Section Two

Science Teacher Questionnaire

Science Questionnaire

STQ Tables

2000 National Survey of Science and Mathematics Education

Science Questionnaire

You have been selected to answer questions about your science instruction. If you do not currently teach science, please call us toll-free at 1-800-937-8288.

How to Complete the Questionnaire

Most of the questions instruct you to "darken one" answer or "darken all that apply." For a few questions, you are asked to write in your answer on the line provided. Please use a #2 pencil or blue or black pen to complete this questionnaire. Darken ovals completely, but do not stray into adjacent ovals. Be sure to erase or white out completely any stray marks.

Class Selection

Part of the questionnaire (sections C and D) asks you to provide information about instruction in a particular class. If you teach science to more than one class, use the label at the right to determine the science class that has been randomly selected for you to answer about. (If your teaching schedule varies by day, use today's schedule, or if today is not a school day, use the most recent school day.)

If You Have Questions

If you have questions about the study or any items in the questionnaire, call us toll-free at 1-800-937-8288.

Each participating school will receive a voucher for $50 worth of science and mathematics materials. The voucher will be augmented by $15 for each responding teacher. In addition, each participating school will receive a copy of the study's results in the spring of 2001.

Thank you very much. Your participation is greatly appreciated. Please return the completed questionnaire to us in the postage-paid envelope:

2000 National Survey of Science and Mathematics Education
Westat
1650 Research Blvd.
TB120F
Rockville, MD 20850

A. Teacher Opinions

1. Please provide your opinion about each of the following statements. (Darken one oval on each line.)

		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.	The testing program in my state/district dictates what science content I teach.	①	②	③	④	⑤
c.	I enjoy teaching science.	①	②	③	④	⑤
d.	I consider myself a "master" science teacher.	①	②	③	④	⑤
e.	I have time during the regular school week to work with my colleagues on science curriculum and teaching.	①	②	③	④	⑤
f.	My colleagues and I regularly share ideas and materials related to science teaching.	①	②	③	④	⑤
g.	Science teachers in this school regularly observe each other teaching classes as part of sharing and improving instructional strategies.	①	②	③	④	⑤
h.	Most science teachers in this school contribute actively to making decisions about the science curriculum.	①	②	③	④	⑤

2a. How familiar are you with the *National Science Education Standards*, published by the National Research Council? (Darken one oval.)

- ① Not at all familiar, SKIP TO QUESTION 3
- ② Somewhat familiar
- ③ Fairly familiar
- ④ Very familiar

2b. Please indicate the extent of your agreement with the overall vision of science education described in the *National Science Education Standards.* (Darken one oval.)

Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
①	②	③	④	⑤

2c. To what extent have you implemented recommendations from the *National Science Education Standards* in your science teaching? (Darken one oval.)

Not at all	To a minimal extent	To a moderate extent	To a great extent
①	②	③	④

B. Teacher Background

3. Please indicate how well prepared you currently feel to do each of the following in your science instruction. (Darken one oval on each line.)

		Not Adequately Prepared	Somewhat Prepared	Fairly Well Prepared	Very Well Prepared
a.	Take students' prior understanding into account when planning curriculum and instruction	①	②	③	④
b.	Develop students' conceptual understanding of science	①	②	③	④
c.	Provide deeper coverage of fewer science concepts	①	②	③	④
d.	Make connections between science and other disciplines	①	②	③	④
e.	Lead a class of students using investigative strategies	①	②	③	④

Question 3 continues on next page...

3. *continued...*

		Not Adequately Prepared	Somewhat Prepared	Fairly Well Prepared	Very Well Prepared
f.	Manage a class of students engaged in hands-on/project-based work	○	○	○	○
g.	Have students work in cooperative learning groups	○	○	○	○
h.	Listen/ask questions as students work in order to gauge their understanding	○	○	○	○
i.	Use the textbook as a resource rather than the primary instructional tool	○	○	○	○
j.	Teach groups that are heterogeneous in ability	○	○	○	○
k.	Teach students who have limited English proficiency	○	○	○	○
l.	Recognize and respond to student cultural diversity	○	○	○	○
m.	Encourage students' interest in science	○	○	○	○
n.	Encourage participation of females in science	○	○	○	○
o.	Encourage participation of minorities in science	○	○	○	○
p.	Involve parents in the science education of their children	○	○	○	○
q.	Use calculators/computers for drill and practice	○	○	○	○
r.	Use calculators/computers for science learning games	○	○	○	○
s.	Use calculators/computers to collect and/or analyze data	○	○	○	○
t.	Use computers to demonstrate scientific principles	○	○	○	○
u.	Use computers for laboratory simulations	○	○	○	○
v.	Use the Internet in your science teaching for general reference	○	○	○	○
w.	Use the Internet in your science teaching for data acquisition	○	○	○	○
x.	Use the Internet in your science teaching for collaborative projects with classes/individuals in other schools	○	○	○	○

4a. Do you have each of the following degrees?

Bachelors	○ Yes	○ No
Masters	○ Yes	○ No
Doctorate	○ Yes	○ No

4b. Please indicate the subject(s) for each of your degrees.
(Darken all that apply.)

	Bachelors	Masters	Doctorate
Biology/Life Science	○	○	○
Chemistry	○	○	○
Earth/Space Science	○	○	○
Physics	○	○	○
Other science, please specify: _____	○	○	○
Science Education (any science discipline)	○	○	○
Mathematics/Mathematics Education	○	○	○
Elementary Education	○	○	○
Other Education (e.g., History Education, Special Education)	○	○	○
Other, please specify: _____	○	○	○

PLEASE DO NOT WRITE IN THIS AREA

[SERIAL]

5. Which of the following college courses have you completed? Include both semester hour and quarter hour courses, whether graduate or undergraduate level. Include courses for which you received college credit, even if you took the course in high school. (Darken all that apply.)

EDUCATION
- General methods of teaching
- Methods of teaching science
- Instructional uses of computers/other technologies
- Supervised student teaching in science

MATHEMATICS
- College algebra/trigonometry/ elementary functions
- Calculus
- Advanced calculus
- Differential equations
- Discrete mathematics
- Probability and statistics

CHEMISTRY
- General/introductory chemistry
- Analytical chemistry
- Organic chemistry
- Physical chemistry
- Quantum chemistry
- Biochemistry
- Other chemistry

EARTH/SPACE SCIENCES
- Introductory earth science
- Astronomy
- Geology
- Meteorology
- Oceanography
- Physical geography
- Environmental science
- Agricultural science

LIFE SCIENCES
- Introductory biology/life science
- Botany, plant physiology
- Cell biology
- Ecology
- Entomology
- Genetics, evolution
- Microbiology
- Anatomy/Physiology
- Zoology, animal behavior
- Other life science

PHYSICS
- Physical science
- General/introductory physics
- Electricity and magnetism
- Heat and thermodynamics
- Mechanics
- Modern or quantum physics
- Nuclear physics
- Optics
- Solid state physics
- Other physics

OTHER
- History of science
- Philosophy of science
- Science and society
- Electronics
- Engineering (Any)
- Integrated science
- Computer programming
- Other computer science

6. For each of the following subject areas, indicate the number of college semester and quarter courses you have completed. Count each course you have taken, regardless of whether it was a graduate or undergraduate course. If your transcripts are not available, provide your best estimates.

	Semester Courses	Quarter Courses
a. Life sciences	0 1 2 3 4 5 6 7 8 9 >9	0 1 2 3 4 5 6 7 8 9 >9
b. Chemistry	0 1 2 3 4 5 6 7 8 9 >9	0 1 2 3 4 5 6 7 8 9 >9
c. Physics/physical science	0 1 2 3 4 5 6 7 8 9 >9	0 1 2 3 4 5 6 7 8 9 >9
d. Earth/space science	0 1 2 3 4 5 6 7 8 9 >9	0 1 2 3 4 5 6 7 8 9 >9
e. Science education	0 1 2 3 4 5 6 7 8 9 >9	0 1 2 3 4 5 6 7 8 9 >9
f. Mathematics	0 1 2 3 4 5 6 7 8 9 >9	0 1 2 3 4 5 6 7 8 9 >9

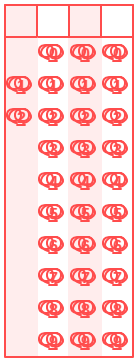
7. Considering all of your undergraduate and graduate **science** courses, approximately what percentage were completed at each of the following types of institutions? (Darken one oval on each line.)

	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
a. Two-year college/community college/technical school											
b. Four-year college/university											

8. In what year did you last take a formal course for college credit in:
(Please enter your answers in the spaces provided, then darken the corresponding oval in each column.)

a. Science

b. The Teaching of Science



If you have never taken a course in the teaching of science, darken this oval ⬭ and go to question 9.

9. What is the **total** amount of time you have spent on professional development in science or the teaching of science in the last 12 months? in the last 3 years? (Include attendance at professional meetings, workshops, and conferences, but **do not** include formal courses for which you received college credit or time you spent **providing** professional development for other teachers.) (Darken one oval in each column.)

Hours of In-service Education	Last 12 months	Last 3 years
None	⬭	⬭
Less than 6 hours	⬭	⬭
6-15 hours	⬭	⬭
16-35 hours	⬭	⬭
More than 35 hours	⬭	⬭

10. In the past **12 months**, have you: (Darken one oval on each line.)

a.	Taught any in-service workshops in science or science teaching?	⬭ Yes	⬭ No
b.	Mentored another teacher as part of a formal arrangement that is recognized or supported by the school or district, not including supervision of student teachers?	⬭ Yes	⬭ No
c.	Received any local, state, or national grants or awards for science teaching?	⬭ Yes	⬭ No
d.	Served on a school or district science curriculum committee?	⬭ Yes	⬭ No
e.	Served on a school or district science textbook selection committee?	⬭ Yes	⬭ No

11. In the past **3 years**, have you participated in any of the following activities related to science or the teaching of science? (Darken one oval on each line.)

a.	Taken a formal college/university science course. (Please do not include courses taken as part of your undergraduate degree.)	⬭ Yes	⬭ No
b.	Taken a formal college/university course in the teaching of science. (Please do not include courses taken as part of your undergraduate degree.)	⬭ Yes	⬭ No
c.	Observed other teachers teaching science as part of your own professional development (formal or informal).	⬭ Yes	⬭ No
d.	Met with a local group of teachers on a regular basis to study/discuss science teaching issues.	⬭ Yes	⬭ No
e.	Collaborated on science teaching issues with a group of teachers at a distance using telecommunications.	⬭ Yes	⬭ No
f.	Served as a mentor and/or peer coach in science teaching, as part of a formal arrangement that is recognized or supported by the school or district. (Please do not include supervision of student teachers.)	⬭ Yes	⬭ No
g.	Attended a workshop on science teaching.	⬭ Yes	⬭ No

Question 11 continues on next page...

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[SERIAL]

11. continued...

h.	Attended a national or state science teacher association meeting.	Yes	No
i.	Applied (or applying) for certification from the National Board for Professional Teaching Standards (NBPTS).	Yes	No
j.	Received certification from the National Board for Professional Teaching Standards (NBPTS).	Yes	No

Questions 12a-12c ask about your professional development in the last 3 years. If you have been teaching for fewer than 3 years, please answer for the time that you have been teaching.

12a. Think back to **3 years ago**. How would you rate your level of need for professional development in each of these areas *at that time*? (Darken one oval on each line.)

	None Needed	Minor Need	Moderate Need	Substantia Need
Deepening my own science content knowledge				
Understanding student thinking in science				
Learning how to use inquiry/investigation-oriented teaching strategies				
Learning how to use technology in science instruction				
Learning how to assess student learning in science				
Learning how to teach science in a class that includes students with special needs				

12b. Considering all the professional development you have participated in **during the last 3 years**, how much was each of the following emphasized? (Darken one oval on each line.)

	Not at all				To a great extent
Deepening my own science content knowledge					
Understanding student thinking in science					
Learning how to use inquiry/investigation-oriented teaching strategies					
Learning how to use technology in science instruction					
Learning how to assess student learning in science					
Learning how to teach science in a class that includes students with special needs					

12c. Considering all your professional development in the **last 3 years**, how would you rate its impact in each of these areas? (Darken one oval on each line.)

	Little or no impact	Confirmed what I was already doing	Caused me to change my teaching practices
Deepening my own science content knowledge			
Understanding student thinking in science			
Learning how to use inquiry/investigation-oriented teaching strategies			
Learning how to use technology in science instruction			
Learning how to assess student learning in science			
Learning how to teach science in a class that includes students with special needs			

13a. Do you teach in a **self-contained class**? (i.e., you teach multiple subjects to the same class of students all or most of the day.)

- Yes, CONTINUE WITH QUESTIONS 13b AND 13c
- No, SKIP TO QUESTION 14

13b. ***For teachers of self-contained classes*:** Many teachers feel better qualified to teach some subject areas than others. How well qualified 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 curriculum? (Darken one oval on each line.)

		Not Well Qualified	Adequately Qualified	Very Well Qualified
a.	Life science			
b.	Earth science			
c.	Physical science			
d.	Mathematics			
e.	Reading/Language Arts			
f.	Social Studies			

13c. ***For teachers of self-contained classes:*** We are interested in knowing how much time your students spend studying various subjects. In a typical week, how many days do you have lessons on each of the following subjects, and how many minutes long is an average lesson? (*Please indicate "0" if you do not teach a particular subject to this class.* Please enter your answer in the spaces provided, then darken the corresponding oval in each column. Enter the number of minutes as a 3-digit number; e.g., if 30 minutes, enter as 030.)

Mathematics		Science		Social Studies		Reading/Language Arts	
Days Per Week	Approximate Minutes Per Day	Days Per Week	Approximate Minutes Per Day	Days Per Week	Approximate Minutes Per Day	Days Per Week	Approximate Minutes Per Day
0 1 2 3 4 5	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5	0 1 2 3 4 5 6 7 8 9

NOW GO TO SECTION C, PAGE 8.

14. Which of these categories best describes the way **your** classes at this school are organized? (Darken one oval.)

- a. **Departmentalized Instruction**—you teach subject matter courses (including science, and perhaps other courses) to several different classes of students all or most of the day.
- b. **Elementary Enrichment Class**—you teach only science in an elementary school.
- c. **Team Teaching**—you collaborate with one or more teachers in teaching multiple subjects to the same class of students; your assignment includes science.

15a. ***For teachers of non-self-contained classes*:** Within science, many teachers feel better qualified to teach some topics than others. How well qualified do you feel to teach each of the following topics **at the grade level(s) you teach**, whether or not they are currently included in your curriculum? (Darken one oval on each line.)

	Not Well Qualified	Adequately Qualified	Very Well Qualified
1. Earth science			
a. Earth's features and physical processes			
b. The solar system and the universe			
c. Climate and weather			
2. Biology			
a. Structure and function of human systems			
b. Plant biology			
c. Animal behavior			
d. Interactions of living things/ecology			
e. Genetics and evolution			
3. Chemistry			
a. Structure of matter and chemical bonding			
b. Properties and states of matter			
c. Chemical reactions			
d. Energy and chemical change			

Question 15a continues on next page...

15a. *continued...*

	Not well qualified	Adequately qualified	Very well qualified
4. Physics			
a. Forces and motion	○	○	○
b. Energy	○	○	○
c. Light and sound	○	○	○
d. Electricity and magnetism	○	○	○
e. Modern physics (e.g., special relativity)	○	○	○
5. Environmental and resource issues			
a. Pollution, acid rain, global warming	○	○	○
b. Population, food supply and production	○	○	○
6. Science process/inquiry skills			
a. Formulating hypotheses, drawing conclusions, making generalizations	○	○	○
b. Experimental design	○	○	○
c. Describing, graphing, and interpreting data	○	○	○

15b. ***For teachers of non-self-contained classes*:** For each class period you are currently teaching, regardless of the subject, give *course title*, the *code-number* from the enclosed blue "List of Course Titles" that best describes the content addressed in the class, and the *number of students* in the class. (Please enter your answers in the spaces provided, then darken the corresponding oval in each column. **If you teach more than one section of a course, record each section separately below**.)

- Note that if you have more than 39 students in any class, you will not be able to darken the ovals, but you should still write the number in the boxes.

- If you teach more than 6 classes per day, please provide the requested information for the additional classes on a separate sheet of paper.

Course Title _____ Code # ○○○ # of Students ○○

Course Title _____ Code # ○○○ # of Students ○○

Course Title _____ Code # ○○○ # of Students ○○

Course Title _____ Code # ○○○ # of Students ○○

Course Title _____ Code # ○○○ # of Students ○○

Course Title _____ Code # ○○○ # of Students ○○

C. Your Science Teaching in a Particular Class

The questions in this section are about a particular science class you teach. **If you teach science to more than one class per day, please consult the label on the front of this questionnaire to determine which science class to use to answer these questions**.

16. Using the blue "List of Course Titles," indicate the code number that best describes this course. Please enter your answer in the spaces to the right, then darken the corresponding oval in each column. (If "other" [Code 199], briefly describe content of course:

_____

_____

_____)

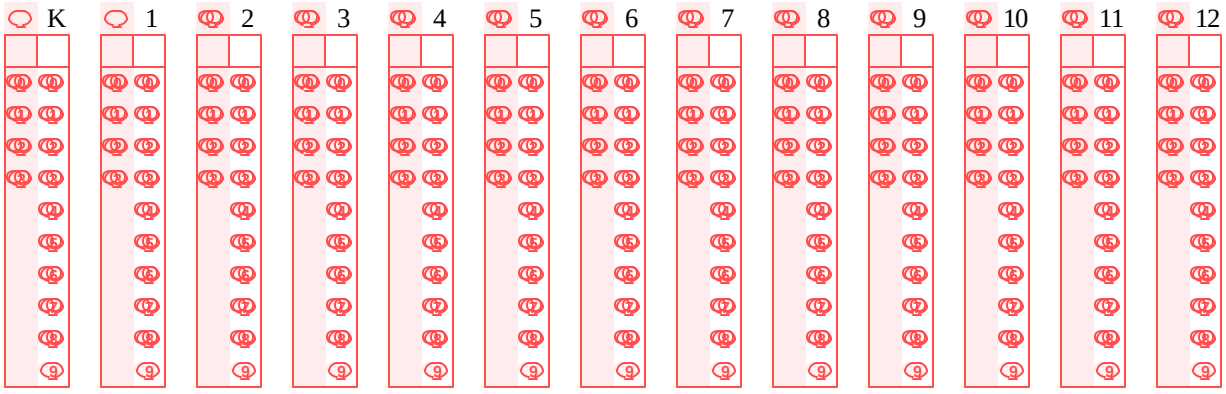
Code #

17a. Are all students in this class in the same grade?

- Yes, specify grade:
  THEN SKIP TO QUESTION 18a
- No, CONTINUE WITH QUESTION 17b

17b. What grades are represented in this class? (Darken all that apply.) For each grade noted, indicate the number of students in this class in that grade. Write your answer in the space provided, then darken the corresponding oval in each column. **Note that if more than 39 students in this class are in a single grade, you will not be able to darken the ovals, but you should still write the number in the boxes.**

K 1 2 3 4 5 6 7 8 9 10 11 12



18a. What is the total number of students in this class? Write your answer in the space provided, then darken the corresponding oval in each column. **Note that if you have more than 39 students in this class, you will not be able to darken the ovals, but you should still write the number in the boxes.**

18b. Please indicate the number of students in this class in each of the following categories. Consult the enclosed federal guidelines at the end of the course list (blue sheet) if you have any questions about how to classify particular students. (Please enter your answers in the spaces provided, then darken the corresponding oval in each column.)

RACE/ETHNICITY

American Indian or Alaskan Native		Asian		Black or African-American		Hispanic or Latino (any race)		Native Hawaiian or Other Pacific Islander		White	
Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female

19a. **Questions 19a and 19b apply only to teachers of non-self-contained classes. If you teach a self-contained class, please darken this oval ○ and skip to question 20.** What is the usual schedule and length (in minutes) of daily class meetings for this class? If the weekly schedule is normally the same, just complete Week 1, as in Example 1. If you are unable to describe this class in the format below, please attach a separate piece of paper with your description.

	Week 1	Week 2
Monday	_____	_____
Tuesday	_____	_____
Wednesday	_____	_____
Thursday	_____	_____
Friday	_____	_____

Examples

Example 1		Example 2	
Week 1	Week 2	Week 1	Week 2
45		90	
45			90
45		90	
45			90
45		90	

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19b. What is the calendar duration of this science class? (Darken one oval.)

- ○ Year
- ○ Semester
- ○ Quarter

PLEASE DO NOT WRITE IN THIS AREA

[SERIAL]

20. Are students assigned to this class by level of ability? (Darken one oval.) ◯ Yes ◯ No

21. Which of the following best describes the ability of the students in this class relative to other students in this school? (Darken one oval.)

- ◯ Fairly homogeneous and low in ability
- ◯ Fairly homogeneous and average in ability
- ◯ Fairly homogeneous and high in ability
- ◯ Heterogeneous, with a mixture of two or more ability levels

22. Indicate if any of the students in this science class are **formally** classified as each of the following: (Darken all that apply.)

- ◯ Limited English Proficiency
- ◯ Learning Disabled
- ◯ Mentally Handicapped
- ◯ Physically Handicapped, please specify handicap(s): _____

23. Think about your plans for this science class for the entire course. How much emphasis will each of the following **student objectives** receive? (Darken one oval on each line.)

		None	Minimal Emphasis	Moderate Emphasis	Heavy Emphasis
a.	Increase students' interest in science	◯	◯	◯	◯
b.	Learn basic science concepts	◯	◯	◯	◯
c.	Learn important terms and facts of science	◯	◯	◯	◯
d.	Learn science process/inquiry skills	◯	◯	◯	◯
e.	Prepare for further study in science	◯	◯	◯	◯
f.	Learn to evaluate arguments based on scientific evidence	◯	◯	◯	◯
g.	Learn how to communicate ideas in science effectively	◯	◯	◯	◯
h.	Learn about the applications of science in business and industry	◯	◯	◯	◯
i.	Learn about the relationship between science, technology, and society	◯	◯	◯	◯
j.	Learn about the history and nature of science	◯	◯	◯	◯
k.	Prepare for standardized tests	◯	◯	◯	◯

24. About how often do **you** do each of the following in your science instruction? (Darken one oval on each line.)

		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
a.	Introduce content through formal presentations	◯	◯	◯	◯	◯
b.	Pose open-ended questions	◯	◯	◯	◯	◯
c.	Engage the whole class in discussions	◯	◯	◯	◯	◯
d.	Require students to supply evidence to support their claims	◯	◯	◯	◯	◯
e.	Ask students to explain concepts to one another	◯	◯	◯	◯	◯
f.	Ask students to consider alternative explanations	◯	◯	◯	◯	◯
g.	Allow students to work at their own pace	◯	◯	◯	◯	◯
h.	Help students see connections between science and other disciplines	◯	◯	◯	◯	◯
i.	Assign science homework	◯	◯	◯	◯	◯
j.	Read and comment on the reflections students have written, e.g., in their journals	◯	◯	◯	◯	◯

25. About how often do students in this science class take part in the following types of activities? (Darken one oval on each line.)

		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
a.	Listen and take notes during presentation by teacher	①	②	③	④	⑤
b.	Watch a science demonstration	①	②	③	④	⑤
c.	Work in groups	①	②	③	④	⑤
d.	Read from a science textbook in class	①	②	③	④	⑤
e.	Read other (non-textbook) science-related materials in class	①	②	③	④	⑤
f.	Do hands-on/laboratory science activities or investigations	①	②	③	④	⑤
g.	Follow specific instructions in an activity or investigation	①	②	③	④	⑤
h.	Design or implement their *own* investigation	①	②	③	④	⑤
i.	Participate in field work	①	②	③	④	⑤
j.	Answer textbook or worksheet questions	①	②	③	④	⑤
k.	Record, represent, and/or analyze data	①	②	③	④	⑤
l.	Write reflections (e.g., in a journal)	①	②	③	④	⑤
m.	Prepare written science reports	①	②	③	④	⑤
n.	Make formal presentations to the rest of the class	①	②	③	④	⑤
o.	Work on extended science investigations or projects (a week or more in duration)	①	②	③	④	⑤
p.	Use computers as a tool (e.g., spreadsheets, data analysis)	①	②	③	④	⑤
q.	Use mathematics as a tool in problem-solving	①	②	③	④	⑤
r.	Take field trips	①	②	③	④	⑤
s.	Watch audiovisual presentations (e.g., videotapes, CD-ROMs, videodiscs, television programs, films, or filmstrips)	①	②	③	④	⑤

26. About how often do students in this science class use **computers** to: (Darken one oval on each line.)

		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
a.	Do drill and practice	①	②	③	④	⑤
b.	Demonstrate scientific principles	①	②	③	④	⑤
c.	Play science learning games	①	②	③	④	⑤
d.	Do laboratory simulations	①	②	③	④	⑤
e.	Collect data using sensors or probes	①	②	③	④	⑤
f.	Retrieve or exchange data	①	②	③	④	⑤
g.	Solve problems using simulations	①	②	③	④	⑤
h.	Take a test or quiz	①	②	③	④	⑤

27. How often do you assess student progress in science in each of the following ways? (Darken one oval on each line.)

		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
a.	Conduct a pre-assessment to determine what students already know.	①	②	③	④	⑤
b.	Observe students and ask questions as they work individually.	①	②	③	④	⑤
c.	Observe students and ask questions as they work in small groups.	①	②	③	④	⑤
d.	Ask students questions during large group discussions.	①	②	③	④	⑤
e.	Use assessments embedded in class activities to see if students are "getting it"	①	②	③	④	⑤
f.	Review student homework.	①	②	③	④	⑤
g	Review student notebooks/journals.	①	②	③	④	⑤
h.	Review student portfolios.	①	②	③	④	⑤

Question 27 continues on next page...

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27. continued...

		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
i.	Have students do long-term science projects.	①	②	③	④	⑤
j.	Have students present their work to the class.	①	②	③	④	⑤
k.	Give predominantly short-answer tests (e.g., multiple choice, true/false, fill in the blank).	①	②	③	④	⑤
l.	Give tests requiring open-ended responses (e.g., descriptions, explanations).	①	②	③	④	⑤
m.	Grade student work on open-ended and/or laboratory tasks using defined criteria (e.g., a scoring rubric).	①	②	③	④	⑤
n.	Have students assess each other (peer evaluation).	①	②	③	④	⑤

28. For the following equipment, please indicate the extent to which each is available, whether or not each is needed, and the extent to which each is integrated in this science class.

		Not at all Available		Readily Available	Needed?		Never use in this course	Use in specific parts of this course	Fully integrated into this cours
a.	Overhead projector	①	②	③	①	②	①	②	③
b.	Videotape player	①	②	③	①	②	①	②	③
c.	Videodisc player	①	②	③	①	②	①	②	③
d.	CD-ROM player	①	②	③	①	②	①	②	③
e.	Four-function calculators	①	②	③	①	②	①	②	③
f.	Fraction calculators	①	②	③	①	②	①	②	③
g.	Graphing calculators	①	②	③	①	②	①	②	③
h.	Scientific calculators	①	②	③	①	②	①	②	③
i.	Computers	①	②	③	①	②	①	②	③
j.	Computers with Internet connection	①	②	③	①	②	①	②	③
k.	Calculator/computer lab interfacing devices	①	②	③	①	②	①	②	③
l.	Running water in labs/classrooms	①	②	③	①	②	①	②	③
m.	Electric outlets in labs/classrooms	①	②	③	①	②	①	②	③
n.	Gas for burners in labs/classrooms	①	②	③	①	②	①	②	③
o.	Hoods or air hoses in labs/classrooms	①	②	③	①	②	①	②	③

29. How much of your own money do you estimate you will spend for supplies for this science class this school year (or semester or quarter if not a full-year course)? (Please enter your answer as a 3-digit number rounded to the nearest dollar, i.e., enter $25.19 as 025. Enter your answer in the spaces to the right, then darken the corresponding oval in each column.)

$ ⓪⓪⓪ ①①① ②②② ③③③ ④④④ ⑤⑤⑤ ⑥⑥⑥ ⑦⑦⑦ ⑧⑧⑧ ⑨⑨⑨

If none, darken this oval: ⓪

30. How much of your own money do you estimate you will spend for your own professional development activities during the period Sept. 1, 1999 - Aug. 31, 2000? (Please enter your answer as a 3-digit number rounded to the nearest dollar, i.e., enter $25.19 as 025. Enter your answer in the spaces to the right, then darken the corresponding oval in each column.)

$ ⓪⓪⓪ ①①① ②②② ③③③ ④④④ ⑤⑤⑤ ⑥⑥⑥ ⑦⑦⑦ ⑧⑧⑧ ⑨⑨⑨

If none, darken this oval: ⓪

31. How much control do you have over each of the following for this science class? (Darken one oval on each line.)

		No Control				Strong Control
a.	Determining course goals and objectives	1	2	3	4	5
b.	Selecting textbooks/instructional programs	1	2	3	4	5
c.	Selecting other instructional materials	1	2	3	4	5
d.	Selecting content, topics, and skills to be taught	1	2	3	4	5
e.	Selecting the sequence in which topics are covered	1	2	3	4	5
f.	Setting the pace for covering topics	1	2	3	4	5
g.	Selecting teaching techniques	1	2	3	4	5
h.	Determining the amount of homework to be assigned	1	2	3	4	5
i.	Choosing criteria for grading students	1	2	3	4	5
j.	Choosing tests for classroom assessment	1	2	3	4	5

32. How much science homework do you assign to this science class in a typical **week**? (Darken one oval.)

1 0-30 min 2 31-60 min 3 61-90 min 4 91-120 min 5 2-3 hours 6 More than 3 hours

33a. Are you using one or more commercially published textbooks or programs for teaching science to this class? (Darken one oval.)

1 No, SKIP TO SECTION D, PAGE 14
2 Yes, CONTINUE WITH 33b

33b. Which best describes your use of textbooks/programs in this class? (Darken one oval.)

1 Use one textbook or program all or most of the time
2 Use multiple textbooks/programs

34. Indicate the publisher of the **one** textbook/program used **most often** by students in this class. (Darken one oval.)

01 Addison Wesley Longman, Inc/Scott Foresman
02 Benjamin/Cummings Publishing Company, Inc.
03 Brooks/Cole Publishing Co
04 Carolina Biological Supply Co
05 Delta Education
06 Encyclopaedia Britannica
07 Globe Fearon, Inc / Cambridge
08 Harcourt Brace/Harcourt, Brace & Jovanovich
09 Holt, Rinehart and Winston, Inc
10 Houghton Mifflin Company/McDougal Littell/D.C. Heath
11 It's About Time
12 J.M. LeBel Enterprises
13 Kendall Hunt Publishing
14 Lawrence Hall of Science
15 McGraw-Hill/Merrill Co (including CTB/McGraw-Hill, Charles Merrill Publishing, Glencoe/McGraw-Hill, Macmillan/McGraw-Hill, McGraw-Hill School Division, Merrill/Glencoe, SRA/McGraw-Hill)
16 Modern Curriculum Press
17 Mosby/The C.V. Mosby Company
18 Nystrom
19 Optical Data Corporation
20 Prentice Hall, Inc.
21 Saxon Publishers
22 Scholastic, Inc.
23 Silver Burdett Ginn
24 South-Western Educational Publishing
25 Steck-Vaughn Company
26 Videodiscovery, Inc
27 W.H. Freeman
28 Wadsworth Publishing

99 Other, please specify: _____

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35a. Please indicate the title, author, and publication year of the **one** textbook/program used **most often** by students in this class.

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Title: _____

First Author: _____

Publication Year: _____ Edition: _____

35b. Approximately what percentage of this textbook/program will you "cover" in this course? (Darken one oval.)

○ < 25% ○ 25-49% ○ 50-74% ○ 75-90% ○ >90%

35c. How would you rate the overall quality of this textbook/program? (Darken one oval.)

○ Very Poor ○ Poor ○ Fair ○ Good ○ Very Good ○ Excellent

D. Your Most Recent Science Lesson in This Class

Questions 36-38 refer to the last time you taught science to this class. Do not be concerned if this lesson was not typical of instruction in this class. (Please enter your answers as 3-digit numbers, i.e., if 30 minutes, enter as 030. Enter your answers in the spaces provided, then darken the corresponding oval in each column.)

36a. How many minutes were allocated to the most recent science lesson? (Note: Teachers in departmentalized and other non-self-contained settings should answer for the entire length of the class period, even if there were interruptions.)

36b. Of these, how many minutes were spent on the following: (The sum of the numbers in 1.-6. below should equal your response in 36a.)

1. Daily routines, interruptions, and other non-instructional activities

2. Whole class lecture/discussions

3. Individual students reading textbooks, completing worksheets, etc.

4. Working with hands-on, manipulative, or laboratory materials

5. Non-laboratory small group work

6. Other

37. Which of the following activities took place during that science lesson? (Darken all that apply.)

- Lecture
- Discussion
- Students completing textbook/worksheet problems
- Students doing hands-on/laboratory activities
- Students reading about science
- Students working in small groups
- Students using calculators
- Students using computers
- Students using other technologies
- Test or quiz
- None of the above

38. Did that lesson take place on the most recent day you met with that class? Yes No

E. Demographic Information

39. Indicate your sex:

- Male
- Female

40. Are you: (Darken all that apply)

- American Indian or Alaskan Native
- Asian
- Black or African-American
- Hispanic or Latino
- Native Hawaiian or Other Pacific Islander
- White

41. In what year were you born? (Enter the last two digits of the year you were born; e.g., if you were born in 1959, enter 59. Please enter your answer in the spaces to the right, then darken the corresponding oval in each column.)

42. How many years have you taught at the K-12 level prior to this school year? (Please enter your answer in the spaces to the right, then darken the corresponding oval in each column.)

43. If you have an email address, please write it here: _____

44. When did you complete this questionnaire? Date: _____ / _____ / _____
Month Day Year

FOR OFFICE USE ONLY
Please do not write in this area.

Please make a photocopy of this questionnaire and keep it in case the original is lost in the mail. Please return the original to:

2000 National Survey of Science and Mathematics Education
Westat
1650 Research Blvd.
TB120F
Rockville, MD 20850

THANK YOU!

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Table STQ 1.1
Grade K–4 Science Teachers' Opinions on Curriculum and Instruction Issues

	Percent of Teachers									
	Strongly Disagree		Disagree		No Opinion		Agree		Strongly Agree	
Students learn science best in classes with students of similar abilities	8	(1.3)	60	(2.6)	8	(1.2)	22	(1.9)	3	(1.0)
The testing program in my state/district dictates what science content I teach	6	(1.1)	21	(2.1)	16	(1.7)	43	(2.5)	14	(1.9)
I enjoy teaching science	1	(0.8)	6	(1.2)	5	(1.3)	57	(2.3)	32	(2.1)
I consider myself a "master" science teacher	9	(1.4)	48	(2.2)	23	(2.5)	18	(1.9)	3	(0.8)
I have time during the regular school week to work with my colleagues on science curriculum and teaching	32	(2.3)	41	(2.6)	6	(1.3)	20	(2.0)	2	(0.7)
My colleagues and I regularly share ideas and materials related to science teaching	9	(1.3)	30	(2.4)	7	(1.6)	48	(2.7)	6	(1.1)
Science teachers in this school regularly observe each other teaching classes as part of sharing and improving instructional strategies	41	(2.4)	47	(2.3)	8	(1.4)	3	(0.8)	1	(0.4)
Most science teachers in this school contribute actively to making decisions about the science curriculum	15	(2.2)	35	(2.4)	19	(1.8)	27	(2.5)	4	(0.8)

Table STQ 1.2
Grade 5–8 Science Teachers' Opinions on Curriculum and Instruction Issues

	Percent of Teachers									
	Strongly Disagree		Disagree		No Opinion		Agree		Strongly Agree	
Students learn science best in classes with students of similar abilities	7	(1.9)	46	(3.4)	8	(1.8)	33	(3.6)	5	(0.8)
The testing program in my state/district dictates what science content I teach	8	(1.7)	21	(2.4)	14	(2.9)	41	(3.4)	15	(2.3)
I enjoy teaching science	1	(0.8)	4	(1.4)	6	(2.1)	42	(3.8)	47	(3.9)
I consider myself a "master" science teacher	4	(1.6)	28	(3.0)	29	(3.1)	28	(3.2)	12	(2.0)
I have time during the regular school week to work with my colleagues on science curriculum and teaching	30	(3.1)	40	(3.4)	5	(1.7)	23	(2.6)	2	(0.6)
My colleagues and I regularly share ideas and materials related to science teaching	10	(2.5)	26	(3.6)	5	(1.6)	51	(4.0)	8	(1.8)
Science teachers in this school regularly observe each other teaching classes as part of sharing and improving instructional strategies	42	(3.4)	46	(3.5)	7	(1.8)	4	(1.1)	1	(0.5)
Most science teachers in this school contribute actively to making decisions about the science curriculum	15	(2.6)	27	(3.1)	10	(2.2)	42	(3.6)	6	(1.4)

Table STQ 1.3
Grade 9–12 Science Teachers' Opinions on Curriculum and Instruction Issues

	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	(2.2)	3	(0.6)	51	(2.1)	21	(1.8)
The testing program in my state/district dictates what science content I teach	10	(1.6)	21	(1.5)	11	(2.0)	40	(2.2)	17	(1.4)
I enjoy teaching science	0	(0.1)	0	(0.1)	2	(0.7)	19	(1.6)	79	(1.6)
I consider myself a "master" science teacher	0	(0.1)	12	(1.2)	24	(2.5)	37	(1.9)	27	(1.7)
I have time during the regular school week to work with my colleagues on science curriculum and teaching	24	(1.8)	45	(2.3)	4	(0.7)	25	(2.1)	3	(1.0)
My colleagues and I regularly share ideas and materials related to science teaching	6	(1.2)	24	(2.3)	4	(0.6)	55	(2.2)	11	(1.2)
Science teachers in this school regularly observe each other teaching classes as part of sharing and improving instructional strategies	40	(2.3)	43	(2.3)	6	(1.0)	9	(1.1)	2	(0.4)
Most science teachers in this school contribute actively to making decisions about the science curriculum	9	(1.0)	21	(1.7)	14	(2.3)	45	(2.3)	11	(1.4)

Table STQ 2
Science Teachers' Familiarity with, Agreement with, and Implementation of NRC *Standards*

	Percent of Teachers					
	Grades K–4		Grades 5–8		Grades 9–12	
How familiar are you with the *National Science Education Standards*, published by the National Research Council?						
Not at all familiar	67	(2.2)	42	(3.7)	37	(2.0)
Somewhat familiar	22	(1.8)	31	(3.0)	34	(2.2)
Fairly familiar	9	(1.3)	19	(2.4)	18	(1.4)
Very familiar	2	(0.5)	8	(1.6)	10	(1.1)
Please indicate the extent of your agreement with the overall vision of science education described in the *National Science Education Standards.*						
Strongly disagree	0	(0.4)	0	—*	0	(0.2)
Disagree	4	(2.0)	5	(2.3)	7	(1.6)
No Opinion	26	(3.7)	27	(4.1)	22	(2.3)
Agree	61	(4.1)	62	(4.4)	65	(2.9)
Strongly Agree	8	(2.4)	6	(2.0)	5	(0.9)
To what extent have you implemented recommendations from the *National Education Standards* in your science teaching?						
Not at all	5	(1.9)	4	(2.1)	4	(1.1)
To a minimal extent	26	(3.9)	22	(5.1)	28	(2.3)
To a moderate extent	57	(4.1)	51	(5.3)	56	(2.5)
To a great extent	12	(2.5)	23	(4.5)	12	(1.6)

* No teachers in the sample selected this response option. Thus, it is impossible to calculate the standard error of this estimate.

Table STQ 3.1
Grade K–4 Science Teachers' Perceptions of Their Preparation for Each of a Number of Tasks

	Percent of Teachers							
	Not Adequately Prepared		Somewhat Prepared		Fairly Well Prepared		Very Well Prepared	
Take students' prior understanding into account when planning curriculum and instruction	3	(0.9)	26	(2.3)	51	(2.6)	20	(2.0)
Develop students' conceptual understanding of science	2	(0.7)	24	(2.3)	57	(2.8)	16	(1.9)
Provide deeper coverage of fewer science concepts	7	(1.4)	33	(2.0)	45	(2.7)	15	(2.1)
Make connections between science and other disciplines	2	(0.7)	21	(1.9)	51	(2.4)	26	(2.3)
Lead a class of students using investigative strategies	8	(1.4)	30	(2.2)	46	(2.5)	16	(1.6)
Manage a class of students engaged in hands-on/project-based work	2	(0.6)	19	(2.2)	49	(2.6)	30	(2.3)
Have students work in cooperative learning groups	2	(0.6)	16	(2.0)	45	(2.3)	38	(2.2)
Listen/ask questions as students work in order to gauge their understanding	1	(0.6)	11	(1.6)	50	(2.8)	38	(2.6)
Use the textbook as a resource rather than the primary instructional tool	6	(1.3)	17	(1.9)	42	(2.8)	34	(2.4)
Teach groups that are heterogeneous in ability	2	(0.7)	11	(1.8)	48	(2.4)	39	(2.3)
Teach students that have limited English proficiency	43	(2.7)	27	(2.4)	19	(1.9)	11	(1.7)
Recognize and respond to student cultural diversity	4	(1.0)	31	(2.2)	40	(2.3)	25	(2.2)
Encourage students' interest in science	1	(0.5)	10	(1.5)	50	(2.5)	39	(2.5)
Encourage participation of females in science	1	(0.5)	7	(1.2)	42	(2.3)	50	(2.3)
Encourage participation of minorities in science	2	(0.7)	11	(1.6)	41	(2.5)	46	(2.4)
Involve parents in the science education of their children	16	(1.6)	37	(2.4)	37	(2.3)	11	(1.5)
Use calculators/computers for drill and practice	21	(2.4)	34	(2.4)	28	(2.3)	17	(2.1)
Use calculators/computers for science learning games	30	(2.2)	34	(2.2)	24	(2.3)	12	(1.7)
Use calculators/computers to collect and/or analyze data	39	(2.6)	32	(2.2)	21	(1.9)	8	(1.3)
Use computers to demonstrate scientific principles	53	(2.9)	28	(2.4)	14	(1.8)	4	(0.9)
Use computers for laboratory simulations	64	(2.7)	23	(2.5)	10	(1.4)	3	(0.8)
Use the Internet in your science teaching for general reference	33	(2.8)	29	(2.2)	27	(2.2)	11	(1.7)
Use the Internet in your science teaching for data acquisition	43	(2.8)	27	(2.3)	21	(2.1)	8	(1.3)
Use the Internet in your science teaching for collaborative projects with classes/individuals in other schools	67	(2.3)	18	(2.1)	11	(1.6)	4	(0.7)

Table STQ 3.2
Grade 5–8 Science Teachers' Perceptions of Their Preparation for Each of a Number of Tasks

	Percent of Teachers							
	Not Adequately Prepared		Somewhat Prepared		Fairly Well Prepared		Very Well Prepared	
Take students' prior understanding into account when planning curriculum and instruction	4	(1.8)	20	(2.9)	51	(3.5)	25	(2.7)
Develop students' conceptual understanding of science	4	(1.9)	13	(2.4)	60	(3.3)	24	(2.8)
Provide deeper coverage of fewer science concepts	5	(2.1)	18	(2.7)	50	(3.6)	27	(3.1)
Make connections between science and other disciplines	3	(1.5)	19	(3.1)	43	(4.0)	35	(3.5)
Lead a class of students using investigative strategies	3	(1.5)	20	(2.7)	49	(3.4)	27	(3.2)
Manage a class of students engaged in hands-on/project-based work	1	(0.8)	12	(2.6)	40	(4.2)	47	(3.6)
Have students work in cooperative learning groups	0	(0.2)	7	(1.5)	39	(3.6)	53	(3.4)
Listen/ask questions as students work in order to gauge their understanding	0	(0.0)	8	(1.8)	43	(3.5)	49	(3.5)
Use the textbook as a resource rather than the primary instructional tool	6	(2.1)	13	(2.5)	42	(3.6)	39	(3.5)
Teach groups that are heterogeneous in ability	1	(0.4)	14	(2.7)	38	(3.3)	47	(3.5)
Teach students that have limited English proficiency	48	(3.3)	25	(2.9)	21	(2.7)	6	(1.6)
Recognize and respond to student cultural diversity	6	(2.1)	26	(3.1)	50	(3.6)	18	(2.5)
Encourage students' interest in science	1	(0.7)	7	(2.3)	41	(3.5)	51	(3.8)
Encourage participation of females in science	2	(1.4)	5	(1.5)	37	(3.3)	56	(3.7)
Encourage participation of minorities in science	4	(1.8)	9	(1.9)	37	(3.2)	51	(3.7)
Involve parents in the science education of their children	14	(2.6)	35	(3.2)	39	(4.0)	12	(2.4)
Use calculators/computers for drill and practice	12	(2.5)	33	(3.7)	37	(4.1)	19	(3.0)
Use calculators/computers for science learning games	21	(3.1)	3.	(3.4)	32	(3.5)	16	(3.1)
Use calculators/computers to collect and/or analyze data	20	(3.2)	29	(3.4)	33	(3.7)	18	(3.1)
Use computers to demonstrate scientific principles	34	(3.3)	31	(3.2)	26	(2.6)	9	(1.7)
Use computers for laboratory simulations	48	(3.5)	28	(3.4)	17	(2.6)	7	(1.4)
Use the Internet in your science teaching for general reference	22	(3.7)	24	(3.3)	36	(3.6)	18	(2.2)
Use the Internet in your science teaching for data acquisition	28	(3.6)	26	(2.9)	32	(3.5)	14	(1.9)
Use the Internet in your science teaching for collaborative projects with classes/individuals in other schools	45	(4.1)	26	(3.3)	24	(3.1)	5	(1.0)

Table STQ 3.3
Grade 9–12 Science Teachers' Perceptions of Their Preparation for Each of a Number of Tasks

	Percent of Teachers							
	Not Adequately Prepared		Somewhat Prepared		Fairly Well Prepared		Very Well Prepared	
Take students' prior understanding into account when planning curriculum and instruction	3	(0.6)	20	(1.4)	47	(2.2)	30	(1.9)
Develop students' conceptual understanding of science	1	(0.2)	7	(1.0)	47	(2.0)	45	(2.1)
Provide deeper coverage of fewer science concepts	2	(0.5)	10	(1.1)	42	(2.3)	45	(2.3)
Make connections between science and other disciplines	1	(0.8)	9	(0.9)	45	(2.3)	44	(2.3)
Lead a class of students using investigative strategies	3	(0.9)	15	(1.6)	45	(2.0)	37	(2.0)
Manage a class of students engaged in hands-on/project-based work	1	(0.2)	8	(1.2)	38	(2.3)	53	(2.5)
Have students work in cooperative learning groups	1	(0.3)	13	(1.5)	39	(2.3)	47	(2.2)
Listen/ask questions as students work in order to gauge their understanding	0	(0.2)	4	(0.8)	40	(2.2)	56	(2.3)
Use the textbook as a resource rather than the primary instructional tool	2	(0.4)	13	(1.5)	33	(2.1)	52	(2.3)
Teach groups that are heterogeneous in ability	4	(1.1)	16	(1.5)	48	(2.3)	32	(2.3)
Teach students that have limited English proficiency	47	(2.1)	32	(2.1)	14	(1.8)	7	(0.9)
Recognize and respond to student cultural diversity	6	(0.9)	32	(2.0)	42	(2.2)	19	(1.9)
Encourage students' interest in science	0	(0.1)	5	(1.1)	41	(2.0)	54	(2.1)
Encourage participation of females in science	1	(0.2)	4	(0.7)	32	(1.7)	64	(1.9)
Encourage participation of minorities in science	2	(0.8)	8	(1.1)	37	(2.0)	52	(2.2)
Involve parents in the science education of their children	14	(1.3)	42	(2.4)	32	(2.2)	12	(1.3)
Use calculators/computers for drill and practice	9	(1.3)	23	(1.5)	37	(1.7)	31	(2.2)
Use calculators/computers for science learning games	20	(1.6)	32	(1.8)	34	(2.2)	14	(1.2)
Use calculators/computers to collect and/or analyze data	11	(1.2)	23	(1.7)	38	(1.9)	28	(1.9)
Use computers to demonstrate scientific principles	18	(1.7)	30	(2.1)	31	(2.2)	21	(1.9)
Use computers for laboratory simulations	24	(1.8)	31	(1.8)	24	(1.6)	21	(2.3)
Use the Internet in your science teaching for general reference	14	(1.5)	21	(1.7)	31	(1.9)	33	(2.1)
Use the Internet in your science teaching for data acquisition	17	(1.6)	26	(1.7)	31	(2.0)	26	(1.9)
Use the Internet in your science teaching for collaborative projects with classes/individuals in other schools	42	(2.3)	29	(2.2)	20	(1.9)	10	(1.1)

Table STQ 4a
Degrees of Science Teachers

	Percent of Teachers					
	Grades K–4		Grades 5–8		Grades 9–12	
Bachelors	99	(0.6)	100	(0.0)	100	(0.0)
Masters	41	(2.7)	50	(3.0)	57	(2.3)
Doctorate	0	(0.2)	0	(0.2)	4	(0.6)

Table STQ 4b
Subjects of Science Teachers' Degrees

	Percent of Teachers					
	Grades K–4		Grades 5–8		Grades 9–12	
Biology/Life Science						
Bachelors	7	(1.5)	16	(2.2)	57	(2.1)
Masters	0	(0.2)	2	(0.9)	13	(1.3)
Doctorate	0	—*	0	—*	1	(0.3)
Chemistry						
Bachelors	2	(0.8)	5	(1.7)	26	(1.7)
Masters	0	—*	1	(0.9)	5	(0.7)
Doctorate	0	—*	0	—*	1	(0.1)
Earth/Space Science						
Bachelors	5	(1.0)	7	(1.9)	13	(1.5)
Masters	0	(0.2)	1	(0.8)	2	(0.6)
Doctorate	0	—*	0	—*	0	(0.2)
Physics						
Bachelors	2	(0.7)	4	(1.7)	12	(1.2)
Masters	0	—*	2	(0.9)	3	(0.6)
Doctorate	0	—*	0	—*	0	(0.2)
Other Science						
Bachelors	1	(0.5)	5	(1.5)	14	(1.8)
Masters	0	(0.1)	1	(0.2)	4	(0.6)
Doctorate	0	(0.2)	0	(0.1)	1	(0.3)
Science Education						
Bachelors	6	(1.2)	14	(2.3)	24	(1.6)
Masters	1	(0.4)	6	(1.2)	23	(1.6)
Doctorate	0	—*	0	(0.2)	1	(0.2)
Mathematics/Mathematics Education						
Bachelors	6	(1.4)	7	(1.8)	9	(1.5)
Masters	2	(0.6)	2	(1.0)	1	(0.3)
Doctorate	0	—*	0	—*	0	—*
Elementary Education						
Bachelors	83	(2.0)	68	(3.4)	1	(0.2)
Masters	22	(1.9)	23	(2.9)	0	(0.1)
Doctorate	0	(0.1)	0	—*	0	—*
Other Education						
Bachelors	15	(1.9)	15	(2.3)	6	(0.8)
Masters	15	(1.8)	20	(2.6)	14	(1.5)
Doctorate	0	—*	0	(0.1)	0	(0.1)
Other Subject						
Bachelors	15	(2.1)	13	(2.5)	6	(0.9)
Masters	4	(1.1)	3	(0.8)	5	(0.9)
Doctorate	0	—*	0	(0.0)	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 5
College Courses Completed by Science Teachers

	Percent of Teachers					
	Grades K–4		Grades 5–8		Grades 9–12	
Education						
General methods of teaching	97	(1.1)	98	(1.6)	90	(2.0)
Methods of teaching science	79	(2.1)	78	(2.9)	76	(2.6)
Instructional uses of computers/other technologies	46	(3.1)	49	(3.8)	48	(2.3)
Supervised student teaching in science	31	(2.5)	41	(3.9)	69	(2.4)
Mathematics						
College algebra/trigonometry/elementary functions	72	(2.3)	66	(3.5)	83	(1.4)
Calculus	13	(1.8)	19	(2.3)	65	(1.9)
Advanced calculus	2	(0.7)	3	(0.6)	23	(1.7)
Differential equations	3	(0.8)	4	(0.8)	24	(2.4)
Discrete mathematics	2	(0.6)	3	(0.7)	10	(1.7)
Probability and statistics	37	(2.7)	42	(3.8)	47	(2.1)
Chemistry						
General/introductory chemistry	49	(2.3)	64	(3.8)	95	(0.9)
Analytical chemistry	1	(0.5)	5	(0.9)	43	(2.0)
Organic chemistry	4	(0.9)	13	(1.6)	73	(1.8)
Physical chemistry	6	(1.1)	7	(1.3)	31	(1.9)
Quantum chemistry	0	(0.3)	0	(0.2)	7	(0.7)
Biochemistry	1	(0.4)	8	(1.4)	39	(2.0)
Other chemistry	2	(0.6)	7	(1.5)	25	(1.6)
Earth/Space Sciences						
Introductory earth science	57	(2.4)	59	(2.8)	36	(2.2)
Astronomy	16	(2.0)	24	(3.1)	34	(1.8)
Geology	32	(2.6)	32	(2.8)	45	(2.3)
Meteorology	5	(1.0)	8	(1.3)	20	(1.7)
Oceanography	4	(1.0)	9	(1.7)	18	(1.5)
Physical geography	31	(2.1)	28	(3.2)	18	(1.6)
Environmental science	18	(2.1)	30	(3.1)	41	(2.2)
Agricultural science	3	(0.9)	3	(0.7)	7	(0.9)
Life Sciences						
Introductory biology/life science	81	(2.0)	88	(1.9)	85	(1.6)
Botany, plant physiology	15	(2.1)	25	(2.6)	62	(2.3)
Cell biology	3	(0.7)	15	(2.0)	52	(2.3)
Ecology	6	(1.0)	20	(2.4)	53	(2.3)
Entomology	1	(0.3)	6	(1.5)	19	(1.5)
Genetics, evolution	5	(1.1)	12	(1.4)	61	(2.2)
Microbiology	4	(1.1)	15	(2.0)	51	(2.2)
Anatomy/Physiology	11	(1.4)	22	(2.6)	60	(2.1)
Zoology, animal behavior	10	(1.9)	20	(2.2)	56	(2.3)
Other life science	10	(1.5)	21	(2.9)	53	(2.1)
Physics						
Physical science	41	(2.4)	47	(3.2)	45	(2.4)
General/introductory physics	23	(2.2)	32	(3.3)	82	(1.6)
Electricity and magnetism	2	(0.6)	6	(1.1)	29	(2.4)
Heat and thermodynamics	0	(0.3)	5	(1.1)	23	(2.1)
Mechanics	0	(0.3)	2	(0.5)	26	(2.4)
Modern or quantum physics	0	—*	1	(0.2)	14	(1.3)
Nuclear physics	0	(0.2)	1	(0.4)	11	(1.1)
Optics	0	(0.3)	1	(0.4)	15	(2.0)
Solid state physics	0	(0.2)	2	(0.9)	6	(0.9)
Other physics	2	(0.8)	3	(0.8)	17	(1.4)
Other						
History of science	4	(0.8)	6	(1.5)	17	(1.6)
Philosophy of science	2	(0.7)	4	(1.0)	14	(1.3)
Science and society	3	(0.8)	7	(1.7)	15	(1.3)
Electronics	0	(0.3)	1	(0.4)	7	(1.0)
Engineering	0	(0.3)	1	(0.3)	9	(1.1)
Integrated science	4	(0.9)	7	(1.5)	5	(0.8)
Computer programming	9	(1.2)	15	(3.0)	28	(2.2)
Other computer science	12	(1.6)	19	(3.2)	21	(1.6)

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

Table STQ 6.1
Number of College Semester† Courses
Completed by Grade K–4 Science Teachers

	Percent of Teachers											
	Life sciences		Chemistry		Physics/physical science		Earth/space science		Science education		Mathematics	
0	9	(1.5)	49	(2.3)	39	(2.4)	17	(1.6)	23	(2.6)	7	(1.2)
1	36	(2.3)	31	(2.1)	34	(2.4)	29	(2.0)	34	(2.2)	18	(1.9)
2	26	(2.2)	11	(1.3)	16	(1.8)	24	(2.1)	20	(2.1)	26	(2.2)
3	11	(1.5)	4	(0.9)	6	(1.3)	16	(1.7)	10	(1.3)	18	(1.6)
4	6	(1.3)	3	(0.8)	3	(1.0)	6	(1.0)	5	(1.0)	11	(1.4)
5	3	(0.9)	0	(0.3)	0	(0.3)	3	(0.9)	2	(0.6)	6	(1.4)
6	4	(1.1)	1	(0.4)	1	(0.5)	3	(0.9)	4	(0.8)	9	(1.6)
7	1	(0.3)	0	(0.3)	0	(0.3)	1	(0.4)	1	(0.3)	0	(0.3)
8	2	(0.6)	0	—*	0	—*	1	(0.3)	0	(0.1)	0	(0.2)
>8	2	(0.7)	0	(0.1)	0	(0.1)	0	(0.2)	2	(0.7)	5	(0.9)

* No teachers in the sample selected this response option. Thus, it is not possible to calculate the standard error of this estimate.
† Questionnaire responses for Quarter Courses have been translated into Semester Courses.

Table STQ 6.2
Number of College Semester† Courses
Completed by Grade 5–8 Science Teachers

	Percent of Teachers											
	Life sciences		Chemistry		Physics/physical science		Earth/space science		Science education		Mathematics	
0	4	(1.1)	33	(3.7)	31	(2.7)	16	(2.4)	21	(2.7)	7	(1.8)
1	28	(3.4)	32	(3.5)	28	(3.0)	24	(3.5)	33	(3.4)	16	(2.6)
2	25	(3.4)	15	(2.2)	25	(3.4)	24	(3.1)	18	(3.1)	24	(3.2)
3	13	(2.2)	7	(1.4)	6	(1.2)	16	(2.5)	11	(2.1)	18	(2.7)
4	7	(1.5)	5	(1.0)	2	(0.5)	9	(2.2)	8	(1.8)	14	(2.4)
5	3	(1.1)	3	(0.8)	3	(1.2)	2	(0.7)	1	(0.2)	5	(1.5)
6	5	(1.6)	2	(0.6)	1	(0.2)	3	(0.6)	4	(1.1)	6	(1.6)
7	2	(0.8)	0	(0.3)	1	(0.4)	2	(0.9)	1	(0.6)	2	(0.9)
8	2	(0.6)	1	(0.3)	1	(0.4)	1	(0.3)	1	(0.4)	2	(0.9)
>8	10	(1.5)	2	(0.5)	2	(0.5)	2	(0.5)	3	(0.7)	6	(1.5)

† Questionnaire responses for Quarter Courses have been translated into Semester Courses.

Table STQ 6.3
Number of College Semester† Courses Completed by Grade 9–12 Science Teachers

	Percent of Teachers											
	Life sciences		Chemistry		Physics/physical science		Earth/space science		Science education		Mathematics	
0	7	(1.0)	3	(0.5)	7	(0.9)	23	(2.6)	20	(2.3)	2	(0.5)
1	6	(1.6)	5	(1.2)	10	(1.2)	16	(1.4)	14	(1.4)	7	(0.9)
2	7	(1.3)	13	(1.3)	30	(2.1)	17	(1.4)	17	(1.6)	20	(1.4)
3	4	(0.6)	11	(1.1)	9	(1.1)	12	(1.2)	9	(1.0)	15	(1.3)
4	4	(0.7)	19	(2.0)	12	(1.5)	10	(1.3)	13	(1.5)	18	(2.0)
5	5	(0.8)	9	(1.0)	5	(0.7)	4	(0.7)	2	(0.4)	6	(0.9)
6	5	(0.9)	11	(1.1)	9	(1.8)	5	(0.9)	7	(1.0)	11	(1.8)
7	5	(0.8)	4	(1.4)	3	(0.8)	2	(0.7)	1	(0.5)	4	(1.0)
8	7	(1.0)	4	(0.6)	3	(0.5)	2	(0.3)	2	(0.5)	3	(0.6)
>8	50	(2.2)	21	(1.5)	13	(1.2)	9	(1.1)	14	(1.1)	14	(1.4)

† Questionnaire responses for Quarter Courses have been translated into Semester Courses.

Table STQ 7a
Percentage of Science Courses Completed by Science Teachers at a Two-Year College/Community College/Technical School

	Percent of Teachers					
	Grades K–4		Grades 5–8		Grades 9–12	
0%	75	(2.2)	74	(3.4)	76	(1.9)
10%	4	(1.1)	4	(1.5)	10	(1.0)
20%	3	(1.0)	4	(1.1)	5	(0.9)
30%	1	(0.5)	2	(0.8)	5	(0.8)
40%	2	(0.7)	2	(1.0)	3	(0.6)
50%	8	(1.3)	4	(1.1)	1	(0.2)
60%	1	(0.5)	1	(0.7)	0	(0.1)
70%	2	(0.6)	2	(1.5)	0	(0.1)
80%	1	(0.6)	2	(1.3)	0	(0.1)
90%	1	(0.7)	4	(2.2)	0	—*
100%	2	(0.9)	1	(0.8)	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.

Table STQ 7b
Percentage of Science Courses Completed by Science Teachers at a Four-Year College/University

	Percent of Teachers					
	Grades K–4		Grades 5–8		Grades 9–12	
0%	2	(0.9)	1	(0.8)	0	(0.1)
10%	1	(0.7)	4	(2.2)	0	—*
20%	2	(0.6)	2	(1.3)	0	(0.1)
30%	1	(0.6)	2	(1.5)	0	(0.1)
40%	1	(0.5)	1	(0.7)	0	(0.1)
50%	8	(1.3)	5	(1.1)	1	(0.2)
60%	2	(0.7)	2	(1.0)	3	(0.6)
70%	1	(0.5)	2	(0.8)	5	(0.8)
80%	3	(1.0)	4	(1.1)	6	(0.9)
90%	5	(1.1)	4	(1.5)	9	(1.0)
100%	74	(2.2)	74	(3.4)	76	(1.8)

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

Table STQ 8
Science Teachers' Most Recent College Coursework in Science or The Teaching of Science

	Percent of Teachers					
	Grades K–4		**Grades 5–8**		**Grades 9–12**	
Science						
1996–2000	19	(2.0)	31	(3.0)	42	(1.7)
1990–1995	23	(2.0)	23	(2.8)	28	(2.2)
Prior to 1990	58	(2.7)	46	(4.0)	30	(1.9)
The Teaching of Science						
1996–2000	22	(1.9)	28	(3.1)	34	(2.0)
1990–1995	22	(2.5)	19	(2.4)	21	(1.9)
Prior to 1990	39	(2.8)	33	(3.1)	26	(1.8)
Never	17	(1.8)	19	(2.4)	19	(1.9)

Table STQ 9
Time Spent by Science Teachers on In-Service Education in Science or The Teaching of Science

	Percent of Teachers					
	Grades K–4		**Grades 5–8**		**Grades 9–12**	
In Last 12 Months						
None	52	(2.5)	35	(3.7)	14	(1.2)
Less than 6 hours	26	(1.9)	26	(3.4)	19	(1.8)
6–15 hours	15	(2.0)	22	(2.6)	30	(2.3)
16–35 hours	4	(1.0)	13	(2.3)	17	(1.3)
More than 35 hours	3	(0.8)	4	(0.8)	20	(2.2)
In Last 3 Years						
None	24	(2.2)	15	(2.4)	8	(1.0)
Less than 6 hours	26	(2.1)	15	(2.4)	8	(1.5)
6–15 hours	26	(2.1)	27	(3.5)	16	(1.3)
16–35 hours	14	(1.7)	25	(3.7)	23	(1.7)
More than 35 hours	10	(1.5)	18	(2.5)	45	(2.0)

Table STQ 10
Science Teachers Participating in Various Professional Activities in Last Twelve Months

	Percent of Teachers					
	Grades K–4		Grades 5–8		Grades 9–12	
Taught any in-service workshops in science or science teaching	2	(0.6)	10	(2.2)	15	(1.3)
Mentored another teacher as part of a formal arrangement that is recognized or supported by the school or district, not including supervision of student teachers	15	(2.1)	19	(2.6)	24	(1.5)
Received any local, state, or national grants or awards for science teaching	2	(0.6)	6	(1.6)	16	(1.3)
Served on a school or district science curriculum committee	13	(1.5)	35	(3.1)	41	(2.1)
Served on a school or district science textbook selection committee	12	(1.5)	28	(2.9)	37	(2.1)

Table STQ 11
Science Teachers Participating in Various Professional Development Activities in Past Three Years

	Percent of Teachers					
	Grades K–4		Grades 5–8		Grades 9–12	
Taken a formal college/university science course	12	(1.7)	22	(2.7)	37	(1.9)
Taken a formal college/university course in the teaching of science	14	(2.0)	20	(2.7)	26	(1.8)
Observed other teachers teaching science as part of your own professional development	33	(2.3)	38	(3.7)	57	(2.2)
Met with a local group teachers on a regular basis to study/discuss science teaching issues	25	(2.6)	41	(3.7)	53	(2.3)
Collaborated on science teaching issues with a group of teachers at a distance using telecommunications	4	(0.8)	10	(2.2)	17	(1.4)
Served as a mentor and/or peer coach in science teaching, as part of a formal arrangement that is recognized or supported by the school or district	8	(1.9)	14	(2.4)	24	(2.0)
Attended a workshop on science teaching	58	(2.7)	65	(3.7)	70	(2.2)
Attended a national or state science teacher association meeting	5	(1.0)	22	(3.0)	43	(2.1)
Applied (or applying) for certification from the National Board for Professional Teaching Standards (NBPTS)	3	(0.9)	2	(0.9)	4	(0.6)
Received certification from the National Board for Professional Teaching Standards (NBPTS)	2	(0.8)	2	(1.1)	2	(0.5)

Table STQ 12a.1
Grade K–4 Science Teachers' Opinions of Their Need for Professional Development Three Years Ago

	Percent of Teachers							
	None Needed		Minor Need		Moderate Need		Substantial Need	
Deepening my own science content knowledge	4	(1.2)	25	(2.0)	51	(2.7)	20	(2.3)
Understanding student thinking in science	5	(1.2)	33	(2.1)	46	(2.6)	16	(2.1)
Learning how to use inquiry/investigation-oriented teaching strategies	7	(1.6)	28	(1.9)	47	(2.5)	19	(1.8)
Learning how to use technology in science instruction	3	(0.9)	13	(1.7)	39	(2.7)	46	(2.8)
Learning how to assess student learning in science	8	(1.6)	32	(2.2)	41	(2.6)	18	(1.9)
Learning how to teach science in a class that includes students with special needs	11	(2.0)	31	(2.3)	32	(2.3)	26	(2.2)

Table STQ 12a.2
Grade 5–8 Science Teachers' Opinions of Their Need for Professional Development Three Years Ago

	Percent of Teachers							
	None Needed		Minor Need		Moderate Need		Substantial Need	
Deepening my own science content knowledge	3	(0.6)	30	(3.2)	46	(3.8)	22	(3.8)
Understanding student thinking in science	3	(0.8)	38	(3.8)	41	(3.7)	17	(3.3)
Learning how to use inquiry/investigation-oriented teaching strategies	6	(1.4)	33	(3.1)	37	(3.3)	24	(4.1)
Learning how to use technology in science instruction	3	(0.7)	19	(3.5)	34	(3.9)	44	(4.5)
Learning how to assess student learning in science	7	(1.3)	39	(3.0)	38	(3.5)	16	(2.9)
Learning how to teach science in a class that includes students with special needs	7	(1.6)	34	(3.3)	32	(3.6)	27	(3.1)

Table STQ 12a.3
Grade 9–12 Science Teachers' Opinions of Their Need for Professional Development Three Years Ago

	Percent of Teachers							
	None Needed		Minor Need		Moderate Need		Substantial Need	
Deepening my own science content knowledge	13	(1.2)	48	(1.9)	32	(1.8)	6	(1.2)
Understanding student thinking in science	12	(1.2)	41	(2.2)	38	(2.1)	9	(1.3)
Learning how to use inquiry/investigation-oriented teaching strategies	12	(1.2)	37	(2.2)	38	(2.3)	14	(1.8)
Learning how to use technology in science instruction	7	(1.9)	23	(1.8)	41	(2.4)	29	(1.8)
Learning how to assess student learning in science	14	(1.2)	44	(2.5)	33	(2.0)	9	(1.4)
Learning how to teach science in a class that includes students with special needs	8	(1.1)	33	(2.1)	38	(2.3)	20	(1.7)

Table STQ 12b.1
Grade K–4 Science Teachers' Opinions of Professional Development Emphasis

	Percent of Teachers									
	Not at all								To a great extent	
	1		2		3		4		5	
Deepening my own science content knowledge	28	(2.6)	24	(2.1)	30	(2.4)	13	(1.6)	7	(1.4)
Understanding student thinking in science	27	(2.5)	19	(2.0)	32	(2.3)	15	(1.8)	7	(1.5)
Learning how to use inquiry/investigation-oriented teaching strategies	23	(2.2)	21	(2.1)	29	(2.2)	18	(1.8)	10	(1.8)
Learning how to use technology in science instruction	39	(2.9)	22	(2.3)	23	(2.0)	9	(1.4)	7	(1.1)
Learning how to assess student learning in science	30	(2.5)	23	(2.2)	30	(2.4)	13	(1.9)	4	(1.1)
Learning how to teach science in a class that includes students with special needs	47	(2.5)	25	(2.2)	19	(2.2)	6	(1.3)	3	(0.8)

Table STQ 12b.2
Grade 5–8 Science Teachers' Opinions of Professional Development Emphasis

	Percent of Teachers									
	Not at all								To a great extent	
	1		2		3		4		5	
Deepening my own science content knowledge	21	(3.0)	23	(3.3)	26	(3.4)	19	(3.6)	11	(2.2)
Understanding student thinking in science	20	(3.1)	27	(3.1)	26	(3.4)	23	(3.3)	5	(1.3)
Learning how to use inquiry/investigation-oriented teaching strategies	15	(2.8)	20	(3.4)	29	(3.6)	24	(3.3)	12	(2.4)
Learning how to use technology in science instruction	22	(3.3)	25	(4.0)	23	(3.4)	21	(3.1)	9	(1.7)
Learning how to assess student learning in science	18	(3.0)	27	(3.7)	30	(3.2)	22	(3.3)	4	(0.9)
Learning how to teach science in a class that includes students with special needs	39	(3.9)	28	(3.3)	20	(3.0)	10	(2.8)	3	(0.9)

Table STQ 12b.3
Grade 9–12 Science Teachers' Opinions of Professional Development Emphasis

	Percent of Teachers									
	Not at all								To a great extent	
	1		2		3		4		5	
Deepening my own science content knowledge	24	(1.7)	22	(1.4)	27	(2.3)	17	(1.9)	10	(1.2)
Understanding student thinking in science	19	(1.8)	26	(1.6)	34	(2.1)	15	(1.4)	6	(1.1)
Learning how to use inquiry/investigation-oriented teaching strategies	14	(1.5)	22	(1.8)	29	(2.0)	23	(2.3)	12	(1.4)
Learning how to use technology in science instruction	11	(1.3)	19	(1.6)	23	(1.5)	30	(2.3)	17	(1.6)
Learning how to assess student learning in science	19	(1.8)	27	(1.9)	30	(2.1)	18	(1.9)	6	(1.0)
Learning how to teach science in a class that includes students with special needs	40	(2.1)	28	(2.4)	19	(1.5)	9	(1.4)	4	(1.7)

Table STQ 12c.1
Grade K–4 Science Teachers Rating
Impact of Their Professional Development

	Percent of Teachers					
	Little or no impact		Confirmed what I was already doing		Caused me to change my teaching practices	
Deepening my own science content knowledge	36	(2.8)	48	(2.5)	16	(2.1)
Understanding student thinking in science	38	(2.6)	43	(2.5)	18	(2.4)
Learning how to use inquiry/investigation-oriented teaching strategies	39	(2.5)	36	(2.0)	25	(2.3)
Learning how to use technology in science instruction	62	(2.7)	18	(2.1)	19	(2.1)
Learning how to assess student learning in science	46	(2.5)	41	(2.5)	13	(2.1)
Learning how to teach science in a class that includes students with special needs	63	(2.4)	28	(2.2)	9	(1.5)

Table STQ 12c.2
Grade 5–8 Science Teachers Rating
Impact of Their Professional Development

	Percent of Teachers					
	Little or no impact		Confirmed what I was already doing		Caused me to change my teaching practices	
Deepening my own science content knowledge	26	(3.3)	51	(3.6)	23	(2.5)
Understanding student thinking in science	27	(3.4)	54	(3.5)	19	(2.9)
Learning how to use inquiry/investigation-oriented teaching strategies	24	(3.2)	46	(3.7)	30	(3.2)
Learning how to use technology in science instruction	43	(3.6)	26	(3.2)	30	(3.5)
Learning how to assess student learning in science	31	(3.6)	49	(3.8)	20	(2.5)
Learning how to teach science in a class that includes students with special needs	52	(4.0)	33	(3.6)	15	(2.0)

Table STQ 12c.3
Grade 9–12 Science Teachers Rating
Impact of Their Professional Development

	Percent of Teachers					
	Little or no impact		Confirmed what I was already doing		Caused me to change my teaching practices	
Deepening my own science content knowledge	30	(1.7)	54	(2.1)	15	(1.7)
Understanding student thinking in science	27	(2.0)	56	(2.0)	17	(1.6)
Learning how to use inquiry/investigation-oriented teaching strategies	25	(1.8)	48	(2.0)	27	(1.8)
Learning how to use technology in science instruction	29	(2.0)	31	(2.2)	40	(2.1)
Learning how to assess student learning in science	33	(2.1)	50	(2.1)	16	(1.6)
Learning how to teach science in a class that includes students with special needs	55	(2.6)	31	(2.2)	14	(1.6)

Table STQ 13a
Science Teachers in Self-Contained Classrooms

	Percent of Teachers	
Grades K–4	93	(1.1)
Grades 5–8	57	(3.9)
Grades 9–12	4	(0.7)

Table STQ 13b
Grade K–4 Science Teachers in Self-Contained Classrooms Perceptions of Their Qualifications

	Percent of Teachers					
	Not Well Qualified		Adequately Qualified		Very Well Qualified	
Life science	10	(1.8)	63	(3.0)	27	(2.3)
Earth science	13	(1.9)	63	(2.5)	24	(2.0)
Physical science	27	(2.7)	60	(3.0)	14	(1.6)
Mathematics	1	(0.6)	34	(1.9)	65	(2.0)
Reading/Language Arts	1	(0.4)	22	(2.2)	78	(2.2)
Social Studies	4	(1.1)	45	(2.8)	51	(2.7)

Table STQ 13c
Number of Days per Week and Minutes per Day Grade K–4 Self-Contained Science Classes Spend on Various Subjects

	Average Number of Days per Week		Average Number of Minutes	
Mathematics	4.9	(0.0)	52	(1.0)
Science	3.2	(0.1)	24	(0.6)
Social Studies	3.0	(0.1)	22	(0.7)
Reading/Language Arts	5.0	(0.0)	117	(3.4)

Table STQ 14
Science Teachers in Non-Self-Contained Classrooms Descriptions of Their Class Organization

	Percent of Teachers					
	Grades K–4		Grades 5–8		Grades 9–12	
Departmentalized Instruction	33	(8.0)	74	(3.7)	99	(0.4)
Elementary Enrichment Class	17	(6.1)	1	(0.4)	0	(0.1)
Team Teaching	50	(8.2)	25	(3.7)	1	(0.3)

There is no table for STQ 15a.1.

Table STQ 15a.2
Grade 5–8 Science Teachers' Perceptions of Their Qualifications to Teach Each of a Number of Subjects

	Percent of Teachers					
	Not Well Qualified		Adequately Qualified		Very Well Qualified	
Earth Science						
Earth's features and physical processes	10	(2.4)	51	(3.8)	38	(3.8)
The solar system and the universe	11	(2.2)	52	(4.0)	37	(3.9)
Climate and weather	15	(3.3)	53	(4.2)	32	(3.7)
Biology						
Structure and function of human systems	9	(2.1)	41	(3.8)	50	(3.9)
Plant biology	11	(2.5)	44	(3.8)	45	(3.5)
Animal behavior	11	(2.5)	45	(4.1)	45	(3.8)
Interactions of living things/ecology	6	(1.9)	41	(3.9)	53	(4.0)
Genetics and evolution	27	(3.9)	45	(3.9)	28	(2.7)
Chemistry						
Structure of matter and chemical bonding	26	(3.5)	45	(4.0)	29	(3.4)
Properties and states of matter	16	(3.4)	38	(3.7)	45	(3.7)
Chemical reactions	24	(3.6)	48	(4.2)	28	(3.5)
Energy and chemical change	24	(3.7)	50	(4.0)	26	(3.1)
Physics						
Forces and motion	24	(3.9)	51	(4.0)	25	(3.2)
Energy	19	(3.2)	56	(3.8)	25	(3.2)
Light and sound	30	(3.7)	48	(3.9)	22	(3.2)
Electricity and magnetism	28	(3.3)	52	(4.1)	20	(3.1)
Modern physics	63	(3.6)	30	(3.2)	7	(2.1)
Environmental and resource issues						
Pollution, acid rain, global warming	10	(2.0)	46	(3.7)	44	(3.6)
Population, food supply and production	14	(2.9)	46	(3.6)	40	(3.8)
Science process/inquiry skills						
Formulating hypotheses, drawing conclusions, making generalizations	5	(2.1)	38	(4.3)	57	(4.5)
Experimental design	15	(3.3)	43	(3.9)	42	(4.1)
Describing, graphing, and interpreting data	7	(2.2)	40	(4.1)	53	(4.1)

Table STQ 15a.3
Grade 9–12 Science Teachers' Perceptions of Their Qualifications to Teach Each of a Number of Subjects

	Percent of Teachers					
	Not Well Qualified		Adequately Qualified		Very Well Qualified	
Earth Science						
Earth's features and physical processes	26	(1.8)	50	(2.4)	24	(1.9)
The solar system and the universe	32	(2.0)	42	(2.4)	26	(1.9)
Climate and weather	29	(1.7)	51	(2.0)	20	(1.5)
Biology						
Structure and function of human systems	20	(1.7)	22	(1.9)	58	(2.4)
Plant biology	23	(1.8)	30	(2.2)	47	(2.4)
Animal behavior	24	(1.9)	28	(2.0)	49	(2.4)
Interactions of living things/ecology	18	(1.6)	24	(2.0)	58	(2.3)
Genetics and evolution	20	(1.7)	24	(1.8)	56	(2.3)
Chemistry						
Structure of matter and chemical bonding	7	(0.9)	37	(2.0)	55	(2.0)
Properties and states of matter	6	(0.8)	33	(1.9)	61	(2.0)
Chemical reactions	12	(1.2)	37	(2.0)	51	(2.1)
Energy and chemical change	13	(1.2)	36	(2.0)	52	(2.0)
Physics						
Forces and motion	24	(1.8)	39	(1.7)	37	(2.1)
Energy	23	(1.7)	41	(1.8)	36	(2.2)
Light and sound	30	(1.9)	38	(2.1)	32	(2.1)
Electricity and magnetism	40	(1.7)	34	(1.8)	27	(2.1)
Modern physics	56	(2.0)	28	(1.9)	16	(2.2)
Environmental and resource issues						
Pollution, acid rain, global warming	10	(1.1)	45	(2.5)	45	(2.3)
Population, food supply and production	15	(1.4)	42	(2.1)	43	(2.1)
Science process/inquiry skills						
Formulating hypotheses, drawing conclusions, making generalizations	1	(0.6)	24	(1.8)	74	(1.9)
Experimental design	6	(1.2)	33	(1.9)	61	(1.8)
Describing, graphing, and interpreting data	3	(0.8)	26	(1.9)	72	(2.0)

There is no table for STQ 15b.

There is no table for STQ 16.

There is no table for STQ 17a.

There is no table for STQ 17b.

Table STQ 18a
Average Number of Students in Science Classes

	Number of Students	
Grades K–4	21.5	(0.3)
Grades 5–8	23.3	(0.3)
Grades 9–12	21.7	(0.4)

Table STQ 18b
Race/Ethnicity of Students in Science Classes

	Percent of Students					
	Grades K–4		Grades 5–8		Grades 9–12	
American Indian or Alaskan Native	1	(0.4)	1	(0.5)	1	(0.3)
Asian	3	(0.5)	3	(0.4)	4	(0.4)
Black or African American	17	(2.3)	16	(1.9)	13	(1.1)
Hispanic or Latino	15	(1.7)	10	(1.5)	10	(1.0)
Native Hawaiian/or other Pacific Islander	1	(0.1)	1	(0.2)	1	(0.3)
White	64	(3.0)	68	(2.3)	72	(1.7)

There is no table for STQ 19a.

Table STQ 19b
Calendar Duration of Science Classes

	Percent of Classes					
	Grades K–4		Grades 5–8		Grades 9–12	
Year	94	(4.2)	91	(1.8)	75	(2.5)
Semester	5	(4.1)	5	(1.3)	23	(2.4)
Quarter	1	(0.8)	4	(1.0)	2	(0.7)

Table STQ 20
Students Assigned to Science Classes by Ability Level

	Percent of Classes	
Grades K–4	6	(1.2)
Grades 5–8	14	(1.5)
Grades 9–12	40	(2.3)

Table STQ 21
Ability Grouping of Students in Science Classes

	Percent of Classes					
	Grades K–4		Grades 5–8		Grades 9–12	
Fairly homogeneous and low in ability	6	(1.6)	8	(1.4)	7	(0.9)
Fairly homogeneous and average in ability	28	(2.4)	23	(2.3)	29	(2.1)
Fairly homogeneous and high in ability	5	(1.3)	11	(1.4)	27	(2.1)
Heterogeneous, with a mixture of two or more ability levels	62	(2.6)	58	(2.3)	37	(2.0)

Table STQ 22
Science Classes with One or More Students with Special Needs

	Percent of Classes					
	Grades K–4		Grades 5–8		Grades 9–12	
Limited English Proficiency	38	(2.8)	22	(2.3)	17	(1.5)
Learning Disabled	50	(2.6)	63	(2.6)	37	(2.2)
Mentally Handicapped	8	(1.3)	9	(1.5)	3	(0.8)
Physically Handicapped	7	(1.5)	7	(1.3)	4	(0.7)

Table STQ 23.1
Emphasis Given in Grade K–4 Science Classes to Various Instructional Objectives

	Percent of Classes							
	None		Minimal Emphasis		Moderate Emphasis		Heavy Emphasis	
Increase students' interest in science	1	(0.5)	2	(0.6)	40	(2.5)	57	(2.5)
Learn basic science concepts	0	(0.5)	2	(0.8)	31	(2.6)	66	(2.7)
Learn important terms and facts of science	0	(0.5)	11	(1.8)	47	(2.5)	42	(2.8)
Learn science process/inquiry skills	1	(0.5)	13	(1.5)	49	(2.8)	37	(2.9)
Prepare for further study in science	3	(0.9)	18	(1.9)	54	(2.6)	25	(2.2)
Learn to evaluate arguments based on scientific evidence	18	(1.7)	43	(2.4)	32	(2.4)	8	(1.3)
Learn how to communicate ideas in science effectively	4	(1.1)	23	(1.9)	51	(2.3)	21	(2.0)
Learn about the applications of science in business and industry	23	(2.2)	47	(2.8)	25	(2.1)	4	(1.1)
Learn about the relationship between science, technology, and society	12	(1.7)	46	(2.3)	32	(2.1)	10	(1.6)
Learn about the history and nature of science	20	(2.0)	47	(2.5)	26	(2.2)	7	(1.3)
Prepare for standardized tests	21	(2.2)	27	(2.4)	31	(2.0)	21	(2.2)

Table STQ 23.2
Emphasis Given in Grade 5–8 Science Classes to Various Instructional Objectives

	Percent of Classes							
	None		Minimal Emphasis		Moderate Emphasis		Heavy Emphasis	
Increase students' interest in science	0	(0.1)	2	(0.8)	40	(2.7)	58	(2.9)
Learn basic science concepts	0	(0.0)	1	(0.5)	23	(2.0)	76	(2.1)
Learn important terms and facts of science	0	(0.0)	8	(1.3)	49	(2.9)	43	(2.9)
Learn science process/inquiry skills	0	(0.1)	3	(0.9)	32	(2.7)	64	(2.7)
Prepare for further study in science	0	(0.1)	15	(1.8)	46	(2.5)	39	(2.3)
Learn to evaluate arguments based on scientific evidence	3	(1.2)	26	(2.5)	51	(3.2)	21	(2.4)
Learn how to communicate ideas in science effectively	1	(1.0)	9	(1.5)	51	(2.5)	39	(2.6)
Learn about the applications of science in business and industry	4	(1.0)	40	(2.8)	45	(2.7)	11	(1.4)
Learn about the relationship between science, technology, and society	2	(0.9)	25	(2.7)	48	(2.5)	24	(2.3)
Learn about the history and nature of science	4	(1.3)	39	(2.8)	46	(2.9)	11	(1.7)
Prepare for standardized tests	11	(1.8)	31	(2.3)	36	(2.3)	23	(2.1)

Table STQ 23.3
Emphasis Given in Grade 9–12 Science Classes to Various Instructional Objectives

	Percent of Classes							
	None		Minimal Emphasis		Moderate Emphasis		Heavy Emphasis	
Increase students' interest in science	0	(0.1)	6	(1.0)	49	(2.4)	45	(2.5)
Learn basic science concepts	0	(0.1)	2	(0.5)	17	(1.3)	81	(1.3)
Learn important terms and facts of science	0	(0.1)	9	(1.3)	39	(2.1)	52	(2.5)
Learn science process/inquiry skills	0	(0.3)	3	(0.6)	31	(2.2)	65	(2.2)
Prepare for further study in science	1	(0.2)	11	(1.2)	40	(2.4)	48	(2.4)
Learn to evaluate arguments based on scientific evidence	2	(0.5)	21	(1.8)	49	(2.4)	29	(1.9)
Learn how to communicate ideas in science effectively	1	(0.3)	13	(1.6)	47	(2.2)	39	(2.3)
Learn about the applications of science in business and industry	3	(0.7)	28	(1.8)	49	(2.0)	20	(2.2)
Learn about the relationship between science, technology, and society	2	(0.4)	18	(1.4)	51	(2.2)	29	(2.0)
Learn about the history and nature of science	4	(0.8)	41	(2.3)	45	(2.3)	11	(0.9)
Prepare for standardized tests	11	(1.5)	32	(2.0)	36	(2.5)	21	(1.5)

Table STQ 24.1
Grade K–4 Science Teachers Report
Using Various Strategies in Their Classrooms

	Percent of Classes									
	Never		A few times a year		Once or twice a month		Once or twice a week		All or almost all lessons	
Introduce content through formal presentations	4	(0.9)	13	(1.4)	30	(2.6)	41	(2.4)	12	(1.6)
Pose open-ended questions	1	(0.5)	3	(1.0)	22	(2.1)	37	(2.4)	36	(2.2)
Engage the whole class in discussions	0	(0.5)	1	(0.4)	8	(1.3)	33	(2.1)	57	(2.4)
Require students to supply evidence to support their claims	5	(1.1)	11	(1.6)	32	(2.2)	35	(2.5)	16	(1.9)
Ask students to explain concepts to one another	3	(1.0)	12	(1.5)	39	(2.1)	32	(2.3)	14	(1.5)
Ask students to consider alternative explanations	4	(1.1)	16	(1.7)	36	(2.1)	32	(2.5)	10	(1.3)
Allow students to work at their own pace	2	(0.9)	11	(1.8)	27	(2.5)	36	(2.7)	24	(2.0)
Help students see connections between science and other disciplines	1	(0.6)	10	(1.5)	28	(2.3)	41	(2.5)	20	(1.8)
Assign science homework	18	(1.6)	31	(2.1)	30	(2.5)	17	(1.9)	4	(1.0)
Read and comment on the reflections students have written	18	(1.9)	24	(2.3)	32	(2.0)	20	(1.9)	5	(1.1)

Table STQ 24.2
Grade 5–8 Science Teachers Report
Using Various Strategies in Their Classrooms

	Percent of Classes									
	Never		A few times a year		Once or twice a month		Once or twice a week		All or almost all lessons	
Introduce content through formal presentations	1	(0.9)	6	(1.2)	25	(2.0)	52	(2.3)	16	(2.0)
Pose open-ended questions	0	(0.0)	2	(0.9)	17	(2.0)	48	(3.1)	33	(3.0)
Engage the whole class in discussions	0	(0.0)	1	(0.5)	11	(1.7)	44	(2.7)	43	(3.0)
Require students to supply evidence to support their claims	0	(0.3)	7	(1.4)	24	(2.2)	42	(2.9)	27	(2.4)
Ask students to explain concepts to one another	1	(0.7)	8	(1.3)	37	(2.8)	40	(2.5)	15	(2.0)
Ask students to consider alternative explanations	1	(0.5)	7	(1.0)	35	(2.8)	44	(2.7)	14	(1.8)
Allow students to work at their own pace	2	(0.7)	11	(1.4)	30	(2.4)	39	(2.7)	19	(2.1)
Help students see connections between science and other disciplines	0	(0.4)	3	(1.0)	27	(2.4)	43	(2.6)	27	(2.2)
Assign science homework	0	(0.3)	10	(1.6)	24	(3.0)	49	(3.0)	17	(2.0)
Read and comment on the reflections students have written	11	(1.9)	23	(2.4)	33	(2.6)	25	(2.4)	7	(1.5)

Table STQ 24.3
Grade 9–12 Science Teachers Report
Using Various Strategies in Their Classrooms

	Percent of Classes									
	Never		A few times a year		Once or twice a month		Once or twice a week		All or almost all lessons	
Introduce content through formal presentations	0	(0.2)	3	(0.7)	15	(1.5)	59	(2.1)	22	(1.3)
Pose open-ended questions	0	(0.2)	6	(1.1)	21	(2.3)	46	(2.2)	27	(1.9)
Engage the whole class in discussions	0	(0.1)	5	(0.7)	18	(2.4)	45	(2.1)	31	(2.3)
Require students to supply evidence to support their claims	0	(0.1)	7	(1.2)	29	(2.1)	43	(2.6)	20	(1.5)
Ask students to explain concepts to one another	1	(0.5)	10	(1.3)	32	(2.0)	43	(2.4)	14	(1.3)
Ask students to consider alternative explanations	1	(0.3)	10	(1.2)	41	(2.2)	40	(2.2)	9	(0.9)
Allow students to work at their own pace	2	(0.6)	17	(1.5)	32	(2.0)	35	(2.1)	14	(2.1)
Help students see connections between science and other disciplines	0	(0.2)	6	(1.1)	29	(2.3)	46	(1.7)	19	(1.5)
Assign science homework	1	(0.3)	3	(0.6)	13	(1.6)	44	(2.3)	39	(2.3)
Read and comment on the reflections students have written	25	(2.4)	27	(2.2)	27	(2.0)	16	(1.4)	6	(1.1)

Table STQ 25.1
Grade K–4 Science Teachers Report
Various Activities in Their Classrooms

	Percent of Classes									
	Never		A few times a year		Once or twice a month		Once or twice a week		All or almost all lessons	
Listen and take notes during presentation by teacher	47	(2.2)	22	(2.1)	16	(1.8)	12	(1.4)	3	(0.7)
Watch a science demonstration	2	(0.6)	13	(1.8)	54	(2.9)	23	(2.4)	7	(1.1)
Work in groups	1	(0.8)	6	(1.2)	28	(2.2)	43	(2.5)	21	(2.2)
Read from a science textbook in class	32	(2.2)	15	(2.0)	22	(2.3)	20	(2.0)	11	(1.6)
Read other science-related materials in class	8	(1.8)	12	(1.8)	35	(2.3)	37	(2.6)	8	(1.1)
Do hands-on/laboratory science activities or investigations	3	(0.8)	13	(1.6)	35	(2.6)	36	(2.6)	15	(2.1)
Follow specific instructions in an activity or investigation	3	(0.8)	13	(1.6)	38	(2.4)	34	(2.4)	12	(1.9)
Design or implement their *own* investigation	25	(2.1)	41	(2.3)	26	(1.9)	7	(1.5)	1	(0.6)
Participate in field work	41	(2.4)	38	(2.4)	16	(1.7)	5	(1.0)	1	(0.3)
Answer textbook or worksheet questions	21	(2.1)	18	(2.4)	32	(2.1)	24	(2.1)	4	(1.0)
Record, represent, and/or analyze data	9	(1.3)	21	(2.2)	41	(2.6)	24	(2.4)	4	(1.3)
Write reflections	23	(2.2)	25	(2.4)	31	(2.2)	17	(2.1)	5	(1.1)
Prepare written science reports	41	(2.4)	35	(2.2)	20	(2.0)	4	(0.8)	0	(0.0)
Make formal presentations to the rest of the class	40	(2.4)	38	(2.4)	19	(1.9)	3	(0.8)	0	(0.1)
Work on extended science investigations or projects	30	(2.4)	42	(2.7)	19	(1.8)	8	(1.4)	1	(0.4)
Use computers as a tool	64	(2.4)	21	(2.1)	10	(1.4)	4	(1.0)	1	(0.6)
Use mathematics as a tool in problem-solving	15	(1.6)	28	(1.8)	34	(2.3)	20	(2.2)	4	(1.0)
Take field trips	17	(2.1)	66	(2.3)	13	(1.7)	4	(1.0)	1	(0.6)
Watch audiovisual presentations	6	(1.2)	28	(2.5)	48	(2.8)	15	(2.2)	3	(0.8)

Table STQ 25.2
Grade 5–8 Science Teachers Report
Various Activities in Their Classrooms

	Percent of Classes									
	Never		A few times a year		Once or twice a month		Once or twice a week		All or almost all lessons	
Listen and take notes during presentation by teacher	2	(0.7)	13	(2.1)	31	(2.6)	45	(2.4)	9	(1.4)
Watch a science demonstration	0	(0.3)	9	(1.6)	48	(3.1)	38	(3.3)	4	(1.1)
Work in groups	0	(0.2)	2	(1.1)	18	(1.9)	56	(3.0)	24	(2.8)
Read from a science textbook in class	7	(1.6)	17	(1.6)	30	(2.7)	36	(2.9)	11	(1.7)
Read other science-related materials in class	2	(0.6)	19	(2.3)	48	(2.8)	29	(2.5)	3	(0.8)
Do hands-on/laboratory science activities or investigations	0	(0.1)	7	(1.7)	27	(2.6)	50	(2.6)	15	(2.0)
Follow specific instructions in an activity or investigation	0	(0.1)	4	(1.2)	26	(2.7)	56	(3.3)	14	(2.2)
Design or implement their *own* investigation	3	(0.8)	41	(2.1)	43	(2.7)	11	(1.8)	2	(0.6)
Participate in field work	21	(2.8)	46	(3.2)	26	(2.4)	5	(1.1)	2	(0.6)
Answer textbook or worksheet questions	3	(1.2)	8	(1.4)	33	(2.5)	47	(2.6)	9	(1.7)
Record, represent, and/or analyze data	1	(0.3)	12	(2.2)	37	(2.7)	41	(2.4)	10	(1.7)
Write reflections	16	(2.1)	28	(2.5)	24	(1.9)	22	(2.6)	9	(1.7)
Prepare written science reports	5	(1.4)	37	(2.7)	42	(2.9)	13	(1.7)	3	(0.8)
Make formal presentations to the rest of the class	5	(1.2)	46	(2.9)	39	(2.6)	7	(1.2)	2	(0.7)
Work on extended science investigations or projects	7	(1.4)	52	(2.6)	30	(2.4)	8	(1.2)	2	(0.9)
Use computers as a tool	24	(2.4)	37	(2.3)	29	(2.5)	9	(1.4)	2	(0.9)
Use mathematics as a tool in problem-solving	3	(1.0)	20	(2.3)	41	(2.7)	31	(2.6)	5	(1.1)
Take field trips	21	(2.3)	63	(2.9)	13	(1.9)	3	(0.9)	1	(0.4)
Watch audiovisual presentations	2	(0.8)	22	(2.3)	57	(3.0)	17	(2.1)	3	(0.9)

Table STQ 25.3
Grade 9–12 Science Teachers Report
Various Activities in Their Classrooms

	Percent of Classes									
	Never		A few times a year		Once or twice a month		Once or twice a week		All or almost all lessons	
Listen and take notes during presentation by teacher	0	(0.1)	2	(0.5)	12	(1.3)	56	(2.0)	31	(2.5)
Watch a science demonstration	1	(0.2)	9	(1.2)	47	(2.2)	38	(2.0)	5	(0.8)
Work in groups	0	(0.1)	2	(0.6)	18	(2.0)	62	(2.1)	18	(1.8)
Read from a science textbook in class	15	(1.4)	31	(2.5)	26	(1.8)	22	(1.7)	6	(1.8)
Read other science-related materials in class	10	(1.2)	32	(2.2)	39	(2.0)	17	(1.7)	3	(1.7)
Do hands-on/laboratory science activities or investigations	1	(0.2)	3	(0.8)	26	(2.5)	61	(2.0)	10	(1.2)
Follow specific instructions in an activity or investigation	0	(0.2)	3	(0.8)	25	(2.7)	59	(2.2)	12	(1.3)
Design or implement their *own* investigation	8	(0.9)	42	(2.7)	41	(2.1)	8	(1.0)	1	(0.4)
Participate in field work	32	(2.1)	43	(2.3)	21	(2.2)	3	(0.7)	1	(0.3)
Answer textbook or worksheet questions	1	(0.3)	7	(10)	20	(1.7)	59	(2.2)	14	(2.1)
Record, represent, and/or analyze data	1	(0.4)	7	(1.1)	38	(2.6)	46	(2.3)	8	(0.9)
Write reflections	39	(2.5)	26	(2.1)	20	(1.7)	10	(1.3)	5	(0.9)
Prepare written science reports	7	(1.2)	29	(2.2)	40	(2.0)	21	(2.0)	3	(0.5)
Make formal presentations to the rest of the class	17	(1.5)	49	(2.3)	29	(2.4)	5	(0.8)	1	(0.3)
Work on extended science investigations or projects	17	(1.4)	51	(2.3)	25	(2.3)	6	(1.0)	2	(0.4)
Use computers as a tool	21	(1.6)	33	(2.2)	30	(1.9)	14	(2.1)	2	(0.5)
Use mathematics as a tool in problem-solving	5	(0.9)	14	(1.2)	29	(2.0)	32	(2.3)	20	(2.2)
Take field trips	50	(2.4)	42	(2.3)	6	(1.0)	1	(0.5)	0	(0.1)
Watch audiovisual presentations	3	(0.5)	23	(1.8)	52	(2.1)	19	(1.5)	3	(0.6)

Table STQ 26.1
Grade K–4 Science Teachers Report
Use of Computers in Their Classrooms

	Percent of Classes									
	Never		A few times a year		Once or twice a month		Once or twice a week		All or almost all lessons	
Do drill and practice	57	(2.6)	19	(2.2)	12	(1.7)	11	(1.4)	1	(0.3)
Demonstrate scientific principles	70	(2.2)	17	(2.0)	10	(1.4)	3	(0.7)	1	(0.3)
Play science learning games	48	(2.4)	21	(2.0)	22	(2.1)	8	(1.1)	1	(0.4)
Do laboratory simulations	79	(1.6)	12	(1.5)	7	(1.2)	1	(0.5)	0	(0.3)
Collect data using sensors or probes	84	(1.7)	11	(1.5)	4	(1.1)	0	(0.3)	0	(0.3)
Retrieve or exchange data	73	(2.1)	16	(1.6)	9	(1.5)	2	(0.5)	0	(0.2)
Solve problems using simulations	76	(2.1)	15	(1.5)	8	(1.4)	1	(0.3)	0	(0.2)
Take a test or quiz	77	(2.2)	13	(1.8)	7	(1.0)	3	(0.6)	1	(0.3)

Table STQ 26.2
Grade 5–8 Science Teachers Report
Use of Computers in Their Classrooms

	Percent of Classes									
	Never		A few times a year		Once or twice a month		Once or twice a week		All or almost all lessons	
Do drill and practice	57	(2.7)	28	(2.4)	12	(1.7)	4	(1.0)	0	—*
Demonstrate scientific principles	45	(3.1)	32	(2.4)	20	(2.4)	3	(0.8)	0	(0.2)
Play science learning games	46	(2.6)	26	(2.2)	24	(2.1)	3	(0.7)	0	(0.3)
Do laboratory simulations	56	(3.0)	25	(2.3)	15	(2.3)	3	(0.9)	0	(0.3)
Collect data using sensors or probes	69	(2.7)	20	(2.0)	9	(1.9)	1	(0.6)	0	(0.2)
Retrieve or exchange data	44	(2.6)	30	(2.6)	17	(2.0)	7	(1.4)	1	(0.5)
Solve problems using simulations	55	(3.2)	27	(2.3)	14	(1.8)	3	(0.9)	1	(0.3)
Take a test or quiz	61	(2.9)	19	(2.2)	14	(2.5)	5	(1.1)	1	(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 26.3
Grade 9–12 Science Teachers Report
Use of Computers in Their Classrooms

	Percent of Classes									
	Never		A few times a year		Once or twice a month		Once or twice a week		All or almost all lessons	
Do drill and practice	56	(2.2)	24	(1.7)	15	(2.4)	4	(0.9)	1	(0.2)
Demonstrate scientific principles	43	(2.2)	29	(1.8)	21	(2.5)	6	(0.9)	1	(0.3)
Play science learning games	59	(2.5)	28	(2.2)	10	(1.8)	3	(0.8)	0	(0.1)
Do laboratory simulations	45	(2.2)	32	(2.1)	18	(2.1)	5	(0.8)	0	(0.2)
Collect data using sensors or probes	55	(2.3)	26	(1.8)	15	(2.3)	5	(0.8)	0	(0.2)
Retrieve or exchange data	43	(2.3)	26	(1.9)	23	(2.4)	7	(1.0)	1	(0.2)
Solve problems using simulations	54	(2.3)	25	(1.7)	17	(2.5)	4	(0.7)	0	(0.2)
Take a test or quiz	69	(2.5)	17	(2.2)	6	(0.9)	7	(1.8)	1	(0.3)

Table STQ 27.1
Grade K–4 Science Teachers Report
Assessing Student Progress Using Various Methods

	Percent of Classes									
	Never		A few times a year		Once or twice a month		Once or twice a week		All or almost all lessons	
Conduct a pre-assessment to determine what students already know	17	(2.2)	30	(2.4)	34	(2.4)	13	(1.5)	7	(1.1)
Observe students and ask questions as they work individually	3	(1.1)	9	(1.3)	28	(2.2)	37	(2.6)	23	(1.9)
Observe students and ask questions as they work in small groups	3	(1.1)	7	(1.2)	31	(2.4)	37	(2.4)	23	(1.9)
Ask students questions during large group discussions	1	(0.5)	2	(0.6)	14	(1.7)	39	(2.6)	44	(2.7)
Use assessments embedded in class activities to see if students are "getting it"	5	(1.6)	6	(1.0)	28	(3.0)	39	(2.6)	22	(2.3)
Review student homework	25	(2.1)	15	(2.1)	17	(2.0)	25	(1.9)	18	(1.9)
Review student notebooks/journals	23	(2.3)	20	(2.2)	28	(2.3)	18	(2.0)	11	(1.7)
Review student portfolios	41	(2.6)	19	(1.9)	22	(1.9)	12	(1.7)	6	(1.4)
Have students do long-term science projects	36	(2.3)	47	(2.5)	15	(1.9)	2	(0.7)	0	(0.2)
Have students present their work to the class	16	(1.4)	36	(2.4)	36	(2.1)	11	(1.4)	1	(0.6)
Give predominantly short-answer tests	33	(2.3)	18	(1.7)	31	(2.3)	12	(1.6)	7	(1.4)
Give tests requiring open-ended responses	33	(2.3)	20	(2.0)	31	(2.2)	13	(2.0)	3	(0.9)
Grade student work on open-ended and/or laboratory tasks using defined criteria	39	(2.1)	20	(1.9)	27	(2.5)	11	(1.8)	3	(0.8)
Have students assess each other	55	(2.4)	26	(2.4)	17	(2.0)	2	(0.6)	1	(0.4)

Table STQ 27.2
Grade 5–8 Science Teachers Report
Assessing Student Progress Using Various Methods

	Percent of Classes									
	Never		A few times a year		Once or twice a month		Once or twice a week		All or almost all lessons	
Conduct a pre-assessment to determine what students already know	10	(1.8)	33	(2.8)	41	(2.5)	10	(1.7)	6	(1.4)
Observe students and ask questions as they work individually	1	(0.5)	4	(1.2)	24	(2.3)	48	(2.9)	23	(2.2)
Observe students and ask questions as they work in small groups	1	(0.5)	4	(1.2)	23	(2.6)	49	(3.1)	23	(2.5)
Ask students questions during large group discussions	1	(0.5)	1	(0.4)	13	(1.9)	42	(2.7)	43	(2.8)
Use assessments embedded in class activities to see if students are "getting it"	0	(0.2)	3	(1.0)	23	(2.8)	50	(3.1)	24	(2.9)
Review student homework	1	(0.6)	6	(1.3)	15	(2.1)	56	(3.0)	22	(2.2)
Review student notebooks/journals	13	(1.9)	17	(2.1)	33	(2.7)	27	(2.3)	10	(2.0)
Review student portfolios	37	(3.1)	21	(2.1)	26	(2.7)	12	(1.7)	4	(1.2)
Have students do long-term science projects	10	(1.8)	59	(2.8)	25	(2.3)	6	(1.1)	1	(0.7)
Have students present their work to the class	5	(1.3)	40	(3.3)	42	(3.2)	11	(1.7)	2	(0.8)
Give predominantly short-answer tests	5	(1.4)	14	(2.0)	54	(3.4)	20	(2.1)	8	(1.5)
Give tests requiring open-ended responses	2	(0.7)	14	(1.7)	54	(3.0)	23	(2.6)	7	(1.5)
Grade student work on open-ended and/or laboratory tasks using defined criteria	4	(1.0)	20	(2.4)	42	(2.8)	24	(2.6)	10	(2.1)
Have students assess each other	23	(2.0)	41	(2.6)	26	(2.0)	9	(1.7)	2	(0.9)

Table STQ 27.3
Grade 9–12 Science Teachers Report
Assessing Student Progress Using Various Methods

	Percent of Classes									
	Never		A few times a year		Once or twice a month		Once or twice a week		All or almost all lessons	
Conduct a pre-assessment to determine what students already know	16	(1.6)	38	(2.3)	29	(2.0)	14	(2.3)	4	(0.6)
Observe students and ask questions as they work individually	1	(0.3)	4	(1.0)	19	(1.6)	50	(2.3)	25	(2.2)
Observe students and ask questions as they work in small groups	0	(0.2)	4	(0.8)	25	(1.7)	50	(2.1)	21	(1.7)
Ask students questions during large group discussions	0	(0.2)	2	(0.5)	13	(1.2)	50	(2.2)	35	(2.0)
Use assessments embedded in class activities to see if students are "getting it"	2	(0.5)	6	(1.1)	19	(1.8)	50	(2.4)	24	(2.2)
Review student homework	1	(0.4)	4	(0.8)	10	(1.0)	57	(2.5)	28	(2.4)
Review student notebooks/journals	26	(2.1)	23	(2.3)	26	(2.3)	17	(1.5)	8	(1.9)
Review student portfolios	58	(2.4)	19	(1.5)	13	(1.9)	7	(1.0)	3	(0.7)
Have students do long-term science projects	22	(1.7)	53	(2.5)	22	(2.5)	2	(0.7)	1	(0.5)
Have students present their work to the class	12	(1.2)	44	(2.0)	33	(2.4)	9	(1.3)	2	(0.6)
Give predominantly short-answer tests	7	(1.0)	14	(1.6)	40	(2.3)	29	(2.2)	10	(1.1)
Give tests requiring open-ended responses	4	(1.1)	13	(1.4)	48	(2.3)	26	(1.8)	9	(1.1)
Grade student work on open-ended and/or laboratory tasks using defined criteria	6	(1.1)	15	(1.3)	41	(2.4)	29	(2.0)	9	(1.1)
Have students assess each other	33	(1.9)	39	(2.4)	22	(2.0)	4	(0.7)	1	(0.4)

Table STQ 28a.1
Availability of Various Equipment in Grade K–4 Science Classrooms

	Percent of Classes					
	Not at all Available				Readily Available	
	1		2		3	
Overhead projector	3	(0.8)	5	(1.0)	92	(1.5)
Videotape player	4	(1.3)	8	(1.3)	88	(1.9)
Videodisc player	60	(3.1)	15	(1.8)	25	(2.7)
CD-ROM player	27	(2.1)	16	(2.2)	58	(2.8)
Four-function calculators	47	(3.0)	15	(2.0)	38	(2.6)
Fraction calculators	86	(2.0)	8	(1.5)	6	(1.3)
Graphing calculators	93	(1.3)	5	(1.1)	2	(0.6)
Scientific calculators	91	(1.7)	6	(1.3)	3	(0.9)
Computers	8	(1.6)	20	(1.8)	72	(2.5)
Computers with Internet connection	18	(2.5)	20	(2.3)	62	(3.0)
Calculator/computer lab interfacing devices	81	(1.7)	11	(1.6)	7	(1.2)
Running water in labs/classrooms	31	(2.6)	4	(1.1)	65	(2.7)
Electric outlets in labs/classrooms	7	(1.3)	16	(1.9)	77	(2.4)
Gas for burners in labs/classrooms	91	(1.8)	5	(1.1)	4	(1.2)
Hoods or air hoses in labs/classrooms	97	(1.0)	1	(0.5)	2	(0.8)

Table STQ 28a.2
Availability of Various Equipment in Grade 5–8 Science Classrooms

	Percent of Classes					
	Not at all Available				Readily Available	
	1		2		3	
Overhead projector	1	(0.7)	5	(1.4)	94	(1.7)
Videotape player	2	(0.9)	7	(1.5)	91	(1.7)
Videodisc player	45	(3.1)	16	(2.0)	39	(3.0)
CD-ROM player	21	(2.6)	20	(2.5)	60	(2.7)
Four-function calculators	26	(2.6)	23	(2.6)	51	(3.4)
Fraction calculators	62	(2.8)	18	(2.0)	20	(2.6)
Graphing calculators	73	(2.7)	17	(2.1)	10	(1.8)
Scientific calculators	62	(3.1)	17	(2.0)	21	(2.5)
Computers	5	(1.1)	35	(2.8)	60	(2.9)
Computers with Internet connection	15	(2.1)	34	(2.4)	52	(2.7)
Calculator/computer lab interfacing devices	73	(2.3)	16	(1.7)	11	(1.7)
Running water in labs/classrooms	24	(3.0)	8	(1.3)	68	(2.8)
Electric outlets in labs/classrooms	3	(1.0)	18	(2.1)	79	(2.1)
Gas for burners in labs/classrooms	70	(2.8)	8	(1.4)	22	(2.2)
Hoods or air hoses in labs/classrooms	83	(2.2)	7	(1.4)	10	(1.6)

Table STQ 28a.3
Availability of Various Equipment in Grade 9–12 Science Classrooms

	Percent of Classes					
	Not at all Available				Readily Available	
	1		2		3	
Overhead projector	1	(0.4)	4	(0.9)	95	(0.9)
Videotape player	2	(0.6)	8	(1.1)	90	(1.2)
Videodisc player	27	(2.3)	21	(1.6)	52	(2.7)
CD-ROM player	21	(1.6)	23	(1.7)	57	(2.3)
Four-function calculators	29	(1.9)	21	(1.4)	50	(2.3)
Fraction calculators	49	(2.5)	21	(2.2)	30	(2.4)
Graphing calculators	42	(2.4)	25	(1.5)	33	(2.4)
Scientific calculators	33	(2.1)	22	(2.0)	45	(2.3)
Computers	11	(1.2)	38	(2.2)	51	(2.4)
Computers with Internet connection	15	(1.5)	37	(2.1)	48	(2.6)
Calculator/computer lab interfacing devices	51	(2.4)	25	(1.8)	24	(2.5)
Running water in labs/classrooms	8	(2.1)	7	(1.0)	85	(2.1)
Electric outlets in labs/classrooms	2	(0.7)	9	(1.2)	89	(1.3)
Gas for burners in labs/classrooms	20	(2.2)	13	(1.3)	67	(2.3)
Hoods or air hoses in labs/classrooms	40	(2.5)	18	(1.5)	42	(2.8)

Table STQ 28b
Science Classes Where Teachers Indicate They Need Various Equipment

	Percent of Classes					
	Grades K–4		Grades 5–8		Grades 9–12	
Overhead projector	77	(2.2)	80	(2.7)	79	(3.0)
Videotape player	82	(1.8)	82	(2.1)	87	(1.5)
Videodisc player	28	(2.7)	49	(2.9)	51	(2.4)
CD-ROM player	52	(3.3)	57	(2.7)	57	(2.4)
Four-function calculator	30	(2.8)	54	(3.1)	55	(2.3)
Fraction calculator	5	(1.1)	19	(3.0)	25	(2.7)
Graphing calculator	4	(1.0)	21	(2.4)	33	(2.7)
Scientific calculator	4	(1.0)	28	(2.6)	55	(2.7)
Computers	68	(2.9)	86	(2.1)	82	(1.6)
Computers with Internet connection	68	(3.1)	86	(2.0)	79	(1.9)
Calculator/computer lab interfacing devices	11	(1.5)	39	(2.9)	56	(2.7)
Running water in labs/classrooms	79	(2.4)	90	(1.9)	91	(1.3)
Electric outlets in labs/classrooms	80	(2.3)	88	(1.9)	92	(1.2)
Gas for burners in labs/classrooms	12	(1.9)	43	(2.9)	70	(2.1)
Hoods or air hoses in labs/classrooms	8	(1.5)	34	(2.6)	62	(2.0)

Table STQ 28c.1
Use of Various Equipment in Grade K–4 Science Classes

	Percent of Classes					
	Never use in this course		Use in specific parts of this course		Fully integrated into this course	
Overhead projector	17	(2.2)	60	(3.1)	22	(2.3)
Videotape player	14	(1.7)	66	(2.9)	20	(2.4)
Videodisc player	80	(2.4)	16	(2.0)	4	(1.2)
CD-ROM player	59	(2.8)	37	(2.5)	4	(1.0)
Four-function calculator	75	(2.5)	22	(2.1)	3	(1.1)
Fraction calculator	99	(0.6)	1	(0.4)	1	(0.4)
Graphing calculator	99	(0.3)	1	(0.3)	0	—*
Scientific calculator	99	(0.5)	1	(0.4)	0	(0.2)
Computers	42	(2.9)	48	(2.8)	10	(1.7)
Computers with Internet connection	46	(3.1)	47	(2.9)	7	(1.3)
Calculator/computer lab interfacing devices	94	(1.1)	5	(1.1)	1	(0.3)
Running water in labs/classrooms	25	(2.4)	51	(2.6)	24	(2.1)
Electric outlets in labs/classrooms	18	(2.3)	52	(2.6)	30	(2.3)
Gas for burners in labs/classrooms	95	(1.1)	4	(1.0)	1	(0.3)
Hoods or air hoses in labs/classrooms	98	(0.7)	2	(0.7)	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.

Table STQ 28c.2
Use of Various Equipment in Grade 5–8 Science Classes

	Percent of Classes					
	Never use in this course		Use in specific parts of this course		Fully integrated into this course	
Overhead projector	9	(2.0)	41	(3.0)	49	(2.9)
Videotape player	9	(2.2)	59	(3.1)	32	(2.8)
Videodisc player	60	(2.8)	27	(2.7)	13	(1.8)
CD-ROM player	48	(2.9)	42	(2.7)	10	(1.5)
Four-function calculator	42	(2.8)	46	(2.7)	12	(1.9)
Fraction calculator	86	(2.4)	12	(2.2)	2	(0.7)
Graphing calculator	91	(1.4)	8	(1.2)	2	(0.7)
Scientific calculator	76	(2.3)	20	(2.3)	3	(1.0)
Computers	18	(2.1)	65	(2.7)	17	(2.3)
Computers with Internet connection	27	(2.6)	59	(2.9)	15	(2.0)
Calculator/computer lab interfacing devices	77	(2.3)	20	(2.3)	3	(1.0)
Running water in labs/classrooms	13	(2.1)	47	(3.0)	40	(2.6)
Electric outlets in labs/classrooms	6	(1.2)	48	(3.0)	47	(3.2)
Gas for burners in labs/classrooms	70	(2.7)	22	(2.5)	8	(1.2)
Hoods or air hoses in labs/classrooms	82	(2.3)	14	(2.0)	4	(0.9)

Table STQ 28c.3
Use of Various Equipment in Grade 9–12 Science Classes

	Percent of Classes					
	Never use in this course		Use in specific parts of this course		Fully integrated into this course	
Overhead projector	13	(2.6)	35	(2.1)	52	(2.2)
Videotape player	7	(0.9)	59	(2.3)	35	(2.3)
Videodisc player	51	(2.3)	36	(2.0)	13	(1.4)
CD-ROM player	50	(2.3)	38	(2.5)	12	(2.0)
Four-function calculator	46	(2.3)	30	(2.1)	25	(2.0)
Fraction calculator	77	(2.4)	15	(2.3)	9	(1.2)
Graphing calculator	68	(2.4)	22	(1.6)	10	(2.0)
Scientific calculator	47	(2.6)	24	(1.8)	28	(2.6)
Computers	21	(1.8)	60	(2.4)	19	(2.2)
Computers with Internet connection	29	(2.1)	56	(2.4)	15	(1.7)
Calculator/computer lab interfacing devices	63	(2.3)	31	(2.3)	6	(0.9)
Running water in labs/classrooms	6	(1.0)	37	(2.3)	58	(2.2)
Electric outlets in labs/classrooms	4	(1.0)	36	(2.3)	59	(2.4)
Gas for burners in labs/classrooms	31	(2.1)	34	(2.3)	35	(2.3)
Hoods or air hoses in labs/classrooms	48	(2.3)	30	(2.2)	22	(2.1)

Table STQ 29
Estimated Amount of Own Money Science Teachers Spend on Supplies per Class

	Median Amount
Grades K–4	$ 50
Grades 5–8	$ 75
Grades 9–12	$ 75

Table STQ 30
Estimated Amount of Own Money Science Teachers Spend on Professional Development

	Median Amount
Grades K–4	$ 0
Grades 5–8	$ 50
Grades 9–12	$ 100

Table STQ 31.1
Grade K–4 Science Classes Where Teachers Report Having Control Over Various Curriculum and Instruction Decisions

	Percent of Classes									
	No Control								Strong Control	
	1		2		3		4		5	
Determining course goals and objectives	31	(2.7)	13	(1.7)	31	(2.7)	12	(1.6)	14	(2.0)
Selecting textbooks/instructional programs	37	(2.5)	18	(1.8)	24	(2.6)	13	(1.8)	8	(1.6)
Selecting other instructional materials	10	(1.2)	10	(1.8)	29	(2.5)	23	(2.0)	28	(2.1)
Selecting content, topics, and skills to be taught	27	(2.5)	15	(1.7)	25	(2.3)	19	(2.2)	14	(2.0)
Selecting the sequence in which topics are covered	8	(1.6)	6	(1.4)	18	(2.1)	24	(2.2)	44	(3.0)
Setting the pace for covering topics	5	(1.2)	7	(1.0)	20	(2.1)	23	(2.0)	45	(3.1)
Selecting teaching techniques	2	(0.7)	1	(0.5)	13	(1.8)	28	(2.4)	56	(3.3)
Determining the amount of homework to be assigned	2	(0.7)	1	(0.6)	8	(1.1)	22	(2.1)	67	(2.5)
Choosing criteria for grading students	3	(1.0)	4	(1.1)	15	(1.9)	28	(2.3)	50	(2.6)
Choosing tests for classroom assessment	5	(1.4)	4	(1.0)	11	(1.3)	27	(2.5)	53	(2.9)

Table STQ 31.2
Grade 5–8 Science Classes Where Teachers Report Having Control Over Various Curriculum and Instruction Decisions

	Percent of Classes									
	No Control								Strong Control	
	1		2		3		4		5	
Determining course goals and objectives	21	(2.5)	8	(1.5)	27	(2.4)	20	(2.4)	24	(2.6)
Selecting textbooks/instructional programs	22	(2.1)	14	(1.8)	27	(2.6)	15	(2.0)	22	(2.4)
Selecting other instructional materials	4	(1.0)	5	(1.3)	21	(2.1)	30	(2.3)	40	(2.8)
Selecting content, topics, and skills to be taught	15	(2.1)	16	(2.1)	22	(2.5)	24	(2.5)	22	(2.4)
Selecting the sequence in which topics are covered	6	(1.3)	4	(1.4)	11	(1.6)	20	(2.6)	59	(2.9)
Setting the pace for covering topics	2	(0.7)	5	(1.1)	12	(1.8)	25	(2.4)	56	(2.6)
Selecting teaching techniques	1	(0.3)	1	(0.6)	4	(1.0)	26	(2.7)	68	(2.6)
Determining the amount of homework to be assigned	0	(0.3)	1	(0.5)	4	(0.9)	19	(2.1)	75	(2.4)
Choosing criteria for grading students	1	(0.5)	2	(0.9)	11	(2.1)	23	(2.4)	63	(3.0)
Choosing tests for classroom assessment	1	(0.5)	1	(0.5)	7	(1.4)	21	(2.1)	70	(2.6)

Table STQ 31.3
Grade 9–12 Science Classes Where Teachers Report Having Control Over Various Curriculum and Instruction Decisions

	Percent of Classes									
	No Control								Strong Control	
	1		2		3		4		5	
Determining course goals and objectives	15	(1.5)	8	(1.2)	15	(1.4)	22	(2.1)	39	(2.5)
Selecting textbooks/instructional programs	12	(1.2)	10	(1.2)	22	(2.3)	20	(1.7)	36	(2.4)
Selecting other instructional materials	2	(0.3)	4	(0.7)	15	(1.3)	27	(1.9)	52	(2.5)
Selecting content, topics, and skills to be taught	10	(1.0)	8	(1.1)	15	(1.6)	25	(1.9)	42	(2.6)
Selecting the sequence in which topics are covered	2	(0.5)	4	(0.6)	9	(1.3)	21	(1.5)	64	(2.1)
Setting the pace for covering topics	2	(0.4)	3	(0.6)	10	(1.1)	22	(1.6)	63	(2.2)
Selecting teaching techniques	0	(0.2)	1	(0.2)	3	(0.6)	16	(1.6)	80	(1.6)
Determining the amount of homework to be assigned	0	(0.1)	0	(0.1)	3	(0.7)	14	(1.5)	83	(1.5)
Choosing criteria for grading students	1	(0.3)	2	(0.4)	6	(0.6)	20	(1.7)	71	(1.7)
Choosing tests for classroom assessment	1	(0.2)	1	(0.3)	3	(0.6)	16	(1.4)	80	(1.6)

Table STQ 32
Amount of Homework Assigned in Science Classes per Week

	Percent of Classes					
	Grades K–4		Grades 5–8		Grades 9–12	
0–30 minutes	89	(1.5)	37	(2.8)	11	(1.2)
31–60 minutes	8	(1.1)	35	(2.3)	27	(1.7)
61–90 minutes	2	(0.8)	19	(2.2)	25	(1.7)
91–120 minutes	1	(0.4)	6	(1.5)	16	(1.4)
2–3 hours	0	—*	3	(0.7)	14	(1.8)
More than 3 hours	0	(0.2)	0	(0.2)	7	(1.6)

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

Table STQ 33a
Science Classes Using Commercially-Published Textbooks or Programs

	Percent of Classes	
Grades K–4	64	(2.3)
Grades 5–8	85	(2.5)
Grades 9–12	96	(0.5)

Table STQ 33b
Use of Commercially-Published Textbooks or Programs in Science Classes

	Percent of Classes					
	Grades K–4		Grades 5–8		Grades 9–12	
Use one textbook or program all or most of the time	37	(2.6)	48	(3.0)	63	(2.7)
Use multiple textbooks/programs	24	(2.5)	36	(2.5)	32	(2.6)

Table STQ 34
Publishers of Textbooks/Programs Used in Science Classes

	Percent of Classes					
	Grades K–4		Grades 5–8		Grades 9–12	
Addison-Wesley Longman, Inc/ Scott Foresman	30	(3.3)	17	(3.1)	13	(1.1)
Benjamin/Cummings Publishing Company, Inc.	0	—*	0	—*	0	—*
Brooks/Cole Publishing Co	0	—*	0	—*	0	(0.2)
Carolina Biological Supply Co	2	(0.8)	1	(0.6)	0	(0.3)
Delta Education	1	(0.5)	0	—*	0	—*
Encyclopaedia Britannica	0	(0.4)	0	(0.1)	0	—*
Globe Fearon, Inc/Cambridge	0	—*	2	(0.6)	0	(0.2)
Harcourt Brace/Harcourt, Brace & Jovanovich	5	(1.6)	4	(1.2)	3	(0.5)
Holt, Rinehart, and Winston, Inc	2	(1.1)	6	(1.2)	21	(1.8)
Houghton Mifflin Company/McDougal Littell/D.C. Heath	2	(0.9)	3	(1.1)	5	(0.9)
It's About Time	0	—*	0	—*	0	(0.2)
J.M. LeBel Enterprises	0	—*	0	—*	0	(0.1)
Kendall Hunt Publishing	0	(0.3)	1	(0.4)	2	(0.7)
Lawrence Hall of Science	1	(0.6)	1	(0.6)	0	—*
McGraw-Hill/Merrill Co	13	(2.3)	23	(2.5)	30	(2.2)
Modern Curriculum Press	0	—*	0	—*	0	(0.1)
Mosby/The C.V. Mosby Company	0	—*	0	—*	0	—*
Nystrom	0	(0.5)	0	—*	0	—*
Optical Data Corporation	0	(0.5)	0	(0.0)	0	—*
Prentice Hall, Inc.	0	—*	24	(2.4)	18	(1.5)
Saxon Publishers	0	—*	0	—*	0	—*
Scholastic, Inc.	6	(1.6)	2	(1.4)	0	—*
Silver Burdett Ginn	26	(3.8)	14	(2.4)	0	—*
South-Western Educational Publishing	0	—*	0	—*	0	(0.2)
Steck-Vaughn Company	0	(0.3)	0	(0.3)	0	—*
Videodiscovery, Inc	0	—*	0	—*	0	—*
W.H. Freeman	0	—*	0	—*	0	(0.0)
Wadsworth Publishing	0	—*	0	—*	1	(0.3)
"Other" specified:						
A-Beka	2	(1.1)	0	—*	0	—*
CORD Communications	0	—*	0	—*	2	(0.6)
FOSS	2	(0.9)	0	(0.4)	0	—*
National Science Resource Center	2	(1.3)	0	—*	0	—*

* 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 35a.

Table STQ 35b
Percentage of Science Textbooks/Programs Covered During the Course†

	Percent of Classes					
	Grades K–4		Grades 5–8		Grades 9–12	
<25%	5	(1.2)	8	(1.5)	3	(0.6)
25–49%	16	(2.2)	19	(2.2)	13	(1.4)
50–74%	30	(3.1)	33	(2.7)	38	(2.3)
75–90%	24	(2.4)	28	(2.5)	37	(2.2)
>90%	26	(2.9)	11	(1.7)	9	(1.1)

† Only classes using published textbooks/programs were included in these analyses.

Table STQ 35c
Teachers' Perceptions of Quality of Textbooks/Programs Used in Science Classes

	Percent of Classes					
	Grades K–4		Grades 5–8		Grades 9–12	
Very Poor	4	(1.2)	3	(0.9)	1	(0.3)
Poor	7	(1.6)	8	(2.6)	4	(0.8)
Fair	33	(3.1)	28	(2.6)	18	(1.8)
Good	33	(3.3)	32	(2.7)	39	(2.2)
Very Good	19	(2.6)	22	(2.6)	31	(2.1)
Excellent	4	(1.2)	6	(1.5)	8	(1.1)

Table STQ 36a
Average Length of Most Recent Science Lesson

	Number of Minutes	
Grades K–4	41	(1.0)
Grades 5–8	53	(1.3)
Grades 9–12	66	(1.0)

Table STQ 36b
Time Spent on Various Types of Activities in Most Recent Science Lesson

	Percent of Time					
	Grades K–4		Grades 5–8		Grades 9–12	
Daily routines, interruptions, and other non-instructional activities	9	(0.5)	11	(0.5)	11	(0.3)
Whole class lecture/discussion	33	(1.0)	30	(1.2)	37	(1.1)
Individual students reading textbooks, completing worksheets, etc.	16	(1.0)	18	(1.0)	14	(0.9)
Working with hands-on, manipulative, or laboratory materials	30	(1.6)	24	(1.6)	22	(1.2)
Non-laboratory small group work	8	(0.8)	11	(1.1)	10	(0.8)
Other activities	4	(0.8)	5	(1.1)	7	(0.6)

Table STQ 37
Science Classes Participating in Various Activities in Most Recent Lesson

	Percent of Classes					
	Grades K–4		Grades 5–8		Grades 9–12	
Lecture	59	(2.7)	62	(3.1)	71	(2.1)
Discussion	90	(2.0)	83	(2.6)	81	(1.4)
Students completing textbook/workbook problems	43	(2.5)	50	(3.0)	52	(2.3)
Students doing hands-on/laboratory activities	62	(2.6)	50	(3.2)	42	(2.2)
Students reading about science	41	(2.6)	41	(2.6)	26	(2.2)
Students working in small groups	55	(2.9)	56	(2.9)	52	(1.9)
Students using calculators	1	(0.5)	8	(1.4)	27	(1.9)
Students using computers	4	(0.8)	10	(1.6)	7	(1.0)
Students using other technologies	4	(0.9)	9	(1.4)	9	(1.2)
Test or quiz	7	(1.4)	11	(1.6)	12	(1.2)
None of the above	2	(0.7)	3	(1.1)	2	(0.5)

Table STQ 38
Science Taught on Most Recent Day of School

	Percent of Classes	
Grades K–4	69	(2.2)
Grades 5–8	90	(1.9)
Grades 9–12	93	(1.1)

Table STQ 39
Gender of Science Teachers

	Percent of Teachers					
	Grades K–4		Grades 5–8		Grades 9–12	
Male	8	(1.2)	23	(3.1)	50	(2.1)
Female	92	(1.2)	77	(3.1)	50	(2.1)

Table STQ 40
Race/Ethnicity of Science Teachers

	Percent of Teachers[†]					
	Grades K–4		Grades 5–8		Grades 9–12	
American Indian or Alaskan Native	1	(0.3)	1	(0.5)	2	(0.5)
Asian	1	(1.0)	1	(0.6)	2	(0.6)
Black or African American	5	(0.9)	5	(1.1)	4	(0.8)
Hispanic or Latino	4	(1.1)	3	(1.0)	3	(0.5)
Native Hawaiian or Other Pacific Islander	0	(0.1)	0	(0.1)	0	(0.1)
White	88	(1.9)	87	(1.8)	90	(1.2)

[†] Percents may not add to 100 because respondents were given the option of selecting more than one category. Of the science teachers responding to the survey, 96 percent selected only one category, 2 percent selected more than one category, and 2 percent selected no category.

Table STQ 41
Age of Science Teachers

	Percent of Teachers					
	Grades K–4		Grades 5–8		Grades 9–12	
Less than 31 years old	20	(2.0)	19	(2.8)	20	(2.5)
31–40 years old	19	(1.8)	22	(3.1)	23	(1.7)
41–50 years old	34	(2.1)	30	(3.1)	29	(1.9)
51 years old or over	27	(1.9)	29	(3.7)	28	(1.7)

Table STQ 42
Number of Years Teaching Experience of Science Teachers

	Percent of Teachers					
	Grades K–4		Grades 5–8		Grades 9–12	
0–2 years	14	(1.6)	16	(2.7)	16	(2.2)
3–5 years	17	(1.6)	9	(1.5)	16	(1.7)
6–10 years	16	(1.8)	19	(2.6)	18	(1.4)
11–20 years	27	(1.9)	24	(3.3)	21	(1.6)
More than 20 years	26	(2.4)	32	(3.1)	29	(1.7)