadlier-Oxford	0	(0.2)
Stenhouse Publishers	0	(0.1)
The Math Learning Center	0	(0.3)

† Only classes of elementary school teachers indicating in Q40 that they use one or multiple commercially-published textbooks/programs are included in this analysis.

Table MTQ 41b.2 and 42b.2
Market Share of Commercial Textbook/Program
Publishers Used in Middle School Mathematics Classes

	Percent of Classes†	
Houghton Mifflin Harcourt	41	(3.2)
McGraw-Hill	28	(2.8)
Pearson	26	(2.5)
A Beka Book	1	(0.4)
CPM Educational Program	1	(0.5)
Creative Publications	1	(0.4)
Amsco	0	(0.1)
Bob Jones University Press	0	(0.3)
Buckle Down	0	(0.1)
Cambium Learning	0	(0.0)
Carnegie Learning	0	(0.2)
Creative Teaching Press	0	(0.1)
Frank Schaffer Publications	0	(0.1)
Kendall Hunt	0	(0.1)
PCI Educational Publishing	0	(0.0)
The College Board	0	(0.1)

† Only classes of middle school teachers indicating in Q40 that they use one or multiple commercially-published textbooks/programs are included in this analysis.

Table MTQ 41b.3 and 42b.3
Market Share of Commercial Textbook/Program Publishers Used in High School Mathematics Classes

	Percent of Classes†
Houghton Mifflin Harcourt	35 (1.6)
Pearson	30 (2.0)
McGraw-Hill	18 (1.6)
Cengage Learning	9 (1.0)
W. H. Freeman	2 (0.6)
Amsco	1 (0.3)
CPM Educational Program	1 (0.4)
John Wiley & Sons	1 (0.2)
Kendall Hunt	1 (0.4)
Barron's	0 (0.0)
Carnegie Learning	0 (0.1)
Duxbury Press	0 (0.0)
Haese & Harris Publications	0 (0.2)
IBID Press	0 (0.1)
Key Curriculum Press	0 (0.1)
LearningExpress	0 (0.1)
Lexington Books	0 (0.1)
PCI Educational Publishing	0 (0.1)
Renaissance Learning	0 (0.1)
Teaching Textbooks Inc.	0 (0.2)
The College Board	0 (0.1)
Triumph Learning	0 (0.1)
Venture Publishing	0 (0.1)
Willow Tree Publishing	0 (0.1)

† Only classes of high school teachers indicating in Q40 that they use one or multiple commercially-published textbooks/programs are included in this analysis.

Table MTQ 43
Perceived Quality of Instructional Materials Used Most Often in Mathematics Classes

	Percent of Classes†		
	Elementary	Middle	High
Very poor	1 (0.6)	2 (1.2)	1 (0.4)
Poor	3 (0.9)	4 (0.9)	4 (0.8)
Fair	20 (2.4)	19 (2.4)	16 (1.3)
Good	38 (2.5)	34 (2.6)	33 (2.5)
Very good	30 (2.5)	33 (2.9)	37 (2.3)
Excellent	9 (1.4)	9 (1.6)	8 (1.0)

† Only classes of teachers indicating in Q40 that they use one or multiple commercially-published textbooks/programs are included in this analysis.

Table MTQ 44
Percentage of Instructional Time Spent Using Instructional Materials during the Mathematics Course

	Percent of Classes†		
	Elementary	Middle	High
Less than 25%	4 (1.2)	14 (2.0)	21 (2.2)
25–49%	12 (2.3)	14 (1.9)	14 (0.8)
50–74%	20 (2.6)	23 (3.2)	20 (1.7)
75–90%	33 (3.0)	35 (3.2)	30 (2.3)
More than 90%	31 (3.2)	14 (2.5)	15 (2.3)

† Only classes of teachers indicating in Q40 that they use one commercially-published textbook/program are included in this analysis.

Table MTQ 45
Percentage of the Textbook/Program Covered during the Mathematics Course

	Percent of Classes†		
	Elementary	Middle	High
Less than 25%	2 (0.8)	2 (0.7)	1 (0.4)
25–49%	5 (1.3)	7 (2.1)	7 (1.2)
50–74%	13 (1.8)	22 (3.1)	25 (2.1)
75–90%	33 (2.8)	47 (3.8)	46 (2.3)
More than 90%	47 (3.3)	22 (2.9)	22 (2.0)

† Only classes of teachers indicating in Q40 that they use one commercially-published textbook/program are included in this analysis.

Table MTQ 46.1
Adequacy of Classroom Resources for Mathematics Instruction in Elementary Schools

	Percent of Classes				
	Not Adequate		Somewhat Adequate		Adequate
	1	2	3	4	5
Instructional technology (e.g., calculators, computers, probes/sensors)	15 (1.2)	8 (1.0)	27 (1.4)	22 (1.4)	29 (1.8)
Measurement tools (e.g., protractors, rulers)	7 (0.9)	7 (0.9)	20 (1.4)	23 (1.5)	44 (1.8)
Manipulatives (e.g., pattern blocks, algebra tiles)	3 (0.7)	4 (0.8)	11 (1.3)	24 (1.6)	58 (2.0)
Consumable supplies (e.g., graphing paper, batteries)	9 (1.1)	9 (0.9)	25 (1.3)	25 (1.3)	32 (1.3)

Table MTQ 46.2
Adequacy of Classroom Resources for Mathematics Instruction in Middle Schools

	Percent of Classes				
	Not Adequate		Somewhat Adequate		Adequate
	1	2	3	4	5
Instructional technology (e.g., calculators, computers, probes/sensors)	7 (1.1)	7 (1.0)	24 (1.7)	21 (1.6)	41 (1.9)
Measurement tools (e.g., protractors, rulers)	4 (1.0)	6 (1.1)	19 (1.8)	23 (1.9)	49 (1.9)
Manipulatives (e.g., pattern blocks, algebra tiles)	8 (1.1)	8 (1.2)	25 (1.6)	23 (2.0)	36 (2.2)
Consumable supplies (e.g., graphing paper, batteries)	8 (1.3)	7 (1.0)	21 (1.6)	25 (1.7)	39 (1.7)

Table MTQ 46.3
Adequacy of Classroom Resources for Mathematics Instruction in High Schools

	Percent of Classes				
	Not Adequate		Somewhat Adequate		Adequate
	1	2	3	4	5
Instructional technology (e.g., calculators, computers, probes/sensors)	6 (0.7)	4 (0.7)	19 (1.1)	22 (1.1)	49 (1.6)
Measurement tools (e.g., protractors, rulers)	6 (0.6)	6 (0.7)	18 (1.1)	21 (1.1)	49 (1.5)
Manipulatives (e.g., pattern blocks, algebra tiles)	14 (1.0)	15 (1.1)	28 (1.2)	16 (1.2)	27 (1.3)
Consumable supplies (e.g., graphing paper, batteries)	6 (0.6)	8 (0.9)	20 (1.2)	23 (1.4)	43 (1.5)

Table MTQ 47.1
Elementary School Mathematics Classes for which Teachers Report Technology Problems

	Percent of Classes		
	Not a Significant Problem	Somewhat of a Problem	Serious Problem
Lack of access to computers	51 (2.5)	36 (2.3)	13 (1.7)
Old age of computers	54 (2.2)	28 (1.9)	18 (2.0)
Lack of access to the Internet	78 (1.9)	16 (1.7)	6 (1.0)
Unreliability of the Internet connection	73 (2.3)	21 (1.8)	6 (1.2)
Slow speed of the Internet connection	67 (2.4)	23 (1.7)	10 (1.4)
Lack of availability of appropriate computer software	55 (2.5)	35 (2.5)	10 (1.4)
Lack of availability of technology support	59 (2.2)	31 (2.1)	11 (1.7)

Table MTQ 47.2
Middle School Mathematics Classes
for which Teachers Report Technology Problesm

	Percent of Classes		
	Not a Significant Problem	Somewhat of a Problem	Serious Problem
Lack of access to computers	58 (3.2)	33 (2.9)	9 (1.5)
Old age of computers	66 (2.6)	21 (2.2)	13 (1.9)
Lack of access to the Internet	76 (2.5)	20 (2.3)	4 (0.9)
Unreliability of the Internet connection	70 (2.5)	24 (2.4)	6 (0.9)
Slow speed of the Internet connection	68 (2.4)	25 (2.2)	7 (1.0)
Lack of availability of appropriate computer software	56 (2.7)	33 (2.7)	11 (1.6)
Lack of availability of technology support	65 (2.7)	27 (2.3)	8 (1.4)

Table MTQ 47.3
High School Mathematics Classes
for which Teachers Report Technology Problems

	Percent of Classes		
	Not a Significant Problem	Somewhat of a Problem	Serious Problem
Lack of access to computers	65 (1.9)	28 (1.8)	8 (1.3)
Old age of computers	70 (1.9)	21 (1.7)	9 (1.4)
Lack of access to the Internet	80 (1.5)	16 (1.5)	3 (0.8)
Unreliability of the Internet connection	79 (1.7)	17 (1.5)	5 (1.0)
Slow speed of the Internet connection	74 (1.7)	21 (1.6)	6 (1.2)
Lack of availability of appropriate computer software	59 (2.0)	30 (2.0)	11 (1.4)
Lack of availability of technology support	68 (1.9)	23 (1.6)	8 (1.1)

Table MTQ 48.1
Elementary School Mathematics Classes for which Teachers Report the Effect Various Factors Have on Mathematics Instruction

	Percent of Classes											
	Inhibits Effective Instruction				Neutral or Mixed				Promotes Effective Instruction		N/A or Don't Know	
	1		2		3		4		5			
Current state standards	4	(1.0)	2	(0.7)	19	(2.1)	15	(1.6)	60	(2.7)	1	(0.4)
District/Diocese curriculum frameworks†	4	(1.1)	3	(0.9)	16	(1.9)	21	(2.0)	53	(2.5)	2	(0.8)
District/Diocese and/or school pacing guides	6	(1.2)	6	(1.2)	17	(1.8)	21	(2.2)	46	(2.7)	4	(0.9)
State testing/accountability policies†	8	(1.4)	9	(1.4)	27	(2.0)	22	(2.1)	26	(2.3)	7	(1.4)
District/Diocese testing/ accountability policies†	6	(1.1)	7	(1.4)	24	(2.3)	25	(2.4)	29	(2.5)	8	(1.3)
Textbook/program selection policies	6	(1.1)	7	(1.2)	26	(2.2)	22	(1.9)	32	(2.3)	7	(1.2)
Teacher evaluation policies	4	(0.9)	4	(1.0)	30	(2.1)	20	(1.7)	35	(2.4)	7	(1.3)
Students' motivation, interest, and effort in mathematics	4	(1.0)	5	(1.0)	13	(1.6)	23	(2.3)	53	(2.4)	2	(0.8)
Students' reading abilities	5	(1.3)	12	(1.7)	21	(2.2)	22	(1.9)	37	(2.2)	3	(0.8)
Community views on mathematics instruction	4	(0.9)	6	(1.1)	35	(2.4)	18	(1.7)	23	(2.1)	15	(1.5)
Parent expectations and involvement	5	(1.1)	9	(1.4)	25	(2.5)	21	(2.1)	36	(2.1)	2	(0.9)
Principal support	2	(0.8)	3	(0.6)	13	(1.7)	18	(1.9)	59	(2.4)	5	(1.1)
Time for you to plan, individually and with colleagues	8	(1.3)	10	(1.3)	15	(1.8)	18	(1.7)	46	(2.4)	3	(0.8)
Time available for your professional development	5	(1.1)	9	(1.3)	21	(2.0)	22	(1.9)	40	(2.2)	3	(0.7)

† Item presented only to public and Catholic schools.

Table MTQ 48.2
Middle School Mathematics Classes for which Teachers Report the Effect Various Factors Have on Mathematics Instruction

	Percent of Classes											
	Inhibits Effective Instruction				Neutral or Mixed				Promotes Effective Instruction		N/A or Don't Know	
	1		2		3		4		5			
Current state standards	4	(1.2)	4	(0.8)	20	(2.4)	26	(3.1)	45	(3.7)	1	(0.5)
District/Diocese curriculum frameworks†	4	(1.2)	5	(1.0)	22	(2.5)	24	(3.1)	41	(3.2)	4	(1.1)
District/Diocese and/or school pacing guides	7	(1.7)	9	(1.4)	22	(2.1)	21	(2.5)	32	(2.8)	10	(2.5)
State testing/accountability policies†	11	(1.6)	15	(1.9)	28	(2.7)	25	(2.9)	18	(2.3)	2	(0.8)
District/Diocese testing/ accountability policies†	13	(2.2)	10	(1.5)	27	(2.2)	22	(2.4)	20	(2.3)	6	(2.1)
Textbook/program selection policies	8	(1.9)	11	(1.7)	32	(2.4)	21	(1.9)	19	(2.3)	9	(1.9)
Teacher evaluation policies	5	(0.9)	6	(0.9)	31	(2.5)	27	(2.8)	26	(3.2)	5	(1.8)
Students' motivation, interest, and effort in mathematics	8	(1.3)	14	(1.7)	18	(2.8)	22	(2.4)	37	(3.3)	1	(0.3)
Students' reading abilities	10	(1.8)	19	(2.9)	17	(1.7)	27	(2.9)	26	(3.0)	1	(0.5)
Community views on mathematics instruction	6	(1.5)	9	(1.4)	40	(2.8)	17	(2.1)	16	(2.4)	12	(2.1)
Parent expectations and involvement	9	(1.6)	15	(2.2)	29	(2.9)	19	(2.1)	26	(2.3)	1	(0.4)
Principal support	2	(0.6)	4	(1.8)	14	(1.5)	22	(2.3)	55	(3.2)	4	(1.5)
Time for you to plan, individually and with colleagues	8	(1.8)	9	(1.3)	15	(2.5)	23	(2.3)	43	(2.8)	2	(0.5)
Time available for your professional development	7	(2.0)	10	(1.5)	25	(2.9)	23	(2.2)	32	(2.8)	2	(0.6)

† Item presented only to public and Catholic schools.

Table MTQ 48.3
High School Mathematics Classes for which Teachers Report the Effect Various Factors Have on Mathematics Instruction

	Percent of Classes											
	Inhibits Effective Instruction				Neutral or Mixed				Promotes Effective Instruction		N/A or Don't Know	
	1		2		3		4		5			
Current state standards	5	(0.6)	5	(0.9)	27	(1.5)	24	(1.9)	30	(1.8)	9	(1.6)
District/Diocese curriculum frameworks†	2	(0.6)	5	(0.8)	26	(1.9)	25	(1.7)	33	(1.7)	8	(1.3)
District/Diocese and/or school pacing guides	3	(0.7)	5	(0.9)	23	(1.8)	24	(1.7)	31	(1.7)	13	(1.6)
State testing/accountability policies†	10	(1.0)	12	(1.6)	32	(1.8)	17	(1.4)	19	(1.4)	10	(1.3)
District/Diocese testing/ accountability policies†	7	(1.0)	8	(1.2)	31	(1.9)	19	(1.6)	21	(1.5)	15	(1.5)
Textbook/program selection policies	5	(1.1)	7	(0.9)	31	(1.9)	20	(1.6)	27	(2.0)	10	(1.0)
Teacher evaluation policies	5	(0.8)	7	(1.0)	31	(1.9)	23	(1.7)	28	(1.4)	8	(1.0)
College entrance requirements	1	(0.4)	3	(0.6)	26	(1.8)	28	(1.9)	31	(1.6)	11	(1.5)
Students' motivation, interest, and effort in mathematics	11	(1.1)	14	(1.5)	19	(1.9)	22	(1.7)	32	(1.7)	2	(0.7)
Students' reading abilities	8	(1.0)	18	(1.8)	28	(1.8)	21	(1.5)	21	(1.7)	4	(1.0)
Community views on mathematics instruction	5	(0.8)	14	(1.7)	35	(2.0)	19	(1.4)	15	(1.5)	12	(1.2)
Parent expectations and involvement	7	(1.0)	17	(1.8)	28	(1.8)	24	(1.7)	20	(1.4)	4	(0.8)
Principal support	3	(0.7)	3	(0.7)	18	(1.6)	23	(1.8)	48	(2.2)	5	(0.8)
Time for you to plan, individually and with colleagues	7	(1.0)	13	(1.5)	18	(1.6)	22	(1.7)	38	(1.9)	2	(0.6)
Time available for your professional development	5	(1.0)	11	(1.1)	27	(1.9)	25	(1.9)	29	(1.8)	4	(0.8)

† Item presented only to public and Catholic schools.

Table MTQ 49
Average Number of Class Periods Devoted to the Most Recently Completed Mathematics Unit

	Average Number of Periods
Elementary	12.2 (0.3)
Middle	13.3 (0.7)
High	11.0 (0.2)

Table MTQ 50
Focus of the Most Recently Completed Mathematics Unit

	Percent of Classes		
	Elementary	Middle	High
Number and Operations	52 (2.0)	18 (1.3)	3 (0.5)
Measurement and Data Representation	23 (2.0)	9 (0.8)	1 (0.2)
Algebra	3 (0.6)	35 (1.8)	47 (1.4)
Geometry	18 (1.7)	28 (2.0)	22 (1.2)
Probability	4 (0.6)	6 (0.7)	3 (0.5)
Statistics	1 (0.3)	4 (0.6)	6 (0.6)
Trigonometry	0 ---†	0 (0.2)	10 (0.8)
Calculus	0 ---†	0 ---†	8 (0.7)

† No teachers in the sample selected this response option. Thus, it is not possible to calculate the standard error of this estimate.

There is no table for MTQ 51.

Table MTQ 52
Most Recent Mathematics Unit Based Primarily on Previously Indicated Commercially-Published Textbook/Program

	Percent of Classes†
Elementary	81 (1.7)
Middle	74 (1.9)
High	83 (1.2)

† Only classes of teachers indicating in Q40 that they use one or multiple commercially-published textbooks/programs are included in this analysis.

Table MTQ 53
Most Recent Mathematics Unit Based Primarily on Any Commercially-Published Textbook/Program

	Percent of Classes
Elementary	73 (2.0)
Middle	64 (1.9)
High	73 (1.3)

There is no table for MTQ 54.

Table MTQ 55.1
Ways Textbooks/Programs Were Used in the Most Recently Completed Unit in Elementary School Mathematics Classes

	Percent of Classes[†]				
	Not at All		Somewhat		To a Great Extent
	1	2	3	4	5
You used the textbook/program to guide the overall structure and content emphasis of the unit	1 (0.3)	1 (0.4)	17 (1.6)	24 (1.7)	57 (2.1)
You followed the textbook/program to guide the detailed structure and content emphasis of the unit	1 (0.5)	5 (0.8)	20 (1.8)	30 (1.9)	44 (2.1)
You picked what is important from the textbook/program and skipped the rest	24 (1.9)	16 (1.5)	18 (1.6)	24 (1.6)	19 (1.6)
You incorporated activities (e.g., problems, investigations, readings) from other sources to supplement what the textbook/program was lacking	7 (0.9)	8 (0.9)	23 (1.9)	33 (2.0)	29 (1.8)

[†] Only classes of elementary school teachers indicating in Q52/53 that they used commercially-published textbooks/programs in their most recent unit are included in this analysis.

Table MTQ 55.2
Ways Textbooks/Programs Were Used in the Most Recently Completed Unit in Middle School Mathematics Classes

	Percent of Classes[†]				
	Not at All		Somewhat		To a Great Extent
	1	2	3	4	5
You used the textbook/program to guide the overall structure and content emphasis of the unit	1 (0.4)	4 (1.0)	24 (2.1)	30 (2.3)	42 (2.8)
You followed the textbook/program to guide the detailed structure and content emphasis of the unit	4 (1.0)	9 (1.6)	31 (2.4)	28 (2.1)	27 (2.3)
You picked what is important from the textbook/program and skipped the rest	12 (1.6)	14 (1.7)	23 (1.9)	27 (2.3)	25 (2.3)
You incorporated activities (e.g., problems, investigations, readings) from other sources to supplement what the textbook/program was lacking	4 (1.0)	6 (0.9)	22 (2.1)	42 (3.2)	26 (2.2)

[†] Only classes of middle school teachers indicating in Q52/53 that they used commercially-published textbooks/programs in their most recent unit are included in this analysis.

Table MTQ 55.3
Ways Textbooks/Programs Were Used in the Most Recently Completed Unit in High School Mathematics Classes

	Percent of Classes†				
	Not at All		Somewhat		To a Great Extent
	1	2	3	4	5
You used the textbook/program to guide the overall structure and content emphasis of the unit	1 (0.4)	2 (0.4)	23 (1.5)	31 (1.7)	43 (1.8)
You followed the textbook/program to guide the detailed structure and content emphasis of the unit	4 (0.6)	7 (0.8)	32 (1.5)	33 (1.6)	24 (1.5)
You picked what is important from the textbook/program and skipped the rest	13 (1.2)	13 (1.2)	23 (1.3)	30 (1.4)	22 (1.4)
You incorporated activities (e.g., problems, investigations, readings) from other sources to supplement what the textbook/program was lacking	8 (1.0)	11 (1.1)	25 (1.6)	33 (1.8)	23 (1.5)

† Only classes of high school teachers indicating in Q52/53 that they used commercially-published textbooks/programs in their most recent unit are included in this analysis.

Table MTQ 56.1
Reasons Parts of the Textbook/Program Were Skipped in Elementary School Mathematics Classes

	Percent of Classes†		
	Not a Factor	A Minor Factor	A Major Factor
The mathematical ideas addressed in the activities you skipped are not included in your pacing guide and/or current state standards	32 (2.9)	32 (3.2)	37 (3.1)
You did not have the materials needed to implement the activities you skipped	71 (2.9)	24 (2.7)	6 (1.6)
The activities you skipped were too difficult for your students	69 (3.2)	23 (2.6)	8 (1.6)
Your students already knew the mathematical ideas or were able to learn them without the activities you skipped	29 (2.9)	34 (3.0)	37 (3.0)
You have different activities for those mathematical ideas that work better than the ones you skipped	22 (2.5)	30 (3.3)	48 (3.5)

† Only classes of elementary school teachers indicating in Q52/53 that they used commercially-published textbooks/programs in their most recent unit and indicating in Q55 that they "picked what was important from the textbook/program and skipped the rest" at all are included in this analysis.

Table MTQ 56.2
Reasons Parts of the Textbook/Program Were Skipped in Middle School Mathematics Classes

	Percent of Classes†		
	Not a Factor	A Minor Factor	A Major Factor
The mathematical ideas addressed in the activities you skipped are not included in your pacing guide and/or current state standards	22 (3.2)	34 (3.7)	44 (3.7)
You did not have the materials needed to implement the activities you skipped	70 (4.4)	24 (4.2)	5 (1.3)
The activities you skipped were too difficult for your students	59 (3.3)	31 (3.2)	10 (2.0)
Your students already knew the mathematical ideas or were able to learn them without the activities you skipped	43 (3.9)	31 (3.6)	26 (3.3)
You have different activities for those mathematical ideas that work better than the ones you skipped	21 (2.9)	33 (3.7)	47 (3.7)

† Only classes of middle school teachers indicating in Q52/53 that they used commercially-published textbooks/programs in their most recent unit and indicating in Q55 that they "picked what was important from the textbook/program and skipped the rest" at all are included in this analysis.

Table MTQ 56.3
Reasons Parts of the Textbook/Program Were Skipped in High School Mathematics Classes

	Percent of Classes†		
	Not a Factor	A Minor Factor	A Major Factor
The mathematical ideas addressed in the activities you skipped are not included in your pacing guide and/or current state standards	34 (2.9)	30 (2.8)	37 (2.6)
You did not have the materials needed to implement the activities you skipped	70 (2.7)	25 (2.4)	5 (1.2)
The activities you skipped were too difficult for your students	45 (2.5)	37 (2.4)	18 (1.8)
Your students already knew the mathematical ideas or were able to learn them without the activities you skipped	46 (2.8)	33 (2.5)	21 (2.5)
You have different activities for those mathematical ideas that work better than the ones you skipped	21 (2.0)	36 (2.4)	43 (2.5)

† Only classes of high school teachers indicating in Q52/53 that they used commercially-published textbooks/programs in their most recent unit and indicating in Q55 that they "picked what was important from the textbook/program and skipped the rest" at all are included in this analysis.

Table MTQ 57.1
Reasons Why the Textbook/Program Was Supplemented in Elementary School Mathematics Classes

	Percent of Classes†		
	Not a Factor	A Minor Factor	A Major Factor
Your pacing guide indicated that you should use supplemental activities	51 (3.1)	33 (2.7)	15 (2.7)
Supplemental activities were needed to prepare students for standardized tests	35 (2.7)	38 (2.7)	27 (2.5)
Supplemental activities were needed to provide students with additional practice	5 (1.5)	25 (2.8)	69 (3.1)
Supplemental activities were needed so students at different levels of achievement could increase their understanding of the ideas targeted in each activity	4 (1.0)	25 (2.4)	71 (2.4)

† Only classes of elementary school teachers indicating in Q52/53 that they used commercially-published textbooks/programs in their most recent unit and indicating in Q55 that they "incorporated activities (e.g., problems, investigations, readings) from other sources to supplement what the textbook/program was lacking" at all are included in this analysis.

Table MTQ 57.2
Reasons Why the Textbook/Program Was Supplemented in Middle School Mathematics Classes

	Percent of Classes†		
	Not a Factor	A Minor Factor	A Major Factor
Your pacing guide indicated that you should use supplemental activities	60 (4.2)	25 (3.2)	14 (2.6)
Supplemental activities were needed to prepare students for standardized tests	28 (4.4)	41 (4.1)	31 (3.6)
Supplemental activities were needed to provide students with additional practice	4 (1.1)	30 (3.8)	66 (3.9)
Supplemental activities were needed so students at different levels of achievement could increase their understanding of the ideas targeted in each activity	3 (1.0)	22 (2.8)	75 (3.0)

† Only classes of middle school teachers indicating in Q52/53 that they used commercially-published textbooks/programs in their most recent unit and indicating in Q55 that they "incorporated activities (e.g., problems, investigations, readings) from other sources to supplement what the textbook/program was lacking" at all are included in this analysis.

Table MTQ 57.3
Reasons Why the Textbook/Program Was Supplemented in High School Mathematics Classes

	Percent of Classes[†]		
	Not a Factor	A Minor Factor	A Major Factor
Your pacing guide indicated that you should use supplemental activities	64 (2.1)	28 (2.1)	9 (1.4)
Supplemental activities were needed to prepare students for standardized tests	45 (2.6)	35 (2.6)	20 (1.8)
Supplemental activities were needed to provide students with additional practice	6 (1.3)	26 (2.2)	68 (2.2)
Supplemental activities were needed so students at different levels of achievement could increase their understanding of the ideas targeted in each activity	9 (1.7)	28 (2.2)	63 (2.5)

[†] Only classes of high school teachers indicating in Q52/53 that they used commercially-published textbooks/programs in their most recent unit and indicating in Q55 that they "incorporated activities (e.g., problems, investigations, readings) from other sources to supplement what the textbook/program was lacking" at all are included in this analysis.

Table MTQ 58.1
Elementary School Mathematics Classes Taught by Teachers Feeling Prepared for Each of a Number of Tasks in the Most Recent Unit

	Percent of Classes			
	Not Adequately Prepared	Somewhat Prepared	Fairly Well Prepared	Very Well Prepared
Anticipate difficulties that students will have with particular mathematical ideas and procedures in this unit	1 (0.3)	8 (1.1)	44 (1.8)	46 (1.8)
Find out what students thought or already knew about the key mathematical ideas	1 (0.3)	10 (1.0)	41 (1.7)	48 (1.8)
Implement the mathematics textbook/program to be used during this unit[†]	0 (0.2)	5 (0.8)	32 (2.0)	62 (2.0)
Monitor student understanding during this unit	0 (0.1)	4 (0.6)	34 (1.7)	62 (1.6)
Assess student understanding at the conclusion of this unit	0 (0.2)	3 (0.5)	30 (1.6)	66 (1.7)

[†] Item presented only to elementary school teachers indicating in Q52/53 that they used commercially-published textbooks/programs in their most recent unit.

Table MTQ 58.2
Middle School Mathematics Classes Taught by Teachers
Feeling Prepared for Each of a Number of Tasks in the Most Recent Unit

	Percent of Classes							
	Not Adequately Prepared		Somewhat Prepared		Fairly Well Prepared		Very Well Prepared	
Anticipate difficulties that students will have with particular mathematical ideas and procedures in this unit	0	(0.1)	8	(1.0)	38	(2.2)	54	(2.4)
Find out what students thought or already knew about the key mathematical ideas	1	(0.3)	11	(1.2)	40	(1.9)	49	(2.3)
Implement the mathematics textbook/program to be used during this unit†	0	(0.2)	6	(1.0)	32	(2.4)	63	(2.3)
Monitor student understanding during this unit	0	(0.1)	3	(0.5)	35	(2.2)	62	(2.1)
Assess student understanding at the conclusion of this unit	0	(0.1)	2	(0.4)	27	(2.2)	72	(2.3)

† Item presented only to middle school teachers indicating in Q52/53 that they used commercially-published textbooks/ programs in their most recent unit.

Table MTQ 58.3
High School Mathematics Classes Taught by Teachers
Feeling Prepared for Each of a Number of Tasks in the Most Recent Unit

	Percent of Classes							
	Not Adequately Prepared		Somewhat Prepared		Fairly Well Prepared		Very Well Prepared	
Anticipate difficulties that students will have with particular mathematical ideas and procedures in this unit	0	(0.2)	5	(0.6)	35	(1.5)	60	(1.3)
Find out what students thought or already knew about the key mathematical ideas	1	(0.2)	10	(0.8)	41	(1.5)	48	(1.5)
Implement the mathematics textbook/program to be used during this unit†	0	(0.2)	5	(0.8)	34	(1.7)	61	(1.8)
Monitor student understanding during this unit	0	---‡	2	(0.4)	34	(1.7)	65	(1.7)
Assess student understanding at the conclusion of this unit	0	(0.1)	1	(0.3)	27	(1.5)	72	(1.5)

† Item presented only to high school teachers indicating in Q52/53 that they used commercially-published textbooks/programs in their most recent unit.

‡ No teachers in the sample selected this response option. Thus, it is not possible to calculate the standard error of this estimate.

Table MTQ 59
Mathematics Classes in which Teachers Used Various Assessment Methods in the Most Recent Unit

	Percent of Classes		
	Elementary	Middle	High
Administered an assessment, task, or probe at the beginning of the unit to find out what students thought or already knew about the key mathematical ideas	63 (1.8)	52 (2.2)	42 (1.8)
Questioned individual students during class activities to see if they were "getting it"	97 (0.6)	98 (0.6)	97 (0.5)
Used information from informal assessments of the entire class (e.g., asking for a show of hands, thumbs up/thumbs down, clickers, exit tickets) to see if students were "getting it"	90 (1.1)	88 (1.3)	83 (1.1)
Reviewed student work (e.g., homework, notebooks, journals, portfolios, projects) to see if they were "getting it"	96 (0.7)	95 (0.9)	96 (0.7)
Administered one or more quizzes and/or tests to see if students were "getting it"	73 (1.7)	86 (1.5)	86 (1.4)
Had students use rubrics to examine their own or their classmates' work	10 (1.1)	12 (1.3)	8 (0.7)
Assigned grades to student work (e.g., homework, notebooks, journals, portfolios, projects)	63 (1.9)	85 (1.6)	85 (0.9)
Administered one or more quizzes and/or tests to assign grades	73 (1.6)	88 (1.5)	94 (0.6)
Went over the correct answers to assignments, quizzes, and/or tests with the class as a whole	83 (1.2)	94 (0.9)	92 (0.7)

Table MTQ 60
Duration of the Most Recent Mathematics Lesson

	Average Number of Minutes
Elementary	58.9 (0.9)
Middle	57.1 (1.2)
High	60.7 (0.8)

Table MTQ 61
Time Spent on Different Activities in the Most Recent Mathematics Lesson

	Average Percent of Class Time		
	Elementary	Middle	High
Non-instructional activities (e.g., attendance taking, interruptions)	6 (0.3)	10 (0.2)	9 (0.2)
Whole class activities (e.g., lectures, explanations, discussions)	40 (0.6)	42 (0.8)	48 (0.7)
Small group work	29 (0.8)	24 (0.9)	22 (0.8)
Students working individually (e.g., reading textbooks, completing worksheets, taking a test or quiz)	26 (0.6)	24 (0.7)	22 (0.6)

Table MTQ 62
Mathematics Classes Participating in Various Activities in the Most Recent Lesson

	Percent of Classes		
	Elementary	Middle	High
Teacher explaining a mathematical idea to the whole class	93 (0.9)	93 (1.0)	95 (0.7)
Whole class discussion	89 (1.1)	85 (1.4)	75 (1.3)
Students completing textbook/worksheet problems	80 (1.5)	78 (1.8)	83 (1.0)
Teacher conducting a demonstration while students watched	74 (1.5)	71 (2.0)	65 (1.2)
Students doing hands-on/manipulative activities	77 (1.4)	37 (1.6)	21 (1.3)
Students reading about mathematics	19 (1.3)	23 (1.7)	17 (1.2)
Students using instructional technology	29 (1.7)	31 (1.8)	43 (1.3)
Practicing for standardized tests	14 (1.3)	23 (1.9)	16 (1.1)
Test or quiz	19 (1.3)	19 (1.6)	20 (1.3)
None of the above	0 (0.1)	1 (0.2)	0 (0.2)

Table MTQ 63
Sex of Mathematics Teachers

	Percent of Teachers		
	Elementary	Middle	High
Male	8 (1.0)	24 (1.9)	44 (1.7)
Female	92 (1.0)	76 (1.9)	56 (1.7)

Table MTQ 64
Mathematics Teachers of Hispanic or Latino Origin

	Percent of Teachers
Elementary	9 (1.3)
Middle	5 (0.7)
High	5 (0.6)

Table MTQ 65
Race of Mathematics Teachers

	Percent of Teachers		
	Elementary	Middle	High
American Indian or Alaska Native	1 (0.4)	2 (0.4)	1 (0.4)
Asian	2 (0.4)	4 (1.0)	3 (0.6)
Black or African American	5 (0.9)	6 (0.9)	4 (0.6)
Native Hawaiian or Other Pacific Islander	1 (0.3)	0 (0.2)	0 (0.1)
White	93 (1.0)	90 (1.3)	93 (1.0)

Table MTQ 66
Age of Mathematics Teachers

	Percent of Teachers		
	Elementary	Middle	High
Less than 31 years old	17 (1.2)	18 (1.3)	17 (1.2)
31–40 years old	26 (1.4)	26 (2.1)	25 (1.3)
41–50 years old	27 (1.6)	30 (2.2)	27 (1.2)
51–60 years old	24 (1.4)	21 (1.7)	20 (1.1)
More than 60 years old	6 (0.9)	5 (0.9)	10 (1.1)

SECTION FOUR

SCIENCE PROGRAM QUESTIONNAIRE

Science Program Questionnaire

Science Program Questionnaire Tables

2012 NATIONAL SURVEY OF SCIENCE AND MATHEMATICS EDUCATION
SCIENCE PROGRAM QUESTIONNAIRE

This questionnaire asks a number of questions about "science teachers." In responding, unless otherwise specified, consider ALL teachers of science in your school, including self-contained teachers who teach science and other subjects to the same group of students.

1. Which of the following describe your position? [Select all that apply.]

□	Science department chair
□	Science lead teacher or coach
□	Regular classroom teacher
□	Principal
□	Assistant principal
□	Other (please specify: _____)

School Programs and Practices

2. ***[Presented only to schools that include self-contained teachers]***

Indicate whether each of the following programs and/or practices is currently being implemented in your school. [Select one on each row.]

	Yes	No
a. Students in self-contained classes receive science instruction from a science specialist *instead of* their regular teacher.	○	○
b. Students in self-contained classes receive science instruction from a science specialist *in addition* to their regular teacher.	○	○
c. Students in self-contained classes pulled out for remedial instruction in science.	○	○
d. Students in self-contained classes pulled out for enrichment in science.	○	○
e. Students in self-contained classes pulled out from science instruction for additional instruction in other content areas.	○	○

3. ***[Presented only to schools that include any grades 9–12]***

Indicate whether each of the following programs and/or practices is currently being implemented in your school. [Select one on each row.]

	Yes	No
a. Physics courses offered this school year or in alternating years, on or off site	○	○
b. Students go to a Career and Technical Education (CTE) Center for science and/or engineering instruction.	○	○
c. Science and/or engineering courses offered by telecommunications.	○	○
d. Students go to another K–12 school for science and/or engineering courses.	○	○
e. Students go to a college or university for science and/or engineering courses.	○	○

4. Which of the following are provided to teachers considered in need of special assistance in science teaching (for example: new teachers)? [Select all that apply.]

□	Seminars, classes, and/or study groups
□	Guidance from a formally designated mentor or coach
□	A higher level of supervision than for other teachers

5. Indicate whether your school does each of the following to enhance students' interest and/or achievement in science and/or engineering. [Select one on each row.]

	Yes	No
a. Holds family science and/or engineering nights	○	○
b. Offers after-school help in science and/or engineering (for example: tutoring)	○	○
c. Offers formal after-school programs for enrichment in science and/or engineering	○	○
d. Offers one or more science clubs	○	○
e. Offers one or more engineering clubs	○	○
f. Participates in a local or regional science and/or engineering fair	○	○
g. Has one or more teams participating in science competitions (for example: Science Olympiad)	○	○
h. Has one or more teams participating in engineering competitions (for example: Robotics)	○	○
i. Encourages students to participate in science and/or engineering summer programs or camps offered by community colleges, universities, museums, or science centers	○	○
j. Sponsors visits to business, industry, and/or research sites related to science and/or engineering	○	○
k. Sponsors meetings with adult mentors who work in science and/or engineering fields	○	○

Your State Standards

6. Please provide your opinion about each of the following statements in regard to your current state standards for science. [Select one on each row.]

	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
a. State science standards have been thoroughly discussed by science teachers in this school	①	②	③	④	⑤
b. There is a school-wide effort to align science instruction with the state science standards	①	②	③	④	⑤
c. Most science teachers in this school teach to the state standards	①	②	③	④	⑤
d. Your district/diocese organizes science professional development based on state standards ***[Not presented to non-Catholic private schools]***	①	②	③	④	⑤

Science Courses Offered in Your School

7. ***[Presented only to schools that include grade 6]***

What types of science courses are offered to 6th grade classes in your school?

○	Single-discipline science courses (for example: life science)
○	Coordinated or Integrated science courses
○	Both single-discipline and coordinated or integrated science courses

8. ***[Presented only to schools that include grade 7]***

What types of science courses are offered to 7th grade classes in your school?

○	Single-discipline science courses (for example: life science)
○	Coordinated or Integrated science courses
○	Both single-discipline and coordinated or integrated science courses

9. ***[Presented only to schools that include grade 8]***

What types of science courses are offered to 8th grade classes in your school?

○	Single-discipline science courses (for example: life science)
○	Coordinated or Integrated science courses
○	Both single-discipline and coordinated or integrated science courses

10. ***[Presented only to schools that include any grades 9–12]***

Approximately how many grades 9–12 students in this school will **not** take a science course this year? [Enter your response as a whole number (for example: 1500); do not use a comma.]

_____

Science Courses Offered in Your School

[Questions 11–27 presented only to schools that include any grades 9–12; schools that do not include any of these grades skip to Q31]

This next set of questions asks about the number of sections and level of science courses offered in grades 9–12 in your school this year in each of the following categories:

- Coordinated or Integrated Science (including General Science and Physical Science)
- Earth/Space Science
- Life Sciences/Biology
- Environmental Science/Ecology (as a separate course)
- Chemistry
- Physics
- Engineering

11. Does your school offer one or more courses in Coordinated or Integrated science (including General Science and Physical Science) this school year in any of the grades 9–12?

○	Yes
○	No ***[Skip to Q13]***

12. How many sections of Coordinated or Integrated science courses (including General Science and Physical Science) are offered in your school this year at each of the following levels? [Enter each response as a whole number (for example: 15).]

a. Non-college prep _____
b. College prep, including honors _____

13. Does your school offer one or more courses in Earth/Space Science this school year in any of the grades 9–12?

○	Yes
○	No ***[Skip to Q15]***

14. How many sections of Earth/Space Science courses are offered in your school this year at each of the following levels? [Enter each response as a whole number (for example: 15).]

a. Non-college prep _____
b. 1st year college prep, including honors _____
c. 2nd year advanced, including Advanced Placement, International Baccalaureate, and concurrent college and high school credit/dual enrollment courses _____

15. Does your school offer one or more courses in Life Science/Biology this school year in any of the grades 9–12?

○	Yes
○	No ***[Skip to Q17]***

16. How many sections of Life Science/Biology courses are offered in your school this year at each of the following levels? [Enter each response as a whole number (for example: 15).]

a. Non-college prep _____
b. 1st year college prep, including honors _____
c. 2nd year advanced, including Advanced Placement, International Baccalaureate, and concurrent college and high school credit/dual enrollment courses _____

17. Does your school offer one or more courses in Environmental Science/Ecology this school year in any of the grades 9–12?

○	Yes
○	No ***[Skip to Q19]***

18. How many sections of Environmental Science/Ecology courses are offered in your school this year at each of the following levels? [Enter each response as a whole number (for example: 15).]

a. Non-college prep _____
b. 1st year college prep, including honors _____
c. 2nd year advanced, including Advanced Placement, International Baccalaureate, and concurrent college and high school credit/dual enrollment courses _____

19. Does your school offer one or more courses in Chemistry this school year in any of the grades 9–12?

○	Yes
○	No ***[Skip to Q21]***

20. How many sections of Chemistry courses are offered in your school this year at each of the following levels? [Enter each response as a whole number (for example: 15).]

a. Non-college prep _____
b. 1st year college prep, including honors _____
c. 2nd year advanced, including Advanced Placement, International Baccalaureate, and concurrent college and high school credit/dual enrollment courses _____

21. Does your school offer one or more courses in Physics this school year in any of the grades 9–12?

○	Yes
○	No ***[Skip to Q23]***

22. How many sections of Physics courses are offered in your school this year at each of the following levels? [Enter each response as a whole number (for example: 15).]

a. Non-college prep _____
b. 1st year college prep, including honors _____
c. 2nd year advanced, including Advanced Placement, International Baccalaureate, and concurrent college and high school credit/dual enrollment courses ____

23. Does your school offer one or more courses in Engineering this school year in any of the grades 9–12? Count courses that address such things as the nature of engineering, engineering design processes, technological systems, and technology and society. Do not include career-technical education (CTE) courses that cover such things as automotive repair, audio/video production, etc.

○	Yes
○	No ***[Skip to Q25]***

24. How many sections of Engineering courses are offered in your school this year at each of the following levels? [Enter each response as a whole number (for example: 15).]

a. Non-college prep _____
b. 1st year college prep, including honors _____
c. 2nd year advanced, including concurrent college and high school credit/dual enrollment courses _____

25. Does your school offer each of the following types of science courses that might qualify for college credit? (Include both courses that are offered every year and those offered in alternating years.) [Select one on each row.]

	Yes	**No**
a. Advanced Placement (AP) science courses	○	○
b. International Baccalaureate (IB) science courses	○	○
c. Concurrent college and high school credit/dual enrollment science courses	○	○

26. ***[Presented only to schools that answered "Yes" to Q25c]***

When are concurrent college and high school credit/dual enrollment science courses offered in this school?

○	Not offered this school year, but offered in alternating years
○	Offered this school year

27. ***[Q27a–e presented only to schools that answered "Yes" to Q25a; Q27f–h presented only to schools that answered "Yes" to Q25b]***

Is each of the following science courses offered in this school? [Select one on each row.]

	Not offered at all	Not offered this school year, but offered in alternating years	Offered this school year
a. AP Biology	○	○	○
b. AP Chemistry	○	○	○
c. AP Physics B	○	○	○
d. AP Physics C	○	○	○
e. AP Environmental Science	○	○	○
f. IB Biology	○	○	○
g. IB Chemistry	○	○	○
h. IB Physics	○	○	○

Science Requirements

28. ***[Presented only to schools that include grade 12]***

In order to graduate from this high school, how many years of grades 9–12 science are students required to take?

1 year	2 years	3 years	4 years
○	○	○	○

29. ***[Presented only to schools that include grade 12 and answered "Yes" to Q23]***

Does participation in Engineering courses count towards students' high school graduation requirements for science?

○	Yes
○	No

30. ***[Presented only to schools that include grade 12]***

How many years of science are required for entry into a four-year college or university in your state university system? If your state university system has multiple tiers, answer for the lowest tier that awards four-year degrees, not including community colleges that might include four-year programs.

1 year	2 years	3 years	4 years
○	○	○	○

Budget for Science Instruction

31. For this school, how much money was spent on each of the following during the most recently completed budget year? (If you don't know the exact amounts, please provide your best estimates.) [Enter each response as a whole dollar amount (for example: 1500); do not include commas or dollar signs.]

a. Consumable science supplies (for example: chemicals, living organisms, batteries) _____

b. Science equipment (non-consumable, non-perishable items such as microscopes, scales, etc., but not computers) _____

c. Software for science instruction _____

Influences on Science Instruction

32. Please rate the effect of each of the following on the quality of science instruction in your school. [Select one on each row.]

	Inhibits effective instruction		**Neutral or mixed**		**Promotes effective instruction**	**N/A or Don't Know**
a. District/Diocese science professional development policies and practices ***[Not presented to non-Catholic private schools]***	①	②	③	④	⑤	○
b. Time provided for teacher professional development in science	①	②	③	④	⑤	○
c. Importance that the school places on science	①	②	③	④	⑤	○
d. Public attitudes toward science instruction	①	②	③	④	⑤	○
e. Conflict between efforts to improve science instruction and other school and/or district/diocese initiatives	①	②	③	④	⑤	○
f. How science instructional resources are managed (for example: distributing and refurbishing materials)	①	②	③	④	⑤	○

33. In your opinion, how great a problem is each of the following for science instruction **in your school as a whole**? [Select one on each row.]

	Not a significant problem	Somewhat of a problem	Serious problem
a. Lack of science facilities (for example: lab tables, electric outlets, faucets and sinks in classrooms)	○	○	○
b. Inadequate funds for purchasing science equipment and supplies	○	○	○
c. Inadequate supply of science textbooks/modules	○	○	○
d. Inadequate materials for individualizing science instruction	○	○	○
e. Low student interest in science	○	○	○
f. Low student reading abilities	○	○	○
g. Lack of teacher interest in science	○	○	○
h. Inadequate teacher preparation to teach science	○	○	○
i. Insufficient time to teach science	○	○	○
j. Lack of opportunities for science teachers to share ideas	○	○	○
k. Inadequate science-related professional development opportunities	○	○	○
l. Interruptions for announcements, assemblies, and other school activities	○	○	○
m. Large class sizes	○	○	○
n. High student absenteeism	○	○	○
o. Inappropriate student behavior	○	○	○
p. Lack of parental support for science education	○	○	○
q. Community resistance to the teaching of "controversial" issues in science (for example: evolution, climate change)	○	○	○

Science Teacher Turnover

34. ***[Presented only to schools that include any grades 6–12]***

How many middle and/or high school science teachers who taught in your school last year (2010–11) did not return to teach science in your school this year (2011–12)? [Enter your response as a whole number (for example: 15). Please enter "0" if all teachers who taught science returned this school year.] _____ ***[If "0" Skip to Q36]***

35. ***[Presented only to schools that include any grades 6–12]***

How many of those teachers did not return for each of the following reasons? [Enter each response as a whole number (for example: 15). Please enter "0" for categories in which there were not any science teachers who did not return for that reason.]

a. Left voluntarily, including science teachers who moved to another department or school, left the profession, or retired _____
b. Were reassigned to another position, department, or school in the district/diocese _____
c. Were dismissed or not rehired for poor performance _____
d. Were dismissed or not rehired because of budget constraints _____

36. ***[Presented only to schools that include any grades 6–12]***
For the 2011–12 school year, how difficult was it to fill middle and/or high school science teacher vacancies in your school with fully qualified teachers?

○	There were no vacancies for science teachers ***[Skip to Q39]***
○	Easy
○	Somewhat difficult
○	Very difficult
○	Could not fill the vacancies

37. ***[Presented only to schools that include any grades 9–12]***
For the 2011–12 school year, were there particular science disciplines for which it was more difficult to fill vacancies with fully qualified teachers than others?

○	Yes
○	No ***[Skip to Q39]***

38. ***[Presented only to schools that include any grades 9–12]***
For the 2011–12 school year, how difficult was it to fill vacancies with fully qualified teachers of: [Select one on each row.]

	There were no vacancies for this discipline	**Easy**	**Somewhat difficult**	**Very difficult**	**Could not fill the vacancies**
a. Biology/Life science?	○	○	○	○	○
b. Chemistry?	○	○	○	○	○
c. Earth/Space science?	○	○	○	○	○
d. Physics?	○	○	○	○	○
e. A combination of science disciplines?	○	○	○	○	○

Science Professional Development Opportunities

39. This question is about in-service (professional development) programs offered by your school and/or district/diocese, possibly in conjunction with other organizations (for example: other school districts/dioceses, colleges or universities, museums, professional associations, commercial vendors).

In the last three years, has your school and/or district/diocese offered in-service **workshops** specifically focused on science or science teaching?

○	Yes
○	No ***[Skip to Q41]***

40. Please indicate the extent to which in-service **workshops** offered by your school and/or district/ diocese **in the last three years** addressed deepening teacher understanding of each of the following: [Select one on each row.]

	Not at all		**Somewhat**		**To a great extent**
a. Science content	①	②	③	④	⑤
b. State science standards	①	②	③	④	⑤
c. How to use particular science instructional materials (for example: textbooks or modules)	①	②	③	④	⑤
d. How students think about various science ideas	①	②	③	④	⑤
e. How to monitor student understanding during science instruction	①	②	③	④	⑤
f. How to adapt science instruction to address student misconceptions	①	②	③	④	⑤
g. How to use technology in science instruction	①	②	③	④	⑤
h. How to use investigation-oriented science teaching strategies	①	②	③	④	⑤
i. How to teach science to students who are English language learners	①	②	③	④	⑤
j. How to provide alternative science learning experiences for students with special needs	①	②	③	④	⑤

41. In the last three years, has your school offered **teacher study groups** where teachers meet on a regular basis to discuss teaching and learning of science, and possibly other content areas as well (sometimes referred to as Professional Learning Communities, PLCs, or lesson study)?

○	Yes
○	No ***[Skip to Q53]***

42. ***[Presented only to schools that include any grades K–5]***
Are teachers of grades K–5 science classes required to participate in these science-focused **teacher study groups**?

○	Yes
○	No

43. ***[Presented only to schools that include any grades 6–8]***
Are teachers of grades 6–8 science classes required to participate in these science-focused **teacher study groups**?

○	Yes
○	No

44. ***[Presented only to schools that include any grades 9–12]***
Are teachers of grades 9–12 science classes required to participate in these science-focused **teacher study groups**?

○	Yes
○	No

45. Has your school specified a schedule for when these science-focused **teacher study groups** are expected to meet?

○	Yes
○	No ***[Skip to Q48]***

46. Over what period of time were these science-focused **teacher study groups** typically expected to meet?

○	The entire school year
○	One semester
○	Less than one semester

47. How often have these science-focused **teacher study groups** typically been expected to meet?

○	Less than once a month
○	Once a month
○	Twice a month
○	More than twice a month

48. Which of the following describe the typical science-focused **teacher study groups** in this school? [Select all that apply.]

□	Organized by grade level
□	Include teachers from multiple grade levels
□	Limited to teachers from this school
□	Include teachers from other schools in the district/diocese ***[Not presented to non-Catholic private schools]***
□	Include teachers from other schools outside of your district/diocese
□	Include school and/or district/diocese administrators
□	Include parents/guardians or other community members
□	Include higher education faculty or other "consultants"

49. Which of the following describe the typical science-focused **teacher study groups** in this school? [Select all that apply.]

□	Teachers engage in science investigations.
□	Teachers plan science lessons together.
□	Teachers analyze student science assessment results.
□	Teachers analyze classroom artifacts (for example: student work samples).
□	Teachers analyze science instructional materials (for example: textbooks or modules).

50. To what extent have these science-focused **teacher study groups** addressed deepening teacher understanding of each of the following? [Select one on each row.]

	Not at all		**Somewhat**		**To a great extent**
a. Science content	①	②	③	④	⑤
b. State science standards	①	②	③	④	⑤
c. How to use particular science instructional materials (for example: textbooks or modules)	①	②	③	④	⑤
d. How students think about various science ideas	①	②	③	④	⑤
e. How to monitor student understanding during science instruction	①	②	③	④	⑤
f. How to adapt science instruction to address student misconceptions	①	②	③	④	⑤
g. How to use technology in science instruction	①	②	③	④	⑤
h. How to use investigation-oriented science teaching strategies	①	②	③	④	⑤
i. How to teach science to students who are English language learners	①	②	③	④	⑤
j. How to provide alternative science learning experiences for students with special needs	①	②	③	④	⑤

51. Have there been designated leaders for these science-focused **teacher study groups**?

○	Yes
○	No ***[Skip to Q53]***

52. The designated leaders of these science-focused **teacher study groups** were from: [Select all that apply.]

□	This school
□	Elsewhere in this district/diocese ***[Not presented to non-Catholic private schools]***
□	College or University
□	External consultants
□	Other (please specify: _____)

53. Thinking about last school year, which of the following were used to provide teachers in this school with time for in-service (professional development) workshops/teacher study groups *that included a focus on science content and/or science instruction*, regardless of whether they were offered by your school and/or district/diocese? [Select all that apply.]

□	Early dismissal and/or late start for students
□	Professional days/teacher work days during the students' school year
□	Professional days/teacher work days before and/or after the students' school year
□	Common planning time for teachers
□	Substitute teachers to cover teachers' classes while they attend professional development
□	None of the above

54. Do any teachers in your school have access to one-on-one "coaching" focused on improving their science instruction?

○	Yes
○	No ***[Skip to End]***

55. ***[Presented only to schools that include any grades K–5]***

Are teachers of grades K–5 science classes required to receive one-on-one science-focused coaching?

○	Yes
○	No

56. ***[Presented only to schools that include any grades 6–8]***

Are teachers of grades 6–8 science classes required to receive one-on-one science-focused coaching?

○	Yes
○	No

57. ***[Presented only to schools that include any grades 9–12]***

Are teachers of grades 9–12 science classes required to receive one-on-one science-focused coaching?

○	Yes
○	No

58. To what extent is science-focused one-on-one coaching in your school provided by each of the following? [Select one on each row.]

	Not at all		**Somewhat**		**To a great extent**
a. The principal of your school	①	②	③	④	⑤
b. An assistant principal at your school	①	②	③	④	⑤
c. District/Diocese administrators including science supervisors/coordinators ***[Not presented to non-Catholic private schools]***	①	②	③	④	⑤
d. Teachers/coaches who do not have classroom teaching responsibilities	①	②	③	④	⑤
e. Teachers/coaches who have part-time classroom teaching responsibilities	①	②	③	④	⑤
f. Teachers/coaches who have full-time classroom teaching responsibilities	①	②	③	④	⑤

Thank you!

SCIENCE PROGRAM QUESTIONNAIRE TABLES

Table SPQ 1
Titles of Science Program Questionnaire Representatives

	Percent of Representatives		
	Elementary	Middle	High
Science department chair	11 (1.8)	27 (2.7)	56 (3.5)
Science lead teacher or coach	24 (2.7)	25 (3.0)	24 (3.0)
Regular classroom teacher	73 (2.6)	72 (3.1)	63 (3.4)
Principal	7 (2.1)	8 (2.4)	5 (2.5)
Assistant principal	1 (0.3)	1 (0.5)	1 (0.6)
Other	11 (2.0)	11 (2.5)	9 (2.8)

Table SPQ 2
Use of Various Instructional Arrangements in Elementary Schools

	Percent of Schools
Students in self-contained classes receive science instruction from a science specialist *instead of* their regular teacher	10 (1.9)
Students in self-contained classes receive science instruction from a science specialist *in addition* to their regular teacher	16 (2.4)
Students in self-contained classes pulled out for remedial instruction in science	7 (1.5)
Students in self-contained classes pulled out for enrichment in science	10 (1.8)
Students in self-contained classes pulled out from science instruction for additional instruction in other content areas	22 (2.3)

Table SPQ 3
Science Programs and Practices Currently Being Implemented in High Schools

	Percent of Schools
Physics courses offered this school year or in alternating years, on or off site	88 (2.9)
Students go to a Career and Technical Education (CTE) Center for science and/or engineering instruction	22 (3.2)
Science and/or engineering courses offered by telecommunications	18 (2.9)
Students go to another K–12 school for science and/or engineering courses	8 (2.5)
Students go to a college or university for science and/or engineering courses	22 (2.4)

Table SPQ 4.1
Services Provided to Elementary School Teachers in Need of Special Assistance in Teaching Science

	Percent of Schools
Seminars, classes, and/or study groups	41 (2.5)
Guidance from a formally designated mentor or coach	51 (3.4)
A higher level of supervision than for other teachers	12 (2.1)

Table SPQ 4.2
Services Provided to Middle School Science Teachers in Need of Special Assistance in Teaching

	Percent of Schools
Seminars, classes, and/or study groups	52 (3.0)
Guidance from a formally designated mentor or coach	50 (3.3)
A higher level of supervision than for other teachers	21 (2.3)

Table SPQ 4.3
Services Provided to High School Science Teachers in Need of Special Assistance in Teaching

	Percent of Schools
Seminars, classes, and/or study groups	50 (3.7)
Guidance from a formally designated mentor or coach	63 (3.3)
A higher level of supervision than for other teachers	34 (2.7)

Table SPQ 5.1
Elementary School Programs/Practices to Enhance Students' Interest and/or Achievement in Science/Engineering

	Percent of Schools
Holds family science and/or engineering nights	26 (2.8)
Offers after-school help in science and/or engineering (e.g., tutoring)	31 (2.7)
Offers formal after-school programs for enrichment in science and/or engineering	17 (2.5)
Offers one or more science clubs	20 (2.6)
Offers one or more engineering clubs	7 (2.0)
Participates in a local or regional science and/or engineering fair	35 (3.0)
Has one or more teams participating in science competitions (e.g., Science Olympiad)	13 (2.0)
Has one or more teams participating in engineering competitions (e.g., Robotics)	11 (1.9)
Encourages students to participate in science and/or engineering summer programs or camps offered by community colleges, universities, museums, or science centers	50 (3.5)
Sponsors visits to business, industry, and/or research sites related to science and/or engineering	30 (2.7)
Sponsors meetings with adult mentors who work in science and/or engineering fields	16 (2.4)

Table SPQ 5.2
Middle School Programs/Practices to Enhance Students' Interest and/or Achievement in Science/Engineering

	Percent of Schools	
Holds family science and/or engineering nights	23	(3.0)
Offers after-school help in science and/or engineering (e.g., tutoring)	53	(3.6)
Offers formal after-school programs for enrichment in science and/or engineering	24	(2.7)
Offers one or more science clubs	29	(3.0)
Offers one or more engineering clubs	13	(2.5)
Participates in a local or regional science and/or engineering fair	39	(3.3)
Has one or more teams participating in science competitions (e.g., Science Olympiad)	22	(2.2)
Has one or more teams participating in engineering competitions (e.g., Robotics)	19	(2.4)
Encourages students to participate in science and/or engineering summer programs or camps offered by community colleges, universities, museums, or science centers	63	(3.6)
Sponsors visits to business, industry, and/or research sites related to science and/or engineering	35	(3.4)
Sponsors meetings with adult mentors who work in science and/or engineering fields	24	(3.0)

Table SPQ 5.3
High School Programs/Practices to Enhance Students' Interest and/or Achievement in Science/Engineering

	Percent of Schools	
Holds family science and/or engineering nights	16	(2.9)
Offers after-school help in science and/or engineering (e.g., tutoring)	81	(2.9)
Offers formal after-school programs for enrichment in science and/or engineering	29	(3.1)
Offers one or more science clubs	47	(3.4)
Offers one or more engineering clubs	21	(2.0)
Participates in a local or regional science and/or engineering fair	46	(3.2)
Has one or more teams participating in science competitions (e.g., Science Olympiad)	40	(3.4)
Has one or more teams participating in engineering competitions (e.g., Robotics)	33	(2.4)
Encourages students to participate in science and/or engineering summer programs or camps offered by community colleges, universities, museums, or science centers	75	(3.5)
Sponsors visits to business, industry, and/or research sites related to science and/or engineering	48	(3.6)
Sponsors meetings with adult mentors who work in science and/or engineering fields	28	(2.6)

Table SPQ 6.1
Opinions about Various Statements Regarding State Science Standards in Elementary Schools

	Percent of Schools									
	Strongly Disagree		Disagree		No Opinion		Agree		Strongly Agree	
State science standards have been thoroughly discussed by science teachers in this school	3	(1.1)	20	(2.4)	8	(1.7)	46	(2.9)	22	(2.2)
There is a school-wide effort to align science instruction with the state science standards	4	(1.3)	9	(1.8)	7	(1.6)	46	(3.1)	34	(2.9)
Most science teachers in this school teach to the state standards	2	(1.0)	5	(1.2)	9	(2.3)	53	(3.6)	29	(2.8)
Your district/diocese organizes science professional development based on state standards†	10	(2.0)	20	(2.3)	14	(2.5)	38	(2.9)	18	(2.1)

† Item presented only to public and Catholic schools.

Table SPQ 6.2
Opinions about Various Statements
Regarding State Science Standards in Middle Schools

	Percent of Schools									
	Strongly Disagree		Disagree		No Opinion		Agree		Strongly Agree	
State science standards have been thoroughly discussed by science teachers in this school	3	(1.0)	16	(2.8)	4	(1.1)	43	(3.3)	34	(3.0)
There is a school-wide effort to align science instruction with the state science standards	4	(1.1)	9	(2.1)	4	(1.0)	42	(2.9)	41	(3.1)
Most science teachers in this school teach to the state standards	3	(1.0)	3	(0.9)	8	(2.1)	46	(3.3)	40	(3.1)
Your district/diocese organizes science professional development based on state standards†	9	(2.1)	25	(2.9)	14	(1.8)	30	(2.6)	22	(3.1)

† Item presented only to public and Catholic schools.

Table SPQ 6.3
Opinions about Various Statements
Regarding State Science Standards in High Schools

	Percent of Schools									
	Strongly Disagree		Disagree		No Opinion		Agree		Strongly Agree	
State science standards have been thoroughly discussed by science teachers in this school	2	(0.6)	9	(1.5)	6	(2.3)	43	(3.5)	40	(3.4)
There is a school-wide effort to align science instruction with the state science standards	3	(0.9)	8	(1.9)	7	(2.4)	37	(3.7)	44	(3.5)
Most science teachers in this school teach to the state standards	3	(0.8)	3	(1.0)	13	(3.7)	40	(3.6)	41	(3.6)
Your district/diocese organizes science professional development based on state standards†	8	(1.3)	20	(2.0)	18	(1.7)	28	(2.7)	26	(3.3)

† Item presented only to public and Catholic schools.

Table SPQ 7, 8, 9
Type of Middle School Science Courses Offered

	Percent of Schools†					
	6th Grade		7th Grade		8th Grade	
Single-discipline science courses (e.g., life science)	36	(3.6)	46	(3.8)	47	(3.8)
Coordinated or Integrated science courses	45	(4.1)	38	(3.7)	36	(3.7)
Both single-discipline and coordinated or integrated science courses	19	(3.5)	15	(3.6)	18	(3.5)

† Includes all schools containing the specified grade.

There is no table for SPQ 10.

Table SPQ 11 and 12
High Schools Offering One or More Courses in Coordinated or Integrated Science, including General Science and Physical Science

	Percent of Schools†	
Any coordinated or integrated science course	61	(3.9)
Non-college prep	54	(3.9)
College prep, including honors	43	(2.8)

† Schools indicating on Q11 that they do not offer any courses in coordinated or integrated science are treated as not offering each of the levels of coordinated or integrated science courses.

Table SPQ 13 and 14
High Schools Offering One or More Courses in Earth/Space Science

	Percent of Schools†	
Any Earth/space science course	46	(3.7)
Non-college prep	37	(3.0)
1st year college prep, including honors	25	(3.2)
2nd year advanced	4	(0.7)

† Schools indicating in Q13 that they do not offer any courses in Earth/space science are treated as not offering each of the levels of Earth/space science courses.

Table SPQ 15 and 16
High Schools Offering One or More Courses in Life Science/Biology

	Percent of Schools†	
Any life science/biology course	93	(3.2)
Non-college prep	68	(3.6)
1st year college prep, including honors	84	(3.7)
2nd year advanced	58	(3.5)

† Schools indicating in Q15 that they do not offer any courses in life science/biology are treated as not offering each of the levels of life science/biology courses.

Table SPQ 17 and 18
High Schools Offering One or More Courses in Environmental Science/Ecology

	Percent of Schools†	
Any environmental science/ecology course	43	(3.1)
Non-college prep	28	(2.4)
1st year college prep, including honors	28	(2.2)
2nd year advanced	17	(1.3)

† Schools indicating in Q17 that they do not offer any courses in environmental science/ecology are treated as not offering each of the levels of environmental science/ecology courses.

Table SPQ 19 and 20
High Schools Offering One or More Courses in Chemistry

	Percent of Schools†
Any chemistry course	89 (3.6)
Non-college prep	48 (3.3)
1st year college prep, including honors	80 (3.8)
2nd year advanced	40 (2.7)

† Schools indicating in Q19 that they do not offer any courses in chemistry are treated as not offering each of the levels of chemistry courses.

Table SPQ 21 and 22
High Schools Offering One or More Courses in Physics

	Percent of Schools†
Any physics course	79 (3.7)
Non-college prep	34 (2.9)
1st year college prep, including honors	72 (3.7)
2nd year advanced	32 (2.2)

† Schools indicating in Q21 that they do not offer any courses in physics are treated as not offering each of the levels of physics courses.

Table SPQ 23 and 24
High Schools Offering One or More Courses in Engineering

	Percent of Schools†
Any engineering course	22 (1.9)
Non-college prep	13 (1.9)
1st year college prep, including honors	11 (1.3)
2nd year advanced	5 (1.0)

† Schools indicating in Q23 that they do not offer any courses in engineering are treated as not offering each of the levels of engineering courses.

Table SPQ 25
High Schools Offering Science Courses that Might Qualify for College Credit

	Percent of Schools
Advanced Placement (AP) science courses	49 (3.2)
International Baccalaureate (IB) science courses	4 (0.6)
Concurrent college and high school credit/dual enrollment science courses	28 (2.8)

Table SPQ 26
When High Schools Offer Concurrent College and High School Credit/Dual Enrollment Science Courses

	Percent of Schools
Not offered at all†	72 (2.8)
Not offered this school year, but offered in alternating years	2 (0.9)
Offered this school year	26 (2.8)

† Schools indicating in Q25 that they do not offer concurrent college and high school credit/dual enrollment courses are included in the "Not offered at all" category.

Table SPQ 27
When High Schools Offer Various Advanced Placement and International Baccalaureate Science Courses

	Percent of Schools		
	Not offered at all†	Not offered this school year, but offered in alternating years	Offered this school year
AP Biology	57 (2.8)	5 (1.2)	37 (2.5)
AP Chemistry	66 (2.3)	5 (1.1)	29 (2.2)
AP Physics B	78 (1.8)	3 (0.8)	19 (1.5)
AP Physics C	88 (1.2)	3 (0.7)	9 (1.0)
AP Environmental Science	83 (1.3)	3 (0.7)	14 (1.1)
IB Biology	97 (0.6)	0 (0.1)	3 (0.6)
IB Chemistry	97 (0.6)	0 (0.1)	3 (0.6)
IB Physics	97 (0.6)	0 (0.3)	2 (0.5)

† Schools indicating in Q25 that they do not offer Advanced Placement (AP) science courses and/or International Baccalaureate science courses are included in the "Not offered at all" category for each course of that type.

Table SPQ 28
High School Science Graduation Requirements

	Percent of Schools†
1 year	1 (1.0)
2 years	14 (1.6)
3 years	64 (2.5)
4 years	21 (2.4)

† Only schools that contain grade 12 are included in this analysis.

Table SPQ 29
Schools Counting Engineering Courses Towards Science Graduation Requirements

	Percent of Schools†
Elementary	— —
Middle	— —
High	38 (5.6)

† Only schools indicating in Q23 that they offer one or more Engineering courses and that contain grade 12 are included in this analysis.

Table SPQ 30
Years of Science Required for Entry into the State University System

	Percent of Schools[†]
1 year	0 ---[‡]
2 years	23 (1.4)
3 years	73 (2.2)
4 years	4 (2.1)

[†] Only schools that contain grade 12 are included in this analysis.
[‡] No schools in the sample were in this category. Thus, it is not possible to calculate the standard error of this estimate.

Table SPQ 31
Median Amount Schools Spent per Pupil on Consumable Supplies, Equipment, and Software for Science

	Median Amount		
	Elementary	Middle	High
Consumable science supplies (e.g., chemicals, living organisms, batteries)	$0.95	$1.45	$3.44
Science equipment (non-consumable, non-perishable items such as microscopes, scales, etc., but not computers)	$0.26	$0.71	$2.06
Software for science instruction	$0.00	$0.00	$0.00

Table SPQ 32.1
Effect of Various Factors on Science Instruction in Elementary Schools

	Percent of Schools											
	Inhibits Effective Instruction				Neutral or Mixed				Promotes Effective Instruction		N/A or Don't Know	
	1		2		3		4		5			
District/Diocese science professional development policies and practices[†]	4	(1.1)	7	(1.6)	28	(2.9)	17	(2.2)	27	(2.7)	16	(2.5)
Time provided for teacher professional development in science	11	(2.2)	15	(2.5)	26	(2.5)	15	(2.0)	22	(2.4)	10	(2.0)
Importance that the school places on science	6	(1.4)	13	(2.1)	21	(2.4)	24	(2.6)	33	(2.8)	3	(1.3)
Public attitudes toward science instruction	3	(1.3)	6	(1.3)	34	(2.9)	23	(2.4)	24	(2.8)	10	(1.8)
Conflict between efforts to improve science instruction and other school and/or district/ diocese initiatives	12	(1.8)	17	(2.1)	36	(3.0)	13	(2.5)	9	(2.1)	14	(2.2)
How science instructional resources are managed (e.g., distributing and refurbishing materials)	9	(1.7)	12	(2.1)	24	(2.8)	21	(2.7)	27	(2.8)	8	(1.7)

[†] Item presented only to public and Catholic schools.

Table SPQ 32.2
Effect of Various Factors on Science Instruction in Middle Schools

	Percent of Schools									
	Inhibits Effective Instruction				Neutral or Mixed				Promotes Effective Instruction		N/A or Don't Know	
	1		2		3		4		5			
District/Diocese science professional development policies and practices†	5	(1.3)	9	(2.0)	28	(3.2)	15	(2.0)	27	(3.2)	16	(2.7)
Time provided for teacher professional development in science	13	(2.7)	16	(2.4)	23	(2.6)	16	(2.1)	24	(2.8)	8	(1.8)
Importance that the school places on science	7	(1.7)	12	(2.7)	18	(2.4)	25	(3.5)	36	(3.5)	2	(0.8)
Public attitudes toward science instruction	4	(1.6)	7	(1.8)	29	(2.7)	24	(2.8)	28	(3.3)	7	(1.5)
Conflict between efforts to improve science instruction and other school and/or district/ diocese initiatives	8	(1.4)	19	(2.4)	35	(3.1)	13	(2.2)	8	(2.0)	17	(2.9)
How science instructional resources are managed (e.g., distributing and refurbishing materials)	10	(2.0)	11	(2.1)	24	(2.7)	25	(3.0)	22	(2.7)	8	(2.0)

† Item presented only to public and Catholic schools.

Table SPQ 32.3
Effect of Various Factors on Science Instruction in High Schools

	Percent of Schools									
	Inhibits Effective Instruction				Neutral or Mixed				Promotes Effective Instruction		N/A or Don't Know	
	1		2		3		4		5			
District/Diocese science professional development policies and practices†	5	(1.0)	9	(1.8)	33	(2.7)	15	(1.8)	28	(3.3)	11	(1.9)
Time provided for teacher professional development in science	9	(2.6)	14	(1.6)	26	(3.1)	21	(2.7)	24	(2.9)	6	(1.8)
Importance that the school places on science	2	(0.6)	11	(2.8)	17	(2.1)	27	(3.2)	41	(3.1)	2	(1.1)
Public attitudes toward science instruction	2	(0.9)	8	(1.6)	28	(3.3)	30	(3.2)	27	(3.1)	4	(1.3)
Conflict between efforts to improve science instruction and other school and/or district/ diocese initiatives	7	(1.7)	16	(2.9)	32	(3.0)	22	(3.3)	10	(2.2)	12	(2.0)
How science instructional resources are managed (e.g., distributing and refurbishing materials)	6	(1.4)	12	(3.0)	23	(2.6)	27	(3.6)	28	(3.0)	4	(1.7)

† Item presented only to public and Catholic schools.

Table SPQ 33.1
Science Program Representatives' Opinions about the Extent to Which Various Factors Are Problematic for Science Instruction in Elementary Schools

	Percent of Schools		
	Not a Significant Problem	Somewhat of a Problem	Serious Problem
Lack of science facilities (e.g., lab tables, electric outlets, faucets and sinks in classrooms)	34 (3.1)	39 (3.3)	27 (3.3)
Inadequate funds for purchasing science equipment and supplies	28 (2.7)	42 (3.3)	30 (3.0)
Inadequate supply of science textbooks/modules	60 (3.2)	26 (3.2)	14 (2.0)
Inadequate materials for individualizing science instruction	37 (3.0)	43 (3.3)	21 (2.6)
Low student interest in science	65 (3.2)	30 (3.1)	5 (1.4)
Low student reading abilities	43 (3.2)	41 (3.1)	16 (2.2)
Lack of teacher interest in science	61 (3.0)	35 (2.9)	4 (1.0)
Inadequate teacher preparation to teach science	48 (3.0)	41 (3.0)	11 (1.8)
Insufficient time to teach science	32 (2.9)	41 (3.5)	27 (2.6)
Lack of opportunities for science teachers to share ideas	34 (3.2)	46 (3.2)	20 (2.5)
Inadequate science-related professional development opportunities	28 (2.9)	50 (3.0)	23 (2.3)
Interruptions for announcements, assemblies, and other school activities	62 (2.5)	29 (2.7)	8 (1.5)
Large class sizes	58 (2.9)	29 (2.5)	13 (2.0)
High student absenteeism	72 (2.7)	21 (2.6)	8 (1.7)
Inappropriate student behavior	63 (2.7)	28 (2.3)	9 (1.6)
Lack of parental support for science education	62 (3.0)	27 (2.6)	10 (1.8)
Community resistance to the teaching of "controversial" issues in science (e.g., evolution, climate change)	78 (3.1)	18 (2.8)	3 (1.2)

Table SPQ 33.2
Science Program Representatives' Opinions about the Extent to Which Various Factors Are Problematic for Science Instruction in Middle Schools

	Percent of Schools		
	Not a Significant Problem	Somewhat of a Problem	Serious Problem
Lack of science facilities (e.g., lab tables, electric outlets, faucets and sinks in classrooms)	36 (3.3)	34 (3.2)	30 (4.0)
Inadequate funds for purchasing science equipment and supplies	25 (2.5)	43 (3.7)	32 (3.4)
Inadequate supply of science textbooks/modules	57 (3.5)	30 (3.0)	13 (2.3)
Inadequate materials for individualizing science instruction	34 (2.9)	46 (3.1)	20 (3.0)
Low student interest in science	49 (3.6)	39 (3.5)	11 (1.9)
Low student reading abilities	35 (3.4)	45 (3.3)	19 (2.5)
Lack of teacher interest in science	79 (3.3)	18 (3.2)	3 (1.0)
Inadequate teacher preparation to teach science	64 (3.7)	26 (3.5)	9 (2.1)
Insufficient time to teach science	49 (3.3)	34 (3.5)	17 (2.4)
Lack of opportunities for science teachers to share ideas	42 (3.8)	42 (3.7)	16 (2.5)
Inadequate science-related professional development opportunities	35 (3.0)	45 (2.8)	20 (2.6)
Interruptions for announcements, assemblies, and other school activities	59 (2.9)	31 (2.9)	10 (1.6)
Large class sizes	58 (3.1)	26 (2.6)	15 (1.9)
High student absenteeism	62 (2.8)	25 (2.5)	13 (2.3)
Inappropriate student behavior	59 (3.0)	26 (2.3)	15 (2.1)
Lack of parental support for science education	56 (3.3)	30 (2.9)	14 (2.2)
Community resistance to the teaching of "controversial" issues in science (e.g., evolution, climate change)	72 (3.9)	22 (3.4)	6 (1.8)

Table SPQ 33.3
Science Program Representatives' Opinions about the Extent to Which Various Factors Are Problematic for Science Instruction in High Schools

	Percent of Schools		
	Not a Significant Problem	Somewhat of a Problem	Serious Problem
Lack of science facilities (e.g., lab tables, electric outlets, faucets and sinks in classrooms)	47 (3.5)	34 (3.3)	19 (4.3)
Inadequate funds for purchasing science equipment and supplies	33 (2.6)	40 (3.0)	28 (3.9)
Inadequate supply of science textbooks/modules	56 (3.9)	31 (3.8)	13 (1.6)
Inadequate materials for individualizing science instruction	38 (3.0)	45 (4.0)	17 (3.1)
Low student interest in science	43 (3.6)	44 (3.5)	13 (1.5)
Low student reading abilities	37 (3.8)	43 (3.2)	19 (2.0)
Lack of teacher interest in science	88 (2.6)	9 (2.5)	2 (0.9)
Inadequate teacher preparation to teach science	77 (3.6)	20 (3.5)	3 (0.9)
Insufficient time to teach science	52 (3.7)	38 (3.5)	10 (1.7)
Lack of opportunities for science teachers to share ideas	44 (3.4)	43 (3.5)	13 (2.3)
Inadequate science-related professional development opportunities	38 (3.6)	47 (4.0)	14 (2.1)
Interruptions for announcements, assemblies, and other school activities	48 (3.6)	41 (3.6)	11 (1.6)
Large class sizes	58 (2.7)	26 (2.1)	16 (1.9)
High student absenteeism	52 (3.3)	35 (3.0)	13 (1.7)
Inappropriate student behavior	59 (2.8)	33 (2.6)	8 (1.4)
Lack of parental support for science education	56 (3.1)	34 (2.8)	9 (1.3)
Community resistance to the teaching of "controversial" issues in science (e.g., evolution, climate change)	77 (2.4)	21 (2.4)	2 (0.5)

There is no table for SPQ 34.

There is no table for SPQ 35.

Table SPQ 36
Difficulty Filling Science Teacher Vacancies

	Percent of Schools	
	Middle	High
There were no vacancies for science teachers	63 (3.6)	48 (3.8)
Easy	14 (1.8)	17 (2.6)
Somewhat difficult	13 (1.6)	19 (2.1)
Very difficult	7 (1.8)	12 (2.2)
Could not fill the vacancies	3 (1.7)	4 (2.5)

Table SPQ 37
Schools Indicating Greater Difficulty Filling Science Teacher Vacancies in Some Disciplines than in Others

	Percent of Schools†
Elementary	— —
Middle	— —
High	39 (4.3)

† Only high schools indicating in Q36 that filling vacancies was "Somewhat difficult," "Very difficult," or that they "Could not fill the vacancies" are included in this analysis.

Table SPQ 38
Difficulty Filling Science Teacher Vacancies in Various Disciplines in High Schools

	Percent of Schools†				
	There were no vacancies for this discipline	Easy	Somewhat difficult	Very difficult	Could not fill the vacancies
Biology/Life science	46 (5.7)	21 (4.4)	19 (3.7)	14 (4.8)	1 (1.0)
Chemistry	30 (3.9)	8 (3.8)	22 (3.7)	37 (5.9)	2 (1.1)
Earth/Space science	60 (5.1)	5 (1.7)	17 (3.8)	17 (5.6)	1 (1.0)
Physics	32 (5.3)	1 (0.4)	17 (3.6)	43 (5.3)	7 (3.3)
A combination of science disciplines	44 (4.9)	2 (1.3)	24 (4.6)	26 (4.4)	3 (1.6)

† Only high schools indicating in Q36 that filling vacancies was "Somewhat difficult," "Very difficult," or that they "Could not fill the vacancies" and indicating in Q37 that there were particular science disciplines for which it was more difficult to fill vacancies than others are included in this analysis.

Table SPQ 39
Science Professional Development Workshops Offered Locally in the Last Three Years

	Percent of Schools
Elementary	48 (2.9)
Middle	42 (3.6)
High	36 (4.0)

Table SPQ 40.1
Elementary Schools with Locally Offered Science Professional Development Workshops in the Last Three Years with a Focus in Each of a Number of Areas

	Percent of Schools†									
	Not at All				Somewhat				To a Great Extent	
	1		2		3		4		5	
Science content	4	(1.6)	6	(2.6)	36	(4.5)	29	(3.6)	25	(4.1)
State science standards	4	(1.5)	7	(2.2)	28	(3.7)	33	(4.1)	28	(4.3)
How to use particular science instructional materials (e.g., textbooks or modules)	12	(3.0)	9	(2.2)	22	(3.1)	33	(4.2)	24	(3.7)
How students think about various science ideas	12	(2.6)	15	(2.7)	40	(4.0)	22	(3.0)	11	(2.5)
How to monitor student understanding during science instruction	14	(2.8)	13	(2.6)	42	(4.1)	20	(3.1)	11	(2.7)
How to adapt science instruction to address student misconceptions	16	(3.0)	19	(3.4)	34	(4.0)	20	(3.5)	11	(2.3)
How to use technology in science instruction	13	(2.5)	15	(3.2)	34	(4.5)	26	(3.3)	11	(2.3)
How to use investigation-oriented science teaching strategies	9	(2.4)	11	(2.3)	25	(3.9)	29	(4.0)	26	(3.4)
How to teach science to students who are English language learners	34	(3.7)	19	(3.2)	28	(3.5)	14	(3.2)	5	(1.7)
How to provide alternative science learning experiences for students with special needs	34	(3.7)	26	(3.8)	30	(3.9)	4	(1.4)	6	(1.7)

† Only elementary schools indicating in Q39 that they and/or their district/diocese offered in-service workshops in the last three years are included in this analysis.

Table SPQ 40.2
Middle Schools with Locally Offered Science Professional Development Workshops in the Last Three Years with a Focus in Each of a Number of Areas

	Percent of Schools†									
	Not at All				Somewhat				To a Great Extent	
	1		2		3		4		5	
Science content	7	(2.3)	7	(3.1)	35	(5.1)	24	(3.8)	27	(5.0)
State science standards	6	(2.1)	4	(1.3)	23	(3.9)	31	(4.6)	37	(5.4)
How to use particular science instructional materials (e.g., textbooks or modules)	17	(3.6)	8	(1.7)	22	(3.1)	31	(5.6)	21	(3.3)
How students think about various science ideas	14	(2.8)	11	(2.0)	43	(5.1)	19	(3.2)	13	(2.7)
How to monitor student understanding during science instruction	14	(3.0)	9	(1.6)	43	(5.4)	22	(3.6)	12	(2.9)
How to adapt science instruction to address student misconceptions	17	(3.0)	15	(3.7)	34	(4.7)	23	(3.4)	11	(2.7)
How to use technology in science instruction	9	(2.6)	13	(3.0)	35	(6.1)	25	(3.3)	17	(3.6)
How to use investigation-oriented science teaching strategies	13	(3.0)	8	(1.7)	28	(4.9)	30	(4.5)	22	(4.2)
How to teach science to students who are English language learners	37	(4.4)	16	(3.0)	30	(4.3)	13	(3.8)	5	(1.3)
How to provide alternative science learning experiences for students with special needs	31	(3.8)	23	(4.7)	34	(4.5)	5	(1.4)	6	(2.0)

† Only middle schools indicating in Q39 that they and/or their district/diocese offered in-service workshops in the last three years are included in this analysis.

Table SPQ 40.3
High Schools with Locally Offered Science Professional Development Workshops in the Last Three Years with a Focus in Each of a Number of Areas

	Percent of Schools†									
	Not at All				Somewhat				To a Great Extent	
	1		2		3		4		5	
Science content	7	(1.8)	15	(6.2)	45	(6.6)	22	(3.2)	11	(2.5)
State science standards	5	(1.4)	5	(1.6)	24	(4.5)	35	(5.9)	31	(6.4)
How to use particular science instructional materials (e.g., textbooks or modules)	17	(4.2)	14	(2.9)	25	(3.4)	32	(7.6)	12	(2.9)
How students think about various science ideas	21	(3.6)	17	(2.8)	42	(6.9)	13	(2.4)	6	(1.7)
How to monitor student understanding during science instruction	17	(3.5)	14	(2.5)	42	(6.7)	21	(3.6)	6	(1.6)
How to adapt science instruction to address student misconceptions	23	(3.9)	22	(6.3)	32	(6.6)	15	(2.9)	8	(1.8)
How to use technology in science instruction	8	(2.7)	8	(1.7)	41	(7.0)	28	(4.1)	15	(3.0)
How to use investigation-oriented science teaching strategies	12	(2.3)	13	(3.0)	35	(7.1)	30	(6.5)	11	(2.1)
How to teach science to students who are English language learners	44	(5.9)	15	(2.5)	24	(6.1)	12	(6.3)	5	(1.3)
How to provide alternative science learning experiences for students with special needs	38	(5.4)	23	(6.0)	28	(6.5)	8	(2.1)	3	(1.2)

† Only high schools indicating in Q39 that they and/or their district/diocese offered in-service workshops in the last three years are included in this analysis.

Table SPQ 41
Science-Focused Teacher Study Groups Offered at Schools in the Last Three Years

	Percent of Schools
Elementary	32 (3.0)
Middle	43 (3.7)
High	47 (4.4)

Table SPQ 42, 43, 44
Required Participation in Science-Focused Teacher Study Groups

	Percent of Schools†
Elementary	62 (5.6)
Middle	76 (4.9)
High	80 (5.2)

† Only schools indicating in Q41 that they offered teacher study groups in the last three years are included in this analysis.

Table SPQ 45
Schedule for Science-Focused Teacher Study Groups Specified by School

	Percent of Schools[†]
Elementary	53 (4.8)
Middle	61 (4.4)
High	68 (5.2)

[†] Only schools indicating in Q41 that they offered teacher study groups in the last three years are included in this analysis.

Table SPQ 46
Duration of Science-Focused Teacher Study Groups

	Percent of Schools[†]		
	Elementary	Middle	High
The entire school year	84 (4.6)	93 (2.0)	96 (1.3)
One semester	11 (3.9)	4 (1.4)	2 (1.0)
Less than one semester	4 (2.4)	3 (1.6)	2 (0.9)

[†] Only schools indicating in Q41 that they offered teacher study groups in the last three years and indicating in Q45 that they have a specified schedule for these teacher study groups are included in this analysis.

Table SPQ 47
Frequency of Science-Focused Teacher Study Groups

	Percent of Schools[†]		
	Elementary	Middle	High
Less than once a month	35 (7.5)	19 (4.1)	16 (3.1)
Once a month	38 (6.6)	35 (4.8)	28 (5.2)
Twice a month	7 (3.1)	13 (2.6)	15 (2.4)
More than twice a month	20 (6.5)	33 (5.0)	41 (6.7)

[†] Only elementary schools indicating in Q41 that they offered teacher study groups in the last three years and indicating in Q45 that they have a specified schedule for these teacher study groups are included in this analysis.

Table SPQ 48
Composition of Science-Focused Teacher Study Groups

	Percent of Schools[†]		
	Elementary	Middle	High
Organized by grade level	56 (5.4)	41 (4.3)	26 (4.7)
Include teachers from multiple grade levels	62 (5.4)	76 (3.6)	74 (3.5)
Limited to teachers from this school	58 (6.8)	64 (5.7)	72 (7.2)
Include teachers from other schools in the district/diocese[‡]	45 (6.6)	38 (5.2)	27 (6.0)
Include teachers from other schools outside of your district/diocese	12 (5.2)	12 (5.4)	9 (5.9)
Include school and/or district/diocese administrators	52 (6.1)	43 (5.1)	38 (5.1)
Include parents/guardians or other community members	0 (0.1)	0 (0.2)	1 (0.4)
Include higher education faculty or other "consultants"	13 (3.9)	10 (2.8)	4 (0.9)

[†] Only schools indicating in Q41 that they offered teacher study groups in the last three years are included in this analysis.
[‡] Item presented only to public and Catholic schools.

Table SPQ 49
Description of Activities in Typical Science-Focused Teacher Study Groups

	Percent of Schools†		
	Elementary	Middle	High
Teachers engage in science investigations	28 (5.1)	27 (4.6)	21 (5.2)
Teachers plan science lessons together	64 (5.3)	67 (4.9)	65 (5.9)
Teachers analyze student science assessment results	65 (5.7)	82 (3.5)	87 (2.4)
Teachers analyze classroom artifacts (e.g., student work samples)	34 (5.8)	40 (5.5)	40 (6.2)
Teachers analyze science instructional materials (e.g., textbooks or modules)	66 (5.6)	68 (4.6)	63 (4.6)

† Only schools indicating in Q41 that they offered teacher study groups in the last three years are included in this analysis.

Table SPQ 50.1
Elementary School Science-Focused Teacher Study Groups in the Last Three Years with a Focus in Each of a Number of Areas

	Percent of Schools†				
	Not at All		Somewhat		To a Great Extent
	1	2	3	4	5
Science content	7 (3.3)	6 (2.4)	30 (5.7)	36 (6.1)	20 (4.1)
State science standards	6 (3.1)	3 (1.5)	23 (5.1)	37 (6.1)	32 (5.1)
How to use particular science instructional materials (e.g., textbooks or modules)	8 (2.5)	12 (4.1)	25 (5.0)	36 (4.8)	18 (3.8)
How students think about various science ideas	13 (4.1)	8 (2.4)	37 (5.9)	27 (5.5)	15 (3.7)
How to monitor student understanding during science instruction	13 (3.4)	5 (1.8)	32 (5.2)	36 (5.3)	14 (3.3)
How to adapt science instruction to address student misconceptions	14 (3.6)	7 (2.0)	38 (5.4)	25 (4.5)	16 (4.3)
How to use technology in science instruction	10 (2.8)	18 (5.0)	28 (4.9)	31 (5.7)	13 (3.0)
How to use investigation-oriented science teaching strategies	10 (2.7)	10 (3.8)	26 (5.4)	32 (6.1)	22 (4.8)
How to teach science to students who are English language learners	44 (5.7)	10 (2.7)	27 (5.5)	10 (4.1)	9 (2.9)
How to provide alternative science learning experiences for students with special needs	30 (4.6)	19 (3.8)	30 (5.9)	14 (4.9)	7 (2.5)

† Only elementary schools indicating in Q41 that they offered teacher study groups in the last three years are included in this analysis.

Table SPQ 50.2
Middle School Science-Focused Teacher Study Groups in the Last Three Years with a Focus in Each of a Number of Areas

	Percent of Schools†									
	Not at All				Somewhat				To a Great Extent	
	1		2		3		4		5	
Science content	9	(3.2)	10	(2.7)	33	(4.8)	30	(5.3)	18	(3.4)
State science standards	7	(3.2)	3	(1.1)	22	(4.3)	36	(5.3)	33	(4.3)
How to use particular science instructional materials (e.g., textbooks or modules)	9	(2.4)	14	(4.0)	33	(4.7)	32	(5.1)	13	(2.6)
How students think about various science ideas	14	(4.5)	11	(2.2)	33	(5.2)	28	(5.0)	14	(3.8)
How to monitor student understanding during science instruction	14	(3.7)	8	(1.9)	29	(4.9)	33	(4.8)	16	(3.2)
How to adapt science instruction to address student misconceptions	13	(2.9)	11	(2.1)	32	(4.0)	28	(3.9)	16	(4.1)
How to use technology in science instruction	6	(1.6)	20	(4.8)	24	(4.5)	32	(4.7)	18	(3.8)
How to use investigation-oriented science teaching strategies	9	(2.4)	15	(3.9)	27	(4.8)	34	(5.4)	15	(3.7)
How to teach science to students who are English language learners	44	(4.8)	15	(2.5)	25	(4.9)	10	(3.5)	5	(1.8)
How to provide alternative science learning experiences for students with special needs	25	(4.1)	25	(3.8)	27	(5.1)	18	(4.0)	6	(1.8)

† Only middle schools indicating in Q41 that they offered teacher study groups in the last three years are included in this analysis.

Table SPQ 50.3
High School Science-Focused Teacher Study Groups in the Last Three Years with a Focus in Each of a Number of Areas

	Percent of Schools†									
	Not at All				Somewhat				To a Great Extent	
	1		2		3		4		5	
Science content	13	(4.6)	9	(2.1)	42	(5.6)	26	(5.4)	11	(2.2)
State science standards	10	(4.7)	5	(1.4)	27	(5.5)	28	(3.7)	31	(5.2)
How to use particular science instructional materials (e.g., textbooks or modules)	12	(2.0)	11	(2.0)	42	(5.0)	28	(5.0)	8	(1.8)
How students think about various science ideas	13	(2.3)	13	(2.1)	33	(5.5)	34	(6.0)	7	(1.9)
How to monitor student understanding during science instruction	11	(2.2)	11	(1.9)	32	(5.8)	37	(5.8)	9	(2.1)
How to adapt science instruction to address student misconceptions	15	(3.5)	10	(1.6)	37	(4.8)	25	(3.3)	12	(5.1)
How to use technology in science instruction	9	(1.7)	15	(4.4)	29	(5.1)	35	(5.7)	12	(2.5)
How to use investigation-oriented science teaching strategies	11	(1.9)	11	(2.1)	37	(5.7)	27	(4.9)	14	(4.9)
How to teach science to students who are English language learners	50	(5.9)	18	(2.8)	19	(5.1)	10	(4.9)	3	(1.2)
How to provide alternative science learning experiences for students with special needs	31	(5.0)	23	(3.1)	26	(5.4)	16	(4.8)	4	(1.4)

† Only high schools indicating in Q41 that they offered teacher study groups in the last three years are included in this analysis.

Table SPQ 51
Use of Designated Leaders for Science-Focused Teacher Study Groups

	Percent of Schools[†]
Elementary	52 (5.3)
Middle	54 (5.6)
High	57 (5.8)

[†] Only schools indicating in Q41 that they offered teacher study groups in the last three years are included in this analysis.

Table SPQ 52
Origin of Designated Leaders of Science-Focused Teacher Study Groups

	Percent of Schools[†]		
	Elementary	Middle	High
This school	82 (5.2)	86 (4.8)	95 (1.7)
Elsewhere in this district/diocese[‡]	36 (5.7)	26 (5.1)	12 (2.9)
College or University	1 (1.1)	0 (0.1)	1 (0.5)
External consultants	15 (5.3)	11 (4.1)	4 (1.3)
Other	1 (1.2)	2 (1.1)	3 (1.6)

[†] Only schools indicating in Q41 that they offered teacher study groups in the last three years and indicating in Q51 that they have designated leaders for these teacher study groups are included in this analysis.

[‡] Item presented only to public and Catholic schools.

Table SPQ 53
How Schools Provide Time for Science Professional Development

	Percent of Schools		
	Elementary	Middle	High
Early dismissal and/or late start for students	18 (2.1)	23 (2.5)	33 (3.1)
Professional days/teacher work days during the school year	40 (2.7)	50 (3.0)	54 (3.4)
Professional days/teacher work days before and/or after the school year	27 (2.4)	33 (3.0)	35 (2.3)
Common planning time for teachers	31 (2.9)	29 (3.0)	27 (3.3)
Substitute teachers to cover teachers' classes while they attend professional development	26 (2.8)	32 (2.8)	34 (2.5)
None of the above	31 (2.7)	21 (2.7)	16 (2.2)

Table SPQ 54
Schools Providing One-on-One Science-Focused Coaching

	Percent of Schools
Elementary	17 (1.9)
Middle	17 (2.1)
High	22 (2.0)

Table SPQ 55, 56, 57
Schools Requiring Participation in One-on-One Science-Focused Coaching

	Percent of Schools†
Elementary	18 (5.9)
Middle	27 (7.4)
High	21 (4.5)

† Only schools indicating in Q54 that teachers have access to one-on-one science-focused coaching are included in this analysis.

Table SPQ 58.1
Providers of One-on-One Science-Focused Coaching in Elementary Schools

	Percent of Schools†				
	Not at All		Somewhat		To a Great Extent
	1	2	3	4	5
The principal of your school	41 (6.2)	20 (5.5)	22 (4.8)	15 (6.5)	2 (1.6)
An assistant principal at your school	68 (6.2)	14 (4.8)	12 (3.1)	3 (1.9)	2 (1.7)
District/Diocese administrators including science supervisors/coordinators‡	53 (7.7)	9 (3.0)	16 (5.9)	7 (3.8)	15 (5.4)
Teachers/coaches who do not have classroom teaching responsibilities	54 (6.8)	4 (2.2)	15 (6.0)	12 (3.8)	15 (4.5)
Teachers/coaches who have part-time classroom teaching responsibilities	60 (6.5)	4 (1.9)	16 (6.0)	12 (4.3)	8 (3.1)
Teachers/coaches who have full-time classroom teaching responsibilities	41 (8.2)	4 (2.4)	29 (6.8)	14 (4.6)	12 (3.9)

† Only elementary schools indicating in Q54 that teachers have access to one-on-one science-focused coaching are included in this analysis.

‡ Item presented only to public and Catholic schools.

Table SPQ 58.2
Providers of One-on-One Science-Focused Coaching in Middle Schools

	Percent of Schools†				
	Not at All		Somewhat		To a Great Extent
	1	2	3	4	5
The principal of your school	42 (6.4)	19 (6.0)	19 (3.9)	16 (7.9)	4 (1.4)
An assistant principal at your school	65 (6.1)	10 (4.2)	20 (4.3)	2 (0.8)	2 (1.1)
District/Diocese administrators including science supervisors/coordinators‡	49 (5.9)	13 (3.5)	20 (4.6)	10 (3.9)	8 (2.9)
Teachers/coaches who do not have classroom teaching responsibilities	61 (6.1)	5 (1.6)	14 (6.6)	8 (3.3)	13 (3.4)
Teachers/coaches who have part-time classroom teaching responsibilities	58 (6.5)	8 (2.6)	17 (6.5)	10 (5.2)	8 (3.4)
Teachers/coaches who have full-time classroom teaching responsibilities	39 (6.6)	5 (2.2)	19 (6.5)	14 (4.8)	23 (5.1)

† Only middle schools indicating in Q54 that teachers have access to one-on-one science-focused coaching are included in this analysis.

‡ Item presented only to public and Catholic schools.

Table SPQ 58.3
Providers of One-on-One Science-Focused Coaching in High Schools

	Percent of Schools[†]									
	Not at All				Somewhat				To a Great Extent	
	1		2		3		4		5	
The principal of your school	56	(4.8)	17	(3.9)	19	(3.7)	4	(1.4)	3	(1.6)
An assistant principal at your school	64	(4.1)	9	(2.2)	18	(4.0)	6	(1.7)	3	(1.5)
District/Diocese administrators including science supervisors/coordinators[‡]	56	(4.1)	7	(1.9)	21	(4.3)	8	(2.2)	7	(1.9)
Teachers/coaches who do not have classroom teaching responsibilities	74	(3.7)	4	(1.3)	11	(2.6)	5	(2.0)	6	(1.6)
Teachers/coaches who have part-time classroom teaching responsibilities	69	(4.1)	5	(1.8)	9	(2.7)	7	(2.7)	9	(3.2)
Teachers/coaches who have full-time classroom teaching responsibilities	25	(4.1)	1	(0.6)	19	(3.5)	18	(3.1)	37	(5.9)

[†] Only high schools indicating in Q54 that teachers have access to one-on-one science-focused coaching are included in this analysis.

[‡] Item presented only to public and Catholic schools.

SECTION FIVE

MATHEMATICS PROGRAM QUESTIONNAIRE

Mathematics Program Questionnaire

Mathematics Program Questionnaire Tables

2012 NATIONAL SURVEY OF SCIENCE AND MATHEMATICS EDUCATION
MATHEMATICS PROGRAM QUESTIONNAIRE

This questionnaire asks a number of questions about "mathematics teachers." In responding, unless otherwise specified, consider ALL teachers of mathematics in your school, including self-contained teachers who teach mathematics and other subjects to the same group of students.

1. Which of the following describe your position? [Select all that apply.]

□	Mathematics department chair
□	Mathematics lead teacher or coach
□	Regular classroom teacher
□	Principal
□	Assistant principal
□	Other (please specify: _____)

School Programs and Practices

2. ***[Presented only to schools that include self-contained teachers]***
Indicate whether each of the following programs and/or practices is currently being implemented in your school. [Select one on each row.]

	Yes	No
a. Students in self-contained classes receive mathematics instruction from a mathematics specialist *instead of* their regular teacher.	○	○
b. Students in self-contained classes receive mathematics instruction from a mathematics specialist *in addition* to their regular teacher.	○	○
c. Students in self-contained classes pulled out for remedial instruction in mathematics.	○	○
d. Students in self-contained classes pulled out for enrichment in mathematics.	○	○
e. Students in self-contained classes pulled out from mathematics instruction for additional instruction in other content areas.	○	○

3. ***[Presented only to schools that include any grades 9–12]***
Indicate whether each of the following programs and/or practices is currently being implemented in your school. [Select one on each row.]

	Yes	No
a. Algebra 1 course offered over two years or as two separate block courses (for example: Algebra A and Algebra B)	○	○
b. Calculus courses (beyond pre-Calculus) offered this school year or in alternating years, on or off site	○	○
c. Students go to a Career and Technical Education (CTE) Center for mathematics instruction	○	○
d. Mathematics courses offered by telecommunications	○	○
e. Students go to another K–12 school for mathematics courses	○	○
f. Students go to a college or university for mathematics courses	○	○

4. Which of the following are provided to teachers considered in need of special assistance in mathematics teaching (for example: new teachers)? [Select all that apply.]

□	Seminars, classes, and/or study groups
□	Guidance from a formally designated mentor or coach
□	A higher level of supervision than for other teachers

5. Indicate whether your school does each of the following to enhance students' interest and/or achievement in mathematics. [Select one on each row.]

		Yes	No
a.	Holds family math nights	○	○
b.	Offers after-school help in mathematics (for example: tutoring)	○	○
c.	Offers formal after-school programs for enrichment in mathematics	○	○
d.	Offers one or more mathematics clubs	○	○
e.	Participates in a local or regional mathematics fair	○	○
f.	Has one or more teams participating in mathematics competitions (for example: Math Counts)	○	○
g.	Encourages students to participate in mathematics summer programs or camps offered by community colleges, universities, museums or mathematics centers	○	○
h.	Sponsors visits to business, industry, and/or research sites related to mathematics	○	○
i.	Sponsors meetings with adult mentors who work in mathematics fields	○	○

Your State Standards

6. Please provide your opinion about each of the following statements in regard to your current state standards for mathematics. [Select one on each row.]

		Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
a.	State mathematics standards have been thoroughly discussed by mathematics teachers in this school	①	②	③	④	⑤
b.	There is a school-wide effort to align mathematics instruction with the state mathematics standards	①	②	③	④	⑤
c.	Most mathematics teachers in this school teach to the state standards	①	②	③	④	⑤
d.	Your district/diocese organizes mathematics professional development based on state standards ***[Not presented to non-Catholic private schools]***	①	②	③	④	⑤

Student Enrollment in Mathematics Courses

7. ***[Presented only to schools that include grade 8]***
Approximately how many of this year's 8th grade students will have completed Algebra 1 prior to 9th grade? [Enter your response as a whole number (for example: 15).] _____

8. ***[Presented only to schools that include grade 8]***
Approximately how many of this year's 8th grade students will have completed Geometry prior to 9th grade? [Enter your response as a whole number (for example: 15).] _____

9. ***[Presented only to schools that include any grades 9–12]***
Approximately how many grades 9–12 students in this school will **not** take a mathematics course this year? [Enter your response as a whole number (for example: 1500); do not use a comma.]

_____

Mathematics Courses Offered in Your School

[Questions 10–16 presented only to schools that include any grades 9–12; schools that do not include any of these grades skip to Q19]

10. What types of mathematics courses are offered in your school this year? [Select all that apply.]

□	Single-subject mathematics courses (for example: Algebra, Geometry)
□	Integrated mathematics courses

11. How many sections of courses in each of the following categories will be offered to grades 9–12 students in this school this year? [Enter each response as a whole number (for example: 15).]

	Number of sections
a. Non-college prep mathematics courses *Example courses*: Developmental Math; High School Arithmetic; Remedial Math; General Math; Vocational Math; Consumer Math; Basic Math; Business Math; Career Math; Practical Math; Essential Math; Pre-Algebra; Introductory Algebra; Algebra 1 Part 1; Algebra 1A; Math A; Basic Geometry; Informal Geometry; Practical Geometry	
b. Formal/College-prep Mathematics Level 1 courses *Example courses:* Algebra 1; Integrated Math 1; Unified Math I; Algebra 1 Part 2; Algebra 1B; Math B	
c. Formal/College-prep Mathematics Level 2 courses *Example courses:* Geometry; Plane Geometry; Solid Geometry; Integrated Math 2; Unified Math II; Math C	
d. Formal/College-prep Mathematics Level 3 courses *Example courses:* Algebra 2; Intermediate Algebra; Algebra and Trigonometry; Advanced Algebra; Integrated Math 3; Unified Math III	
e. Formal/College-prep Mathematics Level 4 courses *Example courses:* Algebra 3; Trigonometry; Pre-Calculus; Analytic/Advanced Geometry; Elementary Functions; Integrated Math 4, Unified Math IV; Calculus (not including college level/AP); any other College Prep Senior Math with Algebra 2 as a prerequisite	
f. Mathematics courses that might qualify for college credit *Example courses:* Advanced Placement Calculus (AB, BC); Advanced Placement Statistics; IB Mathematics standard level; IB Mathematics higher level; concurrent college and high school credit/dual enrollment	

12. Does this school offer one or more courses focused specifically on probability and/or statistics? (Include both courses that are offered every year and those offered in alternating years.)

○	Yes
○	No ***[Skip to Q14]***

13. What probability and/or statistics courses does this school offer? [Select all that apply.]

□	Probability and Statistics combined
□	Probability
□	Statistics

14. Does your school offer each of the following types of mathematics courses that might qualify for college credit? (Include both courses that are offered every year and those offered in alternating years.) [Select one on each row.]

		Yes	**No**
a.	Advanced Placement (AP) mathematics courses	○	○
b.	International Baccalaureate (IB) mathematics courses	○	○
c.	Concurrent college and high school credit/dual enrollment mathematics courses	○	○

15. ***[Presented only to schools that answered "Yes" to Q14c]***
When are concurrent college and high school credit/dual enrollment mathematics courses offered in this school?

○	Not offered this school year, but offered in alternating years
○	Offered this school year

16. ***[Q16a–c presented only to schools that answered "Yes" to Q14a; Q16d–g presented only to schools that answered "Yes" to Q14b]***
Is each of the following mathematics courses offered in this school? [Select one on each row.]

		Not offered at all	**Not offered this school year, but offered in alternating years**	**Offered this school year**
a.	AP Calculus AB	○	○	○
b.	AP Calculus BC	○	○	○
c.	AP Statistics	○	○	○
d.	IB Mathematical studies standard level	○	○	○
e.	IB Mathematics standard level	○	○	○
f.	IB Mathematics higher level	○	○	○
g.	IB Further mathematics standard level	○	○	○

Mathematics Requirements

17. ***[Presented only to schools that include grade 12]***
In order to graduate from this high school, how many years of grades 9–12 mathematics are students required to take?

1 year	2 years	3 years	4 years
○	○	○	○

18. ***[Presented only to schools that include grade 12]***
How many years of mathematics are required for entry into a four-year college or university in your state university system? If your state university system has multiple tiers, answer for the lowest tier that awards four-year degrees, not including community colleges that might include four-year programs.

1 year	2 years	3 years	4 years
○	○	○	○

Budget for Mathematics Instruction

19. For this school, how much money was spent on each of the following during the most recently completed budget year? (If you don't know the exact amount, please provide your best estimates.) [Enter each response as a whole dollar amount (for example: 1500); do not include commas or dollar signs.]

a. Consumable supplies for mathematics instruction (for example: graph paper) _____
b. Non-consumable items for mathematics instruction such as calculators, protractors, manipulatives, etc. (Do not include computers) _____
c. Software specific to mathematics instruction (for example: dynamic geometry software) _____

Influences on Mathematics Instruction

20. Please rate the effect of each of the following on the quality of mathematics instruction in your school. [Select one on each row.]

	Inhibits effective instruction		**Neutral or mixed**		**Promotes effective instruction**	**N/A or Don't Know**
a. District/Diocese mathematics professional development policies and practices ***[Not presented to non-Catholic private schools]***	①	②	③	④	⑤	○
b. Time provided for teacher professional development in mathematics	①	②	③	④	⑤	○
c. Importance that the school places on mathematics	①	②	③	④	⑤	○
d. Public attitudes toward mathematics instruction	①	②	③	④	⑤	○
e. Conflict between efforts to improve mathematics instruction and other school and/or district/diocese initiatives	①	②	③	④	⑤	○
f. Equipment and supplies and/or manipulatives for teaching mathematics (for example: materials for students to draw, cut and build in order to make sense of problems)	①	②	③	④	⑤	○

21. In your opinion, how great a problem is each of the following for mathematics instruction **in your school as a whole**? [Select one on each row.]

	Not a significant problem	Somewhat of a problem	Serious problem
a. Inadequate funds for purchasing mathematics equipment and supplies	○	○	○
b. Inadequate supply of mathematics textbooks/programs	○	○	○
c. Inadequate materials for individualizing mathematics instruction	○	○	○
d. Low student interest in mathematics	○	○	○
e. Low student reading abilities	○	○	○
f. Lack of teacher interest in mathematics	○	○	○
g. Inadequate teacher preparation to teach mathematics	○	○	○
h. Insufficient time to teach mathematics	○	○	○
i. Lack of opportunities for mathematics teachers to share ideas	○	○	○
j. Inadequate mathematics-related professional development opportunities	○	○	○
k. Interruptions for announcements, assemblies, and other school activities	○	○	○
l. Large class sizes	○	○	○
m. High student absenteeism	○	○	○
n. Inappropriate student behavior	○	○	○
o. Lack of parental support for mathematics education	○	○	○

Mathematics Teacher Turnover

22. ***[Presented only to schools that include any grades 6–12]***
How many middle and/or high school mathematics teachers who taught in your school last year (2010–11) did not return to teach mathematics in your school this year (2011–12)? [Enter your response as a whole number (for example: 15). Please enter "0" if all teachers who taught mathematics returned this school year.] _____ ***[If "0" Skip to Q24]***

23. ***[Presented only to schools that include any grades 6–12]***
How many of those teachers did not return for each of the following reasons? [Enter each response as a whole number (for example: 15). Please enter "0" for categories in which there were not any mathematics teachers who did not return for that reason.]

a. Left voluntarily, including mathematics teachers who moved to another department or school, left the profession, or retired _____
b. Were reassigned to another position, department, or school in the district/diocese _____
c. Were dismissed or not rehired for poor performance _____
d. Were dismissed or not rehired because of budget constraints _____

24. ***[Presented only to schools that include any grades 6–12]***
For the 2011–12 school year, how difficult was it to fill middle and/or high school mathematics teacher vacancies in your school with fully qualified teachers?

○	There were no vacancies for mathematics teachers
○	Easy
○	Somewhat difficult
○	Very difficult
○	Could not fill the vacancies

Mathematics Professional Development Opportunities

25. This question is about in-service (professional development) programs offered by your school and/or district/diocese, possibly in conjunction with other organizations (for example: other school districts/dioceses, colleges or universities, museums, professional associations, commercial vendors).

In the last three years, has your school and/or district/diocese offered in-service **workshops** specifically focused on mathematics or mathematics teaching?

○	Yes
○	No ***[Skip to Q27]***

26. Please indicate the extent to which in-service **workshops** offered by your school and/or district/diocese **in the last three years** addressed deepening teacher understanding of each of the following: [Select one on each row.]

	Not at all		**Somewhat**		**To a great extent**
a. Mathematics content	①	②	③	④	⑤
b. State mathematics standards	①	②	③	④	⑤
c. How to use particular mathematics instructional materials (for example: textbooks or programs)	①	②	③	④	⑤
d. How students think about various mathematical ideas	①	②	③	④	⑤
e. How to monitor student understanding during mathematics instruction	①	②	③	④	⑤
f. How to adapt mathematics instruction to address student misconceptions	①	②	③	④	⑤
g. How to use technology in mathematics instruction	①	②	③	④	⑤
h. How to use investigation-oriented tasks in mathematics instruction	①	②	③	④	⑤
i. How to teach mathematics to students who are English language learners	①	②	③	④	⑤
j. How to provide alternative mathematics learning experiences for students with special needs	①	②	③	④	⑤

27. In the last three years, has your school offered **teacher study groups** where teachers meet on a regular basis to discuss teaching and learning of mathematics, and possibly other content areas as well (sometimes referred to as Professional Learning Communities, PLCs, or lesson study)?

○	Yes
○	No ***[Skip to Q39]***

28. ***[Presented only to schools that include any grades K–5]***
Are teachers of grades K–5 mathematics classes required to participate in these mathematics-focused **teacher study groups**?

○	Yes
○	No

29. ***[Presented only to schools that include any grades 6–8]***
Are teachers of grades 6–8 mathematics classes required to participate in these mathematics-focused **teacher study groups**?

○	Yes
○	No

30. ***[Presented only to schools that include any grades 9–12]***
Are teachers of grades 9–12 mathematics classes required to participate in these mathematics -focused **teacher study groups**?

○	Yes
○	No

31. Has your school specified a schedule for when these mathematics-focused **teacher study groups** are expected to meet?

○	Yes
○	No ***[Skip to Q34]***

32. Over what period of time were these mathematics-focused **teacher study groups** typically expected to meet?

○	The entire school year
○	One semester
○	Less than one semester

33. How often have these mathematics-focused **teacher study groups** typically been expected to meet?

○	Less than once a month
○	Once a month
○	Twice a month
○	More than twice a month

34. Which of the following describe the typical mathematics-focused **teacher study groups** in this school? [Select all that apply.]

□	Organized by grade level
□	Include teachers from multiple grade levels
□	Limited to teachers from this school
□	Include teachers from other schools in the district/diocese ***[Not presented to non-Catholic private schools]***
□	Include teachers from other schools outside of your district/diocese
□	Include school and/or district/diocese administrators
□	Include parents/guardians or other community members
□	Include higher education faculty or other "consultants"

35. Which of the following describe the typical mathematics-focused **teacher study groups** in this school? [Select all that apply.]

□	Teachers engage in mathematics investigations.
□	Teachers plan mathematics lessons together.
□	Teachers analyze student mathematics assessment results.
□	Teachers analyze classroom artifacts (for example: student work samples).
□	Teachers analyze mathematics instructional materials (for example: textbooks or programs).

36. To what extent have these mathematics-focused **teacher study groups** addressed deepening teacher understanding of each of the following? [Select one on each row.]

	Not at all		**Somewhat**		**To a great extent**
a. Mathematics content	①	②	③	④	⑤
b. State mathematics standards	①	②	③	④	⑤
c. How to use particular mathematics instructional materials (for example: textbooks or programs)	①	②	③	④	⑤
d. How students think about various mathematical ideas	①	②	③	④	⑤
e. How to monitor student understanding during mathematics instruction	①	②	③	④	⑤
f. How to adapt mathematics instruction to address student misconceptions	①	②	③	④	⑤
g. How to use technology in mathematics instruction	①	②	③	④	⑤
h. How to use investigation-oriented tasks in mathematics instruction	①	②	③	④	⑤
i. How to teach mathematics to students who are English language learners	①	②	③	④	⑤
j. How to provide alternative mathematics learning experiences for students with special needs	①	②	③	④	⑤

37. Have there been designated leaders for these mathematics-focused **teacher study groups**?

○	Yes
○	No ***[Skip to Q39]***

38. The designated leaders of these mathematics-focused **teacher study groups** were from: [Select all that apply.]

□	This school
□	Elsewhere in this district/diocese ***[Not presented to non-Catholic private schools]***
□	College or University
□	External consultants
□	Other (please specify: _____)

39. Thinking about last school year, which of the following were used to provide teachers in this school with time for in-service (professional development) workshops/teacher study groups *that included a focus on mathematics content and/or mathematics instruction*, regardless of whether they were offered by your school and/or district/diocese? [Select all that apply.]

□	Early dismissal and/or late start for students
□	Professional days/teacher work days during the students' school year
□	Professional days/teacher work days before and/or after the students' school year
□	Common planning time for teachers
□	Substitute teachers to cover teachers' classes while they attend professional development
□	None of the above

40. Do any teachers in your school have access to one-on-one "coaching" focused on improving their mathematics instruction?

○	Yes
○	No ***[Skip to End]***

41. ***[Presented only to schools that include any grades K–5]***
Are teachers of grades K–5 mathematics classes required to receive one-on-one mathematics-focused coaching?

○	Yes
○	No

42. ***[Presented only to schools that include any grades 6–8]***
Are teachers of grades 6–8 mathematics classes required to receive one-on-one mathematics-focused coaching?

○	Yes
○	No

43. ***[Presented only to schools that include any grades 9–12]***
Are teachers of grades 9–12 mathematics classes required to receive one-on-one mathematics-focused coaching?

○	Yes
○	No

44. To what extent is one-on-one mathematics-focused coaching in your school provided by each of the following? [Select one on each row.]

	Not at all		**Somewhat**		**To a great extent**
a. The principal of your school	①	②	③	④	⑤
b. An assistant principal at your school	①	②	③	④	⑤
c. District/Diocese administrators including mathematics supervisors/coordinators ***[Not presented to non-Catholic private schools]***	①	②	③	④	⑤
d. Teachers/coaches who do not have classroom teaching responsibilities	①	②	③	④	⑤
e. Teachers/coaches who have part-time classroom teaching responsibilities	①	②	③	④	⑤
f. Teachers/coaches who have full-time classroom teaching responsibilities	①	②	③	④	⑤

Thank you!

MATHEMATICS PROGRAM QUESTIONNAIRE TABLES

Table MPQ 1
Titles of Mathematics Program Questionnaire Representatives

	Percent of Representatives		
	Elementary	Middle	High
Mathematics department chair	8 (1.3)	24 (2.2)	52 (3.7)
Mathematics lead teacher	24 (2.6)	25 (3.0)	27 (4.1)
Regular classroom teacher	72 (2.8)	73 (3.4)	71 (3.7)
Principal	8 (2.3)	10 (3.0)	7 (3.4)
Assistant principal	1 (0.6)	2 (0.7)	1 (0.4)
Other	12 (1.7)	8 (1.9)	5 (1.2)

Table MPQ 2
Use of Various Instructional Arrangements in Elementary Schools

	Percent of Schools[†]
Students in self-contained classes receive mathematics instruction from a mathematics specialist *instead of* their regular teacher	10 (1.9)
Students in self-contained classes receive mathematics instruction from a mathematics specialist *in addition* to their regular teacher	26 (2.6)
Students in self-contained classes pulled out for remedial instruction in mathematics	58 (3.0)
Students in self-contained classes pulled out for enrichment in mathematics	31 (2.8)
Students in self-contained classes pulled out from mathematics instruction for additional instruction in other content areas	19 (2.6)

[†] Only elementary schools that contain self-contained teachers are included in this analysis.

Table MPQ 3
Mathematics Programs and Practices Currently Being Implemented in High Schools

	Percent of Schools
Algebra 1 course offered over two years or as two separate block courses (e.g., Algebra A and Algebra B)	37 (3.7)
Calculus courses (beyond pre-Calculus) offered this school year or in alternating years, on or off site	76 (3.5)
Students go to a Career and Technical Education (CTE) Center for mathematics instruction	11 (1.6)
Mathematics courses offered by telecommunications	24 (3.3)
Students go to another K–12 school for mathematics courses	5 (2.3)
Students go to a college or university for mathematics courses	31 (3.0)

Table MPQ 4.1
Services Provided to Elementary School Teachers in Need of Special Assistance in Teaching Mathematics

	Percent of Schools
Seminars, classes, and/or study groups	53 (3.2)
Guidance from a formally designated mentor or coach	56 (3.5)
A higher level of supervision than for other teachers	25 (2.5)

Table MPQ 4.2
Services Provided to Middle School Mathematics Teachers in Need of Special Assistance in Teaching

	Percent of Schools
Seminars, classes, and/or study groups	49 (3.4)
Guidance from a formally designated mentor or coach	59 (3.4)
A higher level of supervision than for other teachers	30 (2.7)

Table MPQ 4.3
Services Provided to High School Mathematics Teachers in Need of Special Assistance in Teaching

	Percent of Schools
Seminars, classes, and/or study groups	43 (3.6)
Guidance from a formally designated mentor or coach	66 (3.6)
A higher level of supervision than for other teachers	36 (3.7)

Table MPQ 5.1
Elementary School Programs/Practices to Enhance Students' Interest and/or Achievement in Mathematics

	Percent of Schools
Holds family math nights	31 (2.6)
Offers after-school help in mathematics (e.g., tutoring)	67 (2.4)
Offers formal after-school programs for enrichment in mathematics	18 (2.0)
Offers one or more mathematics clubs	15 (2.0)
Participates in a local or regional mathematics fair	13 (2.2)
Has one or more teams participating in mathematics competitions (e.g., Math Counts)	24 (2.4)
Encourages students to participate in mathematics summer programs or camps offered by community colleges, universities, museums or mathematics centers	44 (2.7)
Sponsors visits to business, industry, and/or research sites related to mathematics	15 (2.3)
Sponsors meetings with adult mentors who work in mathematics fields	10 (1.7)

Table MPQ 5.2
Middle School Programs/Practices to Enhance Students' Interest and/or Achievement in Mathematics

	Percent of Schools
Holds family math nights	19 (2.3)
Offers after-school help in mathematics (e.g., tutoring)	80 (2.8)
Offers formal after-school programs for enrichment in mathematics	24 (2.5)
Offers one or more mathematics clubs	23 (2.0)
Participates in a local or regional mathematics fair	17 (2.6)
Has one or more teams participating in mathematics competitions (e.g., Math Counts)	35 (2.7)
Encourages students to participate in mathematics summer programs or camps offered by community colleges, universities, museums or mathematics centers	51 (2.8)
Sponsors visits to business, industry, and/or research sites related to mathematics	15 (2.2)
Sponsors meetings with adult mentors who work in mathematics fields	9 (1.6)

Table MPQ 5.3
High School Programs/Practices to Enhance Students' Interest and/or Achievement in Mathematics

	Percent of Schools
Holds family math nights	10 (2.8)
Offers after-school help in mathematics (e.g., tutoring)	92 (2.7)
Offers formal after-school programs for enrichment in mathematics	21 (2.9)
Offers one or more mathematics clubs	32 (2.7)
Participates in a local or regional mathematics fair	21 (3.4)
Has one or more teams participating in mathematics competitions (e.g., Math Counts)	43 (3.6)
Encourages students to participate in mathematics summer programs or camps offered by community colleges, universities, museums or mathematics centers	55 (3.6)
Sponsors visits to business, industry, and/or research sites related to mathematics	17 (2.8)
Sponsors meetings with adult mentors who work in mathematics fields	10 (1.5)

Table MPQ 6.1
Opinions about Various Statements Regarding State Mathematics Standards in Elementary Schools

	Percent of Schools				
	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
State mathematics standards have been thoroughly discussed by mathematics teachers in this school	3 (0.9)	7 (1.7)	5 (1.5)	43 (2.7)	43 (2.5)
There is a school-wide effort to align mathematics instruction with the state mathematics standards	3 (1.2)	4 (1.4)	2 (0.7)	37 (2.4)	54 (2.5)
Most mathematics teachers in this school teach to the state standards	2 (0.6)	4 (1.1)	4 (1.3)	38 (2.9)	53 (3.2)
Your district/diocese organizes mathematics professional development based on state standards†	6 (1.9)	13 (2.2)	10 (1.8)	33 (3.1)	38 (2.9)

† Item presented only to public and Catholic schools.

Table MPQ 6.2
Opinions about Various Statements
Regarding State Mathematics Standards in Middle Schools

	Percent of Schools				
	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
State mathematics standards have been thoroughly discussed by mathematics teachers in this school	3 (1.1)	7 (1.8)	4 (1.7)	40 (3.2)	46 (3.1)
There is a school-wide effort to align mathematics instruction with the state mathematics standards	4 (1.5)	3 (1.4)	2 (0.9)	35 (3.1)	55 (3.2)
Most mathematics teachers in this school teach to the state standards	2 (0.8)	2 (0.7)	5 (1.8)	37 (3.5)	53 (3.5)
Your district/diocese organizes mathematics professional development based on state standards†	8 (2.4)	15 (2.7)	11 (1.8)	31 (3.0)	35 (3.2)

† Item presented only to public and Catholic schools.

Table MPQ 6.3
Opinions about Various Statements
Regarding State Mathematics Standards in High Schools

	Percent of Schools				
	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
State mathematics standards have been thoroughly discussed by mathematics teachers in this school	3 (0.9)	7 (1.5)	6 (2.2)	40 (3.4)	44 (3.7)
There is a school-wide effort to align mathematics instruction with the state mathematics standards	3 (1.0)	6 (2.3)	5 (2.1)	36 (3.8)	50 (3.7)
Most mathematics teachers in this school teach to the state standards	3 (1.0)	4 (0.9)	9 (3.1)	37 (3.7)	46 (3.7)
Your district/diocese organizes mathematics professional development based on state standards†	7 (1.5)	16 (1.7)	12 (1.8)	35 (2.6)	31 (3.1)

† Item presented only to public and Catholic schools.

Table MPQ 7 and 8
Mathematics Courses Completed at the 8th Grade Level

	Average Percent of Students
Percent of 8th grade students that will have completed Algebra 1 prior to 9th grade	36 (2.3)
Percent of 8th grade students that will have completed Geometry prior to 9th grade	5 (0.9)

There is no table for MPQ 9.

Table MPQ 10
Type of High School Mathematics Courses Offered

	Percent of Schools	
Single-subject mathematics courses (e.g., Algebra, Geometry)	98	(0.5)
Integrated mathematics courses	23	(3.4)

Table MPQ 11
High Schools Offering Various Mathematics Courses

	Percent of Schools	
Non-college prep mathematics courses	78	(3.2)
Formal/College-prep Mathematics Level 1 courses	99	(0.7)
Formal/College-prep Mathematics Level 2 courses	90	(3.7)
Formal/College-prep Mathematics Level 3 courses	94	(3.5)
Formal/College-prep Mathematics Level 4 courses	85	(3.8)
Mathematics courses that might qualify for college credit	76	(4.0)

Table MPQ 12 and 13
High Schools Offering Various Probability and Statistics Courses

	Percent of Schools†	
Any Probability and/or Statistics	41	(3.0)
Probability and Statistics combined	26	(2.1)
Probability	1	(0.5)
Statistics	20	(1.9)

† Schools indicating in Q12 that they do not offer probability and/or statistics classes are treated as not offering each of the specific courses.

Table MPQ 14
High Schools Offering Mathematics Courses that Might Qualify for College Credit

	Percent of Schools	
Advanced Placement (AP) mathematics courses	53	(3.5)
International Baccalaureate (IB) mathematics courses	4	(0.6)
Concurrent college and high school credit/dual enrollment mathematics courses	40	(3.4)

Table MPQ 15
When High Schools Offer Concurrent College and High School Credit/Dual Enrollment Mathematics Courses

	Percent of Schools	
Not offered at all†	60	(3.4)
Not offered this school year, but offered in alternating years	4	(1.0)
Offered this school year	36	(3.3)

† Schools indicating in Q14 that they do not offer concurrent college and high school credit/dual enrollment courses are included in the "Not offered at all" category.

Table MPQ 16
When High Schools Offer Various Advanced Placement and International Baccalaureate Mathematics Courses

	Percent of Schools		
	Not offered at all†	Not offered this school year, but offered in alternating years	Offered this school year
AP Calculus AB	48 (3.5)	4 (2.3)	48 (3.2)
AP Calculus BC	77 (2.5)	2 (0.4)	21 (2.4)
AP Statistics	73 (2.1)	2 (0.4)	25 (2.1)
IB Mathematical studies standard level	97 (0.5)	0 (0.2)	3 (0.5)
IB Mathematics standard level	97 (0.6)	0 (0.1)	3 (0.6)
IB Mathematics higher level	98 (0.4)	0 (0.1)	1 (0.4)
IB Further mathematics standard level	100 (0.2)	0 (0.1)	0 (0.1)

† Schools indicating in Q14 that they do not offer Advanced Placement (AP) mathematics courses and/or International Baccalaureate mathematics courses are included in the "Not offered at all" category for each course of that type.

Table MPQ 17
High School Mathematics Graduation Requirements

	Percent of Schools†
1 year	0 ---‡
2 years	5 (1.0)
3 years	50 (3.0)
4 years	45 (3.0)

† Only schools that contain grade 12 are included in this analysis.
‡ No schools in the sample were in this category. Thus, it is not possible to calculate the standard error of this estimate.

Table MPQ 18
Years of Mathematics Required for Entry into the State University System

	Percent of Schools†
1 year	0 ---‡
2 years	0 ---‡
3 years	72 (2.3)
4 years	28 (2.3)

† Only schools that contain grade 12 are included in this analysis.
‡ No schools in the sample were in this category. Thus, it is not possible to calculate the standard error of this estimate.

Table MPQ 19
Median Amount Schools Spent per Pupil on Consumable Supplies, Non-Consumable Items, and Software for Mathematics

	Median Amount		
	Elementary	Middle	High
Consumable supplies for mathematics instruction (e.g., graph paper)	$1.08	$0.64	$0.61
Non-consumable items for mathematics instruction such as calculators, protractors, manipulatives, etc.	$0.95	$0.73	$1.05
Software specific to mathematics instruction (e.g. dynamic geometry software)	$0.00	$0.00	$0.00

Table MPQ 20.1
Effect of Various Factors on Mathematics Instruction in Elementary Schools

	Percent of Schools											
	Inhibits Effective Instruction				Neutral or Mixed				Promotes Effective Instruction		N/A or Don't Know	
	1		2		3		4		5			
District/Diocese mathematics professional development policies and practices†	3	(1.0)	3	(1.0)	25	(2.6)	21	(2.2)	40	(2.6)	7	(1.8)
Time provided for teacher professional development in mathematics	6	(1.4)	15	(2.1)	22	(2.6)	20	(2.6)	32	(2.9)	6	(1.6)
Importance that the school places on mathematics	1	(0.6)	7	(1.6)	9	(2.0)	20	(2.6)	59	(3.1)	3	(1.3)
Public attitudes toward mathematics instruction	3	(0.9)	8	(1.5)	26	(2.8)	28	(2.8)	29	(3.0)	7	(1.4)
Conflict between efforts to improve mathematics instruction and other school and/or district/ diocese initiatives	5	(1.3)	13	(1.9)	33	(2.7)	17	(2.5)	16	(2.2)	16	(2.2)
Equipment and supplies	5	(1.2)	8	(1.8)	15	(2.2)	22	(2.5)	46	(3.1)	4	(1.3)

† Item presented only to public and Catholic schools.

Table MPQ 20.2
Effect of Various Factors on Mathematics Instruction in Middle Schools

	Percent of Schools											
	Inhibits Effective Instruction				Neutral or Mixed				Promotes Effective Instruction		N/A or Don't Know	
	1		2		3		4		5			
District/Diocese mathematics professional development policies and practices†	3	(1.4)	3	(0.9)	25	(2.8)	24	(2.9)	35	(2.8)	10	(2.2)
Time provided for teacher professional development in mathematics	6	(1.7)	14	(2.4)	24	(2.5)	19	(2.5)	32	(3.1)	6	(2.0)
Importance that the school places on mathematics	1	(0.7)	4	(1.3)	12	(2.3)	22	(2.9)	57	(3.5)	4	(1.6)
Public attitudes toward mathematics instruction	2	(0.6)	9	(1.8)	29	(3.0)	30	(3.3)	24	(2.8)	5	(1.1)
Conflict between efforts to improve mathematics instruction and other school and/or district/ diocese initiatives	6	(1.6)	10	(1.7)	34	(3.2)	22	(3.0)	14	(2.5)	13	(2.2)
Equipment and supplies	6	(1.7)	8	(2.0)	21	(2.5)	25	(2.6)	36	(3.0)	4	(1.4)

† Item presented only to public and Catholic schools.

Table MPQ 20.3
Effect of Various Factors on Mathematics Instruction in High Schools

	Percent of Schools									
	Inhibits Effective Instruction				Neutral or Mixed				Promotes Effective Instruction		N/A or Don't Know	
	1		2		3		4		5			
District/Diocese mathematics professional development policies and practices†	3	(0.8)	6	(1.2)	27	(2.7)	21	(2.6)	33	(3.6)	11	(1.8)
Time provided for teacher professional development in mathematics	4	(1.1)	11	(1.8)	25	(3.1)	22	(2.5)	33	(4.1)	5	(1.3)
Importance that the school places on mathematics	3	(1.2)	3	(0.9)	11	(1.7)	23	(2.4)	57	(3.6)	3	(2.2)
Public attitudes toward mathematics instruction	4	(0.8)	10	(2.1)	29	(3.3)	28	(3.5)	25	(3.4)	4	(1.3)
Conflict between efforts to improve mathematics instruction and other school and/or district/ diocese initiatives	5	(1.1)	16	(2.4)	40	(3.6)	15	(2.1)	12	(2.9)	12	(1.7)
Equipment and supplies	3	(0.9)	11	(3.0)	22	(2.4)	33	(3.2)	27	(3.3)	4	(1.4)

† Item presented only to public and Catholic schools.

Table MPQ 21.1
Mathematics Program Representatives' Opinions about the Extent to which Various Factors Are Problematic for Mathematics Instruction in Elementary Schools

	Percent of Schools					
	Not a Significant Problem		Somewhat of a Problem		Serious Problem	
Inadequate funds for purchasing mathematics equipment and supplies	45	(2.9)	43	(2.8)	12	(2.1)
Inadequate supply of mathematics textbooks/programs	66	(3.4)	24	(2.7)	9	(1.9)
Inadequate materials for individualizing mathematics instruction	51	(3.1)	37	(2.7)	12	(1.8)
Low student interest in mathematics	43	(2.5)	42	(2.8)	14	(2.0)
Low student reading abilities	28	(3.0)	50	(3.1)	22	(1.8)
Lack of teacher interest in mathematics	79	(2.4)	19	(2.4)	2	(0.7)
Inadequate teacher preparation to teach mathematics	68	(2.6)	28	(2.6)	4	(0.9)
Insufficient time to teach mathematics	56	(3.1)	31	(2.8)	13	(2.1)
Lack of opportunities for mathematics teachers to share ideas	40	(3.4)	45	(3.2)	15	(2.1)
Inadequate mathematics-related professional development opportunities	39	(3.3)	43	(3.5)	18	(2.1)
Interruptions for announcements, assemblies, and other school activities	63	(2.8)	30	(2.6)	7	(1.3)
Large class sizes	55	(2.8)	30	(2.2)	15	(1.6)
High student absenteeism	62	(2.8)	30	(2.6)	8	(1.6)
Inappropriate student behavior	58	(2.6)	32	(2.4)	10	(1.7)
Lack of parental support for mathematics education	47	(2.8)	38	(2.9)	15	(1.9)

Table MPQ 21.2
Mathematics Program Representatives' Opinions about the Extent to which Various Factors Are Problematic for Mathematics Instruction in Middle Schools

	Percent of Schools					
	Not a Significant Problem		Somewhat of a Problem		Serious Problem	
Inadequate funds for purchasing mathematics equipment and supplies	40	(3.4)	42	(3.5)	18	(2.7)
Inadequate supply of mathematics textbooks/programs	57	(3.6)	30	(3.2)	13	(2.5)
Inadequate materials for individualizing mathematics instruction	45	(3.3)	39	(2.9)	16	(2.5)
Low student interest in mathematics	32	(2.9)	44	(3.0)	25	(2.1)
Low student reading abilities	28	(3.2)	49	(3.4)	24	(2.1)
Lack of teacher interest in mathematics	82	(2.6)	17	(2.7)	1	(0.4)
Inadequate teacher preparation to teach mathematics	74	(2.9)	23	(2.8)	3	(0.9)
Insufficient time to teach mathematics	55	(3.6)	33	(3.1)	12	(2.4)
Lack of opportunities for mathematics teachers to share ideas	44	(3.4)	42	(3.1)	14	(2.3)
Inadequate mathematics-related professional development opportunities	38	(3.9)	46	(4.3)	16	(2.8)
Interruptions for announcements, assemblies, and other school activities	58	(3.4)	33	(3.1)	8	(1.4)
Large class sizes	57	(2.9)	28	(2.6)	15	(1.7)
High student absenteeism	52	(3.3)	35	(3.4)	13	(2.1)
Inappropriate student behavior	52	(2.9)	33	(2.9)	16	(1.9)
Lack of parental support for mathematics education	40	(3.1)	43	(3.1)	17	(2.0)

Table MPQ 21.3
Mathematics Program Representatives' Opinions about the Extent to which Various Factors Are Problematic for Mathematics Instruction in High Schools

	Percent of Schools					
	Not a Significant Problem		Somewhat of a Problem		Serious Problem	
Inadequate funds for purchasing mathematics equipment and supplies	42	(3.5)	42	(3.9)	16	(3.3)
Inadequate supply of mathematics textbooks/programs	58	(4.2)	31	(3.9)	11	(2.6)
Inadequate materials for individualizing mathematics instruction	49	(3.5)	36	(2.8)	15	(3.2)
Low student interest in mathematics	22	(3.6)	48	(3.4)	30	(2.7)
Low student reading abilities	29	(4.1)	51	(3.7)	20	(2.3)
Lack of teacher interest in mathematics	90	(1.5)	9	(1.4)	2	(0.7)
Inadequate teacher preparation to teach mathematics	81	(2.0)	16	(1.7)	3	(1.0)
Insufficient time to teach mathematics	54	(3.7)	37	(3.5)	10	(2.0)
Lack of opportunities for mathematics teachers to share ideas	44	(3.7)	46	(3.5)	9	(2.5)
Inadequate mathematics-related professional development opportunities	43	(3.9)	42	(3.5)	15	(2.9)
Interruptions for announcements, assemblies, and other school activities	51	(3.7)	40	(3.5)	9	(1.5)
Large class sizes	60	(3.7)	28	(2.9)	13	(1.7)
High student absenteeism	44	(3.0)	40	(3.1)	16	(1.8)
Inappropriate student behavior	55	(3.2)	35	(2.7)	10	(1.3)
Lack of parental support for mathematics education	36	(3.4)	49	(3.4)	15	(1.6)

There is no table for MPQ 22.

There is no table for MPQ 23.

Table MPQ 24
Difficulty Filling Mathematics Teacher Vacancies

	Percent of Schools	
	Middle	High
There were no vacancies for mathematics teachers	67 (2.5)	54 (3.2)
Easy	16 (1.9)	18 (2.0)
Somewhat difficult	13 (1.9)	16 (1.7)
Very difficult	5 (1.1)	10 (1.8)
Could not fill the vacancies	0 (0.1)	1 (0.5)

Table MPQ 25
Mathematics Professional Development Workshops Offered Locally in the Last Three Years

	Percent of Schools
Elementary	65 (2.8)
Middle	60 (3.3)
High	51 (4.3)

Table MPQ 26.1
Elementary Schools with Locally Offered Mathematics Professional Development Workshops in the Last Three Years with a Focus in Each of a Number of Areas

	Percent of Schools[†]									
	Not at All				Somewhat				To a Great Extent	
	1		2		3		4		5	
Mathematics content	4	(1.7)	4	(1.5)	29	(3.6)	42	(3.9)	21	(2.4)
State mathematics standards	5	(2.0)	4	(1.5)	15	(2.6)	37	(3.8)	39	(3.7)
How to use particular mathematics instructional materials (e.g., textbooks or modules)	9	(2.3)	9	(2.4)	21	(2.8)	37	(4.0)	24	(2.8)
How students think about various mathematics ideas	10	(2.2)	12	(2.0)	36	(3.7)	28	(3.0)	13	(2.4)
How to monitor student understanding during mathematics instruction	11	(2.9)	14	(2.6)	28	(3.5)	31	(3.4)	16	(2.7)
How to adapt mathematics instruction to address student misconceptions	14	(2.8)	14	(2.0)	32	(3.8)	29	(3.4)	10	(2.1)
How to use technology in mathematics instruction	11	(2.1)	17	(2.9)	25	(3.4)	32	(3.6)	15	(2.9)
How to use investigation-oriented mathematics teaching strategies	16	(3.1)	20	(3.2)	27	(3.0)	23	(3.6)	14	(2.5)
How to teach mathematics to students who are English language learners	42	(3.8)	16	(2.6)	18	(2.8)	18	(2.9)	5	(1.4)
How to provide alternative mathematics learning experiences for students with special needs	26	(3.8)	23	(2.8)	26	(2.9)	17	(3.1)	9	(2.6)

[†] Only elementary schools indicating in Q25 that they and/or their district/diocese offered in-service workshops in the last three years are included in this analysis.

Table MPQ 26.2
Middle Schools with Locally Offered Mathematics Professional Development Workshops in the Last Three Years with a Focus in Each of a Number of Areas

	Percent of Schools†									
	Not at All				Somewhat				To a Great Extent	
	1		2		3		4		5	
Mathematics content	7	(2.6)	5	(1.9)	32	(3.9)	39	(4.3)	17	(2.2)
State mathematics standards	4	(2.4)	4	(1.8)	16	(2.2)	39	(4.5)	36	(4.4)
How to use particular mathematics instructional materials (e.g., textbooks or modules)	15	(3.2)	11	(3.4)	23	(2.9)	34	(4.5)	18	(3.2)
How students think about various mathematics ideas	10	(2.2)	13	(2.2)	38	(4.1)	28	(4.1)	11	(2.8)
How to monitor student understanding during mathematics instruction	11	(2.9)	17	(3.0)	30	(3.9)	33	(4.3)	10	(2.7)
How to adapt mathematics instruction to address student misconceptions	14	(3.3)	16	(2.3)	30	(4.1)	32	(4.1)	7	(1.6)
How to use technology in mathematics instruction	10	(2.0)	16	(3.4)	28	(4.2)	30	(4.4)	16	(3.4)
How to use investigation-oriented mathematics teaching strategies	19	(3.4)	22	(4.1)	25	(3.2)	24	(4.0)	11	(2.4)
How to teach mathematics to students who are English language learners	48	(4.4)	16	(2.4)	19	(3.4)	15	(3.6)	2	(0.8)
How to provide alternative mathematics learning experiences for students with special needs	29	(4.6)	19	(2.3)	30	(2.9)	15	(3.5)	8	(3.2)

† Only middle schools indicating in Q25 that they and/or their district/diocese offered in-service workshops in the last three years are included in this analysis.

Table MPQ 26.3
High Schools with Locally Offered Mathematics Professional Development Workshops in the Last Three Years with a Focus in Each of a Number of Areas

	Percent of Schools†									
	Not at All				Somewhat				To a Great Extent	
	1		2		3		4		5	
Mathematics content	9	(2.0)	7	(1.4)	37	(6.0)	34	(5.1)	14	(2.2)
State mathematics standards	2	(0.8)	3	(1.1)	18	(2.8)	41	(5.2)	36	(4.5)
How to use particular mathematics instructional materials (e.g., textbooks or modules)	13	(2.4)	16	(4.5)	28	(3.9)	29	(5.3)	14	(4.6)
How students think about various mathematics ideas	12	(2.3)	19	(2.9)	31	(5.2)	27	(6.0)	10	(4.6)
How to monitor student understanding during mathematics instruction	15	(2.7)	14	(2.3)	32	(4.9)	28	(5.9)	11	(4.9)
How to adapt mathematics instruction to address student misconceptions	17	(2.7)	14	(2.2)	31	(4.9)	32	(6.7)	5	(1.0)
How to use technology in mathematics instruction	8	(2.0)	12	(2.3)	26	(4.9)	34	(5.5)	20	(6.6)
How to use investigation-oriented mathematics teaching strategies	15	(2.5)	23	(5.1)	24	(3.3)	25	(5.5)	13	(5.0)
How to teach mathematics to students who are English language learners	45	(5.6)	17	(2.3)	19	(4.7)	18	(6.6)	2	(0.7)
How to provide alternative mathematics learning experiences for students with special needs	28	(3.6)	24	(3.4)	18	(2.8)	18	(5.5)	12	(6.5)

† Only high schools indicating in Q25 that they and/or their district/diocese offered in-service workshops in the last three years are included in this analysis.

Table MPQ 27
Mathematics-Focused Teacher Study Groups Offered at Schools in the Last Three Years

	Percent of Schools
Elementary	46 (3.0)
Middle	51 (3.7)
High	48 (4.4)

Table MPQ 28, 29, 30
Required Participation in Mathematics-Focused Teacher Study Groups

	Percent of Schools†
Elementary	70 (3.5)
Middle	79 (3.5)
High	77 (5.1)

† Only schools indicating in Q27 that they offered teacher study groups in the last three years are included in this analysis.

Table MPQ 31
Schedule for Mathematics-Focused Teacher Study Groups Specified by School

	Percent of Schools[†]
Elementary	58 (3.8)
Middle	60 (4.1)
High	66 (4.6)

[†] Only schools indicating in Q27 that they offered teacher study groups in the last three years are included in this analysis.

Table MPQ 32
Duration of Mathematics-Focused Teacher Study Groups

	Percent of Schools[†]		
	Elementary	Middle	High
The entire school year	89 (3.2)	89 (3.1)	92 (2.5)
One semester	6 (2.5)	5 (2.7)	3 (1.1)
Less than one semester	5 (2.1)	6 (1.8)	6 (2.3)

[†] Only schools indicating in Q27 that they offered teacher study groups in the last three years and indicating in Q31 that they have a specified schedule for these teacher study groups are included in this analysis.

Table MPQ 33
Frequency of Mathematics-Focused Teacher Study Groups

	Percent of Schools[†]		
	Elementary	Middle	High
Less than once a month	24 (4.7)	17 (3.3)	14 (2.7)
Once a month	38 (4.2)	28 (4.1)	27 (4.5)
Twice a month	13 (3.7)	15 (2.4)	15 (2.4)
More than twice a month	25 (5.1)	41 (5.0)	44 (5.6)

[†] Only elementary schools indicating in Q27 that they offered teacher study groups in the last three years and indicating in Q31 that they have a specified schedule for these teacher study groups are included in this analysis.

Table MPQ 34
Composition of Mathematics-Focused Teacher Study Groups

	Percent of Schools[†]		
	Elementary	Middle	High
Organized by grade level	57 (4.5)	39 (3.8)	27 (3.7)
Include teachers from multiple grade levels	57 (3.6)	76 (2.7)	70 (3.5)
Limited to teachers from this school	74 (4.3)	73 (4.5)	72 (6.7)
Include teachers from other schools in the district/diocese[‡]	26 (4.1)	27 (3.9)	24 (5.8)
Include teachers from other schools outside of your district/diocese	4 (2.6)	5 (3.1)	10 (5.6)
Include school and/or district/diocese administrators	55 (4.0)	58 (3.3)	47 (5.7)
Include parents/guardians or other community members	4 (1.7)	2 (1.3)	1 (0.7)
Include higher education faculty or other "consultants"	18 (3.0)	15 (2.3)	10 (1.7)

[†] Only schools indicating in Q27 that they offered teacher study groups in the last three years are included in this analysis.
[‡] Item presented only to public and Catholic schools.

Table MPQ 35
Description of Activities in Typical Mathematics-Focused Teacher Study Groups

	Percent of Schools†		
	Elementary	Middle	High
Teachers engage in mathematics investigations	29 (3.6)	29 (4.1)	26 (5.6)
Teachers plan mathematics lessons together	60 (4.9)	54 (4.5)	62 (5.5)
Teachers analyze student mathematics assessment results	81 (3.7)	85 (4.2)	81 (4.7)
Teachers analyze classroom artifacts (e.g., student work samples)	36 (4.3)	34 (3.9)	26 (4.8)
Teachers analyze mathematics instructional materials (e.g., textbooks or modules)	63 (3.8)	66 (4.0)	66 (5.3)

† Only schools indicating in Q27 that they offered teacher study groups in the last three years are included in this analysis.

Table MPQ 36.1
Elementary School Mathematics-Focused Teacher Study Groups in the Last Three Years with a Focus in Each of a Number of Areas

	Percent of Schools†				
	Not At All		Somewhat		To a Great Extent
	1	2	3	4	5
Mathematics content	6 (2.1)	4 (1.8)	30 (3.7)	40 (4.7)	20 (4.0)
State mathematics standards	3 (1.1)	3 (1.1)	14 (2.7)	38 (4.5)	43 (4.5)
How to use particular mathematics instructional materials (e.g., textbooks or modules)	9 (3.5)	8 (2.1)	28 (4.2)	40 (4.9)	15 (2.4)
How students think about various mathematics ideas	13 (3.6)	13 (2.4)	32 (5.0)	30 (4.9)	12 (2.6)
How to monitor student understanding during mathematics instruction	8 (2.3)	10 (2.8)	31 (4.2)	34 (4.7)	18 (3.7)
How to adapt mathematics instruction to address student misconceptions	11 (3.3)	12 (2.3)	33 (4.3)	27 (3.5)	16 (3.2)
How to use technology in mathematics instruction	15 (3.4)	11 (2.5)	34 (4.5)	26 (4.3)	13 (3.5)
How to use investigation-oriented mathematics teaching strategies	15 (3.3)	12 (2.5)	33 (4.0)	30 (4.4)	10 (2.6)
How to teach mathematics to students who are English language learners	41 (4.7)	15 (2.5)	19 (3.2)	17 (3.9)	7 (2.1)
How to provide alternative mathematics learning experiences for students with special needs	22 (4.3)	18 (3.1)	32 (3.8)	20 (4.4)	7 (2.4)

† Only elementary schools indicating in Q27 that they offered teacher study groups in the last three years are included in this analysis.

Table MPQ 36.2
Middle School Mathematics-Focused Teacher Study Groups in the Last Three Years with a Focus in Each of a Number of Areas

	Percent of Schools†				
	Not at All		Somewhat		To a Great Extent
	1	2	3	4	5
Mathematics content	10 (2.7)	6 (2.1)	29 (3.8)	33 (4.4)	22 (4.2)
State mathematics standards	3 (1.1)	4 (1.5)	13 (2.1)	37 (4.5)	43 (4.4)
How to use particular mathematics instructional materials (e.g., textbooks or modules)	11 (3.8)	11 (2.3)	30 (4.7)	36 (5.2)	11 (2.1)
How students think about various mathematics ideas	12 (3.3)	15 (2.4)	34 (4.6)	31 (4.6)	8 (1.9)
How to monitor student understanding during mathematics instruction	10 (2.6)	15 (3.9)	29 (4.0)	32 (4.4)	14 (3.3)
How to adapt mathematics instruction to address student misconceptions	11 (2.9)	16 (3.1)	30 (4.6)	30 (4.0)	13 (3.2)
How to use technology in mathematics instruction	15 (4.0)	11 (2.0)	37 (4.3)	25 (4.2)	13 (3.7)
How to use investigation-oriented mathematics teaching strategies	19 (4.0)	17 (2.7)	32 (3.8)	28 (4.2)	5 (1.9)
How to teach mathematics to students who are English language learners	46 (4.7)	18 (2.3)	17 (2.7)	14 (4.3)	5 (1.7)
How to provide alternative mathematics learning experiences for students with special needs	19 (4.3)	24 (3.3)	32 (3.9)	19 (4.3)	6 (2.2)

† Only middle schools indicating in Q27 that they offered teacher study groups in the last three years are included in this analysis.

Table MPQ 36.3
High School Mathematics-Focused Teacher Study Groups in the Last Three Years with a Focus in Each of a Number of Areas

	Percent of Schools†									
	Not at All			Somewhat				To a Great Extent		
	1		2		3		4		5	
Mathematics content	10	(2.3)	7	(1.5)	36	(5.1)	27	(5.2)	19	(4.7)
State mathematics standards	8	(2.2)	4	(1.2)	21	(3.2)	32	(5.8)	35	(5.7)
How to use particular mathematics instructional materials (e.g., textbooks or modules)	10	(2.2)	11	(2.5)	36	(6.0)	33	(5.7)	10	(1.7)
How students think about various mathematics ideas	14	(4.8)	13	(2.6)	32	(4.0)	34	(6.0)	7	(1.2)
How to monitor student understanding during mathematics instruction	11	(2.2)	11	(2.5)	36	(5.3)	29	(5.2)	12	(4.8)
How to adapt mathematics instruction to address student misconceptions	9	(2.1)	13	(2.9)	36	(5.5)	29	(5.6)	13	(4.7)
How to use technology in mathematics instruction	9	(1.9)	13	(2.6)	30	(4.9)	31	(5.5)	18	(4.7)
How to use investigation-oriented mathematics teaching strategies	16	(2.9)	17	(2.8)	30	(3.4)	33	(6.3)	5	(1.1)
How to teach mathematics to students who are English language learners	47	(5.6)	21	(2.9)	13	(2.0)	16	(6.6)	3	(1.5)
How to provide alternative mathematics learning experiences for students with special needs	24	(3.6)	24	(3.5)	27	(4.6)	20	(6.7)	4	(1.4)

† Only high schools indicating in Q27 that they offered teacher study groups in the last three years are included in this analysis.

Table MPQ 37
Use of Designated Leaders for Mathematics-Focused Teacher Study Groups

	Percent of Schools†
Elementary	63 (4.4)
Middle	67 (3.8)
High	70 (3.5)

† Only schools indicating in Q27 that they offered teacher study groups in the last three years are included in this analysis.

Table MPQ 38
Origin of Designated Leaders of Mathematics-Focused Teacher Study Groups

	Percent of Schools†					
	Elementary		Middle		High	
This school	83	(4.9)	84	(4.8)	87	(6.9)
Elsewhere in this district/diocese‡	35	(5.0)	33	(5.2)	24	(8.0)
College or University	1	(0.9)	1	(0.5)	0	(0.4)
External consultants	11	(4.0)	13	(4.5)	15	(7.0)
Other	3	(1.5)	3	(1.1)	1	(0.9)

† Only schools indicating in Q27 that they offered teacher study groups in the last three years and indicating in Q37 that they have designated leaders for these teacher study groups are included in this analysis.

‡ Item presented only to public and Catholic schools.

Table MPQ 39
How Schools Provide Time for Mathematics Professional Development

	Percent of Schools		
	Elementary	Middle	High
Early dismissal and/or late start for students	28 (2.7)	32 (2.7)	34 (3.3)
Professional days/teacher work days during the school year	54 (3.0)	59 (3.4)	53 (4.2)
Professional days/teacher work days before and/or after the school year	43 (2.7)	45 (2.7)	40 (3.4)
Common planning time for teachers	47 (2.8)	39 (2.9)	30 (2.8)
Substitute teachers to cover teachers' classes while they attend professional development	36 (3.0)	38 (2.9)	46 (3.4)
None of the above	18 (2.2)	13 (2.3)	14 (3.1)

Table MPQ 40
Schools Providing
One-on-One Mathematics-Focused Coaching

	Percent of Schools
Elementary	27 (2.3)
Middle	26 (2.6)
High	26 (2.4)

Table MPQ 41, 42, 43
Schools Requiring Participation in
One-on-One Mathematics-Focused Coaching

	Percent of Schools†
Elementary	11 (2.8)
Middle	20 (3.6)
High	13 (3.2)

† Only schools indicating in Q40 that teachers have access to one-on-one mathematics-focused coaching are included in this analysis.

Table MPQ 44.1
Providers of One-on-One Mathematics-Focused Coaching in Elementary Schools

	Percent of Schools†				
	Not at All		Somewhat		To a Great Extent
	1	2	3	4	5
The principal of your school	48 (6.7)	11 (3.0)	25 (5.4)	12 (4.1)	4 (2.2)
An assistant principal at your school	66 (5.1)	10 (2.8)	17 (4.1)	5 (2.0)	2 (1.1)
District/Diocese administrators including mathematics supervisors/coordinators‡	31 (5.4)	14 (3.5)	26 (4.7)	12 (3.2)	17 (3.8)
Teachers/coaches who do not have classroom teaching responsibilities	40 (6.3)	7 (2.1)	11 (4.0)	16 (3.8)	27 (4.6)
Teachers/coaches who have part-time classroom teaching responsibilities	74 (4.8)	7 (2.7)	6 (3.6)	9 (3.0)	4 (1.6)
Teachers/coaches who have full-time classroom teaching responsibilities	44 (5.3)	9 (2.9)	21 (4.5)	16 (4.2)	10 (2.6)

† Only elementary schools indicating in Q40 that teachers have access to one-on-one mathematics-focused coaching are included in this analysis.

‡ Item presented only to public and Catholic schools.

Table MPQ 44.2
Providers of One-on-One Mathematics-Focused Coaching in Middle Schools

	Percent of Schools†									
	Not at All				Somewhat				To a Great Extent	
	1		2		3		4		5	
The principal of your school	44	(5.5)	11	(2.6)	27	(5.9)	13	(5.0)	6	(2.8)
An assistant principal at your school	65	(5.1)	13	(2.5)	16	(3.8)	4	(1.6)	2	(0.9)
District/Diocese administrators including mathematics supervisors/coordinators‡	33	(4.9)	11	(3.7)	24	(3.7)	14	(3.5)	18	(4.3)
Teachers/coaches who do not have classroom teaching responsibilities	40	(5.0)	5	(2.8)	16	(5.0)	19	(3.7)	20	(3.9)
Teachers/coaches who have part-time classroom teaching responsibilities	72	(5.4)	2	(1.3)	11	(4.7)	9	(2.9)	6	(1.8)
Teachers/coaches who have full-time classroom teaching responsibilities	37	(5.2)	7	(2.7)	20	(4.9)	20	(5.3)	16	(3.5)

† Only middle schools indicating in Q40 that teachers have access to one-on-one mathematics-focused coaching are included in this analysis.

‡ Item presented only to public and Catholic schools.

Table MPQ 44.3
Providers of One-on-One Mathematics-Focused Coaching in High Schools

	Percent of Schools†									
	Not at All				Somewhat				To a Great Extent	
	1		2		3		4		5	
The principal of your school	45	(5.9)	8	(2.5)	32	(8.1)	10	(4.3)	5	(2.1)
An assistant principal at your school	59	(4.9)	12	(2.7)	16	(3.6)	11	(4.2)	3	(1.2)
District/Diocese administrators including mathematics supervisors/coordinators‡	41	(4.2)	10	(2.8)	24	(2.9)	16	(3.6)	10	(2.7)
Teachers/coaches who do not have classroom teaching responsibilities	59	(5.6)	9	(3.8)	12	(4.4)	9	(2.8)	11	(3.0)
Teachers/coaches who have part-time classroom teaching responsibilities	66	(5.8)	8	(3.8)	7	(1.9)	11	(3.0)	7	(2.1)
Teachers/coaches who have full-time classroom teaching responsibilities	27	(4.9)	5	(1.9)	26	(4.0)	23	(7.4)	19	(3.9)

† Only high schools indicating in Q40 that teachers have access to one-on-one mathematics-focused coaching are included in this analysis.

‡ Item presented only to public and Catholic schools.