The 1993 National Survey of Science and Mathematics Education:

Compendium of Tables

1995
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Section One

Introduction

A. Background and Purpose of the Study

In 1993, the National Science Foundation supported the third 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, district, and state personnel. A second survey of teachers and principals was conducted in 1985–86 to identify trends since 1977.

The 1993 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 6,120 science and mathematics teachers from 1,252 schools across the United States were selected for this survey. Among the questions addressed by the survey:

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

The design and implementation of the 1993 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 technical report, *Report of the 1993 National Survey of Science and Mathematics Education*, is available from Horizon Research, Inc. for $15. A summary of the 1993 Survey may be obtained from Horizon Research, Inc. by requesting *A Profile of Science and Mathematics Education in the United States: 1993.*

B. Sample Design and Sampling Error Considerations

The 1993 National Survey of Science and Mathematics Education is based on a national probability sample of science and mathematics program heads and teachers in grades 1–12 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 1,250 schools and 6,000 teachers, 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. 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 in the spring of 1993.

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 analyses, 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 1993 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 1993 National Survey of Science and Mathematics Education is included in the technical report.

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 9 percent of all grade 1–4 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 7 percent and 11 percent (that is, 9 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, both in terms of 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.

C. Instrument Development

Since a primary purpose of the 1993 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 and 1985–86. 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 American Association for the Advancement of Science, 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.

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[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. EIAC officially endorsed the survey in May of 1992.

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.

D. Data Collection

Once the Education Information Advisory Committee had approved the study design, instruments, and procedures, the data subcontractor (CODA) proceeded with the data collection. 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. Eleven schools were deleted from the study at this point, because the districts refused to allow the schools to participate.

Principals in the remaining schools 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 program 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 89 percent.

An incentive system was developed to encourage school and teacher participation in the survey. Each school was given a credit of $25 towards the purchase of science and mathematics education materials; the amount was augmented by $10 for each responding teacher. At the completion of the data collection phase, schools were sent vouchers that they could use for purchasing NCTM publications, calculators, science activity books, kits, etc. from a catalogue developed for this study. Postcard reminders, phone calls, and additional mailings of survey materials were also used to encourage non-respondents to complete the questionnaires; the final questionnaire response rates were 88 percent for school program representatives and 84 percent for science and mathematics teachers. A more detailed description of the data collection procedures is included in the technical report.

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 study were computed using weighted data.

F. Outline of Compendium

This compendium of tables from the 1993 National Survey of Science and Mathematics Education is organized into four sections. The first two sections contain tables from the Science Questionnaire and Mathematics Questionnaire completed by teachers. The last two sections consist of tables from the Science Program Questionnaire and the Mathematics Program Questionnaire completed by program representatives at each school. The appropriate questionnaires appear prior to the tables in each section.

Tables correspond to items in the questionnaire. 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 1–4, 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 1–4, 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] Any school with grades 1, 2, or 3 was classified as an elementary school; any with grades 7 or 8 as a middle school; and any with grades 10, 11, or 12 as a high school. Thus a K–6 school was considered an elementary school, a grade 5–8 or 7–9 school as a middle school, and a grade 7–12 school as both a middle school and a high school.

Section Two

Science Teacher Questionnaire

Science Questionnaire

Tables

Form Approval
OMB No: 3145-0142
Expires: Dec. 31, 1993

NATIONAL SCIENCE FOUNDATION

1993 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 1-800-598-2888.

How to Complete the Questionnaire

Most of the questions instruct you to "circle one" answer or "circle all that apply". For a few questions, you are asked to write in your answer on the line provided.

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 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

Please see the inside cover of this questionnaire for more information about this study. If you have questions about the study or any items in the questionnaire, call us toll-free at 1-800-598-2888.

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

1993 National Survey of Science and Mathematics Education
c/o CODA
1400 Spring Street - Suite 150
Silver Spring, MD 20910

1993 National Survey of Science and Mathematics Education

The 1993 National Survey of Science and Mathematics Education is supported by the National Science Foundation and is the third in a series. It is being conducted by Horizon Research, Inc., under the direction of Dr. Iris R. Weiss. Data collection is the responsibility of CODA, a survey research organization in Silver Spring, Maryland. The study has received endorsements from the following organizations:

American Federation of Teachers (AFT)
National Catholic Education Association (NCEA)
National Council of Teachers of Mathematics (NCTM)
National Education Association (NEA)
National Science Teachers Association (NSTA)

INFORMATION ABOUT YOUR PARTICIPATION

Public reporting burden for this collection of information is estimated to average 30 minutes per response. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Herman Fleming, National Science Foundation, 1800 G Street - NW, Washington, DC 20550 and to the Office of Management and Budget, Paperwork Reduction Project, OMB #3145-0142, Washington, DC 20503.

ABOUT THE SURVEY

Approximately 6,000 teachers from 1,200 schools throughout the country have been selected for the 1993 National Survey of Science and Mathematics Education. The survey is designed to collect information about science and mathematics education in grades 1 - 12. Its purpose is to provide the education community with current information about science and mathematics education and to identify trends in the areas of teacher education and experience, course offerings, curriculum and instruction, and the availability and use of equipment.

The 1,200 schools were randomly selected for the survey from the Quality Education Data (QED) database. In June of last year, Chief State School Officers and district superintendents were notified about the survey. In September, school principals were sent a pre-survey information booklet, requesting the names of all science and mathematics teachers. From these lists, a national sample of teachers was selected to receive science or mathematics questionnaires. In addition, program questionnaires are being sent to science and mathematics department representatives at each school. Teacher questionnaires are also being sent to all winners (1983 - 1992) of the National Science Foundation's Presidential Awards for Excellence in Science and Mathematics Teaching.

All survey data received will be kept strictly confidential and will be reported only in aggregate form, such as by grade level or region of the country. No information identifying individual states, districts, schools or teachers will be released. No identifying information whatsoever will be included in the dataset.

Each participating school will receive a copy of the study's results in the spring of 1994.

SECTION A: TEACHER OPINIONS

1. Please provide your opinion about each of the following statements.

(CIRCLE ONE ON EACH LINE.)

		Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
a.	Students learn best when they study science in the context of a personal or social application	1	2	3	4	5
b.	Students learn science best in classes with students of similar abilities	1	2	3	4	5
c.	It is important for students to learn basic scientific terms and formulas before learning underlying concepts and principles	1	2	3	4	5
d.	Laboratory-based science classes are more effective than non-laboratory classes	1	2	3	4	5
e.	Virtually all students can learn to think scientifically	1	2	3	4	5
f.	The testing program in my state/district dictates what science I teach	1	2	3	4	5
g.	I enjoy teaching science	1	2	3	4	5
h.	I consider myself a "master" science teacher	1	2	3	4	5
i.	I feel supported by colleagues to try out new ideas in teaching science	1	2	3	4	5
j.	I receive little support from the school administration for teaching science	1	2	3	4	5
k.	Science teachers in this school regularly share ideas and materials	1	2	3	4	5
l.	Science teachers in this school regularly observe each other teaching classes as part of sharing and improving instructional strategies	1	2	3	4	5
m.	Activity-based science experiences aren't worth the time and expense for what students learn	1	2	3	4	5
n.	I feel that I have many opportunities to learn new things in my present job	1	2	3	4	5

1. (continued) *(CIRCLE ONE ON EACH LINE.)*

		Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
o.	I am required to follow rules at this school that conflict with my best professional judgment	1	2	3	4	5
p.	Most science teachers in this school contribute actively to making decisions about the science curriculum	1	2	3	4	5
q.	Our guidance department does a good job of assisting students in selecting their science courses	1	2	3	4	5
r.	I have time during the regular school week to work with my peers on science curriculum and instruction	1	2	3	4	5

2. In your opinion, how great a problem is each of the following for **science instruction in your school as a whole?**

(CIRCLE ONE 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
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
r.	State/district testing policies	1	2	3

3. Please rate each of the following in terms of its importance for effective **science** teaching **at the grade levels you teach.**

(CIRCLE ONE ON EACH LINE.)

		Definitely should not be a part of science instruction		Makes no difference		Definitely should be a part of science instruction
a.	Concrete experience before abstract treatments	1	2	3	4	5
b.	Students working in cooperative learning groups	1	2	3	4	5
c.	Emphasis on connections among concepts	1	2	3	4	5
d.	Deeper coverage of fewer science concepts	1	2	3	4	5
e.	Hands-on/laboratory activities	1	2	3	4	5
f.	Applications of science in daily life	1	2	3	4	5
g.	Applications of scientific methods in addressing societal issues	1	2	3	4	5
h.	Coordination of science disciplines	1	2	3	4	5
i.	Coordination of sciences with **mathematical**	1	2	3	4	5
j.	Coordination of sciences with **language arts**	1	2	3	4	5
k.	Coordination of sciences with **social science**	1	2	3	4	5
l.	Coordination of sciences with **vocational/ technology education**	1	2	3	4	5
m.	Revisiting science topics, each time in greater depth	1	2	3	4	5
n.	Every student studying science every year	1	2	3	4	5
o.	Taking student conceptions about a natural phenomenon into account when planning curriculum and instruction	1	2	3	4	5
p.	Inclusion of performance-based assessment	1	2	3	4	5
q.	Use of computers	1	2	3	4	5

SECTION B: TEACHER BACKGROUND

4. 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 levels you teach**, whether or not they are currently included in your curriculum?

(CIRCLE ONE ON EACH LINE.)

		Not well qualified	Adequately qualified	Very well qualified
a.	Life Sciences	1	2	3
b.	Chemistry	1	2	3
c.	Physics	1	2	3
d.	Earth Sciences	1	2	3
e.	Technology	1	2	3
f.	Integrated Science, drawing from various science disciplines	1	2	3
g.	Mathematics	1	2	3
h.	Reading/Language Arts	1	2	3
i.	Social Studies	1	2	3

5. How well prepared are you to do each of the following?

(CIRCLE ONE ON EACH LINE.)

		Not well prepared	Somewhat prepared	Fairly well prepared	Very well prepared
a.	Present the applications of science concepts	1	2	3	4
b.	Use cooperative learning groups	1	2	3	4
c.	Take into account students' prior conceptions about natural phenomena when planning curriculum and instruction	1	2	3	4
d.	Use computers as an integral part of science instruction	1	2	3	4
e.	Integrate science with other subject areas	1	2	3	4
f.	Manage a class of students who are using hands-on/laboratory activities	1	2	3	4
g.	Use a variety of assessment strategies	1	2	3	4
h.	Use the textbook as a resource rather than as the primary instructional tool	1	2	3	4
i.	Use performance-based assessment	1	2	3	4
j.	Teach groups that are heterogeneous in ability	1	2	3	4
k.	Teach students from a variety of cultural backgrounds	1	2	3	4
l.	Teach students who have limited English proficiency	1	2	3	4

5. (continued) *(CIRCLE ONE ON EACH LINE.)*

		Not well prepared	Somewhat prepared	Fairly well prepared	Very well prepared
m.	Teach students who have learning disabilities	1	2	3	4
n.	Encourage participation of females in science	1	2	3	4
o.	Encourage participation of minorities in science	1	2	3	4
p.	Involve parents in the science education of their children	1	2	3	4

6. Which of the following college courses have you completed? Include both **semester hour and quarter hour courses**, whether graduate or undergraduate level. *(CIRCLE ALL THAT APPLY.)*

EDUCATION
- Supervised student teaching in science 1
- Instructional uses of computers/ other technologies 2

MATHEMATICS
- College algebra/trigonometry/ elementary functions 3
- Calculus 4
- Advanced calculus 5
- Differential equations 6
- Discrete mathematical 7
- Probability and statistics 8

CHEMISTRY
- General chemistry 9
- Analytical chemistry 10
- Organic chemistry 11
- Physical chemistry 12
- Quantum chemistry 13
- Biochemistry 14

EARTH/SPACE SCIENCES
- Earth science 15
- Astronomy 16
- Geology 17
- Meteorology 18
- Oceanography 19
- Physical geography 20
- Environmental science 21

LIFE SCIENCES
- Life science 22
- Introductory biology 23
- Botany, plant physiology 24
- Cell biology 25
- Ecology 26
- Genetics, evolution 27
- Microbiology 28
- Anatomy/Physiology 29
- Zoology, animal behavior 30

PHYSICS
- Physical science 31
- General physics 32
- Electricity and magnetism 33
- Heat and thermodynamics 34
- Mechanics 35
- Modern or quantum physics 36
- Nuclear physics 37
- Solid state physics 38
- Optics 39

OTHER
- History of science 40
- Science and society 41
- Electronics 42
- Engineering (Any) 43
- Integrated science 44
- Computer programming 45
- Other computer science 46

7. 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.

NUMBER OF COURSES COMPLETED

		(CIRCLE ONE NUMBER ON EACH LINE.) Semester Courses	*(CIRCLE ONE NUMBER ON EACH LINE)* Quarter Courses
a.	Life sciences	0 1 2 3 4 5 6 7 ≥8	0 1 2 3 4 5 6 7 ≥8
b.	Chemistry	0 1 2 3 4 5 6 7 ≥8	0 1 2 3 4 5 6 7 ≥8
c.	Physics/physical science	0 1 2 3 4 5 6 7 ≥8	0 1 2 3 4 5 6 7 ≥8
d.	Earth/space science	0 1 2 3 4 5 6 7 ≥8	0 1 2 3 4 5 6 7 ≥8
e.	Science education	0 1 2 3 4 5 6 7 ≥8	0 1 2 3 4 5 6 7 ≥8

8. Please check the box(es) next to the degree(s) you hold. Use the list of code numbers on the right to indicate your major and minor fields of study for each degree. (If you do not have a second major or minor field, please enter "00.")

		Major field code	Second major or minor field code
Bachelor's Degree	☐	_____	_____
Master's Degree	☐	_____	_____
Doctorate Degree	☐	_____	_____
Other Degree(s)	☐ Specify below:		
1) _____		_____	_____
2) _____		_____	_____

MAJOR & MINOR FIELD CODES

Education
- 11 Elementary Education
- 12 Middle School Education
- 13 Secondary Education
- 14 Mathematics Education
- 15 Science Education
- 16 Other Education

Mathematics/Computer Science
- 21 Mathematics
- 22 Computer Science

Science
- 31 Biology, Life Science
- 32 Chemistry
- 33 Physics
- 34 Physical Science
- 35 Earth/Space Sciences
- 36 Other Science

Other Disciplines
- 41 History, English Foreign Language, etc.

9. a. In what year did you last take a course for college credit in **science**?

19 _____

b. In what year did you last take a course for college credit in the **teaching of science**?

19 _____

10. What is the **total** amount of time you have spent on in-service education 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.)

(CIRCLE ONE NUMBER IN EACH COLUMN.)

Hours of In-service Education	Last 12 months	Last 3 years
None	1	1
Less than 6 hours	2	2
6 - 15 hours	3	3
16 - 35 hours	4	4
More than 35 hours	5	5

11. In the past twelve months, have you: *(CIRCLE ONE ON EACH LINE.)*

		No	Yes
a.	Attended any national or state science teacher association meetings?	1	2
b.	Taught any in-service workshops or courses in science or science teaching?	1	2
c.	Received any local, state, or national grants or awards for science teaching?	1	2
d.	Served on a school or district science curriculum committee?	1	2
e.	Served on a school or district science textbook selection committee?	1	2

12. For each of the materials listed below, please mark one of the following categories: (1) have never heard of, (2) have heard of but not seen, (3) have seen but not used, or (4) have used in teaching.

(CIRCLE ONE ON EACH LINE.)

		Have never heard of	Have heard of but not seen	Have seen but not used	Have used in teaching
a.	Biological Science: An Ecological Approach	1	2	3	4
b.	Bottle Biology	1	2	3	4
c.	ChemCom: Chemistry in the Community	1	2	3	4
d.	Chemical Education for Public Understanding Program (CEPUP)	1	2	3	4
e.	Full Option Science System (Foss Science Kits)	1	2	3	4
f.	Grow Lab, National Gardening Association	1	2	3	4
g.	Mechanical Universe, High School Adaptation	1	2	3	4
h.	Middle School Life Science	1	2	3	4
i.	National Geographic Kids Network	1	2	3	4
j.	Quantum Magazine for Students	1	2	3	4
k.	Science for Life and Living: Integrating Science, Technology, and Health (BSCS)	1	2	3	4
l.	ScienceVision	1	2	3	4
m.	Second Voyage of the Mimi (Mayan Expedition)	1	2	3	4
n.	SuperScience Magazine	1	2	3	4
o.	Texas Learning Technology Group (TLTG) Physical Science/Math for Science	1	2	3	4
p.	Wisconsin Fast Plants	1	2	3	4

13. Do you teach in a self-contained classroom, i.e., are you responsible for teaching all or most academic subjects to one class?

YES ..... 1 *(COMPLETE 14.a., THEN GO TO 15.)*

NO ..... 2 *(COMPLETE 14.b., THEN GO TO 15.)*

14. a. **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 write "0" if you do not teach a particular subject to this class.)

	Number of days per week	Approximate number of minutes per day
Mathematics	_____	_____
Science	_____	_____
Social Studies	_____	_____
Reading	_____	_____

NOW GO TO Q15.

b. **For Teachers of Non Self-Contained Classes:** For each class period you are currently teaching, regardless of subject, give course title, the code number from the enclosed blue "List of Course Titles" that best describes the content of each course, number of students, and the grade level of most of the students in that class.

Class	Course Title	Code No.	No. of Students	Predominant Grade Level
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
8	_____	_____	_____	_____

SECTION 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, please think about the science classes you are teaching today (or the most recent school day). Then consult the label on the front of this questionnaire to determine which science class to consider when answering these questions.

15. a. Please provide the complete title of the course you will be describing:

_____
COURSE TITLE

b. Using the blue "List of Course Titles," indicate the code number that best describes this course:

_____
COURSE CODE

(If "Other Science" [Code 199], briefly describe content of course: _____

_____)

16. What is the duration of this course? *(CIRCLE ONE.)*

a.	Year	1
b.	Semester	2
c.	Quarter	3
d.	Other *(PLEASE SPECIFY)* _____	4

17. How many of the students **in this science class** are in each of the following grades?

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

18. Please indicate the number of students in this science class in each race/sex category.

		Male	Female
a.	White (not of Hispanic origin)	_____	_____
b.	Black (not of Hispanic origin)	_____	_____
c.	Hispanic (Mexican, Puerto Rican, Cuban, Central or South American, or other Hispanic culture or origin)	_____	_____
d.	American Indian or Alaskan Native	_____	_____
e.	Asian or Pacific Islander	_____	_____
	TOTAL	_____	_____

(NOTE: The total number of males and females should be the same as the total number of students in question 17.)

19. How many of the students in this science class are **formally** classified as:

a.	Limited English Proficiency	_____ students
b.	Learning Disabled	_____ students
c.	Mentally Handicapped	_____ students
d.	Physically Handicapped, please specify handicaps:	
	1) _____	_____ students
	2) _____	_____ students

20. Are students assigned to this science class by level of ability? *(CIRCLE ONE.)*

Yes 1
No 2

21. Which of the following best describes the ability of the students in this science class? *(CIRCLE ONE.)*

Fairly homogeneous and low in ability 1
Fairly homogeneous and average in ability 2
Fairly homogeneous and high in ability 3
Heterogeneous, with a mixture of two or more ability levels 4

22. Think about your plans for this science class for the entire course. How much emphasis will each of the following **student objectives** receive?

(CIRCLE ONE ON EACH LINE.)

		None	Minimal emphasis		Moderate emphasis		Very heavy emphasis
a.	Increase interest in science	0	1	2	3	4	5
b.	Learn basic science concepts	0	1	2	3	4	5
c.	Learn important terms and facts of science	0	1	2	3	4	5
d.	Learn scientific methods	0	1	2	3	4	5
e.	Prepare for further study in science	0	1	2	3	4	5
f.	Develop problem solving/inquiry skills	0	1	2	3	4	5
g.	Learn to evaluate arguments based on scientific evidence	0	1	2	3	4	5
h.	Learn to explain ideas in science effectively	0	1	2	3	4	5
i.	Increase awareness of the importance of science in daily life	0	1	2	3	4	5
j.	Learn about the applications of science in business and industry	0	1	2	3	4	5
k.	Learn about the relationship between science, technology, and society	0	1	2	3	4	5
l.	Learn about the history of science	0	1	2	3	4	5
m.	Prepare for standardized tests	0	1	2	3	4	5

23. How much does each of the following influence what you teach in this science class?

(CIRCLE ONE ON EACH LINE.)

		No influence			Extensive influence	Not applicable
a.	Your state's curriculum framework/course of study	1	2	3	4	8
b.	Your district's curriculum framework/course of study ...	1	2	3	4	8
c.	State test	1	2	3	4	8
d.	District test	1	2	3	4	8
e.	Textbook	1	2	3	4	8
f.	*Science for All Americans* (AAAS' Project 2061)	1	2	3	4	8
g.	Scope, Sequence, and Coordination philosophy or *Content Core* (NSTA's SS&C project)	1	2	3	4	8
h.	Your own science content background	1	2	3	4	8
i.	Your understanding of what motivates your students	1	2	3	4	8
j.	Available laboratory facilities, equipment, and supplies .	1	2	3	4	8
k.	Parents/community	1	2	3	4	8

24. About how often do students in this science class take part in the following types of activities?

(CIRCLE ONE ON EACH LINE.)

		Never	Once or twice semester	Once or twice a month	Once or twice a week	Almost daily
a.	Listen and take notes during presentation by teacher	1	2	3	4	5
b.	Watch the teacher demonstrate a scientific principle	1	2	3	4	5
c.	Work in small groups	1	2	3	4	5
d.	Read a science textbook in class	1	2	3	4	5
e.	Participate in dialogue with the teacher to develop an idea	1	2	3	4	5
f.	Do hands-on/laboratory science activities	1	2	3	4	5
g.	Prepare written science reports	1	2	3	4	5
h.	Work in class on science projects that take a week or more	1	2	3	4	5
i.	Work at home on science projects that take a week or more	1	2	3	4	5
j.	Use a computer	1	2	3	4	5
k.	Take field trips	1	2	3	4	5
l.	Watch films, filmstrips, or videotapes	1	2	3	4	5
m.	Watch television programs	1	2	3	4	5

25. For the following equipment, please indicate the approximate number of times per semester each is used in this science class. For those not used, circle either 1, Not needed, or 2, Needed but not available.

(CIRCLE ONE ON EACH LINE.)

		Not needed	Needed but not available	Number of times used per semester 1-2	3-5	6-10	11+
a.	Overhead projector	1	2	3	4	5	6
b.	Videotape player	1	2	3	4	5	6
c.	Videodisc player	1	2	3	4	5	6
d.	CD-ROM player	1	2	3	4	5	6
e.	Four function calculators	1	2	3	4	5	6
f.	Fraction calculators	1	2	3	4	5	6
g.	Graphing calculators	1	2	3	4	5	6
h.	Scientific calculators	1	2	3	4	5	6
i.	Computers	1	2	3	4	5	6
j.	Computer/lab interfacing devices	1	2	3	4	5	6
k.	Running water in laboratories	1	2	3	4	5	6
l.	Electric outlets in laboratories	1	2	3	4	5	6
m.	Gas for burners in laboratories	1	2	3	4	5	6
n.	Hoods or air hoses in laboratories	1	2	3	4	5	6

26. How much of your own money do you estimate you will spend for supplies for this science class this year?

$ _____

27. How much control do you have over each of the following for this science class?

(CIRCLE ONE ON EACH LINE.)

		No control				Strong control
a.	Determining goals and objectives	1	2	3	4	5
b.	Selecting textbooks	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

28. a. Are you using one or more commercially published textbooks or programs for teaching science to this class?

YES ..... 1 *(CONTINUE WITH 28.b.)*

NO ..... 2 *(SKIP TO QUESTION 32.)*

b. Indicate the publisher of the <u>one</u> textbook/program used most often by students in this science class. **(CIRCLE ONE.)**

Addison-Wesley	1	Kendall Hunt	13
Allyn & Bacon	2	Laidlaw Brothers	14
Amsco	3	Little, Brown	15
Delta Education	4	Macmillan	16
Ginn	5	McGraw Hill	17
Glencoe	6	Merrill	18
Globe	7	Prentice Hall	19
Harcourt, Brace, & Jovanovich	8	Scott, Foresman	20
Harper & Row	9	Silver, Burdett, & Ginn	21
D.C. Heath	10	Wiley	22
Holt, Rinehart, Winston	11		
Houghton Mifflin	12	Other (PLEASE SPECIFY) _____	23

29. What is the title, author, publication year, and edition of this textbook/program?

Title _____

First Author _____ Publication Year _____ Edition _____

30. Approximately what percentage of this textbook/program will you "cover" in this course? *(CIRCLE ONE.)*

Less than 25 percent	1
25 - 49 percent	2
50 - 74 percent	3
75 - 90 percent	4
More than 90 percent	5

31. How would you rate the overall quality of this textbook/program? *(CIRCLE ONE.)*

Very Poor	1
Poor	2
Fair	3
Good	4
Very Good	5
Excellent	6

32. How much homework do you assign in this science class in a typical **week**? *(CIRCLE ONE.)*

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

33. Indicate the importance you give to each of the following in setting grades for students in this science class.

(CIRCLE ONE ON EACH LINE.)

		Not important			Very important
a.	Objective tests (e.g., multiple choice, true/false)	1	2	3	4
b.	Essay tests	1	2	3	4
c.	Hands-on/performance tasks	1	2	3	4
d.	Systematic observations of students	1	2	3	4
e.	Interviewing students about what they understand	1	2	3	4
f.	Homework assignments	1	2	3	4
g.	Behavior	1	2	3	4
h.	Effort	1	2	3	4
i.	Laboratory reports	1	2	3	4
j.	Science projects	1	2	3	4
k.	Class attendance	1	2	3	4
l.	Contribution to small group work	1	2	3	4
m.	Participation in whole class discussion	1	2	3	4
n.	Individual improvement or progress over past performance	1	2	3	4

SECTION D: YOUR MOST RECENT SCIENCE LESSON

Use your most recent **science lesson** in this class to answer the following questions. Do not be concerned if this lesson was not typical of instruction in this class.

34. a. How many minutes were allocated to the most recent science lesson?

_____ minutes

b. Of these, how many minutes were spent on the following:

(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 _____

TOTAL MINUTES _____

(SHOULD BE THE SAME AS 34.a.)

35. Which of the following activities took place during that **science lesson**? *(CIRCLE ALL THAT APPLY.)*

a. Lecture 1

b. Students completing textbook/worksheet problems 2

c. Students reading about science 3

d. Students working in cooperative learning groups where the entire group receives a single grade 4

e. Student use of calculators 5

f. Student use of computers 6

g. Student use of other technologies 7

h. Test or quiz 8

36. Did that lesson take place on the most recent day your school was in session? *(CIRCLE ONE.)*

Yes 1

No 2

SECTION E: DEMOGRAPHIC INFORMATION

37. Indicate your sex: *(CIRCLE ONE.)*

Male 1

Female 2

38. Are you: *(CIRCLE ONE.)*

White (not of Hispanic origin) 1

Black (not of Hispanic origin) 2

Hispanic 3
(Mexican, Puerto Rican, Cuban, Central or South American, or other Hispanic culture or origin)

American Indian or Alaskan Native 4

Asian or Pacific Islander 5

39. In what year were you born?

19 ___

40. How many years have you taught prior to this school year?

_____ YEARS

41. How many years have you taught **science** prior to this school year?

_____ YEARS

42. When did you complete this questionnaire?

_____/_____/_____
MONTH DAY YEAR

Thank you for your assistance!

Please return the questionnaire to us in the postage-paid envelope:

1993 National Survey of Science and Mathematics Education
c/o CODA
1400 Spring Street - Suite 150
Silver Spring, MD 20910

Grade 1–4 Science Teachers' Opinions on Curriculum and Instruction Issues

	Percent of Teachers									
	Strongly Disagree		Disagree		No Opinion		Agree		Strongly Agree	
a. Students learn best when they study science in the context of a personal or social application	0	(0.2)	1	(0.5)	5	(1.2)	52	(2.5)	42	(2.6)
b. Students learn science best in classes with students of similar abilities	10	(1.5)	58	(2.9)	9	(1.3)	21	(2.8)	3	(0.7)
c. It is important for students to learn basic scientific terms and formulas before learning underlying concepts and principles	14	(1.1)	47	(2.2)	8	(2.0)	25	(1.9)	7	(1.5)
d. Laboratory-based science classes are more effective than non-laboratory classes	2	(1.0)	8	(1.3)	13	(2.3)	47	(3.3)	31	(2.2)
e. Virtually all students can learn to think scientifically	0	(0.3)	12	(1.9)	8	(1.4)	55	(2.5)	25	(1.9)
f. The testing program in my state/district dictates what science I teach	12	(2.4)	36	(2.9)	15	(2.0)	32	(2.2)	6	(0.9)
g. I enjoy teaching science	1	(0.5)	8	(1.7)	4	(1.0)	54	(3.4)	33	(3.3)
h. I consider myself a "master" science teacher	9	(2.0)	45	(3.3)	23	(2.0)	20	(2.1)	4	(0.9)
i. I feel supported by colleagues to try out new ideas in teaching science	1	(0.2)	11	(1.4)	15	(2.3)	56	(2.3)	18	(1.8)
j. I receive little support from the school administration for teaching science	19	(2.3)	45	(2.9)	16	(1.7)	17	(1.9)	4	(1.1)
k. Science teachers in this school regularly share ideas and materials	5	(1.2)	26	(3.1)	14	(1.7)	44	(3.0)	12	(1.7)
l. Science teachers in this school regularly observe each other teaching classes as part of sharing and improving instructional strategies	22	(2.2)	57	(2.5)	10	(1.3)	10	(1.8)	1	(0.6)
m. Activity-based science experiences aren't worth the time and expense for what students learn	58	(3.3)	35	(2.8)	3	(1.0)	3	(0.8)	1	(0.7)
n. I feel that I have many opportunities to learn new things in my present job	2	(0.6)	18	(2.4)	6	(1.1)	52	(3.0)	21	(1.9)
o. I am required to follow rules at this school that conflict with my best professional judgment	29	(2.5)	54	(3.1)	7	(1.4)	8	(1.4)	1	(0.6)
p. Most science teachers in this school contribute actively to making decisions about the science curriculum	5	(1.0)	29	(2.2)	22	(1.4)	37	(2.7)	8	(1.5)
q. Our guidance department does a good job of assisting students in selecting their science courses	6	(1.4)	11	(1.6)	77	(2.4)	6	(1.7)	1	(0.3)
r. I have time during the regular school week to work with my peers on science curriculum and instruction	32	(2.6)	45	(3.5)	9	(1.2)	13	(1.6)	1	(0.4)

Source: Science Teacher Questionnaire, Item 1.

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

	Percent of Teachers									
	Strongly Disagree		Disagree		No Opinion		Agree		Strongly Agree	
a. Students learn best when they study science in the context of a personal or social application	0	(0.0)	1	(0.3)	7	(2.1)	59	(3.8)	34	(3.8)
b. Students learn science best in classes with students of similar abilities	7	(1.5)	51	(3.5)	10	(2.0)	28	(3.3)	6	(0.6)
c. It is important for students to learn basic scientific terms and formulas before learning underlying concepts and principles	9	(1.2)	35	(3.1)	12	(3.2)	32	(3.2)	12	(2.4)
d. Laboratory-based science classes are more effective than non-laboratory classes	1	(0.2)	7	(1.0)	5	(0.9)	48	(4.5)	40	(4.5)
e. Virtually all students can learn to think scientifically	1	(0.3)	11	(2.8)	4	(1.4)	61	(3.6)	23	(2.7)
f. The testing program in my state/district dictates what science I teach	13	(2.9)	33	(2.8)	14	(2.3)	29	(3.0)	11	(1.4)
g. I enjoy teaching science	1	(0.2)	5	(1.6)	6	(1.6)	43	(3.9)	45	(3.3)
h. I consider myself a "master" science teacher	8	(2.6)	31	(3.2)	21	(2.6)	28	(2.6)	13	(1.9)
i. I feel supported by colleagues to try out new ideas in teaching science	0	(0.2)	9	(1.8)	14	(3.0)	55	(3.3)	21	(2.6)
j. I receive little support from the school administration for teaching science	21	(2.7)	44	(3.4)	11	(1.7)	21	(3.6)	2	(0.6)
k. Science teachers in this school regularly share ideas and materials	4	(1.2)	31	(3.9)	9	(1.9)	44	(2.6)	12	(2.2)
l. Science teachers in this school regularly observe each other teaching classes as part of sharing and improving instructional strategies	30	(2.9)	50	(3.1)	9	(1.7)	9	(1.7)	2	(0.6)
m. Activity-based science experiences aren't worth the time and expense for what students learn	53	(3.6)	40	(3.6)	3	(0.9)	2	(0.7)	2	(1.0)
n. I feel that I have many opportunities to learn new things in my present job	3	(1.4)	19	(3.2)	10	(2.1)	47	(3.1)	21	(3.5)
o. I am required to follow rules at this school that conflict with my best professional judgment	25	(4.0)	52	(3.6)	10	(2.0)	10	(1.7)	3	(0.8)
p. Most science teachers in this school contribute actively to making decisions about the science curriculum	6	(1.2)	32	(3.9)	15	(2.3)	40	(3.7)	7	(1.5)
q. Our guidance department does a good job of assisting students in selecting their science courses	6	(1.1)	14	(3.0)	67	(4.0)	11	(1.8)	2	(0.5)
r. I have time during the regular school week to work with my peers on science curriculum and instruction	40	(3.9)	39	(2.8)	6	(2.0)	14	(2.4)	1	(0.3)

Source: Science Teacher Questionnaire, Item 1.

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

	Percent of Teachers									
	Strongly Disagree		Disagree		No Opinion		Agree		Strongly Agree	
a. Students learn best when they study science in the context of a personal or social application	1	(0.5)	3	(0.6)	10	(4.3)	59	(3.7)	27	(2.1)
b. Students learn science best in classes with students of similar abilities	2	(0.6)	23	(2.1)	8	(0.9)	49	(2.5)	19	(2.0)
c. It is important for students to learn basic scientific terms and formulas before learning underlying concepts and principles	5	(0.7)	37	(2.3)	4	(0.6)	35	(2.9)	19	(2.8)
d. Laboratory-based science classes are more effective than non-laboratory classes	0	(0.1)	6	(0.8)	4	(0.8)	38	(2.3)	52	(2.2)
e. Virtually all students can learn to think scientifically	3	(0.6)	16	(1.9)	6	(0.8)	54	(3.4)	21	(1.5)
f. The testing program in my state/district dictates what science I teach	22	(1.6)	29	(3.0)	19	(2.5)	19	(1.4)	11	(3.2)
g. I enjoy teaching science	0	(0.2)	1	(0.4)	1	(0.5)	27	(2.4)	71	(2.4)
h. I consider myself a "master" science teacher	1	(0.4)	9	(0.9)	18	(1.8)	41	(2.6)	31	(2.7)
i. I feel supported by colleagues to try out new ideas in teaching science	1	(0.2)	5	(0.9)	8	(1.0)	55	(3.3)	32	(3.5)
j. I receive little support from the school administration for teaching science	22	(1.2)	42	(2.9)	13	(1.6)	18	(3.0)	5	(0.9)
k. Science teachers in this school regularly share ideas and materials	2	(0.6)	16	(1.7)	10	(1.7)	50	(1.9)	22	(1.4)
l. Science teachers in this school regularly observe each other teaching classes as part of sharing and improving instructional strategies	24	(2.3)	51	(2.4)	11	(1.6)	13	(3.1)	1	(0.4)
m. Activity-based science experiences aren't worth the time and expense for what students learn	50	(2.7)	40	(2.4)	4	(0.7)	4	(0.9)	2	(0.6)
n. I feel that I have many opportunities to learn new things in my present job	6	(3.2)	20	(2.3)	8	(1.5)	48	(2.6)	18	(1.8)
o. I am required to follow rules at this school that conflict with my best professional judgment	18	(1.2)	50	(2.7)	14	(2.1)	13	(0.9)	5	(1.2)
p. Most science teachers in this school contribute actively to making decisions about the science curriculum	5	(0.9)	20	(1.7)	10	(1.4)	50	(2.6)	15	(1.7)
q. Our guidance department does a good job of assisting students in selecting their science courses	12	(1.2)	26	(3.1)	18	(1.6)	41	(2.8)	3	(0.7)
r. I have time during the regular school week to work with my peers on science curriculum and instruction	38	(2.6)	42	(3.2)	5	(0.8)	13	(3.0)	3	(0.8)

Source: Science Teacher Questionnaire, Item 1.

Grade 1–4 Science Teachers' Perceptions of Possible Problems for Science Instruction in Their Schools

	Percent of Teachers					
	Not a significant problem		Somewhat of a problem		Serious problem	
a. Facilities	25	(2.0)	54	(2.6)	21	(2.1)
b. Funds for purchasing equipment and supplies	18	(2.3)	43	(3.1)	39	(3.1)
c. Materials for individualizing instruction	19	(2.3)	49	(3.6)	32	(2.5)
d. Access to computers	42	(2.5)	39	(2.6)	19	(1.7)
e. Appropriate computer software	27	(2.8)	47	(3.5)	27	(3.1)
f. Student interest in science	79	(2.3)	19	(1.8)	2	(0.9)
g. Student reading abilities	48	(2.5)	44	(2.3)	8	(1.0)
h. Student absences	84	(1.9)	15	(1.8)	2	(0.4)
i. Teacher interest in science	63	(2.5)	34	(2.6)	3	(0.8)
j. Teacher preparation to teach science	47	(3.2)	43	(3.2)	10	(1.8)
k. Time to teach science	35	(2.6)	48	(2.1)	17	(2.4)
l. Opportunities for teachers to share ideas	27	(3.0)	50	(2.6)	24	(2.7)
m. In-service education opportunities	34	(1.9)	52	(2.3)	14	(1.6)
n. Interruptions for announcements, assemblies, other school activities	67	(2.8)	29	(2.5)	4	(0.9)
o. Large classes	51	(3.0)	32	(2.7)	17	(2.4)
p. Maintaining discipline	66	(3.4)	27	(2.8)	8	(1.2)
q. Parental support for education	58	(3.5)	33	(3.1)	9	(1.4)
r. State/district testing policies	55	(2.6)	35	(2.4)	10	(1.6)

Source: Science Teacher Questionnaire, Item 2.

Grade 5–8 Science Teachers' Perceptions of Possible Problems for Science Instruction in Their Schools

	Percent of Teachers					
	Not a significant problem		Somewhat of a problem		Serious problem	
a. Facilities	25	(2.7)	47	(3.2)	28	(2.1)
b. Funds for purchasing equipment and supplies	16	(1.5)	44	(3.4)	40	(3.2)
c. Materials for individualizing instruction	14	(2.2)	41	(2.9)	45	(2.8)
d. Access to computers	29	(3.2)	42	(4.0)	29	(2.5)
e. Appropriate computer software	13	(1.7)	46	(3.3)	42	(3.0)
f. Student interest in science	58	(3.1)	36	(3.1)	7	(1.1)
g. Student reading abilities	44	(2.9)	44	(3.0)	12	(2.2)
h. Student absences	68	(2.8)	28	(2.7)	4	(0.8)
i. Teacher interest in science	73	(3.3)	25	(3.0)	2	(0.8)
j. Teacher preparation to teach science	53	(3.8)	41	(3.8)	6	(1.7)
k. Time to teach science	50	(3.0)	34	(3.2)	16	(2.8)
l. Opportunities for teachers to share ideas	28	(3.7)	46	(3.9)	27	(3.0)
m. In-service education opportunities	37	(3.0)	46	(3.3)	16	(2.8)
n. Interruptions for announcements, assemblies, other school activities	53	(3.2)	37	(2.7)	9	(1.5)
o. Large classes	36	(3.3)	37	(4.0)	27	(3.0)
p. Maintaining discipline	54	(2.7)	35	(3.0)	12	(2.1)
q. Parental support for education	49	(3.1)	39	(3.0)	12	(1.7)
r. State/district testing policies	58	(3.3)	30	(3.1)	12	(2.7)

Source: Science Teacher Questionnaire, Item 2.

Grade 9–12 Science Teachers' Perceptions of Possible Problems for Science Instruction in Their Schools

	Percent of Teachers					
	Not a significant problem		Somewhat of a problem		Serious problem	
a. Facilities	32	(2.5)	50	(3.6)	18	(1.9)
b. Funds for purchasing equipment and supplies	18	(1.6)	47	(2.8)	36	(2.3)
c. Materials for individualizing instruction	21	(1.5)	41	(2.8)	38	(2.4)
d. Access to computers	26	(2.9)	33	(2.1)	40	(2.2)
e. Appropriate computer software	19	(1.4)	37	(3.1)	45	(2.8)
f. Student interest in science	38	(3.2)	48	(3.0)	14	(1.5)
g. Student reading abilities	28	(3.3)	46	(2.3)	26	(3.8)
h. Student absences	34	(2.5)	46	(2.2)	21	(1.4)
i. Teacher interest in science	91	(2.2)	9	(2.1)	0	(0.2)
j. Teacher preparation to teach science	85	(1.5)	14	(1.4)	1	(0.3)
k. Time to teach science	55	(2.4)	36	(2.3)	9	(0.8)
l. Opportunities for teachers to share ideas	28	(3.4)	52	(2.7)	20	(2.1)
m. In-service education opportunities	38	(2.1)	43	(3.4)	19	(2.8)
n. Interruptions for announcements, assemblies, other school activities	35	(3.1)	47	(2.1)	18	(1.7)
o. Large classes	34	(3.6)	41	(2.9)	26	(2.5)
p. Maintaining discipline	53	(2.8)	38	(2.7)	9	(1.0)
q. Parental support for education	38	(3.0)	40	(3.1)	22	(2.6)
r. State/district testing policies	62	(2.2)	29	(2.2)	9	(2.2)

Source: Science Teacher Questionnaire, Item 2.

Grade 1–4 Science Teachers' Opinions About the Importance of Various Strategies for Effective Science Instruction

	Percent of Teachers									
	Definitely should not be a part of science instruction 1		2		**Makes no difference** 3		4		**Definitely should be a part of science instruction** 5	
a. Concrete experience before abstract treatments	0	(0.1)	2	(0.7)	6	(1.5)	23	(2.1)	70	(2.6)
b. Students working in cooperative learning groups	0	(0.0)	1	(0.5)	8	(2.0)	34	(1.9)	57	(2.5)
c. Emphasis on connections among concepts	0	(0.3)	1	(0.2)	3	(0.7)	44	(2.6)	52	(2.7)
d. Deeper coverage of fewer science concepts	2	(0.6)	11	(1.8)	18	(2.3)	40	(2.5)	28	(2.8)
e. Hands-on/laboratory activities	0	(0.3)	0	(0.1)	1	(0.6)	21	(2.0)	78	(2.3)
f. Applications of science in daily life	0	(0.0)	0	(0.0)	1	(0.6)	26	(2.6)	73	(2.5)
g. Applications of scientific methods in addressing societal issues	1	(0.5)	4	(0.7)	23	(1.9)	44	(2.6)	28	(2.3)
h. Coordination of science disciplines	0	(0.2)	2	(0.7)	17	(1.8)	52	(3.4)	30	(3.4)
i. Coordination of sciences with mathematics	0	(0.1)	1	(0.4)	7	(1.6)	45	(3.3)	47	(2.8)
j. Coordination of sciences with language arts	0	(0.1)	2	(0.9)	6	(1.3)	46	(2.8)	46	(2.7)
k. Coordination of sciences with social sciences	0	(0.1)	1	(0.6)	8	(1.5)	48	(3.4)	43	(2.9)
l. Coordination of sciences with vocational/technology education	3	(0.5)	3	(0.9)	26	(2.3)	31	(2.1)	37	(2.5)
m. Revisiting science topics, each time in greater depth	1	(0.4)	4	(1.8)	17	(1.9)	49	(2.3)	29	(2.6)
n. Every student studying science every year	0	(0.2)	1	(0.7)	2	(0.6)	33	(1.9)	63	(2.0)
o. Taking student conceptions about a natural phenomenon into account when planning curriculum and instruction	1	(0.4)	2	(0.4)	11	(1.6)	48	(2.4)	39	(2.2)
p. Inclusion of performance-based assessment	3	(0.7)	10	(1.5)	21	(1.9)	45	(2.3)	22	(2.4)
q. Use of computers	1	0.3)	2	0.8)	21	(2.9)	47	(4.1)	30	(3.6)

Source: Science Teacher Questionnaire, Item 3.

Grade 5–8 Science Teachers' Opinions About the Importance of Various Strategies for Effective Science Instruction

	Percent of Teachers									
	Definitely should not be a part of science instruction 1		2		Makes no difference 3		4		Definitely should be a part of science instruction 5	
a. Concrete experience before abstract treatments	0	(0.0)	1	(0.5)	8	(1.6)	40	(4.0)	51	(4.4)
b. Students working in cooperative learning groups	0	(0.1)	2	(0.6)	6	(1.3)	43	(3.1)	50	(3.0)
c. Emphasis on connections among concepts	0	(0.0)	0	(0.0)	1	(0.3)	45	(4.5)	54	(4.4)
d. Deeper coverage of fewer science concepts	1	(0.5)	11	(2.3)	20	(2.4)	38	(3.3)	30	(3.1)
e. Hands-on/laboratory activities	0	(0.0)	0	(0.0)	1	(0.1)	22	(2.8)	78	(2.8)
f. Applications of science in daily life	0	(0.0)	0	(0.0)	1	(0.4)	30	(4.1)	69	(4.3)
g. Applications of scientific methods in addressing societal issues	1	(0.7)	1	(0.5)	11	(2.1)	54	(3.5)	33	(3.3)
h. Coordination of science disciplines	0	(0.0)	1	(1.2)	12	(2.6)	50	(3.8)	37	(3.3)
i. Coordination of sciences with mathematics	0	(0.0)	1	(0.1)	9	(1.6)	48	(3.4)	43	(3.5)
j. Coordination of sciences with language arts	0	(0.1)	2	(0.4)	15	(2.3)	49	(3.4)	35	(3.7)
k. Coordination of sciences with social sciences	0	(0.3)	3	(1.3)	17	(2.9)	46	(3.3)	34	(3.6)
l. Coordination of sciences with vocational/ technology education	0	(0.0)	1	(0.2)	16	(3.1)	50	(3.8)	33	(4.2)
m. Revisiting science topics, each time in greater depth	1	(0.1)	6	(1.6)	8	(1.5)	65	(2.5)	21	(2.4)
n. Every student studying science every year	2	(1.3)	4	(1.6)	1	(0.4)	32	(3.3)	61	(2.9)
o. Taking student conceptions about a natural phenomenon into account when planing curriculum and instruction	0	(0.0)	2	(1.3)	15	(2.7)	49	(3.2)	34	(4.0)
p. Inclusion of performance-based assessment	2	(0.8)	4	(0.9)	21	(3.5)	47	(3.1)	26	(3.5)
q. Use of computers	0	(0.0)	1	(0.4)	17	(2.5)	44	(4.3)	37	(4.3)

Source: Science Teacher Questionnaire, Item 3.

Grade 9–12 Science Teachers' Opinions About the Importance of Various Strategies for Effective Science Instruction

	Percent of Teachers									
	Definitely should not be a part of science instruction 1		2		**Makes no difference** 3		4		**Definitely should be a part of science instruction** 5	
a. Concrete experience before abstract treatments	0	(0.1)	1	(0.2)	15	(1.7)	49	(3.2)	35	(3.1)
b. Students working in cooperative learning groups	0	(0.1)	3	(0.5)	16	(1.7)	50	(2.4)	30	(2.0)
c. Emphasis on connections among concepts	0	(0.1)	1	(0.3)	3	(0.7)	44	(2.9)	53	(2.5)
d. Deeper coverage of fewer science concepts	1	(0.3)	19	(2.5)	21	(1.5)	38	(2.2)	20	(1.6)
e. Hands-on/laboratory activities	0	(0.0)	0	(0.0)	3	(0.9)	21	(2.0)	76	(2.1)
f. Applications of science in daily life	0	(0.0)	0	(0.1)	2	(0.3)	38	(3.7)	60	(3.6)
g. Applications of scientific methods in addressing societal issues	1	(0.3)	2	(0.8)	12	(1.7)	50	(4.2)	35	(3.1)
h. Coordination of science disciplines	0	(0.2)	1	(0.2)	10	(1.4)	54	(2.0)	35	(2.7)
i. Coordination of sciences with mathematics	0	(0.1)	0	(0.1)	8	(1.1)	45	(3.2)	47	(3.8)
j. Coordination of sciences with language arts	2	(0.5)	4	(1.0)	25	(1.8)	49	(2.4)	20	(3.0)
k. Coordination of sciences with social sciences	1	(0.5)	5	(0.9)	26	(1.6)	49	(3.0)	19	(3.8)
l. Coordination of sciences with vocational/ technology education	0	(0.1)	4	(0.7)	17	(1.4)	50	(2.6)	29	(1.7)
m. Revisiting science topics, each time in greater depth	1	(0.2)	6	(1.2)	16	(1.4)	59	(2.8)	19	(1.6)
n. Every student studying science every year	3	(0.5)	7	(0.9)	14	(1.7)	40	(3.1)	37	(2.6)
o. Taking student conceptions about a natural phenomenon into account when planning curriculum and instruction	1	(0.2)	3	(0.5)	21	(4.5)	54	(4.5)	22	(1.4)
p. Inclusion of performance-based assessment	2	(0.6)	4	(1.0)	22	(3.3)	54	(2.6)	18	(1.8)
q. Use of computers	0	(0.1)	1	(0.3)	17	(1.6)	46	(3.1)	36	(2.3)

Source: Science Teacher Questionnaire, Item 3.

Grade 1–4 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	
a. Life Sciences	8	(1.5)	65	(2.7)	27	(2.5)
b. Chemistry	64	(2.5)	30	(2.4)	6	(1.1)
c. Physics	69	(1.9)	25	(2.0)	5	(1.1)
d. Earth Sciences	8	(1.6)	61	(2.9)	31	(2.9)
e. Technology	52	(3.5)	41	(3.5)	7	(1.3)
f. Integrated Science, drawing from various science disciplines	30	(3.3)	56	(2.9)	14	(1.8)
g. Mathematics	1	(0.4)	36	(3.1)	63	(2.7)
h. Reading/Language Arts	0	(0.2)	22	(1.9)	78	(2.2)
i. Social Studies	1	(0.4)	38	(1.9)	61	(2.2)

Source: Science Teacher Questionnaire, Item 4.

Grade 5–8 Science Teachers' Perceptions of Their Qualifications to Teach Each of a Number of Subjects

	Percent of Teachers					
	Not Qualified		Adequately Qualified		Very Well Qualified	
a. Life Sciences	7	(1.5)	52	(2.5)	42	(2.8)
b. Chemistry	47	(4.1)	39	(3.6)	14	(1.8)
c. Physics	52	(4.2)	36	(3.7)	12	(2.3)
d. Earth Sciences	9	(2.7)	56	(3.3)	35	(2.9)
e. Technology	46	(3.8)	44	(3.8)	10	(2.2)
f. Integrated Science, drawing from various science disciplines	24	(4.2)	53	(3.8)	23	(2.9)
g. Mathematics	7	(0.9)	44	(3.1)	49	(3.0)
h. Reading/Language Arts	11	(1.6)	36	(3.2)	53	(3.5)
i. Social Studies	11	(1.6)	40	(3.5)	48	(3.9)

Source: Science Teacher Questionnaire, Item 4.

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	
a. Life Sciences	18	(1.5)	22	(2.9)	60	(3.4)
b. Chemistry	24	(1.6)	40	(3.2)	36	(2.4)
c. Physics	48	(2.2)	30	(1.8)	22	(1.6)
d. Earth Sciences	26	(1.9)	43	(2.7)	31	(3.6)
e. Technology	42	(2.5)	46	(2.7)	12	(1.4)
f. Integrated Science, drawing from various science disciplines	15	(1.0)	59	(3.3)	27	(2.8)
g. Mathematics	29	(2.1)	44	(2.9)	27	(3.3)
h. Reading/Language Arts	52	(3.4)	36	(3.4)	12	(1.0)
i. Social Studies	56	(2.8)	34	(2.8)	11	(1.1)

Source: Science Teacher Questionnaire, Item 4.

Grade 1–4 Science Teachers' Perceptions of Their Preparation for Each of a Number of Tasks

	Percent of Teachers							
	Not Well Prepared		Somewhat Prepared		Fairly Well Prepared		Very Well Prepared	
a. Present the applications of science concepts	2	(0.9)	24	(2.7)	52	(2.6)	22	(2.6)
b. Use cooperative learning groups	2	(0.6)	16	(1.9)	41	(3.0)	42	(3.3)
c. Take into account students' prior conceptions about natural phenomena when planning curriculum and instruction	6	(0.8)	24	(1.8)	49	(1.4)	21	(1.9)
d. Use computers as an integral part of science instruction	38	(2.4)	32	(2.5)	22	(2.1)	8	(1.9)
e. Integrate science with other subject areas	3	(0.8)	22	(2.3)	43	(2.3)	33	(2.8)
f. Manage a class of students who are using hands-on/laboratory activities	5	(1.2)	18	(2.6)	41	(1.8)	37	(3.1)
g. Use a variety of assessment strategies	6	(1.4)	25	(2.2)	41	(2.4)	28	(2.9)
h. Use the textbook as a resource rather than as the primary instructional tool	6	(1.3)	17	(2.2)	42	(1.9)	35	(3.1)
i. Use performance-based assessment	11	(1.1)	29	(2.4)	41	(2.6)	19	(1.9)
j. Teach groups that are heterogeneous in ability	1	(0.6)	10	(2.1)	43	(2.0)	46	(2.7)
k. Teach students from a variety of cultural backgrounds	7	(1.7)	20	(2.4)	33	(2.4)	40	(2.9)
l. Teach students who have limited English proficiency	46	(3.9)	22	(2.2)	19	(2.5)	13	(2.1)
m. Teach students who have learning disabilities	17	(3.1)	33	(3.2)	33	(3.1)	17	(1.9)
n. Encourage participation of females in science	1	(0.4)	7	(1.7)	36	(2.8)	57	(3.1)
o. Encourage participation of minorities in science	3	(0.8)	10	(1.8)	35	(2.8)	52	(3.1)
p. Involve parents in the science education of their children	11	(1.7)	32	(3.6)	36	(2.8)	21	(2.0)

Source: Science Teacher Questionnaire, Item 5.

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

	Percent of Teachers							
	Not Prepared		Somewhat Prepared		Well Prepared		Very Well Prepared	
a. Present the applications of science concepts	3	(2.5)	17	(3.0)	52	(3.1)	28	(2.3)
b. Use cooperative learning groups	2	(0.8)	15	(2.5)	36	(3.2)	47	(3.1)
c. Take into account students' prior conceptions about natural phenomena when planning curriculum and instruction	10	(3.0)	27	(2.9)	39	(3.0)	24	(2.7)
d. Use compnters as an integral part of science instruction	38	(3.9)	31	(2.6)	20	(2.2)	11	(1.5)
e. Integrate science with other subject areas	7	(2.1)	26	(2.6)	42	(3.4)	26	(3.0)
f. Manage a class of students who are using hands-on/ laboratory activities	2	(0.8)	16	(1.9)	38	(3.4)	45	(3.3)
g. Use a variety of assessment strategies	6	(2.6)	16	(2.2)	47	(3.3)	32	(2.6)
h. Use the textbook as a resource rather than as the primary instructional tool	3	(0.8)	27	(3.0)	33	(2.2)	37	(2.7)
i. Use performance-based assessment	10	(1.7)	25	(3.2)	44	(2.8)	21	(2.2)
j. Teach groups that are heterogeneous in ability	2	(0.7)	9	(1.8)	43	(3.0)	47	(3.1)
k. Teach students from a variety of cultural backgrounds	8	(1.6)	24	(3.2)	38	(3.6)	31	(3.6)
l. Teach students who have limited English proficiency	47	(3.6)	28	(3.4)	19	(2.6)	6	(1.4)
m. Teach students who have learning disabilities	22	(3.4)	33	(3.2)	32	(2.9)	14	(2.0)
n. Encourage participation of females in science	1	(0.5)	5	(1.5)	30	(2.5)	64	(2.8)
o. Encourage participation of minorities in science	3	(1.0)	11	(2.6)	31	(3.4)	55	(2.9)
p. Involve parents in the science education of their children	12	(2.7)	32	(2.7)	39	(2.5)	17	(2.7)

Source: Science Teacher Questionnaire, Item 5.

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

	Percent of Teachers							
	Not Well Prepared		Somewhat Prepared		Fairly Well Prepared		Very Well Prepared	
a. Present the applications of science concepts	1	(0.5)	8	(3.0)	41	(3.0)	51	(2.4)
b. Use cooperative learning groups	7	(1.1)	29	(3.4)	38	(2.6)	27	(3.6)
c. Take into account students' prior conceptions about natural phenomena when planning curriculum and instruction	9	(1.3)	29	(2.7)	47	(3.1)	15	(2.9)
d. Use computers as an integral part of science instruction	30	(2.4)	30	(2.3)	26	(3.7)	14	(1.2)
e. Integrate science with other subject areas	11	(4.0)	27	(2.7)	45	(3.1)	18	(1.4)
f. Manage a class of students who are using hands-on/laboratory activities	1	(0.5)	7	(3.0)	31	(2.4)	61	(2.1)
g. Use a variety of assessment strategies	2	(0.6)	13	(1.2)	48	(2.7)	37	(2.6)
h. Use the textbook as a resource rather than as the primary instructional tool	3	(0.8)	17	(3.2)	37	(3.1)	44	(3.9)
i. Use performance-based assessment	10	(3.1)	26	(2.4)	45	(2.2)	19	(2.5)
j. Teach groups that are heterogeneous in ability	5	(0.7)	24	(3.1)	41	(3.4)	30	(2.4)
k. Teach students from a variety of cultural backgrounds	12	(2.7)	27	(2.2)	36	(2.2)	26	(2.8)
l. Teach students who have limited English proficiency	49	(3.5)	28	(2.3)	16	(3.2)	7	(0.9)
m. Teach students who have learning disabilities	36	(2.0)	37	(3.1)	21	(2.0)	7	(0.8)
n. Encourage participation of females in science	0	(0.1)	10	(3.0)	34	(3.2)	56	(2.9)
o. Encourage participation of minorities in science	4	(0.8)	16	(3.3)	36	(2.7)	44	(3.3)
p. Involve parents in the science education of their children	15	(1.8)	43	(2.4)	32	(2.9)	11	(3.0)

Source: Science Teacher Questionnaire, Item 5.

Science Teachers Completing Various College Courses

	Percent of Teachers					
	Grades 1–4		Grades 5–8		Grades 9–12	
Education						
1. Supervised student teaching in science	51	(2.2)	56	(3.8)	75	(2.0)
2. Instructional use of computers/other technologies	41	(3.7)	41	(2.6)	44	(3.0)
Mathematics						
3. College algebra/trigonometry/elementary functions	68	(2.3)	76	(2.5)	87	(1.4)
4. Calculus	12	(2.1)	22	(2.5)	58	(2.1)
5. Advanced calculus	4	(1.6)	8	(1.6)	23	(2.4)
6. Differential equations	4	(1.7)	7	(1.5)	22	(2.1)
7. Discrete mathematics	10	(2.2)	6	(1.4)	9	(2.1)
8. Probability and statistics	38	(3.6)	45	(4.0)	49	(2.0)
Chemistry						
9. General chemistry	44	(2.2)	56	(3.2)	96	(0.8)
10. Analytical chemistry	2	(0.3)	7	(1.1)	45	(2.9)
11. Organic chemistry	5	(1.2)	15	(2.0)	63	(4.8)
12. Physical chemistry	5	(1.1)	10	(2.0)	29	(2.0)
13. Quantum chemistry	0	(0.2)	1	(0.3)	11	(1.1)
14. Biochemistry	3	(1.4)	9	(1.8)	37	(3.2)
Earth/Space Sciences						
15. Earth science	68	(2.7)	66	(3.3)	47	(2.9)
16. Astronomy	17	(2.0)	26	(2.1)	36	(2.0)
17. Geology	24	(1.9)	42	(3.8)	48	(2.4)
18. Meteorology	3	(1.2)	13	(2.0)	22	(1.6)
19. Oceanography	6	(0.9)	12	(3.0)	20	(1.8)
20. Physical geography	42	(3.1)	44	(3.7)	25	(2.9)
21. Environmental science	26	(2.2)	36	(2.8)	42	(2.5)
Life Sciences						
22. Life science	51	(2.5)	59	(3.2)	56	(2.6)
23. Introductory biology	73	(2.0)	79	(2.6)	83	(1.7)
24. Botany, plant physiology	20	(2.0)	42	(3.6)	66	(3.6)
25. Cell biology	8	(1.5)	22	(2.9)	49	(2.7)
26. Ecology	10	(1.4)	25	(3.2)	48	(2.5)
27. Genetics, evolution	6	(1.8)	20	(2.2)	57	(3.2)
28. Microbiology	4	(1.2)	15	(2.3)	50	(2.8)
29. Anatomy/Physiology	14	(3.2)	31	(3.9)	62	(3.5)
30. Zoology, animal behavior	15	(1.9)	32	(2.9)	63	(3.7)
Physics						
31. Physical science	47	(3.5)	55	(3.5)	48	(2.8)
32. General physics	19	(2.0)	34	(3.1)	80	(3.9)
33. Electricity and magnetism	7	(1.8)	15	(2.6)	32	(2.4)
34. Heat and thermodynamics	1	(0.7)	7	(2.0)	23	(1.6)
35. Mechanics	1	(0.6)	5	(1.5)	24	(1.4)
36. Modern or quantum physics	0	(0.3)	2	(0.9)	15	(1.6)
37. Nuclear physics	0	(0.1)	2	(0.6)	12	(1.4)
38. Solid state physics	1	(0.6)	3	(1.0)	5	(0.9)
39. Optics	0	(0.1)	4	(1.6)	14	(1.1)
Other						
40. History of science	5	(1.4)	9	(1.5)	25	(1.9)
41. Science and society	8	(1.8)	7	(1.2)	18	(1.8)
42. Electronics	0	(0.3)	4	(1.2)	12	(1.4)
43. Engineering	0	(0.1)	3	(1.5)	13	(2.2)
44. Integrated science	5	(1.3)	8	(1.6)	5	(0.8)
45. Computer programming	17	(2.7)	23	(2.1)	36	(2.3)
46. Other computer science	14	(2.2)	21	(2.5)	21	(1.8)

Source: Science Teacher Questionnaire, Item 6.

Grade 1–4 Science Teachers Completing Various Numbers of Courses in Each Area

	Percent of Teachers									
	Life Science		Chemistry		Physics/ Physical Science		Earth/ Space Science		Science Education	
Zero courses	8	(1.2)	53	(2.3)	34	(2.3)	15	(1.6)	18	(1.7)
One course	24	(1.9)	30	(2.0)	38	(2.9)	23	(2.1)	39	(2.7)
Two courses	28	(2.4)	8	(1.6)	15	(1.7)	28	(2.8)	18	(1.9)
Three courses	16	(2.3)	5	(1.5)	7	(1.5)	16	(1.7)	9	(1.8)
Four courses	9	(2.0)	2	(0.7)	3	(1.0)	12	(2.0)	6	(1.5)
Five courses	4	(1.3)	1	(0.4)	1	(0.6)	3	(0.5)	2	(0.8)
Six courses	6	(1.7)	1	(0.5)	1	(0.7)	2	(0.9)	2	(0.7)
Seven courses	1	(0.4)	0	(0.1)	0	(0.1)	0	(0.0)	1	(0.6)
Eight or more courses	4	(1.2)	1	(0.3)	0	(0.2)	2	(0.9)	3	(0.7)

Source: Science Teacher Questionnaire, Item 7.

Grade 5–8 Science Teachers Completing Various Numbers of Courses in Each Area

	Percent of Teachers									
	Life Science		Chemistry		Physics/ Physical Science		Earth/ Space Science		Science Education	
Zero courses	6	(1.6)	39	(3.4)	28	(3.6)	14	(2.2)	22	(2.8)
One course	13	(1.5)	25	(2.5)	25	(3.4)	18	(3.0)	32	(3.4)
Two courses	19	(3.2)	11	(1.7)	20	(3.2)	18	(3.0)	18	(2.6)
Three courses	15	(3.5)	9	(1.8)	10	(2.0)	17	(3.0)	7	(1.2)
Four courses	11	(2.2)	5	(1.0)	7	(1.5)	12	(1.9)	4	(1.0)
Five courses	8	(1.9)	3	(0.8)	2	(1.1)	6	(1.5)	7	(2.2)
Six courses	7	(2.0)	3	(1.1)	2	(0.7)	4	(1.2)	2	(0.8)
Seven courses	3	(0.8)	0	(0.2)	0	(0.1)	2	(0.7)	0	(0.1)
Eight or more courses	18	(2.1)	5	(1.0)	5	(1.5)	8	(1.9)	7	(1.1)

Source: Science Teacher Questionnaire, Item 7.

Grade 9–12 Science Teachers Completing Various Numbers of Courses in Each Area

	Percent of Teachers									
	Life Science		Chemistry		Physics/ Physical Science		Earth/ Space Science		Science Education	
Zero courses	6	(1.1)	4	(0.8)	8	(0.9)	20	(2.3)	20	(2.3)
One course	6	(1.6)	8	(2.8)	9	(1.9)	13	(1.2)	15	(2.6)
Two courses	7	(1.2)	14	(2.0)	26	(2.0)	19	(1.8)	16	(1.4)
Three courses	5	(0.8)	11	(1.4)	11	(1.7)	12	(1.1)	9	(1.1)
Four courses	4	(0.9)	14	(1.2)	10	(1.5)	10	(1.2)	10	(1.0)
Five courses	7	(2.5)	9	(1.1)	7	(1.0)	7	(0.6)	5	(0.9)
Six courses	4	(0.6)	7	(1.2)	5	(0.7)	6	(1.0)	5	(0.6)
Seven courses	4	(0.8)	3	(0.6)	2	(0.4)	2	(0.6)	1	(0.3)
Eight or more courses	57	(1.9)	30	(2.2)	22	(1.6)	11	(1.2)	20	(2.0)

Source: Science Teacher Questionnaire, Item 7.

Science Teachers with Undergraduate or Graduate Majors in Science or Science Education

	Percent of Teachers					
	Grades 1–4		Grades 5–8		Grades 9–12	
Science only	3	(0.7)	18	(2.3)	58	(2.2)
Science and science education	0	(0.1)	1	(0.2)	9	(1.0)
Science education only	0	(0.2)	2	(0.5)	6	(1.1)
Neither science nor science education	97	(1.5)	79	(2.5)	28	(2.2)

Source: Science Teacher Questionnaire, Item 8.

Last Year a Course for College Credit in Science Was Taken by Science Teachers

	Percent of Teachers					
	Grades 1–4		Grades 5–8		Grades 9–12	
1989–1993	18	(2.0)	36	(3.0)	50	(2.9)
1983–1988	23	(1.8)	18	(1.8)	22	(1.3)
Prior to 1983	60	(2.3)	46	(2.8)	28	(3.3)

Source: Science Teacher Questionnaire, Item 9.a.

Last Year a Course for College Credit in Science Education Was Taken by Science Teachers

	Percent of Teachers					
	Grades 1–4		Grades 5–8		Grades 9–12	
1989–1993	23	(2.6)	33	(2.0)	40	(2.5)
1983–1988	20	(2.1)	16	(1.5)	20	(1.3)
Prior to 1983	57	(2.7)	52	(3.3)	40	(3.7)

Source: Science Teacher Questionnaire, Item 9.b.

Time Spent by Science Teachers on In-Service Education in Science or the Teaching of Science in Last 12 Months

	Percent of Teachers					
	Grades 1–4		Grades 5–8		Grades 9–12	
None	45	(3.2)	33	(3.2)	22	(4.1)
Less than 6 hours	32	(1.9)	26	(3.8)	23	(2.1)
6–15 hours	17	(1.8)	28	(2.2)	31	(2.9)
16–35 hours	4	(0.7)	7	(1.2)	14	(1.2)
Greater than 35 hours	3	(0.9)	7	(1.4)	10	(1.0)

Source: Science Teacher Questionnaire, Item 10.

Time Spent by Science Teachers on In-Service Education in Science or the Teaching of Science in Last Three Years

	Percent of Teachers					
	Grades 1–4		Grades 5–8		Grades 9–12	
None	26	(2.8)	17	(1.9)	12	(1.5)
Less than 6 hours	30	(1.8)	22	(2.6)	14	(1.8)
6–15 hours	22	(2.1)	27	(4.2)	18	(3.0)
16–35 hours	13	(1.9)	14	(2.8)	19	(1.4)
Greater than 35 hours	9	(1.8)	20	(2.4)	38	(3.1)

Source: Science Teacher Questionnaire, Item 10.

Science Teachers Participating in Various Science-Related Professional Activities in Last 12 Months

	Percent of Teachers					
	Grades 1–4		Grades 5–8		Grades 9–12	
a. Attended any national or state science teacher association meetings	7	(1.0)	20	(3.0)	37	(3.3)
b. Taught any in-service workshops or courses in science or science teaching	5	(1.1)	9	(1.2)	16	(2.0)
c. Received any local, state, or national grants or awards for science teaching	3	(0.7)	8	(1.3)	17	(1.9)
d. Served on a school or district science curriculum committee	17	(3.4)	26	(2.3)	40	(2.7)
e. Served on a school or district science textbook selection committee	14	(2.0)	19	(2.1)	37	(2.9)

Source: Science Teacher Questionnaire, Item 11.

Grade 1–4 Science Teachers' Use of Selected NSF-Supported Curricula

	Percent of Teachers							
	Have never heard of		Have heard of but not seen		Have seen but not used		Have used in teaching	
a. Biological Science: An Ecological Approach	55	(2.6)	29	(2.2)	9	(2.0)	7	(1.1)
b. Bottle Biology	78	(2.1)	12	(1.8)	8	(1.6)	2	(0.8)
c. ChemCom: Chemistry in the Community	91	(1.4)	8	(1.3)	2	(0.5)	0	(0.3)
d. Chemical Education for Public Understanding Program (CEPUP)	90	(1.5)	9	(1.5)	1	(0.4)	0	(0.0)
e. Full Option Science System (FOSS Science Kits)	77	(2.3)	15	(2.0)	6	(1.2)	2	(0.7)
f. Grow Lab, National Gardening Association	65	(2.5)	24	(2.1)	8	(1.7)	3	(1.3)
g. Mechanical Universe, High School Adaptation	94	(1.3)	4	(1.2)	1	(0.6)	0	(0.0)
h. Middle School Life Science	76	(2.5)	19	(3.0)	5	(1.9)	0	(0.0)
i. National Geographic Kids Network	32	(2.5)	39	(2.7)	24	(1.8)	5	(1.2)
j. Quantum Magazine for Students	63	(2.3)	25	(1.9)	12	(1.9)	0	(0.2)
k. Science for Life and Living: Integrating Science, Technology, and Health (BSCS)	76	(2.5)	16	(2.4)	5	(0.9)	3	(1.3)
l. Science Vision	74	(3.0)	19	(2.8)	6	(1.8)	0	(0.2)
m. Second Voyage of the Mimi (Mayan Expedition)	72	(3.1)	16	(2.2)	10	(3.1)	3	(0.8)
n. Super Science Magazine	62	(2.1)	18	(1.8)	11	(1.9)	9	(1.5)
o. Texas Learning Technology Group (TLTG) Physical Science/Math for Science	90	(1.7)	7	(1.6)	2	(0.6)	1	(0.5)
p. Wisconsin Fast Plants	93	(1.3)	4	(1.0)	3	(0.9)	0	(0.1)

Source: Science Teacher Questionnaire, Item 12.

Grade 5–8 Science Teachers' Use of Selected NSF-Supported Curricula

	Percent of Teachers							
	Have never heard of		Have heard of but not seen		Have seen but not used		Have used in teaching	
a. Biological Science: An Ecological Approach	43	(2.6)	28	(2.9)	17	(3.5)	13	(2.5)
b. Bottle Biology	77	(3.3)	13	(1.9)	7	(1.9)	3	(0.9)
c. ChemCom: Chemistry in the Community	81	(2.4)	12	(2.0)	6	(1.6)	1	(0.3)
d. Chemical Education for Public Understanding Program (CEPUP)	78	(3.5)	16	(3.3)	5	(1.5)	1	(0.2)
e. Full Option Science System (FOSS Science Kits)	69	(3.9)	20	(3.7)	8	(1.3)	3	(0.6)
f. Grow Lab, National Gardening Association	65	(4.4)	21	(3.4)	12	(3.4)	3	(1.0)
g. Mechanical Universe, High School Adaptation	94	(1.7)	4	(1.5)	2	(0.6)	0	(0.1)
h. Middle School Life Science	66	(4.0)	21	(3.1)	8	(1.8)	6	(1.6)
i. National Geographic Kids Network	32	(2.9)	38	(3.5)	24	(3.5)	7	(1.2)
j. Quantum Magazine for Students	57	(3.4)	24	(2.6)	16	(2.0)	3	(1.6)
k. Science for Life and Living: Integrating Science, Technology, and Health (BSCS)	67	(2.8)	18	(2.5)	10	(1.3)	5	(1.5)
l. Science Vision	72	(3.3)	17	(2.6)	10	(1.7)	0	(0.1)
m. Second Voyage of the Mimi (Mayan Expedition)	52	(4.0)	22	(2.8)	19	(3.0)	8	(1.9)
n. Super Science Magazine	58	(4.0)	12	(2.0)	16	(3.3)	14	(3.2)
o. Texas Learning Technology Group (TLTG) Physical Science/Math for Science	88	(2.5)	7	(1.8)	4	(1.5)	1	(0.7)
p. Wisconsin Fast Plants	87	(2.6)	6	(1.8)	3	(0.6)	4	(1.4)

Source: Science Teacher Questionnaire, Item 12.

Grade 9–12 Science Teachers' Use of Selected NSF-Supported Curricula

	Percent of Teachers							
	Have never heard of		Have heard of but not seen		Have seen but not used		Have used in teaching	
a. Biological Science: An Ecological Approach	23	(1.6)	27	(1.9)	31	(2.6)	19	(2.9)
b. Bottle Biology	75	(3.3)	11	(3.8)	11	(1.2)	4	(0.8)
c. ChemCom: Chemistry in the Community	42	(3.7)	19	(2.5)	30	(1.8)	8	(1.1)
d. Chemical Education for Public Understanding Program (CEPUP)	75	(2.7)	15	(3.0)	8	(1.0)	3	(0.7)
e. Full Option Science System (FOSS Science Kits)	83	(2.9)	11	(3.1)	5	(1.1)	0	(0.1)
f. Grow Lab, National Gardening Association	78	(2.6)	16	(2.9)	5	(0.8)	2	(0.7)
g. Mechanical Universe, High School Adaptation	73	(2.8)	11	(3.1)	7	(0.8)	9	(1.4)
h. Middle School Life Science	67	(2.5)	20	(1.7)	11	(1.1)	3	(3.3)
i. National Geographic Kids Network	55	(2.7)	29	(2.2)	14	(3.0)	2	(0.8)
j. Quantum Magazine for Students	63	(2.4)	18	(1.4)	14	(1.4)	5	(3.2)
k. Science for Life and Living: Integrating Science, Technology, and Health (BSCS)	39	(4.2)	26	(3.1)	22	(1.6)	13	(2.8)
l. Science Vision	72	(2.5)	20	(3.0)	7	(1.0)	1	(0.4)
m. Second Voyage of the Mimi (Mayan Expedition)	60	(3.1)	24	(3.0)	15	(1.1)	2	(0.5)
n. Super Science Magazine	82	(2.9)	13	(1.2)	5	(0.8)	0	(3.3)
o. Texas Learning Technology Group (TLTG) Physical Science/Math for Science	88	(3.0)	8	(3.1)	4	(0.8)	1	(0.2)
p. Wisconsin Fast Plants	75	(2.0)	7	(1.1)	12	(1.3)	6	(0.8)

Source: Science Teacher Questionnaire, Item 12.

Science Teachers in Self-Contained Classrooms

	Percent of Teachers	
Grades 1–4	98	(0.5)
Grades 5–8	61	(2.7)
Grades 9–12	0	(0.2)

Source: Science Teacher Questionnaire, Item 13.

Duration of Science Courses

	Percent of Classes					
	Grades 1–4		Grades 5–8		Grades 9–12	
Year	85	(2.7)	89	(1.5)	95	(1.1)
Semester	5	(1.1)	5	(0.9)	5	(1.0)
Quarter	4	(1.3)	1	(0.7)	0	(0.1)
Other	7	(1.4)	4	(1.2)	1	(0.2)

Source: Science Teacher Questionnaire, Item 16.

Race/Ethnicity of Science Students

	Percent of Students					
	Grades 1–4		Grades 5–8		Grades 9–12	
Male	**52**	**(0.6)**	**50**	**(0.7)**	**50**	**(1.1)**
a. White	37	(1.5)	37	(1.4)	40	(1.4)
b. Black	6	(0.5)	7	(0.7)	5	(0.5)
c. Hispanic	7	(1.1)	5	(0.7)	3	(0.3)
d. American Indian	1	(0.2)	1	(0.2)	0	(0.0)
e. Asian	1	(0.3)	1	(0.2)	2	(0.2)
Female	**48**	**(0.6)**	**50**	**(0.7)**	**50**	**(1.1)**
a. White	35	(1.1)	37	(1.4)	40	(0.9)
b. Black	5	(0.5)	7	(0.8)	6	(0.5)
c. Hispanic	7	(1.2)	5	(0.7)	3	(0.4)
d. American Indian	0	(0.2)	0	(0.2)	0	(0.0)
e. Asian	1	(0.2)	1	(0.1)	2	(0.2)

Source: Science Teacher Questionnaire, Item 18.

Science Classes with One or More Students in Each Category

	Percent of Classes					
	Grades 1–4		Grades 5–8		Grades 9–12	
Limited English Proficiency	22	(2.3)	18	(2.0)	14	(1.3)
Learning Disabled	53	(3.2)	54	(3.3)	31	(2.7)
Mentally Handicapped	9	(1.4)	7	(1.2)	2	(0.3)
Physically Handicapped	4	(0.8)	6	(1.3)	5	(1.0)

Source: Science Teacher Questionnaire, Item 19.

Students Assigned to Science Classes by Ability

	Percent of Classes	
Grades 1–4	6	(2.6)
Grades 5–8	15	(1.7)
Grades 9–12	50	(2.5)

Source: Science Teacher Questionnaire, Item 20.

Ability Grouping in Science Classes

	Percent of Classes					
	Grades 1–4		Grades 5–8		Grades 9–12	
Fairly homogeneous and low in ability	6	(1.8)	4	(0.5)	10	(1.7)
Fairly homogeneous and medium in ability	24	(2.2)	26	(2.2)	26	(1.9)
Fairly homogeneous and high in ability	4	(1.1)	12	(1.9)	27	(3.0)
Heterogeneous, with a mixture of two or more ability levels	66	(2.6)	58	(2.4)	37	(1.5)

Source: Science Teacher Questionnaire, Item 21.

Emphasis Given in Grade 1–4 Science Classes to Various Instructional Objectives

	Percent of Classes											
	None 0		Minimal Emphasis 1		2		Moderate Emphasis 3		4		Very Heavy Emphasis 5	
a. Increase interest in science	0	(0.0)	1	(0.4)	1	(0.5)	24	(2.0)	36	(2.4)	38	(2.7)
b. Learn basic science concepts	0	(0.0)	1	(0.4)	2	(0.5)	21	(2.7)	4	(2.3)	33	(2.9)
c. Learn important terms and facts of science	0	(0.2)	6	(1.7)	6	(1.1)	36	(1.9)	35	(2.5)	16	(2.5)
d. Learn scientific methods	1	(0.3)	6	(1.3)	13	(1.8)	35	(2.8)	28	(1.9)	18	(2.7)
e. Prepare for further study in science	2	(0.6)	4	(1.3)	11	(1.6)	38	(2.7)	28	(2.2)	17	(2.5)
f. Develop problem solving/ inquiry skills	0	(0.0)	2	(0.6)	6	(1.3)	24	(2.4)	9	(2.0)	30	(2.8)
g. Learn to evaluate arguments based on scientific evidence	5	(1.1)	12	(1.8)	18	(2.0)	37	(3.1)	20	(3.7)	8	(1.4)
h. Learn to explain ideas in science effectively	1	(0.3)	8	(1.2)	13	(1.7)	6	(2.9)	28	(2.8)	5	(2.8)
i. Increase awareness of the importance of science in daily life	0	(0.0)	1	(0.5)	4	(0.9)	18	(2.5)	36	(3.1)	41	(3.4)
j. Learn about the applications of science in business and industry	5	(1.1)	13	(1.8)	22	(2.1)	36	(3.8)	15	(1.6)	9	(1.3)
k. Learn about the relationship between science, technology, and society	4	(1.3)	10	(1.4)	20	(1.7)	35	(2.3)	22	(2.6)	9	(1.6)
l. Learn about the history of science	12	(1.7)	23	(2.2)	29	(2.9)	26	(2.3)	7	(1.0)	2	(0.7)
m. Prepare for standardized tests	18	(2.4)	21	(1.9)	19	(2.3)	24	(2.0)	13	(1.7)	6	(1.5)

Source: Science Teacher Questionnaire, Item 22.

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

	Percent of Classes											
	None 0		Minimal Emphasis 1		2		Moderate Emphasis 3		4		Very Heavy Emphasis 5	
a. Increase interest in science	0	(0.0)	1	(0.4)	2	(0.9)	20	(1.7)	39	(3.4)	38	(3.0)
b. Learn basic science concepts	0	(0.0)	0	(0.2)	1	(0.3)	13	(1.7)	42	(3.1)	44	(2.8)
c. Learn important terms and facts of science	0	(0.1)	1	(0.2)	5	(1.1)	30	(2.4)	38	(3.1)	27	(1.8)
d. Learn scientific methods	0	(0.1)	1	(0.4)	5	(1.5)	19	(2.1)	37	(3.3)	38	(3.3)
e. Prepare for further study in science	0	(0.1)	2	(0.6)	6	(1.6)	27	(2.1)	40	(3.3)	24	(2.6)
f. Develop problem solving/ inquiry skills	0	(0.0)	0	(0.2)	5	(1.6)	18	(1.9)	38	(3.0)	40	(2.8)
g. Learn to evaluate arguments based on scientific evidence	1	(0.3)	6	(1.1)	12	(1.7)	31	(2.5)	34	(3.2)	17	(1.7)
h. Learn to explain ideas in science effectively	0	(0.1)	2	(0.6)	8	(1.6)	27	(1.7)	42	(2.9)	21	(2.1)
i. Increase awareness of the importance of science in daily life	0	(0.1)	1	(0.4)	3	(1.3)	16	(1.6)	41	(3.0)	40	(2.9)
j. Learn about the applications of science in business and industry	2	(0.5)	5	(1.1)	14	(2.1)	38	(3.0)	27	(2.7)	14	(1.8)
k. Learn about the relationship between science, technology, and society	1	(0.5)	4	(0.8)	12	(2.1)	31	(2.4)	37	(3.2)	16	(2.0)
l. Learn about the history of science	4	(0.9)	19	(2.4)	26	(2.6)	31	(2.1)	16	(3.4)	4	(1.3)
m. Prepare for standardized tests	10	(1.5)	19	(2.4)	21	(2.6)	28	(3.1)	16	(1.9)	7	(1.0)

Source: Science Teacher Questionnaire, Item 22.

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

	Percent of Classes											
	None 0		Minimal Emphasis 1		2		Moderate Emphasis 3		4		Very Heavy Emphasis 5	
a. Increase interest in science	0	(0.0)	4	(2.3)	4	(0.6)	32	(1.5)	36	(2.8)	24	(1.7)
b. Learn basic science concepts	0	(0.1)	1	(0.3)	1	(0.4)	11	(1.2)	39	(2.7)	49	(2.8)
c. Learn important terms and facts of science	0	(0.1)	2	(0.7)	6	(1.1)	28	(1.5)	38	(1.6)	26	(2.1)
d. Learn scientific methods	0	(0.2)	1	(0.3)	5	(0.8)	23	(1.8)	37	(2.6)	33	(1.6)
e. Prepare for further study in science	0	(0.1)	3	(0.6)	6	(1.5)	23	(1.3)	37	(2.5)	31	(2.0)
f. Develop problem solving/ inquiry skills	0	(0.1)	1	(0.2)	3	(0.6)	18	(1.0)	37	(2.6)	41	(2.4)
g. Learn to evaluate arguments based on scientific evidence	0	(0.3)	4	(0.9)	16	(1.8)	30	(2.8)	32	(2.0)	17	(1.3)
h. Learn to explain ideas in science effectively	0	(0.1)	2	(0.5)	8	(1.3)	33	(2.0)	37	(2.2)	20	(1.5)
i. Increase awareness of the importance of science in daily life	0	(0.3)	3	(2.2)	5	(0.8)	19	(1.5)	38	(1.6)	35	(2.9)
j. Learn about the applications of science in business and industry	0	(0.2)	4	(0.7)	16	(2.6)	32	(1.6)	32	(1.9)	16	(1.8)
k. Learn about the relationship between science, technology, and society	0	(0.3)	4	(0.7)	15	(3.1)	30	(1.9)	36	(2.1)	16	(1.8)
l. Learn about the history of science	1	(0.5)	21	(2.8)	31	(2.6)	32	(2.1)	11	(1.0)	3	(0.7)
m. Prepare for standardized tests	13	(1.5)	20	(2.6)	18	(1.3)	27	(2.0)	13	(1.6)	10	(1.5)

Source: Science Teacher Questionnaire, Item 22.

Influence of Various Factors on Grade 1–4 Science Curriculum

	Percent of Classes									
	No Influence 1		2		3		Extensive Influence 4		Not Applicable	
a. State's curriculum framework/course of study	10	(2.4)	19	(2.9)	36	(3.9)	28	(3.2)	8	(1.5)
b. District's curriculum framework/course of study	4	(1.2)	13	(3.4)	34	(3.5)	44	(3.1)	5	(1.7)
c. State test	28	(2.7)	21	(2.3)	17	(1.9)	11	(1.3)	24	(2.8)
d. District test	31	(2.9)	19	(2.0)	14	(1.4)	8	(1.2)	28	(2.9)
e. Textbook	18	(2.3)	18	(2.4)	31	(2.3)	21	(2.3)	11	(1.7)
f. *Science for All Americans* (AAAS' Project 2061)	41	(2.8)	9	(1.2)	4	(1.3)	0	(0.1)	47	(3.1)
g. Scope, Sequence, and Coordination philosophy of *Content Core* (NSTA's SS&C project)	33	(2.8)	12	(1.3)	8	(0.9)	4	(1.1)	44	(2.8)
h. Own science content background	6	(1.5)	11	(2.2)	46	(2.1)	36	(2.7)	2	(0.7)
i. Own understanding of what motivates students	1	(0.2)	6	(1.2)	36	(2.9)	56	(3.1)	2	(0.7)
j. Available laboratory facilities, equipment, and supplies	5	(0.8)	14	(1.9)	38	(2.5)	37	(2.1)	7	(1.9)
k. Parents/community	17	(2.5)	39	(3.7)	32	(2.7)	9	(1.5)	3	(0.9)

Source: Science Teacher Questionnaire, Item 23.

Influence of Various Factors on Grade 5–8 Science Curriculum

	Percent of Classes									
	No Influence 1		2		3		Extensive Influence 4		Not Applicable	
a. State's curriculum framework/course of study	7	(1.4)	23	(3.8)	32	(2.9)	29	(2.6)	9	(2.0)
b. District's curriculum framework/course of study	3	(0.6)	14	(3.2)	33	(2.2)	41	(2.7)	10	(2.1)
c. State test	25	(2.2)	23	(3.0)	21	(2.1)	12	(2.1)	19	(2.5)
d. District test	28	(2.3)	18	(3.1)	17	(2.1)	7	(1.0)	30	(2.7)
e. Textbook	11	(2.0)	20	(2.2)	40	(3.4)	26	(2.4)	3	(0.9)
f. *Science for All Americans* (AAAS' Project 2061)	39	(3.0)	14	(3.4)	5	(1.2)	3	(0.7)	39	(2.8)
g. Scope, Sequence, and Coordination philosophy of *Content Core* (NSTA's SS&C project)	35	(2.3)	15	(3.3)	14	(2.1)	4	(1.1)	32	(2.7)
h. Own science content background	3	(0.8)	13	(2.2)	41	(3.1)	43	(3.7)	1	(0.4)
i. Own understanding of what motivates students	1	(0.6)	5	(0.8)	38	(2.6)	56	(2.6)	1	(0.2)
j. Available laboratory facilities, equipment, and supplies	3	(1.0)	10	(1.6)	40	(3.3)	45	(3.3)	2	(0.8)
k. Parents/community	21	(2.0)	41	(3.0)	28	(2.9)	9	(1.9)	2	(0.7)

Source: Science Teacher Questionnaire, Item 23.

Influence of Various Factors on Grade 9–12 Science Curriculum

	Percent of Classes									
	No Influence 1		2		3		Extensive Influence 4		Not Applicable	
a. State's curriculum framework/course of study	15	(1.8)	20	(2.3)	30	(2.9)	21	(1.8)	14	(1.2)
b. District's curriculum framework/course of study	13	(2.3)	14	(1.6)	30	(2.2)	32	(1.8)	12	(1.6)
c. State test	32	(2.0)	17	(2.1)	16	(1.5)	9	(1.0)	26	(1.5)
d. District test	36	(2.4)	12	(1.0)	9	(1.1)	6	(0.9)	37	(2.0)
e. Textbook	6	(1.0)	23	(1.3)	43	(3.0)	26	(3.5)	2	(0.6)
f. *Science for All Americans* (AAAS' Project 2061)	52	(3.4)	11	(1.4)	6	(1.3)	2	(0.4)	31	(2.1)
g. Scope, Sequence, and Coordination philosophy of *Content Core* (NSTA's SS&C project)	49	(2.7)	14	(1.3)	8	(1.5)	1	(0.3)	28	(1.9)
h. Own science content background	1	(0.2)	7	(0.8)	40	(2.1)	52	(2.3)	1	(0.4)
i. Own understanding of what motivates students	1	(0.2)	10	(2.7)	38	(1.9)	51	(2.4)	1	(0.5)
j. Available laboratory facilities, equipment, and supplies	2	(0.8)	6	(0.7)	42	(2.1)	50	(2.2)	1	(0.4)
k. Parents/community	24	(3.3)	41	(2.2)	27	(2.1)	6	(0.8)	2	(0.6)

Source: Science Teacher Questionnaire, Item 23.

Grade 1–4 Science Class Participation in Various Instructional Activities

	Percent of Classes									
	Never		Once or twice a semester		Once or twice a month		Once or twice a week		Almost Daily	
a. Listen and take notes during presentation by teacher	52	(1.8)	12	(1.7)	11	(1.7)	17	(2.4)	8	(1.2)
b. Watch the teacher demonstrate a scientific principle	3	(0.8)	15	(1.8)	52	(3.2)	26	(2.4)	3	(1.2)
c. Work in small groups	2	(1.0)	6	(1.3)	32	(3.1)	42	(3.1)	18	(1.6)
d. Read a science textbook in class	23	(2.4)	9	(2.2)	17	(2.3)	38	(3.3)	13	(1.9)
e. Participate in dialogue with the teacher to develop an idea	3	(1.0)	6	(0.9)	15	(2.3)	40	(2.8)	36	(3.6)
f. Do hands-on/laboratory science activities	2	(0.7)	13	(1.9)	43	(2.1)	34	(2.0)	7	(1.6)
g. Prepare written science reports	36	(2.1)	40	(2.2)	16	(2.0)	7	(1.7)	1	(1.1)
h. Work in class on science projects that take a week or more	28	(2.5)	46	(3.2)	17	(1.9)	8	(1.5)	1	(0.4)
i. Work at home on science projects that take a week or more	51	(1.9)	42	(2.1)	6	(1.0)	1	(0.5)	0	(0.1)
j. Use a computer	38	(3.0)	12	(1.7)	12	(1.8)	31	(2.8)	7	(1.3)
k. Take field trips	23	(2.7)	70	(3.6)	6	(2.0)	1	(0.4)	0	(0.1)
l. Watch films, filmstrips, or videotapes	6	(1.9)	30	(2.1)	47	(3.3)	15	(1.3)	2	(0.9)
m. Watch television programs	43	(3.6)	26	(3.4)	23	(3.2)	8	(1.4)	0	(0.2)

Source: Science Teacher Questionnaire, Item 24.

Grade 5–8 Science Class Participation in Various Instructional Activities

	Percent of Classes									
	Never		Once or twice a semester		Once or twice a month		Once or twice a week		Almost Daily	
a. Listen and take notes during presentation by teacher	6	(1.0)	9	(1.6)	19	(1.4)	50	(2.7)	17	(1.9)
b. Watch the teacher demonstrate a scientific principle	4	(1.6)	10	(1.3)	38	(2.6)	43	(3.0)	6	(1.0)
c. Work in small groups	1	(0.2)	5	(1.1)	21	(2.2)	47	(2.8)	27	(3.1)
d. Read a science textbook in class	9	(1.4)	17	(3.4)	20	(1.9)	39	(3.4)	16	(1.7)
e. Participate in dialogue with the teacher to develop an idea	1	(0.5)	4	(0.8)	13	(2.2)	34	(2.6)	48	(3.5)
f. Do hands-on/laboratory science activities	2	(0.6)	10	(1.9)	29	(1.7)	50	(2.9)	10	(1.8)
g. Prepare written science reports	10	(1.1)	43	(3.0)	33	(2.7)	14	(2.2)	1	(0.3)
h. Work in class on science projects that take a week or more	22	(2.1)	50	(3.1)	21	(2.0)	4	(0.6)	3	(1.0)
i. Work at home on science projects that take a week or more	27	(2.3)	61	(2.8)	11	(1.5)	1	(0.5)	1	(0.6)
j. Use a computer	44	(3.0)	23	(3.1)	15	(2.4)	15	(1.8)	4	(0.9)
k. Take field trips	35	(2.9)	61	(3.0)	4	(0.9)	0	(0.2)	0	(0.1)
l. Watch films, filmstrips, or videotapes	2	(0.5)	27	(3.8)	53	(3.4)	19	(2.7)	0	(0.2)
m. Watch television programs	40	(2.3)	31	(3.5)	21	(2.3)	7	(1.7)	1	(0.7)

Source: Science Teacher Questionnaire, Item 24.

Grade 9–12 Science Class Participation in Various Instructional Activities

	Percent of Classes									
	Never		Once or twice a semester		Once or twice a month		Once or twice a week		Almost Daily	
a. Listen and take notes during presentation by teacher	0	(0.2)	1	(0.3)	6	(0.9)	49	(1.9)	44	(2.0)
b. Watch the teacher demonstrate a scientific principle	1	(0.4)	8	(1.4)	38	(1.8)	45	(1.9)	8	(1.1)
c. Work in small groups	1	(0.1)	7	(2.2)	19	(1.4)	55	(2.3)	18	(2.0)
d. Read a science textbook in class	21	(1.2)	16	(1.4)	24	(2.1)	29	(2.4)	10	(1.9)
e. Participate in dialogue with the teacher to develop an idea	1	(0.4)	5	(0.8)	18	(2.0)	35	(2.3)	41	(3.1)
f. Do hands-on/laboratory science activities	1	(0.3)	8	(2.0)	24	(1.4)	60	(2.1)	7	(1.0)
g. Prepare written science reports	12	(2.3)	38	(1.9)	26	(2.0)	24	(2.0)	2	(0.3)
h. Work in class on science projects that take a week or more	43	(3.4)	43	(2.6)	11	(1.3)	2	(0.9)	1	(0.1)
i. Work at home on science projects that take a week or more	49	(2.3)	43	(1.9)	7	(0.8)	1	(0.3)	1	(0.2)
j. Use a computer	54	(3.2)	27	(1.7)	15	(1.8)	3	(0.6)	1	(0.1)
k. Take field trips	62	(2.3)	35	(2.0)	3	(1.0)	0	(0.0)	0	(0.0)
l. Watch films, filmstrips, or videotapes	8	(1.5)	25	(1.8)	49	(2.2)	17	(1.4)	1	(0.3)
m. Watch television programs	60	(2.7)	23	(2.9)	14	(1.9)	3	(0.8)	1	(0.2)

Source: Science Teacher Questionnaire, Item 24.

Equipment Use in Grade 1–4 Science Classes

	Percent of Classes											
	Not needed		Needed but not available		Number of times used per semester							
					1–2		3–5		6–10		11+	
a. Overhead projector	21	(2.9)	6	(1.3)	17	(2.7)	14	(1.4)	15	(1.8)	28	(2.7)
b. Videotape player	9	(1.3)	2	(0.7)	27	(2.8)	25	(2.4)	19	(2.4)	18	(1.9)
c. Videodisc player	59	(1.9)	23	(2.5)	9	(1.9)	4	(1.5)	2	(0.4)	4	(1.4)
d. CD-ROM player	65	(2.4)	25	(2.7)	5	(1.3)	3	(1.2)	0	(0.2)	2	(0.9)
e. Four function calculators	57	(1.7)	12	(2.0)	12	(1.5)	8	(1.8)	6	(2.1)	6	(1.2)
f. Fraction calculators	88	(1.8)	10	(1.5)	1	(0.5)	1	(0.4)	0	(0.3)	0	(0.2)
g. Graphing calculators	89	(1.7)	11	(1.6)	0	(0.2)	0	(0.0)	0	(0.0)	0	(0.0)
h. Scientific calculators	88	(1.8)	12	(1.6)	0	(0.1)	0	(0.0)	0	(0.0)	0	(0.0)
i. Computers	30	(1.8)	18	(2.2)	16	(2.4)	7	(1.0)	8	(1.5)	22	(2.2)
j. Computer/lab interfacing devices	64	(1.9)	23	(1.9)	2	(1.0)	1	(0.3)	2	(0.6)	8	(1.5)
k. Running water in laboratories	28	(2.2)	24	(1.9)	11	(1.8)	10	(1.4)	10	(1.2)	18	(2.3)
l. Electrical outlets in laboratories	32	(2.2)	17	(2.3)	16	(1.5)	8	(1.6)	8	(1.8)	18	(2.5)
m. Gas for burners in laboratories	73	(3.0)	20	(2.1)	6	(1.5)	0	(0.1)	0	(0.1)	2	(1.2)
n. Hoods or air hoses in laboratories	79	(2.5)	18	(1.6)	2	(1.0)	0	(0.0)	0	(0.1)	1	(1.3)

Source: Science Teacher Questionnaire, Item 25.

Equipment Use in Grade 5–8 Science Classes

	Percent of Classes											
	Not needed		Needed but not available		Number of times used per semester							
					1–2		3–5		6–10		11+	
a. Overhead projector	10	(1.2)	2	(0.6)	10	(1.6)	12	(2.0)	18	(2.7)	48	(2.7)
b. Videotape player	6	(1.0)	1	(0.3)	17	(2.0)	20	(2.2)	32	(3.2)	25	(2.5)
c. Videodisc player	49	(3.3)	24	(2.1)	11	(1.5)	5	(1.1)	4	(0.7)	8	(1.7)
d. CD-ROM player	60	(2.9)	30	(2.4)	6	(1.5)	2	(0.7)	0	(0.2)	1	(0.4)
e. Four function calculators	60	(3.3)	7	(1.0)	9	(1.2)	9	(1.6)	7	(1.6)	9	(1.9)
f. Fraction calculators	81	(2.2)	11	(1.3)	2	(0.5)	1	(0.3)	2	(0.6)	3	(1.3)
g. Graphing calculators	86	(1.8)	13	(1.3)	1	(0.3)	0	(0.2)	1	(0.9)	0	(0.0)
h. Scientific calculators	81	(2.1)	13	(1.4)	2	(0.5)	1	(0.2)	1	(0.4)	3	(1.1)
i. Computers	21	(2.5)	29	(2.4)	21	(3.5)	9	(1.3)	8	(1.4)	12	(1.6)
j. Computer/lab interfacing devices	41	(2.8)	41	(3.0)	11	(3.3)	3	(0.8)	2	(0.5)	3	(0.7)
k. Running water in laboratories	7	(1.3)	23	(2.6)	8	(1.1)	12	(1.8)	19	(3.2)	32	(2.8)
l. Electrical outlets in laboratories	10	(1.5)	15	(1.8)	11	(1.3)	15	(2.2)	16	(3.2)	33	(3.1)
m. Gas for burners in laboratories	42	(3.0)	30	(2.7)	11	(1.6)	4	(0.9)	7	(3.3)	6	(1.5)
n. Hoods or air hoses in laboratories	52	(3.0)	35	(2.5)	6	(0.9)	1	(0.4)	5	(3.4)	1	(0.4)

Source: Science Teacher Questionnaire, Item 25.

Equipment Use in Grade 9–12 Science Classes

	Percent of Classes											
	Not needed		Needed but not available		Number of times used per semester							
					1–2		3–5		6–10		11+	
a. Overhead projector	14	(2.8)	3	(0.9)	8	(1.3)	9	(1.3)	12	(1.6)	55	(3.6)
b. Videotape player	8	(1.4)	2	(0.3)	15	(1.1)	24	(2.3)	29	(3.6)	23	(2.0)
c. Videodisc player	47	(3.1)	24	(2.0)	13	(1.2)	5	(0.9)	4	(0.7)	6	(0.8)
d. CD-ROM player	60	(3.2)	33	(3.3)	4	(0.6)	2	(0.7)	1	(0.2)	0	(0.3)
e. Four function calculators	54	(2.6)	8	(2.1)	5	(0.7)	4	(0.6)	5	(0.8)	25	(1.8)
f. Fraction calculators	83	(1.9)	6	(1.3)	2	(0.6)	1	(0.4)	2	(0.7)	6	(0.7)
g. Graphing calculators	82	(1.6)	11	(2.1)	3	(1.0)	1	(0.2)	1	(0.3)	3	(0.5)
h. Scientific calculators	53	(2.9)	9	(1.8)	4	(0.7)	3	(0.4)	3	(0.6)	27	(2.1)
i. Computers	24	(2.2)	36	(2.1)	19	(1.6)	9	(1.0)	6	(1.1)	6	(0.8)
j. Computer/lab interfacing devices	37	(1.6)	46	(1.9)	10	(1.0)	4	(0.7)	2	(0.4)	1	(0.3)
k. Running water in laboratories	3	(0.8)	7	(2.5)	7	(0.9)	11	(1.1)	18	(1.6)	55	(2.0)
l. Electrical outlets in laboratories	4	(0.9)	2	(0.8)	8	(0.9)	11	(0.8)	22	(2.3)	53	(2.8)
m. Gas for burners in laboratories	24	(3.1)	9	(1.0)	17	(1.3)	10	(1.0)	9	(1.7)	31	(2.1)
n. Hoods or air hoses in laboratories	38	(2.3)	26	(2.3)	13	(0.8)	5	(0.7)	5	(1.2)	14	(1.4)

Source: Science Teacher Questionnaire, Item 25.

Amount of Own Money Science Teachers Spend on Supplies per Class

	Percent of Classes					
	Grades 1–4		Grades 5–8		Grades 9–12	
$ 0	17	(2.0)	10	(1.4)	15	(3.2)
$ 1–49.99	41	(2.5)	35	(3.2)	28	(2.5)
$ 50–99.99	18	(2.0)	19	(2.1)	16	(1.5)
$ 100–149.99	10	(1.4)	12	(1.2)	11	(1.3)
$ 150 +	15	(2.2)	24	(2.9)	30	(1.7)

Source: Science Teacher Questionnaire, Item 26.

Grade 1–4 Science Classes Where Teachers Report Control Over Various Curriculum and Instruction Decisions

	Percent of Grades 1–4 Science Classes									
	No Control 1		2		3		4		Strong Control 5	
a. Determining goals and objectives	13	(1.9)	8	(0.9)	25	(2.6)	21	(2.4)	32	(1.9)
b. Selecting textbooks	32	(2.5)	19	(2.3)	24	(2.6)	15	(1.8)	11	(1.5)
c. Selecting other instructional materials	7	(1.8)	10	(1.6)	26	(2.6)	27	(2.6)	30	(2.0)
d. Selecting content, topics, and skills to be taught	12	(2.1)	12	(1.8)	22	(2.2)	27	(2.7)	27	(2.5)
e. Selecting the sequence in which topics are covered	3	(0.8)	4	(0.9)	13	(1.7)	24	(1.7)	56	(2.0)
f. Setting the pace for covering topics	1	(0.5)	4	(0.7)	11	(1.9)	29	(2.0)	56	(2.5)
g. Selecting teaching techniques	0	(0.1)	2	(0.5)	6	(0.8)	26	(2.0)	66	(2.1)
h. Determining amount of homework to be assigned	0	(0.3)	1	(0.5)	3	(0.7)	24	(2.3)	72	(2.1)
i. Choosing criteria for grading students	5	(1.5)	1	(0.4)	10	(2.0)	24	(2.5)	60	(3.4)

Source: Science Teacher Questionnaire, Item 27.

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

	Percent of Grades 1–4 Science Classes									
	No Control 1		2		3		4		Strong Control 5	
a. Determining goals and objectives	8	(1.5)	6	(0.8)	22	(2.8)	24	(3.5)	40	(3.0)
b. Selecting textbooks	24	(2.2)	11	(1.1)	17	(2.0)	24	(3.3)	25	(2.3)
c. Selecting other instructional materials	4	(0.8)	5	(0.8)	19	(2.3)	31	(3.4)	42	(2.8)
d. Selecting content, topics, and skills to be taught	8	(1.3)	8	(1.5)	19	(1.7)	29	(3.3)	36	(2.6)
e. Selecting the sequence in which topics are covered	3	(0.5)	3	(0.8)	8	(1.2)	25	(3.2)	62	(3.0)
f. Setting the pace for covering topics	1	(0.4)	2	(0.7)	9	(1.3)	25	(3.1)	63	(2.8)
g. Selecting teaching techniques	0	(0.2)	1	(0.3)	5	(1.0)	23	(3.2)	72	(3.0)
h. Determining amount of homework to be assigned	1	(0.4)	1	(0.2)	4	(0.9)	20	(3.4)	75	(3.1)
i. Choosing criteria for grading students	1	(0.4)	1	(0.2)	8	(1.5)	24	(3.4)	66	(3.1)

Source: Science Teacher Questionnaire, Item 27.

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

	Percent of Grades 1–4 Science Classes									
	No Control 1		2		3		4		Strong Control 5	
a. Determining goals and objectives	6	(0.7)	4	(0.6)	14	(2.0)	23	(2.2)	53	(3.7)
b. Selecting textbooks	14	(1.7)	7	(0.9)	13	(1.5)	21	(1.8)	45	(4.2)
c. Selecting other instructional materials	2	(0.3)	4	(0.5)	13	(1.0)	27	(2.8)	55	(3.8)
d. Selecting content, topics, and skills to be taught	4	(0.4)	5	(0.7)	13	(1.3)	29	(2.5)	50	(3.3)
e. Selecting the sequence in which topics are covered	2	(0.3)	3	(0.5)	7	(1.0)	21	(1.7)	68	(2.7)
f. Setting the pace for covering topics	1	(0.3)	2	(0.5)	7	(1.1)	20	(1.7)	71	(2.6)
g. Selecting teaching techniques	0	(0.1)	0	(0.1)	4	(1.0)	18	(2.2)	79	(3.0)
h. Determining amount of homework to be assigned	0	(0.1)	0	(0.2)	2	(0.3)	17	(2.1)	81	(2.5)
i. Choosing criteria for grading students	1	(0.4)	2	(0.5)	6	(1.1)	22	(1.8)	69	(2.5)

Source: Science Teacher Questionnaire, Item 27.

Science Classes Using Commercially Published Science Textbooks/Programs

	Percent of Classes	
Grades 1–4	72	(3.1)
Grades 5–8	91	(2.2)
Grades 9–12	97	(1.0)

Source: Science Teacher Questionnaire, Item 28.a.

Market Share of Commercial Science Textbooks/Programs

	Percent of Classes					
	Grades 1–4		Grades 5–8		Grades 9–12	
1. Addison-Wesley	6	(1.1)	4	(0.8)	7	(0.7)
2. Allyn & Bacon	0	(0.0)	0	(0.0)	4	(0.0)
3. Amsco	0	(0.0)	0	(0.0)	0	(0.0)
4. Delta Education	1	(0.0)	1	(0.0)	0	(0.0)
5. Ginn	0	(0.0)	0	(0.0)	0	(0.0)
6. Glencoe	0	(0.0)	2	(0.0)	1	(0.0)
7. Globe	0	(0.0)	1	(0.0)	1	(0.0)
8. Harcourt, Brace & Jovanovich	3	(0.4)	4	(0.8)	6	(0.8)
9. Harper & Row	0	(0.0)	0	(0.0)	1	(0.0)
10. D.C. Heath	3	(1.2)	4	(0.9)	8	(1.5)
11. Holt, Rinehart, Winston	4	(1.2)	10	(2.0)	20	(2.0)
12. Houghton Mifflin	0	(0.1)	0	(0.0)	1	(0.4)
13. Kendall Hunt	1	(0.0)	0	(0.0)	3	(0.0)
14. Laidlaw Brothers	1	(0.0)	1	(0.0)	0	(0.0)
15. Little, Brown	0	(0.0)	0	(0.0)	0	(0.0)
16. Macmillan	3	(1.5)	3	(0.7)	1	(0.4)
17. McGraw Hill	2	(0.0)	1	(0.0)	1	(0.0)
18. Merrill	11	(2.2)	20	(2.3)	18	(2.5)
19. Prentice Hall	0	(0.0)	18	(3.4)	18	(1.5)
20. Scott, Foresman	32	(2.9)	13	(1.5)	2	(0.6)
21. Silver, Burdett, & Ginn	29	(2.4)	18	(2.3)	2	(0.7)
22. Wiley	0	(0.0)	0	(0.0)	1	(0.0)
23. [OTHER]	1	(0.5)	2	(1.0)	3	(0.7)
24. Abeka	2	(0.0)	1	(0.0)	0	(0.0)
25. Benjamin, Cumm	0	(0.0)	0	(0.0)	1	(0.0)
26. Mosby	0	(0.0)	0	(0.0)	1	(0.0)
27. Optical Data	1	(0.0)	1	(0.0)	0	(0.0)
28. Saunders	0	(0.0)	0	(0.0)	2	(0.0)

Source: Science Teacher Questionnaire, Item 28.b.

Publication Year of Science Textbooks/Programs

	Percent of Classes					
	Grades 1-4		Grades 5-8		Grades 9-12	
1979 or earlier	2	(0.7)	2	(1.1)	3	(0.4)
1980 - 1984	16	(2.7)	10	(1.5)	11	(0.8)
1985 - 1989	59	(4.3)	62	(3.4)	57	(2.9)
1990 or later	23	(4.8)	25	(2.2)	29	(1.8)

Source: Science Teacher Questionnaire, Item 29.

Percentage of Science Textbooks/Programs Covered During the Course*

	Percent of Classes					
	Grades 1–4		Grades 5–8		Grades 9–12	
Less than 25 percent	10	(2.6)	9	(1.7)	3	(0.8)
25–49 percent	17	(3.7)	19	(2.0)	16	(2.3)
50–74 percent	20	(2.8)	30	(3.3)	36	(1.8)
75–90 percent	30	(2.4)	33	(3.7)	37	(2.7)
More than 90 percent	22	(3.3)	10	(1.5)	8	(1.1)

* Only classes using commercially published textbooks/programs were included in these analyses.
Source: Science Teacher Questionnaire, Item 30.

Teachers' Perceptions of the Quality of Textbooks/ Programs Used in Science Classes*

	Percent of Classes					
	Grades 1–4		Grades 5–8		Grades 9–12	
Very poor	3	(0.8)	3	(0.5)	2	(0.5)
Poor	8	(1.4)	5	(1.1)	4	(0.4)
Fair	27	(2.5)	23	(2.3)	14	(2.0)
Good	38	(3.4)	30	(1.8)	36	(2.0)
Very good	18	(1.8)	29	(2.6)	33	(2.5)
Excellent	7	(1.4)	10	(3.5)	11	(1.1)

* Only classes using commercially published textbooks/programs were included in these analyses.
Source: Science Teacher Questionnaire, Item 31.

Amount of Homework Assigned in Science Classes per Week

	Percent of Classes					
	Grades 1–4		Grades 5–8		Grades 9–12	
0–30 minutes	82	(2.1)	33	(2.9)	12	(1.4)
31–60 minutes	12	(2.4)	40	(2.9)	23	(2.0)
61–90 minutes	6	(2.2)	19	(2.1)	32	(2.3)
91–120 minutes	0	(0.2)	5	(1.1)	17	(1.3)
2–3 hours	0	(0.0)	2	(0.7)	11	(0.9)
More than 3 hours	0	(0.4)	0	(0.3)	5	(0.7)

Source: Science Teacher Questionnaire, Item 32.

Grade 1–4 Science Classes Where Teachers Report Various Types of Activities Are Important in Determining Student Grades

	Percent of Classes							
	Not Important 1		2		3		Very Important 4	
a. Objective tests (e.g., multiple choice, true/false)	32	(1.9)	21	(1.5)	33	(2.2)	14	(1.9)
b. Essay tests	54	(2.5)	23	(2.4)	20	(2.6)	4	(0.8)
c. Hands-on/performance tasks	4	(0.9)	13	(2.6)	36	(3.4)	48	(3.1)
d. Systematic observations of students	4	(1.0)	12	(1.7)	39	(3.3)	46	(2.5)
e. Interviewing students about what they understand	9	(1.3)	17	(2.0)	40	(2.3)	34	(2.9)
f. Homework assignments	39	(1.8)	32	(1.8)	22	(2.2)	7	(1.7)
g. Behavior	14	(2.1)	27	(2.5)	34	(2.6)	26	(3.6)
h. Effort	1	(0.4)	7	(1.4)	38	(2.6)	54	(3.3)
i. Laboratory reports	55	(2.3)	19	(2.6)	21	(2.0)	5	(1.8)
j. Science projects	23	(2.3)	25	(2.7)	37	(2.3)	15	(2.3)
k. Class attendance	25	(3.1)	13	(1.6)	27	(2.3)	34	(3.1)
l. Contribution to small group work	4	(0.9)	9	(1.5)	44	(3.4)	43	(3.8)
m. Participation in whole class discussion	2	(0.6)	6	(1.4)	46	(2.6)	46	(3.2)
n. Individual improvement or progress over past performance	3	(1.1)	9	(1.2)	36	(2.3)	52	(2.3)

Source: Science Teacher Questionnaire, Item 33.

Grade 5–8 Science Classes Where Teachers Report Various Types of Activities Are Important in Determining Student Grades

	Percent of Classes							
	Not Important 1		2		3		Very Important 4	
a. Objective tests (e.g., multiple choice, true/false)	6	(1.3)	15	(2.2)	56	(3.6)	23	(2.5)
b. Essay tests	17	(2.0)	27	(2.5)	43	(3.2)	13	(1.5)
c. Hands-on/performance tasks	5	(0.8)	18	(2.1)	40	(2.8)	37	(2.9)
d. Systematic observations of students	7	(1.3)	21	(1.9)	44	(2.9)	28	(3.0)
e. Interviewing students about what they understand	15	(2.2)	29	(3.0)	37	(3.1)	20	(2.0)
f. Homework assignments	9	(1.8)	29	(2.2)	46	(2.9)	16	(1.8)
g. Behavior	26	(2.6)	26	(2.3)	26	(2.5)	22	(3.2)
h. Effort	4	(0.9)	14	(1.9)	34	(2.9)	49	(3.0)
i. Laboratory reports	14	(1.8)	25	(2.4)	43	(2.8)	17	(1.5)
j. Science projects	10	(1.8)	23	(2.6)	40	(3.2)	26	(2.3)
k. Class attendance	21	(2.1)	21	(1.9)	27	(2.5)	31	(3.4)
l. Contribution to small group work	6	(1.5)	17	(2.1)	43	(3.1)	34	(2.9)
m. Participation in whole class discussion	6	(1.1)	22	(2.7)	43	(3.2)	29	(3.2)
n. Individual improvement or progress over past performance	7	(1.5)	16	(1.6)	41	(3.0)	37	(2.9)

Source: Science Teacher Questionnaire, Item 33.

Grade 9–12 Science Classes Where Teachers Report Various Types of Activities Are Important in Determining Student Grades

	Percent of Classes							
	Not Important 1		2		3		Very Important 4	
a. Objective tests (e.g., multiple choice, true/false)	3	(0.5)	12	(1.7)	45	(2.4)	39	(2.9)
b. Essay tests	20	(2.0)	27	(2.2)	37	(1.7)	16	(1.7)
c. Hands-on/performance tasks	7	(1.1)	28	(2.8)	40	(2.2)	25	(2.0)
d. Systematic observations of students	14	(1.4)	37	(2.0)	36	(2.3)	14	(2.0)
e. Interviewing students about what they understand	28	(1.8)	35	(1.6)	28	(2.1)	10	(1.3)
f. Homework assignments	6	(1.0)	30	(1.9)	47	(2.0)	18	(1.8)
g. Behavior	36	(1.9)	32	(1.3)	20	(1.1)	12	(1.2)
h. Effort	11	(1.3)	29	(2.2)	34	(1.7)	26	(2.0)
i. Laboratory reports	9	(1.7)	23	(2.1)	45	(1.6)	23	(2.0)
j. Science projects	36	(2.0)	29	(1.9)	23	(1.9)	12	(1.4)
k. Class attendance	31	(1.6)	27	(2.6)	22	(2.0)	20	(1.7)
l. Contribution to small group work	17	(1.9)	33	(1.9)	36	(1.5)	14	(1.7)
m. Participation in whole class discussion	18	(2.0)	34	(2.3)	34	(1.9)	13	(2.4)
n. Individual improvement or progress over past performance	20	(2.4)	27	(2.3)	37	(1.7)	17	(1.6)

Source: Science Teacher Questionnaire, Item 33.

Average Length of Science Class and Average Time Spent on Various Classroom Activities

	Average Number of Minutes					
	Grades 1-4		Grades 5-8		Grades 9-12	
Average number of minutes allocated to the most recent science lesson	42	(0.9)	47	(0.6)	52	(0.7)
Average number of minutes spent on:						
(1) Daily routines, interruptions, and non-instructional activities	4	(0.2)	5	(0.3)	5	(0.2)
(2) Whole class lecture/discussions	14	(0.4)	17	(0.5)	22	(0.7)
(3) Individual students reading textbooks, completing worksheets, etc.	9	(0.4)	8	(0.5)	9	(0.4)
(4) Working with hands-on, manipulative, or laboratory materials	11	(0.7)	11	(0.6)	11	(0.8)
(5) Non-laboratory small group work	4	(0.3)	6	(0.5)	5	(0.6)

Source: Science Teacher Questionnaire, Item 34.

Science Classes Participating in Various Activities in Most Recent Lesson

	Percent of Classes					
	Grades 1–4		Grades 5–8		Grades 9–12	
a. Lecture	78	(2.9)	79	(2.6)	86	(2.1)
b. Students completing textbook/worksheet problems	58	(3.1)	59	(2.8)	62	(2.3)
c. Students reading about science	62	(2.6)	51	(3.4)	39	(2.3)
d. Students working in cooperative learning groups where the entire group receives a single grade	51	(3.0)	47	(2.9)	31	(2.1)
e. Student use of calculators	2	(0.8)	6	(1.5)	28	(1.7)
f. Student use of computers	3	(0.6)	4	(0.9)	4	(1.1)
g. Student use of other technologies	15	(2.2)	19	(2.1)	19	(2.2)
h. Test or quiz	12	(1.7)	13	(1.8)	20	(1.9)

Source: Science Teacher Questionnaire, Item 35

Science Class Taught on Most Recent Day of School

	Percent of Classes	
Grades 1–4	62	(2.8)
Grades 5–8	85	(2.2)
Grades 9–12	94	(1.0)

Source: Science Teacher Questionnaire, Item 36.

Gender of Science Teachers

	Percent of Teachers					
	Grades 1–4		Grades 5–8		Grade 9–12	
Male	9	(1.3)	31	(3.3)	66	(3.2)
Female	91	(1.4)	69	(3.4)	34	(3.2)

Source: Science Teacher Questionnaire, Item 37.

Race/Ethnicity of Science Teachers

	Percent of Teachers					
	Grades 1–4		Grades 5–8		Grades 9–12	
White (not of Hispanic origin)	88	(2.2)	89	(2.6)	95	(0.8)
Black (not of Hispanic origin)	6	(1.8)	6	(1.4)	3	(0.4)
Hispanic	5	(1.2)	1	(0.7)	1	(0.3)
American Indian or Alaskan Native	0	(0.3)	0	(0.3)	1	(0.4)
Asian or Pacific Islander	0	(0.3)	3	(1.7)	1	(0.1)

Source: Science Teacher Questionnaire, Item 38.

Age of Science Teachers

	Percent of Teachers					
	Grades 1–4		Grades 5–8		Grades 9–12	
Less than 31 years old	16	(2.3)	11	(1.4)	13	(1.3)
31–40 years old	26	(2.6)	28	(3.2)	23	(2.1)
41–50 years old	40	(2.9)	36	(3.4)	41	(3.0)
51–60 years old	16	(2.4)	22	(3.6)	22	(2.6)
61 years old or over	2	(0.5)	3	(1.4)	2	(0.3)

Source: Science Teacher Questionnaire, Item 39.

Number of Years Prior Teaching Experience of Science Teachers

	Percent of Teachers					
	Grades 1–4		Grades 5–8		Grade 9–12	
0–2 years	13	(2.1)	12	(1.9)	11	(1.2)
3–5 years	10	(1.5)	11	(1.6)	10	(1.1)
6–10 years	15	(1.7)	19	(2.7)	14	(3.1)
11–20 years	43	(2.7)	34	(3.1)	30	(1.9)
21+ years	19	(2.7)	24	(3.1)	35	(2.6)

Source: Science Teacher Questionnaire, Item 40.

Number of Years Prior Science Teaching Experience of Science Teachers

	Percent of Teachers					
	Grades 1–4		Grades 5–8		Grades 9–12	
0–2 years	17	(2.2)	20	(2.4)	15	(1.4)
3–5 years	14	(1.9)	12	(1.5)	11	(1.0)
6–10 years	20	(2.2)	25	(3.4)	17	(3.3)
11–20 years	34	(2.8)	25	(3.0)	32	(2.8)
21 + years	15	(2.4)	19	(2.7)	25	(2.3)

Source: Science Teacher Questionnaire, Item 41.

Section Four

Science Program Questionnaire

Science Program Questionnaire

Tables

Form Approval
OMB No: 3145-0142
Expires: Dec. 31, 1993

NATIONAL SCIENCE FOUNDATION
1993 National Survey of Science and Mathematics Education

Science Program Questionnaire

How to Complete the Questionnaire

You have been selected to answer questions about science instruction in your school. Most of the questions instruct you to "circle one" answer or "circle all that apply". For a few questions, you are asked to write in your answer on the line provided. If you have questions about the study or any items in the questionnaire, call us toll-free at 1-800-598-2888.

About the Survey

The 1993 National Survey of Science and Mathematics Education is supported by the National Science Foundation and is the third in a series. It is being conducted by Horizon Research, Inc., under the direction of Dr. Iris R. Weiss. Data collection is the responsibility of CODA, a survey research firm in Silver Spring, Md. The study has been endorsed by the American Federation of Teachers, the National Catholic Education Association, the National Council of Teachers of Mathematics, the National Education Association, and the National Science Teachers Association.

Approximately 6,000 teachers from 1,200 schools throughout the country have been selected for the survey, which is designed to collect information about science and mathematics education in grades 1-12. Its purpose is to provide the education community with current information about science and mathematics education and to identify trends in the areas of teacher education and experience, course offerings, curriculum and instruction, and the availability and use of equipment.

The 1,200 schools were randomly selected for the survey from the Quality Education Data (QED) database. Last June, Chief State School Officers and district superintendents were notified about the survey. In September, school principals were sent a pre-survey information booklet, requesting the names of all science and mathematics teachers. From these lists, a national sample of teachers was selected to receive science or mathematics questionnaires. Questionnaires are also being sent to the science and mathematics department representatives at each school. Teacher questionnaires are also being sent to all winners (1983 - 1992) of the National Science Foundation's Presidential Awards for Excellence in Science and Mathematics Teaching.

All survey data received will be kept strictly confidential and will be reported only in aggregate form, such as by grade or region of the country. No information identifying individual states, districts, schools or teachers will be released. Each participating school will receive a copy of the study's results in the spring of 1994.

Information About Your Participation

Public reporting burden for this collection of information is estimated to average 15 minutes per response. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Herman Fleming, National Science Foundation, 1800 G Street - NW, Washington, DC 20550 and to the Office of Management and Budget, Paperwork Reduction Project, OMB #3145-0142, Washington, DC 20503.

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

1993 National Survey of Science and Mathematics Education
c/o CODA
1400 Spring Street - Suite 150
Silver Spring, MD 20910

Science Program Questionnaire

1. Indicate the extent to which each of the following programs/practices is currently being implemented **in your school.**

(CIRCLE ONE ON EACH LINE.)

		Not used			Used extensively	Don't know/ Not applicable
a.	School-based management	1	2	3	4	8
b.	Common daily planning period for members of the science department	1	2	3	4	8
c.	Common work space for members of the science department	1	2	3	4	8
d.	Interdisciplinary teams of teachers who share the same students (e.g., school within a school)	1	2	3	4	8
e.	Students assigned to science classes by ability	1	2	3	4	8
f.	Independent study projects for credit in science	1	2	3	4	8
g.	Emphasis on problem solving, reasoning skills in science	1	2	3	4	8
h.	Use of computers to solve science problems	1	2	3	4	8
i.	Hands-on/performance assessment in science classes	1	2	3	4	8
j.	Integration of science and mathematics instruction	1	2	3	4	8
k.	Integration of science and language arts instruction	1	2	3	4	8
l.	Use of vocational/technical applications in science instruction	1	2	3	4	8
m.	Science content changes recommended by AAAS' Project 2061 (*Science for All Americans*)	1	2	3	4	8
n.	Science content changes recommended by NSTA's Scope, Sequence, and Coordination Project (*SS&C Content Core*)	1	2	3	4	8
o.	Elementary students pulled out from self-contained classes for remedial instruction in science	1	2	3	4	8
p.	Elementary students pulled out from self-contained classes for enrichment in science	1	2	3	4	8
q.	Elementary students receiving instruction from science specialists **in addition to** their regular teacher	1	2	3	4	8
r.	Elementary students receiving instruction from science specialists **instead of** their regular teacher	1	2	3	4	8
s.	Science courses offered by telecommunications	1	2	3	4	8
t.	Students going to another K - 12 school for science courses	1	2	3	4	8
u.	Students going to a college or university for science courses	1	2	3	4	8

2. Does your school include secondary students (grades 7 or higher)?

Yes ..... 1 *(CONTINUE WITH QUESTION 3.)*

No ..... 2 *(SKIP TO QUESTION 8.)*

3. 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 blue "List of Course Titles.")

GRADES 7 - 8

Current number of sections	CODE	COURSE CATEGORY
_____	108	Life Science, 7 - 8
_____	109	Earth Science, 7 - 8
_____	110	Physical Science, 7 - 8
_____	111	General Science, 7 - 8
_____	112	Coordinated Science, 7 - 8
_____	113	Integrated Science, 7 - 8
		GRADES 7 - 8, Other Science Courses
_____		_____
_____		_____
_____		_____

GRADES 9 - 12

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
_____	135	Earth Science, Other
_____	136	General Science
_____	137	Environmental Science
_____	138	Science, Technology, Society
_____	139	Coordinated Science
_____	140	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.

4. Please give the code number of any science courses offered this year that will not be offered next year.

CHECK BOX, IF ALL WILL BE OFFERED ☐

OR

List code number of courses that will not be offered:

_____ _____ _____ _____ _____

5. a. Are 7th grade students (or those in the lowest secondary grade in this school) assigned to science courses, or sections within courses, by ability levels?

Yes ..... 1 *(CONTINUE WITH QUESTION 5.b.)*

No ..... 2 *(SKIP TO QUESTION 6.)*

b. Please list the **titles of the science course(s)** that low ability, average ability, and high ability students would be likely to take in their first year in this school.

Low ability students: 1) _____ 2) _____ 3) _____

Average ability students: 1) _____ 2) _____ 3) _____

High ability students: 1) _____ 2) _____ 3) _____

6. How many minutes long is a typical class period?

_____ MINUTES

7. In many schools science classes meet for five class periods per week. Are any of the science courses in this school organized in some other way? (e.g., meet only three class periods per week or have a double class period once a week for laboratories)

YES ..... 1 *(PLEASE DESCRIE BELOW)*

NO ..... 2 *(GO TO QUESTION 8.)*

Course Title	Number of days/week	Length of class period
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

8. How much money was spent on science equipment and consumable supplies in this school during the most recently completed budget year? (If you don't know the exact amounts, please provide your best estimates.)

a. Science equipment (non-consumable, non-perishable items such as microscopes, scales, etc.)

$_____ CHECK BOX, IF ESTIMATE ☐

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

$_____ CHECK BOX, IF ESTIMATE ☐

c. Science software

$_____ CHECK BOX, IF ESTIMATE ☐

9. How much input does each of the following have in decisions about science equipment/materials purchases?

(CIRCLE ONE ON EACH LINE.)

		No input	Little input	Moderate input	Heavy input	Complete control	Not applicable
a.	State	1	2	3	4	5	8
b.	Central office	1	2	3	4	5	8
c.	Principal	1	2	3	4	5	8
d.	Science department chair	1	2	3	4	5	8
e.	Science department as a whole	1	2	3	4	5	8
f.	Individual science teachers	1	2	3	4	5	8

NOTE: **Questions 10 - 14 are 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 check here ☐ and skip to Question 15.**

10. In your opinion, how great a problem is each of the following for science instruction **in your school as a whole?**

(CIRCLE ONE 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
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
r.	State/district testing policies	1	2	3

11. Indicate your sex: *(CIRCLE ONE.)*

Male 1

Female 2

12. Are you: *(CIRCLE ONE.)*

White (not of Hispanic origin)	1
Black (not of Hispanic origin)	2
Hispanic (Mexican, Puerto Rican, Cuban, Central or South American, or other Hispanic culture or origin)	3
American Indian or Alaskan Native	4
Asian or Pacific Islander	5

13. In what year were you born?

19___

14. How many years have you taught in grades K-12 prior to this school year?

_____ YEARS

15. When did you complete this questionnaire?

_____/_____/_____
MONTH DAY YEAR

16. What is your title? *(CIRCLE ONE.)*

Science department chair	1
Science lead teacher	2
Teacher	3
Principal	4
Assistant principal	5
Other (SPECIFY)	6

_____

Thank you for your help!

☐ Check here if you are the person originally chosen to complete this questionnaire.

If not, please fill in your name here: _____

Please return the questionnaire to us in the postage-paid envelope:

1993 National Survey of Science and Mathematics Education
c/o CODA
1400 Spring Street - Suite 150
Silver Spring, MD 20910

Implementation of Various Programs/Practices in Elementary Schools

	Percent of Schools									
	Not Used 1		2		3		Used Extensively 4		Don't Know/Not Applicable	
a. School-based management	18	(3.6)	20	(4.0)	26	(3.7)	23	(4.0)	13	(2.5)
b. Common daily planning period for members of the science department	56	(3.6)	7	(1.4)	6	(2.0)	6	(1.4)	25	(3.0)
c. Common work space for members of the science department	52	(3.6)	8	(1.6)	7	(2.3)	4	(1.0)	28	(3.3)
d. Interdisciplinary teams of teachers who share the same students (e.g., school within a school)	46	(4.4)	12	(2.1)	15	(2.6)	17	(3.2)	10	(2.5)
e. Students assigned to science classes by ability	82	(3.1)	4	(1.2)	5	(2.0)	1	(0.8)	8	(1.5)
f. Independent study projects for credit in science	39	(3.7)	25	(3.8)	23	(3.3)	4	(1.5)	9	(1.8)
g. Emphasis on problem solving, reasoning skills in science	0	(0.2)	17	(3.3)	57	(5.7)	25	(4.1)	0	(0.0)
h. Use of computers to solve science problems	35	(3.1)	49	(3.1)	11	(2.3)	3	(1.0)	4	(1.6)
i. Hands-on/performance assessment in science classes	5	(2.1)	29	(3.2)	42	(2.7)	24	(3.1)	0	(0.0)
j, Integration of science and mathematics instruction	9	(2.3)	41	(4.6)	39	(5.2)	11	(2.2)	1	(1.1)
k. Integration of science and language arts instruction	12	(3.1)	41	(4.3)	37	(5.1)	10	(2.0)	0	(0.0)
l. Use of vocational/technical applications in science instruction	33	(4.5)	39	(4.5)	17	(6.0)	1	(0.9)	10	(2.5)
m. Science content changes recommended by AAAS' Project 2061 (*Science for All Americans*)	29	(3.5)	11	(2.3)	8	(1.9)	2	(1.0)	50	(4.5)
n. Science content changes recommended by NSTA's Scope, Sequence, and Coordination Project (SS&C *Content Core*)	27	(3.8)	15	(3.0)	7	(1.7)	2	(1.1)	49	(4.7)
o. Elementary students pulled out from self-contained classes for remedial instruction in science	83	(3.9)	6	(2.2)	2	(0.5)	2	(1.0)	7	(1.9)
p. Elementary students pulled out from self-contained classes for enrichment in science	66	(5.3)	16	(3.5)	7	(1.8)	4	(1.4)	7	(3.3)
q. Elementary students receiving instruction from science specialists in addition to their regular teacher	72	(3.1)	16	(3.1)	5	(1.1)	3	(1.1)	4	(1.4)
r. Elementary students receiving instruction from science specialists instead of their regular teacher	82	(2.8)	5	(0.8)	3	(1.0)	4	(1.0)	5	(1.4)
s. Science courses offered by telecommunications	73	(5.2)	15	(2.8)	5	(1.1)	0	(0.3)	7	(1.6)
t. Students going to another K–12 school for science courses	89	(3.4)	2	(1.3)	1	(0.5)	0	(0.0)	8	(2.2)
u. Students going to a college or university for science courses	84	(3.5)	5	(1.2)	1	(0.5)	0	(0.0)	11	(2.8)

Source: Science Program Questionnaire, Item 1.

Implementation of Various Programs/Practices in Middle Schools

	Percent of Schools									
	Not Used 1		2		3		Used Extensively 4		Don't Know/Not Applicable	
a. School-based management	23	(4.3)	14	(2.6)	24	(3.9)	21	(4.2)	18	(3.6)
b. Common daily planning period for members of the science department	58	(4.9)	5	(1.4)	7	(1.7)	13	(2.2)	17	(5.8)
c. Common work space for members of the science department	39	(4.8)	16	(3.1)	10	(2.1)	13	(2.4)	24	(6.0)
d. Interdisciplinary teams of teachers who share the same students (e.g., school within a school)	42	(4.5)	16	(3.1)	15	(3.2)	18	(3.1)	9	(3.9)
e. Students assigned to science classes by ability	69	(5.1)	12	(2.0)	15	(3.2)	5	(1.4)	0	(0.0)
f. Independent study projects for credit in science	45	(4.0)	26	(3.6)	24	(3.6)	3	(1.1)	1	(0.9)
g. Emphasis on problem solving, reasoning skills in science	0	(0.2)	14	(3.2)	52	(5.0)	34	(4.6)	0	(0.0)
h. Use of computers to solve science problems	34	(4.5)	50	(4.8)	12	(3.2)	3	(1.1)	1	(1.1)
i. Hands-on/performance assessment in science classes	4	(0.8)	27	(3.8)	53	(4.4)	17	(2.9)	0	(0.0)
j. Integration of science and mathematics instruction	17	(3.8)	38	(5.0)	39	(5.4)	7	(2.0)	0	(0.0)
k. Integration of science and language arts instruction	25	(4.9)	43	(6.3)	27	(5.6)	5	(1.4)	0	(0.1)
l. Use of vocational/technical applications in science instruction	26	(4.1)	48	(4.8)	22	(5.8)	2	(0.7)	2	(1.0)
m. Science content changes recommended by AAAS' Project 2061 (*Science for All Americans*)	35	(4.3)	14	(3.3)	9	(2.3)	2	(0.9)	40	(6.2)
n. Science content changes recommended by NSTA's Scope, Sequence, and Coordination Project (SS&C *Content Core*)	33	(4.5)	15	(3.3)	10	(2.4)	2	(0.9)	40	(6.3)
o. Elementary students pulled out from self-contained classes for remedial instruction in science	61	(5.6)	9	(2.7)	2	(0.8)	2	(1.3)	26	(3.0)
p. Elementary students pulled out from self-contained classes for enrichment in science	49	(5.4)	10	(2.9)	8	(2.7)	1	(0.5)	31	(5.2)
q. Elementary students receiving instruction from science specialists in addition to their regular teacher	63	(4.5)	10	(2.3)	4	(1.0)	2	(1.0)	21	(2.9)
r. Elementary students receiving instruction from science specialists instead of their regular teacher	65	(5.3)	4	(1.2)	3	(1.1)	4	(1.4)	23	(2.7)
s. Science courses offered by telecommunications	83	(5.4)	10	(1.9)	2	(0.4)	0	(0.2)	6	(1.9)
t. Students going to another K–12 school for science courses	87	(5.5)	1	(0.3)	1	(0.9)	1	(0.5)	11	(2.8)
u. Students going to a college or university for science courses	76	(5.5)	10	(2.1)	2	(0.9)	1	(0.5)	12	(3.0)

Source: Science Program Questionnaire, Item 1.

Implementation of Various Programs/Practices in High Schools

	Percent of Schools									
	Not Used 1		2		3		Used Extensively 4		Don't Know/Not Applicable	
a. School-based management	21	(3.3)	16	(1.7)	31	(2.8)	14	(2.0)	19	(3.3)
b. Common daily planning period for members of the science department	59	(3.4)	9	(1.8)	8	(2.0)	19	(3.2)	5	(2.3)
c. Common work space for members of the science department	32	(4.4)	22	(2.5)	21	(3.3)	19	(3.2)	6	(2.6)
d. Interdisciplinary teams of teachers who share the same students (e.g., school within a school)	69	(2.5)	20	(2.8)	6	(1.7)	2	(0.6)	3	(0.9)
e. Students assigned to science classes by ability	38	(3.9)	21	(2.6)	26	(2.0)	15	(2.1)	1	(0.5)
f. Independent study projects for credit in science	53	(3.2)	26	(2.3)	15	(3.2)	3	(0.9)	4	(1.8)
g. Emphasis on problem solving, reasoning skills in science	1	(0.5)	11	(2.5)	51	(2.2)	36	(2.8)	1	(0.9)
h. Use of computers to solve science problems	27	(4.3)	44	(3.0)	21	(4.1)	7	(2.0)	0	(0.3)
i. Hands-on/performance assessment in science classes	4	(0.9)	30	(2.6)	43	(2.3)	22	(3.3)	0	(0.1)
j. Integration of science and mathematics instruction	23	(2.5)	34	(3.0)	31	(3.5)	12	(2.9)	1	(0.4)
k. Integration of science and language arts instruction	40	(3.4)	39	(3.6)	15	(3.0)	6	(2.4)	1	(0.3)
l. Use of vocational/technical applications in science instruction	25	(2.3)	58	(2.4)	14	(1.7)	3	(1.1)	1	(0.4)
m. Science content changes recommended by AAAS' Project 2061 (*Science for All Americans*)	44	(3.3)	19	(1.6)	8	(1.3)	3	(2.0)	26	(2.5)
n. Science content changes recommended by NSTA's Scope, Sequence, and Coordination Project (SS&C *Content Core*)	41	(3.0)	22	(2.0)	10	(2.2)	1	(0.4)	26	(2.5)
o. Elementary students pulled out from self-contained classes for remedial instruction in science	35	(3.2)	7	(1.8)	3	(1.0)	3	(1.7)	53	(3.9)
p. Elementary students pulled out from self-contained classes for enrichment in science	28	(3.4)	10	(2.4)	7	(1.3)	3	(1.4)	52	(4.2)
q. Elementary students receiving instruction from science specialists in addition to their regular teacher	36	(3.1)	12	(2.8)	4	(1.0)	2	(0.6)	47	(3.8)
r. Elementary students receiving instruction from science specialists instead of their regular teacher	43	(3.4)	4	(1.2)	2	(0.9)	3	(1.5)	48	(3.3)
s. Science courses offered by telecommunications	75	(2.2)	11	(1.5)	3	(0.6)	0	(0.2)	10	(2.5)
t. Students going to another K–12 school for science courses	80	(1.8)	4	(0.8)	1	(0.5)	1	(0.8)	13	(1.9)
u. Students going to a college or university for science courses	63	(2.9)	23	(1.8)	5	(1.0)	1	(0.8)	9	(2.4)

Source: Science Program Questionnaire, Item 1.

Schools Offering Various Grade 7–8 Science Courses

	Percent of Schools	
Life Science, 7-8	68	(5.5)
Earth Science, 7-8	53	(4.9)
Physical Science, 7-8	36	(4.8)
General Science, 7-8	18	(3.6)
Coordinated Science, 7-8	17	(5.9)
Integrated Science, 7-8	10	(3.7)

Source: Science Program Questionnaire, Item 3.

Schools Offering Various Grade 9–12 Science Courses

	Percent of Schools	
1st Year Biology	90	(3.7)
1st Year Applied Biology	21	(2.1)
2nd Year AP Biology	20	(2.5)
2nd Year Advanced Biology	45	(3.2)
2nd Year Other Biology	18	(2.3)
1st Year Chemistry	86	(3.6)
1st Year Applied Chemistry	13	(1.9)
2nd Year AP Chemistry	16	(1.5)
2nd Year Advanced Chemistry	14	(1.5)
1st Year Physics	80	(4.6)
1st Year Applied Physics	8	(1.4)
2nd Year AP Physics	9	(1.0)
2nd Year Advanced Physics	5	(1.0)
Physical Science	42	(3.1)
Astronomy/Space Science	6	(1.1)
Geology	4	(1.3)
Meteorology	1	(0.5)
Oceanography/Marine Science	6	(0.9)
1st Year Earth Science	31	(3.7)
1st Year Applied Earth Science	2	(0.3)
2nd Year Advanced Earth Science	1	(0.6)
Other Earth Science	2	(1.3)
General Science	27	(3.3)
Environmental Science	22	(2.2)
Science, Technology, and Society	5	(1.2)
Coordinated Science	2	(0.6)
Integrated Science	4	(1.2)

Source: Science Program Questionnaire, Item 3.

Schools Offering All of Current Year's Classes Next Year

	Percent of Schools	
Elementary Schools	90	(1.8)
Middle Schools	91	(1.9)
High Schools	80	(2.5)

Source: Science Program Questionnaire, Item 4.

Schools Assigning Students to Classes by Ability Level

	Percent of Schools					
	Elementary Schools		Middle Schools		High Schools	
Yes	3	(0.4)	11	(1.4)	34	(2.9)
No	97	(4.6)	90	(2.6)	66	(2.6)

Source: Science Program Questionnaire, Item 5.

Average Length of Science Class Period

	Minutes per Class Session	
Elementary School	13	(2.1)
Middle School	45	(0.8)
High School	50	(0.4)

Source: Science Program Questionnaire, Item 6.

Schools with Science Classes Meeting Other than Five Class Periods per Week

	Percent of Schools	
Elementary School	27	(3.5)
Middle School	19	(5.6)
High School	23	(1.7)

Source: Science Program Questionnaire, Item 7.

Median Amount of Money Spent by Schools on Science Equipment and Consumable Supplies

	Dollar Amount Spent per Year		
	Elementary Schools	Middle Schools	High Schools
Science equipment (non-consumable, non-perishable items such as microscopes, scales, etc.)	300	500	1,100
Consumable science supplies (materials that must continually be replenished such as chemicals, glassware, batteries, etc.)	150	300	1,000
Science software	40	50	125

Source: Science Program Questionnaire, Item 8.

Input of Each Factor on Science Equipment/Materials Purchasing Decisions in Elementary Schools

	Percent of Schools											
	No Input		Little Input		Moderate Input		Heavy Input		Complete Control		Not Applicable	
a. State	38	(2.8)	28	(4.0)	10	(2.4)	9	(2.4)	1	(0.4)	14	(3.5)
b. Central office	22	(3.6)	21	(3.4)	17	(2.8)	21	(2.9)	8	(2.5)	11	(3.2)
c. Principal	5	(1.0)	17	(3.2)	41	(3.5)	33	(4.5)	4	(1.8)	0	(0.0)
d. Science department chair	6	(1.7)	3	(1.4)	10	(2.2)	34	(5.9)	2	(0.8)	44	(5.2)
e. Science department as a whole	9	(3.5)	7	(3.2)	14	(2.8)	25	(4.0)	3	(0.9)	42	(3.9)
f. Individual science teachers	8	(1.7)	12	(3.3)	19	(3.6)	52	(3.9)	9	(1.5)	0	(0.0)

Source: Science Program Questionnaire, Item 9.

Input of Each Factor on Science Equipment/Materials Purchasing Decisions in Middle Schools

	Percent of Schools											
	No Input		Little Input		Moderate Input		Heavy Input		Complete Control		Not Applicable	
a. State	53	(4.8)	25	(3.7)	7	(1.4)	3	(1.0)	1	(0.6)	12	(2.6)
b. Central office	32	(6.4)	23	(4.0)	17	(3.1)	15	(3.6)	4	(1.3)	10	(2.8)
c. Principal	10	(2.0)	17	(2.9)	38	(5.9)	29	(5.2)	6	(2.7)	0	(0.0)
d. Science department chair	5	(1.5)	6	(1.2)	12	(2.3)	45	(5.4)	4	(1.3)	28	(3.4)
e. Science department as a whole	10	(5.6)	7	(1.6)	15	(3.2)	41	(5.1)	6	(1.7)	21	(3.5)
f. Individual science teachers	2	(1.0)	8	(2.6)	16	(2.9)	62	(4.0)	13	(2.5)	0	(0.0)

Source: Science Program Questionnaire, Item 9.

Input of Each Factor on Science Equipment/Materials Purchasing Decisions in High Schools

	Percent of Schools											
	No Input		Little Input		Moderate Input		Heavy Input		Complete Control		Not Applicable	
a. State	57	(3.0)	19	(2.7)	9	(1.7)	4	(1.4)	0	(0.0)	11	(2.6)
b. Central office	28	(3.6)	26	(2.1)	18	(2.4)	17	(2.3)	5	(1.4)	7	(2.1)
c. Principal	17	(2.4)	28	(2.9)	29	(3.0)	21	(2.3)	6	(1.5)	0	(0.0)
d. Science department chair	3	(0.7)	9	(1.2)	23	(2.0)	44	(3.7)	6	(1.6)	15	(2.4)
e. Science department as a whole	4	(1.6)	8	(1.9)	22	(2.2)	45	(3.9)	13	(2.4)	9	(2.3)
f. Individual science teachers	2	(1.0)	5	(1.5)	19	(3.0)	61	(3.5)	14	(2.5)	0	(0.0)

Source: Science Program Questionnaire, Item 9.

Elementary School Science Program Representatives' Perceptions of Problems for Science Instruction

	Percent of Programs					
	Not a Problem		Somewhat of a Problem		Serious Problem	
a. Facilities	32	(3.4)	41	(3.7)	26	(3.4)
b. Funds for purchasing equipment and supplies	14	(2.3)	39	(3.8)	47	(5.3)
c. Materials for individualizing instruction	17	(3.1)	47	(4.3)	36	(4.3)
d. Access to computers	33	(4.4)	45	(6.1)	23	(3.8)
e. Appropriate computer software	15	(2.7)	46	(3.7)	40	(4.7)
f. Student interest in science	70	(4.6)	27	(4.5)	3	(0.9)
g. Student reading abilities	50	(4.6)	36	(4.8)	14	(3.2)
h. Student absences	83	(2.1)	16	(2.1)	1	(0.7)
i. Teacher interest in science	62	(4.9)	35	(4.8)	3	(1.4)
j. Teacher preparation to teach science	44	(5.8)	44	(6.2)	12	(1.7)
k. Time to teach science	45	(5.4)	35	(4.5)	19	(3.7)
l. Opportunities for teachers to share ideas	37	(5.5)	34	(4.1)	29	(3.5)
m. In-service education opportunities	31	(4.2)	52	(3.7)	18	(3.4)
n. Interruptions for announcements, assemblies, other school activities	71	(4.3)	22	(3.9)	7	(1.8)
o. Large classes	60	(4.6)	28	(4.0)	12	(1.6)
p. Maintaining discipline	75	(4.2)	20	(4.4)	6	(1.6)
q. Parental support for education	60	(4.9)	34	(5.1)	7	(1.6)
r. State/district testing policies	64	(4.0)	24	(3.2)	11	(2.4)

Source: Science Program Questionnaire, Item 10.

Middle School Science Program Representatives' Perceptions of Problems for Science Instruction

	Percent of Programs					
	Not a Problem		Somewhat of a Problem		Serious Problem	
a. Facilities	33	(4.6)	44	(5.6)	23	(5.2)
b. Funds for purchasing equipment and supplies	17	(2.9)	43	(5.0)	40	(5.9)
c. Materials for individualizing instruction	19	(3.2)	46	(5.6)	36	(5.9)
d. Access to computers	23	(4.1)	42	(5.2)	35	(4.3)
e. Appropriate computer software	14	(3.5)	44	(5.2)	43	(5.8)
f. Student interest in science	49	(5.5)	43	(6.1)	8	(1.8)
g. Student reading abilities	33	(5.1)	47	(5.5)	21	(5.7)
h. Student absences	71	(3.7)	25	(3.3)	4	(0.7)
i. Teacher interest in science	83	(3.5)	16	(3.5)	1	(0.6)
j. Teacher preparation to teach science	70	(5.5)	27	(5.8)	4	(1.5)
k. Time to teach science	61	(5.5)	34	(5.5)	5	(1.7)
l. Opportunities for teachers to share ideas	44	(4.8)	43	(4.6)	14	(2.5)
m. In-service education opportunities	34	(4.5)	56	(5.3)	10	(2.3)
n. Interruptions for announcements, assemblies, other school activities	64	(5.2)	28	(4.9)	8	(1.9)
o. Large classes	54	(5.5)	31	(4.1)	15	(2.2)
p. Maintaining discipline	72	(3.8)	22	(3.1)	6	(1.3)
q. Parental support for education	54	(5.0)	38	(4.4)	8	(1.6)
r. State/district testing policies	69	(4.3)	26	(3.6)	5	(1.5)

Source: Science Program Questionnaire, Item 10.

High School Science Program Representatives' Perceptions of Problems for Science Instruction

	Percent of Programs					
	Not a Problem		Somewhat of a Problem		Serious Problem	
a. Facilities	37	(3.2)	45	(3.7)	18	(1.9)
b. Funds for purchasing equipment and supplies	22	(3.7)	49	(2.7)	30	(3.7)
c. Materials for individualizing instruction	22	(2.9)	48	(3.8)	30	(2.4)
d. Access to computers	23	(2.3)	39	(3.9)	39	(4.3)
e. Appropriate computer software	15	(3.6)	46	(3.7)	40	(3.9)
f. Student interest in science	38	(3.7)	45	(4.0)	17	(1.3)
g. Student reading abilities	22	(3.6)	59	(4.1)	20	(2.2)
h. Student absences	42	(2.7)	46	(2.3)	12	(1.3)
i. Teacher interest in science	90	(2.3)	9	(2.2)	1	(0.9)
j. Teacher preparation to teach science	82	(2.8)	16	(2.2)	3	(1.1)
k. Time to teach science	55	(4.6)	36	(3.3)	9	(2.0)
l. Opportunities for teachers to share ideas	28	(2.6)	51	(3.0)	21	(2.5)
m. In-service education opportunities	37	(4.4)	46	(3.5)	17	(2.7)
n. Interruptious for announcements, assemblies, other school activities	43	(4.2)	38	(3.3)	19	(3.5)
o. Large classes	43	(3.1)	38	(2.5)	20	(2.6)
p. Maintaining discipline	58	(3.5)	33	(2.8)	10	(1.5)
q. Parental support for education	40	(4.7)	44	(3.3)	16	(2.1)
r. State/district testing policies	63	(2.8)	29	(2.3)	9	(2.1)

Source: Science Program Questionnaire, Item I0.

Gender of Science Program Representatives

	Percent of Representatives					
	Elementary Schools		Middle Schools		High Schools	
Male	29	(3.3)	45	(5.7)	69	(4.6)
Female	72	(3.2)	55	(5.7)	31	(4.6)

Source: Science Program Questionnaire, Item 11.

Race/Ethnicity of Science Program Representatives

	Percent of Representatives					
	Elementary Schools		Middle Schools		High Schools	
White (not of Hispanic origin)	95	(1.7)	96	(1.1)	95	(1.6)
Black (not of Hispanic origin)	2	(1.0)	2	(0.4)	3	(1.0)
Hispanic (Mexican, Puerto Rican, Cuban, Central or South American, or other Hispanic culture or origin)	2	(0.7)	1	(0.3)	1	(0.3)
American Indian or Alaskan Native	0	(0.2)	1	(0.7)	1	(0.6)
Asian of Pacific Islander	0	(0.3)	0	(0.0)	0	(0.3)

Source: Science Program Questionnaire, Item 12.

Age of Science Program Representatives

	Percent of Representatives					
	Elementary Schools		Middle Schools		High Schools	
Under 31 years old	13	3.6	11	(3.8)	6	(2.1)
31–40 years old	27	3.7	25	(5.2)	19	(3.3)
41–50 years old	43	5.7	47	(6.5)	49	(4.1)
Over 50 years old	17	3.1	17	(3.0)	26	(3.5)

Source: Science Program Questionnaire, Item 13.

Prior Years Teaching Experience of Science Program Representatives

	Percent of Representatives					
	Elementary Schools		Middle Schools		High Schools	
0–2 years	4	(2.0)	7	(3.3)	6	(2.1)
3–5 years	8	(2.3)	5	(2.6)	4	(1.3)
6–10 years	26	(4.0)	26	(5.2)	18	(3.0)
11–20 years	41	(5.3)	37	(4.9)	29	(3.1)
21 or more years	21	(2.8)	26	(3.8)	44	(3.4)

Source: Science Program Questionnaire, Item 14.

Title of Science Program Questionnaire Representatives

	Percent of Representatives					
	Elementary Schools		Middle Schools		High Schools	
Science department chair	9	(1.9)	31	(3.7)	60	(4.6)
Science lead teacher	12	(2.0)	9	(1.6)	6	(2.3)
Teacher	52	(4.8)	44	(5.4)	30	(5.3)
Principal	24	(3.4)	14	(4.2)	2	(0.7)
Assistant principal	4	(2.0)	3	(1.2)	3	(1.7)

.Source: Science Program Questionnaire, Item 16.

Section Three

Mathematics Teacher Questionnaire

Mathematics Questionnaire

Tables

Form Approval
OMB No: 3145-0142
Expires: Dec. 31, 1993

NATIONAL SCIENCE FOUNDATION
1993 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 1-800-598-2888.

How to Complete the Questionnaire

Most of the questions instruct you to "circle one" answer or "circle all that apply". For a few questions, you are asked to write in your answer on the line provided.

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 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

Please see the inside cover of this questionnaire for more information about this study. If you have questions about the study or any items in the questionnaire, call us toll-free at 1-800-598-2888.

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

1993 National Survey of Science and Mathematics Education
c/o CODA
1400 Spring Street - Suite 150
Silver Spring, MD 20910

1993 National Survey of Science and Mathematics Education

The 1993 National Survey of Science and Mathematics Education is supported by the National Science Foundation and is the third in a series. It is being conducted by Horizon Research, Inc., under the direction of Dr. Iris R. Weiss. Data collection is the responsibility of CODA, a survey research organization in Silver Spring, Maryland. The study has received endorsements from the following organizations:

American Federation of Teachers (AFT)
National Catholic Education Association (NCEA)
National Council of Teachers of Mathematics (NCTM)
National Education Association (NEA)
National Science Teachers Association (NSTA)

INFORMATION ABOUT YOUR PARTICIPATION

Public reporting burden for this collection of information is estimated to average 30 minutes per response. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Herman Fleming, National Science Foundation, 1800 G Street - NW, Washington, DC 20550 and to the Office of Management and Budget, Paperwork Reduction Project, OMB #3145-0142, Washington, DC 20503.

ABOUT THE SURVEY

Approximately 6,000 teachers from 1,200 schools throughout the country have been selected for the 1993 National Survey of Science and Mathematics Education. The survey is designed to collect information about science and mathematics education in grades 1 - 12. Its purpose is to provide the education community with current information about science and mathematics education and to identify trends in the areas of teacher education and experience, course offerings, curriculum and instruction, and the availability and use of equipment.

The 1,200 schools were randomly selected for the survey from the Quality Education Data (QED) database. In June of last year, Chief State School Officers and district superintendents were notified about the survey. In September, school principals were sent a pre-survey information booklet, requesting the names of all science and mathematics teachers. From these lists, a national sample of teachers was selected to receive science or mathematics questionnaires. In addition, program questionnaires are being sent to science and mathematics department representatives at each school. Teacher questionnaires are also being sent to all winners (1983 - 1992) of the National Science Foundation's Presidential Awards for Excellence in Science and Mathematics Teaching.

All survey data received will be kept strictly confidential and will be reported only in aggregate form, such as by grade level or region of the country. No information identifying individual states, districts, schools or teachers will be released. No identifying information whatsoever will be included in the dataset.

Each participating school will receive a copy of the study's results in the spring of 1994.

SECTION A: TEACHER OPINIONS

1. Please provide your opinion about each of the following statements.

(CIRCLE ONE ON EACH LINE.)

		Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
a.	Students learn best when they study mathematics in the context of a personal or social application	1	2	3	4	5
b.	Students learn mathematics best in classes with students of similar abilities	1	2	3	4	5
c.	Students need to master arithmetic computation before going on to algebra	1	2	3	4	5
d.	Students should be able to use calculators most of the time	1	2	3	4	5
e.	Virtually all students can learn to think mathematically	1	2	3	4	5
f.	The testing program in my state/district dictates what mathematics I teach	1	2	3	4	5
g.	I enjoy teaching mathematics	1	2	3	4	5
h.	I consider myself a "master" mathematics teacher	1	2	3	4	5
i.	I feel supported by colleagues to try out new ideas in teaching mathematics	1	2	3	4	5
j.	I receive little support from the school administration for teaching mathematics	1	2	3	4	5
k.	Mathematics teachers in this school regularly share ideas and materials	1	2	3	4	5
l.	Mathematics teachers in this school regularly observe each other teaching classes as part of sharing and improving instructional strategies	1	2	3	4	5
m.	Activity-based mathematics experiences aren't worth the time and expense for what students learn	1	2	3	4	5
n.	I feel that I have many opportunities to learn new things in my present job	1	2	3	4	5

1. (continued) *(CIRCLE ONE ON EACH LINE.)*

		Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
o.	I am required to follow rules at this school that conflict with my best professional judgment	1	2	3	4	5
p.	Most mathematics teachers in this school contribute actively to making decisions about the mathematics curriculum	1	2	3	4	5
q.	Our guidance department does a good job of assisting students in selecting their mathematics courses	1	2	3	4	5
r.	I have time during the regular school week to work with my peers on mathematics curriculum and instruction	1	2	3	4	5

2. In your opinion, how great a problem is each of the following for **mathematics instruction in your school as a whole?**

(CIRCLE ONE 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 mathematics	1	2	3
g.	Student reading abilities	1	2	3
h.	Student absences	1	2	3
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	1	2	3
r.	State/district testing policies	1	2	3

3. Please rate each of the following in terms of its importance for effective **mathematics** teaching **at the grade levels you teach.**

(CIRCLE ONE ON EACH LINE.)

		Definitely should not be a part of math instruction		Makes no difference		Definitely should be a part of math instruction
a.	Concrete experience before abstract treatments	1	2	3	4	5
b.	Students working in cooperative learning groups	1	2	3	4	5
c.	Emphasis on connections among concepts	1	2	3	4	5
d.	Deeper coverage of fewer mathematics ideas	1	2	3	4	5
e.	Hands-on/manipulative activities	1	2	3	4	5
f.	Applications of mathematics in daily life	1	2	3	4	5
g.	Emphasis on arithmetic computation	1	2	3	4	5
h.	Emphasis on solving real problems	1	2	3	4	5
i.	Emphasis on mathematical reasoning	1	2	3	4	5
j.	Emphasis on writing about mathematics	1	2	3	4	5
k.	Integration of mathematics subjects (e.g., algebra, probability, geometry, etc.) all taught together each year	1	2	3	4	5
l.	Coordination of mathematics with **science**	1	2	3	4	5
m.	Coordination of mathematics with **vocational/ technology education**	1	2	3	4	5
n.	Every student studying mathematics each year	1	2	3	4	5
o.	Taking student preconceptions about a topic into account when planning curriculum and instruction	1	2	3	4	5
p.	Inclusion of performance-based assessment	1	2	3	4	5
q.	Use of computers	1	2	3	4	5
r.	Use of calculators	1	2	3	4	5

SECTION B: TEACHER BACKGROUND

4. 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 levels you teach**, whether or not they are currently included in your curriculum?

(CIRCLE ONE ON EACH LINE.)

		Not well qualified	Adequately qualified	Very well qualified
a.	Estimation	1	2	3
b.	Number sense and numeration	1	2	3
c.	Number systems and number theory	1	2	3
d.	Measurement	1	2	3
e.	Fractions and decimals	1	2	3
f.	Geometry and spatial sense	1	2	3
g.	Functions	1	2	3
h.	Patterns and relationships	1	2	3
i.	Algebra	1	2	3
j.	Trigonometry	1	2	3
k.	Probability and statistics	1	2	3
l.	Discrete mathematics	1	2	3
m.	Conceptual underpinning of calculus	1	2	3
n.	Mathematical structure	1	2	3

5. How well prepared are you to do each of the following?

(CIRCLE ONE ON EACH LINE.)

		Not well prepared	Somewhat prepared	Fairly well prepared	Very well prepared
a.	Present the applications of mathematics concepts	1	2	3	4
b.	Use cooperative learning groups	1	2	3	4
c.	Take into account students' prior conceptions about mathematics when planning curriculum and instruction	1	2	3	4
d.	Use computers as an integral part of mathematics instruction	1	2	3	4
e.	Integrate mathematics with other subject areas	1	2	3	4
f.	Manage a class of students who are using manipulatives	1	2	3	4
g.	Use a variety of assessment strategies	1	2	3	4
h.	Use the textbook as a resource rather than as the primary instructional tool	1	2	3	4
i.	Use calculators as an integral part of mathematics instruction	1	2	3	4

5. (continued) *(CIRCLE ONE ON EACH LINE.)*

		Not well prepared	Somewhat prepared	Fairly well prepared	Very well prepared
j.	Use performance-based assessment	1	2	3	4
k.	Teach groups that are heterogeneous in ability	1	2	3	4
l.	Teach students from a variety of cultural backgrounds	1	2	3	4
m.	Teach students who have limited English proficiency	1	2	3	4
n.	Teach students who have learning disabilities	1	2	3	4
o.	Encourage participation of females in mathematics	1	2	3	4
p.	Encourage participation of minorities in mathematics	1	2	3	4
q.	Involve parents in the mathematics education of their children	1	2	3	4

6. Which of the following college courses have you completed? Include both **semester hour** and **quarter hour courses**, whether graduate or undergraduate level. *(CIRCLE ALL THAT APPLY.)*

MATHEMATICS

Mathematics for elementary school teachers 1
Mathematics for middle school teachers 2
Geometry for elementary/middle school teachers 3
College algebra/trigonometry/elementary functions 4
Calculus 5
Advanced Calculus 6
Differential Equations 7
Geometry 8
Probability and statistics 9
Abstract algebra/number theory 10
Linear algebra 11
Applications of mathematics/problem solving 12
History of mathematics 13
Discrete Mathematics 14
Other upper division mathematics 15

SCIENCES/COMPUTER SCIENCES

Biological sciences 16
Chemistry 17
Physics 18
Physical science 19
Earth/space science 20
Engineering (any) 21
Computer programming 22
Other computer science 23

EDUCATION

Supervised student teaching in mathematics 24
Instructional use of computers/ other technologies 25

7. 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.

NUMBER OF COURSES COMPLETED

		(CIRCLE ONE NUMBER ON EACH LINE.) Semester Courses	*(CIRCLE ONE NUMBER ON EACH LINE* Quarter Courses
a.	Mathematics education	0 1 2 3 4 5 6 7 ≥8	0 1 2 3 4 5 6 7 ≥8
b.	Calculus	0 1 2 3 4 5 6 7 ≥8	0 1 2 3 4 5 6 7 ≥8
c.	All other mathematics courses	0 1 2 3 4 5 6 7 ≥8	0 1 2 3 4 5 6 7 ≥8
d.	Computer science.....	0 1 2 3 4 5 6 7 ≥8	0 1 2 3 4 5 6 7 ≥8
e.	Science	0 1 2 3 4 5 6 7 ≥8	0 1 2 3 4 5 6 7 ≥8

8. Please check the box(es) next to the degree(s) you hold. Use the list of code numbers on the right to indicate your major and minor fields of study for each degree. (If you do not have a second major or minor field, please enter "00.")

		Major field code	Second major or minor field code
Bachelor's Degree	☐	_____	_____
Master's Degree	☐	_____	_____
Doctorate Degree	☐	_____	_____
Other Degree(s)	☐ Specify below:		
1) _____		_____	_____
2) _____		_____	_____

MAJOR & MINOR FIELD CODES

Education
- 11 Elementary Education
- 12 Middle School Education
- 13 Secondary Education
- 14 Mathematics Education
- 15 Science Education
- 16 Other Education

Mathematics/Computer Science
- 21 Mathematics
- 22 Computer Science

Science
- 31 Biology, Life Science
- 32 Chemistry
- 33 Physics
- 34 Physical Science
- 35 Earth/Space Sciences
- 36 Other Science

Other Disciplines
- 41 History, English Foreign Language, etc.

9. a. In what year did you last take a course for college credit in **mathematics**?

19 _____

b. In what year did you last take a course for college credit in the **teaching of mathematics**?

19 _____

10. What is the **total** amount of time you have spent on in-service education 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.)

(CIRCLE ONE NUMBER IN EACH COLUMN.)

Hours of In-service Education	Last 12 months	Last 3 years
None	1	1
Less than 6 hours	2	2
6 - 15 hours	3	3
16 - 35 hours	4	4
More than 35 hours	5	5

11. In the past twelve months, have you: *(CIRCLE ONE ON EACH LINE.)*

		No	Yes
a.	Attended any national or state mathematics teacher association meetings?	1	2
b.	Taught any in-service workshops or courses in mathematics or mathematics teaching?	1	2
c.	Received any local, state, or national grants or awards for mathematics teaching?	1	2
d.	Served on a school or district mathematics curriculum committee?	1	2
e.	Served on a school or district mathematics textbook selection committee?	1	2

12. For each of the materials listed below, please mark one of the following categories: (1) have never heard of, (2) have heard of but not seen, (3) have seen but not used, or (4) have used in teaching.

(CIRCLE ONE ON EACH LINE.)

		Have never heard of	Have heard of but not seen	Have seen but not used	Have used in teaching
a.	Calculators and Mathematics Project - Los Angeles (CAMP-LA)	1	2	3	4
b.	Computer - Intensive Algebra	1	2	3	4
c.	Elementary Mathematician	1	2	3	4
d.	Futures with Jaime Escalante	1	2	3	4
e.	Geometer's Sketchpad	1	2	3	4
f.	Geometry and Measurement, K-6	1	2	3	4
g.	Getting Ready for Algebra	1	2	3	4
h.	High School Mathematics and Its Applications Project (HIMAP)	1	2	3	4
i.	Jasper Series	1	2	3	4
j.	Journeys in Mathematics	1	2	3	4
k.	Logo Geometry	1	2	3	4
l.	Math and the Mind's Eye	1	2	3	4
m.	Middle Grades Mathematics Project	1	2	3	4
n.	Project Mathematics!	1	2	3	4
o.	Quantitative Literacy Series	1	2	3	4
p.	Used Numbers: Collecting and Analyzing Real Data	1	2	3	4

13. a. The National Council of Teachers of Mathematics has prepared *Curriculum and Evaluation Standards*, generally called the NCTM Standards, for mathematics instruction. Which of the statements below best describes your familiarity with the NCTM Standards? *(CIRCLE ONE.)*

Well aware of the NCTM Standards	1	*(CONTINUE WITH QUESTION 13.b.)*
Heard of the NCTM Standards but don't know much about them	2	*(SKIP TO 14.)*
Not aware of the NCTM Standards	3	
Not sure	4	

b. Please indicate the extent to which you agree with each of the following statements.

(CIRCLE ONE ON EACH LINE.)

	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
I am well informed about the NCTM Standards for the grades I teach	1	2	3	4	5
I am prepared to explain the NCTM Standards to my colleagues	1	2	3	4	5

14. a. The National Council of Teachers of Mathematics has prepared *Professional Standards for Teaching Mathematics*, generally called the NCTM Teaching Standards, for mathematics instruction. Which best describes your familiarity with the NCTM Teaching Standards? *(CIRCLE ONE.)*

Well aware of the NCTM Teaching Standards.	1	*(CONTINUE WITH QUESTION 14.b.)*
Heard of the NCTM Teaching Standards but don't know much about them	2	*(SKIP TO 15.)*
Not aware of the NCTM Teaching Standards..	3	
Not sure.....	4	

b. Please indicate the extent to which you agree with each of the following statements.

(CIRCLE ONE ON EACH LINE.)

	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
I am well informed about the NCTM Teaching Standards for the grades I teach	1	2	3	4	5
I am prepared to explain the NCTM Teaching Standards to my colleagues	1	2	3	4	5

15. Do you teach in a self-contained classroom, i.e., are you responsible for teaching all or most academic subjects to one class?

Yes ..... 1 *(COMPLETE 16.a., THEN GO TO 17.)*

No ..... 2 *(COMPLETE 16.b., THEN GO TO 17.)*

16. a. **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 write "0" if you do not teach a particular subject to this class.)

	Number of days per week	Approximate number of minutes per day
Mathematics	_____	_____
Science	_____	_____
Social Studies	_____	_____
Reading	_____	_____

NOW GO TO Q17.

b. **For Teachers of Non Self-Contained Classes:** For each class period you are currently teaching, regardless of subject, give the course title, the code number from the enclosed blue "List of Course Titles" that best describes the content of each course, number of students, and the grade level of most of the students in that class.

Class	Course Title	Code No.	No. of Students	Predominant Grade Level
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
8	_____	_____	_____	_____

SECTION C: YOUR MATHEMATICS TEACHING IN A PARTICULAR CLASS

The questions in this section are about a particular **mathematics** class you teach. If you teach more than one class per day, please think about the mathematics classes you are teaching today (or the most recent school day). Then consult the label on the front of this questionnaire to determine which mathematics class to consider when answering these questions.

17. a. Please provide the complete title of the course you will be describing:

_____
COURSE TITLE

b. Using the blue "List of Course Titles," indicate the code number that best describes this course:

_____
COURSE CODE

(If "Other Mathematics" [Code 299], briefly describe content of course: _____
_____)

18. What is the duration of this course? *(CIRCLE ONE.)*

a.	Year	1
b.	Semester	2
c.	Quarter	3
d.	Other *(PLEASE SPECIFY)* _____	4

19. How many of the students **in this mathematics class** are in each of the following grades?

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

20. Please indicate the number of students in this mathematics class in each race/sex category.

		Male	Female
a.	White (not of Hispanic origin)	_____	_____
b.	Black (not of Hispanic origin)	_____	_____
c.	Hispanic (Mexican, Puerto Rican, Cuban, Central or South American, or other Hispanic culture or origin)	_____	_____
d.	American Indian or Alaskan Native	_____	_____
e.	Asian or Pacific Islander	_____	_____
	TOTAL	_____	_____

(NOTE: The total number of males and females should be the same as the total number of students in question 19.)

21. How many of the students in this mathematics class are **formally** classified as:

a.	Limited English Proficiency	_____ students
b.	Learning Disabled	_____ students
c.	Mentally Handicapped	_____ students
d.	Physically Handicapped, please specify handicaps:	
	1) _____	_____ students
	2) _____	_____ students

22. Are students assigned to this mathematics class by level of ability? *(CIRCLE ONE.)*

Yes 1
No 2

23. Which of the following best describes the ability of the students in this mathematics class? *(CIRCLE ONE.)*

Fairly homogeneous and low in ability 1
Fairly homogeneous and average in ability 2
Fairly homogeneous and high in ability 3
Heterogeneous, with a mixture of two or more ability levels 4

24. Think about your plans for this mathematics class for the entire course. How much emphasis will each of the following **student objectives** receive?

(CIRCLE ONE ON EACH LINE.)

		None	Minimal emphasis		Moderate emphasis		Very heavy emphasis
a.	Increase interest in mathematics	0	1	2	3	4	5
b.	Learn mathematical concepts	0	1	2	3	4	5
c.	Learn mathematical algorithms	0	1	2	3	4	5
d.	Learn how to solve problems	0	1	2	3	4	5
e.	Learn to reason mathematically	0	1	2	3	4	5
f.	Learn how mathematical ideas connect with one another	0	1	2	3	4	5
g.	Prepare for further study in mathematics	0	1	2	3	4	5
h.	Understand the logical structure of mathematics	0	1	2	3	4	5
i.	Learn about the history of mathematics	0	1	2	3	4	5
j.	Learn to explain ideas in mathematics effectively	0	1	2	3	4	5
k.	Increase awareness of the importance of mathematics in daily life	0	1	2	3	4	5
l.	Learn about the applications of mathematics in science	0	1	2	3	4	5
m.	Learn about the applications of mathematics in business and industry	0	1	2	3	4	5
n.	Learn to perform computations with speed and accuracy	0	1	2	3	4	5
o.	Prepare for standardized tests	0	1	2	3	4	5

25. How much does each of the following influence what you teach in this mathematics class?

(CIRCLE ONE ON EACH LINE.)

		No influence			Extensive influence	Not applicable
a.	Your state's curriculum framework/course of study	1	2	3	4	8
b.	Your district's curriculum framework/course of study	1	2	3	4	8
c.	State test	1	2	3	4	8
d.	District test	1	2	3	4	8
e.	Textbook	1	2	3	4	8
f.	NCTM's *Curriculum and Evaluation Standards*	1	2	3	4	8
g.	NCTM's *Professional Standards for Teaching Mathematics*	1	2	3	4	8
h.	*Science for All Americans* (AAAS' Project 2061)	1	2	3	4	8
i.	Your own mathematics content background	1	2	3	4	8
j.	Your understanding of what motivates your students	1	2	3	4	8
k.	Available facilities, equipment, and supplies	1	2	3	4	8
l.	Parents/community	1	2	3	4	8

26. About how often do students in this mathematics class take part in the following types of activities?

(CIRCLE ONE ON EACH LINE.)

		Never	Once or twice semester	Once or twice a month	Once or twice a week	Almost daily
a.	Listen and take notes during presentation by teacher	1	2	3	4	5
b.	Do mathematics problems from textbooks	1	2	3	4	5
c.	Do mathematics problems from worksheets	1	2	3	4	5
d.	Work in small groups	1	2	3	4	5
e.	Work in class on mathematics projects that take a week or more	1	2	3	4	5
f.	Work at home on mathematics projects that take a week or more	1	2	3	4	5
g.	Make conjectures and explore possible methods to solve a mathematical problem	1	2	3	4	5
h.	Learn about mathematics through real-life applications	1	2	3	4	5
i.	Write their reasoning about how to solve a problem	1	2	3	4	5
j.	Use manipulative materials or models	1	2	3	4	5
k.	Use computers/calculators to explore problems	1	2	3	4	5
l.	Use computers/calculators to do computations	1	2	3	4	5

26. (continued) *(CIRCLE ONE ON EACH LINE.)*

		Never	Once or twice semester	Once or twice a month	Once or twice a week	Almost daily
m.	Use computers/calculators to develop an understanding of mathematics concepts	1	2	3	4	5
n.	Participate in dialogue with the teacher to develop an idea	1	2	3	4	5
o.	Watch films, filmstrips, or videotapes	1	2	3	4	5
p.	Watch television programs	1	2	3	4	5

27. For the following equipment, please indicate the approximate number of times per semester each is used in this mathematics class. For those not used, circle either 1, Not needed or 2, Needed but not available.

(CIRCLE ONE ON EACH LINE.)

		Not needed	Needed but not available	Number of times used per semester 1-2	3-5	6-10	11+
a.	Overhead projector	1	2	3	4	5	6
b.	Videotape player	1	2	3	4	5	6
c.	Videodisc player	1	2	3	4	5	6
d.	CD-ROM player	1	2	3	4	5	6
e.	Four function calculators	1	2	3	4	5	6
f.	Fraction calculators	1	2	3	4	5	6
g.	Graphing calculators	1	2	3	4	5	6
h.	Scientific calculators	1	2	3	4	5	6
i.	Computers	1	2	3	4	5	6
j.	Computer/lab interfacing devices	1	2	3	4	5	6

28. How much of your own money do you estimate you will spend for supplies for this mathematics class this year?

$ _____

29. How much control do you have over each of the following for this mathematics class?
(CIRCLE ONE ON EACH LINE.)

		No control				Strong control
a.	Determining goals and objectives	1	2	3	4	5
b.	Selecting textbooks	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

30. a. Are you using one or more commercially published textbooks or programs for teaching mathematics to this class?

Yes ..... 1 *(CONTINUE WITH 30.b.)*
No ..... 2 *(SKIP TO 32.)*

b. Indicate the publisher of the one textbook/program used most often by students in this mathematics class. **(CIRCLE ONE.)**

Addison-Wesley 1
Allyn & Bacon 2
Amsco 3
Delta Education 4
Ginn 5
Glencoe 6
Globe 7
Harcourt, Brace, & Jovanovich 8
Harper & Row 9
D.C. Heath 10
Holt, Rinehart, Winston 11
Houghton Mifflin 12
Kendall Hunt 13
Laidlaw Brothers 14
Little, Brown 15
Macmillan 16
McGraw Hill 17
Merrill 18
Prentice Hall 19
Scott, Foresman 20
Silver, Burdett, & Ginn 21
Wiley 22

Other (PLEASE SPECIFY) 23

_____

31. What is the title, author, publication year, and edition of this textbook/program?

Title _____

First Author _____ Publication Year _____ Edition _____

32. Approximately what percentage of this textbook/program will you cover in this course? *(CIRCLE ONE.)*

Less than 25 percent	1
25 - 49 percent	2
50 - 74 percent	3
75 - 90 percent	4
More than 90 percent	5

33. How would you rate the overall quality of this textbook/program? *(CIRCLE ONE.)*

Very Poor	1
Poor	2
Fair	3
Good	4
Very Good	5
Excellent	6

34. How much homework do you assign in this mathematical class in a typical **week**? *(CIRCLE ONE.)*

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

35. Indicate the importance you give to each of the following in setting grades for students in this mathematical class.

(CIRCLE ONE ON EACH LINE.)

		Not important			Very important
a.	Objective tests (e.g., multiple choice, true/false)	1	2	3	4
b.	Essay tests	1	2	3	4
c.	Hands-on/performance tasks	1	2	3	4
d.	Systematic observations of students	1	2	3	4
e.	Interviewing students about what they understand	1	2	3	4
f.	Homework assignments	1	2	3	4
g.	Behavior	1	2	3	4
h.	Effort	1	2	3	4
i.	Mathematics projects	1	2	3	4
j.	Class attendance	1	2	3	4
k.	Contribution to small group work	1	2	3	4
l.	Participation in whole class discussion	1	2	3	4
m.	Individual improvement or progress over past performance	1	2	3	4

SECTION D: YOUR MOST RECENT MATHEMATICS LESSON

Use your most recent **mathematical lesson** in this class to answer the following questions. Do not be concerned if this lesson was not typical of instruction in this class.

36. a. How many minutes were allocated to the most recent mathematical lesson?

_____ minutes

b. Of these, how many minutes were spent on the following:

(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 materials _____

(5) Non-manipulative small group work _____

TOTAL MINUTES _____

(SHOULD BE THE SAME AS 36.a.)

37. Which of the following activities took place during that **mathematical lesson?** *(CIRCLE ALL THAT APPLY.)*

a. Lecture 1

b. Students completing textbook/worksheet problems 2

c. Students reading about mathematical 3

d. Students working in cooperative learning groups where the entire group receives a single grade 4

e. Student use of calculators 5

f. Student use of computers 6

g. Student use of other technologies 7

h. Test or quiz 8

38. Did that lesson take place on the most recent day your school was in session? *(CIRCLE ONE.)*

Yes 1

No 2

SECTION E: BACKGROUND INFORMATION

39. Indicate your sex: *(CIRCLE ONE.)*

Male 1

Female 2

40. Are you: *(CIRCLE ONE.)*

White (not of Hispanic origin) 1

Black (not of Hispanic origin) 2

Hispanic 3
(Mexican, Puerto Rican, Cuban, Central or South American, or other Hispanic culture or origin)

American Indian or Alaska Native 4

Asian or Pacific Islander 5

41. In what year were you born?

19 ____

42. How many years have you taught prior to this school year?

_____ YEARS

43. How many years have you taught **mathematical** prior to this school year?

_____ YEARS

44. When did you complete this questionnaire?

_____/_____/_____
MONTH DAY YEAR

Thank you for your assistance!

Please return the questionnaire to us in the postage-paid envelope:

1993 National Survey of Science and Mathematics Education
c/o CODA
1400 Spring Street - Suite 150
Silver Spring, MD 20910

Grade 1–4 Mathematics Teachers' Opinions on Curriculum and Instruction Issues

	Percent of Teachers									
	Strongly Disagree		Disagree		No Opinion		Agree		Strongly Agree	
a. Students learn best when they study mathematics in the context of a personal or social application	1	(0.4)	1	(0.4)	5	(1.4)	50	(2.2)	44	(2.9)
b. Students can learn mathematics best in classes with students of similar abilities	6	(1.3)	45	(2.3)	8	(2.0)	31	(2.6)	10	(1.5)
c. Students need to master arithmetic computation before going on to algebra.	1	(0.5)	14	(2.0)	15	(1.8)	42	(2.2)	28	(1.4)
d. Students should be able to use calculators most of the time	11	(1.7)	56	(2.3)	10	(1.6)	21	(1.8)	3	(0.7)
e. Virtually all students can learn to think mathematically	1	(0.4)	15	(1.0)	8	(1.5)	57	(2.3)	19	(1.9)
f. The testing program in my state/district dictates what mathematics I teach	8	(1.7)	22	(1.8)	10	(1.7)	48	(2.9)	12	(1.4)
g. I enjoy teaching mathematics	0	(0.0)	3	(0.6)	1	(0.6)	48	(2.3)	48	(2.6)
h. I consider myself a "master" mathematics teacher	2	(0.8)	26	(2.3)	23	(2.4)	40	(2.9)	8	(1.3)
i. I feel supported by colleagues to try out new ideas in teaching mathematics	1	(0.6)	7	(1.3)	8	(1.4)	57	(2.6)	28	(1.6)
j. I receive little support from the school administration for teaching mathematics	29	(2.7)	46	(2.8)	11	(1.6)	12	(1.6)	2	(0.6)
k. Mathematics teachers in this school regularly share ideas and materials	4	(1.0)	21	(1.9)	11	(1.7)	49	(2.7)	16	(2.0)
l. Mathematics teachers in this school regularly observe each other teaching classes as part of sharing and improving instructional strategies	25	(2.4)	52	(3.0)	11	(1.3)	12	(1.8)	1	(0.2)
m. Activity-based mathematics experiences aren't worth the time and expense for what students learn	52	(2.8)	38	(1.9)	6	(1.3)	4	(1.2)	1	(0.5)
n. I feel that I have many opportunities to learn new things in my present job.	1	(0.5)	16	(2.0)	7	(1.9)	53	(2.5)	23	(2.3)
o. I am required to follow rules at this school that conflict with my best professional judgment	31	(2.5)	53	(2.8)	6	(1.2)	8	(1.7)	2	(0.5)
p. Most mathematics teachers in this school contribute actively to making decisions about the mathematics curriculum	3	(0.6)	32	(1.8)	18	(1.5)	39	(1.8)	8	(1.3)
q. Our guidance department does a good job of assisting students in selecting their mathematics courses	5	(0.7)	8	(1.0)	82	(1.7)	5	(0.7)	1	(0.5)
r. I have time during the regular school week to work with my peers on mathematics curriculum and instruction	31	(2.8)	42	(2.0)	7	(1.0)	20	(1.8)	1	(0.4)

Source: Mathematics Teacher Questionnaire, Item 1.

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

	Percent of Teachers									
	Strongly Disagree		Disagree		No Opinion		Agree		Strongly Agree	
a. Students learn best when they study mathematics in the context of a personal or social application	0	(0.2)	4	(1.6)	4	(1.0)	56	(2.4)	35	(2.0)
b. Students can learn mathematics best in classes with students of similar abilities	2	(0.8)	31	(3.6)	5	(1.1)	45	(3.9)	17	(2.2)
c. Students need to master arithmetic computation before going on to algebra.	2	(0.8)	15	(2.3)	7	(1.8)	45	(3.1)	32	(3.3)
d. Students should be able to use calculators most of the time	7	(1.6)	46	(4.1)	8	(2.0)	32	(2.9)	7	(1.3)
e. Virtually all students can learn to think mathematically	1	(0.3)	16	(2.3)	8	(1.8)	63	(2.7)	13	(1.9)
f. The testing program in my state/district dictates what mathematics I teach	8	(1.7)	30	(3.2)	10	(2.3)	39	(3.0)	13	(1.9)
g. I enjoy teaching mathematics	0	(0.0)	2	(1.5)	2	(1.0)	34	(2.9)	62	(3.0)
h. I consider myself a "master" mathematics teacher	2	(1.5)	20	(3.1)	21	(2.4)	42	(3.2)	15	(2.4)
i. I feel supported by colleagues to try out new ideas in teaching mathematics	0	(0.1)	7	(2.3)	10	(2.6)	59	(4.0)	24	(2.6)
j. I receive little support from the school administration for teaching mathematics	26	(2.6)	44	(3.4)	11	(1.6)	16	(3.1)	3	(0.8)
k. Mathematics teachers in this school regularly share ideas and materials	5	(1.1)	31	(3.0)	12	(1.6)	41	(2.8)	11	(1.9)
l. Mathematics teachers in this school regularly observe each other teaching classes as part of sharing and improving instructional strategies	28	(1.9)	53	(2.0)	9	(1.5)	10	(2.2)	1	(0.4)
m. Activity-based mathematics experiences aren't worth the time and expense for what students learn	37	(2.5)	48	(3.4)	8	(1.3)	5	(1.7)	3	(1.5)
n. I feel that I have many opportunities to learn new things in my present job.	1	(0.3)	17	(2.2)	10	(2.6)	58	(3.2)	14	(1.7)
o. I am required to follow rules at this school that conflict with my best professional judgment	21	(2.3)	56	(2.5)	9	(1.8)	13	(2.1)	1	(0.4)
p. Most mathematics teachers in this school contribute actively to making decisions about the mathematics curriculum	7	(1.5)	31	(3.4)	16	(2.3)	36	(2.4)	10	(2.2)
q. Our guidance department does a good job of assisting students in selecting their mathematics courses	5	(1.2)	13	(2.2)	61	(3.3)	19	(1.9)	3	(1.0)
r. I have time during the regular school week to work with my peers on mathematics curriculum and instruction	31	(2.9)	44	(3.9)	8	(2.1)	15	(1.7)	2	(0.8)

Source: Mathematics Teacher Questionnaire, Item 1.

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

	Percent of Teachers									
	Strongly Disagree		Disagree		No Opinion		Agree		Strongly Agree	
a. Students learn best when they study mathematics in the context of a personal or social application	0	(0.2)	6	(0.8)	10	(1.5)	66	(2.1)	18	(1.5)
b. Students can learn mathematics best in classes with students of similar abilities	1	(0.1)	18	(2.8)	5	(1.0)	53	(2.7)	23	(1.7)
c. Students need to master arithmetic computation before going on to algebra.	2	(0.3)	14	(1.4)	4	(0.8)	41	(2.8)	40	(2.4)
d. Students should be able to use calculators most of the time	4	(0.6)	18	(1.5)	5	(1.0)	49	(3.2)	24	(2.3)
e. Virtually all students can learn to think mathematically	1	(0.3)	20	(1.8)	7	(1.2)	60	(2.7)	12	(1.3)
f. The testing program in my state/district dictates what mathematics I teach	12	(1.4)	32	(3.0)	16	(2.2)	33	(2.4)	8	(1.4)
g. I enjoy teaching mathematics	0	(0.2)	1	(0.3)	1	(0.8)	27	(2.7)	71	(2.6)
h. I consider myself a "master" mathematics teacher	1	(0.3)	9	(2.8)	15	(1.5)	47	(3.3)	27	(2.2)
i. I feel supported by colleagues to try out new ideas in teaching mathematics	1	(0.3)	9	(2.6)	9	(1.3)	50	(2.5)	30	(1.9)
j. I receive little support from the school administration for teaching mathematics	26	(1.7)	43	(2.9)	11	(1.2)	15	(2.6)	5	(0.8)
k. Mathematics teachers in this school regularly share ideas and materials	4	(0.9)	20	(2.4)	10	(1.5)	48	(3.1)	18	(2.0)
l. Mathematics teachers in this school regularly observe each other teaching classes as part of sharing and improving instructional strategies	34	(2.7)	47	(2.8)	8	(1.4)	10	(1.7)	1	(0.4)
m. Activity-based mathematics experiences aren't worth the time and expense for what students learn	26	(2.1)	50	(2.9)	15	(1.8)	7	(0.7)	2	(0.7)
n. I feel that I have many opportunities to learn new things in my present job.	3	(0.9)	25	(2.1)	15	(3.6)	46	(2.5)	12	(1.3)
o. I am required to follow rules at this school that conflict with my best professional judgment	21	(2.8)	50	(3.0)	13	(2.5)	14	(1.5)	3	(0.7)
p. Most mathematics teachers in this school contribute actively to making decisions about the mathematics curriculum	3	(0.7)	19	(1.8)	8	(1.1)	54	(2.8)	15	(2.8)
q. Our guidance department does a good job of assisting students in selecting their mathematics courses	13	(2.4)	30	(1.7)	16	(1.3)	38	(2.7)	3	(0.5)
r. I have time during the regular school week to work with my peers on mathematics curriculum and instruction	28	(2.4)	50	(2.7)	6	(1.4)	15	(1.6)	1	(0.3)

Source: Mathematics Teacher Questionnaire, Item 1.

Grade 1–4 Mathematics Teachers' Perceptions of Possible Problems for Mathematics Instruction in Their Schools

	Percent of Teachers					
	Not a significant problem		Somewhat of a problem		Serious problem	
a. Facilities	79	(2.1)	18	(2.0)	3	(0.8)
b. Funds for purchasing equipment and supplies	28	(2.6)	49	(2.5)	23	(2.6)
c. Materials for individualizing instruction	30	(2.3)	50	(2.5)	21	(3.0)
d. Access to computers	41	(2.7)	37	(2.0)	21	(2.0)
e. Appropriate computer software	38	(3.1)	39	(2.9)	23	(1.9)
f. Student interest in mathematics	70	(2.5)	26	(2.4)	3	(0.7)
g. Student reading abilities	43	(3.0)	44	(2.8)	13	(1.9)
h. Student absences	78	(2.0)	19	(1.6)	4	(0.8)
i. Teacher interest in mathematics	85	(2.1)	14	(2.0)	1	(0.3)
j. Teacher preparation to teach mathematics	71	(3.2)	26	(2.8)	4	(0.9)
k. Time to teach mathematics	72	(3.0)	23	(2.8)	4	(0.8)
l. Opportunities for teachers to share ideas	29	(3.2)	53	(3.1)	18	(1.3)
m. In-service education opportunities	48	(2.4)	41	(2.4)	12	(1.8)
n. Interruptions for announcements, assemblies, other school activities	72	(3.3)	22	(2.8)	5	(0.9)
o. Large classes	48	(3.1)	34	(2.4)	19	(1.8)
p. Maintaining discipline	64	(2.6)	28	(1.6)	8	(1.5)
q. Parental support	53	(2.6)	36	(2.3)	11	(1.2)
r. State/district testing policies	52	(2.8)	37	(2.8)	11	(1.4)

Source: Mathematics Teacher Questionnaire, Item 2.

Grade 5–8 Mathematics Teachers' Perceptions of Possible Problems for Mathematics Instruction in Their Schools

	Percent of Teachers					
	Not a significant problem		Somewhat of a problem		Serious problem	
a. Facilities	71	(2.7)	26	(2.6)	3	(1.0)
b. Funds for purchasing equipment and supplies	30	(3.1)	46	(4.2)	24	(4.4)
c. Materials for individualizing instruction	29	(3.3)	48	(2.9)	23	(3.6)
d. Access to computers	32	(3.6)	36	(2.5)	33	(3.3)
e. Appropriate computer software	25	(3.1)	40	(2.7)	35	(3.6)
f. Student interest in mathematics	45	(3.4)	44	(2.0)	12	(2.3)
g. Student reading abilities	29	(2.9)	55	(2.7)	16	(2.6)
h. Student absences	57	(3.3)	35	(3.3)	8	(1.3)
i. Teacher interest in mathematics	88	(1.9)	12	(1.7)	1	(0.5)
j. Teacher preparation to teach mathematics	78	(3.1)	20	(2.6)	2	(0.8)
k. Time to teach mathematics	67	(3.0)	28	(3.1)	4	(1.3)
l. Opportunities for teachers to share ideas	33	(2.9)	51	(3.8)	17	(2.6)
m. In-service education opportunities	52	(3.3)	37	(3.6)	11	(1.6)
n. Interruptions for announcements, assemblies, other school activities	60	(3.0)	33	(2.2)	7	(1.0)
o. Large classes	35	(2.6)	42	(3.8)	23	(3.0)
p. Maintaining discipline	63	(3.3)	25	(2.4)	13	(2.3)
q. Parental support	44	(3.3)	41	(2.7)	16	(2.3)
r. State/district testing policies	51	(3.8)	39	(3.6)	11	(1.7)

Source: Mathematics Teacher Questionnaire, Item 2.

Grade 9–12 Mathematics Teachers' Perceptions of Possible Problems for Mathematics Instruction in Their Schools

	Percent of Teachers					
	Not a significant problem		Somewhat of a problem		Serious problem	
a. Facilities	54	(2.6)	40	(2.8)	6	(0.9)
b. Funds for purchasing equipment and supplies	24	(1.7)	51	(2.7)	25	(2.1)
c. Materials for individualizing instruction	24	(2.1)	52	(3.0)	24	(1.9)
d. Access to computers	32	(3.2)	37	(2.3)	31	(2.5)
e. Appropriate computer software	26	(2.8)	43	(2.4)	32	(2.3)
f. Student interest in mathematics	25	(2.6)	51	(2.8)	24	(2.6)
g. Student reading abilities	28	(2.5)	53	(2.4)	20	(1.4)
h. Student absences	32	(2.5)	49	(2.5)	20	(1.4)
i. Teacher interest in mathematics	90	(1.9)	9	(1.9)	1	(0.2)
j. Teacher preparation to teach mathematics	84	(2.2)	15	(2.5)	1	(0.2)
k. Time to teach mathematics	68	(2.6)	30	(2.6)	3	(0.5)
l. Opportunities for teachers to share ideas	35	(2.3)	49	(2.9)	16	(2.6)
m. In-service education opportunities	44	(2.3)	44	(2.7)	12	(1.6)
n. Interruptions for announcements, assemblies, other school activities	42	(3.1)	45	(2.8)	14	(1.8)
o. Large classes	43	(2.8)	39	(2.4)	19	(1.6)
p. Maintaining discipline	57	(2.6)	34	(2.0)	9	(1.7)
q. Parental support	38	(2.4)	45	(2.4)	17	(1.3)
r. State/district testing policies	62	(3.3)	31	(2.9)	7	(1.2)

Source: Mathematics Teacher Questionnaire, Item 2.

Grade 1–4 Mathematics Teachers' Opinions About the Importance of Various Strategies for Effective Mathematics Instruction

	Percent of Teachers									
	Definitely should not be a part of math instruction 1		2		Makes no difference 3		4		Definitely should be a part of math instruction 5	
a. Concrete experience before abstract treatments	0	(0.2)	1	(0.6)	1	(0.6)	16	(1.9)	81	(2.0)
b. Students working in cooperative learning groups	0	(0.3)	2	(0.7)	6	(1.3)	33	(1.9)	58	(1.8)
c. Emphasis on connections among concepts	0	(0.2)	0	(0.0)	2	(0.4)	30	(1.6)	68	(1.7)
d. Deeper coverage of fewer mathematics ideas	1	(0.5)	10	(1.8)	17	(1.3)	39	(3.1)	33	(3.6)
e. Hands-on/manipulative activities	0	(0.2)	0	(0.2)	2	(0.5)	16	(1.8)	82	(2.2)
f. Applications of mathematics in daily life	0	(0.2)	0	(0.0)	1	(0.3)	18	(1.6)	81	(1.6)
g. Emphasis on arithmetic computation	0	(0.2)	4	(1.0)	6	(1.4)	41	(2.5)	49	(2.4)
h. Emphasis on solving real problems	0	(0.2)	0	(0.0)	1	(0.6)	19	(1.9)	80	(1.9)
i. Emphasis on mathematical reasoning	1	(0.4)	0	(0.3)	1	(0.4)	29	(2.0)	69	(2.0)
j. Emphasis on writing about mathematics	3	(0.9)	8	(1.3)	19	(2.1)	39	(1.8)	32	(2.0)
k. Integration of mathematics subjects (e.g., algebra, probability, geometry, etc.) all taught together each year	3	(0.8)	10	(1.0)	23	(1.7)	39	(2.1)	26	(1.7)
l. Coordination of mathematics with science	1	(0.4)	4	(1.1)	14	(1.9)	47	(2.3)	34	(2.1)
m. Coordination of mathematics with vocational/technology education	5	(1.3)	5	(0.7)	29	(2.2)	36	(2.4)	25	(2.5)
n. Every student studying mathematics each year	0	(0.0)	1	(0.4)	2	(0.8)	21	(2.7)	76	(2.7)
o. Taking student preconceptions about a topic into account when planning curriculum and instruction	1	(0.1)	3	(0.7)	18	(2.3)	45	(2.6)	34	(2.9)
p. Inclusion of performance-based assessment	3	(0.9)	4	(1.0)	12	(1.4)	48	(2.4)	33	(1.9)
q. Use of computers	0	(0.3)	1	(0.6)	11	(1.6)	35	(2.0)	52	(2.9)
r. Use of calculators	4	(1.1)	8	(1.3)	18	(1.6)	37	(3.3)	33	(3.2)

Source: Mathematics Teacher Questionnaire, Item 3.

Grade 5–8 Mathematics Teachers' Opinions About the Importance of Various Strategies for Effective Mathematics Instruction

	Percent of Teachers									
	Definitely should not be a part of math instruction 1		2		Makes no difference 3		4		Definitely should be a part of math instruction 5	
a. Concrete experience before abstract treatments	0	(0.3)	1	(0.7)	7	(1.3)	37	(2.5)	55	(2.7)
b. Students working in cooperative learning groups	0	(0.3)	5	(1.9)	13	(1.8)	42	(3.3)	41	(2.8)
c. Emphasis on connections among concepts	0	(0.0)	0	(0.1)	2	(0.6)	36	(2.5)	62	(2.4)
d. Deeper coverage of fewer mathematics ideas	2	(0.8)	11	(2.3)	12	(1.6)	44	(3.8)	31	(3.4)
e. Hands-on/manipulative activities	1	(0.3)	2	(0.8)	9	(1.8)	40	(3.7)	49	(3.2)
f. Applications of mathematics in daily life	0	(0.0)	0	(0.0)	1	(0.5)	24	(3.0)	75	(3.1)
g. Emphasis on arithmetic computation	0	(0.1)	6	(1.2)	6	(0.6)	53	(2.6)	36	(2.4)
h. Emphasis on solving real problems	0	(0.0)	0	(0.0)	1	(0.5)	21	(2.3)	78	(2.6)
i. Emphasis on mathematical reasoning	0	(0.0)	0	(0.2)	2	(0.6)	34	(2.7)	64	(2.6)
j. Emphasis on writing about mathematics	1	(0.4)	8	(1.8)	27	(3.3)	41	(3.6)	23	(2.6)
k. Integration of mathematics subjects (e.g., algebra, probability, geometry, etc.) all taught together each year	3	(1.2)	15	(3.3)	17	(2.4)	40	(3.3)	25	(3.2)
l. Coordination of mathematics with science	1	(0.3)	1	(0.3)	23	(2.5)	48	(3.3)	27	(3.4)
m. Coordination of mathematics with vocational/technology education	2	(0.7)	2	(0.4)	23	(2.9)	50	(2.6)	23	(2.8)
n. Every student studying mathematics each year	0	(0.0)	2	(1.2)	2	(1.0)	27	(3.5)	69	(3.5)
o. Taking student preconceptions about a topic into account when planning curriculum and instruction	1	(0.5)	4	(1.6)	15	(2.2)	54	(3.9)	26	(2.8)
p. Inclusion of performance-based assessment	1	(0.8)	4	(1.5)	17	(2.5)	49	(3.2)	29	(2.9)
q. Use of computers	0	(0.2)	1	(0.4)	12	(2.2)	49	(3.0)	39	(3.3)
r. Use of calculators	1	(0.3)	7	(1.6)	12	(2.4)	43	(3.1)	37	(3.7)

Source: Mathematics Teacher Questionnaire, Item 3.

Grade 9–12 Mathematics Teachers' Opinions About the Importance of Various Strategies for Effective Mathematics Instruction

	Percent of Teachers									
	Definitely should not be a part of math instruction 1		2		Makes no difference 3		4		Definitely should be a part of math instruction 5	
a. Concrete experience before abstract treatments	0	(0.1)	1	(0.3)	13	(1.4)	52	(2.5)	33	(2.5)
b. Students working in cooperative learning groups	0	(0.2)	4	(0.7)	17	(1.3)	51	(2.6)	27	(2.2)
c. Emphasis on connections among concepts	0	(0.0)	0	(0.1)	3	(0.5)	45	(2.2)	52	(2.2)
d. Deeper coverage of fewer mathematics ideas	2	(0.6)	19	(1.3)	24	(2.1)	40	(3.3)	16	(2.6)
e. Hands-on/manipulative activities	1	(0.2)	5	(0.7)	16	(1.7)	52	(2.4)	26	(2.2)
f. Applications of mathematics in daily life	0	(0.0)	1	(0.1)	5	(0.8)	45	(2.5)	50	(2.8)
g. Emphasis on arithmetic computation	2	(0.3)	18	(2.4)	16	(1.3)	42	(2.5)	22	(1.8)
h. Emphasis on solving real problems	0	(0.0)	0	(0.1)	2	(0.5)	41	(2.8)	57	(2.9)
i. Emphasis on mathematical reasoning	0	(0.0)	0	(0.1)	2	(0.3)	40	(3.0)	58	(3.0)
j. Emphasis on writing about mathematics	1	(0.4)	10	(0.9)	29	(1.4)	40	(2.8)	20	(2.8)
k. Integration of mathematics subjects (e.g., algebra, probability, geometry, etc.) all taught together each year	5	(0.6)	19	(3.0)	20	(1.7)	36	(2.1)	20	(2.8)
l. Coordination of mathematics with science	1	(0.3)	4	(0.8)	16	(1.4)	58	(2.2)	22	(2.6)
m. Coordination of mathematics with vocational/technology education	2	(0.8)	5	(0.6)	19	(1.9)	55	(3.0)	19	(1.7)
n. Every student studying mathematics each year	2	(0.3)	9	(2.7)	8	(1.1)	42	(2.2)	38	(2.5)
o. Taking student preconceptious about a topic into account when planning curriculum and instruction	2	(0.4)	7	(1.0)	24	(2.0)	49	(2.5)	18	(2.5)
p. Inclusion of performance-based assessment	1	(0.3)	5	(0.8)	23	(2.2)	53	(2.7)	18	(1.6)
q. Use of computers	0	(0.3)	1	(0.3)	17	(2.8)	48	(2.7)	34	(2.3)
r. Use of calculators	1	(0.5)	4	(0.7)	7	(0.7)	39	(2.6)	50	(2.5)

Source: Mathematics Teacher Questionnaire, Item 3.

Grade 1–4 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	
a. Estimation	3	(0.8)	47	(2.6)	50	(2.7)
b. Number sense and numeration	1	(0.4)	33	(2.3)	66	(2.6)
c. Number systems and number theory	9	(1.5)	47	(2.4)	44	(2.3)
d. Measurement	3	(0.7)	44	(2.7)	54	(2.6)
e. Fractions and decimals	6	(1.0)	47	(1.7)	47	(2.1)
f. Geometry and spatial sense	9	(1.6)	49	(2.4)	42	(2.3)
g. Functions	14	(1.5)	50	(2.0)	36	(2.1)
h. Patterns and relationships	3	(0.8)	39	(3.1)	58	(3.1)
i. Algebra	42	(1.4)	41	(2.5)	17	(2.0)
j. Trigonometry	70	(1.9)	24	(2.1)	5	(1.3)
k. Probability and statistics	50	(1.7)	39	(2.2)	11	(1.6)
l. Discrete mathematics	64	(1.8)	31	(1.8)	5	(0.8)
m. Conceptual underpinnings of calculus	80	(2.1)	17	(1.9)	2	(0.5)
n. Mathematical structure	55	(2.1)	38	(2.2)	7	(1.8)

Source: Mathematics Teacher Questionnaire, Item 4.

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	
a. Estimation	3	(1.1)	33	(3.4)	64	(3.3)
b. Number sense and numeration	2	(0.7)	27	(3.0)	71	(3.0)
c. Number systems and number theory	5	(1.4)	37	(3.0)	58	(2.8)
d. Measurement	2	(0.8)	38	(3.3)	60	(3.2)
e. Fractions and decimals	0	(0.1)	19	(2.8)	81	(3.0)
f. Geometry and spatial sense	7	(2.0)	43	(3.5)	50	(3.0)
g. Functions	11	(2.0)	40	(2.8)	49	(2.5)
h. Patterns and relationships	2	(0.7)	46	(3.4)	52	(3.3)
i. Algebra	18	(2.5)	38	(2.4)	44	(3.1)
j. Trigonometry	59	(2.6)	28	(2.5)	13	(1.6)
k. Probability and statistics	27	(4.0)	46	(3.2)	28	(3.0)
l. Discrete mathematics	57	(4.0)	33	(3.2)	10	(2.0)
m. Conceptual underpinnings of calculus	73	(2.1)	24	(1.7)	4	(0.8)
n. Mathematical structure	46	(2.5)	41	(3.0)	14	(2.1)

Source: Mathematics Teacher Questionnaire, Item 4.

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	
a. Estimation	2	(0.6)	27	(2.0)	72	(2.2)
b. Number sense and numeration	1	(0.2)	21	(2.2)	78	(2.3)
c. Number systems and number theory	2	(0.5)	30	(2.8)	67	(2.9)
d. Measurement	1	(0.5)	20	(2.1)	79	(2.2)
e. Fractions and decimals	0	(0.0)	7	(1.6)	93	(1.6)
f. Geometry and spatial sense	3	(0.7)	27	(3.3)	69	(3.3)
g. Functions	2	(0.5)	23	(2.1)	75	(2.2)
h. Patterns and relationships	1	(0.4)	28	(2.8)	71	(2.8)
i. Algebra	0	(0.2)	5	(0.8)	95	(0.8)
j. Trigonometry	10	(2.6)	30	(2.4)	60	(2.7)
k. Probability and statistics	14	(1.7)	54	(2.3)	33	(2.3)
l. Discrete mathematics	26	(1.8)	55	(2.3)	20	(1.7)
m. Conceptual underpinnings of calculus	33	(2.8)	38	(2.4)	29	(1.8)
n. Mathematical structure	19	(2.7)	51	(2.4)	30	(2.0)

Source: Mathematics Teacher Questionnaire, Item 4.

Grade 1–4 Mathematics Teachers' Perceptions of Their Preparation for Each of a Number of Tasks

	Percent of Teachers							
	Not Well Prepared		Somewhat Prepared		Fairly Well Prepared		Very Well Prepared	
a. Present the applications of mathematics concepts	0	(0.3)	7	(1.5)	43	(1.9)	49	(2.2)
b. Use cooperative learning groups	2	(0.8)	11	(1.4)	41	(2.5)	46	(2.2)
c. Take into account students' prior conceptions about mathematics when planning curriculum and instruction	2	(0.9)	18	(1.8)	47	(2.0)	33	(2.4)
d. Use computers as an integral part of mathematics instruction	21	(2.8)	28	(1.6)	32	(2.3)	18	(1.9)
e. Integrate mathematics with other subject areas	4	(1.8)	18	(1.8)	47	(2.5)	31	(2.9)
f. Manage a class of students who are using manipulatives	2	(0.6)	8	(1.3)	30	(2.9)	60	(2.9)
g. Use a variety of assessment strategies	5	(1.0)	18	(1.7)	46	(2.2)	31	(2.9)
h. Use textbook as a resource rather than as the primary instructional tool	5	(0.6)	16	(1.1)	41	(2.7)	38	(3.0)
i. Use calculators as an integral part of mathematics instruction	17	(2.1)	28	(2.7)	36	(2.5)	19	(2.5)
j. Use performance-based assessment	10	(2.1)	30	(2.3)	40	(2.5)	20	(2.2)
k. Teach groups that are heterogeneous in ability	2	(0.5)	10	(1.5)	43	(2.9)	46	(2.3)
l. Teach students from a variety of cultural backgrounds	10	(2.6)	20	(2.3)	37	(3.4)	33	(3.2)
m. Teach students who have limited English proficiency	43	(2.5)	29	(1.6)	16	(1.2)	12	(2.3)
n. Teach students with learning disabilities	16	(2.1)	32	(2.6)	32	(3.5)	20	(1.4)
o. Encourage participation of females in mathematics	2	(0.8)	4	(1.1)	28	(2.5)	67	(2.4)
p. Encourage participation of minorities in mathematics	7	(1.8)	9	(1.5)	25	(2.5)	59	(3.0)
q. Involve parents in the mathematics education of their children	7	(1.1)	26	(2.1)	40	(2.7)	28	(2.4)

Source: Mathematics Teacher Questionnaire, Item 5.

Grade 5–8 Mathematics Teachers' Perceptions of Their Preparation for Each of a Number of Tasks

	Percent of Teachers							
	Not Well Prepared		Somewhat Prepared		Fairly Well Prepared		Very Well Prepared	
a. Present the applications of mathematics concepts	1	(0.4)	7	(1.9)	41	(2.3)	52	(3.0)
b. Use cooperative learning groups	4	(1.8)	15	(2.2)	43	(3.3)	38	(2.7)
c. Take into account students' prior conceptions about mathematics when planning curriculum and instruction	3	(0.7)	21	(3.4)	49	(3.7)	27	(2.8)
d. Use computers as an integral part of mathematics instruction	19	(2.6)	33	(3.5)	31	(2.6)	17	(2.6)
e. Integrate mathematics with other subject areas	4	(1.0)	25	(2.7)	50	(3.9)	21	(3.1)
f. Manage a class of students who are using manipulatives	4	(0.8)	18	(2.9)	35	(4.5)	44	(4.5)
g. Use a variety of assessment strategies	5	(1.6)	23	(2.7)	40	(2.9)	33	(2.8)
h. Use textbook as a resource rather than as the primary instructional tool	7	(1.6)	26	(3.7)	35	(2.8)	32	(2.5)
i. Use calculators as an integral part of mathematics instruction	3	(0.7)	26	(2.1)	38	(3.0)	33	(3.6)
j. Use performance-based assessment	10	(2.1)	27	(3.0)	39	(2.3)	25	(2.7)
k. Teach groups that are heterogeneous in ability	3	(1.1)	13	(2.3)	45	(3.0)	40	(3.8)
l. Teach students from a variety of cultural backgrounds	5	(0.9)	22	(2.5)	40	(2.8)	33	(2.9)
m. Teach students who have limited English proficiency	42	(3.5)	25	(2.1)	22	(2.6)	11	(1.8)
n. Teach students with learning disabilities	18	(3.0)	39	(3.2)	28	(2.5)	15	(2.8)
o. Encourage participation of females in mathematics	0	(0.1)	5	(1.5)	30	(2.8)	65	(2.9)
p. Enconrage participation of minorities in mathematics	3	(0.9)	13	(2.9)	28	(3.2)	57	(3.8)
q. Involve parents in the mathematics education of their children	10	(1.5)	33	(2.9)	36	(2.6)	22	(2.0)

Source: Mathematics Teacher Questionnaire, Item 5.

Grade 9–12 Mathematics Teachers' Perceptions of Their Preparation for Each of a Number of Tasks

	Percent of Teachers							
	Not Well Prepared		Somewhat Prepared		Fairly Well Prepared		Very Well Prepared	
a. Present the applications of mathematics concepts	2	(0.8)	11	(2.7)	40	(3.0)	47	(2.8)
b. Use cooperative learning groups	6	(0.8)	28	(2.9)	42	(2.6)	24	(2.6)
c. Take into account students' prior conceptions about mathematics when planning curriculum and instruction	8	(1.2)	26	(1.9)	50	(3.0)	17	(1.7)
d. Use computers as an integral part of mathematics instruction	25	(3.3)	32	(2.6)	28	(2.5)	15	(1.4)
e. Integrate mathematics with other subject areas	9	(0.8)	41	(3.0)	37	(2.6)	14	(1.8)
f. Manage a class of students who are using manipulatives	10	(1.6)	28	(2.9)	39	(2.8)	23	(1.8)
g. Use a variety of assessment strategies	7	(1.1)	26	(2.1)	45	(3.2)	22	(2.1)
h. Use textbook as a resource rather than as the primary instructional tool	8	(1.1)	29	(3.6)	36	(2.5)	26	(1.8)
i. Use calculators as an integral part of mathematics instruction	3	(0.7)	16	(2.3)	37	(2.2)	44	(2.8)
j. Use performance-based assessment	14	(1.6)	28	(2.5)	39	(2.3)	19	(1.9)
k. Teach groups that are heterogeneous in ability	7	(1.0)	23	(2.2)	47	(2.4)	24	(1.7)
l. Teach students from a variety of cultural backgrounds	8	(1.0)	29	(3.4)	40	(2.6)	23	(2.0)
m. Teach students who have limited English proficiency	48	(2.5)	28	(2.2)	16	(1.6)	9	(1.8)
n. Teach students with learning disabilities	34	(3.0)	38	(2.3)	22	(2.5)	7	(1.1)
o. Encourage participation of females in mathematics	1	(0.6)	6	(1.4)	33	(3.1)	59	(2.7)
p. Encourage participation of minorities in mathematics	6	(1.1)	12	(1.6)	38	(3.1)	44	(2.7)
q. Involve parents in the mathematics education of their children	16	(1.3)	35	(2.3)	38	(2.5)	12	(1.3)

Source: Mathematics Teacher Questionnaire, Item 5.

Mathematics Teachers Completing Various College Courses

	Percent of Teachers					
	Grades 1–4		Grades 5–8		Grades 9–12	
Mathematics						
1. Mathematics for elementary school teachers	98	(1.2)	80	(2.2)	20	(2.8)
2. Mathematics for middle school teachers	14	(1.7)	41	(3.6)	30	(1.9)
3. Geometry for elementary/middle school teachers	30	(2.2)	35	(3.2)	24	(1.7)
4. College algebra/trigonometry/elementary functions	42	(2.3)	57	(3.7)	89	(1.0)
5. Calculus	12	(1.8)	32	(2.2)	95	(1.3)
6. Advanced calculus	4	(1.3)	17	(2.1)	72	(2.9)
7. Differential equations	2	(0.7)	12	(1.3)	62	(3.3)
8. Geometry	22	(2.3)	39	(3.0)	84	(2.6)
9. Probability and statistics	27	(3.0)	44	(3.1)	81	(2.7)
10. Abstract algebra/number theory	10	(1.5)	22	(2.2)	75	(2.9)
11. Linear algebra	6	(1.4)	20	(2.0)	78	(2.6)
12. Applications of mathematics/problem solving	24	(1.8)	28	(2.5)	45	(2.7)
13. History of mathematics	8	(1.5)	13	(1.6)	42	(2.6)
14. Discrete mathematics	2	(1.2)	6	(1.2)	26	(2.0)
15. Other upper division mathematics	6	(1.7)	18	(1.9)	57	(3.3)
Sciences/Computer Sciences						
16. Biological sciences	74	(2.8)	72	(2.9)	55	(2.9)
17. Chemistry	28	(2.2)	37	(2.4)	51	(2.8)
18. Physics	17	(1.6)	27	(1.9)	59	(3.0)
19. Physical science	49	(2.8)	48	(3.6)	31	(2.6)
20. Earth/space science	45	(2.8)	45	(2.4)	28	(2.8)
21. Engineering	2	(1.1)	3	(0.9)	10	(0.8)
22. Computer programming	21	(1.9)	30	(2.4)	65	(2.5)
23. Other computer science	21	(2.2)	24	(2.6)	33	(2.6)
Education						
24. Supervised student teaching in mathematics	50	(2.6)	41	(3.3)	65	(2.9)
25. Instructional use of computers/other technologies	35	(3.4)	32	(2.7)	43	(2.3)

Source: Mathematics Teacher Questionnaire, Item 6.

Grade 1–4 Mathematics Teachers Completing Various Numbers of Courses in Each Area

	Percent of Teachers									
	Mathematics Education		Calculus		Any Other Mathematics Course		Computer Science		Science	
Zero courses	1	(0.4)	87	(1.8)	40	(3.1)	56	(2.9)	10	(1.4)
One course	24	(2.2)	6	(0.9)	18	(1.6)	22	(3.2)	10	(1.4)
Two courses	24	(2.0)	3	(0.6)	15	(1.4)	10	(1.5)	19	(1.2)
Three courses	16	(1.3)	4	(1.3)	10	(1.2)	8	(1.7)	18	(2.4)
Four courses	14	(2.3)	1	(0.4)	5	(1.1)	1	(0.4)	17	(1.6)
Five courses	8	(1.6)	0	(0.1)	6	(1.4)	2	(0.7)	7	(0.9)
Six courses	6	(2.5)	0	(0.1)	3	(0.7)	1	(0.6)	6	(1.1)
Seven courses	1	(0.5)	1	(0.6)	0	(0.2)	0	(0.0)	3	(1.0)
Eight or more courses	6	(1.2)	0	(0.1)	4	(0.9)	1	(0.3)	12	(1.6)

Source: Mathematics Teacher Questionnaire, Item 7.

Grade 5–8 Mathematics Teachers Completing Various Numbers of Courses in Each Area

	Percent of Teachers									
	Mathematics Education		Calculus		Any Other Mathematics Course		Computer Science		Science	
Zero courses	0	(2.1)	66	(2.7)	25	(2.8)	44	(2.9)	8	(1.5)
One course	14	(2.2)	10	(2.3)	12	(2.8)	24	(2.8)	8	(2.1)
Two courses	23	(3.2)	10	(1.9)	19	(2.6)	12	(2.5)	15	(2.7)
Three courses	20	(2.8)	5	(1.0)	12	(2.6)	9	(1.7)	21	(3.1)
Four courses	15	(1.8)	4	(1.3)	6	(1.1)	5	(1.8)	16	(2.6)
Five courses	6	(1.2)	1	(0.2)	6	(1.3)	3	(0.8)	7	(1.3)
Six courses	5	(1.3)	1	(0.3)	5	(1.5)	1	(0.5)	9	(1.9)
Seven courses	1	(0.5)	0	(0.1)	1	(0.3)	0	(0.1)	3	(1.3)
Eight or more courses	8	(1.5)	3	(0.5)	14	(1.5)	4	(1.0)	14	(2.1)

Source: Mathematics Teacher Questionnaire, Item 7.

Grade 9–12 Mathematics Teachers Completing Various Numbers of Courses in Each Area

	Percent of Teachers									
	Mathematics Education		Calculus		Any Other Mathematics Course		Computer Science		Science	
Zero courses	16	(2.7)	6	(1.4)	4	(1.0)	24	(2.8)	9	(1.5)
One course	13	(2.7)	3	(0.7)	1	(0.5)	17	(1.5)	4	(0.7)
Two courses	13	(1.5)	15	(2.9)	4	(1.0)	21	(3.0)	14	(1.3)
Three courses	10	(1.6)	24	(2.4)	2	(0.5)	10	(1.0)	12	(1.3)
Four courses	12	(1.8)	23	(2.6)	5	(1.0)	10	(2.7)	14	(1.6)
Five courses	7	(1.2)	8	(1.0)	13	(1.6)	5	(0.8)	9	(1.2)
Six courses	5	(0.7)	6	(1.1)	8	(2.7)	5	(0.6)	8	(1.0)
Seven courses	1	(0.2)	1	(0.3)	4	(0.9)	1	(0.2)	2	(0.5)
Eight or more courses	24	(1.5)	14	(1.5)	61	(3.2)	8	(1.1)	29	(3.6)

Source: Mathematics Teacher Questionnaire, Item 7.

Mathematics Teachers with Undergraduate or Graduate Majors in Mathematics or Mathematics Education

	Percent of Teachers					
	Grades 1–4		Grades 5–8		Grades 9–12	
Mathematics only	1	(0.4)	6	(0.7)	36	(2.6)
Mathematics and mathematics education	0	(0.0)	1	(0.2)	7	(0.8)
Mathematics education only	1	(0.4)	4	(0.7)	20	(1.7)
Neither mathematics nor mathematics education	99	(1.0)	90	(1.5)	37	(3.3)

Source: Mathematics Teacher Questionnaire, Item 8.

Last Year a Course for College Credit in Mathematics was Taken by Mathematics Teachers

	Percent of Teachers					
	Grades 1–4		Grades 5–8		Grades 9–12	
1989–1993	23	(1.9)	29	(2.6)	33	(2.2)
1983–1988	24	(2.2)	24	(3.2)	29	(3.2)
Prior to 1983	53	(2.6)	47	(3.6)	39	(1.8)

Source: Mathematics Teacher Questionnaire, Item 9.a.

Last Year a Course for College Credit in Mathematics Education was Taken by Mathematics Teachers

	Percent of Teachers					
	Grades 1–4		Grades 5–8		Grades 9–12	
1989–1993	34	(2.1)	36	(3.7)	36	(2.0)
1983–1988	24	(1.8)	18	(2.1)	24	(2.3)
Prior to 1983	42	(2.3)	46	(3.7)	40	(2.1)

Source: Mathematics Teacher Questionnaire, Item 9.b.

Time Spent by Mathematics Teachers on In-Service Education in Mathematics or the Teaching of Mathematics in Last 12 Months

	Percent of Teachers					
	Grades 1–4		Grades 5–8		Grades 9–12	
None	34	(3.4)	28	(2.9)	19	(2.7)
Less than 6 hours	32	(2.8)	33	(2.9)	27	(2.6)
6–15 hours	20	(2.2)	26	(2.6)	29	(2.7)
16–35 hours	8	(1.0)	8	(1.3)	14	(1.6)
More than 35 hours	6	(1.5)	5	(1.0)	11	(1.0)

Source: Mathematics Teacher Questionnaire, Item 10.

Time Spent by Mathematics Teachers on In-Service Education in Mathematics or the Teaching of Mathematics in Last Three Years

	Percent of Teachers					
	Grades 1–4		Grades 5–8		Grades 9–12	
None	17	(1.5)	15	(1.5)	10	(1.8)
Less than 6 hours	22	(2.0)	22	(3.5)	14	(2.8)
6–15 hours	29	(2.4)	23	(2.5)	21	(1.8)
16–35 hours	18	(2.4)	24	(2.5)	24	(2.6)
More than 35 hours	15	(2.0)	17	(2.0)	31	(2.2)

Source: Mathematics Teacher Questionnaire, Item 10.

Mathematics Teachers Participating in Various Mathematics-Related Professional Activities in Last 12 Months

	Percent of Teachers					
	Grades 1–4		Grades 5–8		Grades 9–12	
a. Attended any national or state mathematics teacher association meetings	9	(1.4)	19	(2.1)	39	(2.6)
b. Taught any in-service workshops or courses in mathematics or mathematics teaching	6	(1.4)	6	(0.8)	13	(1.2)
c. Received any local, state, or national grants or awards for mathematics teaching	3	(0.7)	3	(0.8)	8	(0.6)
d. Served on a school or district mathematics curriculum committee	16	(2.0)	31	(2.7)	47	(2.9)
e. Served on a school or district mathematics textbook selection committee	18	(1.9)	25	(2.6)	51	(2.5)

Source: Mathematics Teacher Questionnaire, Item 11.

Grade 1–4 Mathematics Teachers' Use of Selected NSF-Supported Curricula

	Percent of Teachers							
	Have never heard of		Have heard of but not seen		Have seen but not used		Have nsed in teaching	
a. Calculus and Mathematics Project-Los Angeles (CAMP-LA)	84	(1.7)	11	(1.6)	3	(0.9)	2	(0.6)
b. Computer-Intensive Algebra	86	(2.7)	12	(2.1)	2	(0.8)	0	(0.1)
c. Elementary Mathematician	62	(2.7)	26	(2.4)	9	(1.5)	3	(0.6)
d. Futures with Jaime Escalante	76	(3.1)	19	(2.8)	5	(1.0)	0	(0.2)
e. Geometer's Sketchpad	94	(1.6)	5	(0.9)	1	(0.3)	1	(0.5)
f. Geometry and Measurement, K–6	71	(2.7)	16	(1.4)	6	(0.9)	7	(1.3)
g. Getting Ready for Algebra	86	(2.0)	10	(1.6)	3	(0.7)	1	(0.6)
h. High School Math and Its Applications Project (HIMAP)	96	(1.4)	3	(0.7)	1	(0.2)	0	(0.0)
i. Jasper Series	95	(1.4)	4	(0.7)	1	(0.5)	0	(0.1)
j. Journeys in Mathematics	84	(2.0)	10	(1.3)	5	(1.1)	1	(0.3)
k. Logo Geometry	67	(2.5)	19	(2.0)	11	(1.7)	3	(1.0)
l. Math and the Mind's Eye	82	(3.2)	10	(2.1)	6	(1.6)	2	(0.7)
m. Middle Grades Mathematics Project	90	(1.4)	8	(1.3)	1	(0.5)	0	(0.1)
n. Project Mathematics!	86	(2.0)	12	(1.7)	2	(0.6)	0	(0.0)
o. Quantitative Literacy Series	93	(1.4)	7	(0.7)	1	(0.5)	0	(0.0)
p. Used Numbers: Collecting and Analyzing Real Data	88	(2.2)	6	(1.5)	2	(0.4)	4	(1.0)

Source: Mathematics Teacher Questionnaire, Item 12.

Grade 5–8 Mathematics Teachers' Use of Selected NSF-Supported Curricula

	Percent of Teachers							
	Have never heard of		Have heard of but not seen		Have seen but not used		Have used in teaching	
a. Calculus and Mathematics Project-Los Angeles (CAMP-LA)	80	(3.0)	14	(3.1)	3	(1.2)	3	(0.7)
b. Computer-Intensive Algebra	82	(2.3)	15	(2.1)	2	(0.8)	1	(0.4)
c. Elementary Mathematician	68	(3.1)	23	(2.9)	6	(1.3)	4	(1.1)
d. Futures with Jaime Escalante	64	(3.3)	23	(2.9)	8	(1.3)	5	(0.9)
e. Geometer's Sketchpad	80	(2.3)	12	(1.4)	8	(1.4)	1	(0.4)
f. Geometry and Measurement, K–6	69	(2.9)	18	(2.1)	7	(1.5)	6	(1.2)
g. Getting Ready for Algebra	75	(2.6)	17	(2.1)	5	(1.0)	3	(0.9)
h. High School Math and Its Applications Project (HIMAP)	90	(2.1)	7	(1.3)	2	(1.0)	0	(0.0)
i. Jasper Series	92	(1.8)	6	(1.4)	2	(0.7)	0	(0.2)
j. Journeys in Mathematics	77	(3.0)	18	(3.1)	5	(1.2)	1	(0.6)
k. Logo Geometry	57	(2.9)	23	(1.9)	13	(1.8)	7	(2.0)
l. Math and the Mind's Eye	76	(2.7)	15	(2.1)	5	(1.3)	4	(0.8)
m. Middle Grades Mathematics Project	71	(2.8)	16	(2.0)	8	(1.7)	5	(0.9)
n. Project Mathematics!	78	(2.0)	17	(2.2)	5	(1.3)	1	(0.3)
o. Quantitative Literacy Series	90	(2.5)	6	(1.7)	3	(1.0)	0	(0.1)
p. Used Numbers: Collecting and Analyzing Real Data	84	(2.6)	7	(1.6)	3	(0.8)	6	(1.4)

Source: Mathematics Teacher Questionnaire, Item 12.

Grade 9–12 Mathematics Teachers' Use of Selected NSF-Supported Curricula

	Percent of Teachers							
	Have never heard of		Have heard of but not seen		Have seen but not used		Have used in teaching	
a. Calculus and Mathematics Project-Los Angeles (CAMP-LA)	76	(1.6)	17	(1.6)	5	(1.0)	3	(0.7)
b. Computer-Intensive Algebra	65	(2.5)	26	(2.4)	7	(0.9)	2	(0.8)
c. Elementary Mathematician	84	(1.2)	11	(1.2)	4	(0.6)	1	(0.3)
d. Futures with Jaime Escalante	49	(2.9)	24	(1.8)	14	(1.2)	12	(1.4)
e. Geometer's Sketchpad	46	(2.9)	27	(1.8)	22	(2.8)	6	(1.2)
f. Geometry and Measurement, K–6	79	(1.6)	16	(1.6)	4	(0.7)	1	(0.4)
g. Getting Ready for Algebra	72	(2.0)	19	(1.7)	6	(0.6)	3	(0.7)
h. High School Math and Its Applications Project (HIMAP)	71	(2.4)	16	(1.8)	9	(1.3)	4	(0.6)
i. Jasper Series	93	(1.0)	5	(0.8)	2	(0.4)	0	(0.2)
j. Journeys in Mathematics	81	(1.4)	14	(1.4)	4	(0.6)	1	(0.6)
k. Logo Geometry	49	(2.7)	25	(1.6)	20	(2.2)	6	(0.8)
l. Math and the Mind's Eye	77	(1.6)	15	(1.5)	6	(0.8)	2	(0.5)
m. Middle Grades Mathematics Project	80	(1.4)	14	(1.3)	4	(0.8)	3	(0.7)
n. Project Mathematics!	80	(1.7)	14	(1.7)	4	(0.7)	2	(0.4)
o. Quantitative Literacy Series	86	(1.4)	7	(1.0)	3	(0.7)	4	(1.0)
p. Used Numbers: Collecting and Analyzing Real Data	85	(1.6)	9	(1.4)	4	(0.7)	2	(0.6)

Source: Mathematics Teacher Questionnaire, Item 12.

Mathematics Teachers' Familiarity with the NCTM *Standards*

	Percent of Teachers					
	Grades 1–4		Grades 5–8		Grades 9–12	
Well aware of the NCTM *Standards*	18	(1.6)	28	(2.2)	56	(2.6)
Heard of the NCTM *Standards* but don't know much about them	39	(1.8)	41	(3.0)	33	(2.7)
Not aware of the NCTM *Standards*	30	(2.9)	22	(2.6)	8	(1.4)
Not sure	13	(1.2)	9	(2.1)	3	(0.3)

Source: Mathematics Teacher Questionnaire, Item 13.a.

Mathematics Teachers' Reported Understanding of the NCTM *Standards**

	Percent of Teachers									
	Strongly Disagree		Disagree		No Opinion		Agree		Strongly Agree	
Grades 1–4										
I am well informed about the NCTM *Standards* for the grades I teach	1	(0.1)	6	(0.6)	6	(0.5)	61	(1.3)	27	(1.0)
I am prepared to explain the NCTM *Standards* to my colleagues	4	(0.2)	23	(0.9)	23	(1.1)	38	(1.2)	12	(0.7)
Grades 5–8										
I am well informed about the NCTM *Standards* for the grades I teach	1	(0.2)	8	(1.6)	3	(0.3)	64	(2.3)	24	(1.0)
I am prepared to explain the NCTM *Standards* to my colleagues	2	(0.1)	26	(1.7)	19	(1.1)	42	(1.6)	11	(0.7)
Grades 9–12										
I am well informed about the NCTM *Standards* for the grades I teach	0	(0.2)	4	(0.5)	5	(0.7)	63	(2.9)	28	(1.7)
I am prepared to explain the NCTM *Standards* to my colleagues	4	(0.3)	21	(1.3)	18	(1.3)	43	(3.1)	15	(1.0)

* Only those teachers who indicated they were "Well aware" of the NCTM *Curriculum and Evaluation Standards* were asked to respond to these items.

Source: Mathematics Teacher Questionnaire, Item 13.b.

Mathematics Teachers' Familiarity with the NCTM *Teaching Standards*

	Percent of Teachers					
	Grades 1–4		Grades 5–8		Grades 9–12	
Well aware of the NCTM *Teaching Standards*	12	(1.3)	19	(1.7)	40	(2.0)
Heard of the NCTM Teaching Standards but don't know much about them	38	(2.0)	48	(3.0)	44	(2.7)
Not aware of the NCTM *Teaching Standards*	38	(2.8)	25	(2.9)	13	(1.8)
Not Sure	13	(1.3)	8	(1.4)	3	(0.4)

Source: Mathematics Teacher Questionnaire, Item 14.a.

Mathematics Teachers' Reported Understanding of the NCTM *Teaching Standards**

	Percent of Teachers									
	Strongly Disagree		Disagree		No Opinion		Agree		Strongly Agree	
Grades 1–4										
I am well informed about the NCTM *Teaching Standards* for the grades I teach	1	(0.1)	1	(0.1)	8	(0.5)	61	(1.0)	29	(0.9)
I am prepared to explain the NCTM *Teaching Standards* to my colleagues	3	(0.2)	16	(0.5)	24	(0.7)	45	(0.9)	11	(0.7)
Grades 5–8										
I am well informed about the NCTM *Teaching Standards* for the grades I teach	1	(0.2)	3	(0.4)	5	(0.5)	69	(1.7)	22	(0.7)
I am prepared to explain the NCTM *Teaching Standards* to my colleagues	1	(0.1)	25	(1.0)	25	(0.8)	39	(1.2)	11	(0.4)
Grades 9–12										
I am well informed about the NCTM *Teaching Standards* for the grades I teach	0	(0.0)	4	(0.7)	6	(0.7)	60	(1.9)	29	(1.7)
I am prepared to explain the NCTM *Teaching Standards* to my colleagues	3	(0.4)	21	(1.0)	21	(1.1)	39	(1.4)	17	(0.9)

* Only those teachers who indicated they were "Well aware" of the NCTM *Professional Standards for Teaching Mathematics* were asked to respond to these items.

Source: Mathematics Teacher Questionnaire, Item 14.b.

Mathematics Teachers in Self-Contained Classrooms

	Percent of Teachers	
Grades 1–4	97	(0.8)
Grades 5–8	56	(2.8)
Grades 9–12	1	(0.8)

Source: Mathematics Teacher Questionnaire, Item 15.

Duration of Mathematics Courses

	Percent of Classes					
	Grades 1–4		Grades 5–8		Grades 9–12	
Year	99	(0.8)	99	(0.6)	94	(0.5)
Semester	1	(0.4)	0	(0.1)	5	(0.4)
Quarter	0	(0.1)	0	(0.1)	0	(0.2)
Other	0	(0.3)	0	(0.2)	1	(0.2)

Source: Mathematics Teacher Questionnaire, Item 18.

Race/Ethnicity of Mathematics Students

	Percent of Students					
	Grades 1–4		Grades 5–8		Grades 9–12	
Male	**50**	(0.4)	**51**	(0.7)	**50**	(0.7)
a. White	37	(1.0)	37	(1.5)	39	(0.7)
b. Black	6	(0.5)	6	(0.9)	6	(0.5)
c. Hispanic	6	(0.9)	6	(1.1)	4	(0.3)
d. American Indian	0	(0.1)	0	(0.2)	0	(0.1)
e. Asian	1	(0.1)	1	(0.2)	2	(0.2)
Female	**50**	(0.4)	**49**	(0.7)	**50**	(0.7)
a. White	36	(1.2)	35	(1.3)	39	(0.9)
b. Black	6	(0.8)	6	(0.7)	6	(0.3)
c. Hispanic	6	(1.0)	6	(1.5)	3	(0.3)
d. American Indian	0	(0.1)	0	(0.1)	0	(0.0)
e. Asian	1	(0.2)	1	(0.3)	2	(0.1)

Source: Mathematics Teacher Questionnaire, Item 20

Mathematics Classes with One or More Students in Each Category

	Percent of Classes					
	Grades 1–4		Grades 5–8		Grades 9–12	
Limited English Proficiency	20	(2.1)	16	(2.1)	15	(1.4)
Learning Disabled	52	(2.6)	40	(2.6)	24	(1.4)
Mentally Handicapped	5	(0.6)	2	(0.6)	1	(0.2)
Physically Handicapped	6	(1.1)	4	(1.4)	2	(0.4)

Source: Mathematics Teacher Questionnaire, Item 21.

Students Assigned to Mathematics Classes by Ability

	Percent of Classes	
Grades 1–4	14	(2.3)
Grades 5–8	46	(2.5)
Grades 9–12	66	(1.8)

Source: Mathematics Teacher Questionnaire, Item 22.

Ability Grouping in Mathematics Classes

	Percent of Classes					
	Grades 1–4		Grades 5–8		Grades 9–12	
Fairly homogeneous and low in ability	6	(0.9)	8	(1.1)	11	(1.3)
Fairly homogeneous and average in ability	24	(2.1)	25	(2.7)	34	(1.5)
Fairly homogeneous and high in ability	7	(1.7)	22	(2.5)	24	(2.4)
Heterogeneous, with a mixture of two or more ability levels	63	(2.6)	46	(2.3)	32	(2.0)

Source: Mathematics Teacher Questionnaire, Item 23.

Emphasis Given in Grade 1–4 Mathematics Classes to Various Instructional Objectives

	Percent of Classes											
	None 0		Minimal Emphasis 1		2		Moderate Emphasis 3		4		Very Heavy Emphasis 5	
a. Increase interest in mathematics	0	(0.0)	2	(0.6)	3	(1.1)	18	(2.0)	33	(2.2)	44	(3.2)
b. Learn mathematical concepts	0	(0.0)	0	(0.1)	0	(0.0)	7	(1.8)	31	(3.4)	62	(2.9)
c. Learn mathematical algorithms	17	(1.6)	11	(1.4)	7	(1.5)	24	(1.8)	25	(2.1)	16	(2.0)
d. Learn how to solve problems	0	(0.0)	0	(0.1)	1	(0.2)	7	(1.1)	30	(2.8)	63	(2.4)
e. Learn to reason mathematically	0	(0.2)	1	(0.6)	2	(0.7)	12	(1.0)	38	(2.5)	48	(1.9)
f. Learn how mathematical ideas connect with one another	0	(0.2)	1	(0.6)	3	(0.9)	16	(2.3)	41	(2.6)	38	(2.0)
g. Prepare for further study in mathematics	1	(0.8)	4	(1.4)	5	(0.8)	22	(2.2)	32	(2.4)	37	(2.8)
h. Understand the logical structure of mathematics	4	(1.6)	7	(1.2)	9	(1.4)	26	(2.4)	32	(2.3)	23	(1.9)
i. Learn about the history of mathematics	31	(2.0)	38	(2.4)	15	(1.4)	12	(1.5)	3	(0.7)	1	(0.4)
j. Learn to explain ideas in mathematics effectively	3	(0.9)	7	(1.2)	11	(1.6)	29	(2.1)	29	(1.5)	21	(1.9)
k. Increase awareness of the importance of mathematics in daily life	0	(0.0)	0	(0.2)	4	(1.0)	13	(2.0)	33	(2.5)	50	(3.4)
l. Learn about the applications of mathematics in science	4	(1.2)	10	(1.2)	14	(2.1)	31	(2.7)	27	(1.7)	14	(1.4)
m. Learn about the applications of mathematics in business and industry	12	(1.0)	19	(2.3)	17	(1.7)	28	(1.9)	13	(1.5)	11	(1.6)
n. Learn to perform computations with speed and accuracy	1	(0.3)	4	(0.9)	6	(1.3)	21	(2.2)	32	(2.9)	35	(2.4)
o. Prepare for standardized tests	6	(1.1)	10	(1.7)	13	(2.0)	29	(2.7)	21	(2.4)	22	(1.9)

Source: Mathematics Teacher Questionnaire, Item 24.

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

	Percent of Classes											
	None 0		Minimal Emphasis 1		2		Moderate Emphasis 3		4		Very Heavy Emphasis 5	
a. Increase interest in mathematics	0	(0.0)	2	(0.5)	4	(0.6)	22	(2.2)	37	(3.1)	35	(2.9)
b. Learn mathematical concepts	0	(0.0)	0	(0.1)	1	(0.3)	5	(0.9)	36	(2.7)	58	(3.0)
c. Learn mathematical algorithms	4	(1.2)	5	(1.2)	10	(1.3)	32	(2.7)	34	(3.0)	16	(1.8)
d. Learn how to solve problems	0	(0.0)	0	(0.2)	1	(0.7)	8	(1.3)	31	(3.3)	60	(3.3)
e. Learn to reason mathematically	0	(0.0)	0	(0.2)	1	(0.3)	11	(1.5)	38	(3.3)	50	(3.3)
f. Learn how mathematical ideas connect with one another	0	(0.0)	0	(0.2)	2	(0.5)	14	(1.7)	41	(3.6)	43	(3.4)
g. Prepare for further study in mathematics	0	(0.2)	1	(0.5)	4	(1.1)	19	(2.6)	35	(2.8)	41	(2.6)
h. Understand the logical structure of mathematics	1	(0.5)	2	(0.6)	4	(0.6)	21	(2.3)	44	(2.7)	28	(3.1)
i. Learn about the history of mathematics	12	(1.9)	32	(2.7)	26	(2.4)	23	(2.8)	6	(1.3)	2	(0.9)
j. Learn to explain ideas in mathematics effectively	0	(0.1)	5	(0.9)	8	(1.3)	32	(2.9)	33	(3.0)	23	(2.5)
k. Increase awareness of the importance of mathematics in daily life	0	(0.1)	1	(0.2)	3	(0.7)	12	(2.0)	32	(2.0)	52	(2.8)
l. Learn about the applications of mathematics in science	1	(0.2)	6	(1.1)	16	(3.2)	37	(3.4)	29	(2.3)	11	(1.5)
m. Learn about the applications of mathematics in business and industry	1	(0.3)	7	(1.4)	12	(1.3)	31	(2.7)	35	(2.8)	14	(1.7)
n. Learn to perform computations with speed and accuracy	0	(0.1)	3	(0.6)	8	(1.0)	30	(2.8)	33	(2.6)	26	(2.3)
o. Prepare for standardized tests	4	(1.0)	10	(1.5)	17	(2.5)	27	(2.4)	25	(2.4)	18	(2.4)

Source: Mathematics Teacher Questionnaire, Item 24.

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

	Percent of Classes											
	None 0		Minimal Emphasis 1		2		Moderate Emphasis 3		4		Very Heavy Emphasis 5	
a. Increase interest in mathematics	0	(0.1)	4	(0.8)	6	(1.3)	33	(1.5)	38	(2.4)	19	(1.9)
b. Learn mathematical concepts	0	(0.0)	0	(0.0)	2	(0.4)	10	(2.2)	38	(2.5)	50	(3.5)
c. Learn mathematical algorithms	2	(0.4)	6	(0.8)	11	(1.5)	27	(2.2)	36	(2.7)	18	(1.8)
d. Learn how to solve problems	0	(0.0)	0	(0.2)	1	(0.6)	10	(1.6)	38	(2.6)	51	(3.3)
e. Learn to reason mathematically	0	(0.0)	1	(0.3)	2	(1.4)	10	(1.3)	38	(1.4)	50	(1.9)
f. Learn how mathematical ideas connect with one another	0	(0.0)	1	(0.3)	2	(0.4)	19	(1.8)	39	(1.7)	39	(2.0)
g. Prepare for further study in mathematics	0	(0.2)	3	(0.7)	5	(0.7)	13	(1.4)	33	(2.5)	46	(2.5)
h. Understand the logical structure of mathematics	1	(0.3)	3	(0.7)	7	(0.9)	23	(1.5)	39	(2.5)	28	(2.0)
i. Learn about the history of mathematics	11	(1.1)	33	(2.3)	29	(1.8)	22	(1.8)	5	(0.8)	1	(0.4)
j. Learn to explain ideas in mathematics effectively	1	(0.4)	5	(0.8)	12	(2.0)	35	(1.8)	32	(2.1)	16	(1.7)
k. Increase awareness of the importance of mathematics in daily life	0	(0.1)	4	(0.7)	8	(1.4)	28	(1.5)	36	(2.1)	24	(1.4)
l. Learn about the applications of mathematics in science	2	(0.3)	9	(1.0)	16	(1.5)	35	(2.7)	28	(2.3)	11	(1.6)
m. Learn about the applications of mathematics in business and industry	2	(0.6)	8	(1.3)	17	(1.7)	35	(2.6)	25	(1.6)	12	(1.0)
n. Learn to perform computations with speed and accuracy	2	(0.6)	11	(1.1)	18	(2.0)	31	(1.9)	28	(1.6)	11	(1.0)
o. Prepare for standardized tests	4	(0.9)	12	(1.4)	21	(2.1)	29	(2.0)	23	(2.2)	12	(1.6)

Source: Mathematics Teacher Questionnaire, Item 24.

Influence of Various Factors on Grade 1–4 Mathematics Curriculum

	Percent of Classes									
	No Influence 1		2		3		Extensive Influence 4		Not Applicable	
a. State's curriculum framework/course of study	5	(1.6)	10	(1.5)	34	(1.8)	44	(1.8)	6	(1.1)
b. District's curriculum framework/course of study	2	(0.7)	5	(1.2)	29	(2.0)	58	(2.2)	6	(1.3)
c. State test	8	(1.8)	18	(2.0)	30	(2.3)	28	(2.2)	17	(2.0)
d. District test	11	(1.8)	15	(2.1)	26	(2.3)	25	(1.8)	24	(2.4)
e. Textbook	5	(1.3)	15	(1.8)	38	(2.5)	39	(2.8)	3	(0.9)
f. NCTM's *Curriculum and Evaluation Standards*	29	(2.4)	20	(2.8)	16	(1.3)	8	(1.1)	27	(2.5)
g. NCTM's *Professional Standards for Teaching Mathematics*	31	(2.7)	20	(2.9)	14	(1.2)	8	(1.1)	28	(2.4)
h. *Science for All Americans* (AAAS' Project 2061)	45	(2.5)	12	(1.9)	3	(0.6)	1	(0.3)	39	(2.0)
i. Own mathematics content background	2	(0.7)	8	(1.4)	41	(2.9)	48	(2.4)	1	(0.5)
j. Own understanding of what motivates students	1	(0.5)	2	(0.7)	27	(2.2)	70	(2.3)	1	(0.3)
k. Available facilities, equipment, and supplies	1	(0.7)	9	(1.7)	35	(3.0)	53	(3.3)	1	(0.5)
l. Parents/community	10	(1.3)	30	(2.5)	38	(2.2)	19	(2.1)	3	(0.9)

Source: Mathematics Teacher Questionnaire, Item 25.

Influence of Various Factors on Grade 5–8 Mathematics Curriculum

	Percent of Classes									
	No Influence 1		2		3		Extensive Influence 4		Not Applicable	
a. State's curriculum framework/course of study	6	(1.2)	13	(2.0)	37	(2.9)	38	(2.4)	7	(1.4)
b. District's curriculum framework/course of study	3	(0.8)	8	(1.7)	32	(2.9)	51	(2.6)	7	(2.5)
c. State test	15	(1.9)	17	(2.1)	27	(3.0)	28	(3.1)	13	(1.7)
d. District test	16	(1.9)	17	(1.9)	20	(2.0)	19	(1.8)	28	(2.7)
e. Textbook	4	(1.1)	18	(2.0)	37	(3.2)	39	(2.9)	1	(0.5)
f. NCTM's *Curriculum and Evaluation Standards*	21	(2.3)	20	(1.8)	30	(3.1)	13	(1.6)	16	(2.0)
g. NCTM's *Professional Standards for Teaching Mathematics*	24	(2.6)	20	(2.4)	29	(3.2)	10	(1.3)	17	(2.0)
h. *Science for All Americans* (AAAS' Project 2061)	44	(3.3)	14	(2.6)	5	(1.0)	1	(0.3)	37	(2.9)
i. Own mathematics content background	3	(0.7)	9	(1.6)	41	(2.9)	47	(2.5)	1	(0.3)
j. Own understanding of what motivates students	0	(0.0)	2	(0.8)	36	(2.5)	62	(2.6)	0	(0.3)
k. Available facilities, equipment, and supplies	3	(0.8)	13	(1.8)	41	(2.8)	42	(3.2)	2	(1.2)
l. Parents/community	11	(1.4)	35	(2.9)	41	(3.2)	13	(1.7)	1	(0.4)

Source: Mathematics Teacher Questionnaire, Item 25.

Influence of Various Factors on Grade 9–12 in Mathematics Curriculum

	Percent of Classes									
	No Influence 1		2		3		Extensive Influence 4		Not Applicable	
a. State's curriculum framework/course of study	11	(1.5)	18	(1.1)	32	(1.9)	28	(2.4)	11	(2.0)
b. District's curriculum framework/course of study	7	(1.1)	10	(1.1)	34	(3.1)	42	(2.2)	8	(1.7)
c. State test	22	(2.0)	20	(1.2)	19	(1.5)	18	(1.5)	21	(2.0)
d. District test	26	(1.8)	19	(1.4)	15	(1.7)	8	(1.3)	33	(2.3)
e. Textbook	3	(0.5)	12	(1.4)	41	(1.8)	42	(1.8)	2	(0.4)
f. NCTM's *Curriculum and Evaluation Standards*	18	(1.4)	21	(1.8)	42	(2.5)	12	(1.1)	7	(0.8)
g. NCTM's *Professional Standards for Teaching*	22	(1.8)	23	(1.5)	36	(2.8)	10	(1.2)	9	(0.8)
h. *Science for All Americans* (AAAS' Project 2061)	53	(1.7)	10	(1.1)	3	(0.9)	0	(0.1)	35	(1.7)
i. Own mathematics content background	3	(0.6)	8	(0.7)	36	(1.9)	53	(2.1)	1	(0.3)
j. Own understanding of what motivates students	1	(0.2)	9	(1.6)	40	(1.7)	50	(2.0)	1	(0.2)
k. Available facilities, equipment, and supplies	4	(0.6)	17	(1.3)	47	(2.0)	32	(1.9)	1	(0.2)
l. Parents/community	20	(2.5)	38	(2.4)	31	(2.4)	9	(1.1)	2	(0.6)

Source: Mathematics Teacher Questionnaire, Item 25.

Grade 1–4 Mathematics Class Participation in Various Instructional Activities

	Percent of Classes									
	Never		Once or Twice a Semester		Once or Twice a Month		Once or Twice a Week		Almost Daily	
a. Listen and take notes during presentation by teacher	63	(3.2)	11	(1.7)	8	(1.4)	6	(1.3)	13	(1.4)
b. Do mathematics problems from textbooks	11	(2.1)	2	(0.6)	5	(0.8)	27	(1.9)	55	(2.7)
c. Do mathematics problems from worksheets	2	(0.7)	3	(1.1)	14	(1.4)	46	(2.4)	35	(1.7)
d. Work in small groups	1	(0.3)	3	(0.9)	13	(2.0)	50	(2.4)	34	(2.7)
e. Work in class on mathematics projects that take a week or more	48	(1.8)	30	(1.8)	15	(1.9)	5	(1.0)	3	(0.7)
f. Work at home on mathematics projects that take a week or more	72	(2.3)	20	(1.5)	5	(1.0)	2	(0.7)	1	(0.4)
g. Make conjectures and explore possible methods to solve a mathematical problem	16	(2.1)	16	(2.6)	24	(1.4)	31	(2.9)	13	(1.9)
h. Learn about mathematics through real-life applications	3	(1.2)	7	(1.4)	28	(1.7)	39	(2.0)	23	(2.0)
i. Write their reasoning about how to solve a problem	31	(1.9)	18	(2.5)	24	(2.9)	22	(1.8)	6	(1.3)
j. Use manipulative materials or models	1	(0.3)	3	(0.8)	14	(1.6)	38	(2.2)	44	(1.8)
k. Use computers/calculators to explore problems	17	(1.3)	12	(1.4)	28	(2.3)	37	(1.7)	7	(1.3)
l. Use computers/calculators to do computations	17	(1.3)	13	(2.2)	25	(2.2)	39	(2.3)	7	(1.1)
m. Use computers/calculators to develop an understanding of mathematics concepts	21	(1.6)	16	(1.6)	26	(2.3)	32	(2.0)	5	(1.1)
n. Participate in dialogue with the teacher to develop an idea	8	(1.7)	8	(1.3)	14	(0.9)	33	(2.0)	38	(2.9)
o. Watch films, filmstrips, or videotapes	51	(2.2)	27	(2.0)	19	(1.6)	3	(0.9)	1	(0.3)
p. Watch television programs	74	(1.8)	17	(1.8)	7	(0.9)	2	(0.6)	0	(0.2)

Source: Mathematics Teacher Questionnaire, Item 26.

Grade 5–8 Mathematics Class Participation in Various Instructional Activities

	Percent of Classes									
	Never		Once or Twice a Semester		Once or Twice a Month		Once or Twice a Week		Almost Daily	
a. Listen and take notes during presentation by teacher	12	(2.7)	10	(1.5)	12	(2.0)	23	(2.1)	43	(2.2)
b. Do mathematics problems from textbooks	1	(0.4)	2	(0.6)	4	(1.1)	21	(1.9)	72	(2.3)
c. Do mathematics problems from worksheets	2	(0.4)	6	(1.4)	23	(2.4)	48	(3.0)	20	(2.5)
d. Work in small groups	2	(0.6)	6	(0.9)	23	(2.7)	43	(3.6)	27	(2.5)
e. Work in class on mathematics projects that take a week or more	41	(2.7)	39	(2.7)	17	(2.2)	3	(1.0)	1	(0.4)
f. Work at home on mathematics projects that take a week or more	53	(2.8)	33	(2.6)	10	(2.1)	3	(1.2)	0	(0.2)
g. Make conjectures and explore possible methods to solve a mathematical problem	8	(1.3)	15	(2.0)	26	(2.2)	38	(3.1)	13	(2.1)
h. Learn about mathematics through real-life applications	3	(1.1)	10	(1.8)	27	(2.0)	42	(3.2)	19	(2.7)
i. Write their reasoning about how to solve a problem	14	(1.5)	24	(3.0)	32	(2.6)	25	(2.6)	6	(1.4)
j. Use manipulative materials or models	7	(1.3)	17	(1.7)	37	(3.0)	32	(3.0)	7	(1.5)
k. Use computers/calculators to explore problems	10	(3.0)	12	(1.5)	25	(2.3)	32	(2.6)	21	(3.0)
l. Use computers/calculators to do computations	8	(3.1)	10	(1.3)	25	(2.5)	31	(2.5)	26	(3.3)
m. Use computers/calculators to develop an understanding of mathematics concepts	14	(2.3)	16	(2.1)	30	(2.3)	26	(2.3)	13	(2.3)
n. Participate in dialogue with the teacher to develop an idea	5	(1.3)	5	(0.6)	18	(2.0)	33	(3.4)	39	(3.2)
o. Watch films, filmstrips, or videotapes	51	(2.4)	37	(2.4)	11	(1.3)	2	(0.6)	0	(0.0)
p. Watch television programs	69	(2.7)	25	(2.8)	4	(0.8)	1	(0.4)	1	(0.4)

Source: Mathematics Teacher Questionnaire, Item 26.

Grade 9–12 Mathematics Class Participation in Various Instructional Activities

	Percent of Classes									
	Never		Once or Twice a Semester		Once or Twice a Month		Once or Twice a Week		Almost Daily	
a. Listen and take notes during presentation by teacher	1	(0.2)	1	(0.4)	5	(1.2)	21	(1.6)	73	(1.8)
b. Do mathematics problems from textbooks	1	(0.3)	0	(0.2)	1	(0.3)	12	(1.4)	86	(1.5)
c. Do mathematics problems from worksheets	3	(0.6)	10	(1.2)	29	(2.0)	45	(2.0)	13	(1.2)
d. Work in small groups	4	(0.6)	8	(0.9)	24	(1.7)	40	(2.1)	24	(1.7)
e. Work in class on mathematics projects that take a week or more	58	(2.1)	34	(1.8)	6	(0.8)	1	(0.3)	1	(0.2)
f. Work at home on mathematics projects that take a week or more	66	(2.0)	28	(2.0)	5	(0.9)	1	(0.3)	1	(0.2)
g. Make conjectures and explore possible methods to solve a mathematical problem	14	(1.9)	21	(1.5)	25	(1.4)	26	(2.5)	15	(1.7)
h. Learn about mathematics through real-life applications	8	(1.2)	20	(2.3)	32	(2.1)	29	(1.9)	11	(1.4)
i. Write their reasoning about how to solve a problem	20	(1.6)	24	(1.6)	25	(1.8)	23	(1.3)	8	(1.1)
j. Use manipulative materials or models	19	(1.6)	31	(1.8)	32	(2.0)	15	(1.4)	3	(0.5)
k. Use computers/calculators to explore problems	15	(1.5)	12	(1.3)	20	(2.3)	26	(2.5)	27	(1.5)
l. Use computers/calculators to do computations	7	(1.4)	6	(1.0)	11	(1.5)	21	(2.0)	55	(2.7)
m. Use computers/calculators to develop an understanding of mathematics concepts	19	(2.2)	19	(1.7)	23	(1.8)	25	(2.8)	15	(1.4)
n. Participate in dialogue with the teacher to develop an idea	4	(0.7)	8	(1.7)	16	(1.5)	34	(2.7)	38	(2.0)
o. Watch films, filmstrips, or videotapes	54	(2.4)	36	(2.1)	8	(1.6)	2	(0.6)	0	(0.1)
p. Watch television programs	81	(1.9)	17	(1.5)	2	(0.7)	1	(0.3)	1	(0.3)

Source: Mathematics Teacher Questionnaire, Item 26.

Equipment Use in Grade 1–4 Mathematics Classes

	Percent of Classes											
	Not needed		Needed but not available		Number of times used per semester							
					1–2		3–5		6–10		11+	
a. Overhead projector	15	(2.1)	8	(1.7)	11	(2.0)	7	(1.4)	13	(1.6)	47	(3.2)
b. Videotape player	54	(2.7)	4	(1.0)	25	(2.4)	8	(1.0)	5	(0.4)	4	(0.8)
c. Videodisc player	80	(2.2)	12	(1.8)	4	(0.7)	3	(0.9)	1	(0.3)	1	(0.2)
d. CD-ROM player	81	(1.9)	16	(2.1)	2	(0.8)	1	(0.4)	0	(0.0)	1	(0.3)
e. Four function calculators	34	(2.2)	16	(1.1)	9	(1.7)	9	(1.5)	12	(1.8)	20	(1.7)
f. Fraction calculators	85	(1.6)	13	(1.6)	1	(0.8)	0	(0.2)	0	(0.3)	0	(0.3)
g. Graphing calculators	88	(1.4)	12	(1.8)	1	(0.3)	0	(0.0)	0	(0.0)	0	(0.1)
h. Scientific calculators	90	(1.2)	9	(1.7)	1	(0.4)	0	(0.0)	0	(0.0)	0	(0.1)
i. Computers	11	(1.4)	12	(1.8)	5	(0.9)	8	(1.5)	13	(2.2)	52	(3.1)
j. Computer/lab interfacing devices	46	(3.0)	21	(2.3)	6	(0.7)	4	(0.9)	4	(0.7)	19	(2.5)

Source: Mathematics Teacher Questionnaire, Item 27.

Equipment Use in Grade 5–8 Mathematics Classes

	Percent of Classes											
	Not needed		Needed but not available		Number of times used per semester							
					1–2		3–5		6–10		11+	
a. Overhead projector	16	(2.3)	5	(2.5)	7	(1.2)	4	(0.7)	9	(1.7)	59	(3.1)
b. Videotape player	51	(2.7)	5	(2.4)	29	(2.6)	8	(1.4)	6	(0.8)	2	(0.6)
c. Videodisc player	80	(2.9)	15	(2.4)	4	(0.8)	1	(0.5)	0	(0.0)	0	(0.2)
d. CD-ROM player	84	(1.8)	13	(1.8)	2	(0.5)	1	(0.4)	0	(0.1)	0	(0.2)
e. Four function calculators	17	(2.2)	11	(2.9)	5	(1.0)	6	(1.0)	12	(1.6)	48	(2.3)
f. Fraction calculators	35	(2.2)	39	(2.9)	3	(0.5)	2	(0.4)	6	(1.4)	16	(2.1)
g. Graphing calculators	66	(3.0)	30	(2.7)	3	(0.8)	1	(0.5)	0	(0.1)	1	(0.4)
h. Scientific calculators	61	(3.4)	17	(2.0)	3	(1.0)	3	(1.0)	2	(0.8)	15	(2.7)
i. Computers	12	(1.3)	29	(3.1)	12	(1.3)	13	(1.9)	9	(1.4)	26	(3.2)
j. Computer/lab interfacing devices	35	(2.4)	39	(3.1)	9	(1.2)	5	(0.9)	3	(0.5)	10	(1.3)

Source: Mathematics Teacher Questionnaire, Item 27.

Equipment Use in Grade 9–12 Mathematics Classes

	Percent of Classes											
	Not needed		Needed but not available		Number of times used per semester							
					1–2		3–5		6–10		11+	
a. Overhead projector	20	(2.3)	5	(1.2)	6	(0.8)	8	(1.7)	6	(0.7)	56	(2.9)
b. Videotape player	57	(1.7)	5	(1.2)	28	(1.5)	6	(1.3)	3	(0.5)	2	(0.8)
c. Videodisc player	88	(1.6)	10	(1.4)	2	(0.5)	0	(0.2)	0	(0.1)	0	(0.0)
d. CD-ROM player	88	(1.4)	12	(1.3)	1	(0.3)	0	(0.0)	0	(0.0)	0	(0.0)
e. Four function calculators	30	(2.2)	5	(1.3)	4	(0.7)	4	(1.3)	4	(0.7)	52	(3.1)
f. Fraction calculators	53	(1.7)	19	(2.2)	3	(1.0)	3	(0.6)	2	(0.6)	21	(2.3)
g. Graphing calculators	40	(1.6)	20	(1.9)	11	(1.4)	6	(1.0)	6	(1.1)	17	(2.4)
h. Scientific calculators	27	(2.1)	6	(1.2)	4	(0.8)	6	(1.3)	4	(0.8)	53	(2.6)
i. Computers	29	(1.8)	28	(2.4)	18	(2.0)	10	(1.3)	7	(1.3)	8	(1.5)
j. Computer/lab interfacing devices	43	(2.0)	36	(2.7)	9	(1.4)	5	(1.2)	3	(0.7)	4	(1.4)

Source: Mathematics Teacher Questionnaire, Item 27.

Amount of Own Money Mathematics Teachers Spend on Supplies per Class

	Percent of Classes					
	Grades 1–4		Grades 5–8		Grades 9–12	
$ 0	10	(1.4)	18	(2.3)	30	(1.5)
$ 1–49.99	36	(2.1)	28	(2.4)	31	(1.7)
$ 50–99.99	21	(1.9)	20	(2.0)	16	(1.6)
$ 100–149.99	16	(1.2)	13	(1.6)	11	(1.5)
$ 150 +	16	(2.3)	21	(2.4)	13	(2.1)

Source: Mathematics Teacher Questionnaire, Item 28

Grade 1–4 Mathematics Classes Where Teachers Report Control Over Various Curriculum and Instruction Decisions

	Percent of Classes									
	No Control 1		2		3		4		Strong Control 5	
a. Determining goals and objectives	10	(1.5)	13	(1.9)	21	(1.7)	26	(1.7)	29	(3.1)
b. Selecting textbooks	26	(2.7)	18	(2.1)	27	(2.4)	18	(2.1)	12	(1.4)
c. Selecting other instructional materials	5	(1.3)	9	(0.8)	24	(1.6)	26	(2.2)	36	(2.3)
d. Selecting content, topics, and skills to be taught	13	(2.0)	15	(2.3)	25	(2.2)	25	(2.0)	22	(2.0)
e. Selecting the sequence in which topics are covered	6	(1.8)	5	(1.3)	11	(1.5)	25	(2.2)	52	(2.1)
f. Setting the pace for covering topics	3	(1.3)	4	(0.8)	8	(1.1)	25	(2.2)	60	(3.3)
g. Selecting teaching techniques	0	(0.2)	3	(1.4)	6	(1.2)	22	(2.2)	69	(2.7)
h. Determining amount of homework to be assigned	2	(0.9)	1	(0.4)	6	(1.2)	23	(2.3)	68	(3.1)
i. Choosing criteria for grading students	4	(1.2)	5	(1.0)	13	(1.6)	24	(1.8)	53	(2.7)

Source: Mathematics Teacher Questionnaire, Item 29.

Grade 5–8 Mathematics Classes Where Teachers Report Control Over Various Curriculum and Instruction Decisions

	Percent of Classes									
	No Control 1		2		3		4		Strong Control 5	
a. Determining goals and objectives	10	(1.4)	11	(1.3)	17	(1.7)	30	(2.4)	33	(1.8)
b. Selecting textbooks	24	(2.4)	17	(2.0)	18	(2.2)	20	(2.5)	20	(2.0)
c. Selecting other instructional materials	4	(1.1)	8	(1.6)	19	(1.9)	29	(2.2)	40	(2.1)
d. Selecting content, topics, and skills to be taught	12	(1.8)	15	(2.9)	16	(1.6)	29	(2.6)	27	(2.2)
e. Selecting the sequence in which topics are covered	4	(0.9)	6	(1.4)	7	(0.9)	30	(2.9)	52	(2.9)
f. Setting the pace for covering topics	2	(1.0)	3	(0.9)	9	(1.2)	31	(3.3)	55	(3.1)
g. Selecting teaching techniques	0	(0.1)	1	(0.9)	4	(1.1)	23	(2.5)	71	(2.7)
h. Determining amount of homework to be assigned	0	(0.1)	2	(1.0)	5	(1.3)	21	(2.8)	72	(2.9)
i. Choosing criteria for grading students	2	(0.8)	3	(1.1)	9	(1.3)	23	(3.0)	63	(2.7)

Source: Mathematics Teacher Questionnaire, Item 29.

Grade 9–12 Mathematics Classes Where Teachers Report Control Over Various Curriculum and Instruction Decisions

	Percent of Classes									
	No Control 1		2		3		4		Strong Control 5	
a. Determining goals and objectives	6	(0.8)	6	(0.8)	19	(1.7)	28	(2.2)	41	(2.4)
b. Selecting textbooks	14	(1.3)	11	(1.3)	19	(1.2)	22	(1.5)	35	(2.6)
c. Selecting other instructional materials	2	(0.4)	5	(0.7)	16	(1.3)	24	(1.6)	52	(2.2)
d. Selecting content, topics, and skills to be taught	6	(0.8)	8	(0.9)	20	(1.5)	27	(1.6)	39	(2.4)
e. Selecting the sequence in which topics are covered	2	(0.5)	4	(0.5)	13	(1.6)	26	(2.1)	54	(2.4)
f. Setting the pace for covering topics	1	(0.2)	4	(0.8)	10	(1.4)	29	(1.8)	56	(2.4)
g. Selecting teaching techniques	0	(0.3)	1	(0.4)	4	(0.8)	19	(1.3)	76	(1.4)
h. Determining amount of homework to be assigned	0	(0.1)	0	(0.2)	4	(1.1)	17	(1.6)	79	(1.8)
i. Choosing criteria for grading students	1	(0.4)	2	(0.4)	8	(1.3)	24	(1.6)	66	(2.3)

Source: Mathematics Teacher Questionnaire, Item 29.

Mathematics Classes Using Commercially Published Mathematics Textbooks/Programs

	Percent of Classes	
Grades 1–4	95	(1.5)
Grades 5–8	95	(1.3)
Grades 9–12	96	(1.0)

Source: Mathematics Teacher Questionnaire, Item 30.

Market Share of Commercially Published Mathematics Textbooks/Programs

	Percent of Classes					
	Grades 1–4		Grades 5–8		Grades 9–12	
1. Addison-Wesley	23	(0.0)	16	(0.0)	11	(0.0)
2. Allyn & Bacon	0	(0.0)	0	(0.0)	1	(0.0)
3. Amsco	0	(0.0)	0	(0.0)	3	(0.0)
4. Delta Education	0	(0.0)	0	(0.0)	0	(0.0)
5. Ginn	0	(0.0)	0	(0.0)	1	(0.0)
6. Glencoe	0	(0.0)	1	(0.0)	3	(0.0)
7. Globe	0	(0.0)	0	(0.0)	0	(0.0)
8. Harcourt, Brace, & Jovanovich	15	(0.0)	12	(0.0)	5	(0.0)
9. Harper & Row	0	(0.0)	0	(0.0)	1	(0.0)
10. D.C. Heath	8	(1.0)	6	(0.9)	4	(0.5)
11. Holt, Rinehart, Winston	7	(1.8)	6	(1.3)	4	(0.8)
12. Houghton Mifflin	7	(1.8)	14	(2.6)	30	(2.9)
13. Kendall Hunt	0	(0.0)	0	(0.0)	0	(0.0)
14. Laidlaw Brothers	0	(0.2)	1	(0.2)	2	(0.9)
15. Little, Brown	0	(0.0)	0	(0.0)	0	(0.0)
16. Macmillan	5	(1.1)	4	(1.1)	0	(0.0)
17. McGraw Hill	3	(1.6)	2	(0.6)	0	(0.1)
18. Merrill	2	(1.0)	7	(1.6)	11	(1.4)
19. Prentice Hall	0	(0.0)	0	(0.2)	6	(0.7)
20. Scott, Foresman	12	(2.5)	15	(2.5)	8	(0.8)
21. Silver, Burdett, & Ginn	11	(2.2)	6	(1.1)	0	(0.0)
22. Wiley	0	(0.0)	0	(0.0)	0	(0.2)
23. [OTHER]	3	(0.5)	2	(0.7)	2	(0.5)
24. CORD	0	(0.0)	0	(0.0)	2	(0.3)
25. Grassdale	0	(0.0)	0	(0.2)	1	(0.3)
26. Hake-Saxon	0	(0.2)	1	(0.3)	0	(0.0)
27. Saxon	1	(0.6)	3	(0.6)	2	(1.1)
28. McMillan/McGraw	2	(1.3)	2	(0.9)	0	(0.0)
29. McDougal-Littel	0	(0.0)	0	(0.0)	2	(0.8)
30. Sadlier	0	(0.2)	3	(2.5)	0	(0.0)
31. Key Curriculum	0	(0.3)	0	(0.0)	2	(1.0)
32. Southwestern	0	(0.0)	0	(0.0)	1	(0.3)

Source: Mathematics Teacher Questionnaire, Item 30.

Publication Year of Mathematics Textbooks/Programs

	Percent of Classes					
	Grades 1–4		Grades 5–8		Grades 9–12	
1979 or earlier	1	(0.5)	0	(0.1)	5	(1.0)
1980–1984	2	(0.9)	5	(1.1)	18	(1.9)
1985–1989	47	(3.3)	48	(3.6)	34	(1.8)
1990 or later	50	(2.7)	47	(4.0)	44	(1.8)

Source: Mathematics Teacher Questionnaire, Item 31.

Percentage of Mathematics Textbooks/Programs Covered During the Course*

	Percent of Classes					
	Grades 1–4		Grades 5–8		Grades 9–12	
Less than 25 percent	1	(0.5)	1	(0.2)	0	(0.2)
25–49 percent	4	(0.8)	4	(0.9)	7	(0.7)
50–74 percent	21	(1.9)	23	(2.6)	23	(2.1)
75–90 percent	44	(2.2)	50	(2.7)	48	(2.3)
More than 90 percent	30	(2.1)	22	(2.1)	21	(1.3)

* Only classes using commercially published textbooks/programs were included in these analyses.
Source: Mathematics Teacher Questionnaire, Item 32.

Teachers' Perceptions of the Quality of Textbooks/ Programs Used in Mathematics Classes*

	Percent of Classes					
	Grades 1–4		Grades 5–8		Grades 9–12	
Very poor	3	(1.4)	0	(0.7)	1	(0.3)
Poor	4	(0.6)	5	(0.7)	3	(0.7)
Fair	21	(1.9)	20	(3.2)	11	(1.1)
Good	32	(2.4)	32	(2.7)	30	(2.7)
Very good	30	(3.5)	31	(2.7)	38	(1.8)
Excellent	10	(1.5)	14	(1.8)	16	(1.7)

* Only classes using commercially published textbooks/programs were included in these analyses.
Source: Mathematics Teacher Questionnaire, Item 33.

Amount of Homework Assigned in Mathematics Classes per Week

	Percent of Classes					
	Grades 1–4		Grades 5–8		Grades 9–12	
0–30 minutes	52	(3.5)	11	(2.7)	5	(0.7)
31–60 minutes	26	(2.3)	17	(2.1)	12	(1.7)
61–90 minutes	12	(1.6)	34	(2.9)	16	(1.4)
91–120 miuutes	7	(1.8)	21	(2.1)	23	(1.9)
2–3 hours	3	(0.9)	13	(1.7)	31	(1.9)
More than 3 hours	1	(0.6)	5	(1.1)	14	(1.5)

Source: Mathematics Teacher Questionnaire, Item 34.

Grade 1–4 Mathematics Classes Where Teachers Report Various Types of Activities Are Important in Determining Student Grades

	Percent of Classes							
	Not Important 1		2		3		Very Important 4	
a. Objective tests (e.g., multiple choice, true/false)	28	(2.5)	19	(1.8)	28	(2.3)	25	(1.9)
b. Essay tests	72	(2.1)	16	(1.6)	10	(1.2)	2	(0.6)
c. Hands-on/performance tasks	8	(1.1)	12	(1.7)	36	(2.4)	45	(2.5)
d. Systematic observations of students	6	(1.5)	9	(0.9)	34	(2.0)	51	(2.7)
e. Interviewing students about what they understand	14	(2.0)	14	(1.6)	39	(2.3)	33	(1.9)
f. Homework assignments	25	(3.0)	36	(2.2)	28	(1.7)	12	(2.5)
g. Behavior	30	(3.2)	26	(2.6)	26	(2.7)	18	(1.8)
h. Effort	7	(1.7)	12	(1.6)	38	(2.5)	43	(3.0)
i. Mathematics projects	33	(3.2)	32	(4.0)	27	(2.4)	8	(1.6)
j. Class attendance	25	(2.2)	22	(1.3)	27	(1.7)	26	(2.2)
k. Contribution to small group work	9	(1.5)	13	(1.7)	47	(3.2)	32	(2.4)
l. Participation in whole class discussion	6	(1.4)	13	(1.7)	45	(2.4)	37	(2.2)
m. Individual improvement or progress over past performance	3	(0.9)	6	(1.2)	30	(2.6)	61	(2.4)

Source: Mathematics Teacher Questionnaire, Item 35.

Grade 5–8 Mathematics Classes Where Teachers Report Various Types of Activities Are Important in Determining Student Grades

	Percent of Classes							
	Not Important 1		2		3		Very Important 4	
a. Objective tests (e.g., multiple choice, true/false)	19	(2.2)	17	(2.6)	34	(2.4)	0	(3.2)
b. Essay tests	49	(2.4)	29	(2.5)	17	(2.4)	5	(1.0)
c. Hands-on/performance tasks	14	(1.9)	24	(2.5)	36	(2.8)	26	(3.2)
d. Systematic observations of students	7	(1.0)	20	(2.2)	43	(2.9)	31	(2.6)
e. Interviewing students about what they understand	18	(2.1)	26	(2.1)	34	(2.9)	22	(2.1)
f. Homework assignments	4	(1.2)	19	(2.2)	47	(3.0)	30	(2.9)
g. Behavior	34	(2.2)	28	(2.7)	22	(2.4)	17	(1.9)
h. Effort	4	(1.0)	17	(1.9)	35	(2.8)	44	(2.4)
i. Mathematics projects	28	(2.3)	31	(2.9)	31	(2.7)	10	(2.2)
j. Class attendance	27	(2.7)	25	(2.5)	23	(2.7)	26	(2.5)
k. Contribution to small group work	12	(2.3)	24	(2.4)	36	(2.6)	28	(2.4)
l. Participation in whole class discussion	9	(1.7)	22	(2.2)	45	(2.3)	24	(2.3)
m. Individual improvement or progress over past performance	6	(1.4)	17	(2.2)	36	(2.6)	41	(2.6)

Source: Mathematics Teacher Questionnaire, Item 35.

Grade 9–12 Mathematics Classes Where Teachers Report Various Types of Activities Are Important in Determining Student Grades

	Percent of Classes							
	Not Important 1		2		3		Very Important 4	
a. Objective tests (e.g., multiple choice, true/false)	19	(1.8)	18	(1.8)	25	(2.1)	37	(2.3)
b. Essay tests	60	(2.6)	22	(2.5)	9	(1.2)	9	(0.8)
c. Hands-on/performance tasks	27	(1.8)	25	(1.3)	30	(2.0)	18	(1.7)
d. Systematic observations of students	19	(2.3)	27	(1.8)	41	(1.8)	14	(1.6)
e. Interviewing students about what they understand	32	(1.8)	36	(1.3)	25	(1.7)	7	(1.1)
f. Homework assignments	3	(0.6)	22	(2.5)	52	(2.0)	24	(2.1)
g. Behavior	43	(2.0)	29	(2.6)	20	(1.8)	8	(1.0)
h. Effort	10	(1.4)	30	(1.7)	38	(2.4)	22	(2.5)
i. Mathematics projects	45	(1.8)	33	(2.5)	19	(1.9)	4	(0.7)
j. Class attendance	30	(2.0)	28	(3.0)	26	(1.9)	16	(1.3)
k. Contribution to small group work	25	(1.7)	30	(1.7)	34	(1.9)	11	(1.6)
l. Participation in whole class discussion	17	(1.6)	29	(2.3)	39	(2.6)	15	(1.6)
m. Individual improvement or progress over past performance	14	(1.3)	26	(1.7)	40	(2.0)	21	(1.5)

Source: Mathematics Teacher Questionnaire, Item 35.

Average Length of Mathematics Class and Average Time Spent on Various Classroom Activities

	Average Number of Minutes					
	Grades 1-4		Grades 5-8		Grades 9-12	
Average number of minutes allocated to the most recent mathematics lesson	50	(1.3)	48	(0.6)	48	(0.7)
Average number of minutes spent on:						
(1) Daily routines, interruptions, and non-instructional activities	4	(0.3)	5	(0.2)	5	(0.1)
(2) Whole class lecture/discussions	13	(0.6)	17	(0.5)	23	(0.6)
(3) Individual students reading textbooks, completing worksheets, etc.	13	(0.4)	12	(0.5)	10	(0.4)
(4) Working with hands-on/manipulative materials	14	(0.6)	6	(0.5)	4	(0.5)
(5) Non-manipulative small group work	5	(0.5)	7	(0.7)	7	(0.3)

Source: Mathematics Teacher Questionnaire, Item 36.

Mathematics Classes Participating in Various Activities in Most Recent Lesson

	Percent of Classes					
	Grades 1–4		Grades 5–8		Grades 9–12	
a. Lecture	82	(2.0)	90	(1.8)	94	(1.4)
b. Students completing textbook/workbook problems	86	(1.9)	87	(2.1)	84	(1.5)
c. Students reading about mathematics	28	(2.9)	47	(3.6)	32	(2.3)
d. Students working in cooperative learning groups where the entire group receives a single grade	43	(2.4)	34	(2.8)	24	(2.0)
e. Student use of calculators	11	(1.5)	37	(3.4)	67	(1.6)
f. Student use of computers	9	(1.1)	6	(1.5)	2	(0.4)
g. Student use of other technologies	16	(2.3)	13	(1.5)	7	(1.3)
h. Test or quiz	12	(1.5)	14	(1.8)	17	(1.3)

Source: Mathematics Teacher Questionnaire, Item 37.

Mathematics Class Taught on Most Recent Day of School

	Percent of Classes	
Grades 1–4	95	(1.1)
Grades 5–8	93	(1.8)
Grades 9–12	93	(1.1)

Source: Mathematics Teacher Questionnaire, Item 38.

Gender of Mathematics Teachers

	Percent of Teachers					
	Grades 1–4		Grades 5–8		Grade 9–12	
Male	3	(1.2)	27	(2.7)	52	(2.8)
Female	97	(1.3)	73	(2.5)	48	(2.8)

Source: Mathematics Teacher Questionnaire, Item 39.

Race/Ethnicity of Mathematics Teachers

	Percent of Teachers					
	Grades 1–4		Grades 5–8		Grades 9–12	
White (not of Hispanic origin)	90	(1.1)	90	(1.7)	92	(1.1)
Black (not of Hispanic origin)	4	(0.7)	5	(0.7)	4	(0.8)
Hispanic	5	(1.8)	4	(1.2)	1	(0.5)
American Indian or Alaskan Native	0	(0.3)	0	(0.2)	0	(0.2)
Asian or Pacific Islander	1	(0.1)	1	(0.7)	2	(0.7)

Source: Mathematics Teacher Questionnaire, Item 40.

Age of Mathematics Teachers

	Percent of Teachers					
	Grades 1–4		Grades 5–8		Grades 9–12	
Less than 31 years old	17	(2.2)	15	(3.4)	13	(1.8)
31–40 years old	27	(2.6)	21	(1.9)	23	(2.7)
41–50 years old	32	(2.3)	46	(2.8)	42	(2.3)
51–60 years old	20	(2.1)	17	(3.0)	18	(1.5)
61 years old or over	3	(0.9)	1	(0.3)	4	(0.8)

Source: Mathematics Teacher Questionnaire, Item 41.

Number of Years Prior Teaching Experience of Mathematics Teachers

	Percent of Teachers					
	Grades 1–4		Grades 5–8		Grades 9–12	
0–2 years	12	(1.8)	12	(2.2)	10	(1.2)
3–5 years	14	(1.3)	9	(1.4)	9	(1.2)
6–10 years	17	(2.3)	22	(3.5)	20	(3.3)
11–20 years	36	(2.3)	34	(2.8)	28	(1.6)
21 + years	22	(2.7)	22	(2.9)	33	(1.9)

Source: Mathematics Teacher Questionnaire, Item 42.

Number of Years Prior Mathematics Teaching Experience of Mathematics Teachers

	Percent of Teachers					
	Grades 1–4		Grades 5–8		Grades 9–12	
0–2 years	13	(1.7)	18	(2.6)	14	(2.8)
3–5 years	17	(1.3)	12	(2.1)	10	(1.2)
6–10 years	18	(2.3)	22	(2.9)	19	(2.5)
11–20 years	32	(2.1)	31	(2.7)	30	(1.7)
21 + years	20	(2.4)	17	(2.7)	28	(1.8)

Source: Mathematics Teacher Questionnaire, Item 43.

Section Five

Mathematics Program Questionnaire

Mathematics Program Questionnaire

Tables

Form Approval
OMB No: 3145-0142
Expires: Dec. 31, 1993

NATIONAL SCIENCE FOUNDATION
1993 National Survey of Science and Mathematics Education

Mathematics Program Questionnaire

How to Complete the Questionnaire

You have been selected to answer questions about mathematics instruction in your school. Most of the questions instruct you to "circle one" answer or "circle all that apply". For a few questions, you are asked to write in your answer on the line provided. If you have questions about the study or any items in the questionnaire, call us toll-free at 1-800-598-2888.

About the Survey

The 1993 National Survey of Science and Mathematics Education is supported by the National Science Foundation and is the third in a series. It is being conducted by Horizon Research, Inc., under the direction of Dr. Iris R. Weiss. Data collection is the responsibility of CODA, a survey research firm in Silver Spring, Md. The study has been endorsed by the American Federation of Teachers, the National Catholic Education Association, the National Council of Teachers of Mathematics, the National Education Association, and the National Science Teachers Association.

Approximately 6,000 teachers from 1,200 schools throughout the country have been selected for the survey, which is designed to collect information about science and mathematics education in grades 1-12. Its purpose is to provide the education community with current information about science and mathematics education and to identify trends in the areas of teacher education and experience, course offerings, curriculum and instruction, and the availability and use of equipment.

The 1,200 schools were randomly selected for the survey from the Quality Education Data (QED) database. Last June, Chief State School Officers and district superintendents were notified about the survey. In September, school principals were sent a pre-survey information booklet, requesting the names of all science and mathematics teachers. From these lists, a national sample of teachers was selected to receive science or mathematics questionnaires. Questionnaires are also being sent to the science and mathematics department representatives at each school. Teacher questionnaires are also being sent to all winners (1983 - 1992) of the National Science Foundation's Presidential Awards for Excellence in Science and Mathematics Teaching.

All survey data received will be kept strictly confidential and will be reported only in aggregate form, such as by grade or region of the country. No information identifying individual states, districts, schools or teachers will be released. Each participating school will receive a copy of the study's results in the spring of 1994.

Information About Your Participation

Public reporting burden for this collection of information is estimated to average 15 minutes per response. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Herman Fleming, National Science Foundation, 1800 G Street - NW, Washington, DC 20550 and to the Office of Management and Budget, Paperwork Reduction Project, OMB #3145-0142, Washington, DC 20503.

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

1993 National Survey of Science and Mathematics Education
c/o CODA
1400 Spring Street - Suite 150
Silver Spring, MD 20910

Mathematics Program Questionnaire

1. Indicate the extent to which each of the following programs/practices is currently being implemented in your school.

(CIRCLE ONE ON EACH LINE.)

		Not used			Used extensively	Don't know/ Not applicable
a.	School-based management	1	2	3	4	8
b.	Common daily planning period for members of the mathematics department	1	2	3	4	8
c.	Common work space for members of the mathematics department	1	2	3	4	8
d.	Interdisciplinary teams of teachers who share the same students (e.g., school within a school)	1	2	3	4	8
e.	Students assigned to mathematics classes by ability	1	2	3	4	8
f.	Independent study projects for credit in mathematics	1	2	3	4	8
g.	Emphasis on problem solving, reasoning skills in mathematics	1	2	3	4	8
h.	Use of computers to solve mathematics problems	1	2	3	4	8
i.	Hands-on/performance assessment in mathematics classes	1	2	3	4	8
j.	Integration of mathematics and science instruction	1	2	3	4	8
k.	Integration of mathematics and language arts instruction	1	2	3	4	8
l.	Use of vocational/technical applications in mathematics instruction	1	2	3	4	8
m.	Content changes recommended by AAAS' Project 2061 (*Science for All Americans*)	1	2	3	4	8
n.	Content changes recommended by NCTM's *Curriculum and Evaluation Standards*	1	2	3	4	8
o.	Pedagogical shifts recommended by NCTM's *Professional Standards for Teaching Mathematics*	1	2	3	4	8
p.	Elementary students pulled out from self-contained classes for remedial instruction in mathematics	1	2	3	4	8
q.	Elementary students pulled out from self-contained classes for enrichment in mathematics	1	2	3	4	8
r.	Elementary students receiving instruction from mathematics specialists **in addition to** their regular teacher	1	2	3	4	8
s.	Elementary students receiving instruction from mathematics specialists **instead** of their regular teacher	1	2	3	4	8
t.	Mathematics courses offered by telecommunications	1	2	3	4	8
u.	Students going to another K - 12 school for mathematics courses	1	2	3	4	8
v.	Students going to a college or university for mathematics courses	1	2	3	4	8
w.	Integration of mathematics subjects (e.g. algebra, probability, geometry, etc. all taught together each year)	1	2	3	4	8

2. Please give us your opinion about each of the following statements in regard to the National Council of Teachers of Mathematics' work in setting standards for mathematics curriculum, instruction and evaluation.

(CIRCLE ONE ON EACH LINE.)

		Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree	Don't know
a.	I am well informed about the NCTM Standards for the grades I teach	1	2	3	4	5	8
b.	I am prepared to explain the NCTM Standards to my colleagues	1	2	3	4	5	8
c.	The Standards have been thoroughly discussed by teachers in this school	1	2	3	4	5	8
d.	There is a school-wide effort to make changes inspired by the Standards	1	2	3	4	5	8
e.	The principal of this school is well-informed about the Standards	1	2	3	4	5	8
f.	Parents of students in this school are well-informed about the Standards	1	2	3	4	5	8
g.	The superintendent of this district is well-informed about the Standards	1	2	3	4	5	8
h.	The School Board is well-informed about the Standards	1	2	3	4	5	8
i.	Our district is organizing staff development based on the Standards	1	2	3	4	5	8
j.	Our district has changed how it evaluates teachers based on the Standards	1	2	3	4	5	8

3. Does your school include secondary students (grade 7 or higher)?

Yes ..... 1 *(CONTINUE WITH QUESTION 4.)*

No..... 2 *(SKIP TO QUESTION 9.)*

4. 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 7 - 8			GRADES 9 - 12		
Current number of sections	CODE	COURSE CATEGORY	Current number of sections	CODE	COURSE CATEGORY
_____	208	Mathematics 7, Remedial			GRADES 9 - 12, REVIEW MATHEMATICS
_____	209	Mathematics 7, Regular	_____	215	Level 1 (e.g., Remedial Mathematics)
_____	210	Mathematics 7, Accelerated/ Pre-Algebra	_____	216	Level 2 (e.g., Consumer Mathematics)
_____	211	Mathematics 8, Remedial	_____	217	Level 3 (e.g., General Mathematics 3)
_____	212	Mathematics 8, Regular	_____	218	Level 4 (e.g., General Mathematics 4)
_____	213	Mathematics 8, Enriched			GRADES 9 - 12, INFORMAL MATHEMATICS
_____	214	Mathematics 8, Algebra I	_____	219	Level 1 (e.g., Pre-Algebra)
		GRADES 7 - 8, OTHER MATHEMATICS	_____	220	Level 2 (e.g., Basic Geometry)
_____		_____	_____	221	Level 3 (e.g., after Pre-Algebra, but not Algebra I)
_____		_____			GRADES 9 - 12, FORMAL MATHEMATICS
_____		_____	_____	222	Level 1 (e.g., Algebra I or Integrated Math 1)
			_____	223	Level 2 (e.g., Geometry or Integrated Math 2)
			_____	224	Level 3 (e.g., Algebra II or Integrated Math 3)
			_____	225	Level 4 (e.g., Advanced Algebra or Integrated Math 4)
			_____	226	Level 5 (e.g., Calculus)
			_____	227	Advanced Placement Calculus
					GRADES 9 - 12, OTHER MATHEMATICS
			_____	228	Probability and Statistics
			_____	229	Mathematics integrated with other subjects
			_____		_____
			_____		_____

5. Please give the code number of any mathematics courses offered this year that will not be offered next year.

CHECK BOX, IF ALL WILL BE OFFERED ☐

OR

List code numbers of courses that will not be offered:

_____ _____ _____ _____ _____

6. a. Are 7th grade students (or those in the lowest secondary grade in this school) assigned to mathematics courses, or sections within courses, by ability levels?

Yes ..... 1 *(CONTINUE WITH QUESTION 6.b.)*

No..... 2 *(SKIP TO QUESTION 7.)*

b. Please list the titles of the mathematics course(s) that low ability, average ability, and high ability students would be likely to take in their first year in this school.

Low ability students: 1) _____ 2) _____ 3) _____

Average ability students: 1) _____ 2) _____ 3) _____

High ability students: 1) _____ 2) _____ 3) _____

7. How many minutes long is a typical class period?

_____ MINUTES

8. In many schools mathematics classes meet for five class periods per week. Are any of the mathematics courses in this school organized in some other way? (e.g., meet only three class periods per week or have a double class period once a week)

Yes ..... 1 *(PLEASE DESCRIBE BELOW)*

No..... 2 *(GO TO QUESTION 9.)*

Course Title	Number of days/week	Length of class period
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

9. How much money was spent on mathematics equipment and consumable supplies in this school during the most recently completed budget year? (If you don't know the exact amounts, please provide your best estimates.)

a. Mathematics equipment (non-consumable items such as calculators)

$ _____ CHECK BOX, IF ESTIMATE ☐

b. Consumable mathematics supplies (manipulative materials)

$ _____ CHECK BOX, IF ESTIMATE ☐

c. Mathematics software

$ _____ CHECK BOX, IF ESTIMATE ☐

10. How much input does each of the following have in decisions about mathematics equipment/materials purchases?

(CIRCLE ONE ON EACH LINE.)

		No input	Little input	Moderate input	Heavy input	Complete control	Not applicable
a.	State	1	2	3	4	5	8
b.	Central office	1	2	3	4	5	8
c.	Principal	1	2	3	4	5	8
d.	Mathematics department chair	1	2	3	4	5	8
e.	Mathematics department as a whole	1	2	3	4	5	8
f.	Individual mathematics teachers	1	2	3	4	5	8

NOTE: **Questions 11 - 15 are 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 check ☐ here and skip to question 16.**

11. In your opinion, how great a problem is each of the following for mathematics instruction **in your school as a whole?**

(CIRCLE ONE 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 mathematics	1	2	3
g.	Student reading abilities	1	2	3
h.	Student absences	1	2	3
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
r.	State/district testing policies	1	2	3

12. Indicate your sex: *(CIRCLE ONE.)*

Male 1

Female 2

(OVER)

13. Are you: *(CIRCLE ONE.)*

White (not of Hispanic origin)	1
Black (not of Hispanic origin)	2
Hispanic	3
(Mexican, Puerto Rican, Cuban, Central or South American, or other Hispanic culture or origin)	
American Indian or Alaskan Native	4
Asian or Pacific Islander	5

14. In what year were you born?

19 ____

15. How many years have you taught in grades K-12 prior to this school year?

_____ YEARS

16. When did you complete this questionnaire?

_____/_____/_____
MONTH DAY YEAR

17. What is your title? *(CIRCLE ONE.)*

Mathematics department chair	1
Mathematics lead teacher	2
Teacher	3
Principal	4
Assistant principal	5
Other (SPECIFY)	6

_____

Thank you for your help!

☐ Check here if you are the person originally chosen to complete this questionnaire.

If not, please fill in your name here: _____

Please return the questionnaire to us in the postage-paid envelope:

1993 National Survey of Science and Mathematics Education
c/o CODA
1400 Spring Street - Suite 150
Silver Spring, MD 20910

Implementation of Various Programs/Practices in Elementary Schools

	Percent of Schools									
	Not Used 1		2		3		Used Extensively 4		Don't Know/Not Applicable	
a. School-based management	17	(2.6)	18	(2.8)	29	(2.8)	23	(4.1)	14	(3.6)
b. Common daily planning period for members of the mathematics department	47	(4.2)	9	(1.9)	10	(2.3)	6	(1.8)	28	(3.9)
c. Common work space for members of the mathematics department	42	(3.3)	7	(2.4)	9	(2.2)	5	(1.9)	37	(4.9)
d. Interdisciplinary teams of teachers who share the same students (e.g., school within a school)	35	(3.6)	16	(2.9)	16	(2.2)	10	(2.8)	24	(4.1)
e. Students assigned to mathematics classes by ability	52	(4.8)	17	(3.6)	12	(3.2)	13	(2.8)	6	(1.8)
f. Independent study projects for credit in mathematics	53	(4.2)	20	(3.5)	13	(4.0)	2	(0.9)	12	(2.1)
g. Emphasis on problem solving, reasoning skills in mathematics	1	(0.4)	12	(2.4)	53	(4.5)	34	(4.3)	1	(0.5)
h. Use of computers to solve mathematics problems	15	(2.1)	38	(4.1)	36	(3.1)	11	(2.3)	1	(0.5)
i. Hands-on/performance assessment in mathematics	10	(3.3)	31	(2.6)	44	(3.8)	15	(2.3)	0	(0.0)
j. Integration of mathematics and science instruction	12	(2.8)	41	(5.5)	42	(4.1)	5	(1.5)	0	(0.3)
k. Integration of mathematics and language arts instruction	21	(2.5)	44	(3.8)	31	(3.4)	3	(0.7)	1	(0.5)
l. Use of vocational/technical applications in mathematics instruction	27	(3.6)	35	(3.6)	20	(2.9)	2	(0.6)	16	(1.9)
m. Content changes recommended by AAAS' Project 2061 (*Science for All Americans*)	21	(3.5)	11	(1.7)	4	(1.6)	3	(1.7)	60	(4.8)
n. Content changes recommended by NCTM's *Curriculum and Evaluation Standards*	14	(3.3)	17	(2.5)	23	(2.3)	15	(2.9)	31	(5.0)
o. Pedagogical shifts recommended by NCTM's *Professional Standards for Teaching Mathematics*	14	(2.8)	14	(2.3)	24	(2.7)	12	(2.8)	36	(5.1)
p. Elementary students pulled out from self-contained classes for remedial instruction in mathematics	32	(3.7)	23	(3.4)	25	(3.3)	13	(2.2)	8	(3.3)
q. Elementary students pulled out from self-contained classes for enrichment in mathematics	53	(4.0)	19	(3.6)	18	(3.9)	7	(1.9)	3	(1.0)
r. Elementary students receiving instruction from mathematics specialists in addition to their regular teacher	69	(4.5)	12	(2.7)	10	(3.2)	4	(1.0)	5	(1.6)
s. Elementary students receiving instruction from mathematics specialists instead of their regular teacher	79	(4.3)	9	(2.1)	3	(0.9)	2	(1.1)	7	(1.8)
t. Mathematics courses offered by telecommunications	78	(4.3)	6	(1.6)	4	(2.6)	0	(0.2)	11	(2.3)
u. Students going to another K–12 school for mathematics courses	86	(3.6)	3	(1.7)	1	(0.6)	0	(0.3)	11	(2.3)
v. Students going to a college or university for mathematics courses	73	(3.3)	4	(1.2)	0	(0.4)	0	(0.2)	22	(2.4)
w. Integration of mathematics subjects (e.g., algebra, probability, geometry, etc. all taught together each year)	25	(3.5)	17	(3.5)	21	(3.0)	13	(2.3)	23	(4.8)

Source: Mathematics Program Questionnaire, Item 1.

Implementation of Various Programs/Practices in Middle Schools

	Percent of Schools									
	Not Used 1		2		3		Used Extensively 4		Don't Know/Not Applicable	
a. School-based management	15	(2.1)	16	(2.5)	25	(3.4)	23	(3.8)	22	(3.8)
b. Common daily planning period for members of the mathematics department	55	(5.7)	10	(2.4)	11	(3.5)	10	(2.4)	15	(5.1)
c. Common work space for members of the mathematics department	51	(5.7)	8	(1.6)	10	(2.4)	8	(2.9)	24	(6.4)
d. Interdisciplinary teams of teachers who share the same students (e.g., school within a school)	34	(4.3)	14	(2.3)	12	(2.8)	20	(3.5)	21	(6.3)
e. Students assigned to mathematics classes by ability	30	(5.3)	14	(2.6)	24	(3.5)	29	(4.8)	4	(1.9)
f. Independent study projects for credit in mathematics	52	(5.6)	26	(4.3)	14	(4.9)	2	(1.1)	7	(2.7)
g. Emphasis on problem solving, reasoning skills in mathematics	1	(0.4)	16	(2.9)	45	(5.6)	39	(5.1)	0	(0.0)
h. Use of computers to solve mathematics problems	22	(3.2)	47	(5.6)	19	(3.5)	9	(3.0)	3	(1.2)
i. Hands-on/performance assessment in mathematics	18	(4.8)	39	(4.8)	34	(5.4)	7	(2.0)	1	(0.5)
j. Integration of mathematics and science instruction	19	(4.4)	48	(5.5)	29	(5.5)	4	(1.8)	1	(0.5)
k. Integration of mathematics and language arts instruction	40	(5.3)	39	(4.5)	19	(5.8)	1	(0.7)	2	(1.1)
l. Use of vocational/technical applications in mathematics instruction	20	(2.8)	47	(5.0)	27	(4.8)	2	(0.7)	4	(1.5)
m. Content changes recommended by AAAS' Project 2061 (*Science for All Americans*)	20	(3.8)	9	(2.4)	5	(2.5)	2	(1.6)	64	(5.1)
n. Content changes recommended by NCTM's *Curriculum and Evaluation Standards*	7	(2.6)	21	(2.9)	27	(3.7)	22	(4.6)	24	(6.0)
o. Pedagogical shifts recommended by NCTM's *Professional Standards for Teaching Mathematics*	12	(3.2)	16	(2.6)	27	(3.6)	15	(4.3)	30	(6.1)
p. Elementary students pulled out from self-contained classes for remedial instruction in mathematics	21	(4.6)	17	(4.1)	24	(3.7)	11	(2.8)	27	(4.8)
q. Elementary students pulled out from self-contained classes for enrichment in mathematics	38	(5.5)	17	(3.8)	20	(5.2)	4	(1.3)	21	(2.7)
r. Elementary students receiving instruction from mathematics specialists in addition to their regular teacher	51	(5.3)	14	(3.6)	12	(4.9)	2	(1.0)	22	(2.7)
s. Elementary students receiving instruction from mathematics specialists instead of their regular teacher	54	(5.1)	12	(3.1)	4	(1.2)	6	(2.6)	24	(3.2)
t. Mathematics courses offered by telecommunications	81	(5.0)	3	(1.0)	3	(1.0)	0	(0.1)	13	(2.8)
u. Students going to another K–12 school for mathematics courses	81	(5.1)	4	(1.1)	1	(0.4)	1	(0.6)	13	(3.0)
v. Students going to a college or university for mathematics courses	68	(4.9)	12	(2.0)	2	(0.7)	1	(0.4)	17	(3.4)
w. Integration of mathematics subjects (e.g., algebra, probability, geometry, etc. all taught together each year)	23	(3.5)	23	(3.6)	25	(4.6)	16	(3.3)	13	(4.5)

Source: Mathematics Program Questionnaire, Item 1.

Implementation of Various Programs/Practices in High Schools

	Percent of Schools									
	Not Used 1		2		3		Used Extensively 4		Don't Know/Not Applicable	
a. School-based management	17	(2.7)	17	(2.2)	22	(3.8)	16	(2.1)	28	(3.7)
b. Common daily planning period for members of the mathematics department	56	(2.8)	10	(1.5)	10	(3.1)	16	(3.5)	9	(3.4)
c. Common work space for members of the mathematics department	48	(2.5)	13	(2.0)	16	(3.1)	14	(2.2)	9	(3.4)
d. Interdisciplinary teams of teachers who share the same students (e.g., school within a school)	66	(3.4)	14	(2.2)	8	(2.2)	2	(1.2)	10	(3.6)
e. Students assigned to mathematics classes by ability	13	(2.4)	16	(4.3)	35	(2.3)	33	(3.5)	3	(1.8)
f. Independent study projects for credit in mathematics	54	(4.2)	29	(3.1)	12	(3.6)	2	(1.6)	3	(1.8)
g. Emphasis on problem solving, reasoning skills in mathematics	0	(0.1)	11	(1.9)	54	(3.1)	35	(2.7)	0	(0.0)
h. Use of computers to solve mathematics problems	22	(3.8)	53	(3.9)	19	(2.9)	4	(1.8)	1	(1.0)
i. Hands-on/performance assessment in mathematics	19	(2.6)	49	(3.0)	25	(3.3)	7	(1.3)	1	(0.3)
j. Integration of mathematics and science instruction	24	(2.8)	52	(3.8)	22	(3.9)	2	(0.7)	0	(0.1)
k. Integration of mathematics and language arts instruction	55	(4.2)	34	(3.9)	9	(2.9)	0	(0.1)	3	(1.8)
l. Use of vocational/technical applications in mathematics instruction	18	(2.8)	53	(2.9)	24	(3.1)	3	(1.4)	2	(0.8)
m. Content changes recommended by AAAS' Project 2061 (*Science for All Americans*)	25	(3.5)	11	(1.9)	4	(1.5)	1	(0.8)	59	(3.7)
n. Content changes recommended by NCTM's *Curriculum and Evaluation Standards*	7	(1.6)	29	(4.0)	38	(3.2)	15	(2.6)	11	(2.9)
o. Pedagogical shifts recommended by NCTM's *Professional Standards for Teaching Mathematics*	13	(3.1)	27	(2.4)	34	(3.5)	6	(1.5)	20	(4.3)
p. Elementary students pulled out from self-contained classes for remedial instruction in mathematics	13	(3.0)	14	(2.1)	16	(2.8)	7	(2.3)	49	(5.2)
q. Elementary students pulled out from self-contained classes for enrichment in mathematics	17	(3.6)	18	(3.3)	13	(1.8)	6	(1.9)	47	(4.1)
r. Elementary students receiving instruction from mathematics specialists in addition to their regular teacher	41	(4.6)	9	(1.7)	6	(2.6)	2	(0.7)	43	(3.7)
s. Elementary students receiving instruction from mathematics specialists instead of their regular teacher	46	(4.6)	6	(1.2)	2	(0.4)	2	(1.5)	45	(3.7)
t. Mathematics courses offered by telecommunications	79	(2.7)	7	(1.8)	4	(1.4)	0	(0.3)	11	(2.1)
u. Students going to another K–12 school for mathematics courses	81	(2.9)	5	(1.4)	2	(0.3)	1	(0.3)	12	(2.8)
v. Students going to a college or university for mathematics courses	56	(3.7)	31	(2.9)	8	(1.6)	1	(0.7)	4	(1.5)
w. Integration of mathematics subjects (e.g., algebra, probability, geometry, etc. all taught together each year)	41	(4.6)	35	(5.5)	14	(3.2)	6	(1.0)	4	(1.9)

Source: Mathematics Program Questionnaire, Item 1.

Opinions of Elementary School Mathematics Program Representatives Regarding NCTM's *Standards* for Mathematics Curriculum, Instruction, and Evaluation

	Percent of Program Representatives											
	Strongly Disagree		Disagree		No Opinion		Agree		Strongly Agree		Don't Know	
a. I am well informed about the NCTM *Standards* for the grades I teach	12	(2.3)	22	(3.5)	7	(2.2)	32	(3.6)	23	(2.9)	4	(2.3)
b. I am prepared to explain the NCTM *Standards* to my colleagues	20	(2.8)	26	(2.6)	10	(1.8)	25	(3.1)	16	(2.8)	4	(2.3)
c. The *Standards* have been thoroughly discussed by teachers in this school	25	(3.3)	41	(4.2)	10	(2.7)	15	(1.9)	6	(1.7)	3	(1.1)
d. There is a school-wide effort to make changes inspired by the *Standards*	17	(3.2)	25	(3.3)	8	(1.7)	35	(2.5)	11	(2.6)	4	(1.5)
e. The principal of this school is well-informed about the *Standards*	9	(2.9)	17	(2.6)	8	(1.8)	34	(3.1)	12	(3.0)	20	(3.1)
f. Parents of students in this school are well-informed about the *Standards*	33	(3.9)	40	(4.9)	9	(1.6)	7	(2.2)	0	(0.3)	12	(2.4)
g. The superintendent of this district is well-informed about the *Standards*	8	(2.2)	8	(2.5)	10	(2.2)	20	(2.8)	13	(2.4)	41	(4.1)
h. The School Board is well-informed about the *Standards*	10	(2.3)	17	(4.0)	15	(2.2)	15	(2.7)	2	(0.6)	41	(4.6)
i. Our district is organizing staff development based on the *Standards*	14	(3.7)	11	(2.2)	15	(4.1)	24	(2.9)	16	(2.5)	20	(2.8)
j. Our district has changed how it evaluates teachers based on the *Standards*	27	(3.1)	17	(2.8)	12	(2.3)	10	(2.8)	3	(1.4)	31	(3.3)

Source: Mathematics Program Questionnaire, Item 2.

Opinions of Middle School Mathematics Program Representatives Regarding NCTM's *Standards* for Mathematics Curriculum, Instruction, and Evaluation

	Percent of Program Representatives											
	Strongly Disagree		Disagree		No Opinion		Agree		Strongly Agree		Don't Know	
a. I am well informed about the NCTM *Standards* for the grades I teach	5	(2.0)	14	(2.5)	6	(2.5)	41	(4.3)	28	(4.2)	6	(4.0)
b. I am prepared to explain the NCTM *Standards* to my colleagues	8	(2.1)	24	(3.1)	8	(1.7)	37	(3.9)	17	(3.5)	7	(4.0)
c. The *Standards* have been thoroughly discussed by teachers in this school	18	(3.1)	35	(4.4)	14	(4.6)	24	(3.1)	6	(1.9)	3	(1.3)
d. There is a school-wide effort to make changes inspired by the *Standards*	14	(3.3)	23	(3.4)	9	(2.2)	39	(4.7)	14	(3.6)	2	(0.6)
e. The principal of this school is well-informed about the *Standards*	7	(2.0)	19	(2.9)	11	(2.1)	35	(5.1)	10	(3.5)	18	(3.2)
f. Parents of students in this school are well-informed about the *Standards*	28	(5.2)	42	(5.6)	11	(2.1)	9	(3.0)	0	(0.1)	11	(2.2)
g. The superintendent of this district is well-informed about the *Standards*	8	(2.1)	13	(2.8)	14	(2.1)	23	(3.6)	11	(2.7)	32	(4.5)
h. The School Board is well-informed about the *Standards*	13	(2.6)	22	(4.7)	19	(3.5)	15	(3.4)	1	(0.7)	30	(4.7)
i. Our district is organizing staff development based on the *Standards*	18	(3.8)	18	(3.2)	15	(3.0)	27	(3.3)	8	(2.4)	13	(2.6)
j. Our district has changed how it evaluates teachers based on the *Standards*	25	(3.9)	25	(3.3)	14	(4.2)	11	(3.4)	2	(1.9)	22	(3.7)

Source: Mathematics Program Questionnaire, Item 2.

Opinions of High School Mathematics Program Representatives Regarding NCTM's *Standards* for Mathematics Curriculum, Instruction, and Evaluation

	Percent of Program Representatives											
	Strongly Disagree		Disagree		No Opinion		Agree		Strongly Agree		Don't Know	
a. I am well informed about the NCTM *Standards* for the grades I teach	4	(1.6)	12	(2.4)	6	(1.7)	48	(4.4)	27	(4.7)	3	(2.1)
b. I am prepared to explain the NCTM *Standards* to my colleagues	11	(1.8)	22	(3.7)	10	(2.6)	38	(2.8)	17	(2.5)	2	(1.7)
c. The *Standards* have been thoroughly discussed by teachers in this school	17	(2.9)	34	(4.7)	8	(1.4)	29	(3.7)	8	(1.1)	5	(2.3)
d. There is a school-wide effort to make changes inspired by the *Standards*	15	(3.1)	25	(4.1)	14	(2.9)	31	(2.5)	12	(1.5)	2	(0.8)
e. The principal of this school is well-informed about the *Standards*	15	(3.1)	23	(4.2)	17	(2.6)	24	(2.9)	6	(1.6)	15	(2.7)
f. Parents of students in this school are well-informed about the *Standards*	29	(3.5)	42	(3.1)	13	(2.6)	5	(1.2)	1	(0.3)	10	(2.3)
g. The superintendent of this district is well-informed about the *Standards*	14	(3.1)	21	(4.0)	15	(2.6)	21	(2.7)	4	(0.7)	25	(4.0)
h. The School Board is well-informed about the *Standards*	20	(2.8)	27	(3.4)	18	(2.9)	9	(1.8)	2	(1.1)	25	(3.0)
i. Our district is organizing staff development based on the *Standards*	21	(2.8)	26	(3.3)	10	(2.6)	22	(2.5)	7	(1.5)	15	(3.6)
j. Our district has changed how it evaluates teachers based on the *Standards*	32	(3.3)	31	(2.6)	14	(2.6)	5	(1.3)	0	(0.2)	19	(4.0)

Source: Mathematics Program Questionnaire, Item 2.

Schools Offering Various Grade 7–8 Mathematics Courses

	Percent of Schools	
Mathematics 7, Remedial	33	(5.4)
Mathematics 7, Regular	91	(2.5)
Mathematics 7, Accelerated/Pre-Algebra	51	(6.0)
Mathematics 8, Remedial	32	(4.8)
Mathematics 8, Regular	79	(5.1)
Mathematics 8, Enriched	34	(4.4)
Mathematics 8, Algebra I	58	(5.5)

Source: Mathematics Program Questionnaire, Item 4.

Schools Offering Various Grade 9–12 Mathematics Courses

	Percent of Schools	
Review Mathematics Level 1 (e.g., Remedial Mathematics)	40	(2.8)
Review Mathematics Level 2 (e.g., Consumer Mathematics)	51	(3.8)
Review Mathematics Level 3 (e.g., General Mathematics 3)	26	(3.3)
Review Mathematics Level 4 (e.g., General Mathematics 4)	10	(2.9)
Informal Mathematics Level 1 (e.g., Pre-Algebra)	59	(3.5)
Informal Mathematics Level 2 (e.g., Basic Geometry)	28	(3.1)
Informal Mathematics Level 3 (e.g., after Pre-Algebra, but not Algebra I)	16	(2.4)
Formal Mathematics Level 1 (e.g., Algebra I or Integrated Math 1)	97	(1.1)
Formal Mathematics Level 2 (e.g., Geometry or Integrated Math 2)	95	(1.4)
Formal Mathematics Level 3 (e.g., Algebra II or Integrated Math 3)	89	(3.3)
Formal Mathematics Level 4 (e.g., Advanced Algebra or Integrated Math 4)	81	(3.9)
Formal Mathematics Level 5 (e.g., Calculus)	37	(2.8)
Advanced Placement Calculus	30	(2.6)
Probability/Statistics	12	(1.8)
Mathematics integrated with other subjects	3	(0.7)

Source: Mathematics Program Questionnaire, Item 4.

Schools Offering All of Current Year's Classes Next Year

	Schools Offering Same Classes	
Elementary Schools	90	(1.7)
Middle Schools	89	(1.8)
High Schools	87	(3.0)

Source: Mathematics Program Questionnaire, Item 5.

Schools Assigning Students to Classes by Ability Level

	Percent of Schools					
	Elementary Schools		Middle Schools		High Schools	
Yes	34	(3.0)	46	(5.6)	57	(3.7)
No	66	(4.5)	55	(5.8)	43	(3.7)

Source: Mathematics Program Questionnaire, Item 6.

Average Length of Mathematics Class Period

	Minutes per Class	
Elementary School	15	(1.9)
Middle School	46	(0.8)
High School	49	(0.4)

Source: Mathematics Program Questionnaire, Item 7.

Schools with Mathematics Classes Meeting Other than Five Class Periods per Week

	Percent of Schools	
Elementary School	15	(2.9)
Middle School	10	(3.1)
High School	9	(1.5)

Source: Mathematics Program Questionnaire, Item 8.

Median Amount of Money Spent by Schools on Mathematics Equipment and Consumable Supplies

	Dollar Amount Spent per Year		
	Elementary Schools	Middle Schools	High Schools
Mathematics equipment (non-consumable items such as calculators)	300	300	400
Consumable mathematics supplies (manipulative materials)	350	110	150
Mathematics software	100	100	100

Source: Mathematics Program Questionnaire, Item 9.

Input of Each Factor on Mathematics Equipment/Materials Purchasing Decisions in Elementary Schools

	Percent of Schools											
	No Input		Little Input		Moderate Input		Heavy Input		Complete Control		Not Applicable	
a. State	28	(3.5)	22	(2.3)	18	(2.8)	17	(2.4)	1	(0.5)	14	(3.5)
b. Central office	14	(3.6)	17	(2.2)	23	(2.4)	29	(2.8)	6	(1.5)	11	(2.7)
c. Principal	3	(0.8)	12	(2.4)	33	(3.5)	44	(4.7)	8	(2.7)	0	(0.0)
d. Mathematics department chair	4	(1.1)	8	(1.5)	13	(2.8)	26	(3.6)	1	(0.5)	48	(5.1)
e. Mathematics department as a whole	6	(2.9)	8	(1.8)	11	(2.1)	30	(2.9)	3	(0.9)	42	(4.2)
f. Individual mathematics teachers	3	(1.1)	12	(2.3)	23	(3.1)	56	(3.8)	6	(1.6)	0	(0.0)

Source: Mathematics Program Questionnaire, Item 10.

Input of Each Factor on Mathematics Equipment/Materials Purchasing Decisions in Middle Schools

	Percent of Schools											
	No Input		Little Input		Moderate Input		Heavy Input		Complete Control		Not Applicable	
a. State	35	(5.9)	27	(3.2)	12	(2.8)	9	(2.0)	1	(0.4)	16	(3.9)
b. Central office	21	(6.0)	20	(2.9)	19	(3.1)	21	(2.8)	7	(1.5)	12	(3.4)
c. Principal	3	(0.7)	13	(2.2)	32	(5.0)	38	(5.2)	14	(4.4)	0	(0.0)
d. Mathematics department chair	4	(1.2)	8	(2.0)	18	(2.5)	42	(5.3)	3	(1.1)	26	(5.0)
e. Mathematics department as a whole	8	(4.9)	7	(1.9)	21	(3.0)	45	(4.5)	6	(1.4)	13	(2.6)
f. Individual mathematics teachers	2	(0.7)	9	(2.3)	29	(4.1)	56	(4.7)	5	(1.3)	0	(0.0)

Source: Mathematics Program Questionnaire, Item 10.

Input of Each Factor on Mathematics Equipment/Materials Purchasing Decisions in High Schools

	Percent of Schools											
	No Input		Little Input		Moderate Input		Heavy Input		Complete Control		Not Applicable	
a. State	42	(3.7)	23	(3.1)	12	(2.3)	9	(1.6)	0	(0.1)	14	(2.7)
b. Central office	16	(2.8)	21	(2.0)	24	(2.7)	20	(1.9)	8	(1.6)	13	(3.5)
c. Principal	7	(1.0)	20	(2.2)	34	(2.4)	30	(2.4)	8	(2.1)	0	(0.0)
d. Mathematics department chair	4	(1.8)	6	(1.6)	25	(3.3)	50	(2.7)	6	(2.8)	10	(2.3)
e. Mathematics department as a whole	2	(0.8)	8	(3.0)	25	(2.7)	48	(3.2)	13	(1.6)	5	(2.1)
f. Individual mathematics teachers	4	(1.3)	5	(0.9)	31	(3.0)	53	(3.8)	8	(1.6)	0	(0.0)

Source: Mathematics Program Questionnaire, Item 10.

Mathematics Program Representatives' Perceptions of Problems for Elementary School Mathematics Instruction

	Percent of Programs					
	Not a Significant Problem		Somewhat of a Problem		Serious Problem	
a. Facilities	65	(4.3)	30	(3.9)	6	(2.3)
b. Funds for purchasing equipment and supplies	23	(4.2)	45	(4.9)	33	(6.3)
c. Materials for individualizing instruction	26	(4.3)	48	(4.7)	26	(5.0)
d. Access to computers	31	(5.2)	42	(4.5)	27	(5.0)
e. Appropriate computer software	32	(4.0)	41	(5.0)	27	(3.6)
f. Student interest in mathematics	58	(3.6)	39	(3.6)	4	(1.5)
g. Student reading abilities	44	(4.4)	44	(3.9)	12	(2.9)
h. Student absences	81	(2.6)	18	(2.5)	1	(0.5)
i. Teacher interest in mathematics	81	(3.2)	18	(3.3)	1	(0.8)
j. Teacher preparation to teach mathematics	65	(4.5)	31	(4.0)	4	(1.2)
k. Time to teach mathematics	70	(2.6)	28	(2.5)	3	(0.8)
l. Opportunities for teachers to share ideas	35	(4.2)	45	(5.2)	20	(2.9)
m. In-service education opportunities	42	(5.4)	48	(3.2)	11	(4.0)
n. Interruptions for announcements, assemblies, other school activities	73	(3.8)	23	(2.9)	4	(1.1)
o. Large classes	53	(4.0)	36	(3.9)	12	(1.8)
p. Maintaining discipline	68	(5.0)	27	(4.3)	5	(1.7)
q. Parental support for education	51	(4.3)	39	(5.1)	10	(2.3)
r. State/district testing policies	53	(3.9)	35	(3.7)	12	(2.3)

Source: Mathematics Program Questionnaire, Item 11.

Mathematics Program Representatives' Perceptions of Problems for Middle School Mathematics Instruction

	Percent of Programs					
	Not a Significant Problem		Somewhat of a Problem		Serious Problem	
a. Facilities	60	(6.4)	32	(5.9)	8	(4.2)
b. Funds for purchasing equipment and supplies	25	(4.0)	45	(5.7)	31	(5.9)
c. Materials for individualizing instruction	28	(4.1)	48	(4.7)	24	(6.0)
d. Access to computers	26	(4.6)	37	(5.5)	37	(5.8)
e. Appropriate computer software	25	(3.9)	41	(5.0)	35	(4.3)
f. Student interest in mathematics	40	(5.0)	51	(5.3)	9	(2.2)
g. Student reading abilities	40	(5.3)	44	(4.2)	16	(4.9)
h. Student absences	64	(4.5)	31	(4.2)	5	(0.9)
i. Teacher interest in mathematics	89	(2.3)	10	(2.3)	1	(0.2)
j. Teacher preparation to teach mathematics	78	(4.6)	21	(4.6)	1	(0.2)
k. Time to teach mathematics	67	(4.7)	32	(4.7)	2	(0.8)
l. Opportunities for teachers to share ideas	35	(6.0)	50	(5.8)	15	(2.9)
m. In-service education opportunities	40	(4.3)	55	(4.5)	5	(1.3)
n. Interruptions for announcements, assemblies, other school activities	61	(4.7)	33	(4.0)	7	(1.6)
o. Large classes	51	(4.6)	38	(5.0)	11	(1.8)
p. Maintaining discipline	60	(5.7)	35	(5.7)	5	(0.8)
q. Parental support for education	51	(4.8)	38	(4.9)	11	(1.7)
r. State/district testing policies	63	(4.6)	28	(3.7)	9	(1.7)

Source: Mathematics Program Questionnaire, Item 11.

Mathematics Program Representatives' Perceptions of Problems for High School Mathematics Instruction

	Percent of Programs					
	Not a Significant Problem		Somewhat of a Problem		Serious Problem	
a. Facilities	59	(4.4)	37	(4.4)	4	(0.6)
b. Funds for purchasing equipment and supplies	23	(3.1)	51	(4.1)	26	(2.6)
c. Materials for individualizing instruction	32	(3.3)	48	(3.0)	20	(2.0)
d. Access to computers	23	(3.3)	36	(3.2)	41	(3.3)
e. Appropriate computer software	18	(3.2)	41	(3.2)	41	(3.5)
f. Student interest in mathematics	30	(3.7)	57	(4.0)	13	(2.3)
g. Student reading abilities	33	(3.5)	51	(3.9)	16	(2.1)
h. Student absences	37	(3.6)	51	(3.5)	12	(1.5)
i. Teacher interest in mathematics	91	(1.2)	8	(1.2)	0	(0.3)
j. Teacher preparation to teach mathematics	86	(2.1)	13	(1.9)	1	(0.4)
k. Time to teach mathematics	68	(3.2)	30	(3.1)	3	(0.5)
l. Opportunities for teachers to share ideas	34	(4.1)	46	(4.5)	20	(2.8)
m. In-service education opportunities	38	(2.7)	51	(3.1)	11	(2.8)
n. Interruptions for announcements, assemblies, other school activities	39	(3.2)	48	(3.6)	13	(2.3)
o. Large classes	56	(3.4)	33	(3.1)	11	(1.3)
p. Maintaining discipline	60	(2.9)	37	(2.8)	3	(0.6)
q. Parental support for education	44	(2.9)	41	(2.9)	15	(1.2)
r. State/district testing policies	59	(3.2)	32	(2.0)	10	(2.1)

Source: Mathematics Program Questionnaire, Item 11.

Gender of Mathematics Program Representatives

	Percent of Representatives					
	Elementary Schools		Middle Schools		High Schools	
Male	25	(4.8)	34	(5.1)	48	(4.0)
Female	75	(4.8)	66	(5.1)	52	(4.0)

Source: Mathematics Program Questionnaire, Item 12.

Race/Ethnicity of Mathematics Program Representatives

	Percent of Representatives					
	Elementary Schools		Middle Schools		High Schools	
White (not of Hispanic origin)	96	(1.2)	98	(0.9)	97	(1.4)
Black (not of Hispanic origin)	2	(0.8)	2	(0.5)	2	(0.5)
Hispanic (Mexican, Puerto Rican, Cuban, Central or South American, or other Hispanic culture or origin)	1	(0.4)	0	(0.1)	0	(0.1)
American Indian or Alaskan Native	0	(0.4)	0	(0.2)	1	(0.5)
Asian or Pacific Islander	0	(0.0)	0	(0.1)	0	(0.2)

Source: Mathematics Program Questionnaire, Item 13.

Age of Mathematics Program Representatives

	Percent of Representatives					
	Elementary Schools		Middle Schools		High Schools	
Under 31 years old	8	(2.6)	6	(1.9)	7	(2.8)
31–40 years old	22	(3.3)	22	(4.9)	17	(2.9)
41–50 years old	52	(4.6)	53	(4.3)	48	(3.2)
Over 50 years old	19	(2.9)	19	(3.4)	28	(3.3)

Source: Mathematics Program Questionnaire, Item 14.

Prior Years Teaching Experience of Mathematics Program Representatives

	Percent of Representatives					
	Elementary Schools		Middle Schools		High Schools	
0–2 years	4	(1.3)	6	(2.1)	6	(2.6)
3–5 years	6	(1.9)	7	(2.4)	5	(1.7)
6–10 years	25	(3.7)	20	(4.7)	14	(2.8)
11–20 years	41	(3.9)	41	(5.6)	34	(2.9)
21 or more years	24	(3.3)	27	(3.7)	42	(2.2)

Source: Mathematics Program Questionnaire, Item 15.

Title of Mathematics Program Representatives

	Percent of Representatives					
	Elementary Schools		Middle Schools		High Schools	
Mathematics department chair	10	(1.9)	33	(3.4)	65	(4.5)
Mathematics lead teacher	13	(2.1)	14	(2.8)	11	(2.6)
Teacher	53	(4.6)	37	(4.1)	22	(3.9)
Principal	22	(4.0)	16	(3.4)	2	(0.9)
Assistant principal	3	(1.0)	1	(0.3)	1	(0.5)

Source: Mathematics Program Questionnaire, Item 17.

Appendix

List of Course Titles

LIST OF COURSE TITLES

A. SCIENCE COURSES

CODE	Course Category
Grades 1 - 6	
101	Science, Grade 1
102	Science, Grade 2
103	Science, Grade 3
104	Science, Grade 4
105	Science, Grade 5
106	Science, Grade 6
107	Other Elementary Science

CODE	Course Category
Grades 7 - 8	
108	Life Science
109	Earth Science
110	Physical Science
111	General Science
112	Coordinated Science: Includes content from more than one science discipline, e.g., life and physical science, but keeps the disciplines separate.
113	Integrated Science: Includes science from various science disciplines, but blurs the distinctions among them.

CODE	Course Category	Sample Course Titles
Grades 9 - 12		
	Biology	
114	1st Year	Biology I; General Biology; College Prep Biology; Regents Biology; Introductory Biology; BSCS I
115	1st Year, Applied	Basic Biology; Applied Biology; Life Science; Biomedical Education; Animal Science; Horticulture; Biology Science; Health Science; Nutrition; Man and Disease; Agriculture Science; Fundamentals of Biology
116	2nd Year, AP	Advanced Placement Biology
117	2nd Year, Advanced	Biology II; Advanced Biology; College Biology; Psychobiology; Physiology; Anatomy; Microbiology; Genetics; Cell Biology; Embryology; Molecular Biology; Invertebrate/Vertebrate Biology; BSCS II
118	2nd Year, Other	Zoology; Botany; Bio-Medical Careers; Field Biology; Marine Biology; Other Biological Sciences
	Chemistry	
119	1st Year	Chemistry I; General Chemistry; Introductory Chemistry; Regents 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	Physics I; General Physics; Regents Physics; Introductory 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/Space Science *	* 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.
129	Geology *	
130	Meteorology *	
131	Oceanography/Marine Science *	
132	1st Year	Earth Science; Earth/Space Science; Regents Earth Science
133	1st Year, Applied	Applied Earth Science; Fundamentals of Earth Science; Soil Science
134	2nd Year, Advanced	Advanced Earth Science; Earth Science II
135	Other Earth Science	
	Other Science	
136	General Science	General Science; Basic Science; Consumer Science; Introductory Science; Investigations in Science
137	Environmental Science	Ecology, Environmental Science
138	Science, Technology, Society	Science, Technology, Society; Science and Society
139	Coordinated Science	Includes content from more than one science discipline, e.g., life and physical science, but keeps the disciplines separate
140	Integrated Science	Includes content from the various science disciplines, but blurs the distinctions among them.
199	Other Science	Research Topics; science integrated with other disciplines, e.g., technology, engineering, mathematics.

B. MATHEMATICS COURSES

CODE	Course Category	Sample Course Titles
Grades 1 - 6		
201	Mathematics, Grade 1	
202	Mathematics, Grade 2	
203	Mathematics, Grade 3	
204	Mathematics, Grade 4	
205	Mathematics, Grade 5	
206	Mathematics, Grade 6	
207	Other Elementary Mathematics	
Grades 7 - 8		
208	Remedial Math, 7	Remedial Math 7
209	Math 7, Regular	Math 7
210	Math 7, Accelerated	Accelerated Math 7; Pre-Algebra; Introductory Algebra; Enriched Math 7; Transitional Math 7
211	Remedial Math, 8	Remedial Math 8
212	Math 8, Regular	Math 8
213	Math 8, Enriched	Pre-Algebra; Accelerated Math 8; Honors Math 8; Transitional Math 8
214	Math, 8, Algebra I	Algebra I; Beginning Algebra; Elementary Algebra
Grades 9 - 12		
Review Mathematics		
215	Level 1	General Math 1; Basic Math; Math 9; Developmental Math; High School Arithmetic; Comprehensive Math; Transitional Math
216	Level 2	General Math 2; Vocational Math; Applied Math; Consumer Math; Technical Math; Business Math; Math 10; Career Math; Practical Math; Essential Math; Cultural Math
217	Level 3	General Math 3; Math 11, Intermediate Math; Applied Math II
218	Level 4	General Math 4, Math 12
Informal Mathematics		
219	Level 1	Pre-Algebra; Introductory Algebra; Basic Algebra; Applications; Algebra 1A; Non-College Algebra; Math A
220	Level 2	Basic Geometry; Informal Geometry; Practical Geometry; Core Geometry
221	Level 3	Basic Algebra 2; Mathematics of Consumer Economics
Formal Mathematics		
222	Level 1	Algebra I; Elementary Algebra; Beginning Algebra; Unified Math I; Integrated Math 1; Algebra 1B; Math B
223	Level 2	Geometry; Plane Geometry; Solid Geometry; Integrated Math 2; Unified Math II; Math C
224	Level 3	Algebra II, Intermediate Algebra; Algebra and Trigonometry; Algebra and Analytic Geometry; Integrated Math 3; Unified Math III
225	Level 4	Algebra III; Trigonometry; Advanced Algebra; College Algebra; Pre-Calculus; Analytic/Advanced Geometry; Trigonometry and Analytic/Solid Geometry; Math Topics; Introduction to College Math; Number Theory; Math IV; College Prep Senior Math; Elementary Functions; Finite Math; Numerical Analysis; Discrete Math
226	Level 5	Calculus and Analytic Geometry; Calculus; Abstract Algebra; Differential Equations; Multivariate Calculus; Linear Algebra; Theory of Equations; Vectors/Matrix Algebra; Math Analysis
227	Level 5, AP	Advanced Placement Calculus AB; Advanced Placement Calculus BC.
Other Mathematics		
228	Probability and Statistics	
229	Mathematics integrated with other subjects	
299	Other Mathematics	

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