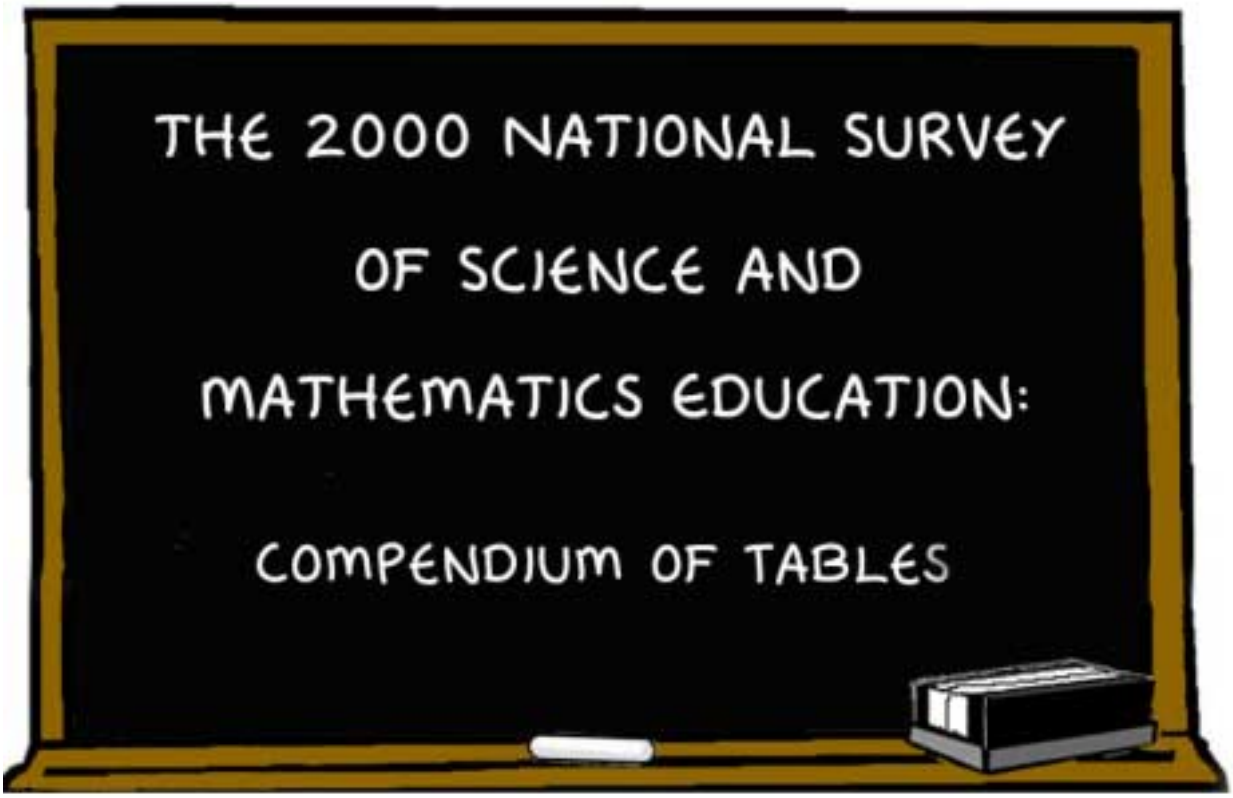

The 2000 National Survey of Science and Mathematics Education: Compendium of Tables

March 2002

Horizon Research, Inc.
326 Cloister Court
Chapel Hill, NC 27514

Susan B. Hudson
Kelly C. McMahon
Christina M. Overstreet

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This report is available on the Web at:
2000survey.horizon-research.com

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Section One

Introduction

A. Background and Purpose of the Study

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

The 2000 National Survey of Science and Mathematics Education was designed to provide up-to-date information and to identify trends in the areas of teacher background and experience, curriculum and instruction, and the availability and use of instructional resources. A total of 5,728 science and mathematics teachers in schools across the United States participated in this survey. Among the questions addressed by the survey:

- How well prepared are science and mathematics teachers in terms of both content and pedagogy?
- What are teachers trying to accomplish in their science and mathematics instruction, and what activities do they use to meet these objectives?
- To what extent do teachers support reform notions embodied in the National Research Council's *National Science Education Standards* and the National Council of Teachers of Mathematics' *Principles and Standards for School Mathematics*?
- What are the barriers to effective and equitable science and mathematics education?

The design and implementation of the 2000 National Survey of Science and Mathematics Education involved developing a sampling strategy and selecting samples of schools and teachers; developing and field testing survey instruments; collecting data from sample members; and preparing data files and analyzing the data. These activities are described in the following sections. The final section of this chapter outlines the contents of the remainder of the report.

B. Sample Design and Sampling Error Considerations

The 2000 National Survey of Science and Mathematics Education is based on a national probability sample of science and mathematics schools and teachers in grades K–12 in the 50 states and the District of Columbia. The sample was designed to allow national estimates of science and mathematics course offerings and enrollment; teacher background preparation; textbook usage; instructional techniques; and availability and use of science and mathematics facilities and equipment. Every eligible school and teacher in the target population had a known, positive probability of being drawn into the sample.

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

The sampling frame for the school sample was constructed from the Quality Education Data, Inc. (QED) database, which includes school name and address and information about the school needed for stratification and sample selection. The sampling frame for the teacher sample was constructed from lists provided by sample schools, identifying current teachers and the specific science and mathematics subjects they were teaching.

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

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

Whenever a sample is anything other than a simple random sample of a population, the results must be weighted to take the sample design into account. In the 2000 Survey, the weight for each respondent was calculated as the inverse of the probability of selecting the individual into

the sample multiplied by a non-response adjustment factor.[1] In the case of data about a randomly selected class, the teacher weight was adjusted to reflect the number of classes taught, and therefore, the probability of a particular class being selected. Detailed information about the sample design, weighting procedures, and non-response adjustments used in the 2000 National Survey of Science and Mathematics Education is included in the *Report of the 2000 National Survey of Science and Mathematics Education*. All data presented in this report are weighted.

The results of any survey based on a sample of a population (rather than on the entire population) are subject to sampling variability. The sampling error (or standard error) provides a measure of the range within which a sample estimate can be expected to fall a certain proportion of the time. For example, it may be estimated that 7 percent of all grade K–4 mathematics lessons involve the use of computers. If it is determined that the sampling error for this estimate was 1 percent, then according to the Central Limit Theorem, 95 percent of all possible samples of that same size selected in the same way would yield calculator usage estimates between 5 percent and 9 percent (that is, 7 percent ±2 standard error units).

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

C. Instrument Development

Since a primary purpose of the 2000 National Survey of Science and Mathematics Education was to identify trends in science and mathematics education, the process of developing survey instruments began with the questionnaires that had been used in the earlier national surveys, in 1977, 1985–86, and 1993. The project Advisory Panel, comprised of experienced researchers in science and mathematics education, reviewed these questionnaires and made recommendations about retaining or deleting particular items. Additional items needed to provide important information about the current status of science and mathematics education were also considered.

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

[1] The aim of non-response adjustments is to reduce possible bias by distributing the non-respondent weights among the respondents expected to be most similar to these non-respondents. In this study, adjustment was made by region and by urbanicity of the school.

The Education Information Advisory Committee (EIAC) also played an important role in the instrument development process. This committee was established by the Council of Chief State School Officers to reduce the burden of data collection efforts on local education agencies; most state commissioners of education will not approve a survey unless it is first endorsed by EIAC. Horizon Research, Inc. worked with members of the EIAC committee throughout the planning stages of this project to make sure that the disruption to school activities and the burden on schools and teachers would be kept to a minimum.

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

D. Data Collection

Once the Education Information Advisory Committee had approved the study design, instruments, and procedures, the data collection subcontractor (Westat, Inc.) proceeded with securing permission from education officials. First, notification letters were mailed to the Chief State School Officers, identifying the schools in the state that had been selected for the survey. Similar letters were subsequently mailed to superintendents of districts including sampled public schools and diocesan offices of sampled Catholic schools. Copies of the survey instruments and additional information about the study were provided when requested.

Principals were asked to provide demographic information about the students in the school; the names of the science and mathematics department heads or other individuals who would be able to provide information about the science and mathematics programs in the school; and a list of all teachers responsible for teaching science and/or mathematics to one or more classes. The response rate at the school level was 73 percent.

An incentive system was developed to encourage school and teacher participation in the survey. Each school was given a credit of $50 towards the purchase of science and mathematics education materials; the amount was augmented by $15 for each responding teacher. At the completion of the data collection phase, schools were sent vouchers that they could use for purchasing professional publications, calculators, science activity books, kits, etc. from a catalogue developed for this study.

Survey mailings to teachers began in March 2000. In addition to the incentives described, phone calls and additional mailings of survey materials were used to encourage non-respondents to complete the questionnaires. In the fall of 2000, a final questionnaire mailing was sent to non-respondent teachers. Over the summer, some teachers left the schools at which they taught when they were originally sampled. If these teachers were considered ineligible for the study, the teacher response rate was 74 percent. When they were included as non-respondents, the response rate was 67 percent. The final response rate for the school program questionnaires was 79

percent. A more detailed description of the data collection procedures is included in the *Report of the 2000 National Survey of Science and Mathematics Education*.

E. File Preparation and Analysis

Completed questionnaires were recorded in the data receipt system and routed to editing and coding. Manual edits were used to identify missing information and obvious out-of-range answers; to identify and, if possible, resolve multiple responses; and to make a number of consistency checks. When necessary, respondents were re-contacted and asked to clarify and/or complete responses to key items. After data entry, machine edits were performed to check for out-of-range answers, adherence to skip patterns, and logical inconsistencies, and weights were added to the data files. All population estimates presented in this report were computed using weighted data.

F. Outline of Compendium

This compendium of tables of the 2000 National Survey of Science and Mathematics Education is organized into four sections. Sections Two and Three contain tables from the Science Questionnaire and Mathematics Questionnaire completed by teachers. Sections Four and Five consist of tables from the Science Program Questionnaire and the Mathematics Program Questionnaire completed by program representatives at each school. The corresponding questionnaires appear prior to the tables in each section.

Table numbers correspond to the questionnaire item numbers. Results are expressed in terms of percentages or means, with standard errors in parentheses. Teachers were classified by grade range according to the information they provided about their teaching schedule. Most of the analyses in this compilation of tables used the grade ranges K–4, 5–8, and 9–12. A teacher who taught classes in more than one grade range was included in both. (In contrast, each class was categorized as either grades K–4, 5–8, or 9–12, based on the grade range information provided by the teacher. Only one grade range was assigned to each class.) Schools were classified as elementary, middle, and high schools, according to the grades taught, with more than one categorization possible.[2]

[2] Elementary school is defined as any school containing grade K, 1, 2, and/or 3; middle school is defined as any school containing grade 7 or 8, or any school containing only grades 4, 5, and/or 6, or any school containing only grade 9; and high school is defined as any school containing grade 10, 11, or 12.

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

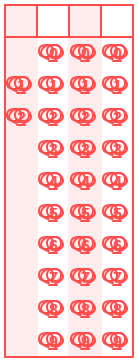
7. Considering all of your undergraduate and graduate **science** courses, approximately what percentage were completed at each of the following types of institutions? (Darken one oval on each line.)

	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...

PLEASE DO NOT WRITE IN THIS AREA

[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:

_____

_____

_____)

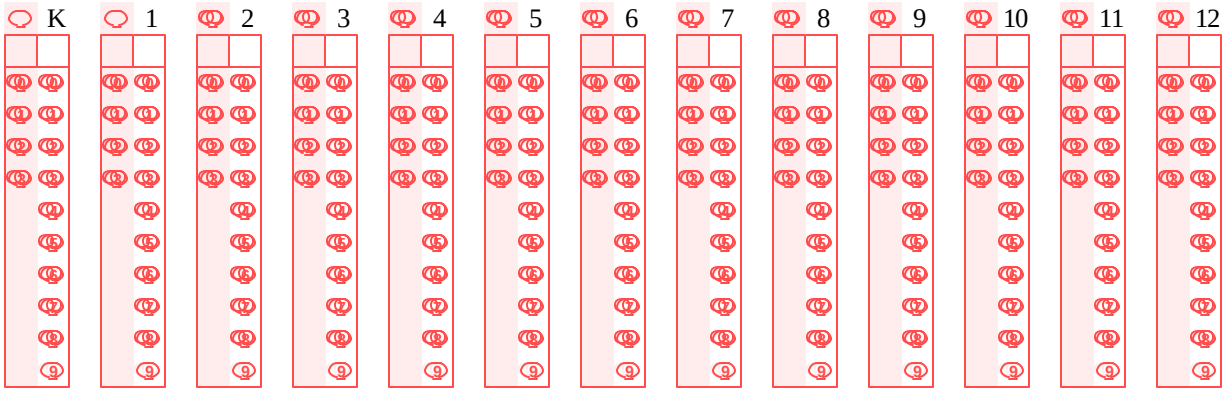
Code #

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

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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

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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)

Section Three

Mathematics Teacher Questionnaire

Mathematics Questionnaire

MTQ Tables

2000 National Survey of Science and Mathematics Education

Mathematics Questionnaire

You have been selected to answer questions about your mathematics instruction. If you do not currently teach mathematics, 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 mathematics to more than one class, use the label at the right to determine the mathematics 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 mathematics best in classes with students of similar abilities.	①	②	③	④	⑤
b.	The testing program in my state/district dictates what mathematics content I teach.	①	②	③	④	⑤
c.	I enjoy teaching mathematics.	①	②	③	④	⑤
d.	I consider myself a "master" mathematics teacher.	①	②	③	④	⑤
e.	I have time during the regular school week to work with my colleagues on mathematics curriculum and teaching.	①	②	③	④	⑤
f.	My colleagues and I regularly share ideas and materials related to mathematics teaching.	①	②	③	④	⑤
g.	Mathematics 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 mathematics teachers in this school contribute actively to making decisions about the mathematics curriculum.	①	②	③	④	⑤

2a. How familiar are you with the NCTM *Standards*? (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 mathematics education described in the NCTM *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 NCTM *Standards* in your mathematics 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 mathematics 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 mathematics	①	②	③	④
c.	Provide deeper coverage of fewer mathematics concepts	①	②	③	④
d.	Make connections between mathematics and other disciplines	①	②	③	④
e.	Lead a class of students using investigative strategies	①	②	③	④
f.	Manage a class of students engaged in hands-on/project-based work	①	②	③	④
g.	Have students work in cooperative learning groups	①	②	③	④
h.	Listen/ask questions as students work in order to gauge their understanding	①	②	③	④
i.	Use the textbook as a resource rather than the primary instructional tool	①	②	③	④
j.	Teach groups that are heterogeneous in ability	①	②	③	④
k.	Teach students who have limited English proficiency	①	②	③	④
l.	Recognize and respond to student cultural diversity	①	②	③	④
m.	Encourage students' interest in mathematics	①	②	③	④
n.	Encourage participation of females in mathematics	①	②	③	④
o.	Encourage participation of minorities in mathematics	①	②	③	④

Question 3 continues on next page...

3. *continued...*

		Not Adequately Prepared	Somewhat Prepared	Fairly Well Prepared	Very Well Prepared
p.	Involve parents in the mathematics education of their children	○	○	○	○ 4
q.	Use calculators/computers for drill and practice	○	○	○	○
r.	Use calculators/computers for mathematics learning games	○	○	○	○
s.	Use calculators/computers to collect and/or analyze data	○	○	○	○
t.	Use calculators/computers to demonstrate mathematics principles	○	○	○	○
u.	Use calculators/computers for simulations and applications	○	○	○	○
v.	Use the Internet in your mathematics teaching for general reference	○	○	○	○
w.	Use the Internet in your mathematics teaching for data acquisition	○	○	○	○
x.	Use the Internet in your mathematics 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
Mathematics	○	○	○
Computer Science	○	○	○
Mathematics Education	○	○	○
Science/Science Education	○	○	○
Elementary Education	○	○	○
Other Education (e.g., History Education, Special Education)	○	○	○
Other, please specify _____	○	○	○

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.)

MATHEMATICS

- ○ Mathematics for elementary school teachers
- ○ Mathematics for middle school teachers
- ○ Geometry for elementary/middle school teachers
- ○ College algebra/trigonometry/elementary functions
- ○ Calculus
- ○ Advanced calculus
- ○ Real analysis
- ○ Differential equations
- ○ Geometry
- ○ Probability and statistics
- ○ Abstract algebra
- ○ Number theory
- ○ Linear algebra
- ○ Applications of mathematics/problem solving
- ○ History of mathematics
- ○ Discrete mathematics
- ○ Other upper division mathematics

SCIENCES/COMPUTER SCIENCES

- ○ Biological sciences
- ○ Chemistry
- ○ Physics
- ○ Physical science
- ○ Earth/space science
- ○ Engineering (any)
- ○ Computer programming
- ○ Other computer science

EDUCATION

- ○ General methods of teaching
- ○ Methods of teaching mathematics
- ○ Instructional uses of computers/other technologies
- ○ Supervised student teaching in mathematics

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. Mathematics education		
b. Calculus		
c. Statistics		
d. Advanced calculus		
e. All other mathematics courses		
f. Computer science		
g. Science		

7. Considering all of your undergraduate and graduate **mathematics** 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. Mathematics

b. The Teaching of Mathematics

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

9. What is the **total** amount of time you have spent on professional development in mathematics or the teaching of mathematics 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		

PLEASE DO NOT WRITE IN THIS AREA

[SERIAL]

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

a.	Taught any in-service workshops in mathematics or mathematics 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 mathematics teaching?	Yes	No
d.	Served on a school or district mathematics curriculum committee?	Yes	No
e.	Served on a school or district mathematics textbook selection committee?	Yes	No

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

a.	Taken a formal college/university mathematics 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 mathematics. (Please do not include courses taken as part of your undergraduate degree.)	Yes	No
c.	Observed other teachers teaching mathematics as part of your own professional development (formal or informal).	Yes	No
d.	Met with a local group of teachers to study/discuss mathematics teaching issues on a regular basis.	Yes	No
e.	Collaborated on mathematics teaching issues with a group of teachers at a distance using telecommunications.	Yes	No
f.	Served as a mentor and/or peer coach in mathematics 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 mathematics teaching.	Yes	No
h.	Attended a national or state mathematics 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	Substantial Need
Deepening my own mathematics content knowledge				
Understanding student thinking in mathematics				
Learning how to use inquiry/investigation-oriented teaching strategies				
Learning how to use technology in mathematics instruction				
Learning how to assess student learning in mathematics				
Learning how to teach mathematics 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 mathematics content knowledge	○	○	○	○	○
Understanding student thinking in mathematics	○	○	○	○	○
Learning how to use inquiry/investigation-oriented teaching strategies	○	○	○	○	○
Learning how to use technology in mathematics instruction	○	○	○	○	○
Learning how to assess student learning in mathematics	○	○	○	○	○
Learning how to teach mathematics 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 mathematics content knowledge	○	○	○
Understanding student thinking in mathematics	○	○	○
Learning how to use inquiry/investigation-oriented teaching strategies	○	○	○
Learning how to use technology in mathematics instruction	○	○	○
Learning how to assess student learning in mathematics	○	○	○
Learning how to teach mathematics 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

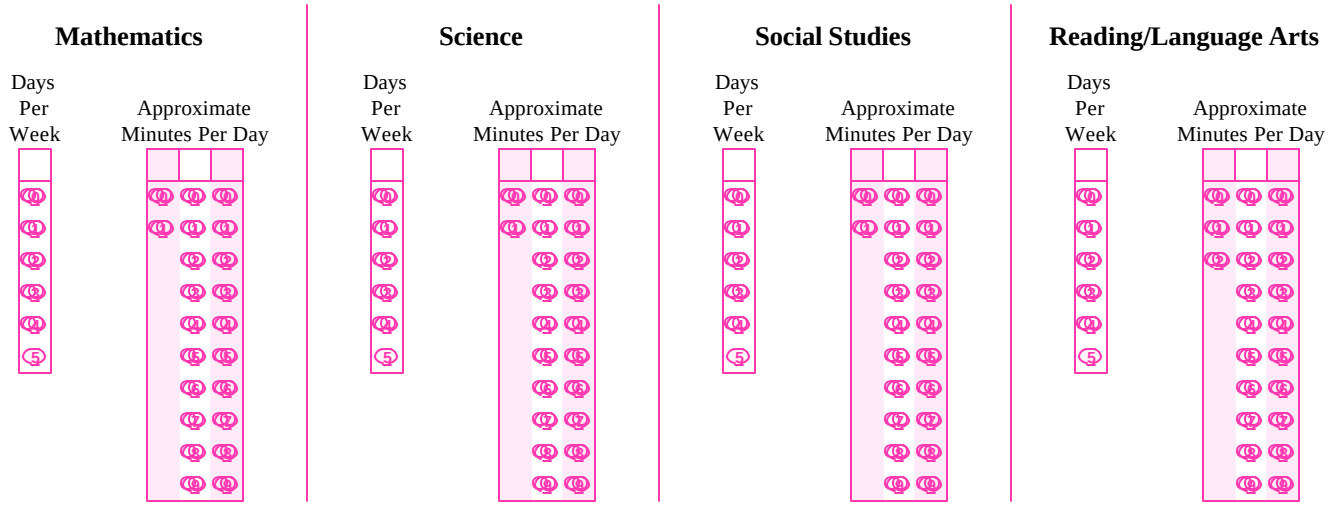
13b. ***For teachers of self-contained classes*:** Many teachers feel better qualified to teach some subject areas than others. How well qualified do you feel to teach each of the following subjects **at the grade level(s) you teach**, whether or not they are currently included in your curriculum? (Darken 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	○	○	○

PLEASE DO NOT WRITE IN THIS AREA

[SERIAL]

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.)



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 mathematics, and perhaps other courses) to several different classes of students all or most of the day.
b. **Elementary Enrichment Class**—you teach only mathematics 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 mathematics.

15a. ***For teachers of non-self-contained classes:*** Within mathematics, 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.)

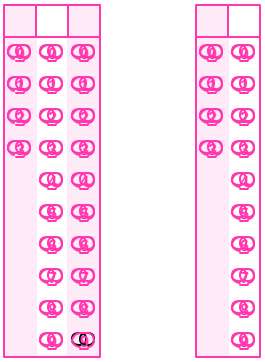
		Not Well Qualified	Adequately Qualified	Very Well Qualified
a.	Numeration and number theory			
b.	Computation			
c.	Estimation			
d.	Measurement			
e.	Pre-algebra			
f.	Algebra			
g.	Patterns and relationships			
h.	Geometry and spacial sense			
i.	Functions (including trigonometric functions) and pre-calculus concepts			
j.	Data collection and analysis			
k.	Probability			
l.	Statistics (e.g., hypothesis tests, curve fitting and regression)			
m.	Topics from discrete mathematics (e.g., combinatorics, graph theory, recursion)			
n.	Mathematical structures (e.g., vector spaces, groups, rings, fields)			
o.	Calculus			
p.	Technology (calculators, computers) in support of mathematics			

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**.)

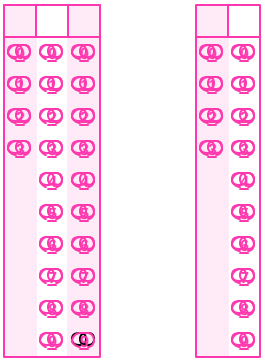
- Note that if you have more than 39 students in any class, you will not be able to darken the ovals, but you should still write the number in the boxes.

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

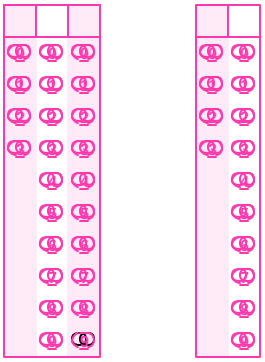
Course Title _____ Code # # of Students



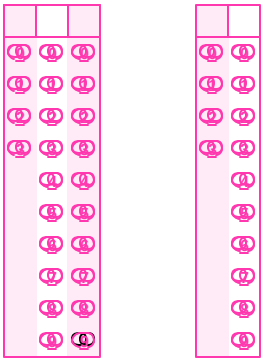
Course Title _____ Code # # of Students



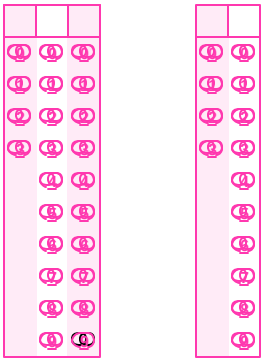
Course Title _____ Code # # of Students



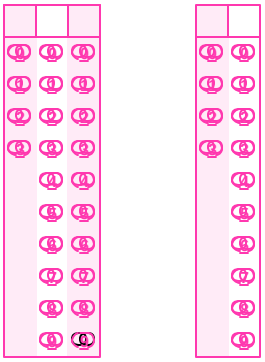
Course Title _____ Code # # of Students



Course Title _____ Code # # of Students



Course Title _____ Code # # of Students



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[SERIAL]

C. Your Mathematics Teaching in a Particular Class

The questions in this section are about a particular mathematics class you teach. **If you teach mathematics to more than one class per day, please consult the label on the front of this questionnaire to determine which mathematics 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 299], briefly describe content of course:

_____

_____

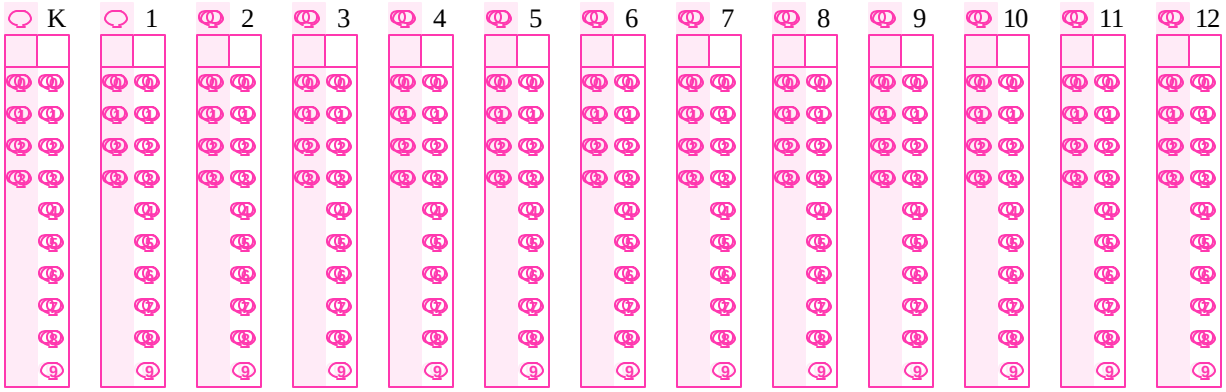
_____)

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.**



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.**

PLEASE DO NOT WRITE IN THIS AREA

[SERIAL]

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 mathematics class? (Darken one oval.)

- Year
- Semester
- Quarter

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 mathematics 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 mathematics 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 mathematics				
b.	Learn mathematical concepts				
c.	Learn mathematical algorithms/procedures				
d.	Develop students' computational skills				
e.	Learn how to solve problems				
f.	Learn to reason mathematically				
g.	Learn how mathematics ideas connect with one another				
h.	Prepare for further study in mathematics				
i.	Understand the logical structure of mathematics				
j.	Learn about the history and nature of mathematics				
k.	Learn to explain ideas in mathematics effectively				
l.	Learn how to apply mathematics in business and industry				
m.	Learn to perform computations with speed and accuracy				
n.	Prepare for standardized tests				

24. About how often do **you** do each of the following in your mathematics 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 mathematics lessons
a.	Introduce content through formal presentations					
b.	Pose open-ended questions					
c.	Engage the whole class in discussions					
d.	Require students to explain their reasoning when giving an answer					
e.	Ask students to explain concepts to one another					
f.	Ask students to consider alternative methods for solutions					
g.	Ask students to use multiple representations (e.g., numeric, graphic, geometric, etc.)					
h.	Allow students to work at their own pace					
i.	Help students see connections between mathematics and other disciplines					
j.	Assign mathematics homework					
k.	Read and comment on the reflections students have written, e.g., in their journals					

PLEASE DO NOT WRITE IN THIS AREA

[SERIAL]

25. About how often do students in this **mathematics** 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 mathematics lessons
a. Listen and take notes during presentation by teacher	①	②	③	④	⑤
b. Work in groups	①	②	③	④	⑤
c. Read from a mathematics textbook in class	①	②	③	④	⑤
d. Read other (non-textbook) mathematics-related materials in class	①	②	③	④	⑤
e. Engage in mathematical activities using concrete materials	①	②	③	④	⑤
f. Practice routine computations/algorithms	①	②	③	④	⑤
g. Review homework/worksheet assignments	①	②	③	④	⑤
h. Follow specific instructions in an activity or investigation	①	②	③	④	⑤
i. Design their *own* activity or investigation	①	②	③	④	⑤
j. Use mathematical concepts to interpret and solve applied problems	①	②	③	④	⑤
k. Answer textbook or worksheet questions	①	②	③	④	⑤
l. Record, represent, and/or analyze data	①	②	③	④	⑤
m. Write reflections (e.g., in a journal)	①	②	③	④	⑤
n. Make formal presentations to the rest of the class	①	②	③	④	⑤
o. Work on extended mathematics investigations or projects (a week or more in duration)	①	②	③	④	⑤
p. Use calculators or computers for learning or practicing skills	①	②	③	④	⑤
q. Use calculators or computers to develop conceptual understanding	①	②	③	④	⑤
r. Use calculators or computers as a tool (e.g., spreadsheets, data analysis)	①	②	③	④	⑤

26. About how often do students in this mathematics class use **calculators/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 mathematics lessons
a. Do drill and practice	①	②	③	④	⑤
b. Demonstrate mathematics principles	①	②	③	④	⑤
c. Play mathematics learning games	①	②	③	④	⑤
d. Do 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 mathematics 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 mathematic 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
i. Have students do long-term mathematics 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

Question 27 continues on next page...

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 mathematics lessons
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 mathematics class.

		Not at all Available		Readily Available	Needed?		Never use in this course	Use in specific parts of this course	Fully integrated into this course
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.	Calculator/computer lab interfacing devices	①	②	③	①	②	①	②	③
k.	Computers with Internet connection	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 mathematics 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.)

$ ___ ___ ___

If none, darken this oval: ①

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.)

$ ___ ___ ___

If none, darken this oval: ①

31. How much control do you have over each of the following for this mathematics 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

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[SERIAL]

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

○ 0-30 min ○ 31-60 min ○ 61-90 min ○ 91-120 min ○ 2-3 hours ○ More than 3 hours

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

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

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

○ Use one textbook or program all or most of the time
○ 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 Brooks/Cole Publishing Co
○ 03 CORD Communications
○ 04 Creative Publications
○ 05 Dale Seymour Publications
○ 06 EFA & Associates
○ 07 Encyclopaedia Britannica
○ 08 Everyday Learning Corporation
○ 09 Globe Fearon, Inc / Cambridge
○ 10 Harcourt Brace/Harcourt, Brace & Jovanovich
○ 11 Holt, Rinehart and Winston, Inc
○ 12 Houghton Mifflin Company/McDougal Littell/D.C. Heath
○ 13 Kendall Hunt Publishing
○ 14 Key Curriculum Press
○ 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 Optical Data Corporation
○ 17 Prentice Hall, Inc.
○ 18 Saxon Publishers
○ 19 Silver Burdett Ginn
○ 20 South-Western Educational Publishing
○ 21 VideoText Interactive
○ 22 Wadsworth Publishing
○ 23 West Educational 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.

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 Mathematics Lesson in This Class

Questions 36-38 refer to the last time you taught mathematics 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 mathematics 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 or manipulative materials

5. Non-manipulative small group work

6. Other

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

- Lecture
- Discussion
- Students completing textbook/worksheet problems
- Students doing hands-on/manipulative activities
- Students reading about mathematics
- 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

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[SERIAL]

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

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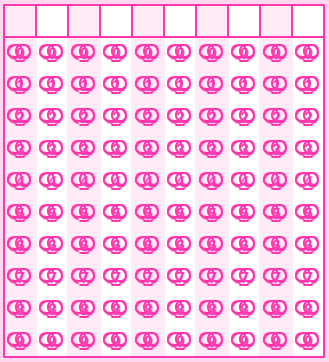
Please do not write in this area.



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!

Table MTQ 1.1
Grade K–4 Mathematics Teachers' Opinions on Curriculum and Instruction Issues

	Percent of Teachers									
	Strongly Disagree		Disagree		No Opinion		Agree		Strongly Agree	
Students learn mathematics best in classes with students of similar abilities	4	(0.9)	39	(2.1)	8	(1.4)	41	(2.6)	7	(1.2)
The testing program in my state/district dictates what mathematics content I teach	1	(0.4)	13	(1.5)	7	(1.3)	55	(2.2)	24	(2.1)
I enjoy teaching mathematics	1	(0.3)	2	(0.6)	4	(1.0)	54	(2.5)	40	(2.4)
I consider myself a "master" mathematics teacher	2	(0.7)	27	(2.0)	31	(2.3)	34	(2.2)	6	(0.9)
I have time during the regular school week to work with my colleagues on mathematics curriculum and teaching	23	(2.0)	47	(2.5)	6	(1.1)	22	(2.0)	3	(0.6)
My colleagues and I regularly share ideas and materials related to mathematics teaching	6	(1.2)	33	(2.4)	5	(1.1)	49	(2.5)	8	(1.1)
Mathematics teachers in this school regularly observe each other teaching classes as part of sharing and improving instructional strategies	36	(2.2)	53	(2.3)	5	(1.0)	4	(0.9)	2	(0.7)
Most mathematics teachers in this school contribute actively to making decisions about the mathematics curriculum	13	(1.5)	32	(2.7)	18	(1.8)	33	(2.4)	4	(0.8)

Table MTQ 1.2
Grade 5–8 Mathematics Teachers' Opinions on Curriculum and Instruction Issues

	Percent of Teachers									
	Strongly Disagree		Disagree		No Opinion		Agree		Strongly Agree	
Students learn mathematics best in classes with students of similar abilities	2	(1.2)	24	(3.1)	7	(2.6)	45	(3.4)	23	(2.5)
The testing program in my state/district dictates what mathematics content I teach	2	(1.2)	15	(2.4)	8	(1.9)	50	(3.2)	25	(3.3)
I enjoy teaching mathematics	0	(0.1)	1	(0.6)	3	(1.7)	32	(3.1)	64	(3.4)
I consider myself a "master" mathematics teacher	2	(1.0)	18	(2.9)	23	(2.6)	40	(3.5)	17	(2.3)
I have time during the regular school week to work with my colleagues on mathematics curriculum and teaching	24	(3.0)	42	(3.6)	3	(0.7)	26	(3.5)	5	(1.5)
My colleagues and I regularly share ideas and materials related to mathematics teaching	9	(2.5)	32	(3.2)	4	(1.2)	41	(3.2)	13	(2.1)
Mathematics teachers in this school regularly observe each other teaching classes as part of sharing and improving instructional strategies	41	(3.7)	47	(3.9)	6	(1.0)	5	(1.0)	2	(0.8)
Most mathematics teachers in this school contribute actively to making decisions about the mathematics curriculum	16	(3.0)	31	(2.8)	12	(2.4)	35	(2.9)	6	(1.1)

Table MTQ 1.3
Grade 9–12 Mathematics Teachers' Opinions on Curriculum and Instruction Issues

	Percent of Teachers									
	Strongly Disagree		Disagree		No Opinion		Agree		Strongly Agree	
Students learn mathematics best in classes with students of similar abilities	2	(0.6)	14	(1.4)	4	(1.0)	56	(2.1)	24	(1.5)
The testing program in my state/district dictates what mathematics content I teach	6	(1.5)	19	(1.8)	10	(1.3)	48	(2.2)	18	(1.6)
I enjoy teaching mathematics	0	(0.1)	0	(0.1)	2	(0.7)	28	(1.7)	70	(1.9)
I consider myself a "master" mathematics teacher	0	(0.3)	11	(1.6)	20	(1.5)	46	(2.0)	23	(1.7)
I have time during the regular school week to work with my colleagues on mathematics curriculum and teaching	20	(1.4)	47	(1.8)	5	(0.7)	26	(1.5)	2	(0.5)
My colleagues and I regularly share ideas and materials related to mathematics teaching	6	(1.4)	27	(2.1)	4	(0.9)	53	(2.4)	10	(1.1)
Mathematics teachers in this school regularly observe each other teaching classes as part of sharing and improving instructional strategies	40	(2.0)	48	(2.2)	5	(0.8)	7	(0.9)	1	(0.3)
Most mathematics teachers in this school contribute actively to making decisions about the mathematics curriculum	11	(1.5)	22	(1.5)	9	(1.4)	48	(2.1)	10	(1.2)

Table MTQ 2
Mathematics Teachers' Familiarity with, Agreement with, and Implementation of NCTM *Standards*

	Percent of Teachers					
	Grades K–4		Grades 5–8		Grades 9–12	
How familiar are you with the NCTM *Standards*?						
Not at all familiar	38	(2.9)	27	(3.0)	15	(1.5)
Somewhat familiar	31	(2.4)	24	(3.1)	31	(1.8)
Fairly familiar	21	(2.0)	30	(2.7)	35	(1.8)
Very familiar	10	(1.5)	19	(2.1)	19	(1.3)
Please indicate the extent of your agreement with the overall vision of mathematics education described in the NCTM *Standards*						
Strongly Disagree	0	(0.2)	0	(0.2)	0	(0.2)
Disagree	1	(0.4)	3	(0.9)	6	(1.0)
No Opinion	20	(2.2)	20	(3.4)	19	(2.0)
Agree	69	(2.7)	61	(3.7)	66	(2.5)
Strongly Agree	10	(1.9)	16	(3.7)	8	(1.1)
To what extent have you implemented recommendations from the NCTM *Standards* in your mathematics teaching?						
Not at all	2	(1.0)	0	(0.1)	3	(1.0)
To a minimal extent	16	(2.1)	17	(3.0)	23	(2.2)
To a moderate extent	56	(3.5)	59	(3.1)	57	(2.6)
To a great extent	26	(2.8)	25	(3.1)	17	(1.8)

Table MTQ 3.1
Grade K–4 Mathematics 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	1	(0.4)	12	(1.7)	50	(2.2)	37	(2.1)
Develop students' conceptual understanding of mathematics	0	(0.2)	10	(1.7)	52	(2.3)	38	(2.3)
Provide deeper coverage of fewer mathematics concepts	4	(1.0)	20	(2.1)	54	(2.4)	22	(1.8)
Make connections between mathematics and other disciplines	0	(0.3)	17	(1.8)	45	(2.5)	37	(2.3)
Lead a class of students using investigative strategies	4	(0.9)	28	(2.2)	46	(2.5)	21	(2.1)
Manage a class of students engaged in hands-on/project-based work	1	(0.4)	15	(1.7)	39	(2.5)	45	(2.4)
Have students work in cooperative learning groups	1	(0.4)	13	(1.8)	40	(2.5)	46	(2.5)
Listen/ask questions as students work in order to gauge their understanding	0	(0.2)	6	(1.0)	46	(2.3)	48	(2.4)
Use the textbook as a resource rather than the primary instructional tool	5	(1.1)	14	(1.6)	44	(2.2)	37	(1.7)
Teach groups that are heterogeneous in ability	3	(0.9)	12	(1.8)	46	(2.3)	40	(2.4)
Teach students that have limited English proficiency	33	(2.5)	32	(2.3)	20	(2.4)	14	(1.8)
Recognize and respond to student cultural diversity	4	(1.0)	28	(2.2)	41	(2.1)	27	(1.9)
Encourage students' interest in mathematics	0	(0.2)	4	(0.8)	48	(2.3)	48	(2.3)
Encourage participation of females in mathematics	0	(0.1)	2	(0.6)	36	(2.6)	62	(2.5)
Encourage participation of minorities in mathematics	1	(0.4)	8	(1.3)	36	(2.6)	54	(2.5)
Involve parents in the mathematics education of their children	3	(1.0)	25	(2.4)	50	(2.5)	22	(1.9)
Use calculators/computers for drill and practice	11	(1.7)	23	(2.2)	42	(2.6)	24	(2.1)
Use calculators/computers for mathematics learning games	9	(1.3)	22	(2.2)	43	(2.9)	26	(2.1)
Use calculators/computers to collect and/or analyze data	23	(2.4)	37	(2.5)	28	(2.5)	11	(1.5)
Use calculators/computers to demonstrate mathematics principles	22	(2.4)	35	(2.5)	33	(2.3)	9	(1.3)
Use calculators/computers for simulations and applications	26	(2.5)	35	(2.0)	29	(2.4)	10	(1.4)
Use the Internet in your mathematics teaching for general reference	45	(2.7)	31	(2.4)	17	(1.6)	7	(1.2)
Use the Internet in your mathematics teaching for data acquisition	51	(2.4)	29	(2.3)	15	(1.6)	5	(1.1)
Use the Internet in you mathematics teaching for collaborative projects with classes/individuals in other schools	61	(2.3)	26	(2.3)	11	(1.4)	3	(0.9)

Table MTQ 3.2
Grade 5–8 Mathematics 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	1	(0.4)	14	(2.7)	47	(3.2)	39	(2.9)
Develop students' conceptual understanding of mathematics	1	(0.7)	10	(1.9)	50	(3.8)	38	(3.6)
Provide deeper coverage of fewer mathematics concepts	2	(0.7)	16	(2.5)	47	(3.4)	35	(3.6)
Make connections between mathematics and other disciplines	1	(0.4)	21	(2.8)	42	(3.1)	36	(3.4)
Lead a class of students using investigative strategies	4	(1.0)	29	(3.2)	45	(3.2)	22	(2.6)
Manage a class of students engaged in hands-on/project-based work	3	(0.8)	22	(3.1)	39	(3.0)	37	(2.7)
Have students work in cooperative learning groups	2	(1.6)	12	(2.2)	40	(3.6)	45	(3.6)
Listen/ask questions as students work in order to gauge their understanding	0	(0.4)	5	(1.6)	39	(3.6)	56	(3.4)
Use the textbook as a resource rather than the primary instructional tool	7	(2.4)	23	(2.7)	32	(2.8)	39	(2.8)
Teach groups that are heterogeneous in ability	2	(0.5)	17	(3.1)	45	(3.1)	36	(2.9)
Teach students that have limited English proficiency	47	(4.0)	27	(2.9)	18	(2.8)	8	(1.3)
Recognize and respond to student cultural diversity	6	(1.2)	26	(2.6)	40	(3.1)	28	(3.4)
Encourage students' interest in mathematics	0	(0.1)	11	(1.5)	39	(2.9)	50	(2.9)
Encourage participation of females in mathematics	0	(0.1)	3	(0.9)	32	(3.4)	65	(3.5)
Encourage participation of minorities in mathematics	3	(1.8)	8	(1.5)	34	(3.3)	54	(3.4)
Involve parents in the mathematics education of their children	8	(1.6)	41	(3.1)	34	(3.2)	16	(2.0)
Use calculators/computers for drill and practice	7	(2.1)	18	(2.5)	40	(2.8)	34	(2.7)
Use calculators/computers for mathematics learning games	6	(1.1)	24	(2.9)	42	(2.8)	28	(2.7)
Use calculators/computers to collect and/or analyze data	12	(2.2)	24	(2.9)	39	(3.2)	25	(2.9)
Use calculators/computers to demonstrate mathematics principles	14	(2.3)	29	(3.2)	37	(3.2)	20	(2.2)
Use calculators/computers for simulations and applications	20	(3.1)	32	(3.0)	31	(2.8)	16	(2.1)
Use the Internet in your mathematics teaching for general reference	34	(3.5)	32	(2.9)	21	(2.3)	13	(2.0)
Use the Internet in your mathematics teaching for data acquisition	41	(3.3)	31	(3.0)	18	(2.3)	10	(1.7)
Use the Internet in you mathematics teaching for collaborative projects with classes/individuals in other schools	54	(3.6)	29	(2.7)	13	(2.1)	5	(1.1)

Table MTQ 3.3
Grade 9–12 Mathematics 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	2	(0.9)	13	(1.3)	49	(2.0)	35	(1.9)
Develop students' conceptual understanding of mathematics	1	(0.8)	11	(1.5)	49	(2.0)	40	(1.8)
Provide deeper coverage of fewer mathematics concepts	4	(1.0)	20	(1.7)	45	(2.2)	31	(2.0)
Make connections between mathematics and other disciplines	4	(1.1)	28	(1.7)	45	(2.1)	23	(1.9)
Lead a class of students using investigative strategies	7	(0.9)	32	(2.0)	43	(2.0)	18	(1.5)
Manage a class of students engaged in hands-on/project-based work	7	(0.9)	24	(1.9)	45	(2.2)	24	(2.0)
Have students work in cooperative learning groups	3	(0.5)	21	(1.8)	42	(2.0)	33	(1.9)
Listen/ask questions as students work in order to gauge their understanding	0	(0.1)	8	(1.0)	43	(2.2)	49	(2.1)
Use the textbook as a resource rather than the primary instructional tool	4	(0.7)	25	(1.9)	39	(2.1)	32	(2.0)
Teach groups that are heterogeneous in ability	4	(0.6)	24	(1.9)	50	(2.2)	23	(1.6)
Teach students that have limited English proficiency	48	(2.0)	34	(1.7)	14	(1.3)	5	(0.7)
Recognize and respond to student cultural diversity	7	(1.0)	37	(2.1)	39	(2.1)	17	(1.6)
Encourage students' interest in mathematics	0	(0.1)	10	(1.2)	51	(1.9)	39	(2.0)
Encourage participation of females in mathematics	1	(0.2)	6	(0.9)	37	(1.9)	56	(1.9)
Encourage participation of minorities in mathematics	3	(0.6)	11	(1.3)	42	(1.9)	43	(1.7)
Involve parents in the mathematics education of their children	16	(1.4)	47	(2.1)	30	(1.9)	7	(0.9)
Use calculators/computers for drill and practice	2	(0.4)	12	(1.3)	42	(2.1)	44	(2.3)
Use calculators/computers for mathematics learning games	13	(1.1)	32	(1.9)	36	(2.1)	19	(1.9)
Use calculators/computers to collect and/or analyze data	8	(0.8)	26	(2.0)	37	(2.1)	29	(2.2)
Use calculators/computers to demonstrate mathematics principles	6	(0.7)	19	(1.8)	40	(1.8)	35	(2.1)
Use calculators/computers for simulations and applications	11	(1.1)	31	(1.8)	35	(1.8)	23	(1.9)
Use the Internet in your mathematics teaching for general reference	35	(1.8)	35	(1.9)	20	(1.6)	9	(1.4)
Use the Internet in your mathematics teaching for data acquisition	36	(1.8)	36	(1.9)	20	(1.7)	7	(1.2)
Use the Internet in you mathematics teaching for collaborative projects with classes/individuals in other schools	56	(2.0)	29	(1.8)	11	(1.1)	4	(1.1)

Table MTQ 4a
Degrees of Mathematics Teachers

	Percent of Teachers					
	Grades K–4		Grades 5–8		Grades 9–12	
Bachelors	100	(0.0)	99	(1.5)	100	(0.0)
Masters	41	(2.6)	44	(3.7)	51	(2.2)
Doctorate	0	(0.2)	0	(0.1)	1	(0.5)

Table MTQ 4b
Subjects of Mathematics Teachers' Degrees

	Percent of Teachers					
	Grades K–4		Grades 5–8		Grades 9–12	
Mathematics						
Bachelors	7	(1.2)	12	(1.4)	60	(2.0)
Masters	1	(0.5)	1	(0.3)	10	(1.2)
Doctorate	0	—*	0	—*	0	(0.1)
Computer Science						
Bachelors	2	(0.7)	1	(0.5)	4	(0.7)
Masters	0	(0.1)	0	(0.1)	1	(0.2)
Doctorate	0	(0.0)	0	(0.0)	0	(0.0)
Mathematics Education						
Bachelors	6	(1.0)	10	(1.2)	38	(2.1)
Masters	1	(0.6)	4	(0.6)	21	(1.5)
Doctorate	0	—*	0	—*	0	(0.1)
Science/Science Education						
Bachelors	8	(1.3)	8	(1.5)	12	(2.0)
Masters	2	(0.7)	3	(1.1)	2	(1.1)
Doctorate	0	—*	0	—*	1	(0.4)
Elementary Education						
Bachelors	83	(2.1)	63	(3.2)	5	(1.3)
Masters	26	(2.3)	19	(3.5)	1	(0.2)
Doctorate	0	(0.0)	0	(0.0)	0	(0.0)
Other Education						
Bachelors	18	(2.1)	14	(2.4)	10	(1.1)
Masters	16	(2.0)	13	(1.8)	15	(1.5)
Doctorate	0	(0.2)	0	(0.1)	0	(0.1)
Other Subject						
Bachelors	15	(1.8)	17	(2.6)	13	(1.5)
Masters	4	(1.0)	7	(2.2)	8	(1.1)
Doctorate	0	—*	0	—*	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 MTQ 5
College Courses Completed by Mathematics Teachers

	Percent of Teachers					
	Grades K–4		Grades 5–8		Grades 9–12	
Mathematics						
Mathematics for elementary school teachers	96	(1.0)	81	(2.7)	19	(1.8)
Mathematics for middle school teachers	5	(1.0)	28	(2.8)	26	(1.9)
Geometry for elementary/middle school teachers	21	(1.5)	28	(2.4)	17	(1.6)
College algebra/trigonometry/elementary function	42	(2.2)	56	(3.5)	80	(1.5)
Calculus	12	(1.7)	31	(2.5)	96	(0.9)
Advanced calculus	3	(0.8)	13	(1.5)	70	(2.0)
Real analysis	1	(0.5)	6	(1.0)	38	(2.0)
Differential equations	2	(0.8)	12	(1.5)	65	(2.0)
Geometry	32	(2.1)	37	(3.2)	82	(1.3)
Probability and statistics	33	(2.5)	51	(3.5)	86	(1.7)
Abstract algebra	5	(1.1)	12	(1.3)	64	(2.0)
Number theory	8	(1.5)	20	(2.6)	56	(2.1)
Linear algebra	9	(1.6)	16	(1.8)	81	(1.6)
Applications of mathematics/problem solving	21	(1.9)	23	(2.2)	37	(1.7)
History of mathematics	3	(0.7)	11	(1.5)	42	(1.9)
Discrete mathematics	1	(0.4)	7	(0.9)	37	(1.7)
Other upper division mathematics	5	(1.0)	17	(2.0)	59	(1.9)
Science/Computer Sciences						
Biological sciences	77	(2.2)	71	(2.9)	49	(2.1)
Chemistry	31	(2.3)	40	(3.3)	47	(2.0)
Physics	19	(1.9)	26	(2.8)	52	(2.1)
Physical science	51	(2.4)	49	(3.4)	23	(2.0)
Earth/space science	41	(2.4)	42	(3.6)	20	(1.8)
Engineering	1	(0.4)	4	(0.9)	15	(1.5)
Computer programming	12	(1.5)	29	(2.8)	63	(2.1)
Other computer science	21	(1.8)	28	(3.2)	28	(2.1)
Education						
General methods of teaching	95	(1.0)	93	(1.5)	90	(1.2)
Methods of teaching mathematics	79	(2.1)	80	(2.6)	77	(2.2)
Instructional uses of computers/other technologies	37	(2.1)	44	(3.3)	43	(2.2)
Supervised student teaching in mathematics	38	(2.7)	42	(3.8)	70	(2.0)

Table MTQ 6.1
Number of College Semester† Courses
Completed by Grade K–4 Mathematics Teachers

	Percent of Teachers													
	Mathematics education		Calculus		Statistics		Advanced calculus		All other mathematics courses		Computer science		Science	
0	6	(1.1)	87	(1.7)	61	(2.5)	96	(1.0)	1	(0.4)	56	(2.2)	6	(1.3)
1	29	(2.0)	10	(1.5)	30	(2.3)	3	(0.8)	29	(2.0)	24	(1.8)	14	(1.8)
2	24	(1.9)	2	(0.7)	6	(1.0)	0	(0.3)	22	(1.9)	13	(1.5)	28	(2.2)
3	13	(1.5)	1	(0.4)	2	(0.6)	0	(0.2)	19	(1.9)	3	(0.8)	19	(1.9)
4	13	(1.5)	0	—*	1	(0.6)	0	(0.2)	14	(1.8)	2	(0.6)	13	(1.8)
5	2	(0.6)	0	—*	0	—*	0	—*	6	(1.0)	0	(0.2)	7	(1.3)
6	6	(0.9)	0	(0.2)	0	(0.1)	0	—*	4	(0.9)	2	(0.5)	7	(1.2)
7	2	(0.8)	0	—*	0	—*	0	—*	2	(0.7)	0	(0.2)	1	(0.4)
8	1	(0.6)	0	—*	0	—*	0	—*	1	(0.6)	0	—*	1	(0.6)
>8	4	(0.9)	0	—*	0	—*	0	—*	1	(0.5)	0	(0.2)	4	(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 MTQ 6.2
Number of College Semester† Courses
Completed by Grade 5–8 Mathematics Teachers

	Percent of Teachers													
	Mathematics education		Calculus		Statistics		Advanced calculus		All other mathematics courses		Computer science		Science	
0	9	(1.7)	69	(2.5)	46	(3.3)	88	(1.6)	0	(0.2)	40	(3.2)	10	(1.9)
1	21	(2.6)	11	(1.7)	35	(2.8)	7	(1.4)	20	(3.2)	26	(3.3)	12	(1.9)
2	24	(2.8)	9	(1.3)	12	(1.8)	4	(0.6)	20	(2.5)	17	(2.8)	24	(3.2)
3	15	(2.0)	4	(0.7)	4	(1.0)	1	(0.3)	15	(2.3)	8	(2.0)	19	(2.4)
4	10	(1.6)	3	(0.7)	2	(0.5)	0	(0.1)	9	(1.6)	2	(0.5)	13	(2.6)
5	4	(1.8)	0	(0.2)	0	(0.0)	0	(0.1)	7	(1.1)	2	(0.7)	6	(1.2)
6	6	(1.2)	2	(1.1)	1	(0.3)	0	(0.1)	6	(1.2)	2	(1.0)	4	(1.3)
7	1	(1.1)	0	(0.1)	0	(0.0)	0	—*	5	(1.3)	0	(0.2)	0	(0.1)
8	2	(0.9)	0	(0.1)	0	(0.1)	0	—*	6	(1.5)	1	(0.4)	0	(0.1)
>8	8	(1.9)	1	(0.2)	0	(0.1)	0	(0.1)	12	(1.6)	2	(0.6)	11	(2.3)

* 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 MTQ 6.3
Number of College Semester† Courses
Completed by Grade 9–12 Mathematics Teachers

	Percent of Teachers													
	Mathematics education		Calculus		Statistics		Advanced calculus		All other mathematics courses		Computer science		Science	
0	17	(1.7)	4	(0.9)	12	(1.4)	37	(2.2)	1	(0.7)	21	(1.7)	20	(1.6)
1	17	(1.4)	8	(1.0)	46	(2.1)	34	(1.9)	1	(0.4)	25	(1.8)	17	(1.4)
2	21	(1.5)	24	(2.0)	23	(1.8)	17	(1.4)	2	(0.6)	23	(2.2)	22	(1.6)
3	10	(1.0)	29	(1.8)	10	(1.3)	5	(0.7)	2	(0.5)	11	(1.0)	19	(1.5)
4	10	(1.2)	18	(1.6)	4	(0.8)	3	(0.4)	4	(1.0)	6	(0.8)	9	(1.0)
5	3	(0.7)	4	(1.2)	1	(0.2)	0	(0.2)	5	(0.9)	2	(0.4)	6	(1.5)
6	8	(1.1)	4	(0.6)	2	(0.4)	1	(0.3)	12	(1.5)	3	(0.6)	3	(1.0)
7	1	(0.5)	1	(0.3)	0	(0.1)	0	(0.1)	10	(1.1)	2	(0.5)	0	(0.1)
8	1	(0.3)	2	(0.5)	0	(0.2)	1	(0.3)	10	(1.2)	1	(0.3)	0	(0.1)
>8	12	(1.1)	6	(0.8)	1	(0.4)	1	(0.4)	52	(1.9)	5	(0.8)	3	(0.9)

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

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

	Percent of Teachers					
	Grades K–4		Grades 5–8		Grades 9–12	
0%	73	(2.2)	72	(3.0)	77	(2.1)
10%	4	(0.9)	4	(0.9)	8	(1.3)
20%	3	(0.8)	4	(1.3)	4	(0.7)
30%	3	(0.9)	2	(0.8)	3	(0.7)
40%	1	(0.3)	3	(1.1)	4	(1.2)
50%	11	(1.7)	9	(2.3)	1	(0.4)
60%	2	(0.6)	2	(0.8)	0	(0.3)
70%	1	(0.6)	1	(0.3)	1	(0.5)
80%	2	(0.7)	0	(0.2)	0	(0.1)
90%	0	(0.2)	0	(0.3)	0	(0.4)
100%	1	(0.6)	3	(1.7)	0	(0.2)

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

	Percent of Teachers					
	Grades K–4		Grades 5–8		Grades 9–12	
0%	1	(0.6)	3	(1.7)	0	(0.2)
10%	0	(0.2)	0	(0.3)	0	(0.4)
20%	2	(0.7)	0	(0.2)	0	(0.1)
30%	1	(0.6)	1	(0.3)	1	(0.5)
40%	2	(0.6)	2	(0.8)	0	(0.3)
50%	11	(1.6)	9	(2.3)	1	(0.4)
60%	1	(0.3)	2	(1.0)	4	(1.2)
70%	3	(0.9)	3	(0.8)	3	(0.6)
80%	3	(0.8)	4	(1.3)	4	(0.7)
90%	4	(0.8)	5	(0.9)	8	(1.3)
100%	73	(2.2)	72	(3.0)	77	(2.1)

Table MTQ 8
Mathematics Teachers' Most Recent College Coursework in Mathematics or The Teaching of Mathematics

	Percent of Teachers					
	Grades K–4		Grades 5–8		Grades 9–12	
Mathematics						
1996–2000	24	(1.8)	23	(3.0)	30	(2.2)
1990–1995	24	(2.0)	29	(3.3)	26	(1.8)
Prior to 1990	52	(2.2)	48	(3.8)	44	(1.8)
The Teaching of Mathematics						
1996–2000	29	(2.2)	28	(3.0)	28	(1.9)
1990–1995	24	(2.1)	21	(2.7)	21	(1.5)
Prior to 1990	40	(2.1)	39	(3.8)	37	(2.0)
Never	7	(1.2)	11	(2.0)	14	(1.6)

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

	Percent of Teachers					
	Grades K–4		Grades 5–8		Grades 9–12	
In Last 12 Months						
None	30	(2.3)	26	(3.1)	13	(1.6)
Less than 6 hours	34	(2.2)	25	(3.0)	21	(1.5)
6–15 hours	24	(2.5)	30	(2.4)	32	(2.0)
16–35 hours	8	(1.2)	10	(1.7)	20	(1.3)
More than 35 hours	4	(1.0)	9	(1.6)	15	(1.6)
In Last 3 Years						
None	14	(1.7)	14	(3.3)	7	(1.3)
Less than 6 hours	22	(2.2)	15	(2.7)	8	(1.4)
6–15 hours	32	(2.2)	29	(3.0)	17	(1.7)
16–35 hours	18	(1.7)	19	(2.3)	25	(1.8)
More than 35 hours	14	(1.7)	23	(2.5)	43	(2.2)

Table MTQ 10
Mathematics 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 mathematics or mathematics teaching	4	(0.9)	13	(2.0)	14	(1.2)
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	16	(1.6)	17	(2.1)	19	(1.4)
Received any local, state, or national grants or awards for mathematics teaching	2	(0.7)	4	(0.9)	7	(0.8)
Served on a school or district mathematics curriculum committee	14	(1.5)	29	(2.5)	38	(2.1)
Served on a school or district mathematics textbook selection committee	15	(1.8)	28	(3.0)	41	(2.2)

Table MTQ 11
Mathematics 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 mathematics course	11	(1.3)	16	(1.9)	18	(1.8)
Taken a formal college/university course in the teaching of mathematics	18	(2.0)	21	(3.0)	18	(1.5)
Observed other teachers teaching mathematics as part of your own professional development	45	(2.3)	50	(3.6)	53	(2.1)
Met with a local group teachers on a regular basis to study/discuss mathematics teaching issues on a regular basis	35	(1.9)	47	(2.9)	50	(2.0)
Collaborated on mathematics teaching issues with a group of teachers at a distance using telecommunications	5	(1.0)	7	(1.3)	9	(1.4)
Served as a mentor and/or peer coach in mathematics teaching, as part of a formal arrangement that is recognized or supported by the school or district	13	(1.7)	12	(1.9)	20	(1.4)
Attended a workshop on mathematics teaching	68	(2.6)	74	(2.8)	80	(2.0)
Attended a national or state mathematics teacher association meeting	7	(1.4)	21	(2.3)	40	(2.4)
Applied or applying for certification from the National Board for Professional Teaching Standards (NBPTS)	3	(0.8)	2	(0.7)	3	(1.0)
Received certification from the National Board for Professional Teaching Standards (NBPTS)	2	(0.6)	1	(0.5)	2	(1.0)

Table MTQ 12a.1
Grade K–4 Mathematics 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 mathematics content knowledge	15	(1.7)	40	(2.1)	36	(1.9)	9	(1.2)
Understanding student thinking in mathematics	11	(1.7)	43	(2.4)	36	(2.1)	10	(1.3)
Learning how to use inquiry/investigation-oriented teaching strategies	7	(1.4)	31	(2.5)	44	(2.5)	18	(1.8)
Learning how to use technology in mathematics instruction	3	(1.0)	17	(1.9)	44	(2.7)	35	(2.2)
Learning how to assess student learning in mathematics	16	(1.7)	37	(2.3)	39	(2.2)	8	(1.3)
Learning how to teach mathematics in a class that includes students with special needs	9	(1.5)	33	(2.4)	35	(2.5)	22	(2.0)

Table MTQ 12a.2
Grade 5–8 Mathematics 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 mathematics content knowledge	19	(2.9)	41	(3.1)	34	(2.8)	6	(1.3)
Understanding student thinking in mathematics	14	(3.4)	35	(2.9)	44	(3.5)	7	(1.6)
Learning how to use inquiry/investigation-oriented teaching strategies	8	(2.4)	30	(2.7)	46	(3.1)	17	(3.0)
Learning how to use technology in mathematics instruction	3	(1.1)	14	(1.9)	49	(3.2)	34	(3.6)
Learning how to assess student learning in mathematics	18	(3.2)	42	(3.0)	31	(3.0)	9	(1.8)
Learning how to teach mathematics in a class that includes students with special needs	8	(1.9)	32	(3.1)	40	(2.8)	20	(3.2)

Table MTQ 12a.3
Grade 9–12 Mathematics 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 mathematics content knowledge	21	(1.4)	48	(2.4)	27	(2.3)	5	(1.4)
Understanding student thinking in mathematics	15	(1.5)	45	(2.3)	33	(2.3)	7	(1.5)
Learning how to use inquiry/investigation-oriented teaching strategies	9	(0.8)	38	(2.2)	43	(1.9)	11	(1.4)
Learning how to use technology in mathematics instruction	5	(1.3)	28	(1.8)	41	(1.8)	26	(1.9)
Learning how to assess student learning in mathematics	16	(1.5)	51	(1.9)	27	(1.8)	5	(0.9)
Learning how to teach mathematics in a class that includes students with special needs	7	(0.8)	38	(2.3)	38	(2.0)	17	(1.6)

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

	Percent of Teachers									
	Not at all								To a great extent	
	1		2		3		4		5	
Deepening my own mathematics content knowledge	24	(2.4)	24	(2.0)	33	(2.4)	13	(1.9)	7	(1.1)
Understanding student thinking in mathematics	15	(1.8)	19	(2.3)	34	(2.3)	21	(1.9)	11	(1.5)
Learning how to use inquiry/investigation-oriented teaching strategies	18	(1.8)	15	(1.8)	35	(2.6)	22	(2.2)	10	(1.3)
Learning how to use technology in mathematics instruction	24	(2.0)	29	(2.2)	24	(2.1)	15	(1.7)	7	(1.3)
Learning how to assess student learning in mathematics	17	(1.7)	19	(2.1)	35	(2.4)	22	(2.0)	8	(1.2)
Learning how to teach mathematics in a class that includes students with special needs	31	(2.1)	29	(2.2)	26	(2.2)	11	(1.5)	3	(0.8)

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

	Percent of Teachers									
	Not at all								To a great extent	
	1		2		3		4		5	
Deepening my own mathematics content knowledge	28	(3.5)	21	(2.3)	32	(2.9)	11	(1.8)	9	(1.8)
Understanding student thinking in mathematics	13	(2.4)	20	(2.6)	33	(2.9)	22	(2.4)	12	(1.8)
Learning how to use inquiry/investigation-oriented teaching strategies	18	(2.7)	19	(3.1)	31	(3.1)	22	(2.8)	10	(2.1)
Learning how to use technology in mathematics instruction	20	(3.0)	24	(2.7)	27	(3.1)	19	(2.8)	10	(2.0)
Learning how to assess student learning in mathematics	13	(2.3)	24	(3.5)	35	(3.4)	22	(2.5)	6	(1.4)
Learning how to teach mathematics in a class that includes students with special needs	30	(3.6)	30	(3.0)	26	(3.4)	10	(1.7)	3	(1.0)

Table MTQ 12b.3
Grade 9–12 Mathematics Teachers' Opinions of Professional Development Emphasis

	Percent of Teachers									
	Not at all								To a great extent	
	1		2		3		4		5	
Deepening my own mathematics content knowledge	31	(2.0)	26	(1.7)	27	(2.0)	9	(0.9)	8	(1.3)
Understanding student thinking in mathematics	18	(1.7)	27	(1.7)	32	(1.9)	17	(1.5)	6	(1.2)
Learning how to use inquiry/investigation-oriented teaching strategies	16	(1.8)	24	(1.6)	32	(1.9)	22	(1.5)	6	(0.7)
Learning how to use technology in mathematics instruction	10	(1.6)	17	(1.9)	26	(1.6)	29	(1.9)	18	(1.8)
Learning how to assess student learning in mathematics	18	(1.9)	29	(2.0)	31	(2.0)	18	(1.5)	5	(1.2)
Learning how to teach mathematics in a class that includes students with special needs	36	(1.9)	37	(2.2)	17	(1.6)	6	(0.8)	4	(1.2)

Table MTQ 12c.1
Grade K–4 Mathematics 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 mathematics content knowledge	32	(2.4)	52	(3.0)	15	(1.9)
Understanding student thinking in mathematics	24	(2.2)	55	(2.6)	21	(1.9)
Learning how to use inquiry/investigation-oriented teaching strategies	32	(2.3)	40	(2.5)	28	(2.3)
Learning how to use technology in mathematics instruction	52	(2.4)	27	(2.4)	21	(2.2)
Learning how to assess student learning in mathematics	28	(2.2)	53	(2.8)	19	(2.0)
Learning how to teach mathematics in a class that includes students with special needs	47	(2.4)	40	(2.4)	13	(1.7)

Table MTQ 12c.2
Grade 5–8 Mathematics 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 mathematics content knowledge	31	(2.8)	55	(3.0)	13	(2.3)
Understanding student thinking in mathematics	22	(2.9)	59	(3.3)	20	(2.8)
Learning how to use inquiry/investigation-oriented teaching strategies	32	(3.2)	42	(3.0)	26	(3.0)
Learning how to use technology in mathematics instruction	46	(3.3)	28	(2.7)	26	(2.4)
Learning how to assess student learning in mathematics	28	(2.9)	54	(3.2)	18	(2.1)
Learning how to teach mathematics in a class that includes students with special needs	48	(3.2)	37	(3.3)	15	(2.5)

Table MTQ12c.3
Grade 9–12 Mathematics 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 mathematics content knowledge	38	(1.8)	50	(2.1)	12	(1.5)
Understanding student thinking in mathematics	34	(2.1)	53	(2.3)	14	(1.5)
Learning how to use inquiry/investigation-oriented teaching strategies	35	(2.1)	44	(2.0)	22	(1.6)
Learning how to use technology in mathematics instruction	30	(1.9)	32	(1.9)	39	(2.0)
Learning how to assess student learning in mathematics	33	(2.2)	52	(2.0)	15	(1.2)
Learning how to teach mathematics in a class that includes students with special needs	57	(2.1)	31	(1.9)	12	(1.2)

Table MTQ 13a
Mathematics Teachers in Self-Contained Classrooms

	Percent of Teachers	
Grades K–4	95	(0.8)
Grades 5–8	51	(3.9)
Grades 9–12	5	(1.2)

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

	Percent of Teachers					
	Not Well Qualified		Adequately Qualified		Very Well Qualified	
Life science	10	(1.4)	60	(2.4)	31	(2.3)
Earth science	9	(1.4)	64	(2.3)	26	(2.3)
Physical science	16	(1.9)	63	(2.4)	21	(2.0)
Mathematics	1	(0.4)	46	(2.4)	53	(2.4)
Reading/Language Arts	0	(0.2)	22	(2.0)	77	(2.0)
Social Studies	2	(0.6)	48	(2.3)	51	(2.3)

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

	Average Number of Days per Week		Average Number of Minutes	
Mathematics	4.9	(0.0)	55	(1.0)
Science	3.0	(0.1)	22	(0.7)
Social Studies	3.1	(0.1)	23	(0.9)
Reading/Language Arts	5.0	(0.0)	106	(2.4)

Table MTQ 14
Mathematics 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	(11.4)	72	(3.5)	99	(0.3)
Elementary Enrichment Class	16	(6.9)	2	(0.9)	0	—*
Team Teaching	51	(11.3)	27	(3.7)	1	(0.3)

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

There is no table for STQ 15a.1.

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

	Percent of Teachers					
	Not Well Qualified		Adequately Qualified		Very Well Qualified	
Numeration and number theory	1	(0.5)	23	(3.4)	76	(3.4)
Computation	0	(0.1)	10	(1.9)	90	(1.9)
Estimation	0	(0.1)	17	(2.8)	83	(2.8)
Measurement	1	(0.5)	19	(3.0)	80	(3.1)
Pre-algebra	3	(1.4)	22	(3.8)	75	(4.0)
Algebra	12	(2.3)	40	(4.0)	49	(3.6)
Patterns and relationships	1	(0.5)	27	(3.8)	72	(3.8)
Geometry and spatial sense	3	(0.8)	41	(4.2)	57	(4.3)
Functions and pre-calculus concepts	50	(3.9)	31	(3.4)	18	(2.2)
Data collection and analysis	3	(0.7)	42	(3.4)	55	(3.5)
Probability	5	(1.2)	50	(3.1)	45	(3.0)
Statistics	41	(4.1)	42	(4.1)	18	(2.3)
Topics from discrete mathematics	61	(3.9)	31	(4.0)	8	(1.8)
Mathematical structures	68	(4.1)	25	(3.9)	7	(1.9)
Calculus	78	(2.4)	18	(2.4)	4	(0.9)
Technology in support of mathematics	35	(3.7)	47	(4.4)	18	(2.4)

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

	Percent of Teachers					
	Not Well Qualified		Adequately Qualified		Very Well Qualified	
Numeration and number theory	6	(0.7)	30	(2.1)	64	(2.2)
Computation	1	(0.2)	11	(1.4)	88	(1.5)
Estimation	1	(0.2)	14	(1.6)	85	(1.7)
Measurement	1	(0.2)	14	(1.7)	85	(1.7)
Pre-algebra	1	(0.2)	5	(1.0)	94	(1.1)
Algebra	0	(0.2)	5	(1.1)	94	(1.1)
Patterns and relationships	1	(0.3)	24	(1.9)	75	(2.0)
Geometry and spatial sense	4	(0.8)	26	(2.0)	70	(2.3)
Functions and pre-calculus concepts	6	(0.9)	34	(2.0)	61	(2.0)
Data collection and analysis	9	(1.1)	45	(2.5)	46	(2.5)
Probability	10	(1.2)	48	(1.9)	42	(2.0)
Statistics	23	(1.6)	51	(2.2)	26	(2.0)
Topics from discrete mathematics	43	(1.8)	41	(1.7)	16	(1.5)
Mathematical structures	47	(2.1)	41	(1.9)	12	(1.4)
Calculus	39	(1.9)	36	(2.0)	24	(1.8)
Technology in support of mathematics	23	(1.9)	48	(2.1)	29	(2.1)

There is no table for MTQ 15b.

There is no table for MTQ 16.

There is no table for MTQ 17a.

There is no table for MTQ 17b.

Table MTQ 18a
Average Number of Students in Mathematics Classes

	Average Number of Students	
Grades K–4	22.0	(0.3)
Grades 5–8	22.9	(0.5)
Grades 9–12	21.4	(0.3)

Table MTQ 18b
Race/Ethnicity of Students in Mathematics Classes

	Percent of Students					
	Grades K–4		Grades 5–8		Grades 9–12	
American Indian or Alaskan Native	1	(0.4)	1	(0.4)	1	(0.4)
Asian	4	(0.9)	3	(0.5)	4	(0.5)
Black or African-American	15	(1.8)	16	(1.8)	13	(1.1)
Hispanic or Latino	14	(1.8)	11	(1.2)	11	(0.9)
Native Hawaiian or Other Pacific Islander	0	(0.1)	1	(0.3)	1	(0.2)
White	66	(2.6)	68	(2.3)	70	(1.7)

There is no table for MTQ 19a.

Table MTQ 19b
Calendar Duration of Mathematics Classes

	Percent of Classes					
	Grades K–4		Grades 5–8		Grades 9–12	
Year	97	(3.0)	95	(1.7)	75	(1.8)
Semester	3	(3.0)	4	(1.7)	24	(1.7)
Quarter	0	(0.0)	1	(0.4)	1	(0.6)

Table MTQ 20
Students Assigned to Mathematics Classes by Ability Level

	Percent of Classes	
Grades K–4	10	(1.6)
Grades 5–8	46	(2.2)
Grades 9–12	65	(2.0)

Table MTQ 21
Ability Grouping of Students in Mathematics Classes

	Percent of Classes					
	Grades K–4		Grades 5–8		Grades 9–12	
Fairly homogeneous and low in ability	6	(1.2)	12	(1.4)	17	(1.3)
Fairly homogeneous and average in ability	21	(1.9)	26	(2.1)	31	(1.6)
Fairly homogeneous and high in ability	5	(1.0)	18	(2.1)	26	(1.8)
Heterogeneous, with a mixture of two or more ability levels	68	(2.2)	44	(2.4)	26	(1.9)

Table MTQ 22
Mathematics Classes with One or More Students with Special Needs

	Percent of Classes					
	Grades K–4		Grades 5–8		Grades 9–12	
Limited English Proficiency	34	(3.0)	20	(1.7)	16	(1.3)
Learning Disabled	47	(2.3)	47	(2.6)	31	(1.8)
Mentally Handicapped	7	(1.3)	2	(0.5)	2	(0.5)
Physically Handicapped	6	(1.0)	4	(0.9)	4	(0.6)

Table MTQ 23.1
Emphasis Given in Grade K–4 Mathematics Classes to Various Instructional Objectives

	Percent of Classes							
	None		Minimal Emphasis		Moderate Emphasis		Heavy Emphasis	
Increase students' interest in mathematics	0	(0.2)	4	(0.9)	43	(2.5)	53	(2.5)
Learn mathematical concepts	0	(0.2)	1	(0.5)	11	(1.3)	88	(1.4)
Learn mathematical algorithms/procedures	8	(1.3)	15	(1.8)	36	(2.1)	41	(2.1)
Develop students' computational skills	1	(0.4)	5	(0.8)	30	(2.2)	64	(2.3)
Learn how to solve problems	0	(0.2)	2	(0.6)	18	(1.7)	80	(1.8)
Learn to reason mathematically	0	(0.2)	4	(1.1)	30	(2.2)	66	(2.2)
Learn how mathematics ideas connect with one another	1	(0.4)	9	(1.4)	34	(2.5)	57	(2.3)
Prepare for further study in mathematics	2	(0.7)	12	(1.7)	42	(2.5)	44	(2.4)
Understand the logical structure of mathematics	4	(1.0)	21	(1.8)	48	(2.6)	27	(2.3)
Learn about the history and nature of mathematics	28	(2.1)	55	(2.4)	15	(1.6)	3	(0.7)
Learn to explain ideas in mathematics effectively	2	(0.8)	18	(2.1)	46	(2.3)	34	(2.1)
Learn how to apply mathematics in business and industry	27	(2.1)	41	(2.5)	22	(1.9)	10	(1.4)
Learn to perform computations with speed and accuracy	7	(1.1)	14	(1.6)	40	(2.3)	39	(2.3)
Prepare for standardized tests	7	(0.9)	20	(2.1)	37	(2.4)	36	(2.5)

Table MTQ 23.2
Emphasis Given in Grade 5–8 Mathematics Classes to Various Instructional Objectives

	Percent of Classes							
	None		Minimal Emphasis		Moderate Emphasis		Heavy Emphasis	
Increase students' interest in mathematics	0	(0.1)	9	(2.0)	48	(2.8)	43	(2.4)
Learn mathematical concepts	0	(0.0)	0	(0.2)	12	(1.9)	88	(1.9)
Learn mathematical algorithms/procedures	2	(0.6)	8	(1.4)	35	(2.7)	55	(2.7)
Develop students' computational skills	1	(0.6)	11	(1.9)	27	(2.1)	61	(2.4)
Learn how to solve problems	0	(0.0)	0	(0.2)	18	(2.2)	82	(2.2)
Learn to reason mathematically	0	(0.0)	3	(0.9)	26	(2.4)	72	(2.6)
Learn how mathematics ideas connect with one another	0	(0.2)	4	(0.9)	37	(2.1)	59	(2.3)
Prepare for further study in mathematics	2	(0.6)	9	(1.4)	39	(2.1)	50	(2.2)
Understand the logical structure of mathematics	1	(0.2)	18	(2.2)	48	(2.7)	33	(2.3)
Learn about the history and nature of mathematics	14	(1.7)	59	(2.2)	24	(1.8)	3	(0.7)
Learn to explain ideas in mathematics effectively	2	(0.6)	11	(1.9)	45	(2.6)	42	(2.5)
Learn how to apply mathematics in business and industry	6	(1.1)	34	(2.4)	42	(2.7)	18	(1.9)
Learn to perform computations with speed and accuracy	3	(1.2)	18	(2.0)	44	(2.9)	35	(2.6)
Prepare for standardized tests	3	(0.8)	19	(2.3)	41	(2.5)	38	(2.6)

Table MTQ 23.3
Emphasis Given in Grade 9–12 Mathematics Classes to Various Instructional Objectives

	Percent of Classes							
	None		Minimal Emphasis		Moderate Emphasis		Heavy Emphasis	
Increase students' interest in mathematics	0	(0.2)	11	(1.0)	60	(2.0)	29	(1.8)
Learn mathematical concepts	0	(0.0)	1	(0.6)	14	(1.3)	85	(1.4)
Learn mathematical algorithms/procedures	1	(0.5)	8	(1.2)	34	(1.9)	57	(1.9)
Develop students' computational skills	2	(0.5)	22	(1.8)	39	(1.7)	37	(1.9)
Learn how to solve problems	0	(0.0)	1	(0.4)	25	(1.7)	74	(1.7)
Learn to reason mathematically	0	(0.0)	2	(0.4)	26	(1.8)	72	(1.8)
Learn how mathematics ideas connect with one another	1	(0.6)	5	(0.9)	39	(1.7)	55	(1.8)
Prepare for further study in mathematics	1	(0.4)	9	(1.1)	28	(1.7)	61	(1.9)
Understand the logical structure of mathematics	2	(0.5)	16	(1.3)	45	(1.6)	38	(1.6)
Learn about the history and nature of mathematics	15	(1.9)	61	(1.9)	21	(1.5)	3	(0.5)
Learn to explain ideas in mathematics effectively	1	(0.4)	15	(1.6)	52	(2.2)	32	(2.0)
Learn how to apply mathematics in business and industry	5	(0.9)	34	(1.8)	44	(1.8)	16	(1.4)
Learn to perform computations with speed and accuracy	8	(1.5)	30	(1.6)	42	(2.0)	20	(1.6)
Prepare for standardized tests	5	(1.2)	24	(1.6)	43	(2.1)	28	(1.9)

Table MTQ 24.1
Grade K–4 Mathematics 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	(0.2)	2	(0.7)	15	(1.7)	45	(2.5)	37	(2.5)
Pose open-ended questions	0	(0.2)	2	(0.7)	20	(1.9)	45	(2.3)	33	(2.5)
Engage the whole class in discussions	0	—*	0	(0.2)	6	(1.1)	34	(2.2)	60	(2.5)
Require students to explain their reasoning when giving an answer	0	—*	1	(0.5)	10	(1.7)	37	(2.4)	52	(2.3)
Ask students to explain concepts to one another	1	(0.3)	8	(1.2)	26	(2.2)	46	(2.4)	20	(2.1)
Ask students to consider alternative explanations	0	(0.3)	7	(1.2)	25	(2.3)	45	(3.1)	23	(1.9)
Ask students to use multiple representations	5	(0.9)	14	(1.6)	30	(2.3)	37	(2.1)	14	(1.5)
Allow students to work at their own pace	1	(0.1)	3	(1.1)	14	(1.6)	33	(2.2)	50	(2.5)
Help students see connections between mathematics and other disciplines	1	(0.4)	7	(1.2)	28	(2.0)	41	(2.6)	23	(1.9)
Assign mathematics homework	3	(0.9)	7	(1.3)	12	(1.6)	35	(2.0)	43	(2.4)
Read and comment on the reflections students have written	22	(2.3)	22	(2.1)	26	(2.2)	22	(2.2)	7	(1.1)

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

Table MTQ 24.2
Grade 5–8 Mathematics 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	(0.4)	4	(1.2)	11	(1.9)	41	(2.4)	43	(2.4)
Pose open-ended questions	0	(0.2)	3	(0.5)	20	(2.0)	45	(2.4)	32	(2.2)
Engage the whole class in discussions	0	—*	2	(0.6)	13	(1.8)	40	(2.3)	45	(2.5)
Require students to explain their reasoning when giving an answer	0	—*	0	(0.2)	8	(1.3)	36	(2.5)	56	(2.8)
Ask students to explain concepts to one another	0	—*	8	(1.6)	20	(1.9)	48	(2.9)	24	(1.9)
Ask students to consider alternative explanations	0	(0.2)	4	(0.9)	20	(2.1)	48	(2.4)	28	(2.0)
Ask students to use multiple representations	1	(0.5)	12	(1.6)	41	(2.3)	35	(2.4)	10	(1.1)
Allow students to work at their own pace	2	(0.9)	11	(1.3)	22	(2.4)	36	(2.2)	30	(3.0)
Help students see connections between mathematics and other disciplines	0	(0.1)	6	(1.0)	32	(2.2)	45	(2.6)	17	(2.0)
Assign mathematics homework	0	(0.1)	0	(0.2)	2	(0.5)	23	(2.2)	75	(2.4)
Read and comment on the reflections students have written	27	(2.3)	26	(2.3)	26	(1.8)	14	(1.7)	6	(1.5)

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

Table MTQ 24.3
Grade 9–12 Mathematics 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	(0.3)	3	(0.8)	7	(0.9)	40	(1.9)	49	(1.9)
Pose open-ended questions	0	(0.2)	7	(2.0)	23	(1.6)	41	(2.0)	29	(1.7)
Engage the whole class in discussions	0	(0.2)	6	(1.4)	21	(1.6)	38	(1.7)	35	(1.9)
Require students to explain their reasoning when giving an answer	0	(0.1)	2	(0.7)	12	(1.6)	40	(1.7)	46	(2.3)
Ask students to explain concepts to one another	0	(0.2)	6	(0.8)	24	(1.5)	50	(1.7)	20	(1.4)
Ask students to consider alternative explanations	0	(0.1)	4	(0.7)	28	(2.1)	50	(2.2)	17	(1.4)
Ask students to use multiple representations	1	(0.4)	14	(1.2)	35	(2.0)	37	(1.9)	13	(1.0)
Allow students to work at their own pace	6	(1.3)	18	(1.4)	28	(1.8)	33	(1.7)	16	(1.1)
Help students see connections between mathematics and other disciplines	1	(0.3)	12	(1.7)	40	(1.8)	36	(1.7)	12	(1.1)
Assign mathematics homework	0	(0.1)	1	(0.4)	2	(0.4)	16	(1.9)	80	(1.9)
Read and comment on the reflections students have written	44	(1.9)	31	(1.8)	16	(1.8)	7	(0.9)	2	(0.3)

Table MTQ 25.1
Grade K–4 Mathematics 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	49	(2.6)	17	(1.9)	14	(1.9)	10	(1.6)	10	(1.5)
Work in groups	0	(0.2)	2	(0.6)	27	(2.3)	54	(2.5)	17	(1.6)
Read from a mathematics textbook in class	33	(2.3)	11	(1.6)	16	(1.7)	24	(2.0)	16	(1.9)
Read other mathematics-related materials in class	15	(1.8)	20	(2.0)	39	(2.3)	22	(1.9)	5	(1.1)
Engage in mathematical activities using concrete materials	0	(0.2)	1	(0.3)	14	(1.9)	43	(2.5)	42	(2.4)
Practice routine computations/algorithms	6	(1.2)	5	(1.1)	12	(1.6)	41	(2.1)	36	(2.3)
Review homework/worksheet assignments	8	(1.1)	7	(1.2)	15	(1.8)	35	(2.7)	36	(2.3)
Follow specific instructions in an activity or investigation	0	(0.3)	5	(0.8)	22	(1.9)	43	(2.3)	30	(2.3)
Design their *own* activity or investigation	16	(2.0)	33	(2.0)	36	(2.2)	13	(1.7)	2	(0.6)
Use mathematical concepts to interpret and solve applied problems	4	(0.9)	8	(1.2)	26	(2.0)	46	(2.2)	17	(1.7)
Answer textbook or worksheet questions	5	(1.0)	4	(0.8)	10	(1.6)	34	(2.3)	47	(2.6)
Record, represent, and/or analyze data	4	(1.1)	11	(2.0)	39	(2.3)	36	(2.4)	10	(1.4)
Write reflections	30	(2.4)	23	(2.0)	25	(2.0)	16	(1.6)	5	(1.0)
Make formal presentations to the rest of the class	34	(2.2)	36	(2.3)	21	(2.2)	8	(1.1)	1	(0.6)
Work on extended mathematics investigations or projects	46	(2.7)	34	(2.8)	14	(1.7)	4	(0.7)	2	(0.7)
Use calculators or computers for learning or practicing skills	14	(1.9)	21	(1.9)	38	(2.3)	24	(2.1)	3	(0.8)
Use calculators or computers to develop conceptual understanding	17	(2.3)	24	(2.0)	37	(2.6)	20	(2.1)	2	(0.6)
Use calculators or computers as a tool	49	(2.8)	24	(2.0)	18	(1.8)	8	(1.3)	1	(0.4)

Table MTQ 25.2
Grade 5–8 Mathematics 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	4	(1.3)	10	(1.9)	17	(2.0)	35	(2.7)	34	(2.4)
Work in groups	0	(0.1)	8	(1.5)	27	(2.3)	47	(3.1)	18	(1.9)
Read from a mathematics textbook in class	7	(1.4)	21	(1.9)	23	(2.2)	31	(2.5)	17	(2.2)
Read other mathematics-related materials in class	14	(1.7)	40	(2.8)	29	(2.4)	14	(1.8)	3	(0.7)
Engage in mathematical activities using concrete materials	1	(0.3)	10	(1.7)	42	(2.7)	39	(2.3)	9	(1.8)
Practice routine computations/algorithms	1	(0.4)	5	(1.1)	14	(1.8)	43	(2.2)	36	(2.4)
Review homework/worksheet assignments	0	(0.1)	1	(0.3)	6	(1.3)	25	(2.3)	67	(2.7)
Follow specific instructions in an activity or investigation	0	(0.1)	4	(1.1)	18	(1.7)	45	(2.1)	32	(2.3)
Design their *own* activity or investigation	11	(1.4)	41	(2.8)	36	(2.6)	10	(1.4)	1	(0.6)
Use mathematical concepts to interpret and solve applied problems	0	(0.2)	6	(1.4)	23	(1.9)	48	(2.4)	24	(2.5)
Answer textbook or worksheet questions	0	(0.3)	2	(1.1)	8	(1.1)	35	(2.2)	55	(2.5)
Record, represent, and/or analyze data	1	(0.2)	12	(1.7)	38	(2.7)	40	(3.1)	9	(1.7)
Write reflections	32	(2.3)	29	(2.4)	22	(2.1)	12	(1.9)	4	(0.9)
Make formal presentations to the rest of the class	19	(1.9)	45	(2.2)	25	(1.8)	9	(1.7)	2	(1.1)
Work on extended mathematics investigations or projects	24	(2.5)	45	(2.7)	24	(1.9)	6	(1.1)	1	(0.3)
Use calculators or computers for learning or practicing skills	4	(1.0)	11	(1.5)	31	(2.7)	38	(2.8)	16	(1.6)
Use calculators or computers to develop conceptual understanding	6	(1.3)	18	(2.0)	32	(2.5)	32	(2.2)	12	(1.4)
Use calculators or computers as a tool	21	(2.1)	26	(2.2)	27	(2.4)	20	(2.2)	6	(1.1)

Table MTQ 25.3
Grade 9–12 Mathematics 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)	5	(1.1)	34	(1.7)	59	(1.7)
Work in groups	1	(0.3)	6	(1.0)	30	(2.0)	44	(2.0)	19	(1.6)
Read from a mathematics textbook in class	11	(1.2)	27	(2.3)	28	(1.8)	23	(1.6)	10	(1.4)
Read other mathematics-related materials in class	28	(1.7)	45	(1.9)	20	(1.5)	5	(0.7)	1	(0.4)
Engage in mathematical activities using concrete materials	4	(0.7)	26	(1.8)	44	(1.9)	21	(1.4)	5	(0.5)
Practice routine computations/algorithms	1	(0.3)	6	(0.7)	19	(1.4)	45	(1.8)	30	(1.9)
Review homework/worksheet assignments	0	(0.1)	1	(0.3)	6	(1.2)	23	(1.6)	70	(1.9)
Follow specific instructions in an activity or investigation	1	(0.2)	4	(0.7)	23	(1.7)	44	(1.9)	28	(1.9)
Design their *own* activity or investigation	25	(1.9)	46	(2.2)	23	(1.7)	4	(0.6)	2	(0.8)
Use mathematical concepts to interpret and solve applied problems	1	(0.3)	8	(0.8)	22	(1.5)	48	(2.1)	21	(1.5)
Answer textbook or worksheet questions	0	(0.1)	1	(0.4)	4	(0.9)	30	(1.6)	65	(1.9)
Record, represent, and/or analyze data	4	(0.6)	24	(1.5)	39	(1.9)	26	(1.7)	7	(0.9)
Write reflections	55	(2.1)	27	(1.6)	12	(1.3)	5	(0.8)	1	(0.5)
Make formal presentations to the rest of the class	30	(1.9)	44	(2.1)	19	(1.6)	6	(1.0)	1	(0.2)
Work on extended mathematics investigations or projects	37	(2.2)	42	(2.0)	16	(1.4)	3	(0.6)	1	(0.2)
Use calculators or computers for learning or practicing skills	3	(0.6)	4	(0.8)	12	(1.1)	33	(1.7)	49	(1.9)
Use calculators or computers to develop conceptual understanding	4	(0.6)	12	(1.3)	23	(1.6)	32	(1.7)	29	(1.8)
Use calculators or computers as a tool	19	(1.6)	21	(1.5)	24	(1.4)	20	(1.8)	16	(1.5)

Table MTQ 26.1
Grade K–4 Mathematics 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	20	(2.2)	19	(2.2)	29	(2.3)	28	(2.3)	4	(0.9)
Demonstrate mathematics principles	32	(2.2)	26	(2.3)	24	(2.1)	13	(1.6)	4	(0.8)
Play mathematics learning games	12	(1.7)	12	(1.6)	29	(2.2)	39	(2.1)	7	(1.1)
Do simulations	51	(2.3)	24	(2.2)	15	(1.6)	9	(1.2)	2	(0.5)
Collect data using sensors or probes	75	(2.1)	16	(1.9)	6	(1.0)	2	(0.5)	1	(0.3)
Retrieve or exchange data	66	(2.5)	20	(2.2)	9	(1.4)	4	(1.0)	1	(0.5)
Solve problems using simulations	56	(2.3)	21	(2.1)	14	(1.6)	8	(1.2)	1	(0.5)
Take a test or quiz	60	(2.3)	16	(1.8)	13	(1.4)	10	(1.7)	1	(0.4)

Table MTQ 26.2
Grade 5–8 Mathematics 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	15	(1.9)	22	(2.2)	25	(2.4)	27	(3.0)	11	(1.4)
Demonstrate mathematics principles	13	(2.0)	18	(1.8)	32	(2.0)	29	(2.4)	8	(1.1)
Play mathematics learning games	18	(2.2)	24	(2.1)	39	(2.4)	17	(1.9)	3	(0.7)
Do simulations	32	(2.4)	29	(2.0)	30	(2.1)	7	(1.5)	2	(0.5)
Collect data using sensors or probes	60	(2.7)	24	(1.9)	14	(2.2)	2	(0.6)	1	(0.3)
Retrieve or exchange data	38	(2.2)	33	(2.4)	21	(2.0)	7	(1.4)	2	(0.6)
Solve problems using simulations	34	(2.3)	27	(2.3)	25	(1.9)	11	(1.4)	3	(0.6)
Take a test or quiz	21	(2.0)	19	(2.4)	29	(2.0)	25	(2.7)	7	(1.1)

Table MTQ 26.3
Grade 9–12 Mathematics 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	11	(1.2)	12	(1.3)	15	(1.9)	26	(1.6)	36	(1.8)
Demonstrate mathematics principles	6	(0.8)	13	(1.3)	30	(1.6)	32	(1.9)	19	(1.5)
Play mathematics learning games	44	(1.8)	34	(2.0)	16	(1.6)	3	(0.6)	3	(0.7)
Do simulations	37	(2.1)	33	(1.8)	19	(1.4)	7	(1.0)	3	(0.8)
Collect data using sensors or probes	67	(1.8)	23	(1.8)	6	(0.9)	2	(0.4)	2	(0.4)
Retrieve or exchange data	50	(2.1)	28	(2.0)	14	(1.6)	6	(0.9)	3	(0.7)
Solve problems using simulations	42	(2.3)	28	(1.9)	16	(1.4)	9	(1.0)	5	(1.0)
Take a test or quiz	7	(1.4)	5	(0.9)	20	(1.7)	41	(2.0)	27	(1.6)

Table MTQ 27.1
Grade K–4 Mathematics 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	5	(1.4)	26	(1.9)	40	(2.5)	20	(1.9)	8	(1.2)
Observe students and ask questions as they work individually	0	(0.3)	1	(0.5)	9	(1.5)	43	(2.7)	46	30
Observe students and ask questions as they work in small groups	1	(0.6)	3	(0.7)	19	(1.7)	41	(2.6)	36	(2.8)
Ask students questions during large group discussions	0	(0.0)	0	(0.0)	3	(0.8)	30	(2.8)	67	(2.9)
Use assessments embedded in class activities to see if students are "getting it"	1	(0.4)	1	(0.6)	12	(2.0)	45	(2.6)	41	(2.6)
Review student homework	8	(1.2)	6	(1.1)	8	(1.4)	30	(2.4)	49	(2.5)
Review student notebooks/journals	35	(2.7)	12	(1.6)	22	(2.3)	23	(2.0)	8	(1.2)
Review student portfolios	33	(2.4)	22	(2.0)	29	(2.7)	13	(1.6)	4	(0.9)
Have students do long-term mathematics projects	58	(2.9)	27	(2.6)	10	(1.5)	4	(1.0)	1	(0.2)
Have students present their work to the class	26	(2.3)	26	(2.3)	30	(2.7)	15	(1.8)	3	(0.9)
Give predominantly short-answer tests	22	(2.0)	17	(2.1)	34	(2.4)	19	(1.9)	9	(1.2)
Give tests requiring open-ended responses	23	(2.2)	28	(2.5)	34	(2.5)	12	(1.4)	4	(0.9)
Grade student work on open-ended and/or laboratory tasks using defined criteria	41	(2.4)	24	(2.3)	25	(2.1)	8	(1.2)	2	(0.7)
Have students assess each other	43	(2.4)	28	(2.2)	21	(2.2)	7	(1.1)	1	(0.4)

Table MTQ 27.2
Grade 5–8 Mathematics Teachers Report
Assessing Student Progress Using Various Methods

	Percent of Teachers									
	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	6	(1.2)	35	(2.1)	35	(2.3)	16	(2.1)	8	(2.0)
Observe students and ask questions as they work individually	0	(0.0)	1	(0.3)	9	(1.3)	41	(2.2)	49	(2.3)
Observe students and ask questions as they work in small groups	1	(0.9)	7	(1.4)	23	(2.1)	43	(2.1)	26	(2.4)
Ask students questions during large group discussions	0	(0.1)	0	(0.2)	7	(1.3)	27	(2.4)	66	(2.6)
Use assessments embedded in class activities to see if students are "getting it"	0	(0.1)	2	(0.4)	15	(1.9)	44	(3.1)	39	(3.4)
Review student homework	0	(0.1)	0	(0.3)	3	(0.7)	25	(2.0)	71	(2.2)
Review student notebooks/journals	23	(2.4)	18	(2.2)	31	(2.1)	19	(1.8)	9	(1.6)
Review student portfolios	46	(2.4)	23	(2.5)	20	(1.8)	8	(1.3)	2	(0.6)
Have students do long-term mathematics projects	29	(2.6)	45	(2.5)	21	(2.0)	4	(0.8)	1	(0.4)
Have students present their work to the class	13	(1.9)	31	(2.3)	35	(2.0)	15	(1.9)	6	(1.4)
Give predominantly short-answer tests	17	(2.2)	21	(1.9)	31	(2.6)	22	(2.6)	9	(1.2)
Give tests requiring open-ended responses	6	(1.2)	23	(2.1)	41	(2.9)	25	(2.4)	6	(1.2)
Grade student work on open-ended and/or laboratory tasks using defined criteria	21	(2.7)	29	(2.4)	34	(2.4)	13	(1.9)	4	(1.0)
Have students assess each other	30	(2.9)	33	(2.5)	25	(1.9)	11	(1.5)	2	(0.7)

Table MTQ 27.3
Grade 9–12 Mathematics 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	12	(1.5)	43	(2.0)	29	(1.9)	12	(1.5)	4	(0.7)
Observe students and ask questions as they work individually	0	(0.2)	3	(1.3)	11	(1.3)	43	(1.9)	42	(1.9)
Observe students and ask questions as they work in small groups	1	(0.4)	9	(1.6)	23	(1.7)	42	(1.9)	24	(1.7)
Ask students questions during large group discussions	1	(0.2)	2	(0.7)	8	(1.2)	32	(1.7)	58	(1.9)
Use assessments embedded in class activities to see if students are "getting it"	1	(0.3)	5	(0.8)	19	(1.4)	42	(2.0)	32	(1.7)
Review student homework	1	(0.6)	1	(0.4)	7	(1.4)	27	(1.6)	63	(1.9)
Review student notebooks/journals	32	(2.1)	25	(1.6)	27	(1.8)	12	(1.2)	5	(0.7)
Review student portfolios	65	(2.2)	18	(1.5)	13	(1.5)	3	(0.5)	1	(0.4)
Have students do long-term mathematics projects	39	(1.8)	44	(1.9)	13	(1.4)	3	(0.7)	1	(0.2)
Have students present their work to the class	16	(1.5)	31	(2.1)	30	(2.6)	18	(1.4)	6	(0.9)
Give predominantly short-answer tests	21	(1.7)	32	(1.8)	24	(1.9)	16	(1.5)	6	(0.9)
Give tests requiring open-ended responses	6	(0.9)	19	(1.7)	40	(1.9)	25	(1.8)	10	(0.9)
Grade student work on open-ended and/or laboratory tasks using defined criteria	25	(1.9)	29	(1.6)	30	(1.9)	13	(1.5)	4	(0.8)
Have students assess each other	42	(2.0)	34	(2.1)	18	(1.8)	5	(0.9)	1	(0.3)

Table MTQ 28a.1
Availability of Various Equipment in Grade K–4 Mathematics Classrooms

	Percent of Classes					
	Not at all Available				Readily Available	
	1		2		3	
Overhead projector	3	(1.1)	7	(1.4)	90	(1.6)
Videotape player	6	(1.3)	15	(1.9)	79	(2.4)
Videodisc player	63	(3.0)	16	(2.1)	21	(2.0)
CD-ROM player	24	(2.4)	18	(2.2)	59	(2.8)
Four-function calculators	32	(2.6)	15	(1.8)	54	(2.8)
Fraction calculators	88	(1.9)	9	(1.5)	3	(0.8)
Graphing calculators	93	(1.3)	5	(1.1)	2	(0.6)
Scientific calculators	92	(1.3)	5	(1.1)	3	(0.9)
Computers	4	(1.1)	22	(2.5)	74	(2.6)
Calculator/computer lab interfacing devices	64	(2.4)	19	(2.0)	17	(1.8)
Computers with Internet connection	20	(2.6)	24	(2.6)	57	(3.1)

Table MTQ 28a.2
Availability of Various Equipment in Grade 5–8 Mathematics Classrooms

	Percent of Classes					
	Not at all Available				Readily Available	
	1		2		3	
Overhead projector	1	(0.3)	5	(1.1)	94	(1.2)
Videotape player	4	(0.9)	20	(2.1)	76	(2.2)
Videodisc player	51	(2.8)	24	(1.9)	25	(2.7)
CD-ROM player	24	(2.9)	19	(2.2)	57	(2.8)
Four-function calculators	11	(1.4)	11	(1.3)	78	(1.8)
Fraction calculators	41	(2.6)	15	(1.5)	44	(2.4)
Graphing calculators	63	(2.4)	18	(2.0)	19	(2.0)
Scientific calculators	50	(2.4)	15	(1.5)	35	(2.3)
Computers	7	(1.1)	34	(2.4)	59	(2.5)
Calculator/computer lab interfacing devices	53	(2.7)	27	(2.1)	20	(2.2)
Computers with Internet connection	16	(2.3)	31	(2.4)	53	(3.0)

Table MTQ 28a.3
Availability of Various Equipment in Grade 9–12 Mathematics Classrooms

	Percent of Classes					
	Not at all Available				Readily Available	
	1		2		3	
Overhead projector	2	(0.6)	6	(1.1)	93	(1.2)
Videotape player	7	(0.9)	27	(2.0)	66	(2.1)
Videodisc player	58	(2.2)	25	(1.9)	16	(1.8)
CD-ROM player	33	(2.4)	25	(1.9)	42	(2.3)
Four-function calculators	17	(1.4)	15	(1.8)	68	(1.9)
Fraction calculators	24	(1.7)	19	(1.5)	57	(2.0)
Graphing calculators	10	(1.4)	21	(1.8)	69	(2.0)
Scientific calculators	12	(1.1)	19	(1.7)	69	(2.1)
Computers	15	(1.6)	46	(1.8)	39	(2.1)
Calculator/computer lab interfacing devices	37	(2.5)	35	(1.9)	28	(2.6)
Computers with Internet connection	20	(2.4)	34	(2.1)	46	(2.4)

Table MTQ 28b
Mathematics Classes Where Teachers Indicate They Need Various Equipment

	Percent of Classes					
	Grades K–4		Grades 5–8		Grades 9–12	
Overhead projector	84	(2.0)	82	(2.3)	79	(1.8)
Videotape player	40	(3.0)	39	(2.4)	30	(2.1)
Videodisc player	13	(1.8)	15	(2.2)	5	(0.8)
CD-ROM player	50	(2.6)	34	(2.6)	21	(1.9)
Four-function calculators	56	(2.2)	74	(2.5)	54	(1.8)
Fraction calculators	9	(1.4)	52	(3.1)	49	(2.0)
Graphing calculators	5	(1.0)	30	(2.4)	69	(2.1)
Scientific calculators	6	(1.2)	45	(3.3)	67	(1.9)
Computers	83	(2.2)	73	(2.3)	54	(2.6)
Calculator/computer lab interfacing devices	26	(2.4)	41	(2.9)	37	(2.3)
Computers with Internet connection	53	(3.1)	62	(2.7)	39	(2.3)

Table MTQ 28c.1
Use of Various Equipment in Grade K–4 Mathematics Classes

	Percent of Classes					
	Never use in this course		Use in specific parts of this course		Fully integrated into this course	
Overhead projector	13	(1.9)	42	(2.7)	45	(2.5)
Videotape player	59	(2.8)	37	(2.7)	3	(0.8)
Videodisc player	92	(1.4)	7	(1.4)	1	(0.5)
CD-ROM player	55	(2.6)	38	(2.5)	7	(1.2)
Four-function calculators	45	(2.5)	46	(2.8)	9	(1.5)
Fraction calculators	97	(0.8)	2	(0.7)	1	(0.3)
Graphing calculators	99	(0.6)	1	(0.6)	0	(0.1)
Scientific calculators	97	(0.8)	2	(0.8)	0	(0.2)
Computers	18	(2.4)	63	(2.8)	19	(2.1)
Calculator/computer lab interfacing devices	82	(1.9)	15	(1.8)	3	(0.8)
Computers with Internet connection	61	(2.8)	35	(2.7)	5	(0.9)

Table MTQ 28c.2
Use of Various Equipment in Grade 5–8 Mathematics Classes

	Percent of Classes					
	Never use in this course		Use in specific parts of this course		Fully integrated into this course	
Overhead projector	11	(2.2)	27	(2.8)	62	(3.0)
Videotape player	57	(2.2)	40	(2.4)	4	(1.4)
Videodisc player	91	(1.7)	7	(1.2)	2	(1.2)
CD-ROM player	65	(3.1)	29	(2.7)	5	(1.5)
Four-function calculators	22	(1.9)	42	(2.6)	36	(2.6)
Fraction calculators	51	(2.5)	28	(1.9)	22	(2.0)
Graphing calculators	78	(1.9)	16	(1.5)	6	(1.4)
Scientific calculators	58	(2.8)	26	(2.4)	17	(1.9)
Computers	28	(2.6)	59	(2.8)	13	(1.7)
Calculator/computer lab interfacing devices	75	(2.0)	20	(1.8)	5	(1.0)
Computers with Internet connection	52	(3.3)	41	(3.3)	7	(1.0)

Table MTQ 28c.3
Use of Various Equipment in Grade 9–12 Mathematics Classes

	Percent of Classes					
	Never use in this course		Use in specific parts of this course		Fully integrated into this course	
Overhead projector	13	(1.5)	33	(2.0)	54	(2.2)
Videotape player	61	(2.1)	37	(2.1)	2	(1.0)
Videodisc player	97	(0.9)	2	(0.5)	1	(0.8)
CD-ROM player	81	(2.0)	18	(1.9)	1	(0.4)
Four-function calculators	39	(2.1)	21	(1.7)	40	(2.2)
Fraction calculators	44	(2.3)	21	(1.6)	34	(2.0)
Graphing calculators	26	(2.0)	29	(2.0)	45	(2.2)
Scientific calculators	25	(1.7)	24	(1.5)	51	(2.2)
Computers	46	(2.2)	48	(2.2)	6	(0.8)
Calculator/computer lab interfacing devices	72	(1.9)	25	(1.9)	3	(0.5)
Computers with Internet connection	63	(2.0)	34	(2.0)	3	(1.0)

Table MTQ 29
Estimated Amount of Own Money Mathematics Teachers Spend on Supplies per Class

	Median Amount
Grades K–4	$ 40
Grades 5–8	$ 50
Grades 9–12	$ 50

Table MTQ 30
Estimated Amount of Own Money Mathematics Teachers Spend on Professional Development

	Median Amount
Grades K–4	$ 0
Grades 5–8	$ 40
Grades 9–12	$ 50

Table MTQ 31.1
Grade K–4 Mathematics 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	30	(2.2)	17	(1.9)	26	(2.2)	15	(1.8)	12	(1.6)
Selecting textbooks/instructional programs	29	(2.1)	24	(1.9)	28	(2.1)	13	(1.5)	5	(1.0)
Selecting other instructional materials	5	(1.0)	7	(1.2)	30	(2.3)	28	(2.3)	30	(1.9)
Selecting content, topics, and skills to be taught	26	(3.0)	19	(1.8)	28	(2.3)	18	(2.1)	9	(1.3)
Selecting the sequence in which topics are covered	13	(1.9)	9	(1.2)	21	(2.5)	21	(2.1)	36	(2.6)
Setting the pace for covering topics	5	(1.2)	10	(1.5)	17	(2.2)	22	(2.2)	45	(2.8)
Selecting teaching techniques	1	(0.5)	2	(0.8)	10	(1.6)	24	(2.3)	63	(2.5)
Determining the amount of homework to be assigned	3	(1.2)	1	(0.5)	11	(1.7)	17	(1.8)	68	(2.6)
Choosing criteria for grading students	4	(0.8)	7	(1.5)	21	(2.0)	22	(2.1)	45	(2.8)
Choosing tests for classroom assessment	8	(1.6)	8	(1.3)	19	(2.1)	23	(2.1)	42	(2.5)

Table MTQ 31.2
Grade 5–8 Mathematics 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	24	(2.4)	14	(1.8)	23	(2.3)	18	(1.9)	20	(2.6)
Selecting textbooks/instructional programs	26	(2.6)	14	(1.2)	26	(2.5)	20	(2.1)	14	(1.7)
Selecting other instructional materials	5	(1.0)	6	(1.2)	23	(2.5)	25	(2.2)	41	(2.4)
Selecting content, topics, and skills to be taught	21	(2.7)	15	(1.7)	22	(2.2)	22	(2.1)	20	(3.1)
Selecting the sequence in which topics are covered	9	(2.2)	7	(1.3)	13	(1.9)	21	(1.9)	50	(3.2)
Setting the pace for covering topics	4	(1.3)	5	(0.9)	15	(1.7)	27	(2.2)	49	(2.5)
Selecting teaching techniques	1	(0.3)	2	(0.8)	7	(1.7)	20	(2.1)	71	(2.7)
Determining the amount of homework to be assigned	1	(0.4)	1	(0.4)	4	(0.9)	22	(2.2)	72	(2.5)
Choosing criteria for grading students	2	(0.9)	2	(0.7)	11	(1.8)	30	(2.4)	56	(2.3)
Choosing tests for classroom assessment	1	(0.5)	4	(1.0)	6	(1.3)	23	(2.4)	66	(2.7)

Table MTQ 31.3
Grade 9–12 Mathematics 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	17	(1.6)	11	(1.2)	20	(1.7)	25	(1.9)	27	(2.0)
Selecting textbooks/instructional programs	21	(2.2)	12	(1.0)	21	(1.5)	21	(1.9)	25	(2.1)
Selecting other instructional materials	4	(0.7)	4	(0.6)	19	(1.7)	29	(1.9)	44	(2.3)
Selecting content, topics, and skills to be taught	13	(1.4)	12	(1.1)	20	(1.6)	28	(2.0)	27	(2.0)
Selecting the sequence in which topics are covered	4	(0.6)	5	(0.6)	12	(1.5)	27	(1.6)	52	(2.0)
Setting the pace for covering topics	2	(0.3)	7	(0.7)	12	(1.2)	29	(1.6)	50	(1.9)
Selecting teaching techniques	0	(0.2)	1	(0.2)	3	(0.5)	22	(1.6)	74	(1.6)
Determining the amount of homework to be assigned	0	(0.2)	1	(0.3)	3	(0.8)	15	(1.4)	82	(1.5)
Choosing criteria for grading students	1	(0.3)	1	(0.4)	7	(1.1)	21	(1.6)	70	(1.7)
Choosing tests for classroom assessment	1	(0.3)	1	(0.3)	3	(0.6)	16	(1.5)	79	(1.6)

Table MTQ 32
Amount of Homework Assigned in Mathematics Classes per Week

	Percent of Classes					
	Grades K–4		Grades 5–8		Grades 9–12	
0–30 minutes	48	(2.3)	8	(1.3)	6	(0.9)
31–60 minutes	27	(2.3)	21	(2.2)	14	(1.3)
61–90 minutes	13	(1.8)	26	(2.5)	23	(2.0)
91–120 minutes	8	(1.3)	24	(2.4)	23	(1.6)
2–3 hours	3	(0.9)	17	(1.8)	23	(1.7)
More than 3 hours	1	(0.4)	5	(1.6)	11	(1.2)

Table 33a
Mathematics Classes Using Commercially-Published Textbooks or Programs

	Percent of Classes	
Grades K–4	87	(1.6)
Grades 5–8	92	(1.3)
Grades 9–12	94	(0.8)

Table MTQ 33b
Use of Commercially-Published Textbooks or Programs in Mathematics Classes

	Percent of Classes					
	Grades K–4		Grades 5–8		Grades 9–12	
Use one textbook or program all or most of the time	62	(2.6)	66	(2.2)	79	(1.4)
Use multiple textbooks/programs	25	(2.4)	25	(2.1)	15	(1.3)

Table MTQ 34
Publishers of Textbooks/Programs Used in Mathematics Classes

	Percent of Classes					
	Grades K–4		Grades 5–8		Grades 9–12	
Addison Wesley Longman, Inc./Scott Foresman	20	(3.0)	16	(2.0)	12	(1.4)
Brooks/Cole Publishing Co	0	—*	0	—*	1	(0.2)
CORD Communications	0	—*	0	—*	1	(0.4)
Creative Publications	2	(0.7)	1	(0.6)	0	—*
Dale Seymour Publications†	2	(0.9)	3	(0.7)	0	(0.0)
EFA & Associates	0	—*	0	—*	0	—*
Encyclopaedia Britannica	0	—*	0	(0.1)	0	—*
Everyday Learning Corporation	7	(1.7)	4	(1.4)	1	(0.2)
Globe Fearon, Inc/Camridge	0	—*	0	(0.1)	1	(0.4)
Harcourt Brace/Harcourt, Brace & Jovanovich	16	(2.5)	10	(1.9)	1	(0.4)
Holt, Rinehart and Winston, Inc	0	(0.3)	0	(0.2)	4	(0.8)
Houghton Mifflin Company/McDougal Littell/D.C. Heath	15	(2.4)	18	(2.4)	27	(2.0)
Kendall Hunt Publishing	0	—*	0	—*	0	(0.0)
Key Curriculum Press	0	—*	0	(0.1)	3	(0.6)
McGraw-Hill/Merrill Co	10	(2.6)	22	(2.3)	22	(1.8)
Optical Data Corporation	0	—*	0	—*	0	—*
Prentice Hall, Inc.	0	—*	6	(1.2)	13	(2.4)
Saxon Publishers	11	(2.5)	8	(1.9)	3	(0.8)
Silver Burdett Ginn	11	(2.4)	3	(0.7)	0	—*
South-Western Educational Publishing	0	—*	0	(0.3)	3	(0.7)
Video Text Interactive	0	—*	0	—*	0	—*
Wadsworth Publishing	0	—*	0	—*	0	—*
West Educational Publishing	0	—*	0	—*	0	(0.3)
"Others" specified:						
Aamsco	0	—*	0	(0.1)	5	(1.1)
A-Beka	1	(0.4)	3	(1.8)	0	—*
Open Court	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.

† Between the time data were collected and this report was released, Dale Seymour Publications was bought by Prentice Hall.

There is no table for MTQ 35a.

Table MTQ 35b
Percentage of Mathematics Textbooks/Programs Covered During the Course†

	Percent of Classes					
	Grades K–4		Grades 5–8		Grades 9–12	
<25%	1	(0.4)	1	(0.5)	1	(0.2)
25–49%	3	(1.0)	5	(1.1)	6	(0.8)
50–74%	17	(2.2)	27	(2.5)	28	(2.0)
75–90%	38	(2.7)	46	(3.3)	47	(2.4)
>90%	41	(3.0)	21	(2.2)	19	(1.5)

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

Table MTQ 35c
Teachers' Perceptions of Quality of Textbooks/Programs Used in Mathematics Classes

	Percent of Classes					
	Grades K–4		Grades 5–8		Grades 9–12	
Very Poor	1	(0.5)	2	(0.7)	1	(0.2)
Poor	3	(0.9)	5	(1.3)	3	(0.6)
Fair	18	(2.3)	16	(1.7)	19	(1.7)
Good	34	(2.7)	34	(2.4)	35	(2.1)
Very Good	36	(2.8)	33	(2.6)	34	(2.1)
Excellent	8	(1.5)	10	(1.9)	9	(1.3)

Table MTQ 36a
Average Length of Most Recent Mathematics Lesson

	Number of Minutes	
Grades K–4	52	(0.9)
Grades 5–8	55	(0.7)
Grades 9–12	62	(1.1)

Table MTQ 36b
Time Spent on Various Types of Activities in Most Recent Mathematics Lesson

	Percent of Time					
	Grades K–4		Grades 5–8		Grades 9–12	
Daily routines, interruptions, and other non-instructional activities	10	(0.4)	12	(0.4)	12	(0.3)
Whole class lecture/discussions	27	(0.7)	36	(0.9)	42	(0.9)
Individual students reading textbooks, completing worksheets, etc.	24	(1.1)	25	(1.1)	21	(0.8)
Working with hands-on or manipulative materials	27	(1.2)	11	(1.0)	5	(0.4)
Non-manipulative small group work	8	(0.7)	10	(0.8)	15	(0.8)
Other activities	4	(0.6)	5	(0.6)	6	(0.4)

Table MTQ 37
Mathematics Classes Participating in Various Activities in Most Recent Lesson

	Percent of Classes					
	Grades K–4		Grades 5–8		Grades 9–12	
Lecture	68	(2.4)	80	(2.0)	88	(1.1)
Discussion	89	(1.7)	91	(1.5)	90	(1.0)
Students completing textbook/worksheet problems	77	(2.2)	80	(1.8)	81	(1.6)
Students doing hands-on/manipulative activities	75	(2.2)	36	(2.9)	19	(1.5)
Students reading about mathematics	17	(1.6)	26	(2.0)	17	(1.6)
Students working in small groups	52	(2.7)	52	(2.3)	55	(1.8)
Students using calculators	5	(0.9)	39	(2.1)	80	(1.5)
Students using computers	7	(1.1)	5	(1.0)	3	(0.7)
Students using other technologies	2	(0.6)	4	(0.9)	1	(0.2)
Test or quiz	13	(1.7)	15	(1.8)	15	(1.3)
None of the above	0	(0.2)	0	(0.2)	0	(0.3)

Table MTQ 38
Mathematics Taught on Most Recent Day of School

	Percent of Classes	
Grades K–4	95	(1.1)
Grades 5–8	93	(1.8)
Grades 9–12	92	(1.0)

Table MTQ 39
Gender of Mathematics Teachers

	Percent of Teachers					
	Grades K–4		Grades 5–8		Grades 9–12	
Male	4	(1.0)	24	(3.3)	45	(2.0)
Female	96	(1.0)	76	(3.3)	55	(2.0)

Table MTQ 40
Race/Ethnicity of Mathematics Teachers

	Percent of Teachers†					
	Grades K–4		Grades 5–8		Grades 9–12	
American Indian or Alaskan Native	1	(0.2)	1	(0.3)	1	(0.3)
Asian	0	(0.2)	1	(0.6)	1	(0.3)
Black or African-American	4	(0.8)	8	(1.6)	4	(0.8)
Hispanic or Latino	5	(1.2)	6	(1.4)	2	(0.4)
Native Hawaiian or Other Pacific Islander	0	(0.1)	0	(0.3)	0	(0.2)
White	90	(1.5)	86	(2.1)	91	(1.1)

† Percents may not add to 100 because respondents were given the option of selecting more than one category. Of the mathematics teachers responding to the survey, 97 percent selected only one category, 1 percent selected more than one category, and 2 percent selected no category.

Table MTQ 41
Age of Mathematics Teachers

	Percent of Teachers					
	Grades K–4		Grades 5–8		Grades 9–12	
Less than 31 years old	21	(2.0)	21	(2.6)	16	(1.4)
31–40 years old	21	(1.9)	23	(2.6)	24	(1.5)
41–50 years old	31	(2.4)	27	(3.0)	29	(2.0)
More than 50 years old	27	(2.4)	30	(3.4)	30	(1.7)

Table MTQ 42
Number of Years Teaching Experience of Mathematic Teachers

	Percent of Teachers					
	Grades K–4		Grades 5–8		Grades 9-12	
0–2 years	18	(1.9)	20	(3.2)	13	(1.4)
3–5 years	13	(1.5)	12	(1.8)	15	(1.6)
6–10 years	14	(1.6)	16	(2.4)	14	(1.5)
11–20 years	26	(2.0)	21	(2.5)	24	(1.7)
More than 20 years	29	(2.4)	31	(3.3)	34	(2.0)

Section Four

Science Program Questionnaire

Science Program Questionnaire

SPQ Tables

2000 National Survey of Science and Mathematics Education
School Science Program Questionnaire

Instructions: 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.

1. What is your title? (Darken all that apply.)

- Science department chair
- Science lead teacher
- Teacher
- Principal
- Assistant principal
- Other (please specify): _____

2. Indicate whether each of the following programs/practices is currently being implemented in your school. (Darken one oval on each line.)

		Yes	No	Don't Know/ Not Applicable
a.	School-based management			
b.	Common daily planning period for members of the science department			
c.	Common work space for members of the science department			
d.	Teachers *formally* designated and serving as science lead teachers			
e.	Teachers provided with release time to help other teachers in the school/district			
f.	Interdisciplinary teams of teachers who share the same students			
g.	Students assigned to science classes by ability			
h.	Use of vocational/technical applications in science instruction			
i.	Elementary or middle school students pulled out from self-contained classes for remedial instruction in science			
j.	Elementary or middle school students pulled out from self-contained classes for enrichment in science			
k.	Elementary or middle school students receiving instruction from science specialists *in addition to* their regular teacher			
l.	Elementary or middle school students receiving instruction from science specialists *instead of* their regular teacher			
m.	Science courses offered by telecommunications			
n.	Students going to another K-12 school for science courses			
o.	Students going to a college or university for science courses			
p.	Integration of science subjects (e.g., physical science, life science, and earth science all taught together each year)			

3. Please give us your opinion about each of the following statements in regard to the National Research Council's (NRC) work in setting standards for science curriculum, instruction, and assessment. (Darken one oval on each line.)

		Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
a.	I am prepared to explain the NRC *National Science Education Standards* to my colleagues.					
b.	The *Standards* have been thoroughly discussed by teachers in this school.					
c.	There is a school-wide effort to make changes inspired by the *Standards.*					
d.	Teachers in this school have implemented the *Standards* in their teaching.					
e.	The principal of this school is well-informed about the *Standards.*					
f.	Parents of students in this school are well-informed about the *Standards.*					
g.	The superintendent of this district is well-informed about the *Standards.*					
h.	The School Board is well-informed about the *Standards.*					
i.	Our district is organizing staff development based on the *Standards.*					
j.	Our district has changed how it evaluates teachers based on the *Standards.*					

4. Does your school include students in grades 6 or higher? (Darken one oval.)

- ⬭ Yes, CONTINUE WITH QUESTION 5
- ⬭ No, SKIP TO QUESTION 8

5. Please give the number of sections of each of the following science courses currently offered in your school. (Additional course titles for these categories are shown on the enclosed "List of Course Titles.")

Current number of sections	Code	Course Category
_____	108	Life Science, 6 - 8
_____	109	Earth Science, 6 - 8
_____	110	Physical Science, 6 - 8
_____	111	General Science, 6 - 8
_____	112	Integrated Science, 6 - 8
		Grades 6-8, Other Science Courses
_____		_____
_____		_____
_____		_____

Current number of sections	Code	Course Category
_____	114	Biology, 1st year
_____	115	Biology, 1st year, Applied
_____	116	Biology, 2nd year, AP
_____	117	Biology, 2nd year, Advanced
_____	118	Biology, 2nd year, Other
_____	119	Chemistry, 1st year
_____	120	Chemistry, 1st year, Applied
_____	121	Chemistry, 2nd year, AP
_____	122	Chemistry, 2nd year, Advanced
_____	123	Physics, 1st year
_____	124	Physics, 1st year, Applied
_____	125	Physics, 2nd year, AP
_____	126	Physics, 2nd year, Advanced
_____	127	Physical Science
_____	128	Astronomy/Space Science*
_____	129	Geology*
_____	130	Meteorology*
_____	131	Oceanography/Marine Science*
_____	132	Earth Science, 1st year
_____	133	Earth Science, 1st year, Applied
_____	134	Earth Science, 2nd year, Advanced/Other
_____	135	General Science
_____	136	Environmental Science
_____	137	Coordinated Science
_____	138	Integrated Science
		Grades 9-12, Other Science Courses
_____		_____
_____		_____
_____		_____

* NOTE: A course that includes substantial content from two or more of the earth sciences should be listed under code 132, 133, 134, or 135.

6. Please give the code number of any science courses offered this year that will **not** be offered next year. If all will be offered next year, darken this oval ⬭ and continue with question 7. Otherwise, list the code number of courses that will not be offered:

_____ _____ _____ _____ _____

PLEASE DO NOT WRITE IN THIS AREA

[SERIAL]

7. Which of the following best describes the way science classes at your school are scheduled? (Darken one oval.)

a. All or most classes meet five days per week for one year.
b. All or most classes meet five days per week for one semester.
c. All or most classes meet three days one week and two days the next week for one year.

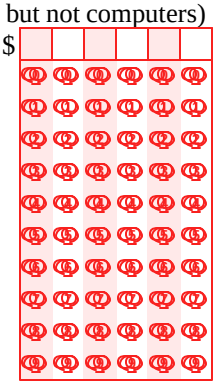
d. Other arrangement; on a separate page, please give a brief written description of how often classes meet and the number of minutes in each class session.

Please enter the number of minutes each class meets per session in the spaces provided to the right, then darken the corresponding oval in each column: (Please enter your answer as a 3-digit number; e.g., if 30 minutes, enter 030.)

8. How much money was spent on science equipment and consumable supplies in this school during the most recently completed budget year? Provide your answer as a ***whole dollar amount***. (If you don't know the exact amounts, please provide your best estimates.) Please enter your answers in the spaces provided, then darken the corresponding oval in each column. Please right justify your answers; e.g., enter $125 as | | | | 1 | 2 | 5 |

a. Science Equipment (non-consumable, non-perishable items such as microscopes, scales, etc., but not computers)

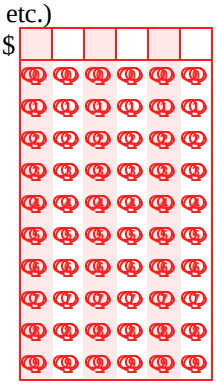
$



If this is an estimate, please darken this oval:

b. Consumable Science Supplies (materials that must continually be replenished such as chemicals, glassware, batteries, etc.)

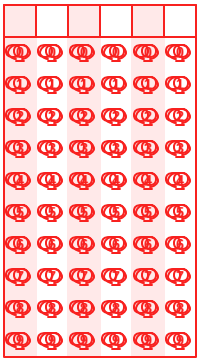
$



If this is an estimate, please darken this oval:

c. Science Software

$



If this is an estimate, please darken this oval:

9. In your opinion, how great a problem is each of the following for science instruction **in your school as a whole**? (Darken one oval on each line.)

		Not a Significant Problem	Somewhat of a Problem	Serious Problem
a.	Facilities	1	2	3
b.	Funds for purchasing equipment and supplies	1	2	3
c.	Materials for individualizing instruction	1	2	3
d.	Access to computers	1	2	3
e.	Appropriate computer software	1	2	3
f.	Student interest in science	1	2	3
g.	Student reading abilities	1	2	3
h.	Student absences	1	2	3
i.	Teacher interest in science	1	2	3
j.	Teacher preparation to teach science	1	2	3
k.	Time to teach science	1	2	3
l.	Opportunities for teachers to share ideas	1	2	3

Question 9 continues on next page...

9. *continued*

		Not a Significant Problem	Somewhat of a Problem	Serious Problem
m.	In-service education opportunities	①	②	③
n.	Interruptions for announcements, assemblies, other school activities	①	②	③
o.	Large classes	①	②	③
p.	Maintaining discipline	①	②	③
q.	Parental support for education	①	②	③

10. In your opinion, how great a problem is each of the following for science instruction **in your school as a whole**? (Darken one oval on each line.)

		Not a Significant Problem	Somewhat of a Problem	Serious Problem
a.	State and/or district curriculum frameworks	①	②	③
b.	State and/or district testing policies and practices	①	②	③
c.	Importance that the school places on science	①	②	③
d.	Public attitudes toward science reform at this school	①	②	③
e.	Conflict between science reform efforts at this school and other school/district reform efforts	①	②	③
f.	Time available for teachers to plan and prepare lessons	①	②	③
g.	Time available for teachers to work with other teachers during the school year	①	②	③
h.	Time available for teacher professional development	①	②	③
i.	System of managing instructional resources at the district or school level (e.g., distributing science materials, refurbishing materials)	①	②	③

Question 11 is being asked of all science teachers in the sample. If you received a Science Teacher Questionnaire in addition to this School Science Program Questionnaire, please darken this oval ① and SKIP TO QUESTION 12.

11a. 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 12
② Somewhat familiar
③ Fairly familiar
④ Very familiar

11b. 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

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

13. When did you complete this questionnaire? _____ / _____ / _____
Month Day Year

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!

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

Table SPQ 1
Titles of Science Program Questionnaire Representatives

	Percent of Representatives					
	Elementary Schools		Middle Schools		High Schools	
Science department chair	9	(2.0)	29	(3.1)	64	(4.0)
Science lead teacher	18	(2.8)	22	(3.6)	11	(2.0)
Teacher	48	(3.9)	62	(3.9)	51	(3.4)
Principal	28	(3.6)	12	(2.4)	6	(1.6)
Assistant principal	3	(0.9)	1	(0.3)	2	(0.6)
Other	18	(3.1)	8	(2.5)	6	(2.0)

Table SPQ 2.1
Implementation of Various Programs/Practices in Elementary Schools

	Percent of Schools					
	Not Used		Used		Don't Know/Not Applicable	
School-based management	28	(3.6)	62	(3.9)	11	(2.1)
Common daily planning period for members of the science department	66	(3.2)	16	(2.3)	18	(2.9)
Common workspace for members of the science department	61	(3.2)	17	(2.5)	21	(2.8)
Teachers *formally* designated and serving as science lead teachers	60	(4.2)	32	(3.9)	8	(2.2)
Teachers provided with release time to help other teachers in the school/district	72	(3.5)	21	(3.0)	7	(2.0)
Interdisciplinary teams of teachers who share the same students	39	(3.7)	52	(3.8)	9	(2.1)
Students assigned to science classes by ability	89	(1.9)	6	(1.5)	5	(1.5)
Use of vocational/technical applications in science instruction	54	(3.8)	31	(3.2)	14	(2.8)
Elementary or middle school students pulled out from self contained classes for remedial instruction in science	88	(2.6)	7	(1.8)	6	(2.0)
Elementary or middle school students pulled out from self contained classes for enrichment in science	81	(2.7)	13	(2.1)	5	(2.0)
Elementary or middle school students receiving instruction from science specialists *in addition to* their regular teacher	83	(2.8)	15	(2.8)	1	(0.8)
Elementary or middle school students receiving instruction from science specialists *instead of* their regular teacher	87	(2.7)	12	(2.6)	1	(0.8)
Science courses offered by telecommunications	89	(2.5)	5	(1.9)	6	(1.7)
Students going to another K–12 school for science courses	97	(1.4)	1	(0.6)	2	(1.2)
Students going to a college or university for science courses	86	(2.6)	2	(0.8)	12	(2.5)
Integration of science subjects	31	(3.2)	67	(3.3)	2	(1.0)

Table SPQ 2.2
Implementation of Various Programs/Practices in Middle Schools

	Percent of Schools					
	Not Used		Used		Don't Know/Not Applicable	
School-based management	19	(3.1)	58	(3.6)	23	(3.2)
Common daily planning period for members of the science department	71	(3.5)	20	(3.1)	8	(2.4)
Common workspace for members of the science department	61	(3.7)	27	(3.2)	12	(3.2)
Teachers *formally* designated and serving as science lead teachers	61	(3.9)	30	(3.8)	8	(2.7)
Teachers provided with release time to help other teachers in the school/district	74	(3.4)	14	(2.6)	12	(2.6)
Interdisciplinary teams of teachers who share the same students	33	(3.7)	61	(3.7)	5	(2.1)
Students assigned to science classes by ability	79	(2.9)	18	(2.5)	2	(1.6)
Use of vocational/technical applications in science instruction	45	(4.3)	46	(4.4)	9	(3.0)
Elementary or middle school students pulled out from self contained classes for remedial instruction in science	76	(3.0)	16	(2.4)	7	(2.1)
Elementary or middle school students pulled out from self contained classes for enrichment in science	81	(2.5)	11	(1.9)	8	(2.3)
Elementary or middle school students receiving instruction from science specialists *in addition to* their regular teacher	84	(2.7)	12	(2.6)	4	(1.3)
Elementary or middle school students receiving instruction from science specialists *instead of* their regular teacher	83	(3.2)	12	(3.0)	5	(1.8)
Science courses offered by telecommunications	88	(2.9)	6	(1.8)	7	(2.4)
Students going to another K–12 school for science courses	96	(1.9)	1	(0.6)	3	(1.8)
Students going to a college or university for science courses	82	(3.2)	7	(1.3)	11	(3.0)
Integration of science subjects	41	(3.6)	56	(3.7)	3	(1.5)

Table SPQ 2.3
Implementation of Various Programs/Practices in High Schools

	Percent of Schools					
	Not Used		Used		Don't Know/Not Applicable	
School-based management	23	(2.7)	58	(3.2)	19	(2.3)
Common daily planning period for members of the science department	76	(3.3)	21	(3.2)	3	(1.2)
Common workspace for members of the science department	56	(3.0)	40	(3.2)	4	(1.6)
Teachers *formally* designated and serving as science lead teachers	69	(3.2)	25	(3.1)	5	(1.8)
Teachers provided with release time to help other teachers in the school/district	77	(3.1)	15	(2.6)	8	(2.0)
Interdisciplinary teams of teachers who share the same students	67	(3.8)	28	(3.9)	4	(1.5)
Students assigned to science classes by ability	53	(3.2)	47	(3.2)	0	(0.2)
Use of vocational/technical applications in science instruction	36	(2.7)	60	(2.7)	4	(1.0)
Elementary or middle school students pulled out from self contained classes for remedial instruction in science	40	(4.1)	12	(1.9)	48	(3.8)
Elementary or middle school students pulled out from self contained classes for enrichment in science	41	(4.0)	10	(1.8)	49	(3.6)
Elementary or middle school students receiving instruction from science specialists *in addition to* their regular teacher	52	(3.8)	7	(1.2)	41	(3.5)
Elementary or middle school students receiving instruction from science specialists *instead of* their regular teacher	52	(3.5)	7	(1.4)	41	(3.3)
Science courses offered by telecommunications	85	(2.2)	10	(2.0)	5	(1.2)
Students going to another K–12 school for science courses	91	(1.7)	4	(1.1)	5	(1.2)
Students going to a college or university for science courses	67	(2.9)	28	(2.7)	5	(1.4)
Integration of science subjects	62	(3.4)	33	(3.2)	4	(1.5)

Table SPQ 3.1
Opinions of Elementary School Science Program Representatives Regarding NRC's *Standards* for Science Curriculum, Instruction, and Assessment

	Percent of Representatives									
	Strongly Disagree		Disagree		No Opinion		Agree		Strongly Agree	
I am prepared to explain the NRC *National Science Education Standards* to my colleagues	20	(3.3)	37	(3.7)	16	(2.7)	23	(3.0)	3	(1.4)
The *Standards* have been thoroughly discussed by teachers in this school	26	(3.7)	47	(3.9)	9	(1.8)	17	(2.9)	1	(0.6)
There is a school-wide effort to make changes inspired by the *Standards*	12	(2.6)	36	(3.3)	18	(3.0)	29	(3.5)	5	(1.3)
Teachers in this school have implemented the *Standards* in their teaching	9	(2.5)	24	(3.3)	27	(3.5)	33	(3.6)	6	(1.6)
The principal of this school is well informed about the *Standards*	10	(2.7)	21	(3.1)	40	(3.7)	24	(3.3)	5	(1.4)
Parents of students in this school are well informed about the *Standards*	24	(3.7)	44	(4.3)	24	(3.1)	8	(1.7)	0	(0.4)
The superintendent of this district is well-informed about the *Standards*	7	(2.1)	13	(2.5)	53	(3.6)	21	(3.0)	6	(1.8)
The School Board is well-informed about the *Standards*	8	(2.2)	20	(3.2)	56	(3.6)	12	(2.2)	3	(1.4)
Our district is organizing staff development based on the *Standards*	12	(2.5)	22	(3.0)	33	(3.4)	27	(3.2)	7	(1.6)
Our district has changed how it evaluates teachers based on the *Standards*	16	(3.1)	25	(3.0)	48	(3.9)	9	(2.1)	2	(1.1)

Table SPQ 3.2
Opinions of Middle School Science Program Representatives Regarding NRC's *Standards* for Science Curriculum, Instruction, and Assessment

	Percent of Representatives									
	Strongly Disagree		Disagree		No Opinion		Agree		Strongly Agree	
I am prepared to explain the NRC *National Science Education Standards* to my colleagues	20	(3.3)	29	(3.0)	28	(3.7)	20	(3.2)	3	(1.5)
The *Standards* have been thoroughly discussed by teachers in this school	29	(4.1)	36	(3.9)	14	(2.2)	19	(3.3)	3	(0.8)
There is a school-wide effort to make changes inspired by the *Standards*	11	(2.1)	29	(3.6)	22	(3.4)	31	(3.8)	8	(1.6)
Teachers in this school have implemented the *Standards* in their teaching	7	(1.7)	21	(2.9)	33	(3.8)	33	(3.7)	6	(0.9)
The principal of this school is well informed about the *Standards*	8	(1.9)	23	(3.5)	50	(4.0)	15	(2.4)	4	(1.0)
Parents of students in this school are well informed about the *Standards*	19	(3.1)	42	(3.8)	33	(3.8)	5	(1.4)	1	(0.4)
The superintendent of this district is well-informed about the *Standards*	10	(2.2)	14	(2.6)	57	(3.7)	13	(2.4)	6	(1.7)
The School Board is well-informed about the *Standards*	12	(2.3)	22	(3.5)	55	(3.6)	9	(2.2)	3	(0.8)
Our district is organizing staff development based on the *Standards*	13	(2.6)	21	(3.2)	38	(3.6)	21	(2.9)	7	(1.1)
Our district has changed how it evaluates teachers based on the *Standards*	18	(3.3)	20	(2.8)	53	(3.7)	5	(1.1)	4	(1.6)

Table SPQ 3.3
Opinions of High School Science Program Representatives Regarding NRC's *Standards* for Science Curriculum, Instruction, and Assessment

	Percent of Representatives									
	Strongly Disagree		Disagree		No Opinion		Agree		Strongly Agree	
I am prepared to explain the NRC *National Science Education Standards* to my colleagues	19	(2.5)	29	(2.6)	21	(2.6)	26	(3.2)	4	(0.9)
The *Standards* have been thoroughly discussed by teachers in this school	27	(3.1)	38	(3.0)	15	(2.8)	17	(2.3)	3	(0.9)
There is a school-wide effort to make changes inspired by the *Standards*	17	(2.3)	28	(2.8)	20	(3.1)	29	(3.1)	7	(2.3)
Teachers in this school have implemented the *Standards* in their teaching	14	(2.0)	20	(2.2)	29	(3.9)	32	(3.5)	6	(2.3)
The principal of this school is well informed about the *Standards*	13	(1.9)	21	(2.2)	41	(3.7)	21	(2.7)	3	(0.8)
Parents of students in this school are well informed about the *Standards*	26	(2.9)	43	(3.2)	25	(2.7)	5	(1.1)	0	(0.3)
The superintendent of this district is well-informed about the *Standards*	17	(2.7)	17	(2.1)	45	(3.3)	15	(1.9)	6	(2.3)
The School Board is well-informed about the *Standards*	22	(3.1)	22	(2.5)	44	(3.5)	10	(2.5)	2	(0.5)
Our district is organizing staff development based on the *Standards*	23	(2.9)	25	(2.2)	26	(2.9)	19	(2.2)	7	(2.4)
Our district has changed how it evaluates teachers based on the *Standards*	25	(3.1)	30	(2.6)	35	(3.8)	6	(1.1)	4	(2.3)

There is no table for SPQ 4.

Table SPQ 5.1
Schools Offering Various Science Courses in Grades 6–8

	Percent of Schools	
Life Science, 6–8	48	(3.2)
Earth Science, 6–8	37	(3.1)
Physical Science, 6–8	36	(3.0)
General Science, 6–8	41	(3.3)
Integrated Science, 6–8	24	(3.0)

Table SPQ 5.2
Schools Offering Various Science Courses in Grades 9–12

	Percent of Schools	
Biology, 1st year	38	(2.2)
Biology, 1st year, Applied	12	(1.7)
Biology, 2nd year, AP	11	(1.4)
Biology, 2nd year, Advanced	19	(1.8)
Biology, 2nd year, Other	10	(1.5)
Chemistry, 1st year	37	(2.2)
Chemistry, 1st year, Applied	5	(0.7)
Chemistry, 2nd year, AP	9	(1.0)
Chemistry, 2nd year, Advanced	7	(0.9)
Physics, 1st year	33	(2.3)
Physics, 1st year, Applied	5	(0.9)
Physics, 2nd year, AP	6	(0.7)
Physics, 2nd year, Advanced	2	(0.4)
Physical Science	19	(1.4)
Astronomy/Space Science	7	(1.1)
Geology	3	(0.7)
Meteorology	1	(0.4)
Oceanography/Marine Science	4	(0.7)
Earth Science, 1st year	15	(1.6)
Earth Science, 1st year, Applied	3	(1.2)
Earth Science, 2nd year, Advanced/Other	1	(0.3)
General Science	9	(1.5)
Environmental Science	16	(1.8)
Coordinated Science	2	(0.9)
Integrated Science	6	(0.8)

There is no table for SPQ 6.

Table SPQ 7
Scheduling of Science Classes

	Percent of Schools					
	Elementary Schools		Middle Schools		High Schools	
All or most classes meet five days per week for one year	76	(4.8)	81	(2.5)	54	(3.7)
All or most classes meet five days per week for one semester	6	(2.4)	7	(1.8)	24	(3.2)
All or most classes meet three days one week and two days the next week for one year	5	(3.4)	5	(1.0)	12	(1.7)
Other Arrangements	13	(4.2)	8	(2.7)	10	(2.0)

Table SPQ 8
Median Amount of Money Spent per Year by Schools on Science Equipment and Consumable Supplies

	Median Amount		
	Elementary Schools	Middle Schools	High Schools
Science Equipment	$ 250	$ 400	$ 1,000
Consumable Science Supplies	$ 250	$ 400	$ 1,500
Science Software	$ 0	$ 0	$ 100

Table SPQ 9.1
Science Program Representatives' Opinions of Problems for Elementary School Science Instruction

	Percent of Programs					
	Not a Significant Problem		Somewhat of a Problem		Serious Problem	
Facilities	42	(3.6)	38	(3.3)	20	(3.0)
Funds for purchasing equipment and supplies	24	(3.0)	41	(3.4)	35	(3.6)
Materials for individualizing instruction	28	(3.3)	45	(3.7)	27	(3.2)
Access to computers	45	(3.5)	38	(3.5)	17	(2.9)
Appropriate computer software	22	(3.1)	45	(3.8)	33	(3.5)
Student interest in science	66	(4.1)	30	(3.9)	4	(1.8)
Student reading abilities	45	(3.6)	44	(3.4)	11	(2.2)
Student absences	73	(3.3)	23	(3.0)	4	(1.4)
Teacher interest in science	51	(3.5)	42	(3.4)	8	(2.0)
Teacher preparation to teach science	36	(3.7)	50	(4.2)	14	(2.7)
Time to teach science	34	(3.1)	46	(3.8)	20	(2.9)
Opportunities for teachers to share ideas	23	(3.1)	53	(3.7)	24	(3.2)
In-service education opportunities	35	(3.4)	51	(3.9)	14	(2.6)
Interruptions for announcements, assemblies, other school activities	65	(3.4)	25	(3.0)	10	(2.3)
Large classes	58	(4.0)	35	(3.8)	7	(1.9)
Maintaining discipline	66	(3.3)	28	(3.0)	6	(1.8)
Parental support for education	56	(3.7)	33	(3.2)	12	(2.4)

Table SPQ 9.2
Science Program Representatives' Opinions of Problems for Middle School Science Instruction

	Percent of Programs					
	Not a Significant Problem		Somewhat of a Problem		Serious Problem	
Facilities	40	(4.2)	32	(3.3)	28	(4.0)
Funds for purchasing equipment and supplies	27	(3.2)	41	(4.3)	33	(4.0)
Materials for individualizing instruction	25	(3.2)	50	(4.7)	25	(3.8)
Access to computers	33	(4.0)	49	(4.2)	18	(3.0)
Appropriate computer software	21	(3.2)	39	(3.7)	40	(3.9)
Student interest in science	55	(3.8)	40	(3.7)	4	(1.0)
Student reading abilities	32	(4.2)	50	(4.2)	18	(2.4)
Student absences	61	(3.7)	30	(3.6)	9	(2.0)
Teacher interest in science	78	(3.8)	20	(3.7)	3	(1.2)
Teacher preparation to teach science	66	(4.3)	29	(4.0)	5	(2.1)
Time to teach science	57	(3.5)	31	(4.0)	12	(3.2)
Opportunities for teachers to share ideas	24	(2.9)	56	(3.6)	21	(2.9)
In-service education opportunities	37	(3.7)	50	(4.5)	13	(2.8)
Interruptions for announcements, assemblies, other school activities	51	(3.8)	36	(3.9)	12	(2.7)
Large classes	48	(4.1)	40	(3.9)	12	(1.7)
Maintaining discipline	61	(3.4)	34	(3.4)	6	(1.1)
Parental support for education	45	(3.8)	45	(3.9)	11	(2.1)

Table SPQ 9.3
Science Program Representatives' Opinions of Problems for High School Science Instruction

	Percent of Programs					
	Not a Significant Problem		Somewhat of a Problem		Serious Problem	
Facilities	40	(3.5)	39	(3.7)	21	(3.3)
Funds for purchasing equipment and supplies	31	(2.7)	44	(3.2)	25	(3.4)
Materials for individualizing instruction	30	(2.9)	54	(3.3)	16	(2.1)
Access to computers	34	(2.7)	44	(2.7)	22	(2.7)
Appropriate computer software	23	(2.9)	46	(3.1)	32	(3.0)
Student interest in science	45	(3.8)	47	(3.8)	8	(1.8)
Student reading abilities	30	(3.7)	48	(3.1)	22	(2.4)
Student absences	42	(3.9)	39	(3.6)	20	(2.6)
Teacher interest in science	86	(2.9)	12	(2.5)	2	(1.4)
Teacher preparation to teach science	76	(3.1)	19	(2.3)	5	(2.5)
Time to teach science	61	(2.9)	34	(3.0)	4	(0.9)
Opportunities for teachers to share ideas	29	(3.0)	50	(3.1)	21	(2.8)
In-service education opportunities	43	(3.3)	48	(3.6)	9	(1.4)
Interruptions for announcements, assemblies, other school activities	44	(3.5)	43	(3.5)	13	(1.9)
Large classes	45	(3.7)	41	(3.3)	14	(2.0)
Maintaining discipline	61	(3.3)	34	(3.2)	5	(0.9)
Parental support for education	45	(3.3)	42	(2.9)	13	(2.2)

Table SPQ 10.1
Science Program Representatives' Perceptions of Problems for Elementary School Science Instruction

	Percent of Programs					
	Not a Significant Problem		Somewhat of a Problem		Serious Problem	
State and/or district curriculum frameworks	68	(3.4)	28	(3.2)	5	(1.6)
State and/or district testing policies and practices	52	(3.5)	38	(3.2)	11	(2.1)
Importance that the school places on science	49	(3.7)	41	(3.5)	10	(2.1)
Public attitudes toward science reform at this school	64	(4.1)	32	(4.0)	4	(1.6)
Conflict between science reform efforts at this school and other school/district reform efforts	65	(3.5)	29	(3.3)	6	(1.8)
Time available for teachers to plan and prepare lessons	25	(3.5)	52	(4.1)	24	(3.5)
Time available for teachers to work with other teachers during the school year	18	(2.7)	52	(4.1)	30	(3.5)
Time available for teacher professional development	25	(3.5)	51	(3.6)	24	(3.2)
System of managing instructional resources at the district or school level	43	(3.7)	35	(3.7)	22	(2.8)

Table SPQ 10.2
Science Program Representatives' Perceptions of Problems for Middle School Science Instruction

	Percent of Programs					
	Not a Significant Problem		Somewhat of a Problem		Serious Problem	
State and/or district curriculum frameworks	64	(3.4)	33	(3.5)	3	(0.9)
State and/or district testing policies and practices	52	(3.7)	39	(3.7)	9	(1.4)
Importance that the school places on science	55	(4.2)	37	(4.2)	8	(2.2)
Public attitudes toward science reform at this school	70	(3.9)	27	(4.1)	3	(1.1)
Conflict between science reform efforts at this school and other school/district reform efforts	78	(2.8)	19	(2.9)	3	(0.8)
Time available for teachers to plan and prepare lessons	34	(3.2)	48	(4.2)	18	(3.5)
Time available for teachers to work with other teachers during the school year	16	(2.5)	55	(4.1)	29	(3.9)
Time available for teacher professional development	23	(2.7)	59	(3.8)	18	(3.0)
System of managing instructional resources at the district or school level	38	(4.3)	42	(4.4)	20	(3.6)

Table SPQ 10.3
Science Program Representatives' Perceptions of Problems for High School Science Instruction

	Percent of Programs					
	Not a Significant Problem		Somewhat of a Problem		Serious Problem	
State and/or district curriculum frameworks	59	(3.0)	35	(3.0)	7	(1.6)
State and/or district testing policies and practices	45	(3.1)	42	(3.3)	13	(1.9)
Importance that the school places on science	69	(3.0)	26	(3.0)	5	(1.1)
Public attitudes toward science reform at this school	68	(3.0)	26	(2.8)	6	(1.4)
Conflict between science reform efforts at this school and other school/district reform efforts	78	(2.6)	18	(2.3)	4	(1.0)
Time available for teachers to plan and prepare lessons	39	(3.6)	47	(3.6)	15	(2.1)
Time available for teachers to work with other teachers during the school year	14	(3.1)	58	(3.3)	28	(2.8)
Time available for teacher professional development	27	(2.8)	59	(3.4)	14	(2.1)
System of managing instructional resources at the district or school level	47	(3.5)	38	(3.1)	15	(2.5)

Table SPQ 11
Science Program Representatives' Familiarity with and Agreement with Overall Vision of NRC *Standards*

	Percent of Teachers					
	Elementary Schools		Middle Schools		High Schools	
How familiar are you with the *National Science Education Standards*, published by the National Research Council?						
Not at all familiar	34	(4.1)	36	(4.5)	36	(3.7)
Somewhat familiar	37	(4.0)	39	(4.5)	35	(3.2)
Fairly familiar	21	(3.6)	16	(2.9)	18	(2.2)
Very familiar	8	(2.1)	9	(2.6)	11	(2.7)
Please indicate the extent of your agreement with the overall vision of science education described in the *National Science Education Standards*?[†]						
Strongly Disagree	3	(1.9)	0	(0.1)	0	(0.3)
Disagree	2	(1.5)	5	(2.8)	4	(1.2)
No Opinion	23	(4.2)	33	(6.1)	30	(4.3)
Agree	66	(4.5)	56	(5.2)	59	(4.5)
Strongly Agree	6	(2.1)	6	(1.7)	7	(1.5)

[†] These analyses included only those representatives indicating they were at least somewhat familiar with the *Standards.*

Section Five

Mathematics Program Questionnaire

Mathematics Program Questionnaire

MPQ Tables

2000 National Survey of Science and Mathematics Education
School Mathematics Program Questionnaire

Instructions: 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.

1. What is your title? (Darken all that apply.)

- Mathematics department chair
- Mathematics lead teacher
- Teacher
- Principal
- Assistant principal
- Other (please specify): _____

2. Indicate whether each of the following programs/practices is currently being implemented in your school. (Darken one oval on each line.)

	Yes	No	Don't Know/ Not Applicable
a. School-based management			
b. Common daily planning period for members of the mathematics department			
c. Common work space for members of the mathematics department			
d. Teachers *formally* designated and serving as mathematics lead teachers			
e. Teachers provided with release time to help other teachers in the school/district			
f. Interdisciplinary teams of teachers who share the same students			
g. Students assigned to mathematics classes by ability			
h. Use of vocational/technical applications in mathematics instruction			
i. Elementary or middle school students pulled out from self-contained classes for remedial instruction in mathematics			
j. Elementary or middle school students pulled out from self-contained classes for enrichment in mathematics			
k. Elementary or middle school students receiving instruction from mathematics specialists *in addition to* their regular teacher			
l. Elementary or middle school students receiving instruction from mathematics specialists *instead of* their regular teacher			
m. Mathematics courses offered by telecommunications			
n. Students going to another K-12 school for mathematics courses			
o. Students going to a college or university for mathematics courses			
p. Integration of mathematics subjects (e.g., algebra, probability, geometry, etc. all taught together each year)			

3. Please give us your opinion about each of the following statements in regard to the National Council of Teachers of Mathematics' (NCTM) work in setting standards for mathematics curriculum, instruction, and assessment. (Darken one oval on each line.)

	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
a. I am prepared to explain the NCTM *Standards* to my colleagues.					
b. The *Standards* have been thoroughly discussed by teachers in this school.					
c. There is a school-wide effort to make changes inspired by the *Standards.*					
d. Teachers in this school have implemented the *Standards* in their teaching.					
e. The principal of this school is well-informed about the *Standards.*					
f. Parents of students in this school are well-informed about the *Standards.*					
g. The superintendent of this district is well-informed about the *Standards.*					
h. The School Board is well-informed about the *Standards.*					
i. Our district is organizing staff development based on the *Standards.*					
j. Our district has changed how it evaluates teachers based on the *Standards.*					

4. Does your school include students in grades 6 or higher? (Darken one oval.)

- Yes, CONTINUE WITH QUESTION 5
- No, SKIP TO QUESTION 8

5. Please give the number of sections of each of the following mathematics courses currently offered in your school. (Additional course titles for these categories are shown on the enclosed "List of Course Titles.")

GRADES 6-8

Current number of sections	Code	Course Category
_____	208	Remedial Mathematics 6
_____	209	Regular Mathematics 6
_____	210	Accelerated/Pre-Algebra Mathematics 6
_____	211	Remedial Mathematics 7
_____	212	Regular Mathematics 7
_____	213	Accelerated Mathematics 7

Current number of sections	Code	Course Category
_____	214	Remedial Mathematics 8
_____	215	Regular Mathematics 8
_____	216	Enriched Mathematics 8
_____	217	Algebra 1, Grade 7 or 8
_____	218	Integrated Middle Grade Mathematics, 7 or 8

GRADES 6-8, OTHER MATHEMATICS COURSES

_____ _____
_____ _____
_____ _____

GRADES 9-12

Current number of sections	Code	Course Category
		GRADES 9-12, REVIEW MATHEMATICS
_____	219	Review Mathematics Level 1 (e.g., Remedial Mathematics)
_____	220	Review Mathematics Level 2 (e.g., Consumer Mathematics)
_____	221	Review Mathematics Level 3 (e.g., General Mathematics 3)
_____	222	Review Mathematics Level 4 (e.g., General Mathematics 4)
		GRADES 9-12, INFORMAL MATHEMATICS
_____	223	Informal Mathematics Level 1 (e.g., Pre-Algebra)
_____	224	Informal Mathematics Level 2 (e.g., Basic Geometry)
_____	225	Informal Mathematics Level 3 (e.g., after Pre-Algebra, but not Algebra 1)

Current number of sections	Code	Course Category
		GRADES 9-12, FORMAL MATHEMATICS
_____	226	Formal Mathematics Level 1 (e.g., Algebra 1, or Integrated Math 1)
_____	227	Formal Mathematics Level 2 (e.g., Geometry, or Integrated Math 2)
_____	228	Formal Mathematics Level 3 (e.g., Algebra 2, or Integrated Math 3)
_____	229	Formal Mathematics Level 4 (e.g., Algebra 3, or Pre-Calculus)
_____	230	Formal Mathematics Level 5 (e.g., Calculus)
_____	231	Formal Mathematics Level 5, AP
		GRADES 9-12, OTHER MATHEMATICS COURSES
_____	232	Probability and Statistics
_____	233	Mathematics integrated with other subjects
_____		_____
_____		_____

PLEASE DO NOT WRITE IN THIS AREA

[SERIAL]

6. Please give the code number of any mathematics courses offered this year that will **not** be offered next year. If all will be offered next year, darken this oval ⬭ and continue with question 7. Otherwise, list the code number of courses that will not be offered:

_____ _____ _____ _____ _____

7. Which of the following best describes the way mathematics classes at your school are scheduled? (Darken one oval.)

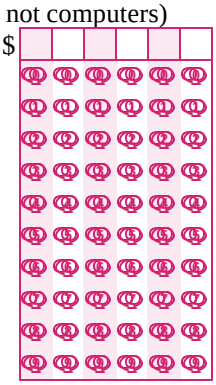
- a. All or most classes meet five days per week for one year.
- b. All or most classes meet five days per week for one semester.
- c. All or most classes meet three days one week and two days the next week for one year.
- d. Other arrangement; on a separate page, please give a brief written description of how often classes meet and the number of minutes in each class session.

Please enter the number of minutes each class meets per session in the spaces provided to the right, then darken the corresponding oval in each column: (Please enter your answer as a 3-digit number; e.g., if 30 minutes, enter 030.)

8. How much money was spent on mathematics equipment and consumable supplies in this school during the most recently completed budget year? Provide your answer as a ***whole dollar amount***. (If you don't know the exact amounts, please provide your best estimates.) Please enter your answers in the spaces provided, then darken the corresponding oval in each column. Please right justify your answers; e.g., enter $125 as | | | | 1 | 2 | 5 |

a. Mathematics Equipment (non-consumable items such as calculators, but not computers)

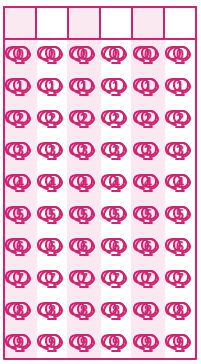
$



If this is an estimate, please darken this oval: ⬭

b. Consumable Mathematics Supplies (manipulatives)

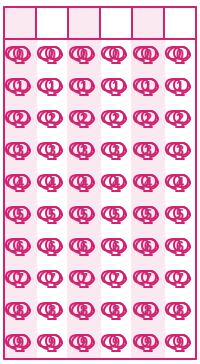
$



If this is an estimate, please darken this oval: ⬭

c. Mathematics Software

$



If this is an estimate, please darken this oval: ⬭

9. In your opinion, how great a problem is each of the following for mathematics instruction **in your school as a whole**? (Darken one oval on each line.)

		Not a Significant Problem	Somewhat of a Problem	Serious Problem
a.	Facilities	⬭	⬭	⬭
b.	Funds for purchasing equipment and supplies	⬭	⬭	⬭
c.	Materials for individualizing instruction	⬭	⬭	⬭
d.	Access to computers	⬭	⬭	⬭
e.	Appropriate computer software	⬭	⬭	⬭
f.	Student interest in mathematics	⬭	⬭	⬭
g.	Student reading abilities	⬭	⬭	⬭
h.	Student absences	⬭	⬭	⬭

Question 9 continues on next page...

9. *continued*

		Not a Significant Problem	Somewhat of a Problem	Serious Problem
i.	Teacher interest in mathematics	①	②	③
j.	Teacher preparation to teach mathematics	①	②	③
k.	Time to teach mathematics	①	②	③
l.	Opportunities for teachers to share ideas	①	②	③
m.	In-service education opportunities	①	②	③
n.	Interruptions for announcements, assemblies, other school activities	①	②	③
o.	Large classes	①	②	③
p.	Maintaining discipline	①	②	③
q.	Parental support for education	①	②	③

10. In your opinion, how great a problem is each of the following for mathematics instruction **in your school as a whole**? (Darken one oval on each line.)

		Not a Significant Problem	Somewhat of a Problem	Serious Problem
a.	State and/or district curriculum frameworks	①	②	③
b.	State and/or district testing policies and practices	①	②	③
c.	Importance that the school places on mathematics	①	②	③
d.	Public attitudes toward mathematics reform at this school	①	②	③
e.	Conflict between mathematics reform efforts at this school and other school/district reform efforts	①	②	③
f.	Time available for teachers to plan and prepare lessons	①	②	③
g.	Time available for teachers to work with other teachers during the school year	①	②	③
h.	Time available for teacher professional development	①	②	③
i.	System of managing instructional resources at the district or school level (e.g., distributing materials for mathematics activities, refurbishing materials)	①	②	③

Question 11 is being asked of all mathematics teachers in the sample. If you received a Mathematics Teacher Questionnaire in addition to this School Mathematics Program Questionnaire, please darken this oval ⬭ and SKIP TO QUESTION 12.

11a. How familiar are you with the NCTM *Standards* for mathematics curriculum, instruction, and evaluation? (Darken one oval.)

① Not at all familiar, SKIP TO QUESTION 12
② Somewhat familiar
③ Fairly familiar
④ Very familiar

11b. Please indicate the extent of your agreement with the overall vision of mathematics education described in the NCTM *Standards.* (Darken one oval.)

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

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

13. When did you complete this questionnaire? _____ / _____ / _____
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!

Table MPQ 1
Titles of Mathematics Program Questionnaire Representatives

	Percent of Representatives					
	Elementary Schools		Middle Schools		High Schools	
Mathematics department chair	5	(1.5)	29	(2.9)	60	(3.5)
Mathematics lead teacher	14	(2.5)	17	(3.0)	10	(2.1)
Teacher	56	(3.6)	63	(3.5)	49	(3.4)
Principal	26	(3.4)	12	(2.4)	9	(2.1)
Assistant principal	4	(1.5)	3	(1.9)	2	(0.7)
Other	14	(2.8)	5	(1.9)	3	(1.0)

Table MPQ 2.1
Implementation of Various Programs/Practices in Elementary Schools

	Percent of Schools					
	Not Used		Used		Don't Know/ Not Applicable	
School-based management	24	(3.4)	61	(3.9)	15	(2.5)
Common daily planning period for members of the mathematics department	63	(3.1)	14	(2.3)	23	(3.2)
Common work space for members of the mathematics department	60	(3.4)	12	(2.3)	27	(3.2)
Teachers *formally* designated and serving as mathematics lead teachers	60	(4.0)	27	(3.5)	13	(2.3)
Teachers provided with release time to help other teachers in the school/district	64	(4.5)	27	(4.2)	9	(2.3)
Interdisciplinary teams of teachers who share the same students	38	(3.6)	54	(3.8)	8	(2.0)
Students assigned to mathematics classes by ability	69	(3.4)	29	(3.4)	2	(1.0)
Use of vocational/technical applications in mathematics instruction	53	(3.8)	32	(3.1)	16	(2.8)
Elementary or middle school students pulled out from self-contained classes for remedial instruction in mathematics	42	(4.0)	55	(4.0)	3	(1.4)
Elementary or middle school students pulled out from self-contained classes for enrichment in mathematics	67	(3.3)	29	(3.3)	4	(1.5)
Elementary or middle school students receiving instruction from mathematics specialists *in addition to* their regular teacher	77	(3.1)	21	(2.9)	2	(1.0)
Elementary or middle school students receiving instruction from mathematics specialists *instead of* their regular teacher	83	(2.6)	14	(2.4)	3	(1.1)
Mathematics courses offered by telecommunications	89	(2.3)	4	(1.4)	6	(1.9)
Students going to another K–12 school for mathematics courses	90	(2.1)	6	(1.9)	4	(1.4)
Students going to a college or university for mathematics courses	81	(3.1)	5	(1.5)	14	(2.8)
Integration of mathematics subjects	23	(3.0)	67	(3.6)	10	(2.2)

Table MPQ 2.2
Implementation of Various Programs/Practices in Middle Schools

	Percent of Schools					
	Not Used		Used		Don't Know/ Not Applicable	
School-based management	20	(3.3)	56	(4.3)	25	(3.2)
Common daily planning period for members of the mathematics department	75	(3.7)	17	(3.0)	8	(2.3)
Common work space for members of the mathematics department	72	(3.6)	17	(3.0)	12	(3.0)
Teachers *formally* designated and serving as mathematics lead teachers	67	(4.1)	25	(3.5)	8	(2.4)
Teachers provided with release time to help other teachers in the school/district	73	(3.7)	17	(2.9)	10	(2.7)
Interdisciplinary teams of teachers who share the same students	32	(4.1)	65	(4.1)	3	(1.5)
Students assigned to mathematics classes by ability	42	(3.9)	58	(3.9)	0	(0.1)
Use of vocational/technical applications in mathematics instruction	43	(3.3)	47	(3.5)	10	(3.2)
Elementary or middle school students pulled out from self-contained classes for remedial instruction in mathematics	46	(4.2)	48	(4.4)	6	(1.7)
Elementary or middle school students pulled out from self-contained classes for enrichment in mathematics	74	(3.7)	20	(3.3)	6	(1.7)
Elementary or middle school students receiving instruction from mathematics specialists *in addition to* their regular teacher	75	(3.0)	20	(2.7)	6	(2.0)
Elementary or middle school students receiving instruction from mathematics specialists *instead of* their regular teacher	78	(3.3)	16	(2.9)	6	(2.0)
Mathematics courses offered by telecommunications	89	(2.9)	5	(1.3)	6	(2.6)
Students going to another K–12 school for mathematics courses	84	(3.0)	13	(2.8)	4	(1.9)
Students going to a college or university for mathematics courses	77	(3.7)	15	(2.6)	8	(2.7)
Integration of mathematics subjects	32	(3.6)	65	(3.7)	3	(1.5)

Table MPQ 2.3
Implementation of Various Programs/Practices in High Schools

	Percent of Schools					
	Not Used		Used		Don't Know/ Not Applicable	
School-based management	22	(2.1)	55	(3.2)	24	(2.7)
Common daily planning period for members of the mathematics department	75	(3.6)	19	(3.1)	6	(2.4)
Common work space for members of the mathematics department	60	(3.2)	32	(2.7)	8	(2.7)
Teachers *formally* designated and serving as mathematics lead teachers	66	(3.7)	28	(3.4)	6	(1.9)
Teachers provided with release time to help other teachers in the school/district	72	(4.0)	18	(2.7)	10	(3.2)
Interdisciplinary teams of teachers who share the same students	72	(3.6)	24	(3.4)	4	(1.5)
Students assigned to mathematics classes by ability	30	(3.5)	70	(3.5)	0	(0.1)
Use of vocational/technical applications in mathematics instruction	29	(2.7)	69	(2.8)	3	(0.8)
Elementary or middle school students pulled out from self-contained classes for remedial instruction in mathematics	23	(3.0)	33	(3.9)	44	(3.7)
Elementary or middle school students pulled out from self-contained classes for enrichment in mathematics	42	(4.3)	16	(2.1)	42	(3.6)
Elementary or middle school students receiving instruction from mathematics specialists *in addition to* their regular teacher	54	(3.6)	9	(1.7)	36	(3.3)
Elementary or middle school students receiving instruction from mathematics specialists *instead of* their regular teacher	54	(3.6)	8	(1.7)	37	(3.3)
Mathematics courses offered by telecommunications	85	(2.3)	10	(1.9)	5	(1.4)
Students going to another K–12 school for mathematics courses	90	(1.5)	7	(1.3)	3	(0.8)
Students going to a college or university for mathematics courses	56	(3.0)	42	(3.0)	2	(0.7)
Integration of mathematics subjects	58	(4.1)	41	(4.1)	1	(0.6)

Table MPQ 3.1
Opinions of Elementary School Mathematics Program Representatives Regarding NCTM's *Standards* for Mathematics Curriculum, Instruction, and Assessment

	Percent of Representatives									
	Strongly Disagree		Disagree		No Opinion		Agree		Strongly Agree	
I am prepared to explain the NCTM *Standards* to my colleagues	10	(2.5)	31	(3.1)	21	(3.4)	32	(3.3)	7	(1.7)
The *Standards* have been thoroughly discussed by teachers in this school	14	(2.9)	39	(3.9)	14	(2.5)	28	(3.3)	5	(1.5)
There is a school-wide effort to make changes inspired by the *Standards*	7	(2.0)	22	(3.0)	15	(2.4)	49	(3.7)	7	(1.7)
Teachers in this school have implemented the *Standards* in their teaching	6	(2.0)	14	(3.2)	20	(3.1)	53	(4.1)	7	(1.7)
The principal of this school is well informed about the *Standards*	4	(1.7)	14	(2.5)	31	(3.3)	38	(3.5)	12	(2.2)
Parents of students in this school are well informed about the *Standards*	16	(3.0)	42	(4.2)	28	(3.7)	14	(2.2)	1	(0.5)
The superintendent of this district is well-informed about the *Standards*	5	(1.9)	10	(2.1)	51	(4.3)	27	(3.3)	7	(1.4)
The School Board is well-informed about the *Standards*	7	(2.3)	12	(2.3)	59	(3.4)	19	(2.7)	4	(1.0)
Our district is organizing staff development based on the *Standards*	7	(2.2)	18	(3.0)	29	(3.8)	36	(4.0)	10	(2.0)
Our district has changed how it evaluates teachers based on the *Standards*	10	(2.3)	29	(3.6)	45	(4.0)	13	(2.4)	3	(0.9)

Table MPQ 3.2
Opinions of Middle School Mathematics Program Representatives Regarding NCTM's *Standards* for Mathematics Curriculum, Instruction, and Assessment

	Percent of Representatives									
	Strongly Disagree		Disagree		No Opinion		Agree		Strongly Agree	
I am prepared to explain the NCTM *Standards* to my colleagues	8	(2.4)	27	(3.6)	24	(3.8)	35	(4.0)	6	(1.0)
The *Standards* have been thoroughly discussed by teachers in this school	16	(3.4)	40	(3.5)	14	(2.7)	26	(2.9)	4	(0.7)
There is a school-wide effort to make changes inspired by the *Standards*	8	(2.2)	22	(3.3)	16	(3.1)	46	(4.1)	8	(1.8)
Teachers in this school have implemented the *Standards* in their teaching	1	(0.7)	16	(3.0)	26	(3.5)	52	(4.0)	5	(1.0)
The principal of this school is well informed about the *Standards*	6	(1.6)	16	(3.0)	43	(3.6)	28	(3.3)	8	(2.1)
Parents of students in this school are well informed about the *Standards*	16	(3.0)	47	(4.0)	28	(3.5)	8	(2.0)	1	(0.3)
The superintendent of this district is well-informed about the *Standards*	8	(2.1)	12	(3.0)	50	(4.2)	23	(3.1)	6	(1.4)
The School Board is well-informed about the *Standards*	9	(2.1)	21	(3.0)	51	(3.4)	17	(2.0)	3	(0.9)
Our district is organizing staff development based on the *Standards*	9	(2.8)	23	(3.2)	29	(3.8)	30	(3.6)	9	(1.7)
Our district has changed how it evaluates teachers based on the *Standards*	11	(2.7)	35	(4.3)	41	(4.4)	12	(2.1)	2	(0.7)

Table MPQ 3.3
Opinions of High School Mathematics Program Representatives Regarding NCTM's *Standards* for Mathematics Curriculum, Instruction, and Assessment

	Percent of Representatives									
	Strongly Disagree		Disagree		No Opinion		Agree		Strongly Agree	
I am prepared to explain the NCTM *Standards* to my colleagues	8	(2.5)	25	(2.7)	22	(3.5)	40	(3.5)	5	(0.9)
The *Standards* have been thoroughly discussed by teachers in this school	12	(2.4)	41	(3.5)	15	(2.3)	28	(2.5)	4	(0.9)
There is a school-wide effort to make changes inspired by the *Standards*	7	(1.5)	32	(4.0)	12	(2.4)	42	(3.4)	7	(1.2)
Teachers in this school have implemented the *Standards* in their teaching	3	(1.0)	17	(2.3)	25	(3.4)	50	(3.1)	5	(0.9)
The principal of this school is well informed about the *Standards*	10	(1.8)	20	(2.0)	39	(3.5)	27	(2.9)	4	(1.0)
Parents of students in this school are well informed about the *Standards*	20	(2.6)	45	(3.3)	29	(3.2)	6	(1.1)	0	—*
The superintendent of this district is well-informed about the *Standards*	13	(2.1)	19	(3.2)	42	(3.4)	21	(2.6)	5	(1.1)
The School Board is well-informed about the *Standards*	16	(2.2)	26	(3.0)	43	(3.4)	12	(2.5)	2	(0.6)
Our district is organizing staff development based on the *Standards*	12	(2.3)	27	(2.7)	23	(2.8)	32	(2.8)	5	(1.2)
Our district has changed how it evaluates teachers based on the *Standards*	15	(2.3)	39	(3.5)	35	(3.7)	10	(1.6)	1	(0.5)

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

There is no table for MPQ 4.

Table MPQ 5.1
Schools Offering Various Mathematics Courses in Grades 6–8

	Percent of Schools	
Remedial Mathematics 6	21	(2.2)
Regular Mathematics 6	65	(2.6)
Accelerated/Pre-Algebra Mathematics 6	16	(2.0)
Remedial Mathematics 7	16	(2.0)
Regular Mathematics 7	52	(3.0)
Accelerated Mathematics 7	24	(2.4)
Remedial Mathematics 8	18	(2.0)
Regular Mathematics 8	46	(2.8)
Enriched Mathematics 8	15	(1.9)
Algebra 1, Grade 7 or 8	36	(2.6)
Integrated Middle Grades Mathematics, 7 or 8	5	(1.4)

Table MPQ 5.2
Schools Offering Various Mathematics Courses in Grades 9–12

	Percent of Schools	
Review Mathematics		
Review Mathematics Level 1	11	(1.1)
Review Mathematics Level 2	11	(1.2)
Review Mathematics Level 3	7	(1.1)
Review Mathematics Level 4	5	(1.0)
Informal Mathematics		
Informal Mathematics Level 1	21	(1.8)
Informal Mathematics Level 2	9	(1.2)
Informal Mathematics Level 3	7	(1.0)
Formal Mathematics		
Formal Mathematics Level 1	40	(2.0)
Formal Mathematics Level 2	38	(1.9)
Formal Mathematics Level 3	37	(1.8)
Formal Mathematics Level 4	33	(1.8)
Formal Mathematics Level 5	17	(1.6)
Formal Mathematics Level 5, AP	14	(1.5)
Other Mathematics Courses		
Probability and Statistics	8	(1.0)
Mathematics integrated with other subjects	1	(0.3)

There is no table for MPQ 6.

Table MPQ 7
Scheduling of Mathematics Classes

	Percent of Schools					
	Elementary Schools		Middle Schools		High Schools	
All or most classes meet five days per week for one year	91	(3.9)	86	(2.4)	58	(3.7)
All or most classes meet five days per week for one semester	5	(2.6)	5	(2.0)	21	(2.8)
All or most classes meet three days one week and two days the next week for one year	3	(2.9)	6	(1.3)	12	(1.9)
Other arrangements	1	(1.2)	3	(1.2)	9	(2.0)

Table MPQ 8
Median Amount of Money Spent per Year by Schools on Mathematics Equipment and Consumable Supplies

	Median Amount		
	Elementary Schools	Middle Schools	High Schools
Mathematics Equipment	$ 300	$ 300	$ 575
Consumable Mathematics Supplies	$ 500	$ 300	$ 300
Mathematics Software	$ 150	$ 50	$ 100

Table MPQ 9.1
Mathematics Program Representatives' Opinions of Problems for Elementary School Mathematics Instruction

	Percent of Programs					
	Not a Significant Problem		Somewhat of a Problem		Serious Problem	
Facilities	78	(2.7)	18	(2.4)	4	(1.5)
Funds for purchasing equipment and supplies	36	(3.9)	41	(3.7)	23	(4.1)
Materials for individualizing instruction	37	(3.7)	48	(3.9)	14	(2.5)
Access to computers	49	(3.3)	37	(3.5)	14	(2.5)
Appropriate computer software	35	(3.4)	45	(3.5)	20	(2.9)
Student interest in mathematics	54	(3.5)	40	(3.5)	5	(1.3)
Student reading abilities	44	(3.8)	41	(3.9)	15	(2.5)
Student absences	76	(2.8)	20	(2.6)	4	(1.3)
Teacher interest in mathematics	75	(3.5)	24	(3.4)	1	(0.4)
Teacher preparation to teach mathematics	62	(3.9)	32	(3.3)	7	(2.0)
Time to teach mathematics	70	(3.6)	28	(3.4)	2	(0.9)
Opportunities for teachers to share ideas	32	(3.3)	53	(3.8)	15	(2.9)
In-service education opportunities	46	(3.6)	44	(3.5)	10	(2.3)
Interruptions for announcements, assemblies, other school activities	69	(3.3)	26	(3.2)	4	(1.1)
Large classes	58	(3.8)	33	(3.6)	8	(2.0)
Maintaining discipline	68	(3.2)	25	(2.7)	7	(1.9)
Parental support for education	56	(3.4)	33	(3.1)	11	(2.0)

Table MPQ 9.2
Mathematics Program Representatives' Opinions of Problems for Middle School Mathematics Instruction

	Percent of Programs					
	Not a Significant Problem		Somewhat of a Problem		Serious Problem	
Facilities	75	(3.4)	21	(3.4)	4	(1.6)
Funds for purchasing equipment and supplies	37	(4.2)	44	(3.8)	19	(4.0)
Materials for individualizing instruction	36	(4.0)	51	(3.9)	13	(2.9)
Access to computers	39	(4.1)	44	(4.1)	17	(2.7)
Appropriate computer software	23	(3.1)	49	(4.0)	29	(3.7)
Student interest in mathematics	30	(3.7)	60	(3.7)	10	(1.7)
Student reading abilities	35	(4.1)	50	(4.2)	15	(2.2)
Student absences	61	(3.3)	33	(3.0)	7	(1.6)
Teacher interest in mathematics	86	(2.8)	14	(2.8)	0	(0.2)
Teacher preparation to teach mathematics	71	(3.7)	24	(3.4)	5	(2.2)
Time to teach mathematics	67	(3.7)	30	(3.5)	3	(0.9)
Opportunities for teachers to share ideas	30	(3.3)	56	(3.9)	14	(2.9)
In-service education opportunities	37	(3.4)	54	(4.0)	9	(2.8)
Interruptions for announcements, assemblies, other school activities	55	(3.9)	36	(3.6)	9	(1.6)
Large classes	55	(3.7)	39	(3.7)	6	(1.2)
Maintaining discipline	69	(3.5)	27	(3.3)	4	(0.9)
Parental support for education	52	(3.7)	37	(3.4)	11	(2.0)

Table MPQ 9.3
Mathematics Program Representatives' Opinions of Problems for High School Mathematics Instruction

	Percent of Programs					
	Not a Significant Problem		Somewhat of a Problem		Serious Problem	
Facilities	71	(2.9)	24	(3.1)	5	(1.1)
Funds for purchasing equipment and supplies	33	(3.0)	49	(3.2)	18	(3.1)
Materials for individualizing instruction	37	(3.3)	52	(3.7)	11	(1.6)
Access to computers	34	(3.0)	47	(3.8)	19	(3.0)
Appropriate computer software	25	(2.8)	48	(3.1)	27	(3.1)
Student interest in mathematics	23	(2.3)	57	(3.2)	20	(2.5)
Student reading abilities	28	(3.5)	53	(3.7)	20	(2.5)
Student absences	38	(3.5)	45	(3.4)	17	(2.0)
Teacher interest in mathematics	87	(2.3)	13	(2.2)	0	(0.3)
Teacher preparation to teach mathematics	81	(2.6)	17	(2.6)	2	(1.0)
Time to teach mathematics	65	(3.4)	30	(3.3)	5	(1.2)
Opportunities for teachers to share ideas	33	(3.2)	53	(3.3)	14	(2.2)
In-service education opportunities	40	(3.5)	50	(3.4)	10	(2.6)
Interruptions for announcements, assemblies, other school activities	40	(3.3)	50	(3.6)	11	(1.7)
Large classes	51	(3.3)	40	(3.1)	10	(1.3)
Maintaining discipline	63	(3.0)	32	(2.8)	5	(3.0)
Parental support for education	42	(2.9)	43	(3.2)	15	(2.2)

Table MPQ 10.1
Mathematics Program Representatives' Perceptions of Problems for Elementary School Mathematics Instruction

	Percent of Programs					
	Not a Significant Problem		Somewhat of a Problem		Serious Problem	
State and/or district curriculum frameworks	71	(3.4)	25	(3.4)	3	(1.2)
State and/or district testing policies and practices	51	(3.8)	34	(4.0)	15	(2.8)
Importance that the school places on mathematics	82	(2.9)	17	(2.7)	1	(0.8)
Public attitudes toward mathematics reform at this school	78	(3.2)	19	(3.1)	2	(1.0)
Conflict between mathematics reform efforts at this school and other school/district reform efforts	81	(2.7)	17	(2.7)	2	(1.0)
Time available for teachers to plan and prepare lessons	39	(3.9)	44	(4.1)	17	(3.2)
Time available for teachers to work with other teachers during the school year	22	(3.2)	55	(4.1)	23	(3.3)
Time available for teacher professional development	33	(3.9)	52	(4.2)	15	(2.6)
System of managing instructional resources at the district or school level	48	(4.0)	41	(4.1)	11	(2.1)

Table MPQ 10.2
Mathematics Program Representatives' Perceptions of Problems for Middle School Mathematics Instruction

	Percent of Programs					
	Not a Significant Problem		Somewhat of a Problem		Serious Problem	
State and/or district curriculum frameworks	70	(3.2)	25	(3.4)	5	(1.1)
State and/or district testing policies and practices	55	(4.2)	35	(4.1)	10	(1.8)
Importance that the school places on mathematics	80	(3.0)	18	(2.9)	2	(1.2)
Public attitudes toward mathematics reform at this school	73	(3.0)	24	(3.0)	2	(0.7)
Conflict between mathematics reform efforts at this school and other school/district reform efforts	83	(2.6)	14	(2.5)	3	(1.0)
Time available for teachers to plan and prepare lessons	41	(3.7)	52	(3.9)	7	(3.7)
Time available for teachers to work with other teachers during the school year	22	(3.3)	55	(4.0)	23	(3.1)
Time available for teacher professional development	37	(3.7)	54	(3.8)	9	(2.1)
System of managing instructional resources at the district or school level	47	(4.0)	42	(4.0)	11	(3.0)

Table MPQ 10.3
Mathematics Program Representatives' Perceptions of Problems for High School Mathematics Instruction

	Percent of Programs					
	Not a Significant Problem		Somewhat of a Problem		Serious Problem	
State and/or district curriculum frameworks	60	(3.2)	31	(3.0)	9	(1.4)
State and/or district testing policies and practices	46	(3.8)	37	(3.5)	17	(1.9)
Importance that the school places on mathematics	78	(2.3)	20	(2.1)	3	(0.8)
Public attitudes toward mathematics reform at this school	68	(2.9)	26	(2.5)	6	(1.3)
Conflict between mathematics reform efforts at this school and other school/district reform efforts	78	(3.1)	18	(3.0)	4	(1.4)
Time available for teachers to plan and prepare lessons	49	(3.6)	42	(3.4)	9	(1.4)
Time available for teachers to work with other teachers during the school year	24	(3.5)	55	(3.3)	21	(2.5)
Time available for teacher professional development	39	(3.4)	49	(3.3)	12	(1.8)
System of managing instructional resources at the district or school level	47	(3.0)	47	(3.3)	6	(1.3)

Table MPQ 11
Mathematics Program Representatives' Familiarity with and Agreement with Overall Vision of NCTM *Standards*

	Percent of Representatives					
	Elementary Schools		Middle Schools		High Schools	
How familiar are you with the NCTM *Standards* for mathematics curriculum, instruction, and evaluation?						
Not at all familiar	18	(3.4)	15	(4.0)	15	(3.7)
Somewhat familiar	37	(4.0)	35	(4.0)	34	(3.8)
Fairly familiar	32	(3.6)	33	(3.4)	35	(4.0)
Very familiar	13	(2.7)	18	(2.3)	16	(2.3)
Please indicate the extent of your agreement with the overall vision of mathematics education described in the NCTM *Standards*?[†]						
Strongly Disagree	0	(0.3)	2	(0.7)	0	(0.1)
Disagree	3	(1.6)	3	(0.7)	8	(2.0)
No Opinion	13	(3.0)	19	(4.3)	17	(3.4)
Agree	71	(3.9)	66	(4.4)	61	(3.6)
Strongly Agree	14	(3.1)	11	(1.8)	13	(2.4)

[†] These analyses included only those representatives indicating they were at least somewhat familiar with the *Standards.*

Appendix

List of Course Titles

LIST OF COURSE TITLES

A. SCIENCE COURSES

CODE	Course Category	Sample Course Titles
	Grades K – 5	
100	Science, Grade K	
101	Science, Grade 1	
102	Science, Grade 2	
103	Science, Grade 3	
104	Science, Grade 4	
105	Science, Grade 5	
106	Other Elementary Science	
	Grades 6 – 8	
108	Life Science	
109	Earth Science	
110	Physical Science	
111	General Science	
112	Integrated Science	
	Grades 9 – 12	
	Biology	
114	1st Year	Introductory Biology; Biology I; General Biology; College Prep Biology; Honors Biology
115	1st Year, Applied	Basic Biology; Applied Biology; Life Science; Biomedical Education; Animal Science; Horticulture; Biology Science; Health Science; Nutrition; Agriculture Science; Fundamentals of Biology
116	2nd Year, AP	Advanced Placement
117	2nd Year, Advanced	Biology II; Advanced Biology; College Biology; Physiology; Anatomy; Microbiology; Genetics; Cell Biology; Embryology; Molecular Biology; Invertebrate/Vertebrate Biology
118	2nd Year, Other	Zoology; Botany; Bio-Medical Careers; Field Biology; Marine Biology; Other Biological Sciences
	Chemistry	
119	1st Year	Introductory Chemistry; Chemistry I; General Chemistry; Honors Chemistry
120	1st Year, Applied	Applied Chemistry; Consumer Chemistry; Technical Chemistry; Practical Chemistry
121	2nd Year, AP	Advanced Placement Chemistry
122	2nd Year, Advanced	Chemistry II; Advanced Chemistry; College Chemistry; Organic Chemistry; Inorganic Chemistry; Physical Chemistry; Biochemistry; Analytical Chemistry
	Physics	
123	1st Year	Introductory Physics; Physics I; General Physics; Honors Physics;
124	1st Year, Applied	Applied Physics; Electronics; Radiation Physics; Practical Physics
125	2nd Year, AP	Advanced Placement Physics
126	2nd Year, Advanced	Physics II; Advanced Physics; College Physics; Nuclear Physics; Atomic Physics
127	Physical Science	Physical Science; Interaction of Matter and Energy; Applied Physical Science
	Earth Science	
128	Astronomy*	* NOTE: A course that includes substantial content from two or more of the earth sciences should be listed under code 132, 133, or 134.
129	Geology*	
130	Meteorology*	
131	Oceanography/Marine Science*	
132	1st Year	Earth Science; Earth/Space Science; Honors Earth Science
133	1st Year, Applied	Applied Earth Science; Fundamentals of Earth Science; Soil Science
134	2nd Year, Advanced/Other	Advanced Earth Science; Earth Science II
	Other Science	
135	General Science	General Science; Basic Science; Introductory Science; Investigations in Science
136	Environmental Science	Ecology; Environmental Science
137	Coordinated Science	Coordinated Science includes content from more than one science discipline, e.g., life and physical science, but keeps the disciplines separate
138	Integrated Science	Integrated Science includes content from the various science disciplines and blurs the distinctions among them
199	Other Science	

Course titles continue on next page…

B. MATHEMATICS COURSES

CODE	Course Category	Sample Course Titles
	Grades K – 5	
200	Mathematics, Grade K	
201	Mathematics, Grade 1	
202	Mathematics, Grade 2	
203	Mathematics, Grade 3	
204	Mathematics, Grade 4	
205	Mathematics, Grade 5	
206	Other Elementary Mathematics	
	Grades 6 – 8	
208	Remedial Mathematics 6	Remedial Math 6
209	Regular Mathematics 6	Math 6; Math Grade 6 regular
210	Accelerated/Pre-Algebra Mathematics 6	Accelerated Math 6; Pre-Algebra; Honors Math 6; Enriched Math 6;
211	Remedial Mathematics 7	Remedial Math 7
212	Regular Mathematics 7	Math 7; Math Grade 7 regular
213	Accelerated Mathematics 7	Accelerated Math 7; Pre-Algebra; Honors Math 7; Enriched Math 7;
214	Remedial Mathematics 8	Remedial Math 8
215	Regular Mathematics 8	Math 8; Math Grade 8 regular
216	Enriched Mathematics 8	Pre-Algebra; Accelerated Math 8[1]; Honors Math 8; Enriched Math 8
217	Algebra 1, Grade 7 or 8	Algebra 1; Beginning Algebra; Elementary Algebra
218	Integrated Middle Grade Math, 7 or 8	Integrated Math 7 or 8; Connected Math 7 or 8
	Grades 9 – 12	
	Review Mathematics	
219	Rev. Math Level 1	General Math 1; Basic Math; Math 9; Remedial Math; Developmental; High School Arithmetic; Math Comp Test; Comprehensive Math; Terminal Math
220	Rev. Math Level 2	General Math 2; Vocational Math; Consumer; Technical; Business; Shop; Math 10; Career Math; Practical Math; Essential Math; Cultural Math
221	Rev. Math Level 3	General Math 3; Math 11; Intermediate Math;
222	Rev. Math Level 4	General Math 4; Math 12; Mathematics of Consumer Economics
	Informal Mathematics	
223	Inf. Math Level 1	Pre-Algebra; Introductory Algebra; Basic; Applications; Algebra 1A (first of a two-year sequence for Algebra 1); Math A; Applied Math 1[2]
224	Inf. Math Level 2	Basic Geometry; Informal Geometry; Practical Geometry; Applied Math 2
225	Inf. Math Level 3	Applied Math 3, 4
	Formal Mathematics	
226	For. Math Level 1	Algebra 1; Elementary; Beginning; Unified Math I; Integrated Math 1; Algebra 1B (second year of a two-year sequence for Algebra 1); Math B
227	For. Math Level 2	Geometry; Plane Geometry; Solid Geometry; Integrated Math 2; Unified Math II; Math C
228	For. Math Level 3	Algebra 2; Intermediate Algebra; Algebra and Trigonometry; Advanced Algebra: Algebra and Analytic Geometry; Integrated Math 3; Unified Math III
229	For. Math Level 4	Algebra 3; Trigonometry; College Algebra; Pre-Calculus; Analytic/Advanced Geometry; Trigonometry and Analytic/Solid Geometry; Advanced Math Topics; Introduction to College Math; Number Theory; Math IV; College Prep Senior Math; Elementary Functions; Finite Math; Math Analysis; Numerical Analysis; Discrete Math; Probability; Statistics
230	For. Math Level 5	Calculus and Analytic Geometry; Calculus; Abstract Algebra; Differential Equations; Multivariate Calculus; Linear Algebra; Theory of Equations; Vectors/Matrix Algebra;
231	For. Math Level 5, AP	Advanced Placement Calculus (AB, BC); Advanced Placement Statistics
	Other Mathematics Courses	
232	Probability and Statistics	
233	Mathematics integrated with other subjects	
299	Other Mathematics	

Course titles continue on next page…

[1] If Accelerated Math 8 is the same as Algebra 1 in your state, report the data under Math Grade 8, Algebra 1, and not Math Grade 8, Enriched.
[2] If Applied Math course includes some algebra and geometry, report under Informal Math, Level 1. If it does not, report under Review Math, Level 2.

C. OTHER COURSES

CODE	Course Category
301	Computer Science
302	Social Studies/History
303	English/Language Arts/Reading
304	Business Education
305	Vocational Education
306	Technology Education
307	Foreign Language
308	Health/Physical Education
309	Art/Music/Drama
399	Other subject

Federally Approved Definitions for Race/Ethnicity Categories

American Indian or Alaskan Native. A person having origins in any of the original peoples of North and South America (including Central America), and who maintains tribal affiliation or community attachment.

Asian. A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.

Black or African-American. A person having origins in any of the black racial groups of Africa.

Hispanic or Latino. A person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race.

Native Hawaiian or Other Pacific Islander. A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.

White. A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.