

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).]
- any subject at the K–12 level? _____
 - science at the K–12 level? _____
 - at this school, any subject? _____

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

| | |
|--------------------------|------------------------------------|
| <input type="checkbox"/> | K–5 |
| <input type="checkbox"/> | 6–8 |
| <input type="checkbox"/> | 9–12 |
| <input type="checkbox"/> | 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.

| | |
|-----------------------|--|
| <input type="radio"/> | This class receives science instruction <i>only</i> from you. <i>[Presented only to teachers who answered in Q2 that they teach science]</i> |
| <input type="radio"/> | This class receives science instruction from you and another teacher (for example: a science specialist or a teacher you team with). <i>[Presented only to teachers who answered in Q2 that they teach science]</i> |

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

Which best describes your science teaching?

| | |
|-----------------------|--|
| <input type="radio"/> | I teach science all or most days, every week of the year. |
| <input type="radio"/> | I teach science every week, but typically three or fewer days each week. |
| <input type="radio"/> | I teach science some weeks, but typically not every week. <i>[Skip to Q6]</i> |

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) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Engineering (may include some science content) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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 1 st science class: | | |
| Your 2 nd science class: | | |
| ... | | |
| Your N th 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 1 st 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 | 1 st Year College Prep, Including Honors | 2 nd Year Advanced |
|-------------------------------------|---|-----------------------|---|-------------------------------|
| Your 1 st science class: | [course type(s) teacher selected in Q8] | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Your 2 nd science class: | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| ... | | | | |
| Your Nth science class: | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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 | <input type="radio"/> | <input type="radio"/> |
| b. Natural Sciences and/or Engineering | <input type="radio"/> | <input type="radio"/> |
| c. Other, please specify _____ | <input type="radio"/> | <input type="radio"/> |

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.]

| | |
|--------------------------|--|
| <input type="checkbox"/> | Elementary Education |
| <input type="checkbox"/> | Mathematics Education |
| <input type="checkbox"/> | Science Education |
| <input type="checkbox"/> | 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.]

| | |
|--------------------------|---|
| <input type="checkbox"/> | Biology/Life Science |
| <input type="checkbox"/> | Chemistry |
| <input type="checkbox"/> | Earth/Space Science |
| <input type="checkbox"/> | Engineering |
| <input type="checkbox"/> | Environmental Science/Ecology |
| <input type="checkbox"/> | Physics |
| <input type="checkbox"/> | 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) | <input type="radio"/> | <input type="radio"/> |
| b. Biology/life science courses beyond the general/introductory level | <input type="radio"/> | <input type="radio"/> |
| c. Biology/life science education courses | <input type="radio"/> | <input type="radio"/> |

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.]

| | |
|--------------------------|--|
| <input type="checkbox"/> | Anatomy/Physiology |
| <input type="checkbox"/> | Biochemistry |
| <input type="checkbox"/> | Botany |
| <input type="checkbox"/> | Cell Biology |
| <input type="checkbox"/> | Ecology |
| <input type="checkbox"/> | Evolution |
| <input type="checkbox"/> | Genetics |
| <input type="checkbox"/> | Microbiology |
| <input type="checkbox"/> | Zoology |
| <input type="checkbox"/> | 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) | <input type="radio"/> | <input type="radio"/> |
| b. Chemistry courses beyond the general/introductory level | <input type="radio"/> | <input type="radio"/> |
| c. Chemistry education courses | <input type="radio"/> | <input type="radio"/> |

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.]

| | |
|--------------------------|---|
| <input type="checkbox"/> | Analytical Chemistry |
| <input type="checkbox"/> | Biochemistry |
| <input type="checkbox"/> | Inorganic Chemistry |
| <input type="checkbox"/> | Organic Chemistry |
| <input type="checkbox"/> | Physical Chemistry |
| <input type="checkbox"/> | Quantum Chemistry |
| <input type="checkbox"/> | 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) | <input type="radio"/> | <input type="radio"/> |
| b. Physics courses beyond the general/introductory level | <input type="radio"/> | <input type="radio"/> |
| c. Physics education courses | <input type="radio"/> | <input type="radio"/> |

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.]

| | |
|--------------------------|---|
| <input type="checkbox"/> | Electricity and Magnetism |
| <input type="checkbox"/> | Heat and Thermodynamics |
| <input type="checkbox"/> | Mechanics |
| <input type="checkbox"/> | Modern or Quantum Physics |
| <input type="checkbox"/> | Nuclear Physics |
| <input type="checkbox"/> | Optics |
| <input type="checkbox"/> | 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) | <input type="radio"/> | <input type="radio"/> |
| b. Earth/space science courses beyond the general/introductory level | <input type="radio"/> | <input type="radio"/> |
| c. Earth/space science education courses | <input type="radio"/> | <input type="radio"/> |

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.]

| | |
|--------------------------|---|
| <input type="checkbox"/> | Astronomy |
| <input type="checkbox"/> | Geology |
| <input type="checkbox"/> | Meteorology |
| <input type="checkbox"/> | Oceanography |
| <input type="checkbox"/> | Physical Geography |
| <input type="checkbox"/> | 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) | <input type="radio"/> | <input type="radio"/> |
| b. Environmental science courses beyond the general/introductory level | <input type="radio"/> | <input type="radio"/> |
| c. Environmental science education courses | <input type="radio"/> | <input type="radio"/> |

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.]

| | |
|--------------------------|---|
| <input type="checkbox"/> | Conservation Biology |
| <input type="checkbox"/> | Ecology |
| <input type="checkbox"/> | Forestry |
| <input type="checkbox"/> | Hydrology |
| <input type="checkbox"/> | Oceanography |
| <input type="checkbox"/> | Toxicology |
| <input type="checkbox"/> | Other environmental science beyond the general/introductory level |

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

| | |
|-----------------------|-----|
| <input type="radio"/> | Yes |
| <input type="radio"/> | 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.]

| | |
|--------------------------|---------------------------------------|
| <input type="checkbox"/> | Aerospace Engineering |
| <input type="checkbox"/> | Bioengineering/Biomedical Engineering |
| <input type="checkbox"/> | Chemical Engineering |
| <input type="checkbox"/> | Civil Engineering |
| <input type="checkbox"/> | Computer Engineering |
| <input type="checkbox"/> | Electrical Engineering |
| <input type="checkbox"/> | Industrial/Manufacturing Engineering |
| <input type="checkbox"/> | Mechanical Engineering |
| <input type="checkbox"/> | 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 <i>multiple</i> 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).]
- Two-year college, community college, and/or technical school _____
 - Four-year college and/or university _____

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

| | |
|-----------------------|---|
| <input type="radio"/> | An undergraduate program leading to a bachelor's degree and a teaching credential |
| <input type="radio"/> | A post-baccalaureate credentialing program (no master's degree awarded) |
| <input type="radio"/> | A master's program that also awarded a teaching credential |
| <input type="radio"/> | 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.)

| | |
|-----------------------|------------------------|
| <input type="radio"/> | In the last 3 years |
| <input type="radio"/> | 4–6 years ago |
| <input type="radio"/> | 7–10 years ago |
| <input type="radio"/> | More than 10 years ago |
| <input type="radio"/> | 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? | <input type="radio"/> | <input type="radio"/> |
| b. attended a national, state, or regional science teacher association meeting? | <input type="radio"/> | <input type="radio"/> |
| c. participated in a professional learning community/lesson study/teacher study group focused on science or science teaching? | <input type="radio"/> | <input type="radio"/> |

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.)

| | |
|-----------------------|--------------------|
| <input type="radio"/> | Less than 6 hours |
| <input type="radio"/> | 6–15 hours |
| <input type="radio"/> | 16–35 hours |
| <input type="radio"/> | 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 <i>and</i> 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 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| b. How to teach science | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| c. Student teaching in science | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| d. Student teaching in other subjects | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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.]

| | Somewhat | | | | To a great extent |
|--|------------|---|---|---|-------------------|
| | Not at all | | | | |
| 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? | <input type="radio"/> | <input type="radio"/> |
| b. served as a formally-assigned mentor/coach for science teaching? (Please do not include supervision of student teachers.) | <input type="radio"/> | <input type="radio"/> |
| c. supervised a student teacher in your classroom? | <input type="radio"/> | <input type="radio"/> |
| d. taught in-service workshops on science or science teaching? | <input type="radio"/> | <input type="radio"/> |
| e. led a professional learning community/lesson study/teacher study group focused on science or science teaching? | <input type="radio"/> | <input type="radio"/> |

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

| |
|--|
| <input type="radio"/> Mostly low achievers |
| <input type="radio"/> Mostly average achievers |
| <input type="radio"/> Mostly high achievers |
| <input type="radio"/> 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 |
|---|-------------------|---|-------------------------|---|-----------------------|
| | ① | ② | ③ | ④ | ⑤ |
| 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 |
|--|-------------|-------------------------|--------------------------|-----------------------|
| | ① | ② | ③ | ④ |
| 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 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| b. Hand-held computers (for example: PDAs, tablets, smartphones, iPads) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| c. Internet access | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| d. Graphing calculators | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| e. Other calculators | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| f. Probes for collecting data (for example: motion sensors, temperature probes) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| g. Microscopes | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| h. Classroom response system or "Clickers" (handheld devices used to respond electronically to questions in class) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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 | <input type="radio"/> | <input type="radio"/> |
| b. Hand-held computers | <input type="radio"/> | <input type="radio"/> |
| c. Graphing calculators | <input type="radio"/> | <input type="radio"/> |
| d. Other calculators | <input type="radio"/> | <input type="radio"/> |

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 <i>[Presented to grades K-5 teachers only]</i> | ① | ② | ③ | ④ | ⑤ |
| e. Graphing calculators <i>[Presented to grades 6-12 teachers only]</i> | 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 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| b. Electric outlets | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| c. Faucets and sinks | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| d. Gas for burners <i>[Presented to grades 9-12 teachers only]</i> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| e. Fume hoods <i>[Presented to grades 9-12 teachers only]</i> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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.)

| | |
|-----------------------|----------------------------|
| <input type="radio"/> | Never |
| <input type="radio"/> | Once a year |
| <input type="radio"/> | Twice a year |
| <input type="radio"/> | Three or four times a year |
| <input type="radio"/> | 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.)

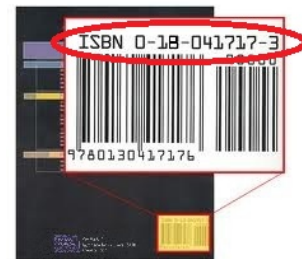
| | |
|-----------------------|--------------------------------|
| <input type="radio"/> | Fewer than 15 minutes per week |
| <input type="radio"/> | 15–30 minutes per week |
| <input type="radio"/> | 31–60 minutes per week |
| <input type="radio"/> | 61–90 minutes per week |
| <input type="radio"/> | 91–120 minutes per week |
| <input type="radio"/> | 2–3 hours per week |
| <input type="radio"/> | 3–4 hours per week |
| <input type="radio"/> | 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) | |
| <input type="radio"/> | One textbook |
| <input type="radio"/> | Multiple textbooks |
| Mainly commercially-published modules | |
| <input type="radio"/> | Modules from a single publisher |
| <input type="radio"/> | Modules from multiple publishers |
| Other | |
| <input type="radio"/> | A roughly equal mix of commercially-published textbooks and commercially-published modules most of the time |
| <input type="radio"/> | Non-commercially-published materials most of the time <i>[Skip to Q58]</i> |

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 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.



page

Title:
 First Author:
 Year:
 ISBN:

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

| | |
|-----------------------|-----------|
| <input type="radio"/> | Very poor |
| <input type="radio"/> | Poor |
| <input type="radio"/> | Fair |
| <input type="radio"/> | Good |
| <input type="radio"/> | Very good |
| <input type="radio"/> | 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?

| | |
|-----------------------|---------------|
| <input type="radio"/> | Less than 25% |
| <input type="radio"/> | 25–49% |
| <input type="radio"/> | 50–74% |
| <input type="radio"/> | 75–90% |
| <input type="radio"/> | 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?

| | |
|-----------------------|---------------|
| <input type="radio"/> | Less than 25% |
| <input type="radio"/> | 25–49% |
| <input type="radio"/> | 50–74% |
| <input type="radio"/> | 75–90% |
| <input type="radio"/> | 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?

| | |
|-----------------------|-------------------|
| <input type="radio"/> | Not adequate |
| <input type="radio"/> | |
| <input type="radio"/> | Somewhat adequate |
| <input type="radio"/> | |
| <input type="radio"/> | 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?

| | |
|-----------------------|-------------------|
| <input type="radio"/> | Not adequate |
| <input type="radio"/> | |
| <input type="radio"/> | Somewhat adequate |
| <input type="radio"/> | |
| <input type="radio"/> | 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?

| | |
|-----------------------|-------------------|
| <input type="radio"/> | Not adequate |
| <input type="radio"/> | |
| <input type="radio"/> | Somewhat adequate |
| <input type="radio"/> | |
| <input type="radio"/> | 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?

| | |
|-----------------------|-------------------|
| <input type="radio"/> | Not adequate |
| <input type="radio"/> | |
| <input type="radio"/> | Somewhat adequate |
| <input type="radio"/> | |
| <input type="radio"/> | 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 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| b. Old age of computers | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| c. Lack of access to the Internet | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| d. Unreliability of the Internet connection | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| e. Slow speed of the Internet connection | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| f. Lack of availability of appropriate computer software | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| g. Lack of availability of technology support | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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 | <input type="radio"/> |
| b. District/Diocese curriculum frameworks <i>[Not presented to non-Catholic private schools]</i> | ① | ② | ③ | ④ | ⑤ | <input type="radio"/> |
| c. District/Diocese and/or school pacing guides | ① | ② | ③ | ④ | ⑤ | <input type="radio"/> |
| d. State testing/accountability policies <i>[Not presented to non-Catholic private schools]</i> | ① | ② | ③ | ④ | ⑤ | <input type="radio"/> |
| e. District/Diocese testing/accountability policies <i>[Not presented to non-Catholic private schools]</i> | ① | ② | ③ | ④ | ⑤ | <input type="radio"/> |
| f. Textbook/module selection policies | ① | ② | ③ | ④ | ⑤ | <input type="radio"/> |
| g. Teacher evaluation policies | ① | ② | ③ | ④ | ⑤ | <input type="radio"/> |
| h. College entrance requirements <i>[Presented to grades 9–12 teachers only]</i> | ① | ② | ③ | ④ | ⑤ | <input type="radio"/> |
| i. Students' motivation, interest, and effort in science | ① | ② | ③ | ④ | ⑤ | <input type="radio"/> |
| j. Students' reading abilities | ① | ② | ③ | ④ | ⑤ | <input type="radio"/> |
| k. Community views on science instruction | ① | ② | ③ | ④ | ⑤ | <input type="radio"/> |
| l. Parent expectations and involvement | ① | ② | ③ | ④ | ⑤ | <input type="radio"/> |
| m. Principal support | ① | ② | ③ | ④ | ⑤ | <input type="radio"/> |
| n. Time for you to plan, individually and with colleagues | ① | ② | ③ | ④ | ⑤ | <input type="radio"/> |
| o. Time available for your professional development | ① | ② | ③ | ④ | ⑤ | <input type="radio"/> |

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?

| | |
|-----------------------|-------------------------------|
| <input type="radio"/> | Earth/Space Science |
| <input type="radio"/> | Life Science/Biology |
| <input type="radio"/> | Environmental Science/Ecology |
| <input type="radio"/> | Chemistry |
| <input type="radio"/> | Physics |
| <input type="radio"/> | 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?

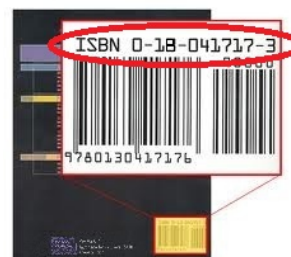
| | |
|-----------------------|--------------------------|
| <input type="radio"/> | Yes <i>[Skip to Q70]</i> |
| <input type="radio"/> | No |

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

| | |
|-----------------------|-------------------------|
| <input type="radio"/> | Yes |
| <input type="radio"/> | No <i>[Skip to Q74]</i> |

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 |
|---|------------|---|----------|---|-------------------|
| | ① | ② | ③ | ④ | ⑤ |
| 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 |
|--|--------------|----------------|----------------|
| | ① | ② | ③ |
| 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 |
|--|--------------|----------------|----------------|
| | ① | ② | ③ |
| 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 <i>[Presented only to teachers who indicated using commercially-published textbooks/modules in Q67/68]</i> | 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.]

| | |
|--------------------------|--|
| <input type="checkbox"/> | 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 |
| <input type="checkbox"/> | Questioned individual students during class activities to see if they were “getting it” |
| <input type="checkbox"/> | 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” |
| <input type="checkbox"/> | Reviewed student work (for example: homework, notebooks, journals, portfolios, projects) to see if they were “getting it” |
| <input type="checkbox"/> | Administered one or more quizzes and/or tests to see if students were “getting it” |
| <input type="checkbox"/> | Had students use rubrics to examine their own or their classmates’ work |
| <input type="checkbox"/> | Assigned grades to student work (for example: homework, notebooks, journals, portfolios, projects) |
| <input type="checkbox"/> | Administered one or more quizzes and/or tests to assign grades |
| <input type="checkbox"/> | 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).]

- Non-instructional activities (for example: attendance taking, interruptions) _____
- Whole class activities (for example: lectures, explanations, discussions) _____
- Small group work _____
- 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.]

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

Section E. Demographic Information

78. Indicate your sex:

| | |
|-----------------------|--------|
| <input type="radio"/> | Male |
| <input type="radio"/> | Female |

79. Are you of Hispanic or Latino origin?

| | |
|-----------------------|-----|
| <input type="radio"/> | Yes |
| <input type="radio"/> | No |

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

| | |
|--------------------------|---|
| <input type="checkbox"/> | American Indian or Alaska Native |
| <input type="checkbox"/> | Asian |
| <input type="checkbox"/> | Black or African American |
| <input type="checkbox"/> | Native Hawaiian or Other Pacific Islander |
| <input type="checkbox"/> | 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) |

