TRENDS IN INTERNATIONAL MATHEMATICS AND SCIENCE

TIMSS

TIMSS 2003 User Guide

for the International Database

Supplement One

International Version of the TIMSS 2003 Background Questionnaires

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Supplement 1: International Version of the TIMSS 2003 Background and Curriculum Questionnaires

Overview

This supplement contains the international version of the TIMSS 2003 background questionnaires and curriculum questionnaires in the following 12 sections:

Section 1:	Eighth Grade - Student Questionnaire - General Science Version
Section 2:	Eighth Grade - Student Questionnaire - Separate Science Subjects Version
Section 3:	Eighth Grade - Mathematics Teacher Questionnaire
Section 4:	Eighth Grade - Science Teacher Questionnaire
Section 5:	Eighth Grade - School Questionnaire
Section 6:	Eighth Grade – Mathematics Curriculum Questionnaire
Section 7:	Eighth Grade – Science Curriculum Questionnaire
Section 8:	Fourth Grade - Student Questionnaire
Section 9:	Fourth Grade - Teacher Questionnaire
Section 10:	Fourth Grade - School Questionnaire
Section 11:	Fourth Grade – Mathematics Curriculum Questionnaire
Section 12:	Fourth Grade – Science Curriculum Questionnaire

It contains the lists of the questionnaire items that were administered. The international background variables corresponding to each of the questionnaire question are also given. However, the location of each of the curriculum questionnaire items is used as its corresponding variables. For the eighth grade student questionnaires, although there were two versions administered, only one list is presented where it is indicated whether the variables were included in the general science, the separate science subjects, or both questionnaires.

The questionnaires were designed to provide an opportunity for individual countries to make modifications to some questions or response options. This allowed countries to include the appropriate wording or options most consistent with their own national systems. In the international versions of the questionnaires, such questions contain instructions to the National

Research Coordinators (NRC) to substitute the appropriate wording for their country and/or to modify or delete any inappropriate questions or options. These instructions were indicated in two ways in the questionnaires by the text <NRC NOTE:> and <International Option>. When used it was an indicator that the NRC was to substitute, if necessary, an appropriate national option that would retain the same basic interpretation as the international version.

Because of the complex nature of the data collected with the open-ended items of the curriculum questionnaires (i.e. items that asked respondent to comment on a particular issue), these data are not available in the public release of the database. When this was the case, items are marked with an asterisk in the lists of the questionnaire variables.

The documentation of the national adaptations of the background questionnaire items is included in Supplement 2. This provides the user with information required to evaluate the availability of internationally comparable data for use in secondary analyses involving the TIMSS background variables.

The User Guide includes all the questionnaires administered as part of the TIMSS 2003 Assessment. The lists of variables given for each of the 2003 questionnaires indicate whether the question was also administered and available in the questionnaires administered in 1999. The availability of these variables in TIMSS 1995 can be found in the 1999 User Guide. The questionnaires included with this Supplement have each question with its corresponding variable name in the margin. The curriculum questionnaires have question locations in the margin. The international versions of the background questionnaires from the 1995 assessment are available with the User Guide for the 1995 Database.

In the lists of the questionnaire variables, for each variable, the corresponding international questionnaire location is given. The questionnaire item numbers associated with each variable are indicated by field locations according to the formats given in Table S1.1. The lists of background variables for the student, teacher, and school questionnaires and of curriculum questionnaire variables are presented in Tables S1.2 through S1.12.

Table S1.1 Questionnaire Item Field Location Format Conventions

Questionnaire	Location
Eighth Grade - Student Questionnaire - General Science Version	SQ2-***
Eighth Grade - Student Questionnaire - Separate Science Subjects Version	SQ2S-***
Eighth Grade - Mathematics Teacher Questionnaire	TQM2 -***
Eighth Grade - Science Teacher Questionnaire	TQS2 -***
Eighth Grade - School Questionnaire	SCQ2-***
Eighth Grade – Mathematics Curriculum Questionnaire	CQM2q***
Eighth Grade – Science Curriculum Questionnaire	CQS2q***
Fourth Grade - Student Questionnaire	SQ1-***
Fourth Grade - Teacher Questionnaire	TQ1-***
Fourth Grade - School Questionnaire	SCQ1-***
Fourth Grade – Mathematics Curriculum Questionnaire	CQM1q***
Fourth Grade – Science Curriculum Questionnaire	CQS1q***

Exhibit S1.2 Index of International Background Variables for the TIMSS 2003 Student Questionnaires – Eighth Grade (Part 1 of 14)

General Questionnaire Location	Separate Sciences Questionnaire Location	Variable Name	Available in 1999	Question
SQ2-01A	SQ2S-01A	BSBGBRTY	Modified from SQ2-1 BSBGBIRDY	What year were you born?
SQ2-01B	SQ2S-01B	BSBGBRTM	Modified from SQ2-1 BSBGBIRDM	What month were you born?
SQ2-02	SQ2S-02	BSBGSEX	SQ2-2 SAME BSBGSEX	Are you a girl or a boy?
SQ2-03	SQ2S-03	BSBGOLAN	Modified from SQ2-4 BSBGLANG	How often do you speak <language of test> at home?
SQ2-04	SQ2S-04	BSBGBOOK	SQ2-10 SAME BSBGBOOK	About how many books are there in your home? (Do not count magazines, newspapers, or your school books.)
SQ2-05A	SQ2S-05A	BSBGPS01	SQ2-11A SAME BSBGPS01	Do you have a calculator in your home?
SQ2-05B	SQ2S-05B	BSBGPS02	SQ2-11B SAME BSBGPS02	Do you have a computer in your home? (Do not include Nintendo, Gameboy, or other TV/video game computers.)
SQ2-05C	SQ2S-05C	BSBGPS03	SQ2-11C SAME BSBGPS03	Do you have a study desk/table for your use in your home?
SQ2-05D	SQ2S-05D	BSBGPS04	SQ2-11D SAME BSBGPS04	Do you have a dictionary in your home?
SQ2-05E	SQ2S-05E	BSBGPS05	SQ2-11E SAME BSBGPS05	Do you have a <country-specific> in your home?
SQ2-05F	SQ2S-05F	BSBGPS06	SQ2-11F SAME BSBGPS06	Do you have a <country-specific> in your home?
SQ2-05G	SQ2S-05G	BSBGPS07	SQ2-11G SAME BSBGPS07	Do you have a <country-specific> in your home?
SQ2-05H	SQ2S-05H	BSBGPS08	SQ2-11H SAME BSBGPS08	Do you have a <country-specific> in your home?
SQ2-05I	SQ2S-05I	BSBGPS09	SQ2-11I SAME BSBGPS09	Do you have a <country-specific> in your home?
SQ2-05J	SQ2S-05J	BSBGPS10	SQ2-11J SAME BSBGPS10	Do you have a <country-specific> in your home?
SQ2-05K	SQ2S-05K	BSBGPS11	SQ2-11K SAME BSBGPS11	Do you have a <country-specific> in your home?
SQ2-05L	SQ2S-05L	BSBGPS12	SQ2-11L SAME BSBGPS12	Do you have a <country-specific> in your home?
SQ2-05M	SQ2S-05M	BSBGPS13	SQ2-11M SAME BSBGPS13	Do you have a <country-specific> in your home?
SQ2-05N	SQ2S-05N	BSBGPS14	SQ2-11N SAME BSBGPS14	Do you have a <country-specific> in your home?
SQ2-05O	SQ2S-05O	BSBGPS15	SQ2-11O SAME BSBGPS15	Do you have a <country-specific> in your home?
SQ2-05P	SQ2S-05P	BSBGPS16	SQ2-11P SAME BSBGPS16	Do you have a <country-specific> in your home?
SQ2-06A	SQ2S-06A	BSBGMFED	No	What is the highest level of education completed by your mother (or stepmother or female guardian)?
SQ2-06B	SQ2S-06B	BSBGFMED	No	What is the highest level of education completed by your father (or stepfather or male guardian)?
SQ2-07	SQ2S-07	BSBGHFSG	Modified from SQ2-8 BSBGEDSE	How far in school do you expect to go?
SQ2-08A	SQ2S-08A	BSBMTWEL	No	What do you think about learning math? Tell how much you agree with these statements: I usually do well in math.
SQ2-08B	SQ2S-08B	BSBMTMOR	No	What do you think about learning math? Tell how much you agree with these statements: I would like to take more mathematics in school.

Exhibit S1.2 Index of International Background Variables for the TIMSS 2003 Student Questionnaires – Eighth Grade (Part 2 of 14)

General Questionnaire Location	Separate Sciences Questionnaire Location	Variable Name	Available in 1999	Question
SQ2-08C	SQ2S-08C	BSBMTCLM	No	What do you think about learning math? Tell how much you agree with these statements: math is more difficult for me than for many of my classmates.
SQ2-08D	SQ2S-08D	BSBMTENJ	No	What do you think about learning math? Tell how much you agree with these statements: I enjoy learning math.
SQ2-08E	SQ2S-08E	BSBMTTOP	No	What do you think about learning math? Tell how much you agree with these statements: Sometimes, when I do not initially understand a new topic in math, I know that I will never really understand it.
SQ2-08F	SQ2S-08F	BSBMTSTR	No	What do you think about learning math? math is not one of my strengths.
SQ2-08G	SQ2S-08G	BSBMTQKY	No	What do you think about learning math? Tell how much you agree with these statements: I learn things quickly in math.
SQ2-09A	SQ2S-09A	BSBMAHDL	No	Indicate how much you agree with these statements about math: I think learning mathematics will help me in my daily life.
SQ2-09B	SQ2S-09B	BSBMAOSS	No	Indicate how much you agree with these statements about math: I need mathematics to learn other school subjects.
SQ2-09C	SQ2S-09C	BSBMAUNI	No	Indicate how much you agree with these statements about math: I need to do well in math to get into the <university> of my choice.
SQ2-09D	SQ2S-09D	BSBMAJOB	No	Indicate how much you agree with these statements about math: I would like a job that involved using math.
SQ2-09E	SQ2S-09E	BSBMAGET	No	Indicate how much you agree with these statements about math: I need to do well in math to get the job I want.
SQ2-10A	SQ2S-10A	BSBMHASM	No	In your math lessons, how often do you practice adding, subtracting, multiplying, and dividing without using a calculator?
SQ2-10B	SQ2S-10B	BSBMHWFD	No	In your math lessons, how often do you work on fractions and decimals?
SQ2-10C	SQ2S-10C	BSBMHGCT	No	In your math lessons, how often do you interpret data in tables, charts, or graphs?
SQ2-10D	SQ2S-10D	BSBMHEFR	No	In your math lessons, how often do you write equations and functions to represent relationships?
SQ2-10E	SQ2S-10E	BSBMHWSG	Modified from SQ2-26I BSBMSGRP	In your math lessons, how often do you work together in small groups?
SQ2-10F	SQ2S-10F	BSBMHMDL	Modified from SQ2-26H BSBMEVLF	In your math lessons, how often do you relate what you are learning in mathematics to your daily life?
SQ2-10G	SQ2S-10G	BSBMHEXP	No	In your math lessons, how often do you explain your answers to the class?
SQ2-10H	SQ2S-10H	BSBMHSCP	No	In your math lessons, how often do you decide on your own procedures for solving complex problems?

Exhibit S1.2 Index of International Background Variables for the TIMSS 2003 Student Questionnaires – Eighth Grade (Part 3 of 14)

General Questionnaire Location	Separate Sciences Questionnaire Location	Variable Name	Available in 1999	Question
SQ2-10I	SQ2S-10I	BSBMHROH	Modified from SQ2-26N BSBMHWDS	In your math lessons, how often do you review your homework?
SQ2-10J	SQ2S-10J	BSBMHLSP	No	In your math lessons, how often do you listen to the teacher give a lecture-style presentation?
SQ2-10K	SQ2S-10K	BSBMHWPO	No	In your math lessons, how often do you work problems on your own?
SQ2-10L	SQ2S-10L	BSBMHBHC	Modified from SQ2-26K BSBMHWCL	In your math lessons, how often do you begin your homework in class?
SQ2-10M	SQ2S-10M	BSBMHHQT	Modified from SQ2-26C BSBMTEST	In your math lessons, how often do you have a quiz or test?
SQ2-10N	SQ2S-10N	BSBMHCAL	Modified from SQ2-26F BSBMCALC	In your math lessons, how often do you use calculators?
SQ2-11A	~~	BSBSTWEL	No	What do you think about learning science? Tell how much you agree with these statements: I usually do well in science.
SQ2-11B	~~	BSBSTMOR	No	What do you think about learning science? Tell how much you agree with these statements: I would like to take more science in school.
SQ2-11C	~~	BSBSTCLM	No	What do you think about learning science? Tell how much you agree with these statements: Science is more difficult for me than for many of my classmates.
SQ2-11D	~~	BSBSTENJ	No	What do you think about learning science? Tell how much you agree with these statements: I enjoy learning science.
SQ2-11E	~~	BSBSTTOP	No	What do you think about learning science? Tell how much you agree with these statements: Sometimes, when I do not initially understand a new topic in science, I know that I will never really understand it.
SQ2-11F	~~	BSBSTSTR	No	What do you think about learning science? Tell how much you agree with these statements: Science is not one of my strengths.
SQ2-11G	~~	BSBSTQKY	No	What do you think about learning science? Tell how much you agree with these statements: I learn things quickly in science.
SQ2-12A	~~	BSBSAHDL	No	Indicate how much you agree with these statements about science: I think learning science will help me in my daily life.
SQ2-12B	~~	BSBSAOSS	No	Indicate how much you agree with these statements about science: I need science to learn other school subjects.
SQ2-12C	~~	BSBSAUNI	No	Indicate how much you agree with these statements about science: I need to do well in science to get into the <university> of my choice.
SQ2-12D	~~	BSBSAJOB	No	Indicate how much you agree with these statements about science: I would like a job that involved using science.
SQ2-12E	~~	BSBSAGET	No	Indicate how much you agree with these statements about science: I need to do well in science to get the job I want.

Exhibit S1.2 Index of International Background Variables for the TIMSS 2003 Student Questionnaires – Eighth Grade (Part 4 of 14)

General Questionnaire Location	Separate Sciences Questionnaire Location	Variable Name	Available in 1999	Question
SQ2-13A	~~	BSBSHDEI	Modified from SQ2-31O BSBSDEMO	How often do you watch the teacher demonstrate an experiment or investigation in your science lessons?
SQ2-13B	~~	BSBSHFHP	No	How often do you formulate hypotheses or predictions to be tested in your science lessons?
SQ2-13C	~~	BSBSHPEI	No	How often do you design or plan an experiment or investigation in your science lessons?
SQ2-13D	~~	BSBSHCEI	Modified from SQ2-31P BSBSEXPR	How often do you conduct an experiment or investigation in your science lessons?
SQ2-13E	~~	BSBSHWGO	Modified from SQ2-31I BSBSSGRP	How often do you work in small groups on an experiment or investigation in your science lessons?
SQ2-13F	~~	BSBSHEOH	No	How often do you write explanations about what was observed and why it happened in your science lessons?
SQ2-13G	~~	BSBSHITS	No	How often do you study the impact of technology on society in your science lessons?
SQ2-13H	~~	BSBSHMDL	No	How often do you relate what you are learning in science to your daily life in your science lessons?
SQ2-13I	~~	BSBSHPWC	No	How often do you present your work to the class in your science lessons?
SQ2-13J	~~	BSBSHROH	No	How often do you review your homework in your science lessons?
SQ2-13K	~~	BSBSHLSP	No	How often do you listen to the teacher give a lecture-style presentation in your science lessons?
SQ2-13L	~~	BSBSHWPO	No	How often do you work problems on you own in your science lessons?
SQ2-13M	~~	BSBSHBHC	Modified from SQ2-31K BSBSHWCL	How often do you begin your homework in class in your science lessons?
SQ2-13N	~~	BSBSHHQT	Modified from SQ2-31C BSBSTEST	How often do you have a quiz or test in your science lessons?
SQ2-14A	SQ2S-27A	BSBGUSEC	No	Do you ever use a computer? (Do not include Nintendo, GameBoy, or other TV/video game computers).
SQ2-14BA	SQ2S-27BA	BSBGCHOM	No	Do you use a computer at home?
SQ2-14BB	SQ2S-27BB	BSBGCSCH	No	Do you use a computer at school?
SQ2-14BC	SQ2S-27BC	BSBGCLIB	No	Do you use a computer at a library?
SQ2-14BD	SQ2S-27BD	BSBGCFRH	No	Do you use a computer at a friend's home?
SQ2-14BE	SQ2S-27BE	BSBGCCAF	No	Do you use a computer at an Internet cafe?
SQ2-14BF	SQ2S-27BF	BSBGCELS	No	Do you use a computer elsewhere?
SQ2-14CA	SQ2S-27CA	BSBMOINF	No	How often do you use a computer to look up ideas and information for math?

Exhibit S1.2 Index of International Background Variables for the TIMSS 2003 Student Questionnaires – Eighth Grade (Part 5 of 14)

General Questionnaire Location	Separate Sciences Questionnaire Location	Variable Name	Available in 1999	Question
SQ2-14CB	~~	BSBSOINF	No	How often do you use a computer to look up ideas and information for science?
SQ2-14CC	SQ2S-27CF	BSBGOREP	No	How often do you use a computer to write reports for school?
SQ2-14CD	SQ2S-27CG	BSBGOPAD	No	How often do you use a computer to process and analyze data?
SQ2-15A	SQ2S-28A	BSBGALBS	No	How much do you agree with these statements about your school? I like being in school.
SQ2-15B	SQ2S-28B	BSBGATTB	No	How much do you agree with these statements about your school? I think that students in my school try to do their best.
SQ2-15C	SQ2S-28C	BSBGATCS	No	How much do you agree with these statements about your school? I think that teachers in my school care about the students.
SQ2-15D	SQ2S-28D	BSBGATSB	No	How much do you agree with these statements about your school? I think that teachers in my school want students to do their best.
SQ2-16A	SQ2S-29A	BSBGSTOL	Modified from SQ2-37B BSBGSSTL	In school, did any of these things happen during the last month? Something of mine was stolen.
SQ2-16B	SQ2S-29B	BSBGHURT	No	In school, did any of these things happen during the last month? I was hit or hurt by other student(s) (for example, shoving, hitting, kicking).
SQ2-16C	SQ2S-29C	BSBGMADE	No	In school, did any of these things happen during the last month? I was made to do things I didn't want to do by other students.
SQ2-16D	SQ2S-29D	BSBGMFUN	No	In school, did any of these things happen during the last month? I was made fun of or called names.
SQ2-16E	SQ2S-29E	BSBGLEFT	No	In school, did any of these things happen during the last month? I was left out of activities by other students.
SQ2-17A	SQ2S-30A	BSBGWATV	No	On a normal day, how much time do you spend before or after school doing each of these things? I watch television and videos.
SQ2-17B	SQ2S-30B	BSBGPLCG	No	On a normal day, how much time do you spend before or after school doing each of these things? I play computer games.
SQ2-17C	SQ2S-30C	BSBGPLFD	No	On a normal day, how much time do you spend before or after school doing each of these things? I play or talk with friends.
SQ2-17D	SQ2S-30D	BSBGJOHM	No	On a normal day, how much time do you spend before or after school doing each of these things? I do jobs at home.
SQ2-17E	SQ2S-30E	BSBGWKPJ	No	On a normal day, how much time do you spend before or after school doing each of these things? I work at a paid job?
SQ2-17F	SQ2S-30F	BSBGPLSP	No	On a normal day, how much time do you spend before or after school doing each of these things? I play sports.
SQ2-17G	SQ2S-30G	BSBGREBO	Modified from SQ2-35A BSBGACT1	On a normal day, how much time do you spend before or after school doing each of these things? I read a book for enjoyment.
SQ2-17H	SQ2S-30H	BSBGUSIN	No	On a normal day, how much time do you spend before or after school doing each of these things? I use the internet.

Exhibit S1.2 Index of International Background Variables for the TIMSS 2003 Student Questionnaires – Eighth Grade (Part 6 of 14)

General Questionnaire Location	Separate Sciences Questionnaire Location	Variable Name	Available in 1999	Question
SQ2-17I	SQ2S-30I	BSBGDOHW	No	On a normal day, how much time do you spend before or after school doing each of these things? I do homework.
SQ2-18A	~~	BSBMEXTO	No	During this school year, how often have you had extra lessons or tutoring in mathematics that is not part of your regular class?
SQ2-18B	~~	BSBSEXTO	No	During this school year, how often have you had extra lessons or tutoring in science that is not part of your regular class?
SQ2-19A	~~	BSBMHWMA	No	How often does your teacher give you homework in mathematics?
SQ2-19B	~~	BSBMHWMG	No	When your teacher gives you mathematics homework, about how many minutes are you usually given?
SQ2-20A	~~	BSBSHWMA	No	How often does your teacher give you homework in science?
SQ2-20B	~~	BSBSHWMG	No	When your teacher gives you science homework, about how many minutes are you usually given?
SQ2-21	SQ2S-33	BSBGPLHO	No	Including yourself, how many people live in your home?
SQ2-22A	SQ2S-34A	BSBGMBRN	Modified from SQ2-9A BSBGBRNM	Was you mother (or stepmother or female guardian) born in <country>?
SQ2-22B	SQ2S-34B	BSBGFBRN	Modified from SQ2-9B BSBGBRNF	Was you father (or stepfather or male guardian) born in <country>?
SQ2-23A	SQ2S-35A	BSBGBORN	Modified from SQ2-3A BSBGBRN1	Were you born in <country>?
SQ2-23B	SQ2S-35B	BSBGBRNC	Modified from SQ2-3B BSBGBRN2	If you were not born in <country>, how old were you when you came to <country>?
~~	SQ2S-11	BSBBSBIO	No	Are you studying biology in school this year?
~~	SQ2S-12A	BSBBTWEL	No	What do you think about learning biology? Tell how much you agree with these statements: I usually do well in biology.
~~	SQ2S-12B	BSBBTMOR	No	What do you think about learning biology? Tell how much you agree with these statements: I would like to take more biology in school.
~~	SQ2S-12C	BSBBTCLM	No	What do you think about learning biology? Tell how much you agree with these statements: Biology is more difficult for me than for many of my classmates.
~~	SQ2S-12D	BSBBTENJ	No	What do you think about learning biology? Tell how much you agree with these statements: I enjoy learning biology.
~~	SQ2S-12E	BSBBTTOP	No	What do you think about learning biology? Tell how much you agree with these statements: Sometimes, when I do not initially understand a new topic in biology, I know that I will never really understand it.
~~	SQ2S-12F	BSBBTSTR	No	What do you think about learning biology? Tell how much you agree with these statements: Biology is not one of my strengths.
~~	SQ2S-12G	BSBBTQKY	No	What do you think about learning biology? Tell how much you agree with these statements: I learn things quickly in biology.

Exhibit S1.2 Index of International Background Variables for the TIMSS 2003 Student Questionnaires – Eighth Grade (Part 7 of 14)

General Questionnaire Location	Separate Sciences Questionnaire Location	Variable Name	Available in 1999	Question
~~	SQ2S-13A	BSBBAHDL	No	How much do you agree with the following statement about biology? I think learning biology will help me in my daily life.
~~	SQ2S-13B	BSBBAOSS	No	How much do you agree with the following statement about biology? I need biology to learn other school subjects.
~~	SQ2S-13C	BSBBAUNI	No	How much do you agree with the following statement about biology? I need to do well in biology to get into the <university> of my choice?
~~	SQ2S-13D	BSBBAJOB	No	How much do you agree with the following statement about biology? I would like a job that involved using biology.
~~	SQ2S-13E	BSBBAGET	No	How much do you agree with the following statement about biology? I need to do well in biology to get the job I want.
~~	SQ2S-14A	BSBBHDEI	Modified from SQ2S-34O BSBBDEMO	In your biology lessons, how often do you watch the teacher demonstrate an experiment or investigation?
~~	SQ2S-14B	BSBBHFHP	No	In your biology lessons, how often do you formulate hypotheses or predictions to be tested?
~~	SQ2S-14C	BSBBHPEI	No	In your biology lessons, how often do you design or plan an experiment or investigation?
~~	SQ2S-14D	BSBBHCEI	Modified from SQ2S-34P BSBBEXPR	In your biology lessons, how often do you conduct an experiment or investigation?
~~	SQ2S-14E	BSBBHWGO	Modified from SQ2S-34I BSBBSGRP	In your biology lessons, how often do you work in small groups on an experiment or investigation?
~~	SQ2S-14F	BSBBHEOH	No	In your biology lessons, how often do you write explanations about what was observed and why it happened?
~~	SQ2S-14G	BSBBHITS	No	In your biology lessons, how often do you study the impact of technology on society?
~~	SQ2S-14H	BSBBHMDL	No	In your biology lessons, how often do you relate what you are learning in biology to your daily life?
~~	SQ2S-14I	BSBBHPWC	No	In your biology lessons, how often do you present your work to the class?
~~	SQ2S-14J	BSBBHROH	No	In your biology lessons, how often do you review your homework?
~~	SQ2S-14K	BSBBHLSP	No	In your biology lessons, how often do you listen to the teacher give a lecture-style presentation?
~~	SQ2S-14L	BSBBHWPO	No	In your biology lessons, how often do you work problems on your own?
~~	SQ2S-14M	BSBBHBHC	Modified from SQ2S-34K BSBBHWCL	In your biology lessons, how often do you begin your homework in class?
~~	SQ2S-14N	BSBBHHQT	Modified from SQ2S-34C BSBBTEST	In your biology lessons, how often do you have a quiz or test?
~~	SQ2S-15	BSBEARTH	No	Are you studying earth science in school this year?

Exhibit S1.2 Index of International Background Variables for the TIMSS 2003 Student Questionnaires – Eighth Grade (Part 8 of 14)

General Questionnaire Location	Separate Sciences Questionnaire Location	Variable Name	Available in 1999	Question
~~	SQ2S-16A	BSBETWEL	No	What do you think about learning earth science? Tell how much you agree with these statements: I usually do well in earth science.
~~	SQ2S-16B	BSBETMOR	No	What do you think about learning earth science? Tell how much you agree with these statements: I would like to take more earth science in school.
~~	SQ2S-16C	BSBETCLM	No	What do you think about learning earth science? Tell how much you agree with these statements: Earth science is more difficult for me than for many of my classmates.
~~	SQ2S-16D	BSBETENJ	No	What do you think about learning earth science? Tell how much you agree with these statements: I enjoy learning earth science.
~~	SQ2S-16E	BSBETTOP	No	What do you think about learning earth science? Tell how much you agree with these statements: Sometimes, when I do not initially understand a new topic in earth science, I know that I will never really understand it.
~~	SQ2S-16F	BSBETSTR	No	What do you think about learning earth science? Tell how much you agree with these statements: Earth science is not one of my strengths.
~~	SQ2S-16G	BSBETQKY	No	What do you think about learning earth science? Tell how much you agree with these statements: I learn things quickly in earth science.
~~	SQ2S-17A	BSBEAHDL	No	How much do you agree with these statements about earth science? I think learning earth science will help me in my daily life.
~~	SQ2S-17B	BSBEAOSS	No	How much do you agree with these statements about earth science? I need earth science to learn other school subjects.
~~	SQ2S-17C	BSBEAUNI	No	How much do you agree with these statements about earth science? I need to do well in earth science to get into the <university> of my choice.
~~	SQ2S-17D	BSBEAJOB	No	How much do you agree with these statements about earth science? I would like a job that involved using earth science.
~~	SQ2S-17E	BSBEAGET	No	How much do you agree with these statements about earth science? I need to do well in earth science to get the job I want.
~~	SQ2S-18A	BSBEHDEI	SQ2S-42O BSBEDEMO	In your earth science lessons, how often do you watch the teacher demonstrate an experiment or investigation?
~~	SQ2S-18B	BSBEHFHP	No	In your earth science lessons, how often do you formulate hypotheses or predictions to be tested?
~~	SQ2S-18C	BSBEHPEI	No	In your earth science lessons, how often do you design or plan an experiment or investigation?
~~	SQ2S-18D	BSBEHCEI	Modified from SQ2S-42P BSBEEXPR	In your earth science lessons, how often do you conduct an experiment or investigation?

Exhibit S1.2 Index of International Background Variables for the TIMSS 2003 Student Questionnaires – Eighth Grade (Part 9 of 14)

General Questionnaire Location	Separate Sciences Questionnaire Location	Variable Name	Available in 1999	Question
~~	SQ2S-18E	BSBEHWGO	Modified from SQ2S-42I BSBESGRP	In your earth science lessons, how often do you work in small groups on an experiment or investigation?
~~	SQ2S-18F	BSBEHEOH	No	In your earth science lessons, how often do you write explanations about what was observed and why it happened?
~~	SQ2S-18G	BSBEHITS	No	In your earth science lessons, how often do you study the impact of technology on society?
~~	SQ2S-18H	BSBEHMDL	No	In your earth science lessons, how often do you relate what you are learning in earth science to your daily life?
~~	SQ2S-18I	BSBEHPWC	No	In your earth science lessons, how often do you present your work to the class?
~~	SQ2S-18J	BSBEHROH	No	In your earth science lessons, how often do you review your homework?
~~	SQ2S-18K	BSBEHLSP	No	In your earth science lessons, how often do you listen to the teacher give a lecture-style presentation?
~~	SQ2S-18L	BSBEHWPO	No	In your earth science lessons, how often do you work problems on your own?
~~	SQ2S-18M	BSBEHBHC	Modified from SQ2S-42K BSBEHWCL	In your earth science lessons, how often do you begin your homework in class?
~~	SQ2S-18N	BSBEHHQT	Modified from SQ2S-42C BSBETEST	In your earth science lessons, how often do you have a quiz or test?
~~	SQ2S-19	BSBCCHEM	No	Are you studying chemistry in school this year?
~~	SQ2S-20A	BSBCTWEL	No	What do you think about learning chemistry? Tell how much you agree with these statements: I usually do well in chemistry.
~~	SQ2S-20B	BSBCTMOR	No	What do you think about learning chemistry? Tell how much you agree with these statements: I would like to take more chemistry in school.
~~	SQ2S-20C	BSBCTCLM	No	What do you think about learning chemistry? Tell how much you agree with these statements: Chemistry is more difficult for me than for many of my classmates.
~~	SQ2S-20D	BSBCTENJ	No	What do you think about learning chemistry? Tell how much you agree with these statements: I enjoy learning chemistry.
~~	SQ2S-20E	BSBCTTOP	No	What do you think about learning chemistry? Tell how much you agree with these statements: Sometimes, when I do not initially understand a new topic in chemistry, I know that I will never really understand it.
~~	SQ2S-20F	BSBCTSTR	No	What do you think about learning chemistry? Tell how much you agree with these statements: Chemistry is not one of my strengths.
~~	SQ2S-20G	BSBCTQKY	No	What do you think about learning chemistry? Tell how much you agree with these statements: I learn things quickly in chemistry.

Exhibit S1.2 Index of International Background Variables for the TIMSS 2003 Student Questionnaires – Eighth Grade (Part 10 of 14)

General Questionnaire Location	Separate Sciences Questionnaire Location	Variable Name	Available in 1999	Question
~~	SQ2S-21A	BSBCAHDL	No	How much do you agree with the following statement about chemistry? I think learning chemistry will help me in my daily life.
~~	SQ2S-21B	BSBCAOSS	No	How much do you agree with the following statement about chemistry? I need chemistry to learn other school subjects.
~~	SQ2S-21C	BSBCAUNI	No	How much do you agree with the following statement about chemistry? I need to do well in chemistry to get into the <university> of my choice?
~~	SQ2S-21D	BSBCAJOB	No	How much do you agree with the following statement about chemistry? I would like a job that involved using chemistry.
~~	SQ2S-21E	BSBCAGET	No	How much do you agree with the following statement about chemistry? I need to do well in chemistry to get the job I want.
~~	SQ2S-22A	BSBCHDEI	Modified from SQ2S-38O BSBCDEMO	In your chemistry lessons, how often do you watch the teacher demonstrate an experiment or investigation?
~~	SQ2S-22B	BSBCHFHP	No	In your chemistry lessons, how often do you formulate hypotheses or predictions to be tested?
~~	SQ2S-22C	BSBCHPEI	No	In your chemistry lessons, how often do you design or plan an experiment or investigation?
~~	SQ2S-22D	BSBCHCEI	Modified from SQ2S-38P BSBCEXPR	In your chemistry lessons, how often do you conduct an experiment or investigation?
~~	SQ2S-22E	BSBCHWGO	Modified from SQ2S-38I BSBCSGRP	In your chemistry lessons, how often do you work in small groups on an experiment or investigation?
~~	SQ2S-22F	BSBCHEOH	No	In your chemistry lessons, how often do you write explanations about what was observed and why it happened?
~~	SQ2S-22G	BSBCHITS	No	In your chemistry lessons, how often do you study the impact of technology on society?
~~	SQ2S-22H	BSBCHMDL	No	In your chemistry lessons, how often do you relate what you are learning in chemistry to your daily life?
~~	SQ2S-22I	BSBCHPWC	No	In your chemistry lessons, how often do you present your work to the class?
~~	SQ2S-22J	BSBCHROH	No	In your chemistry lessons, how often do you review your homework?
~~	SQ2S-22K	BSBCHLSP	No	In your chemistry lessons, how often do you listen to the teacher give a lecture-style presentation?
~~	SQ2S-22L	BSBCHWPO	No	In your chemistry lessons, how often do you work problems on your own?
~~	SQ2S-22M	BSBCHBHC	Modified from SQ2S-38K BSBCHWCL	In your chemistry lessons, how often do you begin your homework in class?
~~	SQ2S-22N	BSBCHHQT	Modified from SQ2S-38C BSBCTEST	In your chemistry lessons, how often do you have a quiz or test?
~~	SQ2S-23	BSBPPHY	No	Are you studying physics in school this year?

Exhibit S1.2 Index of International Background Variables for the TIMSS 2003 Student Questionnaires – Eighth Grade (Part 11 of 14)

General Questionnaire Location	Separate Sciences Questionnaire Location	Variable Name	Available in 1999	Question
~~	SQ2S-24A	BSBPTWEL	No	What do you think about learning physics? Tell how much you agree with these statements: I usually do well in physics.
~~	SQ2S-24B	BSBPTMOR	No	What do you think about learning physics? Tell how much you agree with these statements: I would like to take more physics in school.
~~	SQ2S-24C	BSBPTCLM	No	What do you think about learning physics? Tell how much you agree with these statements: Physics is more difficult for me than for many of my classmates.
~~	SQ2S-24D	BSBPTENJ	No	What do you think about learning physics? Tell how much you agree with these statements: I enjoy learning physics.
~~	SQ2S-24E	BSBPTTOP	No	What do you think about learning physics? Tell how much you agree with these statements: Sometimes, when I do not initially understand a new topic in physics, I know that I will never really understand it.
~~	SQ2S-24F	BSBPTSTR	No	What do you think about learning physics? Tell how much you agree with these statements: Physics is not one of my strengths.
~~	SQ2S-24G	BSBPTQKY	No	'What do you think about learning physics? Tell how much you agree with these statements: I learn things quickly in physics.
~~	SQ2S-25A	BSBPAHDL	No	How much do you agree with the following statement about physics? I think learning physics will help me in my daily life.
~~	SQ2S-25B	BSBPAOSS	No	How much do you agree with the following statement about physics? I need physics to learn other school subjects.
~~	SQ2S-25C	BSBPAUNI	No	How much do you agree with the following statement about physics? I need to do well in physics to get into the <university> of my choice?
~~	SQ2S-25D	BSBPAJOB	No	How much do you agree with the following statement about physics? I would like a job that involved using physics.
~~	SQ2S-25E	BSBPAGET	No	How much do you agree with the following statement about physics? I need to do well in physics to get the job I want.
~~	SQ2S-26A	BSBPHDEI	Modified from SQ2S-46O BSBPDEMO	In your physics lessons, how often do you watch the teacher demonstrate an experiment or investigation?
~~	SQ2S-26B	BSBPHFHP	No	In your physics lessons, how often do you formulate hypotheses or predictions to be tested?
~~	SQ2S-26C	BSBPHPEI	No	In your physics lessons, how often do you design or plan an experiment or investigation?
~~	SQ2S-26D	BSBPHCEI	Modified from SQ2S-46P BSBPEXPR	In your physics lessons, how often do you conduct an experiment or investigation?
~~	SQ2S-26E	BSBPHWGO	Modified from SQ2S-46I BSBPSGRP	In your physics lessons, how often do you work in small groups on an experiment or investigation?
~~	SQ2S-26F	BSBPHEOH	No	In your physics lessons, how often do you write explanations about what was observed and why it happened?

Exhibit S1.2 Index of International Background Variables for the TIMSS 2003 Student Questionnaires – Eighth Grade (Part 12 of 14)

General Questionnaire Location	Separate Sciences Questionnaire Location	Variable Name	Available in 1999	Question
~~	SQ2S-26G	BSBPHITS	No	In your physics lessons, how often do you study the impact of technology on society?
~~	SQ2S-26H	BSBPHMDL	No	In your physics lessons, how often do you relate what you are learning in physics to your daily life?
~~	SQ2S-26I	BSBPHPWC	No	In your physics lessons, how often do you present your work to the class?
~~	SQ2S-26J	BSBPHROH	No	In your physics lessons, how often do you review your homework?
~~	SQ2S-26K	BSBPHLSP	No	In your physics lessons, how often do you listen to the teacher give a lecture-style presentation?
~~	SQ2S-26L	BSBPHWPO	No	In your physics lessons, how often do you work problems on your own?
~~	SQ2S-26M	BSBPHBHC	Modified from SQ2S-46K BSBPHWCL	In your physics lessons, how often do you begin your homework in class?
~~	SQ2S-26N	BSBPHHQT	Modified from SQ2S-46C BSBPTEST	In your physics lessons, how often do you have a quiz or test?
~~	SQ2S-27CB	BSBBOINF	No	How often do you look up ideas and information for biology with a computer?
~~	SQ2S-27CC	BSBEOINF	No	How often do you look up ideas and information for earth science with a computer?
~~	SQ2S-27CD	BSBCOINF	No	How often do you look up ideas and information for chemistry with a computer?
~~	SQ2S-27CE	BSBPOINF	No	How often do you look up ideas and information for physics with a computer?
~~	SQ2S-31A	BSBMEXLS	No	During this school year, how often have you had extra lessons or tutoring that is not part of your regular class in mathematics?
~~	SQ2S-31B	BSBBEXLS	No	During this school year, how often have you had extra lessons or tutoring that is not part of your regular class in biology?
~~	SQ2S-31C	BSBEEXLS	No	During this school year, how often have you had extra lessons or tutoring that is not part of your regular class in earth science?
~~	SQ2S-31D	BSBCEXLS	No	During this school year, how often have you had extra lessons or tutoring that is not part of your regular class in chemistry?
~~	SQ2S-31E	BSBPEXLS	No	During this school year, how often have you had extra lessons or tutoring that is not part of your regular class in physics?
~~	SQ2S-32AA	BSBMTGHW	No	How often does your teacher give you homework in mathematics?
~~	SQ2S-32AB	BSBBTGHW	No	How often does your teacher give you homework in biology?
~~	SQ2S-32AC	BSBETGHW	No	How often does your teacher give you homework in earth science?

Exhibit S1.2 Index of International Background Variables for the TIMSS 2003 Student Questionnaires – Eighth Grade (Part 13 of 14)

General Questionnaire Location	Separate Sciences Questionnaire Location	Variable Name	Available in 1999	Question
~~	SQ2S-32AD	BSBCTGHW	No	How often does your teacher give you homework in chemistry?
~~	SQ2S-32AE	BSBPTGHW	No	How often does your teacher give you homework in physics?
~~	SQ2S-32BA	BSBMHWMI	No	When your teacher gives you homework in mathematics, about how many minutes are you usually given?
~~	SQ2S-32BB	BSBBHWMI	No	When your teacher gives you homework in biology, about how many minutes are you usually given?
~~	SQ2S-32BC	BSBEHWMI	No	When your teacher gives you homework in earth science, about how many minutes are you usually given?
~~	SQ2S-32BD	BSBCHWMI	No	When your teacher gives you homework in chemistry, about how many minutes are you usually given?
~~	SQ2S-32BE	BSBPHWMI	No	When your teacher gives you homework in physics, about how many minutes are you usually given?
~~	SQ2S-26K	BSBPHLSP	No	In your physics lessons, how often do you listen to the teacher give a lecture-style presentation?
~~	SQ2S-26L	BSBPHWPO	No	In your physics lessons, how often do you work problems on your own?
~~	SQ2S-26M	BSBPHBHC	Modified from SQ2S-46K BSBPHWCL	In your physics lessons, how often do you begin your homework in class?
~~	SQ2S-26N	BSBPHHQT	Modified from SQ2S-46C BSBPTEST	In your physics lessons, how often do you have a quiz or test?
~~	SQ2S-27CB	BSBBOINF	No	How often do you look up ideas and information for biology with a computer?
~~	SQ2S-27CC	BSBEOINF	No	How often do you look up ideas and information for earth science with a computer?
~~	SQ2S-27CD	BSBCOINF	No	How often do you look up ideas and information for chemistry with a computer?
~~	SQ2S-27CE	BSBPOINF	No	How often do you look up ideas and information for physics with a computer?
~~	SQ2S-31A	BSBMEXLS	No	During this school year, how often have you had extra lessons or tutoring that is not part of your regular class in mathematics?
~~	SQ2S-31B	BSBBEXLS	No	During this school year, how often have you had extra lessons or tutoring that is not part of your regular class in biology?
~~	SQ2S-31C	BSBEEXLS	No	During this school year, how often have you had extra lessons or tutoring that is not part of your regular class in earth science?
~~	SQ2S-31D	BSBCEXLS	No	During this school year, how often have you had extra lessons or tutoring that is not part of your regular class in chemistry?
~~	SQ2S-31E	BSBPEXLS	No	During this school year, how often have you had extra lessons or tutoring that is not part of your regular class in physics?

Exhibit S1.2 Index of International Background Variables for the TIMSS 2003 Student Questionnaires – Eighth Grade (Part 14 of 14)

General Questionnaire Location	Separate Sciences Questionnaire Location	Variable Name	Available in 1999	Question
~~	SQ2S-32AA	BSBMTGHW	No	How often does your teacher give you homework in mathematics?
~~	SQ2S-32AB	BSBBTGHW	No	How often does your teacher give you homework in biology?
~~	SQ2S-32AC	BSBETGHW	No	How often does your teacher give you homework in earth science?
~~	SQ2S-32AD	BSBCTGHW	No	How often does your teacher give you homework in chemistry?
~~	SQ2S-32AE	BSBPTGHW	No	How often does your teacher give you homework in physics?
~~	SQ2S-32BA	BSBMHWMI	No	When your teacher gives you homework in mathematics, about how many minutes are you usually given?
~~	SQ2S-32BB	BSBBHWMI	No	When your teacher gives you homework in biology, about how many minutes are you usually given?
~~	SQ2S-32BC	BSBEHWMI	No	When your teacher gives you homework in earth science, about how many minutes are you usually given?
~~	SQ2S-32BD	BSBCHWMI	No	When your teacher gives you homework in chemistry, about how many minutes are you usually given?
~~	SQ2S-32BE	BSBPHWMI	No	When your teacher gives you homework in physics, about how many minutes are you usually given?

Exhibit S1.3 Index of International Background Variables for the TIMSS 2003 Mathematics Teacher Questionnaire – Eighth Grade (Part 1 of 11)

Location	Variable Name	Available in 1999	Question
TQM2-01	BTBGAGE	TQM2A-1 Same BTBGAGE	How old are you?
TQM2-02	BTBGSEX	TQM2A-2 Same BTBGSEX	Are you female or male?
TQM2-03	BTBGTAUT	Modified from TQM2A-3 BTBGTAUG	By the end of this school year, how many years will you have been teaching altogether?
TQM2-04	BTBGFEDC	Modified from TQM2A-15 BTBGEDUC	What is the highest level of formal education you have completed?
TQM2-05	BTBGYTTR	No	How many years of pre-service teacher training did you have? Please round to the nearest whole number.
TQM2-06A	BTBMPSMA	No	During your post-secondary education, was your major or main area(s) of study Mathematics?
TQM2-06B	BTBMPSEM	No	During your post-secondary education, was your major or main area(s) of study Education-Mathematics?
TQM2-06C	BTBSPSSC	No	During your post-secondary education, was your major or main area(s) of study Science?
TQM2-06D	BTBSPSED	No	During your post-secondary education, was your major or main area(s) of study Education-Science?
TQM2-06E	BTBGPSEG	No	During your post-secondary education, was your major or main area(s) of study Education-General?
TQM2-06F	BTBGPSOT	No	During your post-secondary education, was your major or main area(s) of study other than Mathematics or Science?
TQM2-07A	BTBMRB5A	No	In order to become a mathematics teacher at grade 8, were you required to complete ISCED 5A, first degree?
TQM2-07B	BTBMRBPP	No	In order to become a mathematics teacher at grade 8, were you required to complete a probationary period?
TQM2-07C	BTBMRBEC	No	In order to become a mathematics teacher at grade 8, were you required to complete a minimum number of education courses?
TQM2-07D	BTBMRBMC	No	In order to become a mathematics teacher at grade 8, were you required to complete a minimum number of mathematics courses?
TQM2-07E	BTBMRBLE	No	In order to become a mathematics teacher at grade 8, were you required to pass a licensing examination?
TQM2-08A	BTBGTLCE	No	Do you have a teaching license or certificate?
TQM2-08B	BTBGTELC	No	What type of license or certificate do you hold?
TQM2-09AA	BTBMRE01	No	Considering your training and experience in both mathematics content and instruction, how ready do you feel you are to teach number (representing decimals and fractions using words, numbers, or models (including number lines)) at the eighth grade?
TQM2-09AB	BTBMRE02	No	Considering your training and experience in both mathematics content and instruction, how ready do you feel you are to teach number (integers including words, numbers, or models; ordering integers; and addition, subtraction, multiplication, and division with integers) at the eighth grade?

Exhibit S1.3 Index of International Background Variables for the TIMSS 2003 Mathematics Teacher Questionnaire – Eighth Grade (Part 2 of 11)

Location	Variable Name	Available in 1999	Question
TQM2-09BA	BTBMRE03	No	Considering your training and experience in both mathematics content and instruction, how ready do you feel you are to teach algebra (numeric, algebraic, and geometric patterns or sequences; extension, missing terms, generalization of patterns) at the eighth grade?
TQM2-09BB	BTBMRE04	No	Considering your training and experience in both mathematics content and instruction, how ready do you feel you are to teach algebra (simple linear equations and inequalities, and simultaneous two variable equations) at the eighth grade?
TQM2-09BC	BTBMRE05	No	Considering your training and experience in both mathematics content and instruction, how ready do you feel you are to teach algebra (equivalent representations of functions as ordered pairs, tables, graphs, words, or equations) at the eighth grade?
TQM2-09BD	BTBMRE06	No	Considering your training and experience in both mathematics content and instruction, how ready do you feel you are to teach algebra (attributes of a graph such as intercepts on axes, and intervals where the function increases, decreases, or is constant)
TQM2-09CA	BTBMRE07	No	Considering your training and experience in both mathematics content and instruction, how ready do you feel you are to teach measurement (estimations of length, circumference, area , volume, weight, time, angle, and speed in problem situations -e.g., circumference of a wheel, speed of a runner) at the eighth grade?
TQM2-09CB	BTBMRE08	No	Considering your training and experience in both mathematics content and instruction, how ready do you feel you are to teach measurement (computations with measurements in problem situations - e.g., add measures, find average speed on a trip, find population density) at the eighth grade?
TQM2-09CC	BTBMRE09	No	Considering your training and experience in both mathematics content and instruction, how ready do you feel you are to teach measurement (measures of irregular or compound areas -e.g., by using grids or dissecting and rearranging pieces) at the eighth grade?
TQM2-09CD	BTBMRE10	No	Considering your training and experience in both mathematics content and instruction, how ready do you feel you are to teach measurement (precision of measurements -e.g., upper and lower bounds of a length reported as 8 centimeters to the nearest centimeter) at the eighth grade?
TQM2-09DA	BTBMRE11	No	Considering your training and experience in both mathematics content and instruction, how ready do you feel you are to teach geometry (Pythagorean theorem to find length of a side with no proof) at the eighth grade?
TQM2-09DB	BTBMRE12	No	Considering your training and experience in both mathematics content and instruction, how ready do you feel you are to teach geometry (congruent figures -triangles, quadrilaterals- and their corresponding measures) at the eighth grade?

Exhibit S1.3 Index of International Background Variables for the TIMSS 2003 Mathematics Teacher Questionnaire – Eighth Grade (Part 3 of 11)

Location	Variable Name	Available in 1999	Question
TQM2-09DC	BTBMRE13	No	Considering your training and experience in both mathematics content and instruction, how ready do you feel you are to teach geometry (Cartesian plane - ordered pairs, equations, intercepts, intersections, and gradient) at the eighth grade?
TQM2-09DD	BTBMRE14	No	Considering your training and experience in both mathematics content and instruction, how ready do you feel you are to teach geometry (translation, reflection, rotation, and enlargement) at the eighth grade?
TQM2-09EA	BTBMRE15	No	Considering your training and experience in both mathematics content and instruction, how ready do you feel you are to teach data (sources of error in collecting and organizing data -e.g., bias, inappropriate grouping) at the eighth grade?
TQM2-09EB	BTBMRE16	No	Considering your training and experience in both mathematics content and instruction, how ready do you feel you are to teach data (data collection methods -e.g., survey, experiment, questionnaire) at the eighth grade?
TQM2-09EC	BTBMRE17	No	Considering your training and experience in both mathematics content and instruction, how ready do you feel you are to teach data (characteristics of data sets including mean, median, range, and shape of distribution in general terms) at the eighth grade?
TQM2-09ED	BTBMRE18	No	Considering your training and experience in both mathematics content and instruction, how ready do you feel you are to teach data (simple probability including using data from experiments to estimate probabilities for favorable outcomes) at the eighth grade?
TQM2-10A	BTBGWTNP	Modified from TQM2-4 BTBGTOTL	In one typical calendar week from Monday to Sunday, what is the total number of single periods for which you are formally scheduled? (Count a double period as two periods.)
TQM2-10BA	BTBMSPTM	Modified from TQM2-5/6 BTBMSUB1-9 and BTBGTSK1-7	Of these formally scheduled periods, how many are you assigned to teach mathematics?
TQM2-10BB	BTBSSPTS	Modified from TQM2-5/6 BTBMSUB1-9 and BTBGTSK1-7	Of these formally scheduled periods, how many are you assigned to teach science?
TQM2-10BC	BTBGSPTO	Modified from TQM2-5/6 BTBMSUB1-9 and BTBGTSK1-7	Of these formally scheduled periods, how many are you assigned to teach other subjects?
TQM2-10BD	BTBGSPOD	Modified from TQM2-5/6 BTBMSUB1-9 and BTBGTSK1-7	Of these formally scheduled periods, how many are you assigned to perform other duties?
TQM2-10BE	BTBGSPTT	No	What is the total number of single periods for which you are formally scheduled? (Count a double period as two periods.)
TQM2-10C	BTBGMITY	No	How many minutes are in a typical single period?
TQM2-11A	BTBGOHGT	Modified from TQM2A-7A BTBGACT1	Outside the formal school day, approximately how many hours per week do you normally spend grading student tests, exams, or other student work? Do not include the time already accounted for in Question 10. Please round to the nearest whole number.
TQM2-11B	BTBGOHPL	Modified from TQM2A-7A BTBGACT3	Outside the formal school day, approximately how many hours per week do you normally spend planning lessons? Do not include the time already accounted for in Question 10. Please round to the nearest whole number.
TQM2-11C	BTBGOHAT	Modified from TQM2A-7A BTBGACT8	Outside the formal school day, approximately how many hours per week do you normally spend administrative and record-keeping tasks including staff meetings? Do not include the time already accounted for in Question 10. Please round to the nearest whole number.

Exhibit S1.3 Index of International Background Variables for the TIMSS 2003 Mathematics Teacher Questionnaire – Eighth Grade (Part 4 of 11)

Location	Variable Name	Available in 1999	Question
TQM2-11D	BTBGOHOT	Modified from TQM2A-7A BTBGACT9	Outside the formal school day, approximately how many hours per week do you normally spend doing other activities? Do not include the time already accounted for in Question 10. Please round to the nearest whole number.
TQM2-12A	BTBGOTDC	No	How often do you have discussions about how to teach a particular concept with other teachers?
TQM2-12B	BTBGOTPM	No	How often do you have working on preparing instructional materials with other teachers?
TQM2-12C	BTBGOTVT	No	How often do you visit another teacher's classroom to observe his/her teaching?
TQM2-12D	BTBGOTAT	No	How often do you have informal observations of your classroom by another teacher?
TQM2-13A	BTBMPDMT	No	In the past two years, have you participated in professional development in mathematics content?
TQM2-13B	BTBMPDMP	No	In the past two years, have you participated in professional development in mathematics pedagogy/instruction?
TQM2-13C	BTBMPDMC	No	In the past two years, have you participated in professional development in mathematics curriculum?
TQM2-13D	BTBMPDIT	No	In the past two years, have you participated in professional development in integrating information technology into mathematics?
TQM2-13E	BTBGPDCT	No	In the past two years, have you participated in professional development in improving students' critical thinking or problem solving skills?
TQM2-13F	BTBMPDMA	No	In the past two years, have you participated in professional development in mathematics assessment?
TQM2-14A	BTBMADMR	Modified from TQM2A-12F BTBMAGR6	To what extent do you agree or disagree that more than one representation (picture, concrete material, symbols, etc.) should be used in teaching a mathematics topic?
TQM2-14B	BTBMADSA	Modified from TQM2A-127 BTBMAGR7	To what extent do you agree or disagree that mathematics should be learned as sets of algorithms or rules that cover all possibilities?
TQM2-14C	BTBMADHY	No	To what extent do you agree or disagree that solving mathematics problems often involves hypothesizing, estimating, testing, and modifying findings?
TQM2-14D	BTBMADME	No	To what extent do you agree or disagree that learning mathematics mainly involves memorizing?
TQM2-14E	BTBMADDW	No	To what extent do you agree or disagree that there are different ways to solve most mathematical problems?
TQM2-14F	BTBMADFD	No	To what extent do you agree or disagree that few new discoveries in mathematics are being made?
TQM2-14G	BTBMADRW	No	To what extent do you agree or disagree that modeling real-world problems is essential to teaching mathematics?
TQM2-15A	BTBGCURE	No	Thinking about your CURRENT school, indicate the extent to which you agree or disagree that this school facility (building and grounds) is in need of significant repair?
TQM2-15B	BTBGCUSN	No	Thinking about your CURRENT school, indicate the extent to which you agree or disagree that this school is located in a safe neighborhood?
TQM2-15C	BTBGCUSA	No	Thinking about your CURRENT school, indicate the extent to which you agree or disagree that you feel safe at this school?
TQM2-15D	BTBGCUAS	No	Thinking about your CURRENT school, indicate the extent to which you agree or disagree that this school's security policies and practices are sufficient?

Exhibit S1.3 Index of International Background Variables for the TIMSS 2003 Mathematics Teacher Questionnaire – Eighth Grade (Part 5 of 11)

Location	Variable Name	Available in 1999	Question
TQM2-16A	BTBGCHTS	No	How would you characterize teachers' job satisfaction within your school?
TQM2-16B	BTBGCHTU	No	How would you characterize teachers' understanding of the school's curricular goals within your school?
TQM2-16C	BTBGCHTC	No	How would you characterize teachers' degree of success in implementing the school's curriculum within your school?
TQM2-16D	BTBGCHES	No	How would you characterize teachers' expectations for student achievement within your school?
TQM2-16E	BTBGCHPS	No	How would you characterize parental support for student achievement within your school?
TQM2-16F	BTBGCHPI	No	How would you characterize parental involvement in school activities within your school?
TQM2-16G	BTBGCHSR	No	How would you characterize students' regard for school property within your school?
TQM2-16H	BTBGCHSD	No	How would you characterize students' desire to do well in school within your school?
TQM2-17	BTBMSTUD	Modified from TQM2B-1 BTDMTOEN	How many students are in the TIMSS class?
TQM2-18	BTBMTIMT	Modified from TQM2B-3 BTBMTIME	How many minutes per week do you teach mathematics to the TIMSS class?
TQM2-19A	BTBMTBTC	Modified from TQM2B-4A BTBMTXBK	Do you use a textbook(s) in teaching mathematics to the TIMSS class?
TQM2-19B	BTBMTXBU	No	How do you use a textbook(s) in teaching mathematics to the TIMSS class?
TQM2-20A	BTBMPTRH	Modified from TQM2B-12B BTBMACT2	In a typical week of mathematics lessons for the TIMSS class, what percentage of time do students spend reviewing homework?
TQM2-20B	BTBMPTLS	Modified from TQM2B-12C BTBMACT3	In a typical week of mathematics lessons for the TIMSS class, what percentage of time do students spend listening to lecture-style presentations?
TQM2-20C	BTBMPTYG	Modified from TQM2B-12D BTBMACT4	In a typical week of mathematics lessons for the TIMSS class, what percentage of time do students spend working problems with your guidance?
TQM2-20D	BTBMPTOO	Modified from TQM2B-12F BTBMACT6	In a typical week of mathematics lessons for the TIMSS class, what percentage of time do students spend working problems on their own without your guidance?
TQM2-20E	BTBMPTRT	Modified from TQM2B-12E BTBMACT5	In a typical week of mathematics lessons for the TIMSS class, what percentage of time do students spend listening to you re-teach and clarify content/procedures?
TQM2-20F	BTBMPTTQ	Modified from TQM2B-12G BTBMACT7	In a typical week of mathematics lessons for the TIMSS class, what percentage of time do students spend taking tests or quizzes?
TQM2-20G	BTBMPTCM	No	In a typical week of mathematics lessons for the TIMSS class, what percentage of time do students spend participating in classroom management tasks not related to the lesson's content/purpose (e.g., interruptions and keeping order)?
TQM2-20H	BTBMPTOA	Modified from TQm2B-12H BTBMACT8	In a typical week of mathematics lessons for the TIMSS class, what percentage of time do students spend on other activities?
TQM2-21A	BTBMASPC	No	In teaching mathematics to the students in the TIMSS class, how often do you usually ask them to practice computational skills?
TQM2-21B	BTBMASWF	No	In teaching mathematics to the students in the TIMSS class, how often do you usually ask them to work on fractions and decimals?

Exhibit S1.3 Index of International Background Variables for the TIMSS 2003 Mathematics Teacher Questionnaire – Eighth Grade (Part 6 of 11)

Location	Variable Name	Available in 1999	Question
TQM2-21C	BTBMASWS	Modified from TQM2B-10C BTBMASK3	In teaching mathematics to the students in the TIMSS class, how often do you usually ask them to work on problems for which there is no immediately obvious method of solution?
TQM2-21D	BTBMASID	No	In teaching mathematics to the students in the TIMSS class, how often do you usually ask them to interpret data in tables, charts, or graphs?
TQM2-21E	BTBMASRR	Modified from TQM2B-10E BTBMASK5	In teaching mathematics to the students in the TIMSS class, how often do you usually ask them to write equations and functions to represent relationships?
TQM2-21F	BTBMASSG	No	In teaching mathematics to the students in the TIMSS class, how often do you usually ask them to work in small groups to come up with a joint solution or approach to a problem or task?
TQM2-21G	BTBMASDL	No	In teaching mathematics to the students in the TIMSS class, how often do you usually ask them to relate what they are learning in mathematics to their daily lives?
TQM2-21H	BTBMASEA	No	In teaching mathematics to the students in the TIMSS class, how often do you usually ask them to explain their answers?
TQM2-21I	BTBMASCP	No	In teaching mathematics to the students in the TIMSS class, how often do you usually ask them to decide on their own procedures for solving complex problems?
TQM2-22A	BTBGLT01	Modified from TQM2B-14A BTBMLM01	In your view, to what extent do students with different academic abilities limit how you teach the TIMSS class?
TQM2-22B	BTBGLT02	Modified from TQM2B-14B BTBMLM02	In your view, to what extent do students who come from a wide range of backgrounds (e.g., economic, language) limit how you teach the TIMSS class?
TQM2-22C	BTBGLT03	Modified from TQM2B-14C BTBMLM03	In your view, to what extent do students with special needs, (e.g., hearing, vision, speech impairment, physical disabilities, mental or emotional/psychological impairment) limit how you teach the TIMSS class?
TQM2-22D	BTBGLT04	Modified from TQM2B-14D BTBMLM04	In your view, to what extent do uninterested students limit how you teach the TIMSS class?
TQM2-22E	BTBGLT05	Modified from TQM2B-14O BTBMLM15	In your view, to what extent do low morale among students limit how you teach the TIMSS class?
TQM2-22F	BTBGLT06	Modified from TQM2B-14E BTBMLM05	In your view, to what extent do disruptive students limit how you teach the TIMSS class?
TQM2-22G	BTBGLT07	Modified from TQM2B-14H BTBMLM08	In your view, to what extent does shortage of computer hardware limit how you teach the TIMSS class?
TQM2-22H	BTBGLT08	Modified from TQM2B-14I BTBMLM09	In your view, to what extent does shortage of computer software limit how you teach the TIMSS class?
TQM2-22I	BTBGLT09	No	In your view, to what extent does shortage of support for using computers limit how you teach the TIMSS class?
TQM2-22J	BTBGLT10	No	In your view, to what extent does shortage of textbooks for student use limit how you teach the TIMSS class?
TQM2-22K	BTBGLT11	Modified from TQM2B-14J BTBMLM10	In your view, to what extent does shortage of other instructional equipment for students' use limit how you teach the TIMSS class?

Exhibit S1.3 Index of International Background Variables for the TIMSS 2003 Mathematics Teacher Questionnaire – Eighth Grade (Part 7 of 11)

Location	Variable Name	Available in 1999	Question
TQM2-22L	BTBGLT12	Modified from TQM2B-14K BTBMLM11	In your view, to what extent does shortage of equipment for your use in demonstrations and other exercises limit how you teach the TIMSS class?
TQM2-22M	BTBGLT13	Modified from QTM2B-14L BTBMLM12	In your view, to what extent do inadequate physical facilities limit how you teach the TIMSS class?
TQM2-22N	BTBGLT14	Modified from TQM2B-14M BTBMLM13	In your view, to what extent does high student/teacher ratio limit how you teach the TIMSS class?
TQM2-23A	BTBMCNUM	No	By the end of this school year, approximately what percentage of teaching time will you have spent during this school year on number (e.g., whole numbers, fractions, decimals, ratio, proportion, percent) for the TIMSS class?
TQM2-23B	BTBMCGEO	No	By the end of this school year, approximately what percentage of teaching time will you have spent during this school year on geometry (e.g., lines and angles, shapes, congruence and similarity, spatial relationships, symmetry and transformations) for the TIMSS class?
TQM2-23C	BTBMCALG	No	By the end of this school year, approximately what percentage of teaching time will you have spent during this school year on algebra (e.g., patterns, equations and formulas, relationships) for the TIMSS class?
TQM2-23D	BTBMCDAT	No	By the end of this school year, approximately what percentage of teaching time will you have spent during this school year on data (e.g., data collection and organization, data representation, data interpretation, probability) for the TIMSS class?
TQM2-23E	BTBMCMEA	No	By the end of this school year, approximately what percentage of teaching time will you have spent during this school year on measurement (e.g., attributes and units, tools, techniques and formulas) for the TIMSS class?
TQM2-23F	BTBMCOTH	No	By the end of this school year, approximately what percentage of teaching time will you have spent during this school year on other mathematics content areas for the TIMSS class?
TQM2-24AA	BTBMTO01	Modified from TQM2B-13A01B BTBMTT01 BTBMTB01 BTBMTN01	When were students in the TIMSS class taught number (whole numbers including place value, factorization, and the four operations)?
TQM2-24AB	BTBMTO02	No	When were students in the TIMSS class taught number (computations, estimations, or approximations involving whole numbers)?
TQM2-24AC	BTBMTO03	Modified from TQM2B-13A03B BTBMTT03 BTBMTB03 BTBMTN03	When were students in the TIMSS class taught number (common fractions including equivalent fractions, and ordering of fractions)?
TQM2-24AD	BTBMTO04	Modified from TQM2B-13A05B BTBMTT05 BTBMTB05 BTBMTN05	When were students in the TIMSS class taught number (decimal fractions including place value, ordering, rounding, and converting to common fractions (and vice versa))?
TQM2-24AE	BTBMTO05	Modified from TQM2B-13A04B BTBMTT04 BTBMTB04 BTBMTN04	When were students in the TIMSS class taught number (representing decimals and fractions using words, numbers, or models (including number lines))?
TQM2-24AF	BTBMTO06	Modified from BTM2B-13A03B BTBMTT03 BTBMTB03 BTBMTN03	When were students in the TIMSS class taught number (computations with fractions)?
TQM2-24AG	BTBMTO07	Modified from TQM2B-13A05B BTBMTT05 BTBMTB05 BTBMTN05	When were students in the TIMSS class taught number (computations with decimals)?

Exhibit S1.3 Index of International Background Variables for the TIMSS 2003 Mathematics Teacher Questionnaire – Eighth Grade (Part 8 of 11)

Location	Variable Name	Available in 1999	Question
TQM2-24AH	BTBMTO08	No	When were students in the TIMSS class taught number (integers including words, numbers, or models (including number lines), ordering integers, addition, subtraction, multiplication, and division with integers)?
TQM2-24AI	BTBMTO09	No	When were students in the TIMSS class taught number (ratios (equivalence, division of a quantity by a given ratio))?
TQM2-24AJ	BTBMTO10	No	When were students in the TIMSS class taught number (conversion of percents to fractions or decimals, and vice versa)?
TQM2-24BA	BTBMTO11	Modified from TQM2B-E27B BTBMTT27 BTBMTB27 BTBMTN27	When were students in the TIMSS class taught algebra (numeric, algebraic, and geometric patterns or sequences (extension, missing terms, generalization of patterns))?
TQM2-24BB	BTBMTO12	No	When were students in the TIMSS class taught algebra (sums, products, and powers of expressions containing variables)?
TQM2-24BC	BTBMTO13	Modified from TQM2B-13E30B BTBMTT30 BTBMTB30 BTBMTN30	When were students in the TIMSS class taught algebra (simple linear equations and inequalities, and simultaneous (two variables) equations)?
TQM2-24BD	BTBMTO14	Modified from TQM2B-13E29B BTBMTT29 BTBMTB29 BTBMTN29	When were students in the TIMSS class taught algebra (equivalent representations of functions as ordered pairs, tables, graphs, words, or equations)?
TQM2-24BE	BTBMTO15	No	When were students in the TIMSS class taught algebra (proportional, linear, and nonlinear relationships (travel graphs and simple piecewise functions included))?
TQM2-24BF	BTBMTO16	No	When were students in the TIMSS class taught algebra (attributes of a graph such as intercepts on axes, and intervals where the function increases, decreases, or is constant)?
TQM2-24CA	BTBMTO17	Modified from TQM2B-13B13B BTBMTT13 BTBMTB13 BTBMTN13	When were students in the TIMSS class taught measurement (standard units for measures of length, area, volume, perimeter, circumference, time, speed, density, angle, mass/weight)?
TQM2-24CB	BTBMTO18	No	When were students in the TIMSS class taught measurement (relationships among units for conversions within systems of units, and for rates)?
TQM2-24CC	BTBMTO19	No	When were students in the TIMSS class taught measurement (use standard tools to measure length, weight, time, speed, angle, and temperature)?
TQM2-24CD	BTBMTO20	Modified from TQM2B-13B15B BTBMTT15 BTBMTB15 BTBMTN15	When were students in the TIMSS class taught measurement (estimations of length, circumference, area, volume, weight, time, angle, and speed in problem situations (e.g., circumference of a wheel, speed of a runner))?
TQM2-24CE	BTBMTO21	No	When were students in the TIMSS class taught measurement (computations with measurements in problem situations (e.g., add measures, find average speed on a trip, find population density))?
TQM2-24CF	BTBMTO22	Modified from TQM2B-13B16B BTBMTT16 BTBMTB16 BTBMTN16	When were students in the TIMSS class taught measurement (measurement formulas for perimeter of a rectangle, circumference of a circle, areas of plane figures (including circles), surface area and volume of rectangular solids, and rates)?
TQM2-24CG	BTBMTO23	Modified from TQM2B-13B17B BTBMTT17 BTBMTB17 BTBMTN17	When were students in the TIMSS class taught measurement (measures of irregular or compound areas (e.g., by using grids or dissecting and rearranging pieces))?

Exhibit S1.3 Index of International Background Variables for the TIMSS 2003 Mathematics Teacher Questionnaire – Eighth Grade (Part 9 of 11)

Location	Variable Name	Available in 1999	Question
TQM2-24CH	BTBMTO24	Modified from TQM2B-13B15B BTBMTT15 BTBMTB15 BTBMTN15	When were students in the TIMSS class taught measurement (precision of measurements (e.g., upper and lower bounds of a length reported as 8 centimeters to the nearest centimeter))?
TQM2-24DA	BTBMTO25	No	When were students in the TIMSS class taught geometry (angles - acute, right, straight, obtuse, reflex, complementary, and supplementary)?
TQM2-24DB	BTBMTO26	No	When were students in the TIMSS class taught geometry (relationships for angles at a point, angles on a line, vertically opposite angles, angles associated with a transversal cutting parallel lines, and perpendicularity)?
TQM2-24DC	BTBMTO27	No	When were students in the TIMSS class taught geometry (properties of angle bisectors and perpendicular bisectors of lines)?
TQM2-24DD	BTBMTO28	Modified from TQM2B-13C21B BTBMTT21 BTBMTB21 BTBMTN21	When were students in the TIMSS class taught geometry (properties of geometric shapes: triangles and quadrilaterals)?
TQM2-24DE	BTBMTO29	No	When were students in the TIMSS class taught geometry (properties of other polygons (regular pentagon, hexagon, octagon, decagon))?
TQM2-24DF	BTBMTO30	No	When were students in the TIMSS class taught geometry (construct or draw triangles and rectangles of given dimensions)?
TQM2-24DG	BTBMTO31	No	When were students in the TIMSS class taught geometry (Pythagorean theorem (not proof) to find length of a side)?
TQM2-24DH	BTBMTO32	Modified from TQM2B-13C22B BTBMTT22 BTBMTB22 BTBMTN22	When were students in the TIMSS class taught geometry (congruent figures (triangles, quadrilaterals) and their corresponding measures)?
TQM2-24DI	BTBMTO33	Modified from TQM2B-13C22B BTBMTT22 BTBMTB22 BTBMTN22	When were students in the TIMSS class taught geometry (similar triangles and recall their properties)?
TQM2-24DJ	BTBMTO34	Modified from TQM2B-13C19B BTBMTT19 BTBMTB19 BTBMTN19	When were students in the TIMSS class taught geometry (Cartesian plane - ordered pairs, equations, intercepts, intersections, and gradient)?
TQM2-24DK	BTBMTO35	Modified from TQM2B-13C24B BTBMTT24 BTBMTB24 BTBMTN24	When were students in the TIMSS class taught geometry (relationships between two-dimensional and three-dimensional shapes)?
TQM2-24DL	BTBMTO36	Modified from TQM2B-13C23B BTBMTT23 BTBMTB23 BTBMTN23	When were students in the TIMSS class taught geometry (line and rotational symmetry for two-dimensional shapes)?
TQM2-24DM	BTBMTO37	Modified from TQM2B-13C23B BTBMTT23 BTBMTB23 BTBMTN23	When were students in the TIMSS class taught geometry (translation, reflection, rotation, and enlargement)?
TQM2-24EA	BTBMTO38	Modified from TQM2B-13F32B BTBMTT32 BTBMTB32 BTBMTN32	When were students in the TIMSS class taught data (organizing a set of data by one or more characteristics using a tally chart, table, or graph)?
TQM2-24EB	BTBMTO39	No	When were students in the TIMSS class taught data (sources of error in collecting and organizing data (e.g., bias, inappropriate grouping))?
TQM2-24EC	BTBMTO40	No	When were students in the TIMSS class taught data (data collection methods (e.g., survey, experiment, questionnaire))?
TQM2-24ED	BTBMTO41	No	When were students in the TIMSS class taught data (drawing and interpreting graphs, tables, pictographs, bar graphs, pie charts, and line graphs)?

Exhibit S1.3 Index of International Background Variables for the TIMSS 2003 Mathematics Teacher Questionnaire – Eighth Grade (Part 10 of 11)

Location	Variable Name	Available in 1999	Question
TQM2-24EE	BTBMTO42	No	When were students in the TIMSS class taught data (characteristics of data sets including mean, median, range, and shape of distribution (in general terms))?
TQM2-24EF	BTBMTO43	Modified from TQM2B-13F32B BTBMTT32 BTBMTB32 BTBMTN32	When were students in the TIMSS class taught data (interpreting data sets (e.g., draw conclusions, make predictions, and estimate values between and beyond given data points))?
TQM2-24EG	BTBMTO44	No	When were students in the TIMSS class taught data (evaluating interpretations of data with respect to correctness and completeness of interpretation)?
TQM2-24EH	BTBMTO45	Modified from TQM2B-F34B BTBMTT34 BTBMTB34 BTBMTN34	When were students in the TIMSS class taught data (simple probability including using data from experiments to estimate probabilities for favorable outcomes)?
TQM2-25	BTBMCAML	No	Are the students in the TIMSS class permitted to use calculators during mathematics class?
TQM2-26	BTBMHSHC	No	How many students in the TIMSS class have calculators available to use during mathematics lessons?
TQM2-27	BTBMHSGC	No	How many students in the TIMSS class have graphing calculators available to use during mathematics lessons?
TQM2-28A	BTBMCALA	Modified from TQM2B-7A BTBMCAL1	How often do the students in the TIMSS class use calculators in their mathematics lessons to check answers?
TQM2-28B	BTBMCALR	Modified from TQM2B-7C BTBMCAL3	How often do the students in the TIMSS class use calculators in their mathematics lessons for routine computations?
TQM2-28C	BTBMCALS	Modified from TQM2-7D BTBMCAL4	How often do the students in the TIMSS class use calculators in their mathematics lessons to solve complex problems?
TQM2-28D	BTBMCALE	Modified from TQM2-7E BTBMCAL5	How often do the students in the TIMSS class use calculators in their mathematics lessons to explore number concepts?
TQM2-29	BTBMCATE	No	How often are students in the TIMSS class permitted to use calculators during tests or examinations?
TQM2-30A	BTBMCOMA	Modified from TQM2B-8A BTBMCOM1	Do students in the TIMSS class have computers available to use during their mathematics lessons?
TQM2-30B	BTBMINTA	Modified from TQM2B-8C BTBMINT1	Do any of the computers have access to the Internet?
TQM2-31A	BTBMCADM	No	In teaching mathematics to the TIMSS class, how often do you have students use a computer to discover mathematics principles and concepts?
TQM2-31B	BTBMCASP	No	In teaching mathematics to the TIMSS class, how often do you have students use a computer to practice skills and procedures?
TQM2-31C	BTBMCALI	No	In teaching mathematics to the TIMSS class, how often do you have students use a computer to look up ideas and information?
TQM2-31D	BTBMCAPA	No	In teaching mathematics to the TIMSS class, how often do you have students use a computer to process and analyze data?
TQM2-32	BTBMHMWO	No	Do you assign mathematics homework to the TIMSS class?
TQM2-33	BTBMHWMC	Modified from TQM2B-15 BTBMHMW2	How often do you usually assign mathematics homework to the TIMSS class?

Exhibit S1.3 Index of International Background Variables for the TIMSS 2003 Mathematics Teacher Questionnaire – Eighth Grade (Part 11 of 11)

Location	Variable Name	Available in 1999	Question
TQM2-34	BTBMHWKM	Modified from TQM2B-16 BTBMHWMA	When you assign mathematics homework to the TIMSS class, about how many minutes do you usually assign? (Consider the time it would take an average student in your class.)
TQM2-35A	BTBMKHCP	Modified from TQM2B-17B BTBMPROR	How often do you assign doing problem/question sets to the TIMSS class?
TQM2-35B	BTBMKHCG	No	How often do you assign gathering data and reporting to the TIMSS class?
TQM2-35C	BTBMKHCA	No	How often do you assign finding one or more applications of the content covered to the TIMSS class?
TQM2-36A	BTBMHDAM	Modified from TQM2B-18A BTBMWHR1	How often do you monitor whether or not the homework was completed with the mathematics homework assignments?
TQM2-36B	BTBMHDAF	No	How often do you correct assignments and then give feedback to students with the mathematics homework assignments?
TQM2-36C	BTBMHDAC	Modified from TQM2B-18E BTBMWHR5	How often do you have students correct their own homework in class with the mathematics homework assignments?
TQM2-36D	BTBMHDAD	Modified from TQM2B-18G BTBMWHR7	How often do you use the homework as a basis for class discussion with the mathematics homework assignments?
TQM2-36E	BTBMHDAG	Modified from TQM2B-18h BTBMWHR8	How often do you use the homework to contribute towards students' grades or marks with the mathematics homework assignments?
TQM2-37	BTBMTEEX	No	How often do you give a mathematics test or examination to the TIMSS class?
TQM2-38	BTBMWFTU	No	What item formats do you typically use in your mathematics tests or examinations?
TQM2-39A	BTBMTEAP	No	How often do you include questions involving application of mathematical procedures in your mathematics tests or examinations?
TQM2-39B	BTBMTESP	No	How often do you include questions involving searching for patterns and relationships in your mathematics tests or examinations?
TQM2-39C	BTBMTEJU	No	How often do you include questions requiring explanations or justifications in your mathematics tests or examinations?

Exhibit S1.4 Index of International Background Variables for the TIMSS 2003 Science Teacher Questionnaire – Eighth Grade (Part 1 of 13)

Location	Variable Name	Available in 1999	Question
TQS2-01	BTBGAGE	TQS2A-1 Same BTBGAGE	How old are you?
TQS2-02	BTBGSEX	TQS2A-2 Same BTBGSEX	Are you female or male?
TQS2-03	BTBGTAUT	Modified from TQS2A-3 BTBGTAUG	By the end of this school year, how many years will you have been teaching altogether?
TQS2-04	BTBGFEDC	Modified from TQS2A-15 BTBGEDUC	What is the highest level of formal education you have completed?
TQS2-05	BTBGYTTR	Modified from TQS2A-16B BTBGYETR	How many years of <pre-service teacher training> did you have? Please round to the nearest whole number.
TQS2-06A	BTBSPSBI	No	During your <post-secondary> education, what was you major or main area(s) of study? Biology
TQS2-06B	BTBSPSPH	No	During your <post-secondary> education, what was you major or main area(s) of study? Physics
TQS2-06C	BTBSPSCH	No	During your <post-secondary> education, what was you major or main area(s) of study? Chemistry
TQS2-06D	BTBSPSES	No	During your <post-secondary> education, what was you major or main area(s) of study? Earth Science
TQS2-06E	BTBSPSED	No	During your <post-secondary> education, what was you major or main area(s) of study? Education - Science
TQS2-06F	BTBMPSMA	No	During your <post-secondary> education, what was you major or main area(s) of study? Mathematics
TQS2-06G	BTBMPSEM	No	During your <post-secondary> education, what was you major or main area(s) of study? Education - Mathematics
TQS2-06H	BTBGPSEG	No	During your <post-secondary> education, what was you major or main area(s) of study? Education - General
TQS2-06I	BTBGPSOT	No	During your <post-secondary> education, what was you major or main area(s) of study? Other
TQS2-07A	BTBSRB5A	No	What requirements did you have to satisfy in order to become a science teacher at <grade 8>? Complete <ISCED 5A, first degree>
TQS2-07B	BTBSRBPP	No	What requirements did you have to satisfy in order to become a science teacher at <grade 8>? Complete a probationary period
TQS2-07C	BTBSRBEC	No	What requirements did you have to satisfy in order to become a science teacher at <grade 8>? Completed a minimum number of education courses
TQS2-07D	BTBSRBSC	No	What requirements did you have to satisfy in order to become a science teacher at <grade 8>? Complete a minimum number of science courses
TQS2-07E	BTBSRBLE	No	What requirements did you have to satisfy in order to become a science teacher at <grade 8>? Pass a licensing examination
TQS2-08A	BTBGTLCE	Modified from TQS2A-16A BTBGTRAC	Do you have a teaching license or certificate?

Exhibit S1.4 Index of International Background Variables for the TIMSS 2003 Science Teacher Questionnaire – Eighth Grade (Part 2 of 13)

Location	Variable Name	Available in 1999	Question
TQS2-08B	BTBGTELC	No	What type of license or certificate do you hold?
TQS2-09AA	BTBSFR01	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach major organs and organ systems in humans and other organisms (structure/function, life processes that maintain stable bodily conditions) at the <eighth> grade?
TQS2-09AB	BTBSFR02	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach cells and their functions, including respiration and photosynthesis as cellular processes at the <eighth> grade?
TQS2-09AC	BTBSFR03	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach reproduction (sexual and asexual) and heredity (passing on of traits, inherited versus acquired/learned characteristics) at the <eighth> grade?
TQS2-09AD	BTBSFR04	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach role of variation and adaptation in survival/extinction of species in a changing environment at the <eighth> grade?
TQS2-09AE	BTBSFR05	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach interaction of living organisms and the physical environment in an ecosystem (energy flow, food webs, effect of changes, cycling of materials) at the <eighth> grade?
TQS2-09BA	BTBSFR06	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach classification and composition of matter (characteristics of elements, compounds, mixtures) at the <eighth> grade?
TQS2-09BB	BTBSFR07	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach particulate structure of matter (molecules, atoms, protons, neutrons, and electrons) at the <eighth> grade?
TQS2-09BC	BTBSFR08	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach properties of solutions (solvent, solute, concentration/dilution, effect of temperature on solubility) at the <eighth> grade?
TQS2-09BD	BTBSFR09	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach properties and uses of common acids and bases at the <eighth> grade?

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Location	Variable Name	Available in 1999	Question
TQS2-09BE	BTBSFR10	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach chemical change (transformation of reactants, evidence of chemical change, conservation of matter, common oxidation reactions - combustion and rusting) at the <eighth> grade?
TQS2-09CA	BTBSFR11	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach physical states and changes in matter (explanations of properties in terms of movement/distance between particles; phase change by supplying/removing heat/energy, thermal expansion and changes in volume and/or pressure) at the <eighth> grade?
TQS2-09CB	BTBSFR12	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach energy types, sources, and conversions, including heat transfer at the <eighth> grade?
TQS2-09CC	BTBSFR13	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach basic properties/behaviors of light (reflection, refraction, light and color, simple ray diagrams) and sound (production by vibration, transmission through media, relative speed of light and sound) at the <eighth> grade?
TQS2-09CD	BTBSFR14	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach electric circuits (flow of current; types of circuits - opened/closed and paralled/series; current/voltage relationship) at the <eighth> grade?
TQS2-09CE	BTBSFR15	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach forces and motion (types of forces, basic description of motion, use of distance/time graphs, effects of density and pressure) at the <eighth> grade?
TQS2-09DA	BTBSFR16	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach earth's structure and physical features (earth's crust, mantle and core; use of topographic maps) at the <eighth> grade?
TQS2-09DB	BTBSFR17	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach earth's processes, cycles and history (rock cycle; water cycle; weather patterns; major geological events; formation of fossils and fossil fuels) at the <eighth> grade?
TQS2-09DC	BTBSFR18	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach earth in the solar system and the universe (phenomena on earth - day/night, tides, phases of moon, eclipses, seasons; physical features of earth compared to ther bodies; the sun as a star) at the <eighth> grade?
TQS2-09EA	BTBSFR19	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach trends in human population and its effects on the environment at the <eighth> grade?

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Location	Variable Name	Available in 1999	Question
TQS2-09EB	BTBSFR20	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach use and conservation of earth's natural resources (renewable/non-renewable resources, human use of land/soil and water resources) at the <eighth> grade?
TQS2-09EC	BTBSFR21	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach changes in environments (role of human activity, global environmental concerns, impact of natural hazards) at the <eighth> grade?
TQS2-10A	BTBGWTNP	Modified from TQS2A-4 BTBGTOTL	In one typical calendar week from Monday to Sunday, what is the total number of single periods for which you are formally <scheduled/time-tabled/assigned>? Count a double period as two periods.
TQS2-10BA	BTBSSPTS	No	Of these formally <scheduled/time-tabled/assigned> periods, how many are you assigned to teach <general> science?
TQS2-10BB	BTBSSPPS	No	Of these formally <scheduled/time-tabled/assigned> periods, how many are you assigned to teach physical science?
TQS2-10BC	BTBSSPTP	No	Of these formally <scheduled/time-tabled/assigned> periods, how many are you assigned to teach physics?
TQS2-10BD	BTBSSPTC	No	Of these formally <scheduled/time-tabled/assigned> periods, how many are you assigned to teach chemistry?
TQS2-10BE	BTBSSPTB	No	Of these formally <scheduled/time-tabled/assigned> periods, how many are you assigned to teach life science/biology?
TQS2-10BF	BTBSSPTE	No	Of these formally <scheduled/time-tabled/assigned> periods, how many are you assigned to teach earth science?
TQS2-10BG	BTBMSPTM	No	Of these formally <scheduled/time-tabled/assigned> periods, how many are you assigned to teach mathematics?
TQS2-10BH	BTBGSPTO	No	Of these formally <scheduled/time-tabled/assigned> periods, how many are you assigned to teach other subjects?
TQS2-10BI	BTBGSPOD	No	Of these formally <scheduled/time-tabled/assigned> periods, how many are you assigned to perform other duties?
TQS2-10BJ	BTBGSPTT	No	Total of periods assigned.
TQS2-10C	BTBGMITY	No	How many minutes are in a typical single period?
TQS2-11A	BTBGOHGT	Modified from TQS2A-7A BTBGACT1	Outside the formal school day, approximately how many hours per week do you normally spend on grading student tests, exams, or other student work? Do not include the time already accounted for in Question 10. Please round to the nearest whole number.
TQS2-11B	BTBGOHPL	Modified from TQS2A-7C BTBGACT3	Outside the formal school day, approximately how many hours per week do you normally spend on planning lessons? Do not include the time already accounted for in Question 10. Please round to the nearest whole number.

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Location	Variable Name	Available in 1999	Question
TQS2-11C	BTBGOHAT	Modified from TQS2A-7H BTBGACT8	Outside the formal school day, approximately how many hours per week do you normally spend on administrative and record-keeping tasks including staff meetings? Do not include the time already accounted for in Question 10. Please round to the nearest whole number.
TQS2-11D	BTBGOHOT	Modified from TQS2A-7I BTBGACT9	Outside the formal school day, approximately how many hours per week do you normally spend on other? Do not include the time already accounted for in Question 10. Please round to the nearest whole number.
TQS2-12A	BTBGOTDC	No	How often do you have discussions about how to teach a particular concept with other teachers?
TQS2-12B	BTBGOTPM	No	How often do you working on preparing instructional materials with other teachers?
TQS2-12C	BTBGOTVT	No	How often do you visit another teacher's classroom to observe his/her teaching?
TQS2-12D	BTBGOTAT	No	How often do you have informal observations of your classroom by other teachers?
TQS2-13A	BTBSPDST	No	In the past two years, have you participated in professional development in science content?
TQS2-13B	BTBSPDSP	No	In the past two years, have you participated in professional development in science pedagogy/instruction?
TQS2-13C	BTBSPDSC	No	In the past two years, have you participated in professional development in science curriculum?
TQS2-13D	BTBSPDIT	No	In the past two years, have you participated in professional development in integrating information technology into science?
TQS2-13E	BTBGPDIN	No	In the past two years, have you participated in professional developent in improving students' critical thinking or inquiry skills?
TQS2-13F	BTBSPDSA	No	In the past two years, have you participated in professional development in science assessment?
TQS2-14A	BTBSADMR	No	To what extend do you agree or disagree with the statement: more than one representation (picture, concerete material, symbols, etc.) should be used in teaching a science topic.
TQS2-14B	BTBSADHY	No	To what extend do you agree or disagree with the statement: solving science problems often involves hypothesizing, estimating, testing, and modifying findings
TQS2-14C	BTBSADME	No	To what extend do you agree or disagree with the statement: learning science mainly involves memorizing.
TQS2-14D	BTBSADCO	No	To what extend do you agree or disagree with the statement: there are many ways to conduct scientific investigation.
TQS2-14E	BTBSADAN	No	To what extend do you agree or disagree with the statement: getting the correct answer is the most important outcome of a student's scientific experiment.
TQS2-14F	BTBSADSC	No	To what extend do you agree or disagree with the statement: scientific theories are subject to change.

Exhibit S1.4 Index of International Background Variables for the TIMSS 2003 Science Teacher Questionnaire – Eighth Grade (Part 6 of 13)

Location	Variable Name	Available in 1999	Question
TQS2-14G	BTBSADTA	No	To what extend do you agree or disagree with the statement: science is taught primarily to give students the skills and knowledge to explain natural phenomena.
TQS2-14H	BTBSADMO	No	To what extend do you agree or disagree with the statement: modeling natural phenomena is essential to teaching science.
TQS2-14I	BTBSADDI	No	To what extend do you agree or disagree with the statement: most scientific discoveries have no practical value.
TQS2-15A	BTBGCURE	No	Thinking about your CURRENT school, indicate the extent to which you agree or disagree with the statement: this school facility (building and grounds) is in need of significant repair.
TQS2-15B	BTBGCUSN	No	Thinking about your CURRENT school, indicate the extent to which you agree or disagree with the statement: this school is located in a safe neighborhood.
TQS2-15C	BTBGCUSA	No	Thinking about your CURRENT school, indicate the extent to which you agree or disagree with the statement: I feel safe at this school.
TQS2-15D	BTBGCUAS	No	Thinking about your CURRENT school, indicate the extent to which you agree or disagree with the statement: this school's security policies and practices are sufficient.
TQS2-16A	BTBGCHTS	No	How would you characterize teachers' job satisfaction within your school?
TQS2-16B	BTBGCHTU	No	How would you characterize teachers' understanding of the school's curricular goals within your school?
TQS2-16C	BTBGCHTC	No	How would you characterize teachers' degree of success in implementing the school's curriculum within your school?
TQS2-16D	BTBGCHES	No	How would you characterize teachers' expectations for student achievement within your school?
TQS2-16E	BTBGCHPS	No	How would you characterize parental support for student achievement within your school?
TQS2-16F	BTBGCHPI	No	How would you characterize parental involvement in school activities within your school?
TQS2-16G	BTBGCHSR	No	How would you characterize students' regard for school property within your school?
TQS2-16H	BTBGCHSD	No	How would you characterize students' desire to do well in school within your school?
TQS2-17	BTBSSTUD	Modified from TQS2B-1 BTBSBOY BTBSGIRL	How many students are in the TIMSS class?
TQS2-18	BTBSTIMT	Modified from TQS2B-3 BTBSTIME	How many minutes per week do you teach science to the <TIMSS class>?
TQS2-19A	BTBSTBTC	Modified from TQS2B-4A BTBSTXBK	Do you use a textbook(s) in teaching science to the <TIMSS class>?
TQS2-19B	BTBSTXBU	No	How do you use a textbook(s) in teaching science to the <TIMSS class>?
TQS2-20A	BTBSPTRH	Modified from TQS2B-12B BTBSAC02	In a typical week of science lessons for the <TIMSS class>, what percentage of time do students spend on reviewing homework?

Exhibit S1.4 Index of International Background Variables for the TIMSS 2003 Science Teacher Questionnaire – Eighth Grade (Part 7 of 13)

Location	Variable Name	Available in 1999	Question
TQS2-20B	BTBSPTLS	Modified from TQS2B-12C BTBSAC03	In a typical week of science lessons for the <TIMSS class>, what percentage of time do students spend on listening to lecture-style presentations?
TQS2-20C	BTBSPTYG	Modified from TQS2B-12D BTBSAC04	In a typical week of science lessons for the <TIMSS class>, what percentage of time do students spend on working problems with your guidance?
TQS2-20D	BTBSPTOO	Modified from TQS2B-12F BTBSAC06	In a typical week of science lessons for the <TIMSS class>, what percentage of time do students spend on working problems on their own without your guidance?
TQS2-20E	BTBSPTRT	Modified from TQS2B-12E BTBSAC05	In a typical week of science lessons for the <TIMSS class>, what percentage of time do students spend on listening to you re-teach and clarify content/procedures?
TQS2-20F	BTBSPTTQ	Modified from TQS2B-12G BTBSAC07	In a typical week of science lessons for the <TIMSS class>, what percentage of time do students spend on taking tests or quizzes?
TQS2-20G	BTBSPTCM	No	In a typical week of science lessons for the <TIMSS class>, what percentage of time do students spend on participating in classroom management tasks not related to the lesson's content/purpose (e.g., interruptions and keeping order)?
TQS2-20H	BTBSPTOA	Modified from TQS2B-12J BTBSAC10	In a typical week of science lessons for the <TIMSS class>, what percentage of time do students spend on other student activities?
TQS2-21A	BTBSCSWD	No	In teaching science to the students in the TIMSS class, how often do you usually ask them to watch you demonstrate an experiment or investigation?
TQS2-21B	BTBSCSFT	No	In teaching science to the students in the TIMSS class, how often do you usually ask them to formulate hyphotheses or predictions to be tested?
TQS2-21C	BTBSCSDP	No	In teaching science to the students in the TIMSS class, how often do you usually ask them to design or plan experiments or investigations?
TQS2-21D	BTBSCSEI	No	In teaching science to the students in the TIMSS class, how often do you usually ask them to conduct experiments or investigations?
TQS2-21E	BTBSCSSG	No	In teaching science to the students in the TIMSS class, how often do you usually ask them to work together in small groups on experiments or investigations?
TQS2-21F	BTBSCSWE	No	In teaching science to the students in the TIMSS class, how often do you usually ask them to write explanations about what was observed and why it happened?
TQS2-21G	BTBSCSRO	No	In teaching science to the students in the TIMSS class, how often do you usually ask them to put events or objects in order and give a reason for the organization?
TQS2-21H	BTBSCSIT	No	In teaching science to the students in the TIMSS class, how often do you usually ask them to study the impact of technology on society?
TQS2-21I	BTBSCSLN	No	In teaching science to the students in the TIMSS class, how often do you usually ask them to learn about the nature of science and inquiry?
TQS2-21J	BTBSCSDL	No	In teaching science to the students in the TIMSS class, how often do you usually ask them to relate what they are learning in science to their daily lives?
TQS2-21K	BTBSCSPW	No	In teaching science to the students in the TIMSS class, how often do you usually ask them to present their work to the class?

Exhibit S1.4 Index of International Background Variables for the TIMSS 2003 Science Teacher Questionnaire – Eighth Grade (Part 8 of 13)

Location	Variable Name	Available in 1999	Question
TQS2-22A	BTBGLT01	Modified from TQS2B-14A BTBSLM01	In your view, to what extent do students with different academic abilities limit how you teach the <TIMSS class>?
TQS2-22B	BTBGLT02	Modified from TQS2B-14B BTBSLM02	In your view, to what extent do students who come from a wide range of backgrounds (e.g., economic, language) limit how you teach the <TIMSS class>?
TQS2-22C	BTBGLT03	Modified from TQS2B-14C BTBSLM03	In your view, to what extent do students with special needs (e.g., hearing, vision, speech impairment, physical disabilities, mental or emotional/psychological impairment) limit how you teach the <TIMSS class>?
TQS2-22D	BTBGLT04	Modified from TQM2B-14D BTBSLM04	In your view, to what extent do uninterested students limit how you teach the <TIMSS class>?
TQS2-22E	BTBGLT05	Modified from TQS2B-14O BTBSLM15	In your view, to what extent does low morale among students limit how you teach the <TIMSS class>?
TQS2-22F	BTBGLT06	Modified from TQS2B-14E BTBSLM05	In your view, to what extent do disruptive students limit how you teach the <TIMSS class>?
TQS2-22G	BTBGLT07	Modified from TQS2B-14H BTBSLM08	In your view, to what extent does a shortage of computer hardware limit how you teach the <TIMSS class>?
TQS2-22H	BTBGLT08	Modified from TQS2B-14I BTBSLM09	In your view, to what extent does a shortage of computer software limit how you teach the <TIMSS class>?
TQS2-22I	BTBGLT09	No	In your view, to what extent does a shortage of support for using computers limit how you teach the <TIMSS class>?
TQS2-22J	BTBGLT10	No	In your view, to what extent does a shortage of textbooks for student use limit how you teach the <TIMSS class>?
TQS2-22K	BTBGLT11	Modified from TQS2B-14J BTBSLM10	In your view, to what extent does a shortage of other instructional equipment for students' use limit how you teach the <TIMSS class>?
TQS2-22L	BTBGLT12	Modified from TQS2B-14K BTBSLM11	In your view, to what extent does a shortage of equipment for your use in demonstrations and other exercises limit how you teach the <TIMSS class>?
TQS2-22M	BTBGLT13	Modified from TQS2B-14I BTBSLM12	In your view, to what extent do inadequate physical facilities limit how you teach the <TIMSS class>?
TQS2-22N	BTBGLT14	Modified from TQS2B-14M BTBSLM13	In your view, to what extent does a high student/teacher ratio limit how you teach the <TIMSS class>?
TQS2-23A	BTBSCLSC	No	By the end of this school year, approximately what percentage of teaching time will you have spent during this school year on life science (e.g., types, characteristics, and classification of living things; structure/function and life processes in organisms; cells and their functions; development, reproduction and heredity; diversity, adaptation and natural selection; ecosystems; and human health) for the <TIMSS class>?
TQS2-23B	BTBSCCHE	No	By the end of this school year, approximately what percentage of teaching time will you have spend during this school year on chemistry (e.g., classification, composition and particulate structure of matter; properties and uses of water; acids and bases; and chemical change) for the <TIMSS class>?

Exhibit S1.4 Index of International Background Variables for the TIMSS 2003 Science Teacher Questionnaire – Eighth Grade (Part 9 of 13)

Location	Variable Name	Available in 1999	Question
TQS2-23C	BTBSCPHY	No	By the end of this school year, approximately what percentage of teaching time will you have spend during this school year on physics (e.g., physical states and changes in matter; energy types, sources and conversions; heat and temperature; light; sound and vibration; electricity and magnetism; forces and motion) for the <TIMSS class>?
TQS2-23D	BTBSCESC	No	By the end of this school year, approximately what percentage of teaching time will you have spend during this school year on Earth science (e.g., Earth's structure and physical features; Earth's processes, cycles and history; the solar system and universe) for the <TIMSS class>?
TQS2-23E	BTBSCENS	No	By the end of this school year, approximately what percentage of teaching time will you have spend during this school year on environmental science (e.g., changes in population; use and conservation of natural resources; and changes in environments) for the <TIMSS class>?
TQS2-23F	BTBSCOTH	No	By the end of this school year, approximately what percentage of teaching time will you have spend during this school year on other, please specify for the <TIMSS class>?
TQS2-24AA	BTBSTO01	No	When were students in the TIMSS class taught classification of organisms on the basis of a variety of physical and behavioral characteristics?
TQS2-24AB	BTBSTO02	No	When were students in the TIMSS class taught the major organ systems in humans and other organisms?
TQS2-24AC	BTBSTO03	No	When were students in the TIMSS class taught how the systems function to maintain stable bodily conditions?
TQS2-24AD	BTBSTO04	No	When were students in the TIMSS class taught cell structures and functions?
TQS2-24AE	BTBSTO05	No	When were students in the TIMSS class taught photosynthesis and respiration as processes of cells and organisms, including substances used and produced?
TQS2-24AF	BTBSTO06	No	When were students in the TIMSS class taught life cycles of organisms, including humans, plants, birds, insects?
TQS2-24AG	BTBSTO07	No	When were students in the TIMSS class taught reproduction (sexual and asexual), and heredity (passing on of traits), inherited versus acquired/learned characteristics?
TQS2-24AH	BTBSTO08	No	When were students in the TIMSS class taught the role of variation and adaptation in survival/extinction of species in a changing environment?
TQS2-24AI	BTBSTO09	No	When were students in the TIMSS class taught the interaction of living organisms in an ecosystem (energy flow, food chains and food webs, food pyramids, and the effects of change upon the system)?
TQS2-24AJ	BTBSTO10	No	When were students in the TIMSS class taught cycling of materials in nature (water, carbon/oxygen cycle, decomposition of organisms)?

Exhibit S1.4 Index of International Background Variables for the TIMSS 2003 Science Teacher Questionnaire – Eighth Grade (Part 10 of 13)

Location	Variable Name	Available in 1999	Question
TQS2-24AK	BTBSTO11	No	When were students in the TIMSS class taught causes of common infectious diseases, methods of infection/transmission, prevention, and the body's natural resistance and healing capabilities?
TQS2-24AL	BTBSTO12	No	When were students in the TIMSS class taught preventive medicine methods (diet, hygiene, exercise and lifestyle)?
TQS2-24BA	BTBSTO13	No	When were students in the TIMSS class taught classification and composition of matter (physical and chemical characteristics, pure substances and mixtures, separation techniques)?
TQS2-24BB	BTBSTO14	No	When were students in the TIMSS class taught properties of solutions (solvents, solutes, effects of temperature on solubility)?
TQS2-24BC	BTBSTO15	No	When were students in the TIMSS class taught particulate structure of matter (molecules, atoms, protons, neutrons, and electrons)?
TQS2-24BD	BTBSTO16	No	When were students in the TIMSS class taught properties and uses of water (composition, melting/boiling points, changes in density/volume)?
TQS2-24BE	BTBSTO17	No	When were students in the TIMSS class taught the properties and uses of common acids and bases?
TQS2-24BF	BTBSTO18	No	When were students in the TIMSS class taught chemical change (transformation of reactants, evidence of chemical change, conservation of matter)?
TQS2-24BG	BTBSTO19	No	When were students in the TIMSS class taught the need for oxygen in common oxidation reactions (combustion, rusting) and the relative tendency of familiar substances to undergo these reactions?
TQS2-24BH	BTBSTO20	No	When were students in the TIMSS class taught classification of familiar chemical transformations as releasing or absorbing heat/energy?
TQS2-24CA	BTBSTO21	No	When were students in the TIMSS class taught physical states and changes in matter (explanations of properties including volume, shape, density, and compressibility in terms of movement/distance between particles)?
TQS2-24CB	BTBSTO22	No	When were students in the TIMSS class taught the processes of melting, freezing, evaporation and condenstation (phase change by supplying/removing heat; melting/boiling points; effects of pressure and purity of substances)?
TQS2-24CC	BTBSTO23	No	When were students in the TIMSS class taught energy types, sources, and conversions, including heat transfer?
TQS2-24CD	BTBSTO24	No	When were students in the TIMSS class taught thermal expansion and changes in volume and/or pressure?

Exhibit S1.4 Index of International Background Variables for the TIMSS 2003 Science Teacher Questionnaire – Eighth Grade (Part 11 of 13)

Location	Variable Name	Available in 1999	Question
TQS2-24CE	BTBSTO25	No	When were students in the TIMSS class taught basic properties/behavior of light (reflection, refraction, light and color, simple ray diagrams)?
TQS2-24CF	BTBSTO26	No	When were students in the TIMSS class taught properties of sound (production by vibration, transmission through media, ways of describing sound (intensity, pitch), relative speed)?
TQS2-24CG	BTBSTO27	No	When were students in the TIMSS class taught electric circuits (flow of current, types of circuits - open/closed, parallel/series) and relationship between voltage and current?
TQS2-24CH	BTBSTO28	No	When were students in the TIMSS class taught properties of permanent magnets and electromagnets?
TQS2-24CI	BTBSTO29	No	When were students in the TIMSS class taught forces and motion (types of forces, basic description of motion), use of distance/time graphs?
TQS2-24CJ	BTBSTO30	No	When were students in the TIMSS class taught effects of ensity and pressure?
TQS2-24DA	BTBSTO31	No	When were students in the TIMSS class taught Earth's structure and physical features (Earth's crust, mantle, and core; topographic maps)?
TQS2-24DB	BTBSTO32	No	When were students in the TIMSS class taught the physical state, movement, composition, and relative distribution of water on the Earth?
TQS2-24DC	BTBSTO33	No	When were students in the TIMSS class taught The Earth's atmosphere and the relative abundance of its main components?
TQS2-24DD	BTBSTO34	No	When were students in the TIMSS class taught Earth's water cycle (steps, role of sun's energy, circulation/renewal of fresh water)?
TQS2-24DE	BTBSTO35	No	When were students in the TIMSS class taught processes in the rock cycle and the formation if igneous, metamorphic, and sedimentary rock?
TQS2-24DF	BTBSTO36	No	When were students in the TIMSS class taught weather data/maps, and changes in weather patterns (e.g., seasonal changes, effects of latitude, aaltitude and geography)?
TQS2-24DG	BTBSTO37	No	When were students in the TIMSS class taught geological processes occurring over billions of years (e.g., erosion, mountain building, plate movement)?
TQS2-24DH	BTBSTO38	No	When were students in the TIMSS class taught formation of fossils and fossil fuels?
TQS2-24DI	BTBSTO39	No	When were students in the TIMSS class taught explanation of phenomena on Earth based on position/movement of bodies in the solar system and universe (e.g., day/night, tides, year, phases of the moon, eclipses, seasons, appearance of sun, moon, planets, and constellations)?
TQS2-24DJ	BTBSTO40	No	When were students in the TIMSS class taught the physical features of Earth compared with the moon and other planets (e.g., atmosphere, temperature, water, distance from sun, period of revolution/rotation, ability to support life)?
TQS2-24DK	BTBSTO41	No	When were students in the TIMSS class taught the sun as a star?
TQS2-24EA	BTBSTO42	No	When were students in the TIMSS class taught trends in human population and its effects on the environment?

Exhibit S1.4 Index of International Background Variables for the TIMSS 2003 Science Teacher Questionnaire – Eighth Grade (Part 12 of 13)

Location	Variable Name	Available in 1999	Question
TQS2-24EB	BTBSTO43	No	When were students in the TIMSS class taught use and conservation of natural resources (renewable/non-renewable resources, human use of land/soil and water resources)?
TQS2-24EC	BTBSTO44	No	When were students in the TIMSS class taught changes in environments (role of human activity, effects/prevention of pollution, global environmental concerns, impact of natural hazards)?
TQS2-25A	BTBSCOMA	Modified from TQS2B-8A,B BTBSCOM1,2	Do students in the TIMSS class have computers available to use during their science lessons?
TQS2-25B	BTBSINTA	Modified from TQS2B-8C BTBSINT1	Do any of the computers have access to the Internet?
TQS2-26A	BTBSCAPE	No	In teaching science to the <TIMSS class>, how often do you have students use a computer to do scientific procedures or experiments?
TQS2-26B	BTBSCANP	No	In teaching science to the <TIMSS class>, how often do you have students use a computer to study natural phenomena through simulations?
TQS2-26C	BTBSCASP	No	In teaching science to the <TIMSS class>, how often do you have students use a computer to practice skills and procedures?
TQS2-26D	BTBSCALI	No	In teaching science to the <TIMSS class>, how often do you have students use a computer to look up ideas and information?
TQS2-26E	BTBSCAPA	No	In teaching science to the <TIMSS class>, how often do you have students use a computer to process and analyze data?
TQS2-27	BTBSHMWO	No	Do you assign science homework to the TIMSS class?
TQS2-28	BTBSHWMC	Modified from TQS2B-15 BTBSHMW2	How often do you usually assign science homework to the <TIMSS class>?
TQS2-29	BTBSHWKM	Modified from TQS2B-16 BTBSHWMA	When you assign science homework to the <TIMSS class>, about how many minutes do you usually assign? (Consider the time it would take an average student in you class.)
TQS2-30A	BTBSKHCP	Modified from TQS2B-17B BTBSPROR	How often do you assign problem/question sets to the <TIMSS class>?
TQS2-30B	BTBSKHCA	Modified from TQS2B-17H BTBSFINR	How often do you assign finding one or more applications of the content covered to the <TIMSS class>?
TQS2-30C	BTBSKHCT	Modified from TQS2B-17C BTBSREAR	How often do you assign reading from a textbook or supplementary materials to the <TIMSS class>?
TQS2-30D	BTBSKHCW	Modified from TQS2B-17D BTBSWRIR	How often do you assign writing definitions or other short writing assignments to the <TIMSS class>?
TQS2-30E	BTBSKHCR	No	How often do you assign working on projects to the <TIMSS class>?
TQS2-30F	BTBSKHCS	Modified from TQS2B-17E BTBSDATR	How often do you assign working on small investigations or gathering data to the <TIMSS class>?

Exhibit S1.4 Index of International Background Variables for the TIMSS 2003 Science Teacher Questionnaire – Eighth Grade (Part 13 of 13)

Location	Variable Name	Available in 1999	Question
TQS2-30G	BTBSKHCG	Modified from TQS2B-17I BTBSORAR	How often do you assign preparing reports to the <TIMSS class>?
TQS2-31A	BTBSHDAM	No	How often do you monitor whether or not the homework was completed?
TQS2-31B	BTBSHDAF	No	How of ten do you correct assignments and then give feedback to students?
TQS2-31C	BTBSHDAC	No	How often do you have students correct their own homework in class?
TQS2-31D	BTBSHDAD	No	How often do you use the homework as a basis for class discussion?
TQS2-31E	BTBSHDAG	No	How often do you use the homework to contribute towards students' grades or marks?
TQS2-32	BTBSTEEX	No	How often do you give a science test or examination to the <TIMSS class>?
TQS2-33	BTBSWFTU	No	What item formats do you typically use in your science tests or examinations?
TQS2-34A	BTBSTERU	No	How often do you include the following types of questions in your science tests or examinations? Questions requiring understanding of concepts, relationships, and processes
TQS2-34B	BTBSTEIH	No	How often do you include the following types of questions in your science tests or examinations? Questions involving hypotheses and conclusions
TQS2-34C	BTBSTEBR	No	How often do you include the following types of questions in your science tests or examinations? Questions based on recall of facts or procedures

Exhibit S1.5 Index of International Background Variables for the TIMSS 2003 School Questionnaire – Eighth Grade (Part 1 of 6)

Location	Variable Name	Available in 1999	Question
SCQ2-01A	BCBGLOWG	No	What is the lowest grade level in your school?
SCQ2-01B	BCBGHIGG	No	What is the highest grade level in your school?
SCQ2-02A	BCBGTENR	Modified From SCQ2-13A BCBGBENR, BCBGGENR	What is the total school enrollment (number of students) in all grades?
SCQ2-02B	BCBGEENR	No	What is the enrollment in the eighth grade?
SCQ2-03	BCBGCOMU	Modified From SCQ2-1 BCBGCOMM	How many people live in the city, town, or area where your school is located?
SCQ2-04	BCBGASTD	Modified From SCQ2-13B BCBGABST	On a typical school day, what percentage of students are absent from school for any reason?
SCQ2-05A	BCBGENRS	Modified From SCQ2-13C BCBGENDY	Of the students who were enrolled in your school at the start of this school year, about what percentage is still enrolled?
SCQ2-05B	BCBGENSY	Modified From SCQ2-13D BCBGTNSF	What percentage of the students in your school enrolled after the beginning of the school year?
SCQ2-06AA	BCBGSBED	No	Approximately what percentage of students in your school come from economically disadvantaged homes?
SCQ2-06AB	BCBGSBEA	No	Approximately what percentage of students in your school come from economically affluent homes?
SCQ2-06B	BCBGNALA	No	Approximately what percentage of students in your school have <language of test> as their native language?
SCQ2-07A	BCBGCHTS	No	How would you characterize teachers' job satisfaction within your school?
SCQ2-07B	BCBGCHTU	No	How would you characterize teachers' understanding of the school's curricular goals within your school?
SCQ2-07C	BCBGCHTC	No	How would you characterize teachers' degree of success in implementing the school's curriculum within your school?
SCQ2-07D	BCBGCHES	No	How would you characterize teachers' expectations for student achievement within your school?
SCQ2-07E	BCBGCHPS	No	How would you characterize parental support for student achievement within your school?
SCQ2-07F	BCBGCHPI	No	How would you characterize parental involvement in school activities within your school?
SCQ2-07G	BCBGCHSR	No	How would you characterize students' regard for school property within your school?
SCQ2-07H	BCBGCHSD	No	How would you characterize students' desire to do well in school within your school?
SCQ2-08	BCBGYEPS	No	Including this year, how long have you been principal of this school?
SCQ2-09A	BCBGAPAD	Modified From SCQ2-7A-N	By the end of this school year, approximately what percentage of time in you role as principal will you have spent on administrative duties (e.g., hiring, budgeting, scheduling)?
SCQ2-09B	BCBGAPIL	Modified From SCQ2-7A-N	By the end of this school year, approximately what percentage of time in you role as principal will you have spent on instructional leadership (e.g., developing curriculum and pedagogy)?
SCQ2-09C	BCBGAPST	Modified From SCQ2-7A-N	By the end of this school year, approximately what percentage of time in you role as principal will you have spent on supervising and evaluating teachers and other staff?
SCQ2-09D	BCBGAPTE	Modified From SCQ2-7A-N	By the end of this school year, approximately what percentage of time in you role as principal will you have spent on teaching?

Exhibit S1.5 Index of International Background Variables for the TIMSS 2003 School Questionnaire – Eighth Grade (Part 2 of 6)

Location	Variable Name	Available in 1999	Question
SCQ2-09E	BCBGAPPR	Modified From SCQ2-7A-N	By the end of this school year, approximately what percentage of time in you role as principal will you have spent on public relations and fundraising?
SCQ2-09F	BCBGAPOT	Modified From SCQ2-7A-N	By the end of this school year, approximately what percentage of time in you role as principal will you have spent on other activities?
SCQ2-10A	BCBGEPSE	Modified From SCQ2-25A-J	Does your school expect parents to attend special events (e.g., science fair, concert, sporting events)?
SCQ2-10B	BCBGEPRF	Modified From SCQ2-25A-J	Does your school expect parents to raise funds for the school?
SCQ2-10C	BCBGEPVO	Modified From SCQ2-25A-J	Does your school expect parents to volunteer for school projects, programs, and trips?
SCQ2-10D	BCBGEPCH	Modified From SCQ2-25A-J	Does your school expect parents to ensure that their child completes his/her homework?
SCQ2-10E	BCBGEPSC	Modified From SCQ2-25A-J	Does your school expect parents to serve on school committees (e.g., select school personnel, review school finances)?
SCQ2-11A	BCBGDYSO	Modified From SCQ2-18A BCBGUDYY	How many days per year is your school open for instruction for eighth-grade students?
SCQ2-11BA	BCBGDWFU	Modified From SCQ2-18B-C BCBGUFLW, BCBGUHFW	How many full instructional days (over 4 hours) are there in the school week (typical calendar week from Monday through Sunday) for eighth-grade students?
SCQ2-11BB	BCBGDWHA	Modified From SCQ2-18BC BCBGUFLW, BCBGUHFW	How many half instructional days (4 hours or less) are there in the school week (typical calendar week from Monday through Sunday) for eighth-grade students?
SCQ2-11C	BCBGTITD	Modified From SCQ2-18D BCBGUTHW	To the nearest half-hour, what is the total instructional time in a typical full day (excluding lunch breaks, study hall, and after school activities) for eighth-grade students?
SCQ2-12	BCBMODLA	Modified From SCQ2-20A, B, E BCBMODF 1, 2, 5	How does your school organize mathematics instruction for eighth-grade students with different levels of ability?
SCQ2-13	BCBMGAMC	No	Are eighth-grade students in your school grouped by ability within their mathematics classes?
SCQ2-14A	BCBMSOEM	Modified From SCQ2-20C BCBMODF3	Does your school offer enrichment mathematics for students in the eighth-grade?
SCQ2-14B	BCBMSORM	Modified From SCQ2-20D BCBMODF4	Does your school offer remedial mathematics for students in the eighth-grade?
SCQ2-15	BCBSODLA	Modified From SCQ2-22A, B, E BCBSODFS, BCBSODFC, BCBSODFT	How does you school organize science instruction for eighth-grade students with different levels of ability?
SCQ2-16	BCBSGASC	No	Are eighth-grade students in your school grouped by ability within their science classes?
SCQ2-17A	BCBSSOES	Modified From SCQ2-22C BCBSODFE	Does your school offer enrichment science for students in the eighth-grade?
SCQ2-17B	BCBSSORS	Modified From SCQ2-22D BCBSODFR	Does your school offer remedial science for students in the eighth-grade?
SCQ2-18A	BCBMFVAY	No	How difficult was it to fill eighth-grade teaching vacancies for this school year for mathematics?
SCQ2-18B	BCBSFVAY	No	How difficult was it to fill eighth-grade teaching vacancies for this school year for science?
SCQ2-18C	BCBSFVCY	No	How difficult was it to fill eighth-grade teaching vacancies for this school year for computer science/information technology?
SCQ2-19A	BCBMRRTM	No	Does your school currently use any incentives (e.g., pay, housing, signing bonus) to recruit or retain eighth-grade teachers in mathematics?
SCQ2-19B	BCBSRRTS	No	Does your school currently use any incentives (e.g., pay, housing, signing bonus) to recruit or retain eighth-grade teachers in science?

Exhibit S1.5 Index of International Background Variables for the TIMSS 2003 School Questionnaire – Eighth Grade (Part 3 of 6)

Location	Variable Name	Available in 1999	Question
SCQ2-19C	BCBGRRTO	No	Does your school currently use any incentives (e.g., pay, housing, signing bonus) to recruit or retain eighth-grade teachers in fields other than mathematics and science?
SCQ2-20A	BCBGPDIC	No	During this school year, how often have your eighth-grade teachers been involved in professional development opportunities for mathematics and science targeted at supporting the implementation of the national or regional curriculum?
SCQ2-20B	BCBGPDSG	No	During this school year, how often have your eighth-grade teachers been involved in professional development opportunities for mathematics and science targeted at designing or supporting the school's own improvement goals?
SCQ2-20C	BCBGPDIK	No	During this school year, how often have your eighth-grade teachers been involved in professional development opportunities for mathematics and science targeted at improving content knowledge?
SCQ2-20D	BCBGPDTS	No	During this school year, how often have your eighth-grade teachers been involved in professional development opportunities for mathematics and science targeted at improving teaching skills?
SCQ2-20E	BCBGPDUT	No	During this school year, how often have your eighth-grade teachers been involved in professional development opportunities for mathematics and science targeted at using information and communication technology for educational purposes?
SCQ2-21AA	BCBMEPOS	No	In your school, are observations by the principal or senior staff used to evaluate the practice of eighth-grade mathematics teachers?
SCQ2-21AB	BCBMEPOE	No	In your school, are observations by inspectors or other persons external to the school used to evaluate the practice of eighth-grade mathematics teachers?
SCQ2-21AC	BCBMEPSA	No	In your school, is student achievement used to evaluate the practice of eighth-grade mathematics teachers?
SCQ2-21AD	BCBMEPTR	No	In your school, is teacher peer review used to evaluate the practice of eighth-grade mathematics teachers?
SCQ2-21BA	BCBSEPOS	No	In your school, are observations by the principal or senior staff used to evaluate the practice of eighth-grade science teachers?
SCQ2-21BB	BCBSEPOE	No	In your school, are observations by inspectors or other persons external to the school used to evaluate the practice of eighth-grade science teachers?
SCQ2-21BC	BCBSEPSA	No	In your school, is student achievement used to evaluate the practice of eighth-grade science teachers?
SCQ2-21BD	BCBSEPTR	No	In your school, is teacher peer review used to evaluate the practice of eighth-grade science teachers?
SCQ2-22AA	BCBGFP01	Modified From SCQ2-17A-R	How often does arriving late at school occur among eighth-grade students in your school?
SCQ2-22AB	BCBGFP02	Modified From SCQ2-17A-R	How often does absenteeism (I.e., unjustified absences) occur among eighth-grade students in your school?
SCQ2-22AC	BCBGFP03	Modified From SCQ2-17A-R	How often does skipping class occur among eighth-grade students in your school?
SCQ2-22AD	BCBGFP04	Modified From SCQ2-17A-R	How often does violating dress code occur among eighth-grade students in your school?

Exhibit S1.5 Index of International Background Variables for the TIMSS 2003 School Questionnaire – Eighth Grade (Part 4 of 6)

Location	Variable Name	Available in 1999	Question
SCQ2-22AE	BCBGFP05	Modified From SCQ2-17A-R	How often does classroom disturbance occur among eighth-grade students in your school?
SCQ2-22AF	BCBGFP06	Modified From SCQ2-17A-R	How often does cheating occur among eighth-grade students in your school?
SCQ2-22AG	BCBGFP07	Modified From SCQ2-17A-R	How often does profanity occur among eighth-grade students in your school?
SCQ2-22AH	BCBGFP08	Modified From SCQ2-17A-R	How often does vandalism occur among eighth-grade students in your school?
SCQ2-22AI	BCBGFP09	Modified From SCQ2-17A-R	How often does theft occur among eighth-grade students in your school?
SCQ2-22AJ	BCBGFP10	Modified From SCQ2-17A-R	How often does intimidation or verbal abuse of other students occur among eighth-grade students in your school?
SCQ2-22AK	BCBGFP11	Modified From SCQ2-17A-R	How often does physical injury to other students occur among eighth-grade students in your school?
SCQ2-22AL	BCBGFP12	Modified From SCQ2-17A-R	How often does intimidation or verbal abuse of teachers or staff occur among eighth-grade students in your school?
SCQ2-22AM	BCBGFP13	Modified From SCQ2-17A-R	How often does physical injury to teachers or staff occur among eighth-grade students in your school?
SCQ2-22BA	BCBGSP01	Modified From SCQ2-17A-R	If arriving late at school occurs, how severe a problem does it present among eighth-grade students in your school?
SCQ2-22BB	BCBGSP02	Modified From SCQ2-17A-R	If absenteeism (I.e., unjustified absences) occurs, how severe a problem does it present among eighth-grade students in your school?
SCQ2-22BC	BCBGSP03	Modified From SCQ2-17A-R	If skipping class occurs, how severe a problem does it present among eighth-grade students in your school?
SCQ2-22BD	BCBGSP04	Modified From SCQ2-17A-R	If violating dress code occurs, how severe a problem does it present among eighth-grade students in your school?
SCQ2-22BE	BCBGSP05	Modified From SCQ2-17A-R	If classroom disturbance occurs, how severe a problem does it present among eighth-grade students in your school?
SCQ2-22BF	BCBGSP06	Modified From SCQ2-17A-R	If cheating occurs, how severe a problem does it present among eighth-grade students in your school?
SCQ2-22BG	BCBGSP07	Modified From SCQ2-17A-R	If profanity occurs, how severe a problem does it present among eighth-grade students in your school?
SCQ2-22BH	BCBGSP08	Modified From SCQ2-17A-R	If vandalism occurs, how severe a problem does it present among eighth-grade students in your school?
SCQ2-22BI	BCBGSP09	Modified From SCQ2-17A-R	If theft occurs, how severe a problem does it present among eighth-grade students in your school?
SCQ2-22BJ	BCBGSP10	Modified From SCQ2-17A-R	If intimidation or verbal abuse of other students occurs, how severe a problem does it present among eighth-grade students in your school?
SCQ2-22BK	BCBGSP11	Modified From SCQ2-17A-R	If physical injury to other students occurs, how severe a problem does it present among eighth-grade students in your school?
SCQ2-22BL	BCBGSP12	Modified From SCQ2-17A-R	If intimidation or verbal abuse of teachers or staff occurs, how severe a problem does it present among eighth-grade students in your school?
SCQ2-22BM	BCBGSP13	Modified From SCQ2-17A-R	If physical injury to teachers or staff occurs, how severe a problem does it present among eighth-grade students in your school?

Exhibit S1.5 Index of International Background Variables for the TIMSS 2003 School Questionnaire – Eighth Grade (Part 5 of 6)

Location	Variable Name	Available in 1999	Question
SCQ2-23A	BCBGST01	Modified From SCQ2-12A-W	Is your school's capacity to provide instruction affected by a shortage or inadequacy of instructional materials (e.g., textbook)?
SCQ2-23B	BCBGST02	Modified From SCQ2-12A-W	Is your school's capacity to provide instruction affected by a shortage or inadequacy of budget for supplies (e.g., paper, pencils)?
SCQ2-23C	BCBGST03	Modified From SCQ2-12A-W	Is your school's capacity to provide instruction affected by a shortage or inadequacy of school buildings and grounds?
SCQ2-23D	BCBGST04	Modified From SCQ2-12A-W	Is your school's capacity to provide instruction affected by a shortage or inadequacy of heating/cooling and lighting systems?
SCQ2-23E	BCBGST05	Modified From SCQ2-12A-W	Is your school's capacity to provide instruction affected by a shortage or inadequacy of instructional space (e.g., classrooms)?
SCQ2-23F	BCBGST06	Modified From SCQ2-12A-W	Is your school's capacity to provide instruction affected by a shortage or inadequacy of special equipment for handicapped students?
SCQ2-23G	BCBMST07	Modified From SCQ2-12A-W	Is your school's capacity to provide instruction affected by a shortage or inadequacy of computers for mathematics instruction?
SCQ2-23H	BCBMST08	Modified From SCQ2-12A-W	Is your school's capacity to provide instruction affected by a shortage or inadequacy of computer software for mathematics instruction?
SCQ2-23I	BCBMST09	Modified From SCQ2-12A-W	Is your school's capacity to provide instruction affected by a shortage or inadequacy calculators for mathematics instruction?
SCQ2-23J	BCBMST10	Modified From SCQ2-12A-W	Is your school's capacity to provide instruction affected by a shortage or inadequacy of library materials relevant to mathematics instruction?
SCQ2-23K	BCBMST11	Modified From SCQ2-12A-W	Is your school's capacity to provide instruction affected by a shortage or inadequacy of audio-visual resources for mathematics instruction?
SCQ2-23L	BCBSST12	Modified From SCQ2-12A-W	Is your school's capacity to provide instruction affected by a shortage or inadequacy of science laboratory equipment and materials?
SCQ2-23M	BCBSST13	Modified From SCQ2-12A-W	Is your school's capacity to provide instruction affected by a shortage or inadequacy of computers for science instruction?
SCQ2-23N	BCBSST14	Modified From SCQ2-12A-W	Is your school's capacity to provide instruction affected by a shortage or inadequacy of computer software for science instruction?
SCQ2-23O	BCBSST15	Modified From SCQ2-12A-W	Is your school's capacity to provide instruction affected by a shortage or inadequacy of calculators for science instruction?
SCQ2-23P	BCBSST16	Modified From SCQ2-12A-W	Is your school's capacity to provide instruction affected by a shortage or inadequacy of library materials relevant to science instruction?
SCQ2-23Q	BCBSST17	Modified From SCQ2-12A-W	Is your school's capacity to provide instruction affected by a shortage or inadequacy of audio-visual resources for science instruction?
SCQ2-23R	BCBGSH18	Modified From SCQ2-12A-W	Is your school's capacity to provide instruction affected by a shortage or inadequacy of teachers?

Exhibit S1.5 Index of International Background Variables for the TIMSS 2003 School Questionnaire – Eighth Grade (Part 6 of 6)

Location	Variable Name	Available in 1999	Question
SCQ2-23S	BCBGSH19	Modified From SCQ2-12A-W	Is your school's capacity to provide instruction affected by a shortage or inadequacy of computer support staff?
SCQ2-24A	BCBGCMPS	Modified From SCQ2-15A BCBGCMP1	What is the total number of computers in your school that can be used for educational purposes by eighth-grade students?
SCQ2-24B	BCBGCMPI	Modified From SCQ2-16 BCBGIACC	How many of the computers have access to the Internet (e-mail or World Wide Web) for instructional purposes?
SCQ2-25A	BCBGHTTE	No	Is anyone available to help your teachers use information and communication technology for teaching and learning?
SCQ2-25B	BCBGPHTE	No	Which of the following statements best describes the person at this school who helps teachers use information and communication technology for teaching and learning?

Exhibit S1.6 Index of International Background Variables for the TIMSS 2003 Mathematics Curriculum Questionnaire – Eighth Grade (Part 1 of 9)

Location	Variable Name	Available in 1999	Question
CQM2q01A	CQM2q01A	N/A	Does your country have a national curriculum that includes mathematics at <grade 8>?
CQM2q01B	CQM2q01B	N/A	If there is not a national curriculum, what isthe highest level of decision-making authority that provides a curriculum for<grade 8> mathematics?
CQM2q01C	CQM2q01C	N/A	In what year was the current intended mathematics curriculum for <grade 8> introduced?
CQM2q01D	CQM2q01D	N/A	Is the intended mathematics curriculum thatincludes <grade 8> currently being revised?
CQM2q02A	CQM2q02A	N/A	Across grades K-12, does an educationauthority in your country (e.g., National Ministry of Education) administer examinations in mathematics that have consequences for individual students, such as determining grade promotion, entry to a higher school system, entry to university, and/or exiting or graduating from high school?
CQM2q02B*	CQM2q02B	N/A	If YES, please describe the authority whichadministers examinations in mathematicsn.
CQM2q02B_Grade	CQM2q02B_Grade	N/A	If YES, please list the grades at which they are given.
CQM2q03a	CQM2q03a	N/A	Are any of the following methods used to help implement the national mathematics curriculum at <grade 8>? Mandated or recommended textbook(s)
CQM2q03b	CQM2q03b	N/A	Are any of the following methods used to help implement the national mathematics curriculum at <grade 8>? Instructional or pedagogical guide
CQM2q03c	CQM2q03c	N/A	Are any of the following methods used to help implement the national mathematics curriculum at <grade 8>? Ministry notes and directives
CQM2q03d	CQM2q03d	N/A	Are any of the following methods used to help implement the national mathematics curriculum at <grade 8>? Curriculum evaluation during or after implementation
CQM2q03e	CQM2q03e	N/A	Are any of the following methods used to help implement the national mathematics curriculum at <grade 8>? Specifically developed or recommended instructional activities
CQM2q03f	CQM2q03f	N/A	Are any of the following methods used to help implement the national mathematics curriculum at <grade 8>? National assessments based on student samples
CQM2q03g	CQM2q03g	N/A	Are any of the following methods used to help implement the national mathematics curriculum at <grade 8>? A system of school inspection or audit
CQM2q03h	CQM2q03h	N/A	Are any of the following methods used to help implement the national mathematics curriculum at <grade 8>? Other
CQM2q03h_Oth	CQM2q03h_Oth	N/A	Are any of the following methods used to help implement the national mathematics curriculum at <grade 8>? Please specify
CQM2q03_Com*	CQM2q03_Com	N/A	Are any of the following methods used to help implement the national mathematics curriculum at <grade 8>? Comments
CQM2q04a	CQM2q04a	N/A	Does the national curriculum specify the amount of instructional time that should be devoted to mathematics? at <grade 4>
CQM2q04a_Per	CQM2q04a_Per	N/A	If Yes, what percentage of total instructional time is supposed to be devoted to mathematics?
CQM2q04b	CQM2q04b	N/A	Does the national curriculum specify the amount of instructional time that should be devoted to mathematics? at <grade 6>

Exhibit S1.6 Index of International Background Variables for the TIMSS 2003 Mathematics Curriculum Questionnaire – Eighth Grade (Part 2 of 9)

Location	Variable Name	Available in 1999	Question
CQM2q04b_Per	CQM2q04b_Per	N/A	If Yes, what percentage of total instructional time is supposed to be devoted to mathematics?
CQM2q04c	CQM2q04c	N/A	Does the national curriculum specify the amount of instructional time that should be devoted to mathematics? at <grade 8>
CQM2q04c_Per	CQM2q04c_Per	N/A	If Yes, what percentage of total instructional time is supposed to be devoted to mathematics?
CQM2q05	CQM2q05	N/A	Which best describes how the national mathematics curriculum at <grade 8> addresses the issue of students with different levels of ability?
CQM2q05_Com*	CQM2q05_Com	N/A	Which best describes how the national mathematics curriculum at <grade 8> addresses the issue of students with different levels of ability? Comments
CQM2q06a	CQM2q06a	N/A	How much emphasis does the national mathematics curriculum at <grade 8> place on the following? Mastering basic skills
CQM2q06b	CQM2q06b	N/A	How much emphasis does the national mathematics curriculum at <grade 8> place on the following? Understanding mathematical concepts and principles
CQM2q06c	CQM2q06c	N/A	How much emphasis does the national mathematics curriculum at <grade 8> place on the following? Applying mathematics in real-life contexts
CQM2q06d	CQM2q06d	N/A	How much emphasis does the national mathematics curriculum at <grade 8> place on the following? Communicating mathematically
CQM2q06e	CQM2q06e	N/A	How much emphasis does the national mathematics curriculum at <grade 8> place on the following? Reasoning mathematically
CQM2q06f	CQM2q06f	N/A	How much emphasis does the national mathematics curriculum at <grade 8> place on the following? Incorporating the experiences of different ethnic/cultural groups
CQM2q06g	CQM2q06g	N/A	How much emphasis does the national mathematics curriculum at <grade 8> place on the following? Integrating mathematics with other subjects
CQM2q06h	CQM2q06h	N/A	How much emphasis does the national mathematics curriculum at <grade 8> place on the following? Deriving formal proofs
CQM2q06_Com*	CQM2q06_Com	N/A	How much emphasis does the national mathematics curriculum at <grade 8> place on the following? Comments
CQM2q07A	CQM2q07A	N/A	Does the national curriculum contain statements/policies about the use of calculators in <grade 8> mathematics?
CQM2q07B*	CQM2q07B	N/A	If YES, what are the statements/policies?
CQM2q08A	CQM2q08A	N/A	Does the national curriculum contain statements/policies about the use of computers in <grade 8> mathematics?
CQM2q08B*	CQM2q08B	N/A	If YES, what are the statements/policies?

Exhibit S1.6 Index of International Background Variables for the TIMSS 2003 Mathematics Curriculum Questionnaire – Eighth Grade (Part 3 of 9)

Location	Variable Name	Available in 1999	Question
CQM2q09Aa	CQM2q09Aa	N/A	Do <grade 8> mathematics teachers receive A. Is there a process to license or certify specific preparation in how to teach the <grade 8> mathematics teachers? As part of pre-service education
CQM2q09Ab	CQM2q09Ab	N/A	Do <grade 8> mathematics teachers receive A. Is there a process to license or certify specific preparation in how to teach the <grade 8> mathematics teachers? As part of in-service education
CQM2q09B*	CQM2q09B	N/A	If you answered YES to either (a) or (b), describe the nature of the preparation.
CQM2q10a	CQM2q10a	N/A	Which are the current requirements for being a mathematics teacher at <grade 8>? Pre-practicum and supervised practicum in the field
CQM2q10b	CQM2q10b	N/A	Which are the current requirements for being a mathematics teacher at <grade 8>? Passing an examination
CQM2q10c	CQM2q10c	N/A	Which are the current requirements for being a mathematics teacher at <grade 8>? <ISCED 5A, first degree>
CQM2q10d	CQM2q10d	N/A	Which are the current requirements for being a mathematics teacher at <grade 8>? Completion of a probationary teaching period
CQM2q10d_Length*	CQM2q10d_Length	N/A	Which are the current requirements for being a mathematics teacher at <grade 8>? If Yes, how long is this period?
CQM2q10e	CQM2q10e	N/A	Which are the current requirements for being a mathematics teacher at <grade 8>? Completion of a mentoring or induction program
CQM2q10f	CQM2q10f	N/A	Which are the current requirements for being a mathematics teacher at <grade 8>? Other
CQM2q10f_Oth*	CQM2q10f_Oth	N/A	Which are the current requirements for being a mathematics teacher at <grade 8>? Please specify
CQM2q11A	CQM2q11A	N/A	Is there a process to license or certify <grade 8> mathematics teachers?
CQM2q11Ba	CQM2q11Ba	N/A	If YES, who certifies/licenses <grade 8> mathematics teachers? Minister/Ministry of Education
CQM2q11Bb	CQM2q11Bb	N/A	If YES, who certifies/licenses <grade 8> mathematics teachers? National/state licensing board
CQM2q11Bc	CQM2q11Bc	N/A	If YES, who certifies/licenses <grade 8> mathematics teachers? Universities/colleges
CQM2q11Bd	CQM2q11Bd	N/A	If YES, who certifies/licenses <grade 8> mathematics teachers? Teacher organization/union
CQM2q11Be	CQM2q11Be	N/A	If YES, who certifies/licenses <grade 8> mathematics teachers? Other
CQM2q11Be_Oth*	CQM2q11Be_Oth	N/A	If YES, who certifies/licenses <grade 8> mathematics teachers? Please specify

Exhibit S1.6 Index of International Background Variables for the TIMSS 2003 Mathematics Curriculum Questionnaire – Eighth Grade (Part 4 of 9)

Location	Variable Name	Available in 1999	Question
CQM2q11B_Com*	CQM2q11B_Com	N/A	If YES, who certifies/licenses <grade 8> mathematics teachers? Comments
CQM2q12Aa	CQM2q12Aa	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Number Whole numbers including place value, factorization, and the four operations
CQM2q12Aa_Grade	CQM2q12Aa_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Ab	CQM2q12Ab	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Number Computations, estimations, or approximations involving whole numbers
CQM2q12Ab_Grade	CQM2q12Ab_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Ac	CQM2q12Ac	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Number Common fractions including equivalent fractions, and ordering of fractions
CQM2q12Ac_Grade	CQM2q12Ac_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Ad	CQM2q12Ad	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Number Decimal fractions including place value, ordering, rounding, and converting to common fractions (and vice versa)
CQM2q12Ad_Grade	CQM2q12Ad_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Ae	CQM2q12Ae	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Number Representing decimals and fractions using words, numbers, or models (including number lines)
CQM2q12Ae_Grade	CQM2q12Ae_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Af	CQM2q12Af	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Number Computations with fractions
CQM2q12Af_Grade	CQM2q12Af_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Ag	CQM2q12Ag	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Number Computations with decimals

Exhibit S1.6 Index of International Background Variables for the TIMSS 2003 Mathematics Curriculum Questionnaire – Eighth Grade (Part 5 of 9)

Location	Variable Name	Available in 1999	Question
CQM2q12Ag_Grade	CQM2q12Ag_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Ah	CQM2q12Ah	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Number Integers including words, numbers, or models (including number lines), ordering integers, addition, subtraction, multiplication, and division with integers
CQM2q12Ah_Grade	CQM2q12Ah_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Ai	CQM2q12Ai	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Number Ratios (equivalence, division of a quantity by a given ratio)
CQM2q12Ai_Grade	CQM2q12Ai_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Aj	CQM2q12Aj	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Number Conversion of percents to fractions or decimals, and vice versa
CQM2q12Aj_Grade	CQM2q12Aj_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Ba	CQM2q12Ba	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Algebra Numeric, algebraic, and geometric patterns or sequences (extension, missing terms, generalization of patterns)
CQM2q12Ba_Grade	CQM2q12Ba_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Bb	CQM2q12Bb	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Algebra Sums, products, and powers of expressions containing variables
CQM2q12Bb_Grade	CQM2q12Bb_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Bc	CQM2q12Bc	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Algebra Simple linear equations and inequalities, and simultaneous (two variables) equations
CQM2q12Bc_Grade	CQM2q12Bc_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Bd	CQM2q12Bd	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Algebra Equivalent representations of functions as ordered pairs, tables, graphs, words, or equations

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Location	Variable Name	Available in 1999	Question
CQM2q12Bd_Grade	CQM2q12Bd_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Be	CQM2q12Be	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Algebra Proportional, linear, and nonlinear relationships (travel graphs and simple piecewise functions included)
CQM2q12Be_Grade	CQM2q12Be_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Bf	CQM2q12Bf	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Algebra Attributes of a graph such as intercepts on axes, and intervals where the function increases, decreases, or is constant
CQM2q12Bf_Grade	CQM2q12Bf_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Ca	CQM2q12Ca	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Measurement Standard units for measures of length, area, volume, perimeter, circumference, time, speed, density, angle, mass/weight
CQM2q12Ca_Grade	CQM2q12Ca_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Cb	CQM2q12Cb	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Measurement Relationships among units for conversions within systems of units, and for rates
CQM2q12Cb_Grade	CQM2q12Cb_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Cc	CQM2q12Cc	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Measurement Use standard tools to measure length, weight, time, speed, angle, and temperature
CQM2q12Cc_Grade	CQM2q12Cc_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Cd	CQM2q12Cd	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Measurement Estimations of length, circumference, area, volume, weight, time, angle, and speed in problem situations (e.g., circumference of a wheel, speed of a runner)
CQM2q12Cd_Grade	CQM2q12Cd_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Ce	CQM2q12Ce	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Measurement Computations with measurements in problem situations (e.g., add measures, find average speed on a trip, find population density)

Exhibit S1.6 Index of International Background Variables for the TIMSS 2003 Mathematics Curriculum Questionnaire – Eighth Grade (Part 7 of 9)

Location	Variable Name	Available in 1999	Question
CQM2q12Ce_Grade	CQM2q12Ce_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Cf	CQM2q12Cf	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Measurement Measurement formulas for perimeter of a rectangle, circumference of a circle, areas of plane figures (including circles), surface area and volume of rectangular solids, and rates
CQM2q12Cf_Grade	CQM2q12Cf_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Cg	CQM2q12Cg	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Measurement Measures of irregular or compound areas (e.g., by using grids or dissecting and rearranging pieces)
CQM2q12Cg_Grade	CQM2q12Cg_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Ch	CQM2q12Ch	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Measurement Precision of measurements (e.g., upper and lower bounds of a length reported as 8 centimeters to the nearest centimeter)
CQM2q12Ch_Grade	CQM2q12Ch_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Da	CQM2q12Da	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Geometry Angles - acute, right, straight, obtuse, reflex, complementary, and supplementary
CQM2q12Da_Grade	CQM2q12Da_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Db	CQM2q12Db	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Geometry Relationships for angles at a point, angles on a line, vertically opposite angles, angles associated with a transversal cutting parallel lines, and perpendicularity
CQM2q12Db_Grade	CQM2q12Db_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Dc	CQM2q12Dc	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Geometry Properties of angle bisectors and perpendicular bisectors of lines
CQM2q12Dc_Grade	CQM2q12Dc_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Dd	CQM2q12Dd	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Geometry Properties of geometric shapes: triangles and quadrilaterals
CQM2q12Dd_Grade	CQM2q12Dd_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12De	CQM2q12De	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Geometry Properties of other polygons (regular pentagon, hexagon, octagon, decagon)

Exhibit S1.6 Index of International Background Variables for the TIMSS 2003 Mathematics Curriculum Questionnaire – Eighth Grade (Part 8 of 9)

Location	Variable Name	Available in 1999	Question
CQM2q12De_Grade	CQM2q12De_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Df	CQM2q12Df	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Geometry Construct or draw triangles and rectangles of given dimensions
CQM2q12Df_Grade	CQM2q12Df_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Dg	CQM2q12Dg	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Geometry Pythagorean theorem (not proof) to find length of a side
CQM2q12Dg_Grade	CQM2q12Dg_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Dh	CQM2q12Dh	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Geometry Congruent figures (triangles, quadrilaterals) and their corresponding measures
CQM2q12Dh_Grade	CQM2q12Dh_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Di	CQM2q12Di	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Geometry Similar triangles and recall their properties
CQM2q12Di_Grade	CQM2q12Di_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Dj	CQM2q12Dj	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Geometry Cartesian plane - ordered pairs, equations, intercepts, intersections, and gradient
CQM2q12Dj_Grade	CQM2q12Dj_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Dk	CQM2q12Dk	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Geometry Relationships between two-dimensional and three-dimensional shapes
CQM2q12Dk_Grade	CQM2q12Dk_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Dl	CQM2q12Dl	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Geometry Line and rotational symmetry for two-dimensional shapes
CQM2q12Dl_Grade	CQM2q12Dl_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Dm	CQM2q12Dm	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Geometry Translation, reflection, rotation, and enlargement

Exhibit S1.6 Index of International Background Variables for the TIMSS 2003 Mathematics Curriculum Questionnaire – Eighth Grade (Part 9 of 9)

Location	Variable Name	Available in 1999	Question
CQM2q12Dm_Grade	CQM2q12Dm_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Ea	CQM2q12Ea	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Data Organizing a set of data by one or more characteristics using a tally chart, table, or graph
CQM2q12Ea_Grade	CQM2q12Ea_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Eb	CQM2q12Eb	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Data Sources of error in collecting and organizing data (e.g., bias, inappropriate grouping)
CQM2q12Eb_Grade	CQM2q12Eb_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Ec	CQM2q12Ec	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Data Data collection methods (e.g., survey, experiment, questionnaire)
CQM2q12Ec_Grade	CQM2q12Ec_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Ed	CQM2q12Ed	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Data Drawing and interpreting graphs, tables, pictographs, bar graphs, pie charts, and line graphs
CQM2q12Ed_Grade	CQM2q12Ed_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Ee	CQM2q12Ee	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Data Characteristics of data sets including mean, median, range, and shape of distribution (in general terms)
CQM2q12Ee_Grade	CQM2q12Ee_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Ef	CQM2q12Ef	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Data Interpreting data sets (e.g., draw conclusions, make predictions, and estimate values between and beyond given data points)
CQM2q12Ef_Grade	CQM2q12Ef_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Eg	CQM2q12Eg	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Data Evaluating interpretations of data with respect to correctness and completeness of interpretation
CQM2q12Eg_Grade	CQM2q12Eg_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM2q12Eh	CQM2q12Eh	N/A	According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Data Simple probability including using data from experiments to estimate probabilities for favorable outcomes
CQM2q12Eh_Grade	CQM2q12Eh_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?

Exhibit S1.7 Index of International Background Variables for the TIMSS 2003 Science Curriculum Questionnaire – Eighth Grade (Part 1 of 9)

Location	Variable Name	Available in 1999	Question
CQS2q01A	CQS2q01A	N/A	Does your country have a national curriculum that includes science at <grade 8>?
CQS2q01B	CQS2q01B	N/A	If there is not a national curriculum, what is the highest level of decision-making authority that provides a curriculum for <grade 8>science?
CQS2q01C	CQS2q01C	N/A	In what year was the current intended science curriculum for <grade 8> introduced?
CQS2q01D	CQS2q01D	N/A	Is the intended science curriculum that includes <grade 8> currently being revised?
CQS2q02A	CQS2q02A	N/A	By <grade 8> are different science courses offered in separate subjects (e.g., biology, chemistry, physics, earth science)?
CQS2q02B	CQS2q02B	N/A	If YES, please list the science subjects taught as separate courses and all grades in which they are taught, up to and including <grade 8>.
CQS2q03A	CQS2q03A	N/A	Across grades K-12, does an education authority in your country (e.g., National Ministry of Education) administer examinations in science that have consequences for individual students, such as determining grade promotion, entry to a higher school system, entry to university, and/or exiting or graduating from high school?
CQS2q03B*	CQS2q03B	N/A	If YES, please describe the authority which administers examinations in science.
CQS2q03B_Grade	CQS2q03B_Grade	N/A	If YES, please list the grades at which they are given.
CQS2q04a	CQS2q04a	N/A	Are any of the following methods used to help implement the national science curriculum at <grade 8>? Mandated or recommended textbook(s)
CQS2q04b	CQS2q04b	N/A	Are any of the following methods used to help implement the national science curriculum at <grade 8>? Instructional or pedagogical guide
CQS2q04c	CQS2q04c	N/A	Are any of the following methods used to help implement the national science curriculum at <grade 8>? Ministry notes and directives
CQS2q04d	CQS2q04d	N/A	Are any of the following methods used to help implement the national science curriculum at <grade 8>? Curriculum evaluation during or after implementation
CQS2q04e	CQS2q04e	N/A	Are any of the following methods used to help implement the national science curriculum at <grade 8>? Specifically developed or recommended instructional activities
CQS2q04f	CQS2q04f	N/A	Are any of the following methods used to help implement the national science curriculum at <grade 8>? National assessments based on student samples
CQS2q04g	CQS2q04g	N/A	Are any of the following methods used to help implement the national science curriculum at <grade 8>? A system of school inspection or audit
CQS2q04h	CQS2q04h	N/A	Are any of the following methods used to help implement the national science curriculum at <grade 8>? Other
CQS2q04h_Oth	CQS2q04h_Oth	N/A	Are any of the following methods used to help implement the national science curriculum at <grade 8>? Please specify
CQS2q04_Com*	CQS2q04_Com	N/A	Are any of the following methods used to help implement the national science curriculum at <grade 8>? Comments
CQS2q05a	CQS2q05a	N/A	Does the national curriculum specify the amount of instructional time that should be devoted to science? at <grade 4>

*Data for these questionnaire items are not available in the public release of the database.

Exhibit S1.7 Index of International Background Variables for the TIMSS 2003 Science Curriculum Questionnaire – Eighth Grade (Part 2 of 9)

Location	Variable Name	Available in 1999	Question
CQS2q05a_Per	CQS2q05a_Per	N/A	If YES, what percentage of total instructional time is supposed to be devoted to the science?
CQS2q05b	CQS2q05b	N/A	Does the national curriculum specify the amount of instructional time that should be devoted to science? at <grade 6>
CQS2q05b_Per	CQS2q05b_Per	N/A	If YES, what percentage of total instructional time is supposed to be devoted to science?
CQS2q05c	CQS2q05c	N/A	Does the national curriculum specify the amount of instructional time that should be devoted to science? at <grade 8>
CQS2q05c_Per	CQS2q05c_Per	N/A	If YES, what percentage of total instructional time is supposed to be devoted to science?
CQS2q05c_Subj_Per	CQS2q05c_Subj_Per	N/A	If different science courses are offered in separate subjects at <grade 8>, please give the percentage of total instructional time that is supposed to be devoted to each science course at <grade 8>.
CQS2q06	CQS2q06	N/A	Which best describes how the national science curriculum at <grade 8> addresses the issue of students with different levels of ability?
CQS2q06_Com*	CQS2q06_Com	N/A	Which best describes how the national science curriculum at <grade 8> addresses the issue of students with different levels of ability? Comments
CQS2q07a	CQS2q07a	N/A	How much emphasis does the national science curriculum at <grade 8> place on the following? Knowing basic science facts
CQS2q07b	CQS2q07b	N/A	How much emphasis does the national science curriculum at <grade 8> place on the following? Understanding science concepts
CQS2q07c	CQS2q07c	N/A	How much emphasis does the national science curriculum at <grade 8> place on the following? Writing explanations about what was observed and why it happened
CQS2q07d	CQS2q07d	N/A	How much emphasis does the national science curriculum at <grade 8> place on the following? Formulating hypotheses or predictions to be tested
CQS2q07e	CQS2q07e	N/A	How much emphasis does the national science curriculum at <grade 8> place on the following? Designing and planning experiments or investigations
CQS2q07f	CQS2q07f	N/A	How much emphasis does the national science curriculum at <grade 8> place on the following? Conducting experiments or investigations
CQS2q07g	CQS2q07g	N/A	How much emphasis does the national science curriculum at <grade 8> place on the following? Learning about the nature of science and inquiry
CQS2q07h	CQS2q07h	N/A	How much emphasis does the national science curriculum at <grade 8> place on the following? Integrating science with other subjects
CQS2q07i	CQS2q07i	N/A	How much emphasis does the national science curriculum at <grade 8> place on the following? Learning about technology and its impact on society
CQS2q07j	CQS2q07j	N/A	How much emphasis does the national science curriculum at <grade 8> place on the following? Understanding human impact on the environment

*Data for these questionnaire items are not available in the public release of the database.

Exhibit S1.7 Index of International Background Variables for the TIMSS 2003 Science Curriculum Questionnaire – Eighth Grade (Part 3 of 9)

Location	Variable Name	Available in 1999	Question
CQS2q07k	CQS2q07k	N/A	How much emphasis does the national science curriculum at <grade 8> place on the following? Incorporating the experiences of different ethnic/cultural groups
CQS2q07_Com*	CQS2q07_Com	N/A	How much emphasis does the national science curriculum at <grade 8> place on the following? Comments
CQS2q08A	CQS2q08A	N/A	Does the national curriculum contain statements/policies about the emphasis that should be placed on scientific inquiry in <grade 8> science?
CQS2q08B*	CQS2q08B	N/A	If YES, what are the statements/policies?
CQS2q09A	CQS2q09A	N/A	Does the national curriculum contain statements/policies about the use of computers in <grade 8> science?
CQS2q09B*	CQS2q09B	N/A	If YES, what are the statements/policies?
CQS2q10Aa	CQS2q10Aa	N/A	Do <grade 8> science teachers receive specific preparation in how to teach the intended science curriculum at <grade 8>? As part of pre-service education
CQS2q10Ab	CQS2q10Ab	N/A	Do <grade 8> science teachers receive specific preparation in how to teach the intended science curriculum at <grade 8>? As part of in-service education
CQS2q10B*	CQS2q10B	N/A	If you answered YES to either (a) or (b), describe the nature of the preparation.
CQS2q11a	CQS2q11a	N/A	Which are the current requirements for being a science teacher at <grade 8>? Pre-practicum and supervised practicum in the field
CQS2q11b	CQS2q11b	N/A	Which are the current requirements for being a science teacher at <grade 8>? Passing an examination
CQS2q11c	CQS2q11c	N/A	Which are the current requirements for being a science teacher at <grade 8>? <ISCED 5A, first degree>
CQS2q11d	CQS2q11d	N/A	Which are the current requirements for being a science teacher at <grade 8>? Completion of a probationary teaching period
CQS2q11d_Length	CQS2q11d_Length	N/A	Which are the current requirements for being a science teacher at <grade 8>? If YES, how long is this period?
CQS2q11e	CQS2q11e	N/A	Which are the current requirements for being a science teacher at <grade 8>? Completion of a mentoring or induction program
CQS2q11f	CQS2q11f	N/A	Which are the current requirements for being a science teacher at <grade 8>? Other
CQS2q11f_Oth	CQS2q11f_Oth	N/A	Which are the current requirements for being a science teacher at <grade 8>? Please specify
CQS2q12A	CQS2q12A	N/A	Is there a process to license or certify <grade 8> science teachers?
CQS2q12Ba	CQS2q12Ba	N/A	If YES, who certifies/licenses <grade 8> science teachers? Minister/Ministry of Education
CQS2q12Bb	CQS2q12Bb	N/A	If YES, who certifies/licenses <grade 8> science teachers? National/state licensing board
CQS2q12Bc	CQS2q12Bc	N/A	If YES, who certifies/licenses <grade 8> science teachers? Universities/colleges
CQS2q12Bd	CQS2q12Bd	N/A	If YES, who certifies/licenses <grade 8> science teachers? Teacher organization/union
CQS2q12Be	CQS2q12Be	N/A	If YES, who certifies/licenses <grade 8> science teachers? Other
CQS2q12Be_Oth	CQS2q12Be_Oth	N/A	If YES, who certifies/licenses <grade 8> science teachers? Please specify

*Data for these questionnaire items are not available in the public release of the database.

Exhibit S1.7 Index of International Background Variables for the TIMSS 2003 Science Curriculum Questionnaire – Eighth Grade (Part 4 of 9)

Location	Variable Name	Available in 1999	Question
CQS2q12B_Com*	CQS2q12B_Com	N/A	If YES, who certifies/licenses <grade 8> science teachers? Comments
CQS2q13Aa	CQS2q13Aa	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Biology Classification of organisms on the basis of a variety of physical and behavioral characteristics
CQS2q13Aa_Grade	CQS2q13Aa_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Ab	CQS2q13Ab	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Biology The major organ systems in humans and other organisms
CQS2q13Ab_Grade	CQS2q13Ab_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Ac	CQS2q13Ac	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Biology How the systems function to maintain stable bodily conditions
CQS2q13Ac_Grade	CQS2q13Ac_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Ad	CQS2q13Ad	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Biology Cell structures and functions
CQS2q13Ad_Grade	CQS2q13Ad_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Ae	CQS2q13Ae	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Biology Photosynthesis and respiration as processes of cells and organisms, including substances used and produced
CQS2q13Ae_Grade	CQS2q13Ae_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Af	CQS2q13Af	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Biology Life cycles of organisms, including humans, plants, birds, insects
CQS2q13Af_Grade	CQS2q13Af_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Ag	CQS2q13Ag	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Biology Reproduction (sexual and asexual), and heredity (passing on of traits), inherited versus acquired/learned characteristics
CQS2q13Ag_Grade	CQS2q13Ag_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Ah	CQS2q13Ah	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Biology The role of variation and adaptation in survival/extinction of species in a changing environment

*Data for these questionnaire items are not available in the public release of the database.

Exhibit S1.7 Index of International Background Variables for the TIMSS 2003 Science Curriculum Questionnaire – Eighth Grade (Part 5 of 9)

Location	Variable Name	Available in 1999	Question
CQS2q13Ah_Grade	CQS2q13Ah_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Ai	CQS2q13Ai	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Biology The interaction of living organisms in an ecosystem (energy flow, food chains and food webs, food pyramids, and the effects of changes upon the system)
CQS2q13Ai_Grade	CQS2q13Ai_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Aj	CQS2q13Aj	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Biology Cycling of materials in nature (water, carbon/oxygen cycle, decomposition of organisms)
CQS2q13Aj_Grade	CQS2q13Aj_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Ak	CQS2q13Ak	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Biology Causes of common infectious diseases, methods of infection/transmission, prevention, and the body's natural resistance and healing capabilities
CQS2q13Ak_Grade	CQS2q13Ak_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Al	CQS2q13Al	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Biology Preventive medicine methods (diet, hygiene, exercise and lifestyle)
CQS2q13Al_Grade	CQS2q13Al_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Ba	CQS2q13Ba	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Chemistry Classification and composition of matter (physical and chemical characteristics, pure substances and mixtures, separation techniques)
CQS2q13Ba_Grade	CQS2q13Ba_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Bb	CQS2q13Bb	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Chemistry Properties of solutions (solvents, solutes, effects of temperature on solubility)
CQS2q13Bb_Grade	CQS2q13Bb_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Bc	CQS2q13Bc	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Chemistry Particulate structure of matter (molecules, atoms, protons, neutrons, and electrons)
CQS2q13Bc_Grade	CQS2q13Bc_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Bd	CQS2q13Bd	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Chemistry Properties and uses of water (composition, melting/boiling points,changes in density/volume)

Exhibit S1.7 Index of International Background Variables for the TIMSS 2003 Science Curriculum Questionnaire – Eighth Grade (Part 6 of 9)

Location	Variable Name	Available in 1999	Question
CQS2q13Bd_Grade	CQS2q13Bd_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Be	CQS2q13Be	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Chemistry The properties and uses of common acids and bases
CQS2q13Be_Grade	CQS2q13Be_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Bf	CQS2q13Bf	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Chemistry Chemical change (transformation of reactants, evidence of chemical change, conservation of matter)
CQS2q13Bf_Grade	CQS2q13Bf_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Bg	CQS2q13Bg	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Chemistry The need for oxygen in common oxidation reactions (combustion, rusting) and the relative tendency of familiar substances to undergo these reactions
CQS2q13Bg_Grade	CQS2q13Bg_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Bh	CQS2q13Bh	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Chemistry Classification of familiar chemical transformations as releasing or absorbing heat/energy
CQS2q13Bh_Grade	CQS2q13Bh_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Ca	CQS2q13Ca	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Physics Physical states and changes in matter (explanations of properties including volume, shape, density and compressibility in terms of movement/distance between particles)
CQS2q13Ca_Grade	CQS2q13Ca_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Cb	CQS2q13Cb	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Physics The processes of melting, freezing, evaporation, and condensation (phase change by supplying/removing heat; melting/boiling points;effects of pressure and purity of substances)
CQS2q13Cb_Grade	CQS2q13Cb_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Cc	CQS2q13Cc	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Physics Energy types, sources, and conversions, including heat transfer
CQS2q13Cc_Grade	CQS2q13Cc_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Cd	CQS2q13Cd	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Physics Thermal expansion and changes in volume and/or pressure

Exhibit S1.7 Index of International Background Variables for the TIMSS 2003 Science Curriculum Questionnaire – Eighth Grade (Part 7 of 9)

Location	Variable Name	Available in 1999	Question
CQS2q13Cd_Grade	CQS2q13Cd_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Ce	CQS2q13Ce	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Physics Basic properties/behavior of light (reflection, refraction, light and color, simple ray diagrams)
CQS2q13Ce_Grade	CQS2q13Ce_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Cf	CQS2q13Cf	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Physics Properties of sound (production by vibration, transmission through media, ways of describing sound (intensity, pitch), relative speed)
CQS2q13Cf_Grade	CQS2q13Cf_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Cg	CQS2q13Cg	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Physics Electric circuits (flow of current, types of circuits _ open/closed, parallel/series) and relationship between voltage and current
CQS2q13Cg_Grade	CQS2q13Cg_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Ch	CQS2q13Ch	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Physics Properties of permanent magnets and electromagnets
CQS2q13Ch_Grade	CQS2q13Ch_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Ci	CQS2q13Ci	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Physics Forces and motion (types of forces, basic description of motion), use of distance/time graphs
CQS2q13Ci_Grade	CQS2q13Ci_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Cj	CQS2q13Cj	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Physics Effects of density and pressure
CQS2q13Cj_Grade	CQS2q13Cj_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Da	CQS2q13Da	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Earth Science Earth's structure and physical features (Earth's crust, mantle, and core; topographic maps)
CQS2q13Da_Grade	CQS2q13Da_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Db	CQS2q13Db	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Earth Science The physical state, movement, composition, and relative distribution of water on the Earth

Exhibit S1.7 Index of International Background Variables for the TIMSS 2003 Science Curriculum Questionnaire – Eighth Grade (Part 8 of 9)

Location	Variable Name	Available in 1999	Question
CQS2q13Db_Grade	CQS2q13Db_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Dc	CQS2q13Dc	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Earth Science The Earth's atmosphere and the relative abundance of its main components
CQS2q13Dc_Grade	CQS2q13Dc_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Dd	CQS2q13Dd	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Earth Science Earth's water cycle (steps, role of sun's energy, circulation/renewal of fresh water)
CQS2q13Dd_Grade	CQS2q13Dd_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13De	CQS2q13De	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Earth Science Processes in the rock cycle and the formation of igneous, metamorphic, and sedimentary rock
CQS2q13De_Grade	CQS2q13De_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Df	CQS2q13Df	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Earth Science Weather data/maps, and changes in weather patterns (e.g., seasonal changes, effects of latitude, altitude and geography)
CQS2q13Df_Grade	CQS2q13Df_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Dg	CQS2q13Dg	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Earth Science Geological processes occuring over billions of years (e.g., erosion, mountain building, plate movement)
CQS2q13Dg_Grade	CQS2q13Dg_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Dh	CQS2q13Dh	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Earth Science Formation of fossils and fossil fuels
CQS2q13Dh_Grade	CQS2q13Dh_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Di	CQS2q13Di	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Earth Science Explanation of phenomena on Earth based on position/movement of bodies in the solar sytem and universe (e.g., day/night, tides, year, phases of the moon, eclipses, seasons, appearance of sun, moon, planets, and constellations)

Exhibit S1.7 Index of International Background Variables for the TIMSS 2003 Science Curriculum Questionnaire – Eighth Grade (Part 9 of 9)

Location	Variable Name	Available in 1999	Question
CQS2q13Di_Grade	CQS2q13Di_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Dj	CQS2q13Dj	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Earth Science The physical features of Earth compared with the moon and other planets (e.g., atmosphere, temperature, water, distance from sun, period of revolution/rotation, ability to support life)
CQS2q13Dj_Grade	CQS2q13Dj_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Dk	CQS2q13Dk	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Earth Science The sun as a star
CQS2q13Dk_Grade	CQS2q13Dk_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Ea	CQS2q13Ea	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Environmental Science Trends in human population and its effects on the environment
CQS2q13Ea_Grade	CQS2q13Ea_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Eb	CQS2q13Eb	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Environmental Science Use and conservation of natural resources (renewable/nonrenewable resources, human use of land/soil and water resources)
CQS2q13Eb_Grade	CQS2q13Eb_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS2q13Ec	CQS2q13Ec	N/A	According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>? Environmental Science Changes in environments (role of human activity, effects/prevention of pollution, global environmental concerns, impact of natural hazards)
CQS2q13Ec_Grade	CQS2q13Ec_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?

Exhibit S1.8 Index of International Background Variables for the TIMSS 2003 Student Questionnaire – Fourth Grade (Part 1 of 4)

Location	Variable Name	Available in 1999	Question
SQ1-01A	ASBGBRTY	No	What year were you born?
SQ1-01B	ASBGBRTM	No	What month were you born?
SQ1-02	ASBGSEX	No	Are you a girl or a boy?
SQ1-03	ASBGOLAN	No	How often do you speak <language of test> at home?
SQ1-04	ASBGBOOK	No	About how many books are there in your home? (Do not count magazines, newspapers, or your school books.)
SQ1-05A	ASBGPS01	No	Do you have a calculator in your home?
SQ1-05B	ASBGPS02	No	Do you have a computer in your home? (Do not include Nintendo, Gameboy, or other TV/video game computers.)
SQ1-05C	ASBGPS03	No	Do you have a study desk/table for your use in your home?
SQ1-05D	ASBGPS04	No	Do you have a dictionary in your home?
SQ1-05E	ASBGPS05	No	Do you have a <country-specific> in your home?
SQ1-05F	ASBGPS06	No	Do you have a <country-specific> in your home?
SQ1-05G	ASBGPS07	No	Do you have a <country-specific> in your home?
SQ1-05H	ASBGPS08	No	Do you have a <country-specific> in your home?
SQ1-05I	ASBGPS09	No	Do you have a <country-specific> in your home?
SQ1-05J	ASBGPS10	No	Do you have a <country-specific> in your home?
SQ1-05K	ASBGPS11	No	Do you have a <country-specific> in your home?
SQ1-05L	ASBGPS12	No	Do you have a <country-specific> in your home?
SQ1-05M	ASBGPS13	No	Do you have a <country-specific> in your home?
SQ1-05N	ASBGPS14	No	Do you have a <country-specific> in your home?
SQ1-05O	ASBGPS15	No	Do you have a <country-specific> in your home?
SQ1-05P	ASBGPS16	No	Do you have a <country-specific> in your home?
SQ1-06A	ASBMTWEL	No	What do you think about learning mathematics? Tell how much you agree with these statements: I usually do well in mathematics.
SQ1-06B	ASBMTMOR	No	What do you think about learning mathematics? Tell how much you agree with these statements: I would like to do more mathematics in school.
SQ1-06C	ASBMTCLM	No	What do you think about learning mathematics? Tell how much you agree with these statements: Mathematics is harder for me than for many of my classmates.
SQ1-06D	ASBMTENJ	No	What do you think about learning mathematics? Tell how much you agree with these statements: I enjoy learning mathematics.
SQ1-06E	ASBMTNOT	No	What do you think about learning mathematics? Tell how much you agree with these statements: I am just not good at mathematics.

Exhibit S1.8 Index of International Background Variables for the TIMSS 2003 Student Questionnaire – Fourth Grade (Part 2 of 4)

Location	Variable Name	Available in 1999	Question
SQ1-06F	ASBMTQKY	No	What do you think about learning mathematics? Tell how much you agree with these statements: I learn things quickly in mathematics.
SQ1-07A	ASBMHASM	No	In your mathematics lessons, how often do you practice adding, subtracting, multiplying, and dividing without using a calculator?
SQ1-07B	ASBMHWFD	No	In your mathematics lessons, how often do you work on fractions and decimals?
SQ1-07C	ASBMHMCL	No	In your mathematics lessons, how often do you measure things in the classroom and around the school?
SQ1-07D	ASBMHTCG	No	In your mathematics lessons, how often do you make tables, charts, or graphs?
SQ1-07E	ASBMHCTR	No	In your mathematics lessons, how often do you learn about shapes such as circles, triangles, and rectangles?
SQ1-07F	ASBMHWSG	No	In your mathematics lessons, how often do you work with other students in small groups?
SQ1-07G	ASBMHEXP	No	In your mathematics lessons, how often do you explain your answers?
SQ1-07H	ASBMHLTT	No	In your mathematics lessons, how often do you listen to the teacher talk?
SQ1-07I	ASBMHWPO	No	In your mathematics lessons, how often to you work problems on your own?
SQ1-07J	ASBMHCAL	No	In your mathematics lessons, how often do you use a calculator?
SQ1-08A	ASBSTWEL	No	What do you think about learning science? Tell how much you agree with these statements: I usually do well in science.
SQ1-08B	ASBSTMOR	No	What do you think about learning science? Tell how much you agree with these statements: I would like to do more science in school.
SQ1-08C	ASBSTCLM	No	What do you think about learning science? Tell how much you agree with these statements: Science is harder for me than for many of my classmates.
SQ1-08D	ASBSTENJ	No	What do you think about learning science? Tell how much you agree with these statements: I enjoy learning science.
SQ1-08E	ASBSTNOT	No	What do you think about learning science? Tell how much you agree with these statements: I am just not good at science.
SQ1-08F	ASBSTQKY	No	What do you think about learning science? Tell how much you agree with these statements: I learn things quickly in science.
SQ1-09A	ASBSWATE	No	In school, how often do you watch the teacher do a science experiment?
SQ1-09B	ASBSHPEX	No	In school, how often do you design or plan a science experiment or investigation?
SQ1-09C	ASBSDSEI	No	In school, how often do you do a science experiment or investigation?
SQ1-09D	ASBSHWGX	No	In school, how often do you work with other students in a small group on a science experiment or investigation?
SQ1-09E	ASBSWESS	No	In school, how often do you write or give an explanation for something you are studying in science?
SQ1-09F	ASBSLWPS	No	In school, how often do you look at something like the weather or a plant growing and write down what you see?
SQ1-09G	ASBSHLTT	No	In school, how often do you listen to the teacher talk?

Exhibit S1.8 Index of International Background Variables for the TIMSS 2003 Student Questionnaire – Fourth Grade (Part 3 of 4)

Location	Variable Name	Available in 1999	Question
SQ1-09H	ASBSHWPX	No	In school, how often do you work problems on your own?
SQ1-10A	ASBGUSEC	No	Do you ever use a computer? (Do not include Nintendo, GameBoy, or other TV/video game computers).
SQ1-10BA	ASBGCHOM	No	Do you use a computer at home?
SQ1-10BB	ASBGCSCH	No	Do you use a computer at school?
SQ1-10BC	ASBGCLIB	No	Do you use a computer at a library?
SQ1-10BD	ASBGCFRH	No	Do you use a computer at a friend's home?
SQ1-10BE	ASBGCCAF	No	Do you use a computer at an Internet café?
SQ1-10BF	ASBGCELS	No	Do you use a computer elsewhere?
SQ1-10CA	ASBMOINF	No	How often do you use a computer to look up ideas and information for mathematics?
SQ1-10CB	ASBSOINF	No	How often do you use a computer to look up ideas and information for science?
SQ1-10CC	ASBGOREP	No	How often do you use a computer to write reports for school?
SQ1-11A	ASBGALBS	No	How much do you agree with the statement: I like being in school?
SQ1-11B	ASBGATTB	No	How much do you agree with the statement: I think that students in my school try to do their best?
SQ1-11C	ASBGATCS	No	How much do you agree with the statement: I think that teachers in my school care about the students?
SQ1-11D	ASBGATSB	No	How much do you agree with the statement: I think that teachers in my school want students to do their best?
SQ1-12A	ASBGSTOL	No	In school, did any of these things happen during the last month? Something of mine was stolen.
SQ1-12B	ASBGHURT	No	In school, did any of these things happen during the last month? I was hit or hurt by other student(s) (for example, shoving, hitting, kicking).
SQ1-12C	ASBGMADE	No	In school, did any of these things happen during the last month? I was made to do things I didn't want to do by other students.
SQ1-12D	ASBGMFUN	No	In school, did any of these things happen during the last month? I was made fun of or called names.
SQ1-12E	ASBGLEFT	No	In school, did any of these things happen during the last month? I was left out of activities by other students.
SQ1-13A	ASBGWATV	No	On a normal day, how much time do you spend before or after school doing each of these things? I watch television and videos.
SQ1-13B	ASBGPLCG	No	On a normal day, how much time do you spend before or after school doing each of these things? I play computer games.
SQ1-13C	ASBGPLFD	No	On a normal day, how much time do you spend before or after school doing each of these things? I play or talk with friends.
SQ1-13D	ASBGJOHM	No	On a normal day, how much time do you spend before or after school doing each of these things? I do jobs at home.

Exhibit S1.8 Index of International Background Variables for the TIMSS 2003 Student Questionnaire – Fourth Grade (Part 4 of 4)

Location	Variable Name	Available in 1999	Question
SQ1-13E	ASBGPLSP	No	On a normal day, how much time do you spend before or after school doing each of these things? I play sports.
SQ1-13F	ASBGREBO	No	On a normal day, how much time do you spend before or after school doing each of these things? I read a book for enjoyment.
SQ1-13G	ASBGUSIN	No	On a normal day, how much time do you spend before or after school doing each of these things? I use the Internet.
SQ1-13H	ASBGDOHW	No	On a normal day, how much time do you spend before or after school doing each of these things? I do homework.
SQ1-14A	ASBMEXTO	No	During this school year, how often have you had extra lessons or tutoring in mathematics that is not part of your regular class?
SQ1-14B	ASBSEXTO	No	During this school year, how often have you had extra lessons or tutoring in science that is not part of your regular class?
SQ1-15A	ASBMHWMA	No	How often does your teacher give you homework in mathematics?
SQ1-15B	ASBMHWMG	No	When your teacher gives you mathematics homework, about how many minutes are you usually given?
SQ1-16A	ASBSHWMA	No	How often does your teacher give you homework in science?
SQ1-16B	ASBSHWMG	No	When your teacher gives you science homework, about how many minutes are you usually given?
SQ1-17	ASBGPLHO	No	Including yourself, how many people live in your home?
SQ1-18A	ASBGMBRN	No	Was you mother (or stepmother or femal guardian) born in <country>?
SQ1-18B	ASBGFBRN	No	Was your father (or stepfather or male guardian) born in <country>?
SQ1-19A	ASBGBORN	No	Were you born in <country>?
SQ1-19B	ASBGBRNC	No	If you were not born in <country>, how old were you when you came to <country>?

Exhibit S1.9 Index of International Background Variables for the TIMSS 2003 Teacher Questionnaire – Fourth Grade (Part 1 of 13)

Location	Variable Name	Available in 1999	Question
TQ1-01	ATBGAGE	No	How old are you?
TQ1-02	ATBGSEX	No	Are you female or male?
TQ1-03	ATBGTAUT	No	By the end of the year, how many years will you have been teaching altogether?
TQ1-04	ATBGFEDC	No	What is the highest level of formal education you have completed?
TQ1-05	ATBGYTTR	No	How many years of <pre-service teacher training> did you have? Please round to the nearest whole number.
TQ1-06AA	ATBGPSEP	No	During your <post-secondary> education, was Education <Primary/Elementary> your major or main area of study?
TQ1-06AB	ATBGPSES	No	During your <post-secondary> education, was Education <Secondary> your major or main area of study?
TQ1-06AC	ATBMPSMA	No	During your <post-secondary> education, was Mathematics your major or main area of study?
TQ1-06AD	ATBSPSSC	No	During your <post-secondary> education, was Science your major or main area of study?
TQ1-06AE	ATBGPSOT	No	During your <post-secondary> education, was Other your major or main area of study?
TQ1-06BA	ATBMEDMA	No	If your major or main area of study was education, did you have a <specialization> in Mathematics?
TQ1-06BB	ATBSEDSC	No	If your major or main area of study was education, did you have a <specialization> in Science?
TQ1-06BC	ATBGEDLR	No	If your major or main area of study was education, did you have a <specialization> in Language/reading?
TQ1-06BD	ATBGEDOT	No	If your major or main area of study was education, did you have a <specialization> in Other subject?
TQ1-07A	ATBGRB5A	No	Did you have to complete <ISCED 5A, first degree> in order to become a teacher at <grade 4>?
TQ1-07B	ATBGRBPP	No	Did you have to complete a probationary period in order to become a teacher at <grade 4>?
TQ1-07C	ATBGRBEC	No	Did you have to complete a minimum number of education courses in order to become a teacher at <grade 4>?
TQ1-07D	ATBMRBMC	No	Did you have to complete a minimum number of mathematics courses in order to become a teacher at <grade 4>?
TQ1-07E	ATBSRBSC	No	Did you have to complete a minimum number of science courses in order to become a teacher at <grade 4>?
TQ1-07F	ATBGRBLE	No	Did you have to pass a licensing examination in order to become a teacher at <grade 4>?
TQ1-08A	ATBGTLCE	No	Do you have a teaching license or certificate?
TQ1-08B	ATBGTELC	No	What type of license or certificate do you hold?
TQ1-09A	ATBGCHTS	No	How would you characterize Teachers' job satisfaction within your school?
TQ1-09B	ATBGCHTU	No	How would you characterize Teachers' understanding of the school's curricular goals within your school?

Exhibit S1.9 Index of International Background Variables for the TIMSS 2003 Teacher Questionnaire – Fourth Grade (Part 2 of 13)

Location	Variable Name	Available in 1999	Question
TQ1-09C	ATBGCHTC	No	How would you characterize Teachers' degree of success in implementing the school's curriculum within your school?
TQ1-09D	ATBGCHES	No	How would you characterize Teachers' expectations for student achievement within your school?
TQ1-09E	ATBGCHPS	No	How would you characterize Parental support for student achievement within your school?
TQ1-09F	ATBGCHPI	No	How would you characterize Parental involvement in school activities within your school?
TQ1-09G	ATBGCHSR	No	How would you characterize Students' regard for school property within your school?
TQ1-09H	ATBGCHSD	No	How would you characterize Students' desire to do well in school within your school?
TQ1-10A	ATBGCURE	No	Thinking about your CURRENT school, indicate the extent to which you agree or disagree that this school facility (building and grounds) is in need of significant repair.
TQ1-10B	ATBGCUSN	No	Thinking about your CURRENT school, indicate the extent to which you agree or disagree that this school is located in a safe neighborhood.
TQ1-10C	ATBGCUSA	No	Thinking about your CURRENT school, indicate the extent to which you agree or disagree that I feel safe at this school.
TQ1-10D	ATBGCUAS	No	Thinking about your CURRENT school, indicate the extent to which you agree or disagree that this school's security policies and practices are sufficient.
TQ1-11A	ATBGOTDC	No	How often do you have discussions about how to teach particular concept with other teachers?
TQ1-11B	ATBGOTPM	No	How often do you work on preparing instructional materials with other teachers?
TQ1-11C	ATBGOTVT	No	How often do you make visits to another teacher's classroom to observe his/her teaching?
TQ1-11D	ATBGOTAT	No	How often do you have informal observations of my classroom by another teacher?
TQ1-12AA	ATBMRT01	No	Considering your training and experience in both mathematics content and instruction, how ready do you feel you are to teach adding, subtracting, multiplying and/or dividing with whole numbers at the <fourth> grade?
TQ1-12AB	ATBMRT02	No	Considering your training and experience in both mathematics content and instruction, how ready do you feel you are to teach fractions (parts of a whole or a collection, location on a number line) at the <fourth> grade?
TQ1-12AC	ATBMRT03	No	Considering your training and experience in both mathematics content and instruction, how ready do you feel you are to teach fractions or decimals represented by words, numbers, or models at the <fourth> grade?
TQ1-12AD	ATBMRT04	No	Considering your training and experience in both mathematics content and instruction, how ready do you feel you are to teach adding and subtracting with decimals at the <fourth> grade?
TQ1-12BA	ATBMRT05	No	Considering your training and experience in both mathematics content and instruction, how ready do you feel you are to teach patterns or numbers or shapes (extending sequences and finding missing terms) at the <fourth> grade?
TQ1-12BB	ATBMRT06	No	Considering your training and experience in both mathematics content and instruction, how ready do you feel you are to teach simple equations at the <fourth> grade?

Exhibit S1.9 Index of International Background Variables for the TIMSS 2003 Teacher Questionnaire – Fourth Grade (Part 3 of 13)

Location	Variable Name	Available in 1999	Question
TQ1-12BC	ATBMRT07	No	Considering your training and experience in both mathematics content and instruction, how ready do you feel you are to teach finding a rule for a relationship given some pairs of numbers at the <fourth> grade?
TQ1-12CA	ATBMRT08	No	Considering your training and experience in both mathematics content and instruction, how ready do you feel you are to teach recognizing and selecting appropriate units to measure length, weight, time, and temperature at the <fourth> grade?
TQ1-12CB	ATBMRT09	No	Considering your training and experience in both mathematics content and instruction, how ready do you feel you are to teach estimating and measuring length, area, volume, weight, and time at the <fourth> grade?
TQ1-12DA	ATBMRT10	No	Considering your training and experience in both mathematics content and instruction, how ready do you feel you are to teach familiar two and three dimensional shapes and their properties at the <fourth> grade?
TQ1-12DB	ATBMRT11	No	Considering your training and experience in both mathematics content and instruction, how ready do you feel you are to teach congruent triangles (I.e., same shape and size) at the <fourth> grade?
TQ1-12DC	ATBMRT12	No	Considering your training and experience in both mathematics content and instruction, how ready do you feel you are to teach relationships between two-dimensional and three-dimensional shapes at the <fourth> grade?
TQ1-12DD	ATBMRT13	No	Considering your training and experience in both mathematics content and instruction, how ready do you feel you are to teach translation, reflection, and rotation (<shifts, flips, and turns> of shapes) at the <fourth> grade?
TQ1-12EA	ATBMRT14	No	Considering your training and experience in both mathematics content and instruction, how ready do you feel you are to teach recognizing what various numbers, symbols, and points mean in data displays at the <fourth> grade?
TQ1-12EB	ATBMRT15	No	Considering your training and experience in both mathematics content and instruction, how ready do you feel you are to teach displaying data using tables, pictographs, and bar graphs at the <fourth> grade?
TQ1-12EC	ATBMRT16	No	Considering your training and experience in both mathematics content and instruction, how ready do you feel you are to teach drawing conclusions from data displays at the <fourth> grade?
TQ1-13A	ATBMPDMT	No	In the past two years, have you participated in professional development in mathematics content?
TQ1-13B	ATBMPDMP	No	In the past two years, have you participated in professional development in mathematics pedagogy/instruction?
TQ1-13C	ATBMPDMC	No	In the past two years, have you participated in professional development in mathematics curriculum?
TQ1-13D	ATBMPDIT	No	In the past two years, have you participated in professional development in integrating information technology into mathematics?

Exhibit S1.9 Index of International Background Variables for the TIMSS 2003 Teacher Questionnaire – Fourth Grade (Part 4 of 13)

Location	Variable Name	Available in 1999	Question
TQ1-13E	ATBGPDCT	No	In the past two years, have you participated in professional development in improving students' critical thinking or problem solving skills?
TQ1-13F	ATBMPDMA	No	In the past two years, have you participated in professional development in mathematics assessment?
TQ1-14A	ATBMSTUD	No	How many students are in the TIMSS class for mathematics?
TQ1-14B	ATBMSTDQ	No	How many students in the TIMSS class for mathematics are in the <fourth grade?
TQ1-15	ATBMTIMT	No	How many minutes per week do you teacher mathematics to the <fourth-grade> students in the TIMSS class?
TQ1-16A	ATBMTBTC	No	Do you use a textbook(s) in teaching mathematics to the <fourth-grade> students in the TIMSS class?
TQ1-16B	ATBMTXBU	No	How do you use a textbook(s) in teaching mathematics to the <fourth-grade> students in the TIMSS class?
TQ1-17A	ATBMPTRH	No	In a typical week of mathematics lessons for the <fourth grade> students in the TIMSS class, what percentage of time do students spend on reviewing homework?
TQ1-17B	ATBMPTLS	No	In a typical week of mathematics lessons for the <fourth grade> students in the TIMSS class, what percentage of time do students spend listening to lecture-style presentations?
TQ1-17C	ATBMPTYG	No	In a typical week of mathematics lessons for the <fourth grade> students in the TIMSS class, what percentage of time do students spend working problems with your guidance?
TQ1-17D	ATBMPTOO	No	In a typical week of mathematics lessons for the <fourth grade> students in the TIMSS class, what percentage of time do students spend working problems on their own without your guidance?
TQ1-17E	ATBMPTRT	No	In a typical week of mathematics lessons for the <fourth grade> students in the TIMSS class, what percentage of time do students spend listening to you re-teach and clarify content/procedures?
TQ1-17F	ATBMPTTQ	No	In a typical week of mathematics lessons for the <fourth grade> students in the TIMSS class, what percentage of time do students spend taking tests or quizzes?
TQ1-17G	ATBMPTCM	No	In a typical week of mathematics lessons for the <fourth grade> students in the TIMSS class, what percentage of time do students spend participating in classroom management tasks not related to the lesson's content/purpose (e.g., interruptions and keeping order)?
TQ1-17H	ATBMPTOA	No	In a typical week of mathematics lessons for the <fourth grade> students in the TIMSS class, what percentage of time do students spend on other student activities?
TQ1-18	ATBMCAML	No	Are the <fourth grade> students in the TIMSS class permitted to use calculators during mathematics lessons?
TQ1-19	ATBMHSHC	No	How many <fourth grade> students in the TIMSS class have calculators available to use during mathematics lessons?
TQ1-20A	ATBMCALA	No	How often do the <fourth-grade> students in the TIMSS class use calculators in their mathematics lessons to check answers?

Exhibit S1.9 Index of International Background Variables for the TIMSS 2003 Teacher Questionnaire – Fourth Grade (Part 5 of 13)

Location	Variable Name	Available in 1999	Question
TQ1-20B	ATBMCALR	No	How often do the <fourth-grade> students in the TIMSS class use calculators in their mathematics lessons for routine computations?
TQ1-20C	ATBMCALS	No	How often do the <fourth-grade> students in the TIMSS class use calculators in their mathematics lessons to solve complex problems?
TQ1-20D	ATBMCALE	No	How often do the <fourth-grade> students in the TIMSS class use calculators in their mathematics lessons to explore number concepts?
TQ1-21	ATBMCATE	No	How often are the <fourth grade> students in the TIMSS class permitted to use calculators during tests or examinations?
TQ1-22A	ATBMCOMA	No	Do the <fourth-grade> students in the TIMSS class have computers available to use during their mathematics lessons?
TQ1-22B	ATBMINTA	No	Do any of the computers have access to the Internet?
TQ1-23A	ATBMCADM	No	In teaching mathematics to the <fourth-grade> students in the TIMSS class, how often do you have students use a computer to discover mathematics principles and concepts?
TQ1-23B	ATBMCASP	No	In teaching mathematics to the <fourth-grade> students in the TIMSS class, how often do you have students use a computer to practice skills and procedures?
TQ1-23C	ATBMCALI	No	In teaching mathematics to the <fourth-grade> students in the TIMSS class, how often do you have students use a computer to look up ideas and information?
TQ1-24A	ATBMASPC	No	In teaching mathematics to the <fourth-grade> students in the TIMSS class, how often do you usually ask them to practice adding, subtracting, multiplying, and dividing without using a calculator?
TQ1-24B	ATBMASWF	No	In teaching mathematics to the <fourth-grade> students in the TIMSS class, how often do you usually ask them to work on fractions and decimals?
TQ1-24C	ATBMASMS	No	In teaching mathematics to the <fourth-grade> students in the TIMSS class, how often do you usually ask them to measure things in the classroom and around the school?
TQ1-24D	ATBMASMG	No	In teaching mathematics to the <fourth-grade> students in the TIMSS class, how often do you usually ask them to make tables, charts, or graphs?
TQ1-24E	ATBMASLC	No	In teaching mathematics to the <fourth-grade> students in the TIMSS class, how often do you usually ask them to learn about shapes such as circles, triangles, rectangles, and cubes?
TQ1-24F	ATBMASWP	No	In teaching mathematics to the <fourth-grade> students in the TIMSS class, how often do you usually ask them to write equations for word problems ?
TQ1-24G	ATBMASSG	No	In teaching mathematics to the <fourth-grade> students in the TIMSS class, how often do you usually ask them to work together in small groups?
TQ1-24H	ATBMASEA	No	In teaching mathematics to the <fourth-grade> students in the TIMSS class, how often do you usually ask them to explain their answers?
TQ1-25A	ATBMTTNU	No	By the end of this school year, approximately what percentage of teaching time will you have spent during this school year on numbers (includes computation with whole numbers, fractions, and decimals) for the <fourth-grade> students in the TIMSS class?

Exhibit S1.9 Index of International Background Variables for the TIMSS 2003 Teacher Questionnaire – Fourth Grade (Part 6 of 13)

Location	Variable Name	Available in 1999	Question
TQ1-25B	ATBMTTPA	No	By the end of this school year, approximately what percentage of teaching time will you have spent during this school year on patterns, equations, and relationships (includes sequences of numbers or shapes, simple equations, and finding rules) for the <fourth-grade> students in the TIMSS class?
TQ1-25C	ATBMTTME	No	By the end of this school year, approximately what percentage of teaching time will you have spent during this school year on measurement (includes recognizing units and using tools) for the <fourth-grade> students in the TIMSS class?
TQ1-25D	ATBMTTGE	No	By the end of this school year, approximately what percentage of teaching time will you have spent during this school year on geometry (includes two-and three-dimensional shapes) for the <fourth-grade> students in the TIMSS class?
TQ1-25E	ATBMTTDA	No	By the end of this school year, approximately what percentage of teaching time will you have spent during this school year on data (includes reading, making, and interpreting tables and graphs) for the <fourth-grade> students in the TIMSS class?
TQ1-25F	ATBMCOTH	No	By the end of this school year, approximately what percentage of teaching time will you have spent during this school year on other, please specify, for the <fourth-grade> students in the TIMSS class?
TQ1-26AA	ATBMTA01	No	When have students in the TIMSS class been taught whole numbers including place value and ordering?
TQ1-26AB	ATBMTA02	No	When have students in the TIMSS class been taught to represent whole numbers using words, diagrams, or symbols?
TQ1-26AC	ATBMTA03	No	When have students in the TIMSS class been taught properties of whole numbers such as odd and even, multiples, or factors?
TQ1-26AD	ATBMTA04	No	When have students in the TIMSS class been taught computation with whole numbers?
TQ1-26AE	ATBMTA05	No	When have students in the TIMSS class been taught estimation with whole numbers?
TQ1-26AF	ATBMTA06	No	When have students in the TIMSS class been taught fractions (parts of a whole or a collection, location on a number line)?
TQ1-26AG	ATBMTA07	No	When have students in the TIMSS class been taught equivalent fractions?
TQ1-26AH	ATBMTA08	No	When have students in the TIMSS class been taught to compare and order fractions?
TQ1-26AI	ATBMTA09	No	When have students in the TIMSS class been taught fractions or decimals represented by words, numbers, or models?
TQ1-26AJ	ATBMTA10	No	When have students in the TIMSS class been taught adding and subtracting fractions with the same denominator?
TQ1-26AK	ATBMTA11	No	When have students in the TIMSS class been taught adding and subtracting with decimals (tenths and/or hundredths)?
TQ1-26AL	ATBMTA12	No	When have students in the TIMSS class been taught simple proportional reasoning?
TQ1-26BA	ATBMTA13	No	When have students in the TIMSS class been taught patterns or numbers or shapes (extending sequences and finding missing terms)?

Exhibit S1.9 Index of International Background Variables for the TIMSS 2003 Teacher Questionnaire – Fourth Grade (Part 7 of 13)

Location	Variable Name	Available in 1999	Question
TQ1-26BB	ATBMTA14	No	When have students in the TIMSS class been taught equality using equations, areas, volumes, masses/weights?
TQ1-26BC	ATBMTA15	No	When have students in the TIMSS class been taught to find a missing number in an equation (e.g., if 17+___=29, what number would go in the blank to make the equation true)?
TQ1-26BD	ATBMTA16	No	When have students in the TIMSS class been taught simple equations?
TQ1-26BE	ATBMTA17	No	When have students in the TIMSS class been taught pairs of numbers following a given rule (e.g., multiply the first number by 3 and add 2 to get the second number)?
TQ1-26BF	ATBMTA18	No	When have students in the TIMSS class been taught finding a rule for a relationship given some pairs of numbers?
TQ1-26CA	ATBMTA19	No	When have students in the TIMSS class been taught non-standard units to measure length, area, volume, and time (e.g., paper clips for length, tiles for area, sugar cubes for volume)?
TQ1-26CB	ATBMTA20	No	When have students in the TIMSS class been taught standard units to measure length, area, mass/weight, angle, and time (e.g., kilometers for car trips, centimeters for human height)?
TQ1-26CC	ATBMTA21	No	When have students in the TIMSS class been taught conversion factors between standard units (e.g., hours to nimutes, grams to kilograms)?
TQ1-26CD	ATBMTA22	No	When have students in the TIMSS class been taught instruments to measure length, weight, time, and temperature in problem situations (e.g., rulers and scales)?
TQ1-26CE	ATBMTA23	No	When have students in the TIMSS class been taught how to calculate areas and perimeters of squares?
TQ1-26CF	ATBMTA24	No	When have students in the TIMSS class been taught how to estimate length, area, volume, weight, and time?
TQ1-26DA	ATBMTA25	No	When have students in the TIMSS class been taught angles greater than, equal to, or less than a right angle (or 90 degrees)?
TQ1-26DB	ATBMTA26	No	When have students in the TIMSS class been taught parallel and perpendicular lines?
TQ1-26DC	ATBMTA27	No	When have students in the TIMSS class been taught familiar two-and three-dimensional shapes and their properties?
TQ1-26DD	ATBMTA28	No	When have students in the TIMSS class been taught congruent triangles (I.e., same shape and size)?
TQ1-26DE	ATBMTA29	No	When have students in the TIMSS class been taught similar triangles (I.e., same shape and different size)?
TQ1-26DF	ATBMTA30	No	When have students in the TIMSS class been taught points in a plane?
TQ1-26DG	ATBMTA31	No	When have students in the TIMSS class been taught relationships between two-dimensional and three-dimensional shapes?
TQ1-26DH	ATBMTA32	No	When have students in the TIMSS class been taught informal coordinate systems?
TQ1-26DI	ATBMTA33	No	When have students in the TIMSS class been taught symmetry about a line?
TQ1-26DJ	ATBMTA34	No	When have students in the TIMSS class been taught two-dimensional symmetrical figures?
TQ1-26DK	ATBMTA35	No	When have students in the TIMSS class been taught translation, reflection, and rotation (<shifts, flips, and turns> of shapes)?

Exhibit S1.9 Index of International Background Variables for the TIMSS 2003 Teacher Questionnaire – Fourth Grade (Part 8 of 13)

Location	Variable Name	Available in 1999	Question
TQ1-26EA	ATBMTA36	No	When have students in the TIMSS class been taught recognizing what various numbers, symbols, a nd points mean in data displays?
TQ1-26EB	ATBMTA37	No	When have students in the TIMSS class been taught organizing a set of data by one characteristic (e.g., height, color, age, shape)?
TQ1-26EC	ATBMTA38	No	When have students in the TIMSS class been taught reading data directly from tables, pictographs, bar graphs, and pie charts?
TQ1-26ED	ATBMTA39	No	When have students in the TIMSS class been taught displaying data using tables, pictographs, and bar graphs?
TQ1-26EE	ATBMTA40	No	When have students in the TIMSS class been taught comparing and matching different representations of the same data?
TQ1-26EF	ATBMTA41	No	When have students in the TIMSS class been taught characteristics of related data sets (e.g., given data or representations of data on student heights in two classes, identify the class with the shortest/tallest person)?
TQ1-26EG	ATBMTA42	No	When have students in the TIMSS class been taught drawing conclusions from data displays?
TQ1-27	ATBMHMWO	No	Do you assign mathematics homework to the <fourth-grade> students in the TIMSS class?
TQ1-28	ATBMHWMC	No	How often do you usually assign mathematics homework to the <fourth-grade> students in the TIMSS class?
TQ1-29	ATBMHWKM	No	When you assign mathematics homework to the <fourth-grade> students in the TIMSS class, about how many minutes do you usually assign? (Consider the time it would take an average student in your class.)
TQ1-30AA	ATBSRT01	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach major body structures and their functions in humans and other organisms (plant and animals) at the <fourth> grade?
TQ1-30AB	ATBSRT02	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach reproduction and development in plants and animals (passing on of general characteristics; life cycles of familiar organisims) at the <fourth> grade?
TQ1-30AC	ATBSRT03	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach physical features, behavior, and survival of organisms living in different environments at the <fourth> grade?
TQ1-30AD	ATBSRT04	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach relationships in a living community (e.g., simple food chains, predator/prey relationships) at the <fourth> grade?

Exhibit S1.9 Index of International Background Variables for the TIMSS 2003 Teacher Questionnaire – Fourth Grade (Part 9 of 13)

Location	Variable Name	Available in 1999	Question
TQ1-30AE	ATBSRT05	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach changes in environments (effects of human activity, pollution and its prevention) at the <fourth> grade?
TQ1-30AF	ATBSRT06	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach human health (e.g., transmission/prevention of communicable diseases, signs of health/illness, diet, exercise) at the <fourth> grade?
TQ1-30BA	ATBSRT07	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach classification of objects/materials based on physical properties (e.g., mass, shape, volume, color, hardness, texture, heat/electrical conductivity, magnetic attraction) at the <fourth> grade?
TQ1-30BB	ATBSRT08	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach forming and separating mixtures at the <fourth> grade?
TQ1-30BC	ATBSRT09	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach chemical and physical changes (e.g., decaying of animal/plant matter, burning, rusting) at the <fourth> grade?
TQ1-30BD	ATBSRT10	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach states of matter (solids, liquids, gases) and differences in their phycial properties (shape, volume), including changes in state of water by heating and cooling (melting, freezing, boiling) at the <fourth> grade?
TQ1-30BE	ATBSRT11	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach common energy sources/forms and their practical uses (e.g., wind, sun, electricity, burning fuel, water wheel, food) at the <fourth> grade?
TQ1-30BF	ATBSRT12	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach common uses of electricity and electrical curcuits at the <fourth> grade?
TQ1-30BG	ATBSRT13	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach forces that cause objects to move (e.g., gravity, push/pull forces) at the <fourth> grade?
TQ1-30CA	ATBSRT14	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach features of Earth's landscape (e.g., mountains, plains, rivers, deserts) at the <fourth> grade?
TQ1-30CB	ATBSRT15	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach water on Earth (location, types, and movement) at the <fourth> grade?
TQ1-30CC	ATBSRT16	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach air (composition, proof of its existence, uses, and importance for supporting life) at the <fourth> grade?

Exhibit S1.9 Index of International Background Variables for the TIMSS 2003 Teacher Questionnaire – Fourth Grade (Part 10 of 13)

Location	Variable Name	Available in 1999	Question
TQ1-30CD	ATBSRT17	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach common features of the Earth's landscape (e.g., mountains, plains, rivers, deserts and relationship to human use (e.g., farming, irrigation, land development) at the <fourth> grade)?
TQ1-30CE	ATBSRT18	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach fossils of animals and plants (age, formation) at the <fourth> grade?
TQ1-30CF	ATBSRT19	No	Considering your training and experience in both science content and instruction, how ready do you feel you are to teach Earth's solar system (planets, sun, moon) at the <fourth> grade?
TQ1-31A	ATBSPDST	No	In the past two years, have you participated in professional development in science content?
TQ1-31B	ATBSPDSP	No	In the past two years, have you participated in professional development in science pedagogy/instruction?
TQ1-31C	ATBSPDSC	No	In the past two years, have you participated in professional development in science curriculum?
TQ1-31D	ATBSPDIT	No	In the past two years, have you participated in professional development in integrating information technology into science?
TQ1-31E	ATBGPDIN	No	In the past two years, have you participated in professional development in improving students' critical thinking or inquiry skills?
TQ1-31F	ATBSPDSA	No	In the past two years, have you participated in professional development in science assessment?
TQ1-32A	ATBSSTUD	No	How many students are in the TIMSS class for science?
TQ1-32B	ATBSSTDQ	No	How many students in the TIMSS class for science are in the <fourth grade>?
TQ1-33	ATBSSSBJ	No	Is science taught mainly as a separate subject (I.e., not integrated with other subjects) to the <fourth grade> students in the TIMSS class?
TQ1-33A	ATBSYMWT	No	If yes, how many minutes per week do you teach science to the <fourth-grade> students in the TIMSS class?
TQ1-33B	ATBSNMWT	No	If no, please estimate the average number of minutes per week that you teach science to the <fourth-grade> students in the TIMSS class.
TQ1-34A	ATBSTBTC	No	Do you use a textbook(s) in teaching science to the <fourth-grade> students in the TIMSS class?
TQ1-34B	ATBSTXBU	No	How do you use a textbook(s) in teaching science to the <fourth-grade> students in the TIMSS class?
TQ1-35A	ATBSCOMA	No	Do the <fourth grade> students in the TIMSS class have computers available to use during their science lessons?
TQ1-35B	ATBSINTA	No	Do any of the computers have access to the Internet?

Exhibit S1.9 Index of International Background Variables for the TIMSS 2003 Teacher Questionnaire – Fourth Grade (Part 11 of 13)

Location	Variable Name	Available in 1999	Question
TQ1-36A	ATBSCAPE	No	In teaching science to the <fourth-grade> students in the TIMSS class, how often do you have students use a computer to do scientific procedures or experiments?
TQ1-36B	ATBSCANP	No	In teaching science to the <fourth-grade> students in the TIMSS class, how often do you have students use a computer to study natural phenomena through simulations?
TQ1-36C	ATBSCASP	No	In teaching science to the <fourth-grade> students in the TIMSS class, how often do you have students use a computer to practice skills and procedures?
TQ1-36D	ATBSCALI	No	In teaching science to the <fourth-grade> students in the TIMSS class, how often do you have students use a computer to look up ideas and information?
TQ1-37A	ATBSCSWE	No	In teaching science to the <fourth grade> students in the TIMSS class, how often do you usually ask them to watch you do a science experiment?
TQ1-37B	ATBSCSDP	No	In teaching science to the <fourth grade> students in the TIMSS class, how often do you usually ask them to design or plan experiments or investigations?
TQ1-37C	ATBSCSDI	No	In teaching science to the <fourth grade> students in the TIMSS class, how often do you usually ask them to do experiments or investigations?
TQ1-37D	ATBSCSSG	No	In teaching science to the <fourth grade> students in the TIMSS class, how often do you usually ask them to work together in small groups on experiments or investigations?
TQ1-37E	ATBSCSDL	No	In teaching science to the <fourth grade> students in the TIMSS class, how often do you usually ask them to relate what they are learning in science to their daily lives?
TQ1-37F	ATBSCSWS	No	In teaching science to the <fourth grade> students in the TIMSS class, how often do you usually ask them to write or give explanations about something they are studying?
TQ1-37G	ATBSCSOS	No	In teaching science to the <fourth grade> students in the TIMSS class, how often do you usually ask them to observe something like the weather or a plant growing and write down what they see?
TQ1-37H	ATBSCSPW	No	In teaching science to the <fourth grade> students in the TIMSS class, how often do you usually ask them to present their work to the class?
TQ1-38A	ATBSPTLS	No	By the end of this school year, approximately what percentage of teaching time will you have spent during this school year on life science (includes characteristics and cycles of living things, environmental science, and human health) for the <fourth grade> students in the TIMSS class?
TQ1-38B	ATBSPTPS	No	By the end of this school year, approximately what percentage of teaching time will you have spent during this school year on physical science (includes topics in physics and chemistry) for the <fourth grade> students in the TIMSS class?
TQ1-38C	ATBSPTES	No	By the end of this school year, approximately what percentage of teaching time will you have spent during this school year on earth science (includes Earth's physcial features, natural resources, weather, and solar system) for the <fourth grade> students in the TIMSS class?
TQ1-38D	ATBSCOTH	No	By the end of this school year, approximately what percentage of teaching time will you have spent during this school year on Other, please specify, for the <fourth grade> students in the TIMSS class?

Exhibit S1.9 Index of International Background Variables for the TIMSS 2003 Teacher Questionnaire – Fourth Grade (Part 12 of 13)

Location	Variable Name	Available in 1999	Question
TQ1-39AA	ATBSTA01	No	When have students in the TIMSS class been taught types, characteristics, and classification of living things?
TQ1-39AB	ATBSTA02	No	When have students in the TIMSS class been taught major body structures and their function in humans and other organisms (plants and animals)?
TQ1-39AC	ATBSTA03	No	When have students in the TIMSS class been taught bodily actions in response to outside conditions (e.g., heat, cold danger) and activities (e.g., exercise)?
TQ1-39AD	ATBSTA04	No	When have students in the TIMSS class been taught the general steps in the life cycle of familiar organisims (e.g., humans, insects, frogs, plants)?
TQ1-39AE	ATBSTA05	No	When have students in the TIMSS class been taught plant and animal reproduction (passing on of general characteristics)?
TQ1-39AF	ATBSTA06	No	When have students in the TIMSS class been taught physical features, behavior, and survival of plants and animals in different environments?
TQ1-39AG	ATBSTA07	No	When have students in the TIMSS class been taught relationships in a living community (e.g., simple food chains using common plants and animals and predator/prey relationships)?
TQ1-39AH	ATBSTA08	No	When have students in the TIMSS class been taught changes in environments (effects of human activity, pollution and its prevention)?
TQ1-39AI	ATBSTA09	No	When have students in the TIMSS class been taught ways that common communicable diseases (e.g., colds, influenza) are transmitted; signs, prevention, and treatment of illness?
TQ1-39AJ	ATBSTA10	No	When have students in the TIMSS class been taught ways of maintaining good health, including diet and exercise?
TQ1-39BA	ATBSTA11	No	When have students in the TIMSS class been taught classification of objects and materials based on physical properties?
TQ1-39BB	ATBSTA12	No	When have students in the TIMSS class been taught properties and uses of metals?
TQ1-39BC	ATBSTA13	No	When have students in the TIMSS class been taught forming and separating mixtures?
TQ1-39BD	ATBSTA14	No	When have students in the TIMSS class been taught properties and uses of water?
TQ1-39BE	ATBSTA15	No	When have students in the TIMSS class been taught chemical and physical changes (e.g., decaying o f animal/plant matter, burning, rusting)?
TQ1-39BF	ATBSTA16	No	When have students in the TIMSS class been taught states of matter (solids, liquids and gases) and differences in their physical properties in terms of shape and volume?
TQ1-39BG	ATBSTA17	No	When have students in the TIMSS class been taught changes in state of water by heating and cooling (melting, freezing, boiling)?
TQ1-39BH	ATBSTA18	No	When have students in the TIMSS class been taught common energy sources/forms and their practical uses (e.g., wind, sun, electricity, burning fuel, water wheel, food)?
TQ1-39BI	ATBSTA19	No	When have students in the TIMSS class been taught heat flow and temperature?
TQ1-39BJ	ATBSTA20	No	When have students in the TIMSS class been taught common sources of light and related phenomena (e.g., formation of rainbows and shadows, visibility of objects, mirrors, colors)?

Exhibit S1.9 Index of International Background Variables for the TIMSS 2003 Teacher Questionnaire – Fourth Grade (Part 13 of 13)

Location	Variable Name	Available in 1999	Question
TQ1-39BK	ATBSTA21	No	When have students in the TIMSS class been taught common uses of electricity and electrical circuits?
TQ1-39BL	ATBSTA22	No	When have students in the TIMSS class been taught magnets (north and ourth ples, magnetic attraction and repulsion)?
TQ1-39BM	ATBSTA23	No	When have students in the TIMSS class been taught forces that cause objects to move (e.g., gravity, push/pull forces)?
TQ1-39CA	ATBSTA24	No	When have students in the TIMSS class been taught rocks, minerals, sand, and soil?
TQ1-39CB	ATBSTA25	No	When have students in the TIMSS class been taught water on earth (location, types, and movement)?
TQ1-39CC	ATBSTA26	No	When have students in the TIMSS class been taught air (composition, proof of its existence, uses, and importance for supporting life)?
TQ1-39CD	ATBSTA27	No	When have students in the TIMSS class been taught common features of the Earth's landscape (e.g., mountains, plains, rivers, deserts) and relationship to human use (e.g., farming, irrigation, land development)?
TQ1-39CE	ATBSTA28	No	When have students in the TIMSS class been taught use and conservation of Earth's natural resources?
TQ1-39CF	ATBSTA29	No	When have students in the TIMSS class been taught Earth's water cycle (water flowing in rivers from mountains to sea, cloud formation and precipitation)?
TQ1-39CG	ATBSTA30	No	When have students in the TIMSS class been taught weather conditions from day to day or over the seasons?
TQ1-39CH	ATBSTA31	No	When have students in the TIMSS class been taught fossils of animals and plants (age, formation)?
TQ1-39CI	ATBSTA32	No	When have students in the TIMSS class been taught Earth's solar system (planets, sun, moon)?
TQ1-40	ATBSHMWO	No	Do you assign science homework to the <fourth-grade> students in the TIMSS class?
TQ1-41	ATBSHWMC	No	How often do you usually assign science homework to the <fourth grade> students in the TIMSS class?
TQ1-42	ATBSHWKM	No	When you assign science homework to the <fourth grade> students in the TIMSS class, about how many minutes do you usually assign? (Consider the time it would take an average student in your class.)

Exhibit S1.10 Index of International Background Variables for the TIMSS 2003 School Questionnaire – Fourth Grade (Part 1 of 5)

Location	Variable Name	Available in 1999	Question
SCQ1-01A	ACBGLOWG	No	What is the lowest grade level in your school?
SCQ1-01B	ACBGHIGG	No	What is the highest grade level in your school?
SCQ1-02A	ACBGTENR	No	What is the total school enrollment (number of students) in all grades?
SCQ1-02B	ACBGEENR	No	What is the enrollment in the fourth grade?
SCQ1-03	ACBGCOMU	No	How many people live in the city, town, or area where your school is located?
SCQ1-04	ACBGASTD	No	On a typical school day, what percentage of students are absent from school for any reason?
SCQ1-05A	ACBGENRS	No	Of the students who were enrolled in your school at the start of this school year, about what percentage is still enrolled?
SCQ1-05B	ACBGENSY	No	What percentage of the students in your school enrolled after the beginning of the school year?
SCQ1-06AA	ACBGSBED	No	Approximately what percentage of students in your school come from economically disadvantaged homes?
SCQ1-06AB	ACBGSBEA	No	Approximately what percentage of students in your school come from economically affluent homes?
SCQ1-06B	ACBGNALA	No	Approximately what percentage of students in your school have <language of test> as their native language?
SCQ1-07A	ACBGCHTS	No	How would you characterize teachers' job satisfaction within your school?
SCQ1-07B	ACBGCHTU	No	How would you characterize teachers' understanding of the school's curricular goals within your school?
SCQ1-07C	ACBGCHTC	No	How would you characterize teachers' degree of success in implementing the school's curriculum within your school?
SCQ1-07D	ACBGCHES	No	How would you characterize teachers' expectations for student achievement within your school?
SCQ1-07E	ACBGCHPS	No	How would you characterize parental support for student achievement within your school?
SCQ1-07F	ACBGCHPI	No	How would you characterize parental involvement in school activities within your school?
SCQ1-07G	ACBGCHSR	No	How would you characterize students' regard for school property within your school?
SCQ1-07H	ACBGCHSD	No	How would you characterize students' desire to do well in school within your school?
SCQ1-08	ACBGYEPS	No	Including this year, how long have you been principal of this school?
SCQ1-09A	ACBGAPAD	No	By the end of this school year, approximately what percentage of time in your role as principal will you have spent on administrative duties (e.g., hiring, budgeting, scheduling)?
SCQ1-09B	ACBGAPIL	No	By the end of this school year, approximately what percentage of time in your role as principal will you have spent on instructional leadership (e.g., developing curriculum and pedagogy)?
SCQ1-09C	ACBGAPST	No	By the end of this school year, approximately what percentage of time in your role as principal will you have spent on supervising and evaluating teachers and other staff?
SCQ1-09D	ACBGAPTE	No	By the end of this school year, approximately what percentage of time in your role as principal will you have spent on teaching?

Exhibit S1.10 Index of International Background Variables for the TIMSS 2003 School Questionnaire – Fourth Grade (Part 2 of 5)

Location	Variable Name	Available in 1999	Question
SCQ1-09E	ACBGAPPR	No	By the end of this school year, approximately what percentage of time in your role as principal will you have spent on public relations and fundraising?
SCQ1-09F	ACBGAPOT	No	By the end of this school year, approximately what percentage of time in your role as principal will you have spent on other activities?
SCQ1-10A	ACBGEPSE	No	Does your school expect parents to attend special events (e.g., science fair, concert, sporting events)?
SCQ1-10B	ACBGEPRF	No	Does your school expect parents to raise funds for the school?
SCQ1-10C	ACBGEPVO	No	Does your school expect parents to volunteer for school projects, programs, and trips?
SCQ1-10D	ACBGEPCH	No	Does your school expect parents to ensure that their child completes his/her homework?
SCQ1-10E	ACBGEPSC	No	Does your school expect parents to serve on school committees (e.g., select school personnel, review school finances)?
SCQ1-11A	ACBGDYSO	No	How many days per year is your school open for instruction for <fourth grade> students?
SCQ1-11BA	ACBGDWFU	No	How many full days (over 4 hours) are there in the school week (typical calendar week from Monday through Sunday) for <fourth grade> students?
SCQ1-11BB	ACBGDWHA	No	How many half days (4 hours or less) are there in the school week (typical calendar week from Monday through Sunday) for <fourth grade> students?
SCQ1-11C	ACBGTITD	No	To the nearest half-hour, what is the total instructional time in a typical full day (excluding lunch breaks, study hall, and after school activities) for <fourth-grade> students?
SCQ1-12	ACBMODLA	No	How does your school organize mathematics instruction for <fourth-grade> students with different levels of ability?
SCQ1-13	ACBMGAMC	No	Are <fourth grade> students in your school grouped by ability within their mathematics lessons?
SCQ1-14A	ACBMSOEM	No	Does your school offer enrichment mathematics for students in the <fourth grade>?
SCQ1-14B	ACBMSORM	No	Does your school offer remedial mathematics for students in the <fourth grade>?
SCQ1-15	ACBSODLA	No	How does your school organize science instruction for <fourth-grade> students with different levels of ability?
SCQ1-16	ACBSGASC	No	Are <fourth grade> students in your school grouped by ability within their science lessons?
SCQ1-17A	ACBSSOES	No	Does your school offer enrrichment science for students in the <fourth grade>?
SCQ1-17B	ACBSSORS	No	Does your school offer remedial science for students in the <fourth grade>?
SCQ1-18	ACBGFTVY	No	How difficult was it to fill <fourth-grade> teaching vacancies for this school year?
SCQ1-19	ACBGBONS	No	Does your school currently use any pay incentives (e.g., pay, housing, signing bonus) to recruit or retain <fourth-grade> teachers?
SCQ1-20A	ACBGPDIC	No	During this school year, how often have your <fourth grade> teachers been involved in professional development opportunities for mathematics and science targeted at supporting the implementation of the national or regional curriculum?

Exhibit S1.10 Index of International Background Variables for the TIMSS 2003 School Questionnaire – Fourth Grade (Part 3 of 5)

Location	Variable Name	Available in 1999	Question
SCQ1-20B	ACBGPDSG	No	During this school year, how often have your <fourth grade> teachers been involved in professional development opportunties for mathematics and science targeted at designing or supporting the school's own improvement goals?
SCQ1-20C	ACBGPDIK	No	During this school year, how often have your <fourth grade> teachers been involved in professional development opportunities for mathematics and science targeted at improving content knowledge?
SCQ1-20D	ACBGPDTS	No	During this school year, how often have your <fourth grade> teachers been involved in professional development opportunities for mathematics and science targeted at improving teaching skills?
SCQ1-20E	ACBGPDUT	No	During this school year, how often have your <fourth grade> teachers been involved in professional development opportunities for mathematics and science targeted at using information and communication technology for educational purposes?
SCQ1-21A	ACBMEPOS	No	In your school, are observations by the principal or senior staff used to evaluate the practice of <fourth-grade> teachers?
SCQ1-21B	ACBMEPOE	No	In your school, are observations by inspectors or other persons external to the school used to evaluate the practice of <fourth-grade> teachers?
SCQ1-21C	ACBMEPSA	No	In your school, is student achievement used to evaluate the practice of <fourth-grade> teachers?
SCQ1-21D	ACBMEPTR	No	In your school, is teacher peer review used to evaluate the practice of <fourth-grade> teachers?
SCQ1-22AA	ACBGFP01	No	How often does arriving late at school occur among <fourth grade> students in your school?
SCQ1-22AB	ACBGFP02	No	How often does absenteeism (I.e., unjustified absences) occur among <fourth grade> students in your school?
SCQ1-22AC	ACBGFP03	No	How often does skipping class <hours/periods> occur among <fourth grade> students in your school?
SCQ1-22AD	ACBGFP04	No	How often does violating dress code occur among <fourth grade> students in your school?
SCQ1-22AE	ACBGFP05	No	How often does classroom disturbance occur among <fourth grade> students in your school?
SCQ1-22AF	ACBGFP06	No	How often does cheating occur among <fourth grade> students in your school?
SCQ1-22AG	ACBGFP07	No	How often does profanity occur among <fourth grade> students in your school?
SCQ1-22AH	ACBGFP08	No	How often does vandalism occur among <fourth grade> students in your school?
SCQ1-22AI	ACBGFP09	No	How often does theft occur among <fourth grade> students in your school?
SCQ1-22AJ	ACBGFP10	No	How often does intimidation or verbal abuse of other students occur among <fourth grade> students in your school?
SCQ1-22AK	ACBGFP11	No	How often does physical injury to other students occur among <fourth grade> students in your school?
SCQ1-22AL	ACBGFP12	No	How often does intimidation or verbal abuse of teachers or staff occur among <fourth grade> students in your school?
SCQ1-22AM	ACBGFP13	No	How often does physical injury to teachers or staff occur among <fourth grade> students in your school?
SCQ1-22BA	ACBGSP01	No	If the behavior occurs, how severe a problem is arriving late at school?

Exhibit S1.10 Index of International Background Variables for the TIMSS 2003 School Questionnaire – Fourth Grade (Part 4 of 5)

Location	Variable Name	Available in 1999	Question
SCQ1-22BB	ACBGSP02	No	If the behavior occurs, how severe a problem is absenteeism?
SCQ1-22BC	ACBGSP03	No	If the behavior occurs, how severe a problem is skipping class <hours/periods>?
SCQ1-22BD	ACBGSP04	No	If the behavior occurs, how severe a problem is violating dress code?
SCQ1-22BE	ACBGSP05	No	If the behavior occurs, how severe a problem is classroom disturbance?
SCQ1-22BF	ACBGSP06	No	If the behavior occurs, how severe a problem is cheating?
SCQ1-22BG	ACBGSP07	No	If the behavior occurs, how severe a problem is profanity?
SCQ1-22BH	ACBGSP08	No	If the behavior occurs, how severe a problem is vandalism?
SCQ1-22BI	ACBGSP09	No	If the behavior occurs, how severe a problem is theft?
SCQ1-22BJ	ACBGSP10	No	If the behavior occurs, how severe a problem is intimidation or verbal abuse of other students?
SCQ1-22BK	ACBGSP11	No	If the behavior occurs, how severe a problem is physical injury to other students?
SCQ1-22BL	ACBGSP12	No	If the behavior occurs, how severe a problem is intimidation or verbal abuse of teachers of staff?
SCQ1-22BM	ACBGSP13	No	If the behavior occurs, how severe a problem is physical injury to teachers or staff?
SCQ1-23A	ACBGST01	No	Is your school's capacity to provide instruction affected by a shortage or inadequacy of instructional materials (e.g., textbook)?
SCQ1-23B	ACBGST02	No	Is your school's capacity to provide instruction affected by a shortage or inadequacy of budget for supplies (e.g., paper, pencil)?
SCQ1-23C	ACBGST03	No	Is your school's capacity to provide instruction affected by a shortage or inadequacy of school buildings and grounds?
SCQ1-23D	ACBGST04	No	Is your school's capacity to provide instruction affected by a shortage or inadequacy of heating/cooling and lighting systems?
SCQ1-23E	ACBGST05	No	Is your school's capacity to provide instruction affected by a shortage or inadequacy of instructional space (e.g., classrooms)?
SCQ1-23F	ACBGST06	No	Is your school's capacity to provide instruction affected by a shortage or inadequacy of special equipment for handicapped students?
SCQ1-23G	ACBMST07	No	Is your school's capacity to provide instruction affected by a shortage or inadequacy of computers for mathematics instruction?
SCQ1-23H	ACBMST08	No	Is your school's capacity to provide instruction affected by a shortage or inadequacy of computer software for mathematics instruction?
SCQ1-23I	ACBMST09	No	Is your school's capacity to provide instruction affected by a shortage or inadequacy of calculators for mathematics instruction?
SCQ1-23J	ACBMST10	No	Is your school's capacity to provide instruction affected by a shortage or inadequacy of library materials relevant to mathematics instruction?
SCQ1-23K	ACBMST11	No	Is your school's capacity to provide instruction affected by a shortage or inadequacy of audio-visual resources for mathematics instruction?
SCQ1-23L	ACBSST12	No	Is your school's capacity to provide instruction affected by a shortage or inadequacy of science laboratory equipment and materials?

Exhibit S1.10 Index of International Background Variables for the TIMSS 2003 School Questionnaire – Fourth Grade (Part 5 of 5)

Location	Variable Name	Available in 1999	Question
SCQ1-23M	ACBSST13	No	Is your school's capacity to provide instruction affected by a shortage or inadequacy of computers for science instruction?
SCQ1-23N	ACBSST14	No	Is your school's capacity to provide instruction affected by a shortage or inadequacy of computer software for science instruction?
SCQ1-23O	ACBSST15	No	Is your school's capacity to provide instruction affected by a shortage or inadequacy of calculators for science instruction?
SCQ1-23P	ACBSST16	No	Is your school's capacity to provide instruction affected by a shortage or inadequacy of library materials relevant to science instruction?
SCQ1-23Q	ACBSST17	No	Is your school's capacity to provide instruction affected by a shortage or inadequacy of audio-visual resources for science instruction?
SCQ1-23R	ACBGSH18	No	Is your school's capacity to provide instruction affected by a shortage or inadequacy of teachers?
SCQ1-23S	ACBGSH19	No	Is your school's capacity to provide instruction affected by a shortage or inadequacy of computer support staff?
SCQ1-24A	ACBGCMPS	No	What is the total number of computers in your school that can be used for educational purposes by <fourth-grade> students?
SCQ1-24B	ACBGCMPI	No	How many of the computers have access to the Internet (e-mail or World Wide Web) for instructional purposes?
SCQ1-25A	ACBGHTTE	No	Is anyone available to help your teachers use information and ocmmunication technology for teaching and learning?
SCQ1-25B	ACBGPHTE	No	Which of the following statements best describes the person at this school who helps teachers use information and communication technology for teaching and learning?

Exhibit S1.11 Index of International Background Variables for the TIMSS 2003 Mathematics Curriculum Questionnaire – Fourth Grade (Part 1 of 9)

Location	Variable Name	Available in 1999	Question
CQM1q01A	CQM1q01A	N/A	Does your country have a national curriculum that includes mathematics at <grade 4>?
CQM1q01B	CQM1q01B	N/A	If there is not a national curriculum, what is the highest level of decision-making authority that provides a curriculum for <grade 4> mathematics?
CQM1q01C	CQM1q01C	N/A	In what year was the current intended mathematics curriculum for <grade 4> introduced?
CQM1q01D	CQM1q01D	N/A	Is the intended mathematics curriculum that includes <grade 4> currently being revised?
CQM1q02A	CQM1q02A	N/A	Across grades K-12, does an education authority in your country (e.g., National Ministry of Education) administer examinations in mathematics that have consequences for individual students, such as determining grade promotion, entry to a higher school system, entry to university, and/or exiting or graduating from high school?
CQM1q02B	CQM1q02B	N/A	If YES, please describe the authority which administers examinations in mathematics.
CQM1q02B_Grade*	CQM1q02B_Grade	N/A	If YES, please list the grades at which they are given.
CQM1q03a	CQM1q03a	N/A	Are any of the following methods used to help implement the national mathematics curriculum at <grade 4>? Mandated or recommended textbook(s)
CQM1q03b	CQM1q03b	N/A	Are any of the following methods used to help implement the national mathematics curriculum at <grade 4>? Instructional or pedagogical guide
CQM1q03c	CQM1q03c	N/A	Are any of the following methods used to help implement the national mathematics curriculum at <grade 4>? Ministry notes and directives
CQM1q03d	CQM1q03d	N/A	Are any of the following methods used to help implement the national mathematics curriculum at <grade 4>? Curriculum evaluation during or after implementation
CQM1q03e	CQM1q03e	N/A	Are any of the following methods used to help implement the national mathematics curriculum at <grade 4>? Specifically developed or recommended instructional activities
CQM1q03f	CQM1q03f	N/A	Are any of the following methods used to help implement the national mathematics curriculum at <grade 4>? National assessments based on student samples
CQM1q03g	CQM1q03g	N/A	Are any of the following methods used to help implement the national mathematics curriculum at <grade 4>? A system of school inspection or audit
CQM1q03h	CQM1q03h	N/A	Are any of the following methods used to help implement the national mathematics curriculum at <grade 4>? Other
CQM1q03h_Oth*	CQM1q03h_Oth	N/A	Are any of the following methods used to help implement the national mathematics curriculum at <grade 4>? Please specify
CQM1q03_Com*	CQM1q03_Com	N/A	Are any of the following methods used to help implement the national mathematics curriculum at <grade 4>? Comments
CQM1q04a	CQM1q04a	N/A	Does the national curriculum specify the amount of instructional time that should be devoted to mathematics? at <grade 2>

*Data for these questionnaire items are not available in the public release of the database.

Exhibit S1.11 Index of International Background Variables for the TIMSS 2003 Mathematics Curriculum Questionnaire – Fourth Grade (Part 2 of 9)

Location	Variable Name	Available in 1999	Question
CQM1q04a_Per	CQM1q04a_Per	N/A	If Yes, what percentage of total instructional time is supposed to be devoted to mathematics?
CQM1q04b	CQM1q04b	N/A	Does the national curriculum specify the amount of instructional time that should be devoted to mathematics? at <grade 4>
CQM1q04b_Per	CQM1q04b_Per	N/A	If Yes, what percentage of total instructional time is supposed to be devoted to mathematics?
CQM1q05	CQM1q05	N/A	Which best describes how the national mathematics curriculum at <grade 4> addresses the issue of students with different levels of ability?
CQM1q05_Com*	CQM1q05_Com	N/A	Which best describes how the national mathematics curriculum at <grade 4> addresses the issue of students with different levels of ability? Comments
CQM1q06a	CQM1q06a	N/A	How much emphasis does the national mathematics curriculum at <grade 4> place on the following? Mastering basic skills
CQM1q06b	CQM1q06b	N/A	How much emphasis does the national mathematics curriculum at <grade 4> place on the following? Understanding mathematical concepts and principles
CQM1q06c	CQM1q06c	N/A	How much emphasis does the national mathematics curriculum at <grade 4> place on the following? Applying mathematics in real-life contexts
CQM1q06d	CQM1q06d	N/A	How much emphasis does the national mathematics curriculum at <grade 4> place on the following? Communicating mathematically
CQM1q06e	CQM1q06e	N/A	How much emphasis does the national mathematics curriculum at <grade 4> place on the following? Reasoning mathematically
CQM1q06f	CQM1q06f	N/A	How much emphasis does the national mathematics curriculum at <grade 4> place on the following? Incorporating the experiences of different ethnic/cultural groups
CQM1q06g	CQM1q06g	N/A	How much emphasis does the national mathematics curriculum at <grade 4> place on the following? Integrating mathematics with other subjects
CQM1q06_Com*	CQM1q06_Com	N/A	How much emphasis does the national mathematics curriculum at <grade 4> place on the following? Comments
CQM1q07A	CQM1q07A	N/A	Does the national curriculum contain statements/policies about the use of calculators in <grade 4> mathematics?
CQM1q07B	CQM1q07B	N/A	If YES, what are the statements/policies?
CQM1q08A	CQM1q08A	N/A	Does the national curriculum contain statements/policies about the use of computers in <grade 4> mathematics?
CQM1q08B	CQM1q08B	N/A	If YES, what are the statements/policies?
CQM1q09Aa	CQM1q09Aa	N/A	Do <grade 4> mathematics teachers receive specific preparation in how to teach the intended mathematics curriculum at <grade 4>? As part of pre-service education
CQM1q09Ab	CQM1q09Ab	N/A	Do <grade 4> mathematics teachers receive specific preparation in how to teach the intended mathematics curriculum at <grade 4>? As part of in-service education
CQM1q09B	CQM1q09B	N/A	If you answered YES to either (a) or (b), describe the nature of the preparation.

*Data for these questionnaire items are not available in the public release of the database.

Exhibit S1.11 Index of International Background Variables for the TIMSS 2003 Mathematics Curriculum Questionnaire – Fourth Grade (Part 3 of 9)

Location	Variable Name	Available in 1999	Question
CQM1q10a	CQM1q10a	N/A	Which are the current requirements for being a mathematics teacher at <grade 4>? Pre-practicum and supervised practicum in the field
CQM1q10b	CQM1q10b	N/A	Which are the current requirements for being a mathematics teacher at <grade 4>? Passing an examination
CQM1q10c	CQM1q10c	N/A	Which are the current requirements for being a mathematics teacher at <grade 4>? <ISCED 5A, first degree>
CQM1q10d	CQM1q10d	N/A	Which are the current requirements for being a mathematics teacher at <grade 4>? Completion of a probationary teaching period
CQM1q10d_Length	CQM1q10d_Length	N/A	Which are the current requirements for being a mathematics teacher at <grade 4>? If Yes, how long is this period?
CQM1q10e	CQM1q10e	N/A	Which are the current requirements for being a mathematics teacher at <grade 4>? Completion of a mentoring or induction program
CQM1q10f	CQM1q10f	N/A	Which are the current requirements for being a mathematics teacher at <grade 4>? Other
CQM1q10f_Oth*	CQM1q10f_Oth	N/A	Which are the current requirements for being a mathematics teacher at <grade 4>? Please specify
CQM1q11A	CQM1q11A	N/A	Is there a process to license or certify <grade 4> mathematics teachers?
CQM1q11Ba	CQM1q11Ba	N/A	If YES, who certifies/licenses <grade 4> mathematics teachers? Minister/Ministry of Education
CQM1q11Bb	CQM1q11Bb	N/A	If YES, who certifies/licenses <grade 4> mathematics teachers? National/state licensing board
CQM1q11Bc	CQM1q11Bc	N/A	If YES, who certifies/licenses <grade 4> mathematics teachers? Universities/colleges
CQM1q11Bd	CQM1q11Bd	N/A	If YES, who certifies/licenses <grade 4> mathematics teachers? Teacher organization/union
CQM1q11Be	CQM1q11Be	N/A	If YES, who certifies/licenses <grade 4> mathematics teachers? Other
CQM1q11Be_Oth*	CQM1q11Be_Oth	N/A	If YES, who certifies/licenses <grade 4> mathematics teachers? Please specify
CQM1q11B_Com*	CQM1q11B_Com	N/A	If YES, who certifies/licenses <grade 4> mathematics teachers? Comments
CQM1q12Aa	CQM1q12Aa	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Number Whole numbers including place value and ordering
CQM1q12Aa_Grade	CQM1q12Aa_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM1q12Ab	CQM1q12Ab	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Number Represent whole numbers using words, diagrams, or symbols
CQM1q12Ab_Grade	CQM1q12Ab_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?

*Data for these questionnaire items are not available in the public release of the database.

Exhibit S1.11 Index of International Background Variables for the TIMSS 2003 Mathematics Curriculum Questionnaire – Fourth Grade (Part 4 of 9)

Location	Variable Name	Available in 1999	Question
CQM1q12Ac	CQM1q12Ac	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Number Properties of whole numbers such as odd and even, multiples, or factors
CQM1q12Ac_Grade	CQM1q12Ac_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM1q12Ad	CQM1q12Ad	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Number Computations with whole numbers
CQM1q12Ad_Grade	CQM1q12Ad_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM1q12Ae	CQM1q12Ae	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Number Estimation with whole numbers
CQM1q12Ae_Grade	CQM1q12Ae_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM1q12Af	CQM1q12Af	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Number Fractions (parts of a whole or a collection, location on a number line)
CQM1q12Af_Grade	CQM1q12Af_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM1q12Ag	CQM1q12Ag	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Number Equivalent fractions
CQM1q12Ag_Grade	CQM1q12Ag_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM1q12Ah	CQM1q12Ah	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Number Compare and order fractions
CQM1q12Ah_Grade	CQM1q12Ah_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM1q12Ai	CQM1q12Ai	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Number Fractions or decimals represented by words, numbers, or models
CQM1q12Ai_Grade	CQM1q12Ai_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM1q12Aj	CQM1q12Aj	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Number Adding and subtracting fractions with the same denominator
CQM1q12Aj_Grade	CQM1q12Aj_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?

Exhibit S1.11 Index of International Background Variables for the TIMSS 2003 Mathematics Curriculum Questionnaire – Fourth Grade (Part 5 of 9)

Location	Variable Name	Available in 1999	Question
CQM1q12Ak	CQM1q12Ak	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Number Adding and subtracting with decimals (tenths and/or hundredths)
CQM1q12Ak_Grade	CQM1q12Ak_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM1q12Al	CQM1q12Al	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Number Simple proportional reasoning
CQM1q12Al_Grade	CQM1q12Al_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM1q12Ba	CQM1q12Ba	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Patterns, Equations, and Relationships Number patterns including extending sequences and finding missing terms of numeric and geometric patterns
CQM1q12Ba_Grade	CQM1q12Ba_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM1q12Bb	CQM1q12Bb	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Patterns, Equations, and Relationships Equality using equations, areas, volumes
CQM1q12Bb_Grade	CQM1q12Bb_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM1q12Bc	CQM1q12Bc	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Patterns, Equations, and Relationships Missing number in an equation (e.g., if 17 + __ = 29, what number would go in the blank to make the equation true?)
CQM1q12Bc_Grade	CQM1q12Bc_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM1q12Bd	CQM1q12Bd	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Patterns, Equations, and Relationships Modeling simple situations involving unknowns with an equation
CQM1q12Bd_Grade	CQM1q12Bd_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM1q12Be	CQM1q12Be	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Patterns, Equations, and Relationships Pairs of numbers following a given rule (e.g., multiply the first number by 3 and add 2 to get the second number)
CQM1q12Be_Grade	CQM1q12Be_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?

Exhibit S1.11 Index of International Background Variables for the TIMSS 2003 Mathematics Curriculum Questionnaire – Fourth Grade (Part 6 of 9)

Location	Variable Name	Available in 1999	Question
CQM1q12Bf	CQM1q12Bf	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Patterns, Equations, and Relationships Finding a rule for a relationship given
CQM1q12Bf_Grade	CQM1q12Bf_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM1q12Ca	CQM1q12Ca	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Measurement Non-standard units to measure length, area, volume, and time (e.g., paper clips for length, tiles for area, sugar cubes for volume)
CQM1q12Ca_Grade	CQM1q12Ca_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM1q12Cb	CQM1q12Cb	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Measurement Standard units to measure length, area, mass/weight, angle, and time (e.g., kilometers for car trips, centimeters for human height)
CQM1q12Cb_Grade	CQM1q12Cb_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM1q12Cc	CQM1q12Cc	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Measurement Conversion factors between standard units (e.g., hours to minutes, grams to kilograms)
CQM1q12Cc_Grade	CQM1q12Cc_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM1q12Cd	CQM1q12Cd	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Measurement Instruments to measure length, weight, time, and temperature in problem situations (e.g., rulers and scales)
CQM1q12Cd_Grade	CQM1q12Cd_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM1q12Ce	CQM1q12Ce	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Measurement Calculating areas and perimeters of squares
CQM1q12Ce_Grade	CQM1q12Ce_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM1q12Cf	CQM1q12Cf	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Measurement Estimating length, area, volume, weight, and time
CQM1q12Cf_Grade	CQM1q12Cf_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?

Exhibit S1.11 Index of International Background Variables for the TIMSS 2003 Mathematics Curriculum Questionnaire – Fourth Grade (Part 7 of 9)

Location	Variable Name	Available in 1999	Question
CQM1q12Da	CQM1q12Da	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Geometry Angles greater than, equal to, or less than a right angle (or 90°)
CQM1q12Da_Grade	CQM1q12Da_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM1q12Db	CQM1q12Db	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Geometry Parallel and perpendicular lines
CQM1q12Db_Grade	CQM1q12Db_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM1q12Dc	CQM1q12Dc	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Geometry Familiar two- and three-dimensional shapes and their properties
CQM1q12Dc_Grade	CQM1q12Dc_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM1q12Dd	CQM1q12Dd	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Geometry Congruent triangles
CQM1q12Dd_Grade	CQM1q12Dd_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM1q12De	CQM1q12De	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Geometry Similar triangles
CQM1q12De_Grade	CQM1q12De_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM1q12Df	CQM1q12Df	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Geometry Points in a plane
CQM1q12Df_Grade	CQM1q12Df_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM1q12Dg	CQM1q12Dg	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Geometry Relationships between two-dimensional and three-dimensional shapes (nets)
CQM1q12Dg_Grade	CQM1q12Dg_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM1q12Dh	CQM1q12Dh	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Geometry Informal coordinate systems
CQM1q12Dh_Grade	CQM1q12Dh_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?

Exhibit S1.11 Index of International Background Variables for the TIMSS 2003 Mathematics Curriculum Questionnaire – Fourth Grade (Part 8 of 9)

Location	Variable Name	Available in 1999	Question
CQM1q12Di	CQM1q12Di	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Geometry Symmetry about a line
CQM1q12Di_Grade	CQM1q12Di_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM1q12Dj	CQM1q12Dj	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Geometry Two-dimensional symmetrical figures
CQM1q12Dj_Grade	CQM1q12Dj_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM1q12Dk	CQM1q12Dk	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Geometry Translation, reflection, and rotation
CQM1q12Dk_Grade	CQM1q12Dk_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM1q12Ea	CQM1q12Ea	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Data Recognizing what various numbers, symbols, and points mean in data display
CQM1q12Ea_Grade	CQM1q12Ea_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM1q12Eb	CQM1q12Eb	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Data Organizing a set of data by one characteristic (e.g., height, color, age, shape)
CQM1q12Eb_Grade	CQM1q12Eb_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM1q12Ec	CQM1q12Ec	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Data Reading data directly from tables, pictographs, bar graphs, and pie charts
CQM1q12Ec_Grade	CQM1q12Ec_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM1q12Ed	CQM1q12Ed	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Data Displaying data using tables, pictographs, and bar graphs
CQM1q12Ed_Grade	CQM1q12Ed_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?

Exhibit S1.11 Index of International Background Variables for the TIMSS 2003 Mathematics Curriculum Questionnaire – Fourth Grade (Part 9 of 9)

Location	Variable Name	Available in 1999	Question
CQM1q12Ee	CQM1q12Ee	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Data Comparing and matching different representations of the same data
CQM1q12Ee_Grade	CQM1q12Ee_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM1q12Ef	CQM1q12Ef	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Data Characteristics of related data sets (e.g., given data or representations of data on student heights in two classes, identify the class with the shortest/tallest person)
CQM1q12Ef_Grade	CQM1q12Ef_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQM1q12Eg	CQM1q12Eg	N/A	According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Data Drawing conclusions from data displays
CQM1q12Eg_Grade	CQM1q12Eg_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?

Exhibit S1.12 Index of International Background Variables for the TIMSS 2003 Science Curriculum Questionnaire – Fourth Grade (Part 1 of 7)

Location	Variable Name	Available in 1999	Question
CQS1q01A	CQS1q01A	N/A	Does your country have a national curriculum that includes science at <grade 4>?
CQS1q01B	CQS1q01B	N/A	If there is not a national curriculum, what is the highest level of decision-making authority that provides a curriculum for <grade 4> science?
CQS1q01C	CQS1q01C	N/A	In what year was the current intended science curriculum for <grade 4> introduced?
CQS1q01D	CQS1q01D	N/A	Is the intended science curriculum that includes <grade 4> currently being revised?
CQS1q02A	CQS1q02A	N/A	Across grades K-12, does an education authority in your country (e.g., National Ministry of Education) administer examinations in science that have consequences for individual students, such as determining grade promotion, entry to a higher school system, entry to university, and/or exiting or graduating from high school?
CQS1q02B*	CQS1q02B	N/A	If YES, please describe the authority which administers examinations in science.
CQS1q02B_Grade	CQS1q02B_Grade	N/A	If YES, please list the grades at which they are given.
CQS1q03a	CQS1q03a	N/A	Are any of the following methods used to help implement the national science curriculum at <grade 4>? Mandated or recommended textbook(s)
CQS1q03b	CQS1q03b	N/A	Are any of the following methods used to help implement the national science curriculum at <grade 4>? Instructional or pedagogical guide
CQS1q03c	CQS1q03c	N/A	Are any of the following methods used to help implement the national science curriculum at <grade 4>? Ministry notes and directives
CQS1q03d	CQS1q03d	N/A	Are any of the following methods used to help implement the national science curriculum at <grade 4>? Curriculum evaluation during or after implementation
CQS1q03e	CQS1q03e	N/A	Are any of the following methods used to help implement the national science curriculum at <grade 4>? Specifically developed or recommended instructional activities
CQS1q03f	CQS1q03f	N/A	Are any of the following methods used to help implement the national science curriculum at <grade 4>? National assessments based on student samples
CQS1q03g	CQS1q03g	N/A	Are any of the following methods used to help implement the national science curriculum at <grade 4>? A system of school inspection or audit
CQS1q03h	CQS1q03h	N/A	Are any of the following methods used to help implement the national science curriculum at <grade 4>? Other
CQS1q03h_Oth	CQS1q03h_Oth	N/A	Are any of the following methods used to help implement the national science curriculum at <grade 4>? Other Specify
CQS1q03_Com*	CQS1q03_Com	N/A	Are any of the following methods used to help implement the national science curriculum at <grade 4>? Comments
CQS1q04a	CQS1q04a	N/A	Does the national curriculum specify the amount of instructional time that should be devoted to science at <grade 2>?
CQS1q04a_Per	CQS1q04a_Per	N/A	If YES, what percentage of total instructional time is supposed to be devoted to science?
CQS1q04b	CQS1q04b	N/A	Does the national curriculum specify the amount of instructional time that should be devoted to science at <grade 4>?

*Data for these questionnaire items are not available in the public release of the database.

Exhibit S1.12 Index of International Background Variables for the TIMSS 2003 Science Curriculum Questionnaire – Fourth Grade (Part 2 of 7)

Location	Variable Name	Available in 1999	Question
CQS1q04b_Per	CQS1q04b_Per	N/A	If YES, what percentage of total instructional time is supposed to be devoted to science?
CQS1q05	CQS1q05	N/A	Which best describes how the national science curriculum at <grade 4> addresses the issue of students with different levels of ability?
CQS1q05_Com*	CQS1q05_Com	N/A	Which best describes how the national science curriculum at <grade 4> addresses the issue of students with different levels of ability? Comments
CQS1q06a	CQS1q06a	N/A	How much emphasis does the national science curriculum at <grade 4> place on the following? Knowing basic science facts
CQS1q06b	CQS1q06b	N/A	How much emphasis does the national science curriculum at <grade 4> place on the following? Understanding science concepts
CQS1q06c	CQS1q06c	N/A	How much emphasis does the national science curriculum at <grade 4> place on the following? Writing explanations about what was observed and why it happened
CQS1q06d	CQS1q06d	N/A	How much emphasis does the national science curriculum at <grade 4> place on the following? Designing and planning experiments or investigations
CQS1q06e	CQS1q06e	N/A	How much emphasis does the national science curriculum at <grade 4> place on the following? Conducting experiments or investigations
CQS1q06f	CQS1q06f	N/A	How much emphasis does the national science curriculum at <grade 4> place on the following? Integrating science with other subjects
CQS1q06g	CQS1q06g	N/A	How much emphasis does the national science curriculum at <grade 4> place on the following? Learning about technology and its impact on society
CQS1q06h	CQS1q06h	N/A	How much emphasis does the national science curriculum at <grade 4> place on the following? Understanding human impact on the environment
CQS1q06i	CQS1q06i	N/A	How much emphasis does the national science curriculum at <grade 4> place on the following? Incorporating the experiences of different ethnic/cultural group
CQS1q06_Com*	CQS1q06_Com	N/A	How much emphasis does the national science curriculum at <grade 4> place on the following? Comments
CQS1q07A	CQS1q07A	N/A	Does the national curriculum contain statements/policies about the emphasis that should be placed on scientific inquiry in <grade 4> science?
CQS1q07B*	CQS1q07B	N/A	If YES, what are the statements/policies?
CQS1q08A	CQS1q08A	N/A	Does the national curriculum contain statements/policies about the use of computers in <grade 4> science?
CQS1q08B*	CQS1q08B	N/A	If YES, what are the statements/policies?
CQS1q09Aa	CQS1q09Aa	N/A	Do <grade 4> science teachers receive specific preparation in how to teach the intended science curriculum at <grade 4> As part of pre-service education
CQS1q09Ab	CQS1q09Ab	N/A	Do <grade 4> science teachers receive specific preparation in how to teach the intended science curriculum at <grade 4> As part of in-service education
CQS1q09B*	CQS1q09B	N/A	If YES to either (a) or (b), describe the nature of the preparation.

*Data for these questionnaire items are not available in the public release of the database.

Exhibit S1.12 Index of International Background Variables for the TIMSS 2003 Science Curriculum Questionnaire – Fourth Grade (Part 3 of 7)

Location	Variable Name	Available in 1999	Question
CQS1q10a	CQS1q10a	N/A	Which are the current requirements for being a science teacher at <grade 4>? Pre-practicum and supervised practicum in the field
CQS1q10b	CQS1q10b	N/A	Which are the current requirements for being a science teacher at <grade 4>? Passing an examination
CQS1q10c	CQS1q10c	N/A	Which are the current requirements for being a science teacher at <grade 4>? <ISCED 5A, first degree>
CQS1q10d	CQS1q10d	N/A	Which are the current requirements for being a science teacher at <grade 4>? Completion of a probationary teaching period
CQS1q10d_Oth	CQS1q10d_Oth	N/A	Which are the current requirements for being a science teacher at <grade 4>? If YES, how long is this period?
CQS1q10e	CQS1q10e	N/A	Which are the current requirements for being a science teacher at <grade 4>? Completion of a mentoring or induction program
CQS1q10f	CQS1q10f	N/A	Which are the current requirements for being a science teacher at <grade 4>? Other
CQS1q10f_Oth	CQS1q10f_Oth	N/A	Which are the current requirements for being a science teacher at <grade 4>? Please specify
CQS1q11A	CQS1q11A	N/A	Is there a process to license or certify <grade 4> science teachers?
CQS1q11Ba	CQS1q11Ba	N/A	If YES, who certifies/licenses <grade 4> science teachers? Minister/Ministry of Education
CQS1q11Bb	CQS1q11Bb	N/A	If YES, who certifies/licenses <grade 4> science teachers? National/state licensing board
CQS1q11Bc	CQS1q11Bc	N/A	If YES, who certifies/licenses <grade 4> science teachers? Universities/colleges
CQS1q11Bd	CQS1q11Bd	N/A	If YES, who certifies/licenses <grade 4> science teachers? Teacher organization/union
CQS1q11Be	CQS1q11Be	N/A	If YES, who certifies/licenses <grade 4> science teachers? Other
CQS1q11Be_Oth	CQS1q11Be_Oth	N/A	If YES, who certifies/licenses <grade 4> science teachers? Please specify
CQS1q11B_Com*	CQS1q11B_Com	N/A	If YES, who certifies/licenses <grade 4> science teachers? Comments
CQS1q12Aa	CQS1q12Aa	N/A	According to the national science curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Life Science Types, characteristics, and classification of living things (common features of living things; characteristics of humans and other major groups of organisms)
CQS1q12Aa_Grade	CQS1q12Aa_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS1q12Ab	CQS1q12Ab	N/A	According to the national science curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Life Science Major body structures and their function in humans and other organisms (plants and animals)
CQS1q12Ab_Grade	CQS1q12Ab_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?

*Data for these questionnaire items are not available in the public release of the database.

Exhibit S1.12 Index of International Background Variables for the TIMSS 2003 Science Curriculum Questionnaire – Fourth Grade (Part 4 of 7)

Location	Variable Name	Available in 1999	Question
CQS1q12Ac	CQS1q12Ac	N/A	According to the national science curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Life Science Bodily actions in response to outside conditions (e.g., heat, cold, danger) and activities (e.g., exercise)
CQS1q12Ac_Grade	CQS1q12Ac_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS1q12Ad	CQS1q12Ad	N/A	According to the national science curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Life Science The general steps in the life cycle of familiar organisms (e.g., humans, insects, frogs, plants)
CQS1q12Ad_Grade	CQS1q12Ad_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS1q12Ae	CQS1q12Ae	N/A	According to the national science curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Life Science Plant and animal reproduction (passing on of general characteristics)
CQS1q12Ae_Grade	CQS1q12Ae_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS1q12Af	CQS1q12Af	N/A	According to the national science curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Life Science Physical features, patterns of behavior and survival of plants and animals in different environments
CQS1q12Af_Grade	CQS1q12Af_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS1q12Ag	CQS1q12Ag	N/A	According to the national science curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Life Science Relationships in a living community (e.g., simple food chains using common plants and animals and predator/prey relationships)
CQS1q12Ag_Grade	CQS1q12Ag_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS1q12Ah	CQS1q12Ah	N/A	According to the national science curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Life Science Changes in environments (effects of human activity, pollution and its prevention)
CQS1q12Ah_Grade	CQS1q12Ah_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS1q12Ai	CQS1q12Ai	N/A	According to the national science curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Life Science Ways that common communicable diseases (e.g., colds, influenza) are transmitted; signs of health/illness and some methods of preventing and treating illness
CQS1q12Ai_Grade	CQS1q12Ai_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS1q12Aj	CQS1q12Aj	N/A	According to the national science curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Life Science Ways of maintaining good health, including diet and exercise
CQS1q12Aj_Grade	CQS1q12Aj_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?

Exhibit S1.12 Index of International Background Variables for the TIMSS 2003 Science Curriculum Questionnaire – Fourth Grade (Part 5 of 7)

Location	Variable Name	Available in 1999	Question
CQS1q12Ba	CQS1q12Ba	N/A	According to the national science curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Physical Science Classification of objects and materials on the basis of observable physical properties
CQS1q12Ba_Grade	CQS1q12Ba_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS1q12Bb	CQS1q12Bb	N/A	According to the national science curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Physical Science Properties and uses of metals
CQS1q12Bb_Grade	CQS1q12Bb_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS1q12Bc	CQS1q12Bc	N/A	According to the national science curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Physical Science Forming and separating mixtures
CQS1q12Bc_Grade	CQS1q12Bc_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS1q12Bd	CQS1q12Bd	N/A	According to the national science curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Physical Science Properties and uses of water
CQS1q12Bd_Grade	CQS1q12Bd_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS1q12Be	CQS1q12Be	N/A	According to the national science curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Physical Science Chemical and physical changes (e.g., decaying of animal/plant matter, burning, rusting)
CQS1q12Be_Grade	CQS1q12Be_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS1q12Bf	CQS1q12Bf	N/A	According to the national science curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Physical Science States of matter (solids, liquids, and gases) and differences in their physical properties in terms of shape and volume
CQS1q12Bf_Grade	CQS1q12Bf_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS1q12Bg	CQS1q12Bg	N/A	According to the national science curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Physical Science Changes in state of water by heating and cooling (melting, freezing, boiling)
CQS1q12Bg_Grade	CQS1q12Bg_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS1q12Bh	CQS1q12Bh	N/A	According to the national science curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Physical Science Common energy sources/forms and their practical uses (e.g., wind, sun, electricity, burning fuel, water wheel, food)
CQS1q12Bh_Grade	CQS1q12Bh_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?

Exhibit S1.12 Index of International Background Variables for the TIMSS 2003 Science Curriculum Questionnaire – Fourth Grade (Part 6 of 7)

Location	Variable Name	Available in 1999	Question
CQS1q12Bi	CQS1q12Bi	N/A	According to the national science curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Physical Science Heat flow and temperature
CQS1q12Bi_Grade	CQS1q12Bi_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS1q12Bj	CQS1q12Bj	N/A	According to the national science curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Physical Science Common sources of light (e.g., bulb, flame, sun) and familiar physical phenomena related to light (e.g., formation of rainbows and shadows, visibility of objects, mirrors, colors)
CQS1q12Bj_Grade	CQS1q12Bj_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS1q12Bk	CQS1q12Bk	N/A	According to the national science curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Physical Science Common uses of electricity and electrical circuits
CQS1q12Bk_Grade	CQS1q12Bk_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS1q12Bl	CQS1q12Bl	N/A	According to the national science curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Physical Science Magnets (north and south poles, magnetic attraction and repulsion)
CQS1q12Bl_Grade	CQS1q12Bl_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS1q12Bm	CQS1q12Bm	N/A	According to the national science curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Physical Science Forces that cause objects to move (e.g., gravity, push/pull forces)
CQS1q12Bm_Grade	CQS1q12Bm_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS1q12Ca	CQS1q12Ca	N/A	According to the national science curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Earth Science Rocks, minerals, sand, and soil (physical properties, locations, and uses of these materials)
CQS1q12Ca_Grade	CQS1q12Ca_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS1q12Cb	CQS1q12Cb	N/A	According to the national science curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Earth Science Water on Earth (location, types, and movement)
CQS1q12Cb_Grade	CQS1q12Cb_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS1q12Cc	CQS1q12Cc	N/A	According to the national science curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Earth Science Air (composition, proof of its existence, uses, and importance for supporting life)
CQS1q12Cc_Grade	CQS1q12Cc_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?

Exhibit S1.12 Index of International Background Variables for the TIMSS 2003 Science Curriculum Questionnaire – Fourth Grade (Part 7 of 7)

Location	Variable Name	Available in 1999	Question
CQS1q12Cd	CQS1q12Cd	N/A	According to the national science curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Earth Science Common features of the Earth's landscape (e.g., mountains, plains rivers, deserts) and relationship to human use (e.g., farming, irrigation, land development)
CQS1q12Cd_Grade	CQS1q12Cd_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS1q12Ce	CQS1q12Ce	N/A	According to the national science curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Earth Science Use and conservation of Earth's natural resources
CQS1q12Ce_Grade	CQS1q12Ce_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS1q12Cf	CQS1q12Cf	N/A	According to the national science curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Earth Science Earth's water cycle (water flowing in rivers from mountains to sea, cloud formation and precipitation)
CQS1q12Cf_Grade	CQS1q12Cf_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS1q12Cg	CQS1q12Cg	N/A	According to the national science curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Earth Science Weather conditions from day to day or over the seasons
CQS1q12Cg_Grade	CQS1q12Cg_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS1q12Ch	CQS1q12Ch	N/A	According to the national science curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Earth Science Fossils of animals and plants (age, formation)
CQS1q12Ch_Grade	CQS1q12Ch_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?
CQS1q12Ci	CQS1q12Ci	N/A	According to the national science curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>? Earth Science Earth's solar system (planets, sun, moon)
CQS1q12Ci_Grade	CQS1q12Ci_Grade	N/A	Across grades K-12, at what grade(s) is the topic primarily intended to be taught?

Section 1

Eighth Grade – Student Questionnaire
General Science Version (SQ2)

<TIMSS National Research Center Name>
<Address>

Identification Label

Student ID: _____

Student Name: _____

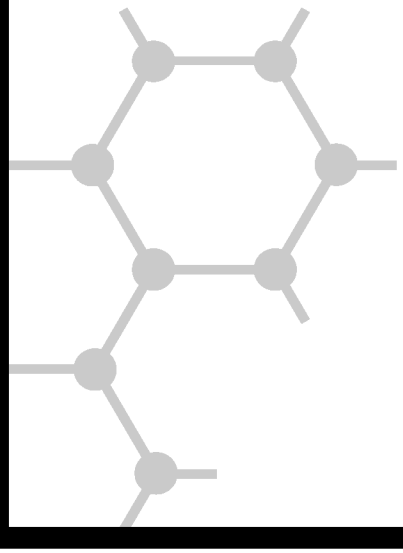
IEA Trends in International Mathematics and Science Study

TIMSS 2003

Main Survey

Student Questionnaire

<Grade 8>



General Directions

In this booklet, you will find questions about yourself. Some questions ask for facts while other questions ask for your opinions.

Read each question carefully and respond as accurately as possible. You may ask for help if you do not understand something or are not sure how to respond.

Some of the questions will be followed by a few possible choices indicated with a circle with a number in it. For these questions, shade in the circle with the response of your choice as shown in Examples 1, 2, and 3.

Example 1

Do you go to school?

*Fill in **one** circle only*

Yes ---------- ●

No ---------- ②

Example 2

How often do you do these things?

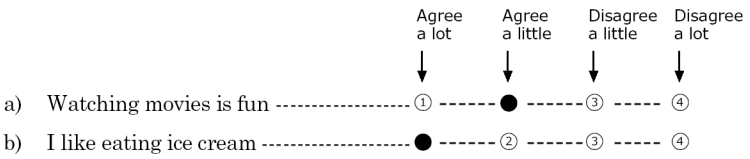
*Fill in **one** circle for each line*

	Every day	At least once a week	Once or twice a month	A few times a year	Never
a) I listen to music	①	②	●	④	⑤
b) I talk with my friends	●	②	③	④	⑤
c) I play sports	①	●	③	④	⑤

Example 3

Indicate how much you agree with each of these statements.

*Fill in **one** circle for each line*



Read each question carefully, and pick the answer you think is best. Fill in the circle next to or below your answer. If you decide to change your answer, erase your first answer and then fill in the circle next to or under your new answer. Ask for help if you do not understand something or are not sure how to answer.

Thank you for your time, effort, and thought in completing this questionnaire.

About You

1

When were you born?

BSBGBRTY

A. Fill in the circle next to the year you were born

Year

① 1985
② 1986
③ 1987
④ 1988
⑤ 1989
⑥ 1990
⑦ 1991
⑧ 1992
⑨ Other

B. Fill in the circle next to the month you were born

BSBGBRTM

Month

① January
② February
③ March
④ April
⑤ May
⑥ June
⑦ July
⑧ August
⑨ September
10 October
11 November
12 December

2

Are you a girl or a boy?

BSBGSEX

*Fill in **one** circle only*

Girl ---------- ①
Boy ---------- ②

3

BSBG0LAN

How often do you speak <language of test> at home?

*Fill in **one** circle only*

- Always ①
- Almost always ②
- Sometimes ③
- Never ④

4

BSBGBOOK

About how many books are there in your home? (Do not count magazines, newspapers, or your school books.)

*Fill in **one** circle only*

- None or very few (0-10 books) ①
- Enough to fill one shelf (11-25 books) ②
- Enough to fill one bookcase (26-100 books) ③
- Enough to fill two bookcases (101-200 books) ④
- Enough to fill three or more bookcases (more than 200 books) ⑤

About You (Continued)

5

Do you have any of these items at your home?

*Fill in **one** circle for each line*

			Yes	No
BSBGPS01	a)	Calculator	①	②
BSBGPS02	b)	Computer (do not include PlayStation®, GameCube®, XBox®, or other TV/video game computers)	①	②
BSBGPS03	c)	Study desk/table for your use	①	②
BSBGPS04	d)	Dictionary	①	②
BSBGPS05	e)	<country-specific>	①	②
BSBGPS06	f)	<country-specific>	①	②
BSBGPS07	g)	<country-specific>	①	②
BSBGPS08	h)	<country-specific>	①	②
BSBGPS09	i)	<country-specific>	①	②
BSBGPS10	j)	<country-specific>	①	②
BSBGPS11	k)	<country-specific>	①	②
BSBGPS12	l)	<country-specific>	①	②
BSBGPS13	m)	<country-specific>	①	②
BSBGPS14	n)	<country-specific>	①	②
BSBGPS15	o)	<country-specific>	①	②
BSBGPS16	p)	<country-specific>	①	②

6

BSBGMFED

A. What is the highest level of education completed by your mother (or stepmother or female guardian)?

*Fill in **one** circle only*

- Did not finish <ISCED 1> or did not go to school ①
- <ISCED 1> ②
- <ISCED 2> ③
- <ISCED 3> ④
- <ISCED 4B> ⑤
- <ISCED 5B> ⑥
- <ISCED 5A, first degree> ⑦
- Beyond <ISCED 5A, first degree> ⑧
- I don't know ⑨

BSBGFMED

B. What is the highest level of education completed by your father (or stepfather or male guardian)?

*Fill in **one** circle only*

- Did not finish <ISCED 1> or did not go to school ①
- <ISCED 1> ②
- <ISCED 2> ③
- <ISCED 3> ④
- <ISCED 4B> ⑤
- <ISCED 5B> ⑥
- <ISCED 5A, first degree> ⑦
- Beyond <ISCED 5A, first degree> ⑧
- I don't know ⑨

About You (Cont.)

7

BSBGHFSG

How far in school do you expect to go?

*Fill in **one** circle only*

- Finish <ISCED 3> ①
- Finish <ISCED 4B> ②
- Finish <ISCED 5B> ③
- Finish <ISCED 5A, first degree> ④
- Beyond <ISCED 5A, first degree> ⑤
- I don't know ⑥

Mathematics in School

8

How much do you agree with these statements about learning mathematics?

*Fill in **one** circle for each line*

		Agree a lot	Agree a little	Disagree a little	Disagree a lot
BSBMTWEL	a) I usually do well in mathematics	①	②	③	④
BSBMTMOR	b) I would like to take more mathematics in school	①	②	③	④
BSBMTCLM	c) Mathematics is more difficult for me than for many of my classmates	①	②	③	④
BSBMTENJ	d) I enjoy learning mathematics	①	②	③	④
BSBMTTOP	e) Sometimes, when I do not initially understand a new topic in mathematics, I know that I will never really understand it	①	②	③	④
BSBMTSTR	f) Mathematics is not one of my strengths	①	②	③	④
BSBMTQKY	g) I learn things quickly in mathematics	①	②	③	④

Mathematics in School (Cont.)

9

How much do you agree with these statements about mathematics?

*Fill in **one** circle for each line*

		Agree a lot	Agree a little	Disagree a little	Disagree a lot
BSBMAHDL	a) I think learning mathematics will help me in my daily life	①	②	③	④
BSBMAOSS	b) I need mathematics to learn other school subjects	①	②	③	④
BSBMAUNI	c) I need to do well in mathematics to get into the <university> of my choice	①	②	③	④
BSBMAJOB	d) I would like a job that involved using mathematics	①	②	③	④
BSBMAGET	e) I need to do well in mathematics to get the job I want	①	②	③	④

10

How often do you do these things in your mathematics lessons?

*Fill in **one** circle for each line*

		Every or almost every lesson	About half the lessons	Some lessons	Never
BSBMHASM	a) We practice adding, subtracting, multiplying, and dividing without using a calculator	①	②	③	④
BSBMHWFD	b) We work on fractions and decimals	①	②	③	④
BSBMHGCT	c) We interpret data in tables, charts, or graphs	①	②	③	④
BSBMHEFR	d) We write equations and functions to represent relationships	①	②	③	④
BSBMHWSG	e) We work together in small groups	①	②	③	④
BSBMHMDL	f) We relate what we are learning in mathematics to our daily lives	①	②	③	④
BSBMHEXP	g) We explain our answers	①	②	③	④
BSBMHSCP	h) We decide on our own procedures for solving complex problems	①	②	③	④
BSBMHROH	i) We review our homework	①	②	③	④
BSBMHLSP	j) We listen to the teacher give a lecture-style presentation	①	②	③	④
BSBMHWPO	k) We work problems on our own	①	②	③	④
BSBMHBHC	l) We begin our homework in class	①	②	③	④
BSBMHHQT	m) We have a quiz or test	①	②	③	④
BSBMHCAL	n) We use calculators	①	②	③	④

Science in School

11

How much do you agree with these statements about learning science?

*Fill in **one** circle for each line*

		Agree a lot	Agree a little	Disagree a little	Disagree a lot
BSBSTWEL	a) I usually do well in science	①	②	③	④
BSBSTMOR	b) I would like to take more science in school	①	②	③	④
BSBSTCLM	c) Science is more difficult for me than for many of my classmates	①	②	③	④
BSBSTENJ	d) I enjoy learning science	①	②	③	④
BSBSTTOP	e) Sometimes, when I do not initially understand a new topic in science, I know that I will never really understand it	①	②	③	④
BSBSTSTR	f) Science is not one of my strengths	①	②	③	④
BSBSTQKY	g) I learn things quickly in science	①	②	③	④

12

How much do you agree with these statements about science?

*Fill in **one** circle for each line*

		Agree a lot	Agree a little	Disagree a little	Disagree a lot
BSBSAHDL	a) I think learning science will help me in my daily life	①	②	③	④
BSBSAOSS	b) I need science to learn other school subjects	①	②	③	④
BSBSAUNI	c) I need to do well in science to get into the <university> of my choice	①	②	③	④
BSBSAJOB	d) I would like a job that involved using science	①	②	③	④
BSBSAGET	e) I need to do well in science to get the job I want	①	②	③	④

Science in School (Cont.)

13

How often do you do these things in your science lessons?

*Fill in **one** circle for each line*

		Every or almost every lesson	About half the lessons	Some lessons	Never
BSBSHDEI	a) We watch the teacher demonstrate an experiment or investigation	①	②	③	④
BSBSHFHP	b) We formulate hypotheses or predictions to be tested	①	②	③	④
BSBSHPEI	c) We design or plan an experiment or investigation	①	②	③	④
BSBSHCEI	d) We conduct an experiment or investigation	①	②	③	④
BSBSHWGO	e) We work in small groups on an experiment or investigation	①	②	③	④
BSBSHEOH	f) We write explanations about what was observed and why it happened	①	②	③	④
BSBSHITS	g) We study the impact of technology on society	①	②	③	④
BSBSHMDL	h) We relate what we are learning in science to our daily lives	①	②	③	④
BSBSHPWC	i) We present our work to the class	①	②	③	④
BSBSHROH	j) We review our homework	①	②	③	④
BSBSHLSP	k) We listen to the teacher give a lecture-style presentation	①	②	③	④
BSBSHWPO	l) We work problems on our own	①	②	③	④
BSBSHBHC	m) We begin our homework in class	①	②	③	④
BSBSHHQT	n) We have a quiz or test	①	②	③	④

Computers

14

BSBGUSEC

A. Do you ever use a computer? (Do not include PlayStation®, GameCube®, XBox®, or other TV/video game computers).

	Yes	No
*Fill in **one** circle only*	①	②

*If **No**, please go to question* **15** →

B. Where do you use a computer?

*Fill in **one** circle for each line*

		Yes	No
BSBGCHOM	a) At home	①	②
BSBGCSCH	b) At school	①	②
BSBGCLIB	c) At a library	①	②
BSBGCFRH	d) At a friend's home	①	②
BSBGCCAF	e) At an Internet café	①	②
BSBGCELS	f) Elsewhere	①	②

C. How often do you do these things with a computer?

*Fill in **one** circle for each line*

		Every day	At least once a week	Once or twice a month	A few times a year	Never
BSBMOINF	a) I look up ideas and information for mathematics	①	②	③	④	⑤
BSBSOINF	b) I look up ideas and information for science	①	②	③	④	⑤
BSBGOREP	c) I write reports for school	①	②	③	④	⑤
BSBGOPAD	d) I process and analyze data	①	②	③	④	⑤

Your School

15

How much do you agree with these statements about your school?

*Fill in **one** circle for each line*

		Agree a lot	Agree a little	Disagree a little	Disagree a lot
BSBGALBS	a) I like being in school	①	②	③	④
BSBGATTB	b) I think that students in my school try to do their best	①	②	③	④
BSBGATCS	c) I think that teachers in my school care about the students	①	②	③	④
BSBGATSB	d) I think that teachers in my school want students to do their best	①	②	③	④

16

<u>In school</u>, did any of these things happen during the <u>last month</u>?

*Fill in **one** circle for each line*

		Yes	No
BSBGSTOL	a) Something of mine was stolen	①	②
BSBGHURT	b) I was hit or hurt by other student(s) (e.g., shoving, hitting, kicking)	①	②
BSBGMADE	c) I was made to do things I didn't want to do by other students	①	②
BSBGMFUN	d) I was made fun of or called names	①	②
BSBGLEFT	e) I was left out of activities by other students	①	②

Things You Do Outside of School

17

On a normal school day, how much time do you spend before or after school doing each of these things?

*Fill in **one** circle for each line*

		No time	Less than 1 hour	1-2 hours	More than 2 but less than 4 hours	4 or more hours
BSBGWATV	a) I watch television and videos	①	②	③	④	⑤
BSBGPLCG	b) I play computer games	①	②	③	④	⑤
BSBGPLFD	c) I play or talk with friends	①	②	③	④	⑤
BSBGJOHM	d) I do jobs at home	①	②	③	④	⑤
BSBGWKPJ	e) I work at a paid job	①	②	③	④	⑤
BSBGPLSP	f) I play sports	①	②	③	④	⑤
BSBGREBO	g) I read a book for enjoyment	①	②	③	④	⑤
BSBGUSIN	h) I use the internet	①	②	③	④	⑤
BSBGDOHW	i) I do homework	①	②	③	④	⑤

...Outside of School (Cont.)

18

BSBMEXTO **A. During this school year, how often have you had extra lessons or tutoring in mathematics that is not part of your regular class?**

*Fill in **one** circle only*

- Every or almost every day ①
- Once or twice a week ②
- Sometimes ③
- Never or almost never ④

BSBSEXTO **B. During this school year, how often have you had extra lessons or tutoring in science that is not part of your regular class?**

*Fill in **one** circle only*

- Every or almost every day ①
- Once or twice a week ②
- Sometimes ③
- Never or almost never ④

19

BSBMHWMA

A. How often does your teacher give you homework in mathematics?

*Fill in **one** circle only*

- Every day ①
- 3 or 4 times a week ②
- 1 or 2 times a week ③
- Less than once a week ④
- Never ⑤

*If **Never**, please go to question **20***

BSBMHWMG

B. When your teacher gives you mathematics homework, about how many minutes are you usually given?

*Fill in **one** circle only*

- Fewer than 15 minutes ①
- 15–30 minutes ②
- 31–60 minutes ③
- 61–90 minutes ④
- More than 90 minutes ⑤

...Outside of School (Cont.)

20

BSBSHWMA **A. How often does your teacher give you homework in science?**

*Fill in **one** circle only*

- Every day ①
- 3 or 4 times a week ②
- 1 or 2 times a week ③
- Less than once a week ④
- Never ⑤

*If **Never**, please go to question* **21**

BSBSHWMG **B. When your teacher gives you science homework, about how many minutes are you usually given?**

*Fill in **one** circle only*

- Fewer than 15 minutes ①
- 15–30 minutes ②
- 31–60 minutes ③
- 61–90 minutes ④
- More than 90 minutes ⑤

More About You

21

BSBGPLHO

Including yourself, how many people live in your home?

*Fill in **one** circle only*

- 2 ⓶
- 3 ⓷
- 4 ⓸
- 5 ⓹
- 6 ⓺
- 7 ⓻
- 8 or more ⓼

22

BSBGMBRN

A. Was your mother (or stepmother or female guardian) born in <country>?

	Yes	No
*Fill in **one** circle only*	①	②

BSBGFBRN

B. Was your father (or stepfather or male guardian) born in <country>?

	Yes	No
*Fill in **one** circle only*	①	②

More About You (Cont.)

23

BSBGBORN **A. Were you born in <country>?**

	Yes	No
*Fill in **one** circle only*	①	②

*If **Yes**, you have completed the questionnaire*

BSBGBRNC **B. If you were not born in <country>, how old were you when you came to <country>?**

*Fill in **one** circle only*

- Older than 10 years old ①
- 5 to 10 years old ②
- Younger than 5 years old ③

Thank You

for completing this questionnaire

TIMSS International Study Center
Boston College
Chestnut Hill, MA 02467

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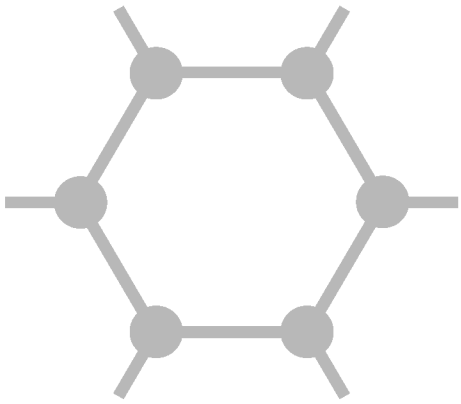


Section 2

Eighth Grade – Student Questionnaire
Separate Science Subjects Version (SQ2S)

<TIMSS National Research Center Name>
<Address>

Identification Label

Student ID: _____

Student Name: _____

IEA Trends in International Mathematics and Science Study

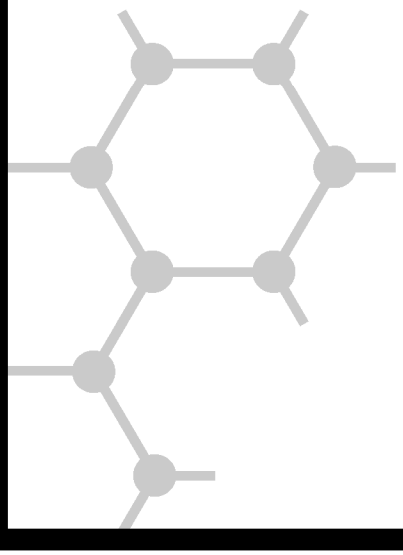
TIMSS 2003

Main Survey

Student Questionnaire

(Separate Science Subjects)

<Grade 8>



General Directions

In this booklet, you will find questions about yourself. Some questions ask for facts while other questions ask for your opinions.

Read each question carefully and respond as accurately as possible. You may ask for help if you do not understand something or are not sure how to respond.

Some of the questions will be followed by a few possible choices indicated with a circle with a number in it. For these questions, shade in the circle with the response of your choice as shown in Examples 1, 2, and 3.

Example 1

Do you go to school?

*Fill in **one** circle only*

Yes ---------- ●

No ---------- ②

Example 2

How often do you do these things?

*Fill in **one** circle for each line*

	Every day	At least once a week	Once or twice a month	A few times a year	Never
a) I listen to music	①	②	●	④	⑤
b) I talk with my friends	●	②	③	④	⑤
c) I play sports	①	●	③	④	⑤

Example 3

Indicate how much you agree with each of these statements.

*Fill in **one** circle for each line*

		Agree a lot	Agree a little	Disagree a little	Disagree a lot
a)	Watching movies is fun	①	●	③	④
b)	I like eating ice cream	●	②	③	④

Read each question carefully, and pick the answer you think is best. Fill in the circle next to or below your answer. If you decide to change your answer, erase your first answer and then fill in the circle next to or under your new answer. Ask for help if you do not understand something or are not sure how to answer.

Thank you for your time, effort, and thought in completing this questionnaire.

About You

1

When were you born?

BSBGBRTY

A. Fill in the circle next to the year you were born

Year

① 1985
② 1986
③ 1987
④ 1988
⑤ 1989
⑥ 1990
⑦ 1991
⑧ 1992
⑨ Other

B. Fill in the circle next to the month you were born

BSBGBRTM

Month

① January
② February
③ March
④ April
⑤ May
⑥ June
⑦ July
⑧ August
⑨ September
10 October
11 November
12 December

2

Are you a girl or a boy?

BSBGSEX

*Fill in **one** circle only*

Girl ---------- ①
Boy ---------- ②

3

BSBG0LAN

How often do you speak <language of test> at home?

*Fill in **one** circle only*

- Always ①
- Almost always ②
- Sometimes ③
- Never ④

4

BSBGBOOK

About how many books are there in your home? (Do not count magazines, newspapers, or your school books.)

*Fill in **one** circle only*

- None or very few (0-10 books) ①
- Enough to fill one shelf (11-25 books) ②
- Enough to fill one bookcase (26-100 books) ③
- Enough to fill two bookcases (101-200 books) ④
- Enough to fill three or more bookcases (more than 200 books) ⑤

About You (Continued)

5

Do you have any of these items at your home?

*Fill in **one** circle for each line*

			Yes	No
BSBGPS01	a)	Calculator	①	②
BSBGPS02	b)	Computer (do not include PlayStation®, GameCube®, XBox®, or other TV/video game computers)	①	②
BSBGPS03	c)	Study desk/table for your use	①	②
BSBGPS04	d)	Dictionary	①	②
BSBGPS05	e)	<country-specific>	①	②
BSBGPS06	f)	<country-specific>	①	②
BSBGPS07	g)	<country-specific>	①	②
BSBGPS08	h)	<country-specific>	①	②
BSBGPS09	i)	<country-specific>	①	②
BSBGPS10	j)	<country-specific>	①	②
BSBGPS11	k)	<country-specific>	①	②
BSBGPS12	l)	<country-specific>	①	②
BSBGPS13	m)	<country-specific>	①	②
BSBGPS14	n)	<country-specific>	①	②
BSBGPS15	o)	<country-specific>	①	②
BSBGPS16	p)	<country-specific>	①	②

6

BSBGMFED

A. What is the highest level of education completed by your mother (or stepmother or female guardian)?

*Fill in **one** circle only*

- Did not finish <ISCED 1> or did not go to school ①
- <ISCED 1> ②
- <ISCED 2> ③
- <ISCED 3> ④
- <ISCED 4B> ⑤
- <ISCED 5B> ⑥
- <ISCED 5A, first degree> ⑦
- Beyond <ISCED 5A, first degree> ⑧
- I don't know ⑨

BSBGFMED

B. What is the highest level of education completed by your father (or stepfather or male guardian)?

*Fill in **one** circle only*

- Did not finish <ISCED 1> or did not go to school ①
- <ISCED 1> ②
- <ISCED 2> ③
- <ISCED 3> ④
- <ISCED 4B> ⑤
- <ISCED 5B> ⑥
- <ISCED 5A, first degree> ⑦
- Beyond <ISCED 5A, first degree> ⑧
- I don't know ⑨

About You (Cont.)

7

BSBGHFSG

How far in school do you expect to go?

*Fill in **one** circle only*

- Finish <ISCED 3> ---------- ①
- Finish <ISCED 4B> ---------- ②
- Finish <ISCED 5B> ---------- ③
- Finish <ISCED 5A, first degree> ---------- ④
- Beyond <ISCED 5A, first degree> ---------- ⑤
- I don't know ---------- ⑥

Mathematics in School

8

How much do you agree with these statements about learning mathematics?

*Fill in **one** circle for each line*

		Agree a lot	Agree a little	Disagree a little	Disagree a lot
BSBMTWEL	a) I usually do well in mathematics	①	②	③	④
BSBMTMOR	b) I would like to take more mathematics in school	①	②	③	④
BSBMTCLM	c) Mathematics is more difficult for me than for many of my classmates	①	②	③	④
BSBMTENJ	d) I enjoy learning mathematics	①	②	③	④
BSBMTTOP	e) Sometimes, when I do not initially understand a new topic in mathematics, I know that I will never really understand it	①	②	③	④
BSBMTSTR	f) Mathematics is not one of my strengths	①	②	③	④
BSBMTQKY	g) I learn things quickly in mathematics	①	②	③	④

Mathematics in School (Cont.)

9

How much do you agree with these statements about mathematics?

*Fill in **one** circle for each line*

		Agree a lot	Agree a little	Disagree a little	Disagree a lot
BSBMAHDL	a) I think learning mathematics will help me in my daily life	①	②	③	④
BSBMAOSS	b) I need mathematics to learn other school subjects	①	②	③	④
BSBMAUNI	c) I need to do well in mathematics to get into the <university> of my choice	①	②	③	④
BSBMAJOB	d) I would like a job that involved using mathematics	①	②	③	④
BSBMAGET	e) I need to do well in mathematics to get the job I want	①	②	③	④

10

How often do you do these things in your mathematics lessons?

*Fill in **one** circle for each line*

		Every or almost every lesson	About half the lessons	Some lessons	Never
BSBMHASM	a) We practice adding, subtracting, multiplying, and dividing without using a calculator	①	②	③	④
BSBMHWFD	b) We work on fractions and decimals	①	②	③	④
BSBMHGCT	c) We interpret data in tables, charts, or graphs	①	②	③	④
BSBMHEFR	d) We write equations and functions to represent relationships	①	②	③	④
BSBMHWSG	e) We work together in small groups	①	②	③	④
BSBMHMDL	f) We relate what we are learning in mathematics to our daily lives	①	②	③	④
BSBMHEXP	g) We explain our answers	①	②	③	④
BSBMHSCP	h) We decide on our own procedures for solving complex problems	①	②	③	④
BSBMHROH	i) We review our homework	①	②	③	④
BSBMHLSP	j) We listen to the teacher give a lecture-style presentation	①	②	③	④
BSBMHWPO	k) We work problems on our own	①	②	③	④
BSBMHBHC	l) We begin our homework in class	①	②	③	④
BSBMHHQT	m) We have a quiz or test	①	②	③	④
BSBMHCAL	n) We use calculators	①	②	③	④

Biology in School

11

BSBBSBIO

Are you studying biology in school this year?

	Yes	No
*Fill in **one** circle only*	①	②

*If **No**, please go to question* **15**

12

How much do you agree with these statements about learning biology?

*Fill in **one** circle for each line*

		Agree a lot	Agree a little	Disagree a little	Disagree a lot
BSBBTWEL	a) I usually do well in biology	①	②	③	④
BSBBTMOR	b) I would like to take more biology in school	①	②	③	④
BSBBTCLM	c) Biology is more difficult for me than for many of my classmates	①	②	③	④
BSBBTENJ	d) I enjoy learning biology	①	②	③	④
BSBBTTOP	e) Sometimes, when I do not initially understand a new topic in biology, I know that I will never really understand it	①	②	③	④
BSBBTSTR	f) Biology is not one of my strengths	①	②	③	④
BSBBTQKY	g) I learn things quickly in biology	①	②	③	④

13

How much do you agree with these statements about biology?

*Fill in **one** circle for each line*

		Agree a lot	Agree a little	Disagree a little	Disagree a lot
BSBBAHDL	a) I think learning biology will help me in my daily life	①	②	③	④
BSBBAOSS	b) I need biology to learn other school subjects	①	②	③	④
BSBBAUNI	c) I need to do well in biology to get into the <university> of my choice	①	②	③	④
BSBBAJOB	d) I would like a job that involved using biology	①	②	③	④
BSBBAGET	e) I need to do well in biology to get the job I want	①	②	③	④

Biology in School (Cont.)

14

How often do you do these things in your biology lessons?

*Fill in **one** circle for each line*

		Every or almost every lesson	About half the lessons	Some lessons	Never
BSBBHDEI	a) We watch the teacher demonstrate an experiment or investigation	①	②	③	④
BSBBHFHP	b) We formulate hypotheses or predictions to be tested	①	②	③	④
BSBBHPEI	c) We design or plan an experiment or investigation	①	②	③	④
BSBBHCEI	d) We conduct an experiment or investigation	①	②	③	④
BSBBHWGO	e) We work in small groups on an experiment or investigation	①	②	③	④
BSBBHEOH	f) We write explanations about what was observed and why it happened	①	②	③	④
BSBBHITS	g) We study the impact of technology on society	①	②	③	④
BSBBHMDL	h) We relate what we are learning in biology to our daily lives	①	②	③	④
BSBBHPWC	i) We present our work to the class	①	②	③	④
BSBBHROH	j) We review our homework	①	②	③	④
BSBBHLSP	k) We listen to the teacher give a lecture-style presentation	①	②	③	④
BSBBHWPO	l) We work problems on our own	①	②	③	④
BSBBHBHC	m) We begin our homework in class	①	②	③	④
BSBBHHQT	n) We have a quiz or test	①	②	③	④

Earth Science in School

15

BSBEARTH

Are you studying earth science in school this year?

	Yes	No
*Fill in **one** circle only*	①	②

*If **No**, please go to question* **19**

16

How much do you agree with these statements about learning earth science?

*Fill in **one** circle for each line*

		Agree a lot	Agree a little	Disagree a little	Disagree a lot
BSBETWEL	a) I usually do well in earth science	①	②	③	④
BSBETMOR	b) I would like to take more earth science in school	①	②	③	④
BSBETCLM	c) Earth science is more difficult for me than for many of my classmates	①	②	③	④
BSBETENJ	d) I enjoy learning earth science	①	②	③	④
BSBETTOP	e) Sometimes, when I do not initially understand a new topic in earth science, I know that I will never really understand it	①	②	③	④
BSBETSTR	f) Earth science is not one of my strengths	①	②	③	④
BSBETQKY	g) I learn things quickly in earth science	①	②	③	④

Earth Science in School (Cont.)

17

How much do you agree with these statements about earth science?

*Fill in **one** circle for each line*

		Agree a lot	Agree a little	Disagree a little	Disagree a lot
BSBEAHDL	a) I think learning earth science will help me in my daily life	①	②	③	④
BSBEAOSS	b) I need earth science to learn other school subjects	①	②	③	④
BSBEAUNI	c) I need to do well in earth science to get into the <university> of my choice	①	②	③	④
BSBEAJOB	d) I would like a job that involved using earth science	①	②	③	④
BSBEAGET	e) I need to do well in earth science to get the job I want	①	②	③	④

18

How often do you do these things in your earth science lessons?

*Fill in **one** circle for each line*

		Every or almost every lesson	About half the lessons	Some lessons	Never
BSBEHDEI	a) We watch the teacher demonstrate an experiment or investigation	①	②	③	④
BSBEHFHP	b) We formulate hypotheses or predictions to be tested	①	②	③	④
BSBEHPEI	c) We design or plan an experiment or investigation	①	②	③	④
BSBEHCEI	d) We conduct an experiment or investigation	①	②	③	④
BSBEHWGO	e) We work in small groups on an experiment or investigation	①	②	③	④
BSBEHEOH	f) We write explanations about what was observed and why it happened	①	②	③	④
BSBEHITS	g) We study the impact of technology on society	①	②	③	④
BSBEHMDL	h) We relate what we are learning in earth science to our daily lives	①	②	③	④
BSBEHPWC	i) We present our work to the class	①	②	③	④
BSBEHROH	j) We review our homework	①	②	③	④
BSBEHLSP	k) We listen to the teacher give a lecture-style presentation	①	②	③	④
BSBEHWPO	l) We work problems on our own	①	②	③	④
BSBEHBHC	m) We begin our homework in class	①	②	③	④
BSBEHHQT	n) We have a quiz or test	①	②	③	④

Chemistry in School

19

BSBCCHEM **Are you studying chemistry in school this year?**

	Yes	No
*Fill in **one** circle only*	①	②

*If **No**, please go to question* **23**

20

How much do you agree with these statements about learning chemistry?

*Fill in **one** circle for each line*

		Agree a lot	Agree a little	Disagree a little	Disagree a lot
BSBCTWEL	a) I usually do well in chemistry	①	②	③	④
BSBCTMOR	b) I would like to take more chemistry in school	①	②	③	④
BSBCTCLM	c) Chemistry is more difficult for me than for many of my classmates	①	②	③	④
BSBCTENJ	d) I enjoy learning chemistry	①	②	③	④
BSBCTTOP	e) Sometimes, when I do not initially understand a new topic in chemistry, I know that I will never really understand it	①	②	③	④
BSBCTSTR	f) Chemistry is not one of my strengths	①	②	③	④
BSBCTQKY	g) I learn things quickly in chemistry	①	②	③	④

21

How much do you agree with these statements about chemistry?

*Fill in **one** circle for each line*

		Agree a lot	Agree a little	Disagree a little	Disagree a lot
BSBCAHDL	a) I think learning chemistry will help me in my daily life	①	②	③	④
BSBCAOSS	b) I need chemistry to learn other school subjects	①	②	③	④
BSBCAUNI	c) I need to do well in chemistry to get into the <university> of my choice	①	②	③	④
BSBCAJOB	d) I would like a job that involved using chemistry	①	②	③	④
BSBCAGET	e) I need to do well in chemistry to get the job I want	①	②	③	④

Chemistry in School (Cont.)

22

How often do you do these things in your chemistry lessons?

*Fill in **one** circle for each line*

		Every or almost every lesson	About half the lessons	Some lessons	Never
BSBCHDEI	a) We watch the teacher demonstrate an experiment or investigation	①	②	③	④
BSBCHFHP	b) We formulate hypotheses or predictions to be tested	①	②	③	④
BSBCHPEI	c) We design or plan an experiment or investigation	①	②	③	④
BSBCHCEI	d) We conduct an experiment or investigation	①	②	③	④
BSBCHWGO	e) We work in small groups on an experiment or investigation	①	②	③	④
BSBCHEOH	f) We write explanations about what was observed and why it happened	①	②	③	④
BSBCHITS	g) We study the impact of technology on society	①	②	③	④
BSBCHMDL	h) We relate what we are learning in chemistry to our daily lives	①	②	③	④
BSBCHPWC	i) We present our work to the class	①	②	③	④
BSBCHROH	j) We review our homework	①	②	③	④
BSBCHLSP	k) We listen to the teacher give a lecture-style presentation	①	②	③	④
BSBCHWPO	l) We work problems on our own	①	②	③	④
BSBCHBHC	m) We begin our homework in class	①	②	③	④
BSBCHHQT	n) We have a quiz or test	①	②	③	④

Physics in School

23

BSBPPHY

Are you studying physics in school this year?

	Yes	No
*Fill in **one** circle only*	①	②

*If **No**, please go to question **27***

24

How much do you agree with these statements about learning physics?

*Fill in **one** circle for each line*

		Agree a lot	Agree a little	Disagree a little	Disagree a lot
BSBPTWEL	a) I usually do well in physics	①	②	③	④
BSBPTMOR	b) I would like to take more physics in school	①	②	③	④
BSBPTCLM	c) Physics is more difficult for me than for many of my classmates	①	②	③	④
BSBPTENJ	d) I enjoy learning physics	①	②	③	④
BSBPTTOP	e) Sometimes, when I do not initially understand a new topic in physics, I know that I will never really understand it	①	②	③	④
BSBPTSTR	f) Physics is not one of my strengths	①	②	③	④
BSBPTQKY	g) I learn things quickly in physics	①	②	③	④

Physics in School (Cont.)

25

How much do you agree with these statements about physics?

*Fill in **one** circle for each line*

		Agree a lot	Agree a little	Disagree a little	Disagree a lot
BSBPAHDL	a) I think learning physics will help me in my daily life	①	②	③	④
BSBPAOSS	b) I need physics to learn other school subjects	①	②	③	④
BSBPAUNI	c) I need to do well in physics to get into the <university> of my choice	①	②	③	④
BSBPAJOB	d) I would like a job that involved using physics	①	②	③	④
BSBPAGET	e) I need to do well in physics to get the job I want	①	②	③	④

26

How often do you do these things in your physics lessons?

*Fill in **one** circle for each line*

			Every or almost every lesson	About half the lessons	Some lessons	Never
BSBPHDEI	a)	We watch the teacher demonstrate an experiment or investigation	①	②	③	④
BSBPHFHP	b)	We formulate hypotheses or predictions to be tested	①	②	③	④
BSBPHPEI	c)	We design or plan an experiment or investigation	①	②	③	④
BSBPHCEI	d)	We conduct an experiment or investigation	①	②	③	④
BSBPHWGO	e)	We work in small groups on an experiment or investigation	①	②	③	④
BSBPHEOH	f)	We write explanations about what was observed and why it happened	①	②	③	④
BSBPHITS	g)	We study the impact of technology on society	①	②	③	④
BSBPHMDL	h)	We relate what we are learning in physics to our daily lives	①	②	③	④
BSBPHPWC	i)	We present our work to the class	①	②	③	④
BSBPHROH	j)	We review our homework	①	②	③	④
BSBPHLSP	k)	We listen to the teacher give a lecture-style presentation	①	②	③	④
BSBPHWPO	l)	We work problems on our own	①	②	③	④
BSBPHBHC	m)	We begin our homework in class	①	②	③	④
BSBPHHQT	n)	We have a quiz or test	①	②	③	④

Computers

27

BSBGUSEC **A. Do you ever use a computer? (Do not include PlayStation®, GameCube®, XBox®, or other TV/video game computers).**

	Yes	No
*Fill in **one** circle only*	①	②

*If **No**, please go to question* **28**

B. Where do you use a computer?

*Fill in **one** circle for each line*

		Yes	No
BSBGCHOM	a) At home	①	②
BSBGCSCH	b) At school	①	②
BSBGCLIB	c) At a library	①	②
BSBGCFRH	d) At a friend's home	①	②
BSBGCCAF	e) At an Internet café	①	②
BSBGCELS	f) Elsewhere	①	②

27 continued

C. How often do you do these things with a computer?

*Fill in **one** circle for each line*

		Every day	At least once a week	Once or twice a month	A few times a year	Never
BSBM0INF	a) I look up ideas and information for mathematics	①	②	③	④	⑤
BSBB0INF	b) I look up ideas and information for biology	①	②	③	④	⑤
BSBE0INF	c) I look up ideas and information for earth science	①	②	③	④	⑤
BSBC0INF	d) I look up ideas and information for chemistry	①	②	③	④	⑤
BSBP0INF	e) I look up ideas and information for physics	①	②	③	④	⑤
BSBG0REP	f) I write reports for school	①	②	③	④	⑤
BSBG0PAD	g) I process and analyze data	①	②	③	④	⑤

Your School

28

How much do you agree with these statements about your school?

*Fill in **one** circle for each line*

		Agree a lot	Agree a little	Disagree a little	Disagree a lot
BSBGALBS	a) I like being in school	①	②	③	④
BSBGATTB	b) I think that students in my school try to do their best	①	②	③	④
BSBGATCS	c) I think that teachers in my school care about the students	①	②	③	④
BSBGATSB	d) I think that teachers in my school want students to do their best	①	②	③	④

29

<u>In school</u>, did any of these things happen during the <u>last month</u>?

*Fill in **one** circle for each line*

		Yes	No
BSBGSTOL	a) Something of mine was stolen	①	②
BSBGHURT	b) I was hit or hurt by other student(s) (e.g., shoving, hitting, kicking)	①	②
BSBGMADE	c) I was made to do things I didn't want to do by other students	①	②
BSBGMFUN	d) I was made fun of or called names	①	②
BSBGLEFT	e) I was left out of activities by other students	①	②

Things You Do Outside of School

30

On a normal school day, how much time do you spend before or after school doing each of these things?

*Fill in **one** circle for each line*

		No time	Less than 1 hour	1-2 hours	More than 2 but less than 4 hours	4 or more hours
BSBGWATV	a) I watch television and videos	①	②	③	④	⑤
BSBGPLCG	b) I play computer games	①	②	③	④	⑤
BSBGPLFD	c) I play or talk with friends	①	②	③	④	⑤
BSBGJOHM	d) I do jobs at home	①	②	③	④	⑤
BSBGWKPJ	e) I work at a paid job	①	②	③	④	⑤
BSBGPLSP	f) I play sports	①	②	③	④	⑤
BSBGREBO	g) I read a book for enjoyment	①	②	③	④	⑤
BSBGUSIN	h) I use the internet	①	②	③	④	⑤
BSBGDOHW	i) I do homework	①	②	③	④	⑤

31

During this school year, how often have you had extra lessons or tutoring that is not part of your regular class in each of the following subjects?

*Fill in **one** circle for each line*

		Every or almost every day	Once or twice a week	Some-times	Never or almost never
BSBMEXLS	a) Mathematics	①	②	③	④
BSBBEXLS	b) Biology	①	②	③	④
BSBEEXLS	c) Earth science	①	②	③	④
BSBCEXLS	d) Chemistry	①	②	③	④
BSBPEXLS	e) Physics	①	②	③	④

...Outside of School (Cont.)

32

A. How often does your teacher give you homework in each of the following subjects?

*Fill in **one** circle for each line*

		Every day	3 or 4 times a week	1 or 2 times a week	Less than once a week	Never
BSBMTGHW	a) Mathematics	①	②	③	④	⑤
BSBBTGHW	b) Biology	①	②	③	④	⑤
BSBETGHW	c) Earth science	①	②	③	④	⑤
BSBCTGHW	d) Chemistry	①	②	③	④	⑤
BSBPTGHW	e) Physics	①	②	③	④	⑤

B. When your teacher gives you homework in each of the following subjects, about how many minutes are you usually given?

*Fill in **one** circle for each line*

		Fewer than 15 minutes	15–30 minutes	31–60 minutes	61–90 minutes	More than 90 minutes
BSBMHWMI	a) Mathematics	①	②	③	④	⑤
BSBBHWMI	b) Biology	①	②	③	④	⑤
BSBEHWMI	c) Earth science	①	②	③	④	⑤
BSBCHWMI	d) Chemistry	①	②	③	④	⑤
BSBPHWMI	e) Physics	①	②	③	④	⑤

More About You

33

BSBGPLH0

Including yourself, how many people live in your home?

*Fill in **one** circle only*

- 2 ⓶
- 3 ⓷
- 4 ⓸
- 5 ⓹
- 6 ⓺
- 7 ⓻
- 8 or more ⓼

34

BSBGMBRN

A. Was your mother (or stepmother or female guardian) born in <country>?

	Yes	No
*Fill in **one** circle only*	①	②

BSBGFBRN

B. Was your father (or stepfather or male guardian) born in <country>?

	Yes	No
*Fill in **one** circle only*	①	②

More About You (Cont.)

35

BSBGBORN

A. Were you born in <country>?

	Yes	No
*Fill in **one** circle only*	①	②

*If **Yes**, you have completed the questionnaire*

BSBGBRNC

B. If you were not born in <country>, how old were you when you came to <country>?

*Fill in **one** circle only*

- Older than 10 years old ①
- 5 to 10 years old ②
- Younger than 5 years old ③

Thank You

for completing this questionnaire

TIMSS International Study Center
Boston College
Chestnut Hill, MA 02467

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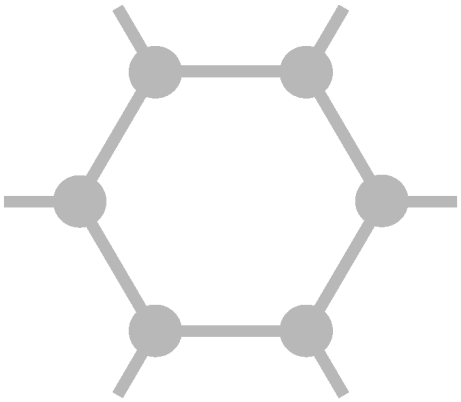


Section 3

Eighth Grade – Mathematics
Teacher Questionnaire (TQM2)

<TIMSS National Research Center Name>
<Address>

Identification Label

Teacher Name: _____

Class Name: _____

Teacher ID: _____ Teacher Link # _____

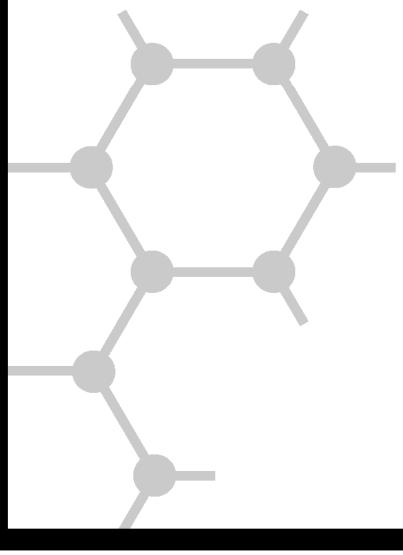
IEA Trends in International Mathematics and Science Study

TIMSS 2003

Main Survey

Teacher Questionnaire

Mathematics
<Grade 8>



General Directions

Your school has agreed to participate in TIMSS 2003, a large international study of student learning in mathematics and science in more than 50 countries around the world. Sponsored by the International Association for the Evaluation of Educational Achievement (IEA), TIMSS (for Trends in International Mathematics and Science Study) is measuring trends in student achievement and studying differences in national education systems in order to help improve the teaching and learning of mathematics and science worldwide.

As part of the study, students in a nationwide sample of <eighth-grade> classes in <country> will complete the TIMSS mathematics and science tests. This questionnaire is addressed to teachers who teach mathematics to these students, and seeks information about teachers' academic and professional background, instructional practices, and attitudes toward teaching mathematics. As a teacher of mathematics to students in one of these sampled classes, your responses to these questions are very important in helping to describe mathematics education in <country>.

Some of the questions in this questionnaire refer specifically to students in the "TIMSS class." This is the class that is identified on the cover of this questionnaire, and that will be tested as part of TIMSS 2003 in your school. It is important that you answer each question carefully so that the information that you provide reflects your situation as accurately as possible.

Please identify a time and place where you will be able to complete this questionnaire without being interrupted. This should require no more than 45 minutes. To make it as easy as possible for you to respond, most questions may be answered simply by checking or filling the appropriate circle.

Once you have completed the questionnaire, place it in the return envelope provided and return it to: <Country Specific Information>

Thank you very much for the time and effort you have put into responding to this questionnaire.

Background Information

1 BTBGAGE

How old are you?

*Fill in **one** circle only*

- Under 25 ○
- 25–29 ○
- 30–39 ○
- 40–49 ○
- 50–59 ○
- 60 or older ○

2 BTBGSEX

Are you female or male?

*Fill in **one** circle only*

- Female ○
- Male ○

3 BTBGTAUT

By the end of this school year, how many years will you have been teaching altogether?

_____

Number of years you have taught

Preparation to Teach

4 BTBGFEDC

What is the highest level of formal education you have completed?

*Fill in **one** circle only*

- Did not complete <ISCED 3> ○
- Finished <ISCED 3> ○
- Finished <ISCED 4B> ○
- Finished <ISCED 5B> ○
- Finished <ISCED 5A, first degree> ○
- Finished <ISCED 5A, second degree> or higher ○

5 BTBGYTTR

How many years of <pre-service teacher training> did you have? Please round to the nearest whole number.

*Fill in **one** circle only*

- 0 years ○
- 1 year ○
- 2 years ○
- 3 years ○
- 4 years ○
- 5 years ○
- More than 5 years ○

6

During your <post-secondary> education, what was your major or main area(s) of study?

*Fill in **one** circle for each row*

		No	Yes
BTBMPSMA	a) Mathematics	○	○
BTBMPSEM	b) Education - Mathematics	○	○
BTBSPSSC	c) Science	○	○
BTBSPSED	d) Education - Science	○	○
BTBGPSEG	e) Education - General	○	○
BTBGPSOT	f) Other	○	○

7

What requirements did you have to satisfy in order to become a mathematics teacher at <grade 8>?

*Fill in **one** circle for each row*

		No	Yes
BTBMRB5A	a) Complete <ISCED 5A, first degree>	○	○
BTBMRBPP	b) Complete a probationary period	○	○
BTBMRBEC	c) Complete a minimum number of education courses	○	○
BTBMRBMC	d) Complete a minimum number of mathematics courses	○	○
BTBMRBLE	e) Pass a licensing examination	○	○

8

A. Do you have a teaching license or certificate? BTBGTLCE

	No	Yes
*Fill in **one** circle only*	○	○

*If **No**, please go to question **9***

B. What type of license or certificate do you hold? BTBGTELC

*Fill in **one** circle only*

- <Full certificate> ○
- <Provisional certificate> ○
- <Emergency certificate> ○
- Other ○

(Please specify:_____)

9

Considering your training and experience in both mathematics content and instruction, how ready do you feel you are to teach these topics at the <eighth> grade?

*Fill in **one** circle for each row*

		Very ready	Ready	Not ready
	A. Number			
BTBMRE01	a) Representing decimals and fractions using words, numbers, or models (including number lines)	○	○	○
BTBMRE02	b) Integers including words, numbers, or models (including number lines); ordering integers; and addition, subtraction, multiplication, and division with integers	○	○	○
	B. Algebra			
BTBMRE03	a) Numeric, algebraic, and geometric patterns or sequences (extension, missing terms, generalization of patterns)	○	○	○
BTBMRE04	b) Simple linear equations and inequalities, and simultaneous (two variables) equations	○	○	○
BTBMRE05	c) Equivalent representations of functions as ordered pairs, tables, graphs, words, or equations	○	○	○
BTBMRE06	d) Attributes of a graph such as intercepts on axes, and intervals where the function increases, decreases, or is constant	○	○	○
	C. Measurement			
BTBMRE07	a) Estimations of length, circumference, area, volume, weight, time, angle, and speed in problem situations (e.g., circumference of a wheel, speed of a runner)	○	○	○
BTBMRE08	b) Computations with measurements in problem situations (e.g., add measures, find average speed on a trip, find population density)	○	○	○
BTBMRE09	c) Measures of irregular or compound areas (e.g., by using grids or dissecting and rearranging pieces)	○	○	○
BTBMRE10	d) Precision of measurements (e.g., upper and lower bounds of a length reported as 8 centimeters to the nearest centimeter)	○	○	○
	D. Geometry			
BTBMRE11	a) Pythagorean theorem (not proof) to find length of a side	○	○	○
BTBMRE12	b) Congruent figures (triangles, quadrilaterals) and their corresponding measures	○	○	○
BTBMRE13	c) Cartesian plane - ordered pairs, equations, intercepts, intersections, and gradient	○	○	○
BTBMRE14	d) Translation, reflection, rotation, and enlargement	○	○	○
	E. Data			
BTBMRE15	a) Sources of error in collecting and organizing data (e.g., bias, inappropriate grouping)	○	○	○
BTBMRE16	b) Data collection methods (e.g., survey, experiment, questionnaire)	○	○	○
BTBMRE17	c) Characteristics of data sets including mean, median, range, and shape of distribution (in general terms)	○	○	○
BTBMRE18	d) Simple probability including using data from experiments to estimate probabilities for favorable outcomes	○	○	○

Teaching Time

10

BTBGWTNP

A. In one typical calendar week from Monday to Sunday, what is the total number of single periods for which you are formally <scheduled/time-tabled/assigned>? Count a double period as two periods.

_____
Write in the number of periods

B. Of these formally <scheduled/time-tabled/assigned> periods, how many are you assigned to do each of the following?

Write in the number of periods

BTBMSPTM a) Teach mathematics ---------- _____

BTBSSPTS b) Teach science ---------- _____

BTBGSPTO c) Teach other subjects ---------- _____

BTBGSPOD d) Perform other duties ---------- _____

BTBGSPTT **Total** ---------- _____
Should match number in 10A

C. How many minutes are in a typical single period?

BTBGMITY _____
Write in the number of minutes

11

Outside the formal school day, approximately how many hours per week do you normally spend on each of these activities? Do not include the time already accounted for in Question 10. Please round to the nearest whole number.

Write in the number of hours per week

a) Grading student tests, exams, or other student work ---------- _____ BTBG0HGT

b) Planning lessons ---------- _____ BTBG0HPL

c) Administrative and record-keeping tasks including staff meetings ----- _____ BTBG0HAT

d) Other ---------- _____ BTBG0HOT

Professional Development

12

How often do you have the following types of interactions with other teachers?

*Fill in **one** circle for each row*

	Daily or almost daily	1-3 times per week	2 or 3 times per month	Never or almost never
BTBG0TDC a) Discussions about how to teach a particular concept	○	○	○	○
BTBG0TPM b) Working on preparing instructional materials	○	○	○	○
BTBG0TVT c) Visits to another teacher's classroom to observe his/her teaching	○	○	○	○
BTBG0TAT d) Informal observations of **my** classroom by another teacher	○	○	○	○

13

In the past two years, have you participated in professional development in any of the following?

*Fill in **one** circle for each row*

	No	Yes
BTBMPDMT a) Mathematics content	○	○
BTBMPDMP b) Mathematics pedagogy/instruction	○	○
BTBMPDMC c) Mathematics curriculum	○	○
BTBMPDIT d) Integrating information technology into mathematics	○	○
BTBGPDCT e) Improving students' critical thinking or problem solving skills	○	○
BTBMPDMA f) Mathematics assessment	○	○

Attitudes Toward Mathematics

14

To what extent do you agree or disagree with each of the following statements?

*Fill in **one** circle for each row*

	Disagree a lot	Disagree	Agree	Agree a lot
BTBMADMR a) More than one representation (picture, concrete material, symbols, etc.) should be used in teaching a mathematics topic	○	○	○	○
BTBMADSA b) Mathematics should be learned as sets of algorithms or rules that cover all possibilities	○	○	○	○
BTBMADHY c) Solving mathematics problems often involves hypothesizing, estimating, testing, and modifying findings	○	○	○	○
BTBMADME d) Learning mathematics mainly involves memorizing	○	○	○	○
BTBMADDW e) There are different ways to solve most mathematical problems	○	○	○	○
BTBMADFD f) Few new discoveries in mathematics are being made	○	○	○	○
BTBMADRW g) Modeling real-world problems is essential to teaching mathematics	○	○	○	○

Your School

15 **Thinking about your CURRENT school, indicate the extent to which you agree or disagree with each of the following statements.**

*Fill in **one** circle for each row*

		Agree a lot	Agree	Disagree	Disagree a lot
BTBGCURE	a) This school facility (building and grounds) is in need of significant repair	○	○	○	○
BTBGCUSN	b) This school is located in a safe neighborhood	○	○	○	○
BTBGCUSA	c) I feel safe at this school	○	○	○	○
BTBGCUAS	d) This school's security policies and practices are sufficient	○	○	○	○

16 **How would you characterize each of the following within your school?**

*Fill in **one** circle for each row*

		Very high	High	Medium	Low	Very low	
BTBGCHTS	a) Teachers' job satisfaction	○	○	○	○	○	
BTBGCHTU	b) Teachers' understanding of the school's curricular goals	○	○	○	○	○	
BTBGCHTC	c) Teachers' degree of success in implementing the school's curriculum	○	○	○	○	○	
BTBGCHES	d) Teachers' expectations for student achievement	○	○	○	○	○	
BTBGCHPS	e) Parental support for student achievement	○	○	○	○	○	
BTBGCHPI	f) Parental involvement in school activities	○	○	○	○	○	
BTBGCHSR	g) Students' regard for school property	○	○	○	○	○	
BTBGCHSD	h) Students' desire to do well in school	○	○	○	○	○	

The TIMSS Class

The remaining questions refer to the TIMSS class. Remember, "the TIMSS class" is the class which is identified on the cover of this questionnaire, and which will be tested as part of TIMSS 2003 in your school.

BTBMSTUD

17 **How many students are in the TIMSS class?**

_____
Write in the number of students

BTBMTIMT

18 **How many minutes per week do you teach mathematics to the TIMSS class?**

_____
Write in the number of minutes per week

BTBMTBTC

19

A. Do you use a textbook(s) in teaching mathematics to the TIMSS class?

No
Yes

*Fill in **one** circle only* ---------- ○ No ○ Yes

*If **No**, please go to question **20***

BTBMTXBU

B. How do you use a textbook(s) in teaching mathematics to the TIMSS class?

*Fill in **one** circle only*

As the primary basis for my lessons ---------- ○
As a supplementary resource ---------- ○

20 **In a typical week of mathematics lessons for the TIMSS class, what percentage of time do students spend on each of the following activities?**

Write in the percent
The total should add to 100%

a)	Reviewing homework	_____%	BTBMPTRH
b)	Listening to lecture-style presentations	_____%	BTBMPTLS
c)	Working problems with your guidance	_____%	BTBMPTYG
d)	Working problems on their own without your guidance	_____%	BTBMPTOO
e)	Listening to you re-teach and clarify content/procedures	_____%	BTBMPTRT
f)	Taking tests or quizzes	_____%	BTBMPTTQ
g)	Participating in classroom management tasks not related to the lesson's content/purpose (e.g., interruptions and keeping order)	_____%	BTBMPTCM
h)	Other student activities	_____%	BTBMPTOA
Total		100%	

Teaching Mathematics to the TIMSS Class

21

In teaching mathematics to the students in the TIMSS class, how often do you usually ask them to do the following?

*Fill in **one** circle for each row*

		Never	Some lessons	About half the lessons	Every or almost every lesson
BTBMASPC	a) Practice adding, subtracting, multiplying, and dividing without using a calculator	○	○	○	○
BTBMASWF	b) Work on fractions and decimals	○	○	○	○
BTBMASWS	c) Work on problems for which there is no immediately obvious method of solution	○	○	○	○
BTBMASID	d) Interpret data in tables, charts, or graphs	○	○	○	○
BTBMASRR	e) Write equations and functions to represent relationships	○	○	○	○
BTBMASSG	f) Work together in small groups	○	○	○	○
BTBMASDL	g) Relate what they are learning in mathematics to their daily lives	○	○	○	○
BTBMASEA	h) Explain their answers	○	○	○	○
BTBMASCP	i) Decide on their own procedures for solving complex problems	○	○	○	○

22

In your view, to what extent do the following limit how you teach the TIMSS class?

*Fill in **one** circle for each row*

		A lot	Some	A little	Not at all	Not applicable	
	Students						
BTBGLT01	a) Students with different academic abilities	○	○	○	○	○	
BTBGLT02	b) Students who come from a wide range of backgrounds (e.g., economic, language)	○	○	○	○	○	
BTBGLT03	c) Students with special needs, (e.g., hearing, vision, speech impairment, physical disabilities, mental or emotional/psychological impairment)	○	○	○	○	○	
BTBGLT04	d) Uninterested students	○	○	○	○	○	
BTBGLT05	e) Low morale among students	○	○	○	○	○	
BTBGLT06	f) Disruptive students	○	○	○	○	○	
	Resources						
BTBGLT07	g) Shortage of computer hardware	○	○	○	○	○	
BTBGLT08	h) Shortage of computer software	○	○	○	○	○	
BTBGLT09	i) Shortage of support for using computers	○	○	○	○	○	
BTBGLT10	j) Shortage of textbooks for student use	○	○	○	○	○	
BTBGLT11	k) Shortage of other instructional equipment for students' use	○	○	○	○	○	
BTBGLT12	l) Shortage of equipment for your use in demonstrations and other exercises	○	○	○	○	○	
BTBGLT13	m) Inadequate physical facilities	○	○	○	○	○	
BTBGLT14	n) High student/teacher ratio	○	○	○	○	○	

23

By the end of this school year, approximately what percentage of teaching time will you have spent during this school year on each of the following mathematics content areas for the TIMSS class?

Write in the percent
The total should add to 100%

BTBMCNUM a) Number (e.g., whole numbers, fractions, decimals, ratio, proportion, percent) ---------- _____%

BTBMCGEO b) Geometry (e.g., lines and angles, shapes, congruence and similarity, spatial relationships, symmetry and transformations) ---------- _____%

BTBMCALG c) Algebra (e.g., patterns, equations and formulas, relationships) ---------- _____%

BTBMCDAT d) Data (e.g., data collection and organization, data representation, data interpretation, probability) -------- _____%

BTBMCMEA e) Measurement (e.g., attributes and units, tools, techniques and formulas) _____%

BTBMCOTH f) Other, please specify:

_____ ----- _____%

Total ---------- 100%

24

The following list includes the main topics addressed by the TIMSS mathematics test. Choose the response that best describes when students in the TIMSS class have been taught each topic. If a topic was taught half this year and half before this year, please choose "Mostly taught this year."

*Fill in **one** circle for each row*

		Not yet taught or just introduced	Mostly taught this year	Mostly taught before this year
	A. Number			
BTBMT001	a) Whole numbers including place value, factorization, and the four operations	○	○	○
BTBMT002	b) Computations, estimations, or approximations involving whole numbers	○	○	○
BTBMT003	c) Common fractions including equivalent fractions, and ordering of fractions	○	○	○
BTBMT004	d) Decimal fractions including place value, ordering, rounding, and converting to common fractions (and vice versa)	○	○	○
BTBMT005	e) Representing decimals and fractions using words, numbers, or models (including number lines)	○	○	○
BTBMT006	f) Computations with fractions	○	○	○
BTBMT007	g) Computations with decimals	○	○	○
BTBMT008	h) Integers including words, numbers, or models (including number lines), ordering integers, addition, subtraction, multiplication, and division with integers	○	○	○
BTBMT009	i) Ratios (equivalence, division of a quantity by a given ratio)	○	○	○
BTBMT010	j) Conversion of percents to fractions or decimals, and vice versa	○	○	○

24 continued

The following list includes the main topics addressed by the TIMSS mathematics test. Choose the response that best describes when students in the TIMSS class have been taught each topic. If a topic was taught half this year and half before this year, please choose "Mostly taught this year."

*Fill in **one** circle for each row*

		Not yet taught or just introduced	Mostly taught this year	Mostly taught before this year
	B. Algebra			
BTBMT011	a) Numeric, algebraic, and geometric patterns or sequences (extension, missing terms, generalization of patterns)	○	○	○
BTBMT012	b) Sums, products, and powers of expressions containing variables	○	○	○
BTBMT013	c) Simple linear equations and inequalities, and simultaneous (two variables) equations	○	○	○
BTBMT014	d) Equivalent representations of functions as ordered pairs, tables, graphs, words, or equations	○	○	○
BTBMT015	e) Proportional, linear, and nonlinear relationships (travel graphs and simple piecewise functions included)	○	○	○
BTBMT016	f) Attributes of a graph such as intercepts on axes, and intervals where the function increases, decreases, or is constant	○	○	○
	C. Measurement			
BTBMT017	a) Standard units for measures of length, area, volume, perimeter, circumference, time, speed, density, angle, mass/weight	○	○	○
BTBMT018	b) Relationships among units for conversions within systems of units, and for rates	○	○	○
BTBMT019	c) Use standard tools to measure length, weight, time, speed, angle, and temperature	○	○	○
BTBMT020	d) Estimations of length, circumference, area, volume, weight, time, angle, and speed in problem situations (e.g., circumference of a wheel, speed of a runner)	○	○	○
BTBMT021	e) Computations with measurements in problem situations (e.g., add measures, find average speed on a trip, find population density)	○	○	○
BTBMT022	f) Measurement formulas for perimeter of a rectangle, circumference of a circle, areas of plane figures (including circles), surface area and volume of rectangular solids, and rates	○	○	○
BTBMT023	g) Measures of irregular or compound areas (e.g., by using grids or dissecting and rearranging pieces)	○	○	○
BTBMT024	h) Precision of measurements (e.g., upper and lower bounds of a length reported as 8 centimeters to the nearest centimeter)	○	○	○

24 continued

The following list includes the main topics addressed by the TIMSS mathematics test. Choose the response that best describes when students in the TIMSS class have been taught each topic. If a topic was taught half this year and half before this year, please choose "Mostly taught this year."

*Fill in **one** circle for each row*

		Not yet taught or just introduced	Mostly taught this year	Mostly taught before this year
	D. Geometry			
BTBMT025	a) Angles - acute, right, straight, obtuse, reflex, complementary, and supplementary	○	○	○
BTBMT026	b) Relationships for angles at a point, angles on a line, vertically opposite angles, angles associated with a transversal cutting parallel lines, and perpendicularity	○	○	○
BTBMT027	c) Properties of angle bisectors and perpendicular bisectors of lines	○	○	○
BTBMT028	d) Properties of geometric shapes: triangles and quadrilaterals	○	○	○
BTBMT029	e) Properties of other polygons (regular pentagon, hexagon, octagon, decagon)	○	○	○
BTBMT030	f) Construct or draw triangles and rectangles of given dimensions	○	○	○
BTBMT031	g) Pythagorean theorem (not proof) to find length of a side	○	○	○
BTBMT032	h) Congruent figures (triangles, quadrilaterals) and their corresponding measures	○	○	○
BTBMT033	i) Similar triangles and recall their properties	○	○	○
BTBMT034	j) Cartesian plane - ordered pairs, equations, intercepts, intersections, and gradient	○	○	○
BTBMT035	k) Relationships between two-dimensional and three-dimensional shapes	○	○	○
BTBMT036	l) Line and rotational symmetry for two-dimensional shapes	○	○	○
BTBMT037	m) Translation, reflection, rotation, and enlargement	○	○	○
	E. Data			
BTBMT038	a) Organizing a set of data by one or more characteristics using a tally chart, table, or graph	○	○	○
BTBMT039	b) Sources of error in collecting and organizing data (e.g., bias, inappropriate grouping)	○	○	○
BTBMT040	c) Data collection methods (e.g., survey, experiment, questionnaire)	○	○	○
BTBMT041	d) Drawing and interpreting graphs, tables, pictographs, bar graphs, pie charts, and line graphs	○	○	○
BTBMT042	e) Characteristics of data sets including mean, median, range, and shape of distribution (in general terms)	○	○	○
BTBMT043	f) Interpreting data sets (e.g., draw conclusions, make predictions, and estimate values between and beyond given data points)	○	○	○
BTBMT044	g) Evaluating interpretations of data with respect to correctness and completeness of interpretation	○	○	○
BTBMT045	h) Simple probability including using data from experiments to estimate probabilities for favorable outcomes	○	○	○

Calculators and Computers in the TIMSS Class

25 BTBMCAML

Are the students in the TIMSS class permitted to use calculators during mathematics lessons?

*Fill in **one** circle only*

- Yes, with unrestricted use ○
- Yes, with restricted use ○
- No, calculators are not permitted ○

*If **No,** please go to question* **30**

26 BTBMHSHC

How many students in the TIMSS class have calculators available to use during mathematics lessons?

*Fill in **one** circle only*

- All ○
- Most ○
- About half ○
- Some ○
- None ○

27 BTBMHSGC

How many students in the TIMSS class have graphing calculators available to use during mathematics lessons?

*Fill in **one** circle only*

- All ○
- Most ○
- About half ○
- Some ○
- None ○

28

How often do students in the TIMSS class use calculators in their mathematics lessons for the following activities?

*Fill in **one** circle for each row*

	Never	Some lessons	About half the lessons	Every or almost every lesson	
a) Check answers	○	○	○	○	BTBMCALA
b) Do routine computations	○	○	○	○	BTBMCALR
c) Solve complex problems	○	○	○	○	BTBMCALS
d) Explore number concepts	○	○	○	○	BTBMCALE

29 BTBMCATE

How often are students in the TIMSS class permitted to use calculators during tests or examinations?

*Fill in **one** circle only*

- Always ○
- Sometimes ○
- Never ○

30

BTBMCOMA

A. Do students in the TIMSS class have computers available to use during their mathematics lessons?

No
Yes

*Fill in **one** circle only* ○ ○

*If **No,** please go to question* **32**

BTBMINTA

B. Do any of the computers have access to the Internet?

No
Yes

*Fill in **one** circle only* ○ ○

31

In teaching mathematics to the TIMSS class, how often do you have students use a computer for the following activities?

*Fill in **one** circle for each row*

	Never	Some lessons	About half the lessons	Every or almost every lesson	
a) Discover mathematics principles and concepts	○	○	○	○	BTBMCADM
b) Practice skills and procedures	○	○	○	○	BTBMCASP
c) Look up ideas and information	○	○	○	○	BTBMCALI
d) Process and analyze data	○	○	○	○	BTBMCAPA

Homework

BTBMHMWO

32 **Do you assign mathematics homework to the TIMSS class?**

No
Yes

*Fill in **one** circle only* ○ ○

*If **No,** please go to question* **37**

BTBMHWMC

33 **How often do you usually assign mathematics homework to the TIMSS class?**

*Fill in **one** circle only*

- Every or almost every lesson ○
- About half the lessons ○
- Some lessons ○

BTBMHWKM

34 **When you assign mathematics homework to the TIMSS class, about how many minutes do you usually assign? (Consider the time it would take an average student in your class.)**

*Fill in **one** circle only*

- Fewer than 15 minutes ○
- 15-30 minutes ○
- 31-60 minutes ○
- 61-90 minutes ○
- More than 90 minutes ○

35 **How often do you assign the following kinds of mathematics homework to the TIMSS class?**

*Fill in **one** circle for each row*

	Never or almost never	Sometimes	Always or almost always	
a) Doing problem/question sets	○	○	○	BTBMKHCP
b) Gathering data and reporting	○	○	○	BTBMKHCG
c) Finding one or more applications of the content covered	○	○	○	BTBMKHCA

36 **How often do you do the following with the mathematics homework assignments?**

*Fill in **one** circle for each row*

	Never or almost never	Sometimes	Always or almost always	
a) Monitor whether or not the homework was completed	○	○	○	BTBMHDAM
b) Correct assignments and then give feedback to students	○	○	○	BTBMHDAF
c) Have students correct their own homework in class	○	○	○	BTBMHDAC
d) Use the homework as a basis for class discussion	○	○	○	BTBMHDAD
e) Use the homework to contribute towards students' grades or marks	○	○	○	BTBMHDAG

Assessment

37

BTBMTEEX

How often do you give a mathematics test or examination to the TIMSS class?

*Fill in **one** circle only*

- About once a week ○
- About every two weeks ○
- About once a month ○
- A few times a year ○
- Never ○

*If **Never**, you have completed the questionnaire*

38

BTBMWFTU

What item formats do you typically use in your mathematics tests or examinations?

*Fill in **one** circle only*

- Only constructed-response ○
- Mostly constructed-response ○
- About half constructed-response and half objective (e.g., multiple-choice) ○
- Mostly objective ○
- Only objective ○

39

How often do you include the following types of questions in your mathematics tests or examinations?

*Fill in **one** circle for each row*

		Never or almost never	Sometimes	Always or almost always	
a)	Questions involving application of mathematical procedures	○	○	○	BTBMTEAP
b)	Questions involving searching for patterns and relationships	○	○	○	BTBMTESP
c)	Questions requiring explanations or justifications	○	○	○	BTBMTEJU

Thank You

for completing this questionnaire

TIMSS International Study Center
Boston College
Chestnut Hill, MA 02467

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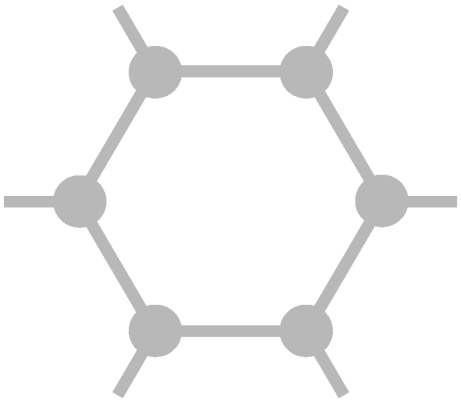


Section 4

Eighth Grade – Science Teacher Questionnaire (TQS2)

<TIMSS National Research Center Name>
<Address>

Identification Label

Teacher Name: _____

Class Name: _____

Teacher ID: _____ Teacher Link # _____

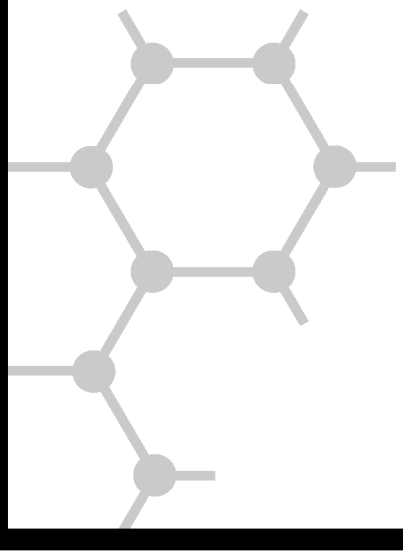
IEA Trends in International Mathematics and Science Study

TIMSS 2003

Main Survey

Teacher Questionnaire

Science
<Grade 8>



General Directions

Your school has agreed to participate in TIMSS 2003, a large international study of student learning in mathematics and science in more than 50 countries around the world. Sponsored by the International Association for the Evaluation of Educational Achievement (IEA), TIMSS (for Trends in International Mathematics and Science Study) is measuring trends in student achievement and studying differences in national education systems in order to help improve the teaching and learning of mathematics and science worldwide.

As part of the study, students in a nationwide sample of <eighth-grade> classes in <country> will complete the TIMSS mathematics and science tests. This questionnaire is addressed to teachers who teach science to these students, and seeks information about teachers' academic and professional background, instructional practices, and attitudes toward teaching science. As a teacher of science to students in one of these sampled classes, your responses to these questions are very important in helping to describe science education in <country>.

Some of the questions in this questionnaire refer specifically to students in the "TIMSS class." This is the class that is identified on the cover of this questionnaire, and that will be tested as part of TIMSS 2003 in your school. If you teach science to some but not all of the students in the TIMSS class, please think of teaching the science class these students are in when answering these class-specific questions. It is important that you answer each question carefully so that the information that you provide reflects your situation as accurately as possible.

Please identify a time and place where you will be able to complete this questionnaire without being interrupted. This should require no more than 45 minutes. To make it as easy as possible for you to respond, most questions may be answered simply by checking or filling the appropriate circle.

Once you have completed the questionnaire, place it in the return envelope provided and return it to: <Country Specific Information>

Thank you very much for the time and effort you have put into responding to this questionnaire.

Background Information

1 BTBGAGE

How old are you?

*Fill in **one** circle only*

- Under 25 ○
- 25–29 ○
- 30–39 ○
- 40–49 ○
- 50–59 ○
- 60 or older ○

2 BTBGSEX

Are you female or male?

*Fill in **one** circle only*

- Female ○
- Male ○

3 BTBGTAUT

By the end of this school year, how many years will you have been teaching altogether?

_____

Number of years you have taught

Preparation to Teach

4 BTBGFEDC

What is the highest level of formal education you have completed?

*Fill in **one** circle only*

- Did not complete <ISCED 3> ○
- Finished <ISCED 3> ○
- Finished <ISCED 4B> ○
- Finished <ISCED 5B> ○
- Finished < ISCED 5A, first degree> ○
- Finished <ISCED 5A, second degree> or higher ○

5 BTBGYTTR

How many years of <pre-service teacher training> did you have? Please round to the nearest whole number.

*Fill in **one** circle only*

- 0 years ○
- 1 year ○
- 2 years ○
- 3 years ○
- 4 years ○
- 5 years ○
- More than 5 years ○

6

During your <post-secondary> education, what was your major or main area(s) of study?

*Fill in **one** circle for each row*

		No	Yes
BTBSPSBI	a) Biology	○	○
BTBSPSPH	b) Physics	○	○
BTBSPSCH	c) Chemistry	○	○
BTBSPSES	d) <Earth Science>	○	○
BTBSPSED	e) Education - Science	○	○
BTBMPSMA	f) Mathematics	○	○
BTBMPSEM	g) Education - Mathematics	○	○
BTBGPSEG	h) Education - General	○	○
BTBGPSOT	i) Other	○	○

7

What requirements did you have to satisfy in order to become a science teacher at <grade 8>?

*Fill in **one** circle for each row*

		No	Yes
BTBSRB5A	a) Complete <ISCED 5A, first degree>	○	○
BTBSRBPP	b) Complete a probationary period	○	○
BTBSRBEC	c) Complete a minimum number of education courses	○	○
BTBSRBSC	d) Complete a minimum number of science courses	○	○
BTBSRBLE	e) Pass a licensing examination	○	○

8

A. Do you have a teaching license or certificate? BTBGTLCE

	No	Yes
*Fill in **one** circle only*	○	○

*If **No**, please go to question **9***

B. What type of license or certificate do you hold? BTBGTELC

*Fill in **one** circle only*

- <Full certificate> ○
- <Provisional certificate> ○
- <Emergency certificate> ○
- Other ○

(Please specify:_____)

9

Considering your training and experience in both science content and instruction, how ready do you feel you are to teach these topics at the <eighth> grade?

*Fill in **one** circle for each row*

		Very ready	Ready	Not ready
	A. Biology			
BTBSFR01	a) Major organs and organ systems in humans and other organisms (structure/function, life processes that maintain stable bodily conditions)	○	○	○
BTBSFR02	b) Cells and their functions, including respiration and photosynthesis as cellular processes	○	○	○
BTBSFR03	c) Reproduction (sexual and asexual) and heredity (passing on of traits, inherited versus acquired/learned characteristics)	○	○	○
BTBSFR04	d) Role of variation and adaptation in survival/extinction of species in a changing environment	○	○	○
BTBSFR05	e) Interaction of living organisms and the physical environment in an ecosystem (energy flow, food webs, effect of changes, cycling of materials)	○	○	○
	B. Chemistry			
BTBSFR06	a) Classification and composition of matter (characteristics of elements, compounds, mixtures)	○	○	○
BTBSFR07	b) Particulate structure of matter (molecules, atoms, protons, neutrons, and electrons)	○	○	○
BTBSFR08	c) Properties of solutions (solvent, solute, concentration/dilution, effect of temperature on solubility)	○	○	○
BTBSFR09	d) Properties and uses of common acids and bases	○	○	○
BTBSFR10	e) Chemical change (transformation of reactants, evidence of chemical change, conservation of matter, common oxidation reactions - combustion and rusting)	○	○	○
	C. Physics			
BTBSFR11	a) Physical states and changes in matter (explanations of properties in terms of movement/distance between particles; phase change by supplying/removing heat/energy, thermal expansion and changes in volume and/or pressure)	○	○	○
BTBSFR12	b) Energy types, sources, and conversions, including heat transfer	○	○	○
BTBSFR13	c) Basic properties/behaviors of light (reflection, refraction, light and color, simple ray diagrams) and sound (production by vibration, transmission through media, relative speed of light and sound)	○	○	○
BTBSFR14	d) Electric circuits (flow of current; types of circuits - opened/closed and parallel/series; current/voltage relationship)	○	○	○
BTBSFR15	e) Forces and motion (types of forces, basic description of motion, use of distance/time graphs, effects of density and pressure	○	○	○

9 continued

Considering your training and experience in both science content and instruction, how ready do you feel you are to teach these topics at the <eighth> grade?

*Fill in **one** circle for each row*

		Very ready	Ready	Not ready
	D. Earth Science			
BTBSFR16	a) Earth's structure and physical features (Earth's crust, mantle and core; use of topographic maps)	○	○	○
BTBSFR17	b) Earth's processes, cycles and history (rock cycle; water cycle; weather patterns; major geological events; formation of fossils and fossil fuels)	○	○	○
BTBSFR18	c) Earth in the solar system and the universe (phenomena on Earth - day/night, tides, phases of moon, eclipses, seasons; physical features of Earth compared to other bodies; the Sun as a star)	○	○	○
	E. Environmental Science			
BTBSFR19	a) Trends in human population and its effects on the environment	○	○	○
BTBSFR20	b) Use and conservation of Earth's natural resources (renewable/non-renewable resources, human use of land/soil and water resources)	○	○	○
BTBSFR21	c) Changes in environments (role of human activity, global environmental concerns, impact of natural hazards)	○	○	○

Teaching Time

10

BTBGWTNP

A. In one typical calendar week from Monday to Sunday, what is the total number of single periods for which you are formally <scheduled/time-tabled/assigned>? Count a double period as two periods.

_____
Write in the number of periods

B. Of these formally <scheduled/time-tabled/assigned> periods, how many are you assigned to do each of the following?

Write in the number of periods

BTBSSPTS a) Teach <general> science ---------- _____

BTBSSPPS b) Teach physical science ---------- _____

BTBSSPTP c) Teach physics ---------- _____

BTBSSPTC d) Teach chemistry ---------- _____

BTBSSPTB e) Teach life science/biology ---------- _____

BTBSSPTE f) Teach Earth science ---------- _____

BTBMSPTM g) Teach mathematics ---------- _____

BTBGSPTO h) Teach other subjects ---------- _____

BTBGSPOD i) Perform other duties ---------- _____

BTBGSPTT **Total** ---------- _____
Should match number in 10A

C. How many minutes are in a typical single period?

BTBGMITY _____
Write in the number of minutes

11

Outside the formal school day, approximately how many hours per week do you normally spend on each of these activities? Do not include the time already accounted for in Question 10. Please round to the nearest whole number.

Write in the number of hours per week

a) Grading student tests, exams, or other student work ---------- _____ BTBG0HGT

b) Planning lessons ---------- _____ BTBG0HPL

c) Administrative and record-keeping tasks including staff meetings ----- _____ BTBG0HAT

d) Other ---------- _____ BTBG0HOT

Professional Development

12

How often do you have the following types of interactions with other teachers?

*Fill in **one** circle for each row*

	Daily or almost daily	1-3 times per week	2 or 3 times per month	Never or almost never
a) Discussions about how to teach a particular concept (BTBGOTDC)	○	○	○	○
b) Working on preparing instructional materials (BTBGOTPM)	○	○	○	○
c) Visits to another teacher's classroom to observe his/her teaching (BTBGOTVT)	○	○	○	○
d) Informal observations of **my** classroom by another teacher (BTBGOTAT)	○	○	○	○

13

In the past two years, have you participated in professional development in any of the following?

*Fill in **one** circle for each row*

	Yes	No
a) Science content (BTBSPDST)	○	○
b) Science pedagogy/instruction (BTBSPDSP)	○	○
c) Science curriculum (BTBSPDSC)	○	○
d) Integrating information technology into science (BTBSPDIT)	○	○
e) Improving students' critical thinking or inquiry skills (BTBGPDIN)	○	○
f) Science assessment (BTBSPDSA)	○	○

Attitudes Toward Science

14

To what extent do you agree or disagree with each of the following statements?

*Fill in **one** circle for each row*

	Disagree a lot	Disagree	Agree	Agree a lot
a) More than one representation (picture, concrete material, symbols, etc.) should be used in teaching a science topic (BTBSADMR)	○	○	○	○
b) Solving science problems often involves hypothesizing, estimating, testing, and modifying findings (BTBSADHY)	○	○	○	○
c) Learning science mainly involves memorizing (BTBSADME)	○	○	○	○
d) There are many ways to conduct scientific investigation (BTBSADCO)	○	○	○	○
e) Getting the correct answer is the most important outcome of a student's scientific experiment (BTBSADAN)	○	○	○	○
f) Scientific theories are subject to change (BTBSADSC)	○	○	○	○
g) Science is taught primarily to give students the skills and knowledge to explain natural phenomena (BTBSADTA)	○	○	○	○
h) Modeling natural phenomena is essential to teaching science (BTBSADMO)	○	○	○	○
i) Most scientific discoveries have no practical value (BTBSADDI)	○	○	○	○

Your School

15 **Thinking about your CURRENT school, indicate the extent to which you agree or disagree with each of the following statements.**

*Fill in **one** circle for each row*

		Disagree a lot	Disagree	Agree	Agree a lot
BTBGCURE	a) This school facility (building and grounds) is in need of significant repair	○	○	○	○
BTBGCUSN	b) This school is located in a safe neighborhood	○	○	○	○
BTBGCUSA	c) I feel safe at this school	○	○	○	○
BTBGCUAS	d) This school's security policies and practices are sufficient	○	○	○	○

16 **How would you characterize each of the following within your school?**

*Fill in **one** circle for each row*

		Very low	Low	Medium	High	Very high
BTBGCHTS	a) Teachers' job satisfaction	○	○	○	○	○
BTBGCHTU	b) Teachers' understanding of the school's curricular goals	○	○	○	○	○
BTBGCHTC	c) Teachers' degree of success in implementing the school's curriculum	○	○	○	○	○
BTBGCHES	d) Teachers' expectations for student achievement	○	○	○	○	○
BTBGCHPS	e) Parental support for student achievement	○	○	○	○	○
BTBGCHPI	f) Parental involvement in school activities	○	○	○	○	○
BTBGCHSR	g) Students' regard for school property	○	○	○	○	○
BTBGCHSD	h) Students' desire to do well in school	○	○	○	○	○

The TIMSS Class

The remaining questions refer to the <TIMSS class / class with the TIMSS students>. Remember, "the TIMSS class" is the class which is identified on the cover of this questionnaire, and which will be tested as part of TIMSS 2003 in your school.

17

BTBSSTUD

How many students are in the <TIMSS class/ class with the TIMSS students>?

_____

Write in the number of students

18

BTBSTIMT

How many minutes per week do you teach science to the <TIMSS class>?

_____

Write in the number of minutes per week

19

BTBSTBTC

A. Do you use a textbook(s) in teaching science to the <TIMSS class>?

No
Yes

*Fill in **one** circle only* ---------- ○ No ○ Yes

*If **No**, please go to question* **20**

BTBSTXBU

B. How do you use a textbook(s) in teaching science to the <TIMSS class>?

*Fill in **one** circle only*

As the primary basis for my lessons ---------- ○

As a supplementary resource ---------- ○

20

In a typical week of science lessons for the <TIMSS class>, what percentage of time do students spend on each of the following activities?

Write in the percent
The total should add to 100%

a) Reviewing homework ---------- _____% BTBSPTRH

b) Listening to lecture-style presentations ---------- _____% BTBSPTLS

c) Working problems with your guidance ---------- _____% BTBSPTYG

d) Working problems on their own without your guidance ---------- _____% BTBSPTOO

e) Listening to you re-teach and clarify content/procedures --------- _____% BTBSPTRT

f) Taking tests or quizzes ---------- _____% BTBSPTTQ

g) Participating in classroom management tasks not related to the lesson's content/purpose (e.g., interruptions and keeping order) ---------- _____% BTBSPTCM

h) Other student activities ---------- _____% BTBSPTOA

Total ---------- 100%

Teaching Science to the TIMSS Class

21

In teaching science to the students in the TIMSS class, how often do you usually ask them to do the following?

*Fill in **one** circle for each row*

		Never	Some lessons	About half the lessons	Every or almost every lesson
BTBSCSWD	a) Watch me demonstrate an experiment or investigation	○	○	○	○
BTBSCSFT	b) Formulate hypotheses or predictions to be tested	○	○	○	○
BTBSCSDP	c) Design or plan experiments or investigations	○	○	○	○
BTBSCSEI	d) Conduct experiments or investigations	○	○	○	○
BTBSCSSG	e) Work together in small groups on experiments or investigations	○	○	○	○
BTBSCSWE	f) Write explanations about what was observed and why it happened	○	○	○	○
BTBSCSRO	g) Put events or objects in order and give a reason for the organization	○	○	○	○
BTBSCSIT	h) Study the impact of technology on society	○	○	○	○
BTBSCSLN	i) Learn about the nature of science and inquiry	○	○	○	○
BTBSCSDL	j) Relate what they are learning in science to their daily lives	○	○	○	○
BTBSCSPW	k) Present their work to the class	○	○	○	○

22

In your view, to what extent do the following limit how you teach the <TIMSS class>?

*Fill in **one** circle for each row*

		A lot	Some	A little	Not at all	Not applicable
	Students					
BTBGLT01	a) Students with different academic abilities	○	○	○	○	○
BTBGLT02	b) Students who come from a wide range of backgrounds (e.g., economic, language)	○	○	○	○	○
BTBGLT03	c) Students with special needs (e.g., hearing, vision, speech impairment, physical disabilities, mental or emotional/psychological impairment)	○	○	○	○	○
BTBGLT04	d) Uninterested students	○	○	○	○	○
BTBGLT05	e) Low morale among students	○	○	○	○	○
BTBGLT06	f) Disruptive students	○	○	○	○	○
	Resources					
BTBGLT07	g) Shortage of computer hardware	○	○	○	○	○
BTBGLT08	h) Shortage of computer software	○	○	○	○	○
BTBGLT09	i) Shortage of support for using computers	○	○	○	○	○
BTBGLT10	j) Shortage of textbooks for student use	○	○	○	○	○
BTBGLT11	k) Shortage of other instructional equipment for students' use	○	○	○	○	○
BTBGLT12	l) Shortage of equipment for your use in demonstrations and other exercises	○	○	○	○	○
BTBGLT13	m) Inadequate physical facilities	○	○	○	○	○
BTBGLT14	n) High student/teacher ratio	○	○	○	○	○

23

By the end of this school year, approximately what percentage of teaching time will you have spent during this school year on each of the following science content areas for the <TIMSS class>?

Write in the percent
The total should add to 100%

BTBSCLSC a) Life science (e.g., types, characteristics, and classification of living things; structure/function and life processes in organisms; cells and their functions; development, reproduction and heredity; diversity, adaptation and natural selection; ecosystems; and human health) ---------- _____%

BTBSCCHE b) Chemistry (e.g., classification, composition and particulate structure of matter; properties and uses of water; acids and bases; and chemical change) ---------- _____%

BTBSCPHY c) Physics (e.g., physical states and changes in matter; energy types, sources and conversions; heat and temperature; light; sound and vibration; electricity and magnetism; forces and motion) -------- _____%

BTBSCESC d) Earth science (e.g., Earth's structure and physical features; Earth's processes, cycles and history; the solar system and universe) --------- _____%

BTBSCENS e) Environmental science (e.g., changes in population; use and conservation of natural resources; and changes in environments) ---------- _____%

BTBSCOTH f) Other, please specify:

_____ ------- _____%

Total ---------- 100%

24

The following list includes the main topics addressed by the TIMSS science test. Choose the response that best describes when students in the TIMSS class have been taught each topic. If a topic was taught half this year and half before this year, please choose "Mostly taught this year."

*Fill in **one** circle for each row*

		Not yet taught or just introduced	Mostly taught this year	Mostly taught before this year
	A. Biology			
BTBST001	a) Classification of organisms on the basis of a variety of physical and behavioral characteristics	○	○	○
BTBST002	b) The major organ systems in humans and other organisms	○	○	○
BTBST003	c) How the systems function to maintain stable bodily conditions	○	○	○
BTBST004	d) Cell structures and functions	○	○	○
BTBST005	e) Photosynthesis and respiration as processes of cells and organisms, including substances used and produced	○	○	○
BTBST006	f) Life cycles of organisms, including humans, plants, birds, insects	○	○	○
BTBST007	g) Reproduction (sexual and asexual), and heredity (passing on of traits), inherited verus acquired/learned characteristics	○	○	○
BTBST008	h) The role of variation and adaptation in survival/extinction of species in a changing environment	○	○	○
BTBST009	i) The interaction of living organisms in an ecosystem (energy flow, food chains and food webs, food pyramids, and the effects of change upon the system)	○	○	○
BTBST010	j) Cycling of materials in nature (water, carbon/oxygen cycle, decomposition of organisms)	○	○	○
BTBST011	k) Causes of common infectious diseases, methods of infection/transmission, prevention, and the body's natural resistance and healing capabilities	○	○	○
BTBST012	l) Preventive medicine methods (diet, hygiene, exercise and lifestyle)	○	○	○

24 continued

The following list includes the main topics addressed by the TIMSS science test. Choose the response that best describes when students in the TIMSS class have been taught each topic. If a topic was taught half this year and half before this year, please choose "Mostly taught this year."

*Fill in **one** circle for each row*

		Not yet taught or just introduced	Mostly taught this year	Mostly taught before this year
	B. Chemistry			
BTBST013	a) Classification and composition of matter (physical and chemical characteristics, pure substances and mixtures, separation techniques)	○	○	○
BTBST014	b) Properties of solutions (solvents, solutes, effects of temperature on solubility)	○	○	○
BTBST015	c) Particulate structure of matter (molecules, atoms, protons, neutrons, and electrons)	○	○	○
BTBST016	d) Properties and uses of water (composition, melting/boiling points, changes in density/volume)	○	○	○
BTBST017	e) The properties and uses of common acids and bases	○	○	○
BTBST018	f) Chemical change (transformation of reactants, evidence of chemical change, conservation of matter)	○	○	○
BTBST019	g) The need for oxygen in common oxidation reactions (combustion, rusting) and the relative tendency of familiar substances to undergo these reactions	○	○	○
BTBST020	h) Classification of familiar chemical transformations as releasing or absorbing heat/energy	○	○	○

24 continued

The following list includes the main topics addressed by the TIMSS science test. Choose the response that best describes when students in the TIMSS class have been taught each topic. If a topic was taught half this year and half before this year, please choose "Mostly taught this year."

*Fill in **one** circle for each row*

		Not yet taught or just introduced	Mostly taught this year	Mostly taught before this year
	C. Physics			
BTBST021	a) Physical states and changes in matter (explanations of properties including volume, shape, density and compressibility in terms of movement/distance between particles)	○	○	○
BTBST022	b) The processes of melting, freezing, evaporation, and condensation (phase change by supplying/removing heat; melting/boiling points; effects of pressure and purity of substances)	○	○	○
BTBST023	c) Energy types, sources, and conversions, including heat transfer	○	○	○
BTBST024	d) Thermal expansion and changes in volume and/or pressure	○	○	○
BTBST025	e) Basic properties/behavior of light (reflection, refraction, light and color, simple ray diagrams)	○	○	○
BTBST026	f) Properties of sound (production by vibration, transmission through media, ways of describing sound (intensity, pitch), relative speed)	○	○	○
BTBST027	g) Electric circuits (flow of current, types of circuits – open/closed, parallel/series) and relationship between voltage and current	○	○	○
BTBST028	h) Properties of permanent magnets and electromagnets	○	○	○
BTBST029	i) Forces and motion (types of forces, basic description of motion), use of distance/time graphs	○	○	○
BTBST030	j) Effects of density and pressure	○	○	○

24 continued

The following list includes the main topics addressed by the TIMSS science test. Choose the response that best describes when students in the TIMSS class have been taught each topic. If a topic was taught half this year and half before this year, please choose "Mostly taught this year."

*Fill in **one** circle for each row*

		Not yet taught or just introduced	Mostly taught this year	Mostly taught before this year
	D. Earth Science			
BTBST031	a) Earth's structure and physical features (Earth's crust, mantle, and core; topographic maps)	○	○	○
BTBST032	b) The physical state, movement, composition, and relative distribution of water on the Earth	○	○	○
BTBST033	c) The Earth's atmosphere and the relative abundance of its main components	○	○	○
BTBST034	d) Earth's water cycle (steps, role of sun's energy, circulation/renewal of fresh water)	○	○	○
BTBST035	e) Processes in the rock cycle and the formation of igneous, metamorphic, and sedimentary rock	○	○	○
BTBST036	f) Weather data/maps, and changes in weather patterns (e.g., seasonal changes, effects of latitude, altitude and geography)	○	○	○
BTBST037	g) Geological processes occurring over billions of years (e.g., erosion, mountain building, plate movement)	○	○	○
BTBST038	h) Formation of fossils and fossil fuels	○	○	○
BTBST039	i) Explanation of phenomena on Earth based on position/movement of bodies in the solar sytem and universe (e.g., day/night, tides, year, phases of the moon, eclipses, seasons, appearance of sun, moon, planets, and constellations)	○	○	○
BTBST040	j) The physical features of Earth compared with the moon and other planets (e.g., atmosphere, temperature, water, distance from sun, period of revolution/rotation, ability to support life)	○	○	○
BTBST041	k) The sun as a star	○	○	○
	E. Environmental Science			
BTBST042	a) Trends in human population and its effects on the environment	○	○	○
BTBST043	b) Use and conservation of natural resources (renewable/non-renewable resources, human use of land/soil and water resources)	○	○	○
BTBST044	c) Changes in environments (role of human activity, effects/prevention of pollution, global environmental concerns, impact of natural hazards)	○	○	○

Computers in the TIMSS Class

25

BTBSCOMA

A. Do students in the TIMSS class have computers available to use during their science lessons?

No
Yes

*Fill in **one** circle only* ○ --- ○

*If **No**, please go to question* **27**

BTBSINTA

B. Do any of the computers have access to the Internet?

No
Yes

*Fill in **one** circle only* ○ --- ○

26

In teaching science to the <TIMSS class>, how often do you have students use a computer for the following activities?

*Fill in **one** circle for each row*

	Never	Some lessons	About half the lessons	Every or almost every lesson	
a) Do scientific procedures or experiments	○	○	○	○	BTBSCAPE
b) Study natural phenomena through simulations	○	○	○	○	BTBSCANP
c) Practice skills and procedures	○	○	○	○	BTBSCASP
d) Look up ideas and information	○	○	○	○	BTBSCALI
e) Process and analyze data	○	○	○	○	BTBSCAPA

Homework

27 BTBSHMWO

Do you assign science homework to the <TIMSS class>?

	No	Yes
*Fill in **one** circle only*	○	○

*If **No**, please go to question* **32**

28 BTBSHWMC

How often do you usually assign science homework to the <TIMSS class>?

*Fill in **one** circle only*

- Every or almost every lesson ○
- About half the lessons ○
- Some lessons ○

29 BTBSHWKM

When you assign science homework to the <TIMSS class>, about how many minutes do you usually assign? (Consider the time it would take an average student in your class.)

*Fill in **one** circle only*

- Fewer than 15 minutes ○
- 15-30 minutes ○
- 31-60 minutes ○
- 61-90 minutes ○
- More than 90 minutes ○

30

How often do you assign the following kinds of science homework to the <TIMSS class>?

*Fill in **one** circle for each row*

	Never or almost never	Sometimes	Always or almost always	
a) Doing problem/question sets	○	○	○	BTBSKHCP
b) Finding one or more applications of the content covered	○	○	○	BTBSKHCA
c) Reading from a textbook or supplementary materials	○	○	○	BTBSKHCT
d) Writing definitions or other short writing assignments	○	○	○	BTBSKHCW
e) Working on projects	○	○	○	BTBSKHCR
f) Working on small investigations or gathering data	○	○	○	BTBSKHCS
g) Preparing reports	○	○	○	BTBSKHCG

31

How often do you do the following with the science homework assignments?

*Fill in **one** circle for each row*

	Never or almost never	Sometimes	Always or almost always	
a) Monitor whether or not the homework was completed	○	○	○	BTBSHDAM
b) Correct assignments and then give feedback to students	○	○	○	BTBSHDAF
c) Have students correct their own homework in class	○	○	○	BTBSHDAC
d) Use the homework as a basis for class discussion	○	○	○	BTBSHDAD
e) Use the homework to contribute towards students' grades or marks	○	○	○	BTBSHDAG

Assessment

BTBSTEEX

32 **How often do you give a science test or examination to the <TIMSS class>?**

*Fill in **one** circle only*

- About once a week ○
- About every two weeks ○
- About once a month ○
- A few times a year ○
- Never ○

*If **Never**, you have completed the questionnaire*

BTBSWFTU

33 **What item formats do you typically use in your science tests or examinations?**

*Fill in **one** circle only*

- Only constructed-response ○
- Mostly constructed-response ○
- About half constructed-response and half objective (e.g., multiple-choice) ○
- Mostly objective ○
- Only objective ○

34 **How often do you include the following types of questions in your science tests or examinations?**

*Fill in **one** circle for each row*

	Never or almost never	**Sometimes**	**Always or almost always**	
a) Questions requiring understanding of concepts, relationships, and processes	○	○	○	BTBSTERU
b) Questions involving hypotheses and conclusions	○	○	○	BTBSTEIH
c) Questions based on recall of facts or procedures	○	○	○	BTBSTEBR

Thank You

for completing this questionnaire

TIMSS International Study Center
Boston College
Chestnut Hill, MA 02467

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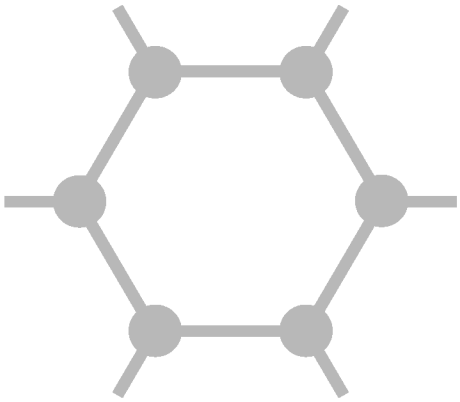


Section 5

Eighth Grade – School Questionnaire (SCQ2)

<TIMSS National Research Center Name>
<Address>

Identification Label

School ID: _____

Stratum ID: _____

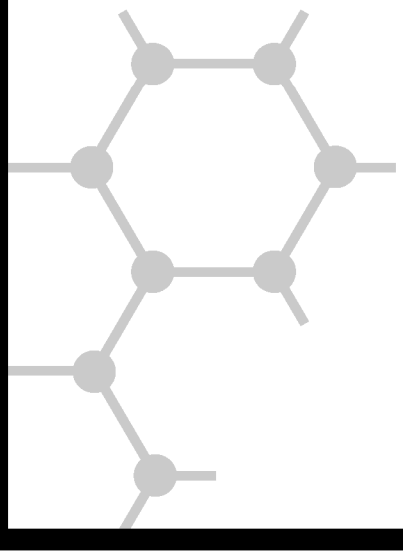
IEA Trends in International Mathematics and Science Study

TIMSS 2003

Main Survey

School Questionnaire

<Grade 8>



General Directions

Your school has agreed to participate in TIMSS 2003, a large international study of student learning in mathematics and science in more than 50 countries around the world. Sponsored by the International Association for the Evaluation of Educational Achievement (IEA), TIMSS (for Trends in International Mathematics and Science Study) is measuring trends in student achievement and studying differences in national education systems in order to help improve the teaching and learning of mathematics and science worldwide.

This questionnaire is addressed to school principals and department heads who are asked to supply information about their schools. Since your school has been selected as part of a nationwide sample, your responses are very important in helping to describe the school system in <country>.

It is important that you answer each question carefully so that the information provided reflects the situation in your school as accurately as possible. Some of the questions will require that you look up school records, so you may wish to arrange for the assistance of another staff member to help provide this information.

Please identify a time and place where you will be able to complete this questionnaire without being interrupted. This should require no more than 30 minutes. To make it as easy as possible for you to respond, most questions may be answered simply by filling in the appropriate circle.

Once you have completed the questionnaire, place it in the return envelope provided and return it to: <Country Specific Information>

Thank you very much for the time and effort you have put into responding to this questionnaire.

The School Characteristics

<Some of the questions in this questionnaire ask about your school in general. If your school has a wide range of grades, please try to answer such questions with regard to the <junior secondary / middle school / basic> grades.>

1

BCBGLOWG
BCBGHIGG

What are the lowest and highest grade levels in your school?

*Fill in **one** circle for each column*

	A: Lowest Grade	B: Highest Grade
Kindergarten	○	○
1	○	○
2	○	○
3	○	○
4	○	○
5	○	○
6	○	○
7	○	○
8	○	○
9	○	○
10	○	○
11	○	○
12	○	○
13	○	○

2

BCBGTENR

A. What is the total school enrollment (number of students) in all grades?

*Number of students:*_____

BCBGEENR

B. What is the enrollment in the <eighth grade>?

*Number of students:*_____

3

BCBGCOMU

How many people live in the city, town, or area where your school is located?

*Fill in **one** circle only*

- More than 500,000 people ○
- 100,001 to 500,000 people ○
- 50,001 to 100,000 people ○
- 15,001 to 50,000 people ○
- 3,001 to 15,000 people ○
- Fewer than 3,000 people ○

4

BCBGASTD

On a typical school day, what percentage of students are absent from school for any reason?

*Fill in **one** circle only*

- Less than 5% ○
- 5 to 10% ○
- 11 to 20% ○
- More than 20% ○

5

BCBGENRS

A. Of the students who were enrolled in your school at the start of this school year, about what percentage is still enrolled?

*Fill in **one** circle only*

- 96 to 100% ○
- 90 to 95% ○
- 80 to 89% ○
- Less than 80% ○

BCBGENSY

B. What percentage of the students in your school enrolled after the beginning of the school year?

*Fill in **one** circle only*

- Less than 5% ○
- 5 to 10% ○
- 11 to 20% ○
- More than 20% ○

6

A. Approximately what percentage of students in your school have the following backgrounds?

*Fill in **one** circle for each row*

	More than 50%	26 to 50%	11 to 25%	0 to 10%
a) Come from economically disadvantaged homes (BCBGSBED)	○	○	○	○
b) Come from economically affluent homes (BCBGSBEA)	○	○	○	○

BCBGNALA

B. Approximately what percentage of students in your school have <language of test> as their native language?

*Fill in **one** circle only*

- More than 90% ○
- 76 to 90% ○
- 50 to 75% ○
- Less than 50% ○

7

How would you characterize each of the following within your school?

*Fill in **one** circle for each row*

	Very low	Low	Medium	High	Very high	
a) Teachers' job satisfaction	○	○	○	○	○	BCBGCHTS
b) Teachers' understanding of the school's curricular goals	○	○	○	○	○	BCBGCHTU
c) Teachers' degree of success in implementing the school's curriculum	○	○	○	○	○	BCBGCHTC
d) Teachers' expectations for student achievement	○	○	○	○	○	BCBGCHES
e) Parental support for student achievement	○	○	○	○	○	BCBGCHPS
f) Parental involvement in school activities	○	○	○	○	○	BCBGCHPI
g) Students' regard for school property	○	○	○	○	○	BCBGCHSR
h) Students' desire to do well in school	○	○	○	○	○	BCBGCHSD

Your Role as Principal

8

BCBGYEPS

Including this year, how long have you been principal of this school?

*Number of years:*_____

9

By the end of this school year, approximately what percentage of time in your role as principal will you have spent on these activities?

Write in the percent
The total should add to 100%

BCBGAPAD	a)	Administrative duties (e.g., hiring, budgeting, scheduling) ---------- _____%
BCBGAPIL	b)	Instructional leadership (e.g., developing curriculum and pedagogy) ---------- _____%
BCBGAPST	c)	Supervising and evaluating teachers and other staff ---------- _____%
BCBGAPTE	d)	Teaching ---------- _____%
BCBGAPPR	e)	Public relations and fundraising -- _____%
BCBGAPOT	f)	Other ---------- _____%
		Total ---------- 100%

Parental Involvement

10

Does your school expect parents to do the following?

*Fill in **one** circle for each row*

		No	Yes	
BCBGEPSE	a)	Attend special events (e.g., science fair, concert, sporting events)	○	○
BCBGEPRF	b)	Raise funds for the school	○	○
BCBGEPVO	c)	Volunteer for school projects, programs, and trips	○	○
BCBGEPCH	d)	Ensure that their child completes his/her homework	○	○
BCBGEPSC	e)	Serve on school committees (e.g., select school personnel, review school finances)	○	○

<Eighth-grade> Instruction in Mathematics and Science

11

BCBGDYSO

A. How many days per year is your school open for instruction for <eighth-grade> students?

Number of days: _____

B. How many instructional days are there in the school week (typical calendar week from Monday through Sunday) for <eighth-grade> students?

*Fill in **one** circle for each column*

BCBGDWFU
BCBGDWHA

	Number of FULL days (over 4 hours)	Number of HALF days (4 hours or less)
1 day	○	○
2 days	○	○
3 days	○	○
4 days	○	○
5 days	○	○
6 days	○	○
None	○	○

BCBGTITD

C. To the nearest half-hour, what is the total instructional time in a typical full day (excluding lunch breaks, study hall, and after school activities) for <eighth-grade> students?

*Fill in **one** circle only*

- 4 hours or less ○
- 4.5 hours ○
- 5 hours ○
- 5.5 hours ○
- 6 hours ○
- 6.5 hours or more ○

12

BCBMODLA

How does your school organize mathematics instruction for <eighth-grade> students with different levels of ability?

*Fill in **one** circle only*

- Students study the same mathematics curriculum ○
- Students study the same mathematics curriculum, but at different levels of difficulty ○
- Students study different mathematics curricula according to their ability levels ○

13

BCBMGAMC

Are <eighth-grade> students in your school grouped by ability within their mathematics classes?

*Fill in **one** circle only* ○ No ○ Yes

14

Does your school do any of the following for students in the <eighth grade>?

*Fill in **one** circle for each row*

		No	Yes	
a)	Offer enrichment mathematics	○	○	BCBMSOEM
b)	Offer remedial mathematics	○	○	BCBMSORM

<Eighth-grade> Teachers in Your School

15 How does your school organize science instruction for <eighth-grade> students with different levels of ability?

BCBS0DLA

*Fill in **one** circle only*

- Students study the same science curriculum ○
- Students study the same science curriculum, but at different levels of difficulty ○
- Students study different science curricula according to their ability levels ○

16 Are <eighth-grade> students in your school grouped by ability within their science classes?

BCBSGASC

*Fill in **one** circle only* — No ○ / Yes ○

17 Does your school do any of the following for students in the <eighth grade>?

*Fill in **one** circle for each row*

		No	Yes	
a)	Offer enrichment science	○	○	BCBSS0ES
b)	Offer remedial science	○	○	BCBSS0RS

18 How difficult was it to fill <eighth-grade> teaching vacancies for this school year for the following subjects?

*Fill in **one** circle for each row*

		Very difficult	Somewhat difficult	Easy to fill vacancies	Were no vacancies in this subject	
a)	Mathematics	○	○	○	○	BCBMFVAY
b)	Science	○	○	○	○	BCBSFVAY
c)	Computer science / information technology	○	○	○	○	BCBSFVCY

19 Does your school currently use any incentives (e.g., pay, housing, signing bonus) to recruit or retain <eighth-grade> teachers in the following fields?

*Fill in **one** circle for each row*

		No	Yes	
a)	Mathematics	○	○	BCBMRRTM
b)	Science	○	○	BCBSRRTS
c)	Other	○	○	BCBGRRTO

20

During this school year, how often have your <eighth-grade> teachers been involved in professional development opportunities for mathematics and science targeted at the following?

*Fill in **one** circle for each row*

	More than 10 times	6 to 10 times	3 to 5 times	1 to 2 times	Never	
a) Supporting the implementation of the national or regional curriculum	○	○	○	○	○	BCBGPDIC
b) Designing or supporting the school's own improvement goals	○	○	○	○	○	BCBGPDSG
c) Improving content knowledge	○	○	○	○	○	BCBGPDIK
d) Improving teaching skills	○	○	○	○	○	BCBGPDTS
e) Using information and communication technology for educational purposes	○	○	○	○	○	BCBGPDUT

21

A. In your school, are any of the following used to evaluate the practice of <eighth-grade> mathematics teachers?

*Fill in **one** circle for each row*

	No	Yes	
a) Observations by the principal or senior staff	○	○	BCBMEPOS
b) Observations by inspectors or other persons external to the school	○	○	BCBMEPOE
c) Student achievement	○	○	BCBMEPSA
d) Teacher peer review	○	○	BCBMEPTR

B. In your school, are any of the following used to evaluate the practice of <eighth-grade> science teachers?

*Fill in **one** circle for each row*

	No	Yes	
a) Observations by the principal or senior staff	○	○	BCBSEPOS
b) Observations by inspectors or other persons external to the school	○	○	BCBSEPOE
c) Student achievement	○	○	BCBSEPSA
d) Teacher peer review	○	○	BCBSEPTR

Student Behavior

22

How often does each of the following problem behaviors occur among <eighth-grade> students in your school?

If the behavior occurs, how severe a problem does it present?

		A. Frequency in your school (Fill in **one** circle for each row in this section: Never / Rarely / Monthly / Weekly / Daily)	B. Severity of problem in your school (Fill in **one** circle for each row in this section: Not a problem / Minor problem / Serious problem)	
BCBGFP01	a)	Arriving late at school		BCBGSP01
BCBGFP02	b)	Absenteeism (i.e., unjustified absences)		BCBGSP02
BCBGFP03	c)	Skipping class <hours/periods>		BCBGSP03
BCBGFP04	d)	Violating dress code		BCBGSP04
BCBGFP05	e)	Classroom disturbance		BCBGSP05
BCBGFP06	f)	Cheating		BCBGSP06
BCBGFP07	g)	Profanity		BCBGSP07
BCBGFP08	h)	Vandalism		BCBGSP08
BCBGFP09	i)	Theft		BCBGSP09
BCBGFP10	j)	Intimidation or verbal abuse of other students		BCBGSP10
BCBGFP11	k)	Physical injury to other students		BCBGSP11
BCBGFP12	l)	Intimidation or verbal abuse of teachers or staff		BCBGSP12
BCBGFP13	m)	Physical injury to teachers or staff		BCBGSP13

Resources and Technology

23

Is your school's capacity to provide instruction affected by a shortage or inadequacy of any of the following?

*Fill in **one** circle for each row*

		None	A little	Some	A lot	
BCBGST01	a) Instructional materials (e.g., textbook)	○	○	○	○	
BCBGST02	b) Budget for supplies (e.g., paper, pencils)	○	○	○	○	
BCBGST03	c) School buildings and grounds	○	○	○	○	
BCBGST04	d) Heating/cooling and lighting systems	○	○	○	○	
BCBGST05	e) Instructional space (e.g., classrooms)	○	○	○	○	
BCBGST06	f) Special equipment for handicapped students	○	○	○	○	
BCBMST07	g) Computers for mathematics instruction	○	○	○	○	
BCBMST08	h) Computer software for mathematics instruction	○	○	○	○	
BCBMST09	i) Calculators for mathematics instruction	○	○	○	○	
BCBMST10	j) Library materials relevant to mathematics instruction	○	○	○	○	
BCBMST11	k) Audio-visual resources for mathematics instruction	○	○	○	○	

*Fill in **one** circle for each row*

		None	A little	Some	A lot	
	l) Science laboratory equipment and materials	○	○	○	○	BCBSST12
	m) Computers for science instruction	○	○	○	○	BCBSST13
	n) Computer software for science instruction	○	○	○	○	BCBSST14
	o) Calculators for science instruction	○	○	○	○	BCBSST15
	p) Library materials relevant to science instruction	○	○	○	○	BCBSST16
	q) Audio-visual resources for science instruction	○	○	○	○	BCBSST17
	r) Teachers	○	○	○	○	BCBGSH18
	s) Computer support staff	○	○	○	○	BCBGSH19

24

BCBGCMPS

A. What is the total number of computers in your school that can be used for educational purposes by <eighth-grade> students?

*Number of computers:*_____

*If **None,** please go to question* **25**

BCBGCMPI

B. How many of these computers have access to the Internet (e-mail or World Wide Web) for educational purposes?

*Fill in **one** circle only*

- All ○
- Most ○
- Some ○
- None ○

25

BCBGHTTE

A. Is anyone available to help your teachers use information and communication technology for teaching and learning?

No
Yes

*Fill in **one** circle only* ○ ○

*If **No**, you have completed the questionnaire*

BCBGPHTE

B. Which of the following statements best describes the person at this school who helps teachers use information and communication technology for teaching and learning?

*Fill in **one** circle for the best description of that person. If more than one person, choose the one person who spends the most time on this work.*

- A full-time school level coordinator (who has no other job responsibility) ○
- A library media specialist who also serves as computer coordinator ○
- A teacher who also has the title of this type of coordinator ○
- A teacher who provides leadership informally to other teachers ○
- A district-level coordinator ○
- The principal or another school administrator ○
- Other person ○

Thank You

for completing this questionnaire

TIMSS International Study Center
Boston College
Chestnut Hill, MA 02467

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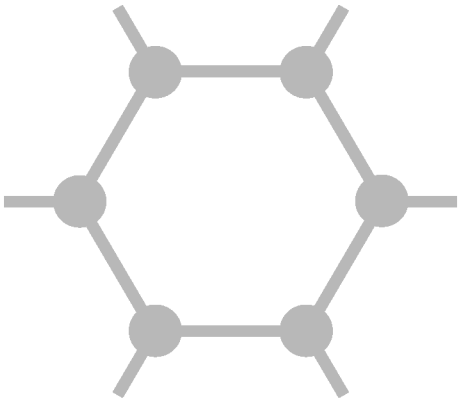


Section 6

Eighth Grade – Mathematics Curriculum Questionnaire (CQM2)

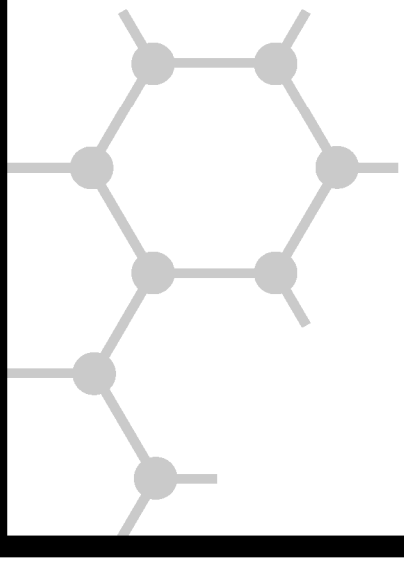
IEA Trends in International Mathematics and Science Study

T I M S S 2003

Main Survey

Curriculum Questionnaire

Mathematics
<Grade 8>



General Directions

This questionnaire is addressed to National Research Coordinators, who are asked to supply information about their nation's intended curriculum in mathematics. This will help provide background information for interpretation of the school and achievement data collected in other parts of the TIMSS 2003 study. Your responses are very important in helping to provide a better understanding of the study results.

We ask that you or your nominee complete this questionnaire, working with others as necessary (e.g., curriculum supervisors of mathematics representative of those at the <grade 8> level in your country). It is important that you answer each question carefully and provide additional information where requested so that as accurate a picture as possible of your country's curriculum is presented in the final reports.

Your cooperation in completing this questionnaire is greatly appreciated

Contact Information

Country: _____

Name of Individual Completing Report: _____

Position of Individual Completing Report: _____

Address: _____

_____

Email: _____

Phone: _____

Fax: _____

Others (and positions) involved in providing information in completing questionnaire:

_____

_____

_____

_____

National Curriculum

IMPORTANT: Throughout this questionnaire, the term "national curriculum" is intended to include any centrally-supported curriculum. The curriculum need not be mandated but it should be strongly recommended or at least widely used. This curriculum may not necessarily be articulated in a formal document, or different aspects of the curriculum may appear in different documents.

1

CQM2q01A **A. Does your country have a national curriculum that includes mathematics at <grade 8>?**

No
Yes

*Fill in **one** circle only* ----------○ --- ○

***Note:** If **No**, please complete the remainder of the questionnaire based on your best informed judgment of the intended mathematics curriculum for the majority of <grade 8> students in your country. If it is impossible to answer a particular question, just make a note and move to the next question.*

CQM2q01B **B. If there is not a national curriculum, what is the highest level of decision-making authority that provides a curriculum for <grade 8> mathematics?**

_____

_____

CQM2q01C **C. In what year was the current intended mathematics curriculum for <grade 8> introduced?**

_____

CQM2q01D **D. Is the intended mathematics curriculum that includes <grade 8> currently being revised?**

No
Yes

*Fill in **one** circle only* ----------○ --- ○

2

CQM2q02A **A. Across grades K-12, does an education authority in your country (e.g., National Ministry of Education) administer examinations in mathematics that have consequences for individual students, such as determining grade promotion, entry to a higher school system, entry to university, and/or exiting or graduating from high school?**

No
Yes

*Fill in **one** circle only* ----------○ --- ○

*If **No**, please go to question **3*** ➡

CQM2q02B **B. If YES, please describe the authority which administers examinations in mathematics, and list the grades at which they are given.**

CQM2q02B_Grade

_____

_____

_____

_____

3

Are any of the following methods used to help implement the national mathematics curriculum at <grade 8>?

*Fill in **one** circle for each row*

		Yes	No
CQM2q03a	a) Mandated or recommended textbook(s)	○	○
CQM2q03b	b) Instructional or pedagogical guide	○	○
CQM2q03c	c) Ministry notes and directives	○	○
CQM2q03d	d) Curriculum evaluation during or after implementation	○	○
CQM2q03e	e) Specifically developed or recommended instructional activities	○	○
CQM2q03f	f) National assessments based on student samples	○	○
CQM2q03g	g) A system of school inspection or audit	○	○
CQM2q03h	h) Other	○	○
CQM2q03h_Oth	(Please specify:_____)		

CQM2q03_Com Comments: _____

_____

_____

_____

4

Does the national curriculum specify the amount of instructional time that should be devoted to mathematics?

*Fill in **one** circle for each row*

		Yes	No	
CQM2q04a	a) at <grade 4>	○	○	
CQM2q04a_Per	If **Yes**, what percentage of total instructional time is supposed to be devoted to mathematics? _____			
CQM2q04b	b) at <grade 6>	○	○	
CQM2q04b_Per	If **Yes**, what percentage of total instructional time is supposed to be devoted to mathematics? _____			
CQM2q04c	c) at <grade 8>	○	○	
CQM2q04c_Per	If **Yes**, what percentage of total instructional time is supposed to be devoted to mathematics? _____			

Pedagogical Approach

5

CQM2q05

Which best describes how the national mathematics curriculum at <grade 8> addresses the issue of students with different levels of ability?

*Fill in **one** circle only*

- The same curriculum is prescribed for all students ○
- The same curriculum is prescribed for students of different ability levels, but at different levels of difficulty ○
- Different curricula are prescribed for students of different ability levels ○

CQM2q05_Com

Comments: _____

_____

_____

_____

6

How much emphasis does the national mathematics curriculum at <grade 8> place on the following?

*Fill in **one** circle for each row*

		None	Very little	Some	A lot	
a)	Mastering basic skills	○	○	○	○	CQM2q06a
b)	Understanding mathematical concepts and principles	○	○	○	○	CQM2q06b
c)	Applying mathematics in real-life contexts	○	○	○	○	CQM2q06c
d)	Communicating mathematically	○	○	○	○	CQM2q06d
e)	Reasoning mathematically	○	○	○	○	CQM2q06e
f)	Incorporating the experiences of different ethnic/cultural groups	○	○	○	○	CQM2q06f
g)	Integrating mathematics with other subjects	○	○	○	○	CQM2q06g
h)	Deriving formal proofs	○	○	○	○	CQM2q06h

CQM2q06_Com

Comments: _____

_____

_____

_____

Calculators and Computers

7

CQM2q07A

A. Does the national curriculum contain statements/policies about the use of calculators in <grade 8> mathematics?

No
Yes

*Fill in **one** circle only* ○ --- ○

*If **No**, please go to question* **8**

CQM2q07B

B. If YES, what are the statements/policies?

_____

_____

_____

_____

8

CQM2q08A

A. Does the national curriculum contain statements/policies about the use of computers in <grade 8> mathematics?

No
Yes

*Fill in **one** circle only* ○ --- ○

*If **No**, please go to question* **9**

CQM2q08B

B. If YES, what are the statements/policies?

_____

_____

_____

_____

Teacher Education and Certification

9

A. Do <grade 8> mathematics teachers receive specific preparation in how to teach the intended mathematics curriculum at <grade 8>?

*Fill in **one** circle for each row*

		No	Yes
CQM2q09Aa	a) As part of pre-service education	○	○
CQM2q09Ab	b) As part of in-service education	○	○

B. If you answered YES to either (a) or (b), describe the nature of the preparation. CQM2q09B

_____

_____

_____

_____

10

Which are the current requirements for being a mathematics teacher at <grade 8>?

*Fill in **one** circle for each row*

		No	Yes
CQM2q10a	a) Pre-practicum and supervised practicum in the field	○	○
CQM2q10b	b) Passing an examination	○	○
CQM2q10c	c) <ISCED 5A, first degree>	○	○
CQM2q10d	d) Completion of a probationary teaching period	○	○
CQM2q10d_Length	If **Yes**, how long is this period?_____		
CQM2q10e	e) Completion of a mentoring or induction program	○	○
CQM2q10f	f) Other	○	○
CQM2q10f_Oth	(Please specify:_____)		

11

A. Is there a process to license or certify <grade 8> mathematics teachers? CQM2q11A

	No	Yes
*Fill in **one** circle only*	○	○

*If **No**, please go to question* **12** →

B. If YES, who certifies/licenses <grade 8> mathematics teachers?

*Fill in **one** circle for each row*

		No	Yes
CQM2q11Ba	a) Minister/Ministry of Education	○	○
CQM2q11Bb	b) National/state licensing board	○	○
CQM2q11Bc	c) Universities/colleges	○	○
CQM2q11Bd	d) Teacher organization/union	○	○
CQM2q11Be	e) Other	○	○
CQM2q11Be_Oth	(Please specify:_____)		

Comments: _____ CQM2q11B_Com

_____

_____

_____

Grade 8 Mathematics Topics

12

According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>?

Across grades K-12, at what grade(s) are the topics primarily intended to be taught?

Be sure to include curriculum expectations for all grades up to and including <grade 8>. If there are not any specifications to this detail, please indicate national expectations to the best of your ability.

If part of a topic does not apply (e.g., factorization in topic (a) below), please cross out that part and answer for the major part of the topic.

		Proportion of <grade 8> students expected to be taught topic *Fill in **one** circle for each row* Not included in the curriculum through <grade 8> | Only the more able students (top track) | All or almost all students	Grade(s) topic is expected to be taught K-12	
	A. Number			
CQM2q12Aa	a) Whole numbers including place value, factorization, and the four operations	○ ○ ○	_____	CQM2q12Aa_Grade
CQM2q12Ab	b) Computations, estimations, or approximations involving whole numbers	○ ○ ○	_____	CQM2q12Ab_Grade
CQM2q12Ac	c) Common fractions including equivalent fractions, and ordering of fractions	○ ○ ○	_____	CQM2q12Ac_Grade
CQM2q12Ad	d) Decimal fractions including place value, ordering, rounding, and converting to common fractions (and vice versa)	○ ○ ○	_____	CQM2q12Ad_Grade
CQM2q12Ae	e) Representing decimals and fractions using words, numbers, or models (including number lines)	○ ○ ○	_____	CQM2q12Ae_Grade
CQM2q12Af	f) Computations with fractions	○ ○ ○	_____	CQM2q12Af_Grade
CQM2q12Ag	g) Computations with decimals	○ ○ ○	_____	CQM2q12Ag_Grade
CQM2q12Ah	h) Integers including words, numbers, or models (including number lines), ordering integers, addition, subtraction, multiplication, and division with integers	○ ○ ○	_____	CQM2q12Ah_Grade
CQM2q12Ai	i) Ratios (equivalence, division of a quantity by a given ratio)	○ ○ ○	_____	CQM2q12Ai_Grade
CQM2q12Aj	j) Conversion of percents to fractions or decimals, and vice versa	○ ○ ○	_____	CQM2q12Aj_Grade
	B. Algebra			
CQM2q12Ba	a) Numeric, algebraic, and geometric patterns or sequences (extension, missing terms, generalization of patterns)	○ ○ ○	_____	CQM2q12Ba_Grade
CQM2q12Bb	b) Sums, products, and powers of expressions containing variables	○ ○ ○	_____	CQM2q12Bb_Grade
CQM2q12Bc	c) Simple linear equations and inequalities, and simultaneous (two variables) equations	○ ○ ○	_____	CQM2q12Bc_Grade
CQM2q12Bd	d) Equivalent representations of functions as ordered pairs, tables, graphs, words, or equations	○ ○ ○	_____	CQM2q12Bd_Grade
CQM2q12Be	e) Proportional, linear, and nonlinear relationships (travel graphs and simple piecewise functions included)	○ ○ ○	_____	CQM2q12Be_Grade
CQM2q12Bf	f) Attributes of a graph such as intercepts on axes, and intervals where the function increases, decreases, or is constant	○ ○ ○	_____	CQM2q12Bf_Grade

12 continued

		Proportion of <grade 8> students expected to be taught topic	Grade(s) topic is expected to be taught K-12	
		*Fill in **one** circle for each row*		
		Not included in the curriculum through <grade 8> / Only the more able students (top track) / All or almost all students		
	C. Measurement			
CQM2q12Ca	a) Standard units for measures of length, area, volume, perimeter, circumference, time, speed, density, angle, mass/weight	○ ○ ○	_____	CQM2q12Ca_Grade
CQM2q12Cb	b) Relationships among units for conversions within systems of units, and for rates	○ ○ ○	_____	CQM2q12Cb_Grade
CQM2q12Cc	c) Use standard tools to measure length, weight, time, speed, angle, and temperature	○ ○ ○	_____	CQM2q12Cc_Grade
CQM2q12Cd	d) Estimations of length, circumference, area, volume, weight, time, angle, and speed in problem situations (e.g., circumference of a wheel, speed of a runner)	○ ○ ○	_____	CQM2q12Cd_Grade
CQM2q12Ce	e) Computations with measurements in problem situations (e.g., add measures, find average speed on a trip, find population density)	○ ○ ○	_____	CQM2q12Ce_Grade
CQM2q12Cf	f) Measurement formulas for perimeter of a rectangle, circumference of a circle, areas of plane figures (including circles), surface area and volume of rectangular solids, and rates	○ ○ ○	_____	CQM2q12Cf_Grade
CQM2q12Cg	g) Measures of irregular or compound areas (e.g., by using grids or dissecting and rearranging pieces)	○ ○ ○	_____	CQM2q12Cg_Grade
CQM2q12Ch	h) Precision of measurements (e.g., upper and lower bounds of a length reported as 8 centimeters to the nearest centimeter)	○ ○ ○	_____	CQM2q12Ch_Grade

12 continued

According to the national mathematics curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>?

Across grades K-12, at what grade(s) are the topics primarily intended to be taught?

Be sure to include curriculum expectations for all grades up to and including <grade 8>. If there are not any specifications to this detail, please indicate national expectations to the best of your ability.

If part of a topic does not apply, please cross out that part and answer for the major part of the topic.

			Proportion of <grade 8> students expected to be taught topic *Fill in **one** circle for each row* Not included in the curriculum through <grade 8> Only the more able students (top track) All or almost all students	Grade(s) topic is expected to be taught K-12	
	D. Geometry				
CQM2q12Da	a)	Angles - acute, right, straight, obtuse, reflex, complementary, and supplementary	○ ○ ○	_____	CQM2q12Da_Grade
CQM2q12Db	b)	Relationships for angles at a point, angles on a line, vertically opposite angles, angles associated with a transversal cutting parallel lines, and perpendicularity	○ ○ ○	_____	CQM2q12Db_Grade
CQM2q12Dc	c)	Properties of angle bisectors and perpendicular bisectors of lines	○ ○ ○	_____	CQM2q12Dc_Grade
CQM2q12Dd	d)	Properties of geometric shapes: triangles and quadrilaterals	○ ○ ○	_____	CQM2q12Dd_Grade
CQM2q12De	e)	Properties of other polygons (regular pentagon, hexagon, octagon, decagon)	○ ○ ○	_____	CQM2q12De_Grade
CQM2q12Df	f)	Construct or draw triangles and rectangles of given dimensions	○ ○ ○	_____	CQM2q12Df_Grade
CQM2q12Dg	g)	Pythagorean theorem (not proof) to find length of a side	○ ○ ○	_____	CQM2q12Dg_Grade
CQM2q12Dh	h)	Congruent figures (triangles, quadrilaterals) and their corresponding measures	○ ○ ○	_____	CQM2q12Dh_Grade
CQM2q12Di	i)	Similar triangles and recall their properties	○ ○ ○	_____	CQM2q12Di_Grade
CQM2q12Dj	j)	Cartesian plane - ordered pairs, equations, intercepts, intersections, and gradient	○ ○ ○	_____	CQM2q12Dj_Grade
CQM2q12Dk	k)	Relationships between two-dimensional and three-dimensional shapes	○ ○ ○	_____	CQM2q12Dk_Grade
CQM2q12Dl	l)	Line and rotational symmetry for two-dimensional shapes	○ ○ ○	_____	CQM2q12Dl_Grade
CQM2q12Dm	m)	Translation, reflection, rotation, and enlargement	○ ○ ○	_____	CQM2q12Dm_Grade

12 continued

		Proportion of <grade 8> students expected to be taught topic	Grade(s) topic is expected to be taught K-12	
		*Fill in **one** circle for each row*		
		Not included in the curriculum through <grade 8> / Only the more able students (top track) / All or almost all students		
	E. Data			
CQM2q12Ea	a) Organizing a set of data by one or more characteristics using a tally chart, table, or graph	○ ○ ○	_____	CQM2q12Ea_Grade
CQM2q12Eb	b) Sources of error in collecting and organizing data (e.g., bias, inappropriate grouping)	○ ○ ○	_____	CQM2q12Eb_Grade
CQM2q12Ec	c) Data collection methods (e.g., survey, experiment, questionnaire)	○ ○ ○	_____	CQM2q12Ec_Grade
CQM2q12Ed	d) Drawing and interpreting graphs, tables, pictographs, bar graphs, pie charts, and line graphs	○ ○ ○	_____	CQM2q12Ed_Grade
CQM2q12Ee	e) Characteristics of data sets including mean, median, range, and shape of distribution (in general terms)	○ ○ ○	_____	CQM2q12Ee_Grade
CQM2q12Ef	f) Interpreting data sets (e.g., draw conclusions, make predictions, and estimate values between and beyond given data points)	○ ○ ○	_____	CQM2q12Ef_Grade
CQM2q12Eg	g) Evaluating interpretations of data with respect to correctness and completeness of interpretation	○ ○ ○	_____	CQM2q12Eg_Grade
CQM2q12Eh	h) Simple probability including using data from experiments to estimate probabilities for favorable outcomes	○ ○ ○	_____	CQM2q12Eh_Grade

Thank You for completing this questionnaire

TIMSS International Study Center
Boston College
Chestnut Hill, MA 02467

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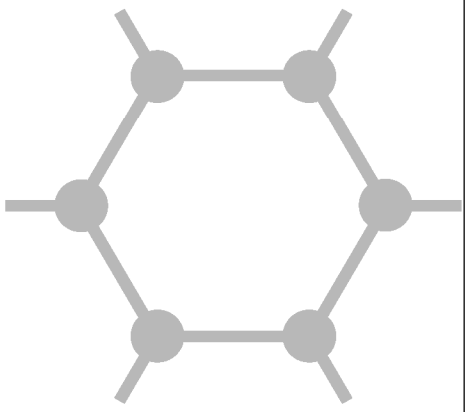


Section 7

Eighth Grade – Science Curriculum Questionnaire (CQ2S)

IEA Trends in International Mathematics and Science Study

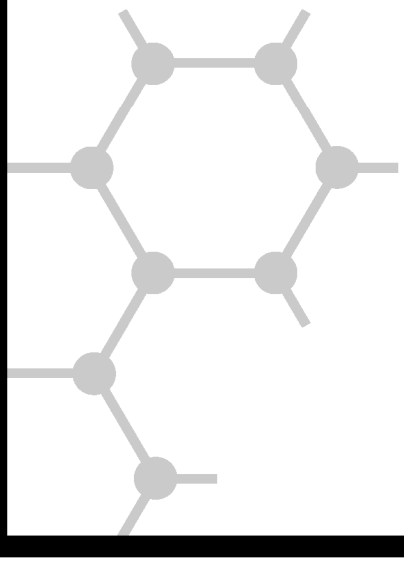
T I M S S

2003

Main Survey

Curriculum Questionnaire

Science
<Grade 8>



General Directions

This questionnaire is addressed to National Research Coordinators, who are asked to supply information about their nation's intended curriculum in science. This will help provide background information for interpretation of the school and achievement data collected in other parts of the TIMSS 2003 study. Your responses are very important in helping to provide a better understanding of the study results.

We ask that you or your nominee complete this questionnaire, working with others as necessary (e.g., curriculum supervisors of science representative of those at the <grade 8> level in your country). It is important that you answer each question carefully and provide additional information where requested so that as accurate a picture as possible of your country's curriculum is presented in the final reports.

Your cooperation in completing this questionnaire is greatly appreciated

Contact Information

Country: _____

Name of Individual Completing Report: _____

Position of Individual Completing Report: _____

Address: _____

_____

Email: _____

Phone: _____

Fax: _____

Others (and positions) involved in providing information in completing questionnaire:

_____

_____

_____

_____

National Curriculum

IMPORTANT: Throughout this questionnaire, the term "national curriculum" is intended to include any centrally-supported curriculum. The curriculum need not be mandated but it should be strongly recommended or at least widely used. This curriculum may not necessarily be articulated in a formal document, or different aspects of the curriculum may appear in different documents.

1

CQS2q01A

A. Does your country have a national curriculum that includes science at <grade 8>?

No
Yes

*Fill in **one** circle only* ----------○ --- ○

***Note**: If **No**, please complete the remainder of the questionnaire based on your best informed judgment of the intended science curriculum for the majority of <grade 8> students in your country. If it is impossible to answer a particular question, just make a note and move to the next question.*

CQS2q01B

B. If there is not a national curriculum, what is the highest level of decision-making authority that provides a curriculum for <grade 8> science?

_____

_____

CQS2q01C

C. In what year was the current intended science curriculum for <grade 8> introduced?

_____

CQS2q01D

D. Is the intended science curriculum that includes <grade 8> currently being revised?

No
Yes

*Fill in **one** circle only* ----------○ --- ○

2

CQS2q02A

A. By <grade 8> are different science courses offered in separate subjects (e.g., biology, chemistry, physics, earth science)?

No
Yes

*Fill in **one** circle only* ----------○ --- ○

*If **No,** please go to question* **3**

CQS2q02B

B. If YES, please list the science subjects taught as separate courses and all grades in which they are taught, up to and including <grade 8>.

Subject	**Grades**
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

3

CQS2q03A

A. Across grades K-12, does an education authority in your country (e.g., National Ministry of Education) administer examinations in science that have consequences for individual students, such as determining grade promotion, entry to a higher school system, entry to university, and/or exiting or graduating from high school?

	No	Yes
*Fill in **one** circle only*	○	○

*If **No**, please go to question **4***

CQS2q03B

B. If YES, please describe the authority which administers examinations in science, and list the grades at which they are given.

CQS2q03B_Grade

If examinations in separate science subjects such as biology, earth science, chemistry and physics are given at different grades, please indicate this.

_____

_____

_____

_____

_____

_____

4

Are any of the following methods used to help implement the national science curriculum at <grade 8>?

*Fill in **one** circle for each row*

		No	Yes	
a)	Mandated or recommended textbook(s)	○	○	CQS2q04a
b)	Instructional or pedagogical guide	○	○	CQS2q04b
c)	Ministry notes and directives	○	○	CQS2q04c
d)	Curriculum evaluation during or after implementation	○	○	CQS2q04d
e)	Specifically developed or recommended instructional activities	○	○	CQS2q04e
f)	National assessments based on student samples	○	○	CQS2q04f
g)	A system of school inspection or audit	○	○	CQS2q04g
h)	Other	○	○	CQS2q04h
	(Please specify:_____)			CQS2q04h_Oth

Comments: _____ CQS2q04_Com

_____

_____

_____

5

Does the national curriculum specify the amount of instructional time that should be devoted to science?

*Fill in **one** circle for each row*

		No	Yes
CQS2q05a	a) at <grade 4>	○	○
CQS2q05a_Per	If **Yes**, what percentage of total instructional time is supposed to be devoted to the science? _____		
CQS2q05b	b) at <grade 6>	○	○
CQS2q05b_Per	If **Yes**, what percentage of total instructional time is supposed to be devoted to science? _____		
CQS2q05c	c) at <grade 8>	○	○
CQS2q05c_Per	If **Yes**, what percentage of total instructional time is supposed to be devoted to science? _____		

CQS2q05c_Subj_Per

If different science courses are offered in separate subjects at <grade 8>, please give the percentage of total instructional time that is supposed to be devoted to each science course at <grade 8>.

Subject	Percentage
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Pedagogical Approach

6

CQS2q06

Which best describes how the national science curriculum at <grade 8> addresses the issue of students with different levels of ability?

*Fill in **one** circle only*

- The same curriculum is prescribed for all students ○
- The same curriculum is prescribed for students of different ability levels, but at different levels of difficulty ○
- Different curricula are prescribed for students of different ability levels ○

CQS2q06_Com

Comments: _____

_____

_____

_____

7

How much emphasis does the national science curriculum at <grade 8> place on the following?

*Fill in **one** circle for each row*

		None	Very little	Some	A lot	
a)	Knowing basic science facts	○	○	○	○	CQS2q07a
b)	Understanding science concepts	○	○	○	○	CQS2q07b
c)	Writing explanations about what was observed and why it happened	○	○	○	○	CQS2q07c
d)	Formulating hypotheses or predictions to be tested	○	○	○	○	CQS2q07d
e)	Designing and planning experiments or investigations	○	○	○	○	CQS2q07e
f)	Conducting experiments or investigations	○	○	○	○	CQS2q07f
g)	Learning about the nature of science and inquiry	○	○	○	○	CQS2q07g
h)	Integrating science with other subjects	○	○	○	○	CQS2q07h
i)	Learning about technology and its impact on society	○	○	○	○	CQS2q07i
j)	Understanding human impact on the environment	○	○	○	○	CQS2q07j
k)	Incorporating the experiences of different ethnic/cultural groups	○	○	○	○	CQS2q07k

CQS2q07_Com

Comments: _____

_____

_____

_____

Computers

8

CQS2q08A

A. Does the national curriculum contain statements/policies about the emphasis that should be placed on scientific inquiry in <grade 8> science?

No
Yes

*Fill in **one** circle only*

*If **No,** please go to question* **9**

CQS2q08B

B. If YES, what are the statements/policies?

_____

_____

_____

_____

9

CQS2q09A

A. Does the national curriculum contain statements/policies about the use of computers in <grade 8> science?

No
Yes

*Fill in **one** circle only*

*If **No,** please go to question* **10**

CQS2q09B

B. If YES, what are the statements/policies?

_____

_____

_____

_____

Teacher and Education Certification

10

A. Do <grade 8> science teachers receive specific preparation in how to teach the intended science curriculum at <grade 8>?

*Fill in **one** circle for each row*

		No	Yes	
CQS2q10Aa	a) As part of pre-service education	○	○	
CQS2q10Ab	b) As part of in-service education	○	○	

CQS2q10B **B. If you answered YES to either (a) or (b), describe the nature of the preparation.**

_____

_____

_____

_____

11

Which are the current requirements for being a science teacher at <grade 8>?

*Fill in **one** circle for each row*

		No	Yes	
CQS2q11a	a) Pre-practicum and supervised practicum in the field	○	○	
CQS2q11b	b) Passing an examination	○	○	
CQS2q11c	c) <ISCED 5A, first degree>	○	○	
CQS2q11d	d) Completion of a probationary teaching period	○	○	
CQS2q11d_Length	If **Yes**, how long is this period?_____			
CQS2q11e	e) Completion of a mentoring or induction program	○	○	
CQS2q11f	f) Other	○	○	
CQS2q11f_Oth	(Please specify:_____)			

12

CQS2q12A **A. Is there a process to license or certify <grade 8> science teachers?**

*Fill in **one** circle only* No ○ Yes ○

*If **No**, please go to question* **13**

B. If YES, who certifies/licenses <grade 8> science teachers?

*Fill in **one** circle for each row*

		No	Yes	
CQS2q12Ba	a) Minister/Ministry of Education	○	○	
CQS2q12Bb	b) National/state licensing board	○	○	
CQS2q12Bc	c) Universities/colleges	○	○	
CQS2q12Bd	d) Teacher organization/union	○	○	
CQS2q12Be	e) Other	○	○	
CQS2q12Be_Oth	(Please specify:_____)			

CQS2q12B_Com Comments: _____

_____

_____

_____

Grade 8 Science Topics

13

According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>?

Across grades K-12, at what grade(s) are the topics primarily intended to be taught?

Be sure to include curriculum expectations for all grades up to and including <grade 8>. If there are not any specifications to this detail, please indicate national expectations to the best of your ability.

If part of a topic does not apply (e.g., heredity in topic (g) below), please cross out that part and answer for the major part of the topic.

		Proportion of <grade 8> students expected to be taught topic *Fill in **one** circle for each row* Not included in the curriculum through <grade 8> Only the more able students (top track) All or almost all students	Grade(s) topic is expected to be taught K-12	
	A. Biology			
CQS2q13Aa	a) Classification of organisms on the basis of a variety of physical and behavioral characteristics	○ ○ ○	_____	CQS2q13Aa_Grade
CQS2q13Ab	b) The major organ systems in humans and other organisms	○ ○ ○	_____	CQS2q13Ab_Grade
CQS2q13Ac	c) How the systems function to maintain stable bodily conditions	○ ○ ○	_____	CQS2q13Ac_Grade
CQS2q13Ad	d) Cell structures and functions	○ ○ ○	_____	CQS2q13Ad_Grade
CQS2q13Ae	e) Photosynthesis and respiration as processes of cells and organisms, including substances used and produced	○ ○ ○	_____	CQS2q13Ae_Grade
CQS2q13Af	f) Life cycles of organisms, including humans, plants, birds, insects	○ ○ ○	_____	CQS2q13Af_Grade
CQS2q13Ag	g) Reproduction (sexual and asexual), and heredity (passing on of traits), inherited versus acquired/learned characteristics	○ ○ ○	_____	CQS2q13Ag_Grade
CQS2q13Ah	h) The role of variation and adaptation in survival/extinction of species in a changing environment	○ ○ ○	_____	CQS2q13Ah_Grade
CQS2q13Ai	i) The interaction of living organisms in an ecosystem (energy flow, food chains and food webs, food pyramids, and the effects of changes upon the system)	○ ○ ○	_____	CQS2q13Ai_Grade
CQS2q13Aj	j) Cycling of materials in nature (water, carbon/oxygen cycle, decomposition of organisms)	○ ○ ○	_____	CQS2q13Aj_Grade
CQS2q13Ak	k) Causes of common infectious diseases, methods of infection/transmission, prevention, and the body's natural resistance and healing capabilities	○ ○ ○	_____	CQS2q13Ak_Grade
CQS2q13Al	l) Preventive medicine methods (diet, hygiene, exercise and lifestyle)	○ ○ ○	_____	CQS2q13Al_Grade

13 continued

		Not included in the curriculum through <grade 8>	Only the more able students (top track)	All or almost all students	Grade(s) topic is expected to be taught K-12	
		*Fill in **one** circle for each row*				
	B. Chemistry					
CQS2q13Ba	a) Classification and composition of matter (physical and chemical characteristics, pure substances and mixtures, separation techniques)	○	○	○	_____	CQS2q13Ba_Grade
CQS2q13Bb	b) Properties of solutions (solvents, solutes, effects of temperature on solubility)	○	○	○	_____	CQS2q13Bb_Grade
CQS2q13Bc	c) Particulate structure of matter (molecules, atoms, protons, neutrons, and electrons)	○	○	○	_____	CQS2q13Bc_Grade
CQS2q13Bd	d) Properties and uses of water (composition, melting/boiling points, changes in density/volume)	○	○	○	_____	CQS2q13Bd_Grade
CQS2q13Be	e) The properties and uses of common acids and bases	○	○	○	_____	CQS2q13Be_Grade
CQS2q13Bf	f) Chemical change (transformation of reactants, evidence of chemical change, conservation of matter)	○	○	○	_____	CQS2q13Bf_Grade
CQS2q13Bg	g) The need for oxygen in common oxidation reactions (combustion, rusting) and the relative tendency of familiar substances to undergo these reactions	○	○	○	_____	CQS2q13Bg_Grade
CQS2q13Bh	h) Classification of familiar chemical transformations as releasing or absorbing heat/energy	○	○	○	_____	CQS2q13Bh_Grade

13 continued

According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>?

Across grades K-12, at what grade(s) are the topics primarily intended to be taught?

Be sure to include curriculum expectations for all grades up to and including <grade 8>. If there are not any specifications to this detail, please indicate national expectations to the best of your ability.

If part of a topic does not apply, please cross out that part and answer for the major part of the topic.

		Proportion of <grade 8> students expected to be taught topic	Grade(s) topic is expected to be taught K-12	
		*Fill in **one** circle for each row*		
		Not included in the curriculum through <grade 8>		
		Only the more able students (top track)		
		All or almost all students		
	C. Physics			
CQS2q13Ca	a) Physical states and changes in matter (explanations of properties including volume, shape, density and compressibility in terms of movement/distance between particles)	○ ○ ○	_____	CQS2q13Ca_Grade
CQS2q13Cb	b) The processes of melting, freezing, evaporation, and condensation (phase change by supplying/removing heat; melting/boiling points; effects of pressure and purity of substances)	○ ○ ○	_____	CQS2q13Cb_Grade
CQS2q13Cc	c) Energy types, sources, and conversions, including heat transfer	○ ○ ○	_____	CQS2q13Cc_Grade
CQS2q13Cd	d) Thermal expansion and changes in volume and/or pressure	○ ○ ○	_____	CQS2q13Cd_Grade
CQS2q13Ce	e) Basic properties/behavior of light (reflection, refraction, light and color, simple ray diagrams)	○ ○ ○	_____	CQS2q13Ce_Grade
CQS2q13Cf	f) Properties of sound (production by vibration, transmission through media, ways of describing sound (intensity, pitch), relative speed)	○ ○ ○	_____	CQS2q13Cf_Grade
CQS2q13Cg	g) Electric circuits (flow of current, types of circuits – open/closed, parallel/series) and relationship between voltage and current	○ ○ ○	_____	CQS2q13Cg_Grade
CQS2q13Ch	h) Properties of permanent magnets and electromagnets	○ ○ ○	_____	CQS2q13Ch_Grade
CQS2q13Ci	i) Forces and motion (types of forces, basic description of motion), use of distance/time graphs	○ ○ ○	_____	CQS2q13Ci_Grade
CQS2q13Cj	j) Effects of density and pressure	○ ○ ○	_____	CQS2q13Cj_Grade

13 continued

		Proportion of <grade 8> students expected to be taught topic *Fill in **one** circle for each row* Not included in the curriculum through <grade 8> | Only the more able students (top track) | All or almost all students	Grade(s) topic is expected to be taught K-12	
	D. Earth Science			
CQS2q13Da	a) Earth's structure and physical features (Earth's crust, mantle, and core; topographic maps)	○ ○ ○	_____	CQS2q13Da_Grade
CQS2q13Db	b) The physical state, movement, composition, and relative distribution of water on the Earth	○ ○ ○	_____	CQS2q13Db_Grade
CQS2q13Dc	c) The Earth's atmosphere and the relative abundance of its main components	○ ○ ○	_____	CQS2q13Dc_Grade
CQS2q13Dd	d) Earth's water cycle (steps, role of sun's energy, circulation/renewal of fresh water)	○ ○ ○	_____	CQS2q13Dd_Grade
CQS2q13De	e) Processes in the rock cycle and the formation of igneous, metamorphic, and sedimentary rock	○ ○ ○	_____	CQS2q13De_Grade
CQS2q13Df	f) Weather data/maps, and changes in weather patterns (e.g., seasonal changes, effects of latitude, altitude and geography)	○ ○ ○	_____	CQS2q13Df_Grade
CQS2q13Dg	g) Geological processes occuring over billions of years (e.g., erosion, mountain building, plate movement)	○ ○ ○	_____	CQS2q13Dg_Grade
CQS2q13Dh	h) Formation of fossils and fossil fuels	○ ○ ○	_____	CQS2q13Dh_Grade
CQS2q13Di	i) Explanation of phenomena on Earth based on position/movement of bodies in the solar sytem and universe (e.g., day/night, tides, year, phases of the moon, eclipses, seasons, appearance of sun, moon, planets, and constellations)	○ ○ ○	_____	CQS2q13Di_Grade
CQS2q13Dj	j) The physical features of Earth compared with the moon and other planets (e.g., atmosphere, temperature, water, distance from sun, period of revolution/rotation, ability to support life)	○ ○ ○	_____	CQS2q13Dj_Grade
CQS2q13Dk	k) The sun as a star	○ ○ ○	_____	CQS2q13Dk_Grade

13 continued

According to the national science curriculum, what proportion of <grade 8> students should have been taught each of the following topics or skills by the end of <grade 8>?

Across grades K-12, at what grade(s) are the topics primarily intended to be taught?

Be sure to include curriculum expectations for all grades up to and including <grade 8>. If there are not any specifications to this detail, please indicate national expectations to the best of your ability.

If part of a topic does not apply, please cross out that part and answer for the major part of the topic.

		Proportion of <grade 8> students expected to be taught topic	Grade(s) topic is expected to be taught K-12	
		*Fill in **one** circle for each row*		
		Not included in the curriculum through <grade 8>		
		Only the more able students (top track)		
		All or almost all students		
	E. Environmental Science			
CQS2q13Ea	a) Trends in human population and its effects on the environment	○ ○ ○	_____	CQS2q13Ea_Grade
CQS2q13Eb	b) Use and conservation of natural resources (renewable/nonrenewable resources, human use of land/soil and water resources)	○ ○ ○	_____	CQS2q13Eb_Grade
CQS2q13Ec	c) Changes in environments (role of human activity, effects/prevention of pollution, global environmental concerns, impact of natural hazards)	○ ○ ○	_____	CQS2q13Ec_Grade

Thank You

for completing this questionnaire

TIMSS International Study Center
Boston College
Chestnut Hill, MA 02467

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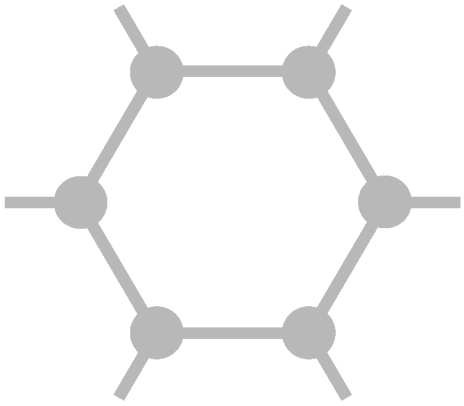


Section 8

Fourth Grade – Student Questionnaire (SQ1)

<TIMSS National Research Center Name>
<Address>

Identification Label

Student ID: _____

Student Name: _____

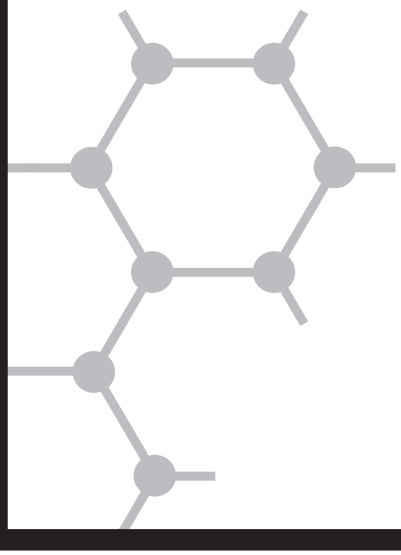
IEA Trends in International Mathematics and Science Study

T I M S S 2003

Main Survey

Student Questionnaire

<Grade 4>



General Directions

In this booklet, you will find questions about yourself. Some questions ask for facts while other questions ask for your opinions.

Read each question carefully and answer as accurately as possible. You may ask for help if you do not understand something or are not sure how to answer.

Some of the questions will be followed by a few possible choices indicated with a circle with a number in it. For these questions, shade in the circle with the answer of your choice as shown in Examples 1, 2, and 3.

Example 1

Do you go to school?

*Fill in **one** circle only*

Yes ---------- ●
No ---------- ②

Example 2

How often do you do these things?

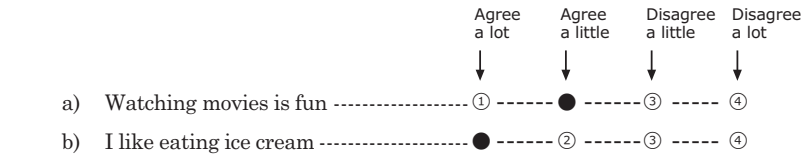
*Fill in **one** circle for each line*

	Every day	At least once a week	Once or twice a month	A few times a year	Never
a) I listen to music	①	②	●	④	⑤
b) I talk with my friends	●	②	③	④	⑤
c) I play sports	①	●	③	④	⑤

Example 3

Indicate how much you agree with each of these statements.

*Fill in **one** circle for each line*



Read each question carefully, and pick the answer you think is best. Fill in the circle next to or below your answer. If you decide to change your answer, erase your first answer and then fill in the circle next to or under your new answer. Ask for help if you do not understand something or are not sure how to answer.

Thank you for your time, effort, and thought in completing this questionnaire.

About You

1

When were you born?

ASBGBRTY

A. Fill in the circle next to the year you were born

Year

① 1990
② 1991
③ 1992
④ 1993
⑤ 1994
⑥ 1995
⑦ 1996
⑧ Other

B. Fill in the circle next to the month you were born

ASBGBRTM

Month

① January
② February
③ March
④ April
⑤ May
⑥ June
⑦ July
⑧ August
⑨ September
10 October
11 November
12 December

2

ASBGSEX

Are you a girl or a boy?

*Fill in **one** circle only*

Girl ---------- ①
Boy ---------- ②

3

ASBGOLAN

How often do you speak <language of test> at home?

*Fill in **one** circle only*

Always ---------- ①
Almost always ---------- ②
Sometimes ---------- ③
Never ---------- ④

About You (Continued)

4

ASBGBOOK

About how many books are there in your home? (Do not count magazines, newspapers, or your school books.)

*Fill in **one** circle only*

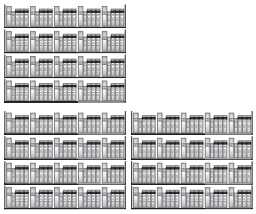
None or very few
(0-10 books) ---------- ① This shows 10 books

Enough to fill one shelf
(11-25 books) ---------- ② This shows 25 books

Enough to fill one bookcase
(26-100 books) ---------- ③ This shows 100 books

Enough to fill two bookcases
(101-200 books) ---------- ④ This shows 200 books

Enough to fill three or more bookcases
(more than 200 books) ---------- ⑤ This shows more than 200 books



5

Do you have any of these items at your home?

*Fill in **one** circle for each line*

		Yes	No
ASBGPS01	a) Calculator	①	②
ASBGPS02	b) Computer (do not include PlayStation®, GameCube®, XBox®, or other TV/video game computers)	①	②
ASBGPS03	c) Study desk/table for your use	①	②
ASBGPS04	d) Dictionary	①	②
ASBGPS05	e) <country-specific>	①	②
ASBGPS06	f) <country-specific>	①	②
ASBGPS07	g) <country-specific>	①	②
ASBGPS08	h) <country-specific>	①	②
ASBGPS09	i) <country-specific>	①	②
ASBGPS10	j) <country-specific>	①	②
ASBGPS11	k) <country-specific>	①	②
ASBGPS12	l) <country-specific>	①	②
ASBGPS13	m) <country-specific>	①	②
ASBGPS14	n) <country-specific>	①	②
ASBGPS15	o) <country-specific>	①	②
ASBGPS16	p) <country-specific>	①	②

Mathematics in School

6

How much do you agree with these statements about learning mathematics?

*Fill in **one** circle for each line*

		Agree a lot	Agree a little	Disagree a little	Disagree a lot
ASBMTWEL	a) I usually do well in mathematics	①	②	③	④
ASBMTMOR	b) I would like to do more mathematics in school	①	②	③	④
ASBMTCLM	c) Mathematics is harder for me than for many of my classmates	①	②	③	④
ASBMTENJ	d) I enjoy learning mathematics	①	②	③	④
ASBMTNOT	e) I am just not good at mathematics	①	②	③	④
ASBMTQKY	f) I learn things quickly in mathematics	①	②	③	④

7

How often do you do these things in your mathematics lessons?

*Fill in **one** circle for each line*

		Every or almost every lesson	About half the lessons	Some lessons	Never
ASBMHASM	a) I practice adding, subtracting, multiplying, and dividing without using a calculator	①	②	③	④
ASBMHWFD	b) I work on fractions and decimals	①	②	③	④
ASBMHMCL	c) I measure things in the classroom and around the school	①	②	③	④
ASBMHTCG	d) I make tables, charts, or graphs	①	②	③	④
ASBMHCTR	e) I learn about shapes such as circles, triangles, and rectangles	①	②	③	④
ASBMHWSG	f) I work with other students in small groups	①	②	③	④
ASBMHEXP	g) I explain my answers	①	②	③	④
ASBMHLTT	h) I listen to the teacher talk	①	②	③	④
ASBMHWPO	i) I work problems on my own	①	②	③	④
ASBMHCAL	j) I use a calculator	①	②	③	④

Science in School

8

How much do you agree with these statements about learning science?

*Fill in **one** circle for each line*

		Agree a lot	Agree a little	Disagree a little	Disagree a lot
ASBSTWEL	a) I usually do well in science	①	②	③	④
ASBSTMOR	b) I would like to do more science in school	①	②	③	④
ASBSTCLM	c) Science is harder for me than for many of my classmates	①	②	③	④
ASBSTENJ	d) I enjoy learning science	①	②	③	④
ASBSTNOT	e) I am just not good at science	①	②	③	④
ASBSTQKY	f) I learn things quickly in science	①	②	③	④

9

In school, how often do you do these things?

*Fill in **one** circle for each line*

		At least once a week	Once or twice a month	A few times a year	Never
ASBSWATE	a) I watch the teacher do a science experiment	①	②	③	④
ASBSHPEX	b) I design or plan a science experiment or investigation	①	②	③	④
ASBSDSEI	c) I do a science experiment or investigation	①	②	③	④
ASBSHWGX	d) I work with other students in a small group on a science experiment or investigation	①	②	③	④
ASBSWESS	e) I write or give an explanation for something I am studying in science	①	②	③	④
ASBSLWPS	f) I look at something like the weather or a plant growing and write down what I see	①	②	③	④
ASBSHLTT	g) I listen to the teacher talk	①	②	③	④
ASBSHWPX	h) I work problems on my own	①	②	③	④

Computers

10

ASBGUSEC **A. Do you ever use a computer? (Do not include PlayStation®, GameCube®, XBox®, or other TV/video game computers).**

	Yes	No
*Fill in **one** circle only*	①	②

*If **No,** please go to question* **11**

B. Where do you use a computer?

*Fill in **one** circle for each line*

		Yes	No
ASBGCHOM	a) At home	①	②
ASBGCSCH	b) At school	①	②
ASBGCLIB	c) At a library	①	②
ASBGCFRH	d) At a friend's home	①	②
ASBGCCAF	e) At an Internet café	①	②
ASBGCELS	f) Elsewhere	①	②

C. How often do you do these things with a computer?

*Fill in **one** circle for each line*

		Every day	At least once a week	Once or twice a month	A few times a year	Never
ASBMOINF	a) I look up ideas and information for mathematics	①	②	③	④	⑤
ASBSOINF	b) I look up ideas and information for science	①	②	③	④	⑤
ASBGOREP	c) I write reports for school	①	②	③	④	⑤

Your School

11

How much do you agree with these statements about your school?

*Fill in **one** circle for each line*

		Agree a lot	Agree a little	Disagree a little	Disagree a lot
ASBGALBS	a) I like being in school	①	②	③	④
ASBGATTB	b) I think that students in my school try to do their best	①	②	③	④
ASBGATCS	c) I think that teachers in my school care about the students	①	②	③	④
ASBGATSB	d) I think that teachers in my school want students to do their best	①	②	③	④

12

<u>In school</u>, did any of these things happen during the <u>last month</u>?

*Fill in **one** circle for each line*

		Yes	No
ASBGSTOL	a) Something of mine was stolen	①	②
ASBGHURT	b) I was hit or hurt by other student(s) (for example, shoving, hitting, kicking)	①	②
ASBGMADE	c) I was made to do things I didn't want to do by other students	①	②
ASBGMFUN	d) I was made fun of or called names	①	②
ASBGLEFT	e) I was left out of activities by other students	①	②

Things You Do Outside of School

13

On a normal school day, how much time do you spend before or after school doing each of these things?

*Fill in **one** circle for each line*

		No time	Less than 1 hour	1-2 hours	More than 2 but less than 4 hours	4 or more hours
ASBGWATV	a) I watch television and videos	①	②	③	④	⑤
ASBGPLCG	b) I play computer games	①	②	③	④	⑤
ASBGPLFD	c) I play or talk with friends	①	②	③	④	⑤
ASBGJOHM	d) I do jobs at home	①	②	③	④	⑤
ASBGPLSP	e) I play sports	①	②	③	④	⑤
ASBGREBO	f) I read a book for enjoyment	①	②	③	④	⑤
ASBGUSIN	g) I use the Internet	①	②	③	④	⑤
ASBGDOHW	h) I do homework	①	②	③	④	⑤

14

ASBMEXTO

A. During this school year, how often have you had extra lessons or tutoring in mathematics that is not part of your regular class?

*Fill in **one** circle only*

- Every or almost every day ①
- Once or twice a week ②
- Sometimes ③
- Never or almost never ④

ASBSEXTO

B. During this school year, how often have you had extra lessons or tutoring in science that is not part of your regular class?

*Fill in **one** circle only*

- Every or almost every day ①
- Once or twice a week ②
- Sometimes ③
- Never or almost never ④

...Outside of School (Cont.)

15

ASBMHWMA

A. How often does your teacher give you homework in mathematics?

*Fill in **one** circle only*

- Every day ---------- ①
- 3 or 4 times a week ---------- ②
- 1 or 2 times a week ---------- ③
- Less than once a week ---------- ④
- Never ---------- ⑤

*If **Never**, please go to question* **16**

ASBMHWMG

B. When your teacher gives you mathematics homework, about how many minutes are you usually given?

*Fill in **one** circle only*

- Fewer than 15 minutes ---------- ①
- 15–30 minutes ---------- ②
- 31–60 minutes ---------- ③
- 61–90 minutes ---------- ④
- More than 90 minutes ---------- ⑤

16

ASBSHWMA

A. How often does your teacher give you homework in science?

*Fill in **one** circle only*

- Every day ①
- 3 or 4 times a week ②
- 1 or 2 times a week ③
- Less than once a week ④
- Never ⑤

*If **Never**, please go to question **17***

ASBSHWMG

B. When your teacher gives you science homework, about how many minutes are you usually given?

*Fill in **one** circle only*

- Fewer than 15 minutes ①
- 15–30 minutes ②
- 31–60 minutes ③
- 61–90 minutes ④
- More than 90 minutes ⑤

More About You

17

ASBGPLHO

Including yourself, how many people live in your home?

*Fill in **one** circle only*

2 ---------- ②
3 ---------- ③
4 ---------- ④
5 ---------- ⑤
6 ---------- ⑥
7 ---------- ⑦
8 or more ---------- ⑧

18

ASBGMBRN

A. Was your mother (or stepmother or female guardian) born in <country>?

	Yes	No
*Fill in **one** circle only*	①	②

ASBGFBRN

B. Was your father (or stepfather or male guardian) born in <country>?

	Yes	No
*Fill in **one** circle only*	①	②

19

ASBGBORN

A. Were you born in <country>?

	Yes	No
*Fill in **one** circle only*	①	②

*If **Yes**, you have completed the questionnaire*

ASBGBRNC

B. If you were not born in <country>, how old were you when you came to <country>?

*Fill in **one** circle only*

Older than 5 years old ---------- ①

1 to 5 years old ---------- ②

Younger than 1 year old ---------- ③

Thank You

for completing this questionnaire

TIMSS International Study Center
Boston College
Chestnut Hill, MA 02467

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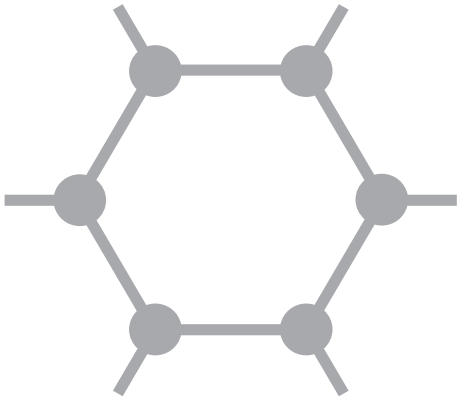


Section 9

Fourth Grade – Teacher Questionnaire (TQ1)

<TIMSS National Research Center Name>
<Address>

Identification Label

Teacher Name: _____

Class Name: _____

Teacher ID: _____ Teacher Link # _____

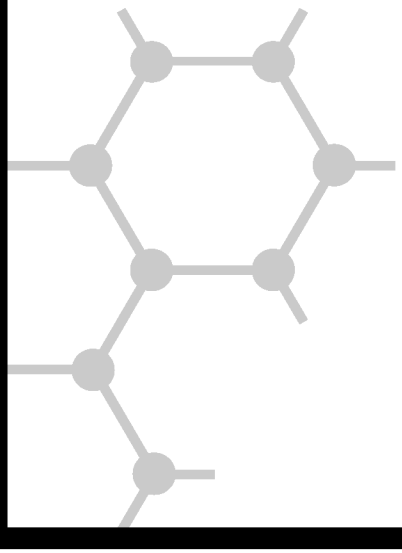
IEA Trends in International Mathematics and Science Study

TIMSS 2003

Main Survey

Teacher Questionnaire

<Grade 4>



General Directions

Your school has agreed to participate in TIMSS 2003, a large international study of student learning in mathematics and science in more than 50 countries around the world. Sponsored by the International Association for the Evaluation of Educational Achievement (IEA), TIMSS (for Trends in International Mathematics and Science Study) is measuring trends in student achievement and studying differences in national education systems in order to help improve the teaching and learning of mathematics and science worldwide.

As part of the study, students in a nationwide sample of <fourth-grade> classes in <country> will complete the TIMSS mathematics and science tests. This questionnaire is addressed to teachers who teach mathematics and science to these students, and seeks information about teachers' academic and professional background, instructional practices, and attitudes toward teaching mathematics and science. As a teacher of the students in one of these sampled classes, your responses to these questions are very important in helping to describe mathematics and science education in <country>.

Some of the questions in this questionnaire refer specifically to students in the "TIMSS class." This is the class that is identified on the cover of this questionnaire, and that will be tested as part of TIMSS 2003 in your school. If you teach some but not all of the students in the TIMSS class, please think only of the students that you teach when answering these class-specific questions. It is important that you answer each question carefully so that the information that you provide reflects your situation as accurately as possible.

Please identify a time and place where you will be able to complete this questionnaire without being interrupted. This should require no more than 45 minutes. To make it as easy as possible for you to respond, most questions may be answered simply by checking or filling the appropriate circle.

Once you have completed the questionnaire, place it in the return envelope provided and return it to: <Country Specific Information>

Thank you very much for the time and effort you have put into responding to this questionnaire.

Teacher Background Information

ATBGAGE

1

How old are you?

*Fill in **one** circle only*

- Under 25 ○
- 25–29 ○
- 30–39 ○
- 40–49 ○
- 50–59 ○
- 60 or older ○

ATBGSEX

2

Are you female or male?

*Fill in **one** circle only*

- Female ○
- Male ○

ATBGTAUT

3

By the end of this school year, how many years will you have been teaching altogether?

_____

Number of years you have taught

ATBGFEDC

4

What is the highest level of formal education you have completed?

*Fill in **one** circle only*

- Did not complete <ISCED 3> ○
- Finished <ISCED 3> ○
- Finished <ISCED 4B> ○
- Finished <ISCED 5B> ○
- Finished < ISCED 5A, first degree> ○
- Finished <ISCED 5A, second degree> or higher ○

ATBGYTTR

5

How many years of <pre-service teacher training> did you have? Please round to the nearest whole number.

*Fill in **one** circle only*

- 0 years ○
- 1 year ○
- 2 years ○
- 3 years ○
- 4 years ○
- 5 years ○
- More than 5 years ○

6

A. During your <post-secondary> education, what was your major or main area(s) of study?

*Fill in **one** circle for each row*

		No	Yes
ATBGPSEP	a) Education - <Primary/Elementary>	○	○
ATBGPSES	b) Education - Secondary	○	○
ATBMPSMA	c) Mathematics	○	○
ATBSPSSC	d) Science	○	○
ATBGPSOT	e) Other	○	○

B. If your major or main area of study was education, did you have a <specialization> in any of the following?

*Fill in **one** circle for each row*

		No	Yes
ATBMEDMA	a) Mathematics	○	○
ATBSEDSC	b) Science	○	○
ATBGEDLR	c) Language/reading	○	○
ATBGEDOT	d) Other subject	○	○

7

What requirements did you have to satisfy in order to become a teacher at <grade 4>?

*Fill in **one** circle for each row*

		No	Yes
ATBGRB5A	a) Complete <ISCED 5A, first degree>	○	○
ATBGRBPP	b) Complete a probationary period	○	○
ATBGRBEC	c) Complete a minimum number of education courses	○	○
ATBMRBMC	d) Complete a minimum number of mathematics courses	○	○
ATBSRBSC	e) Complete a minimum number of science courses	○	○
ATBGRBLE	f) Pass a licensing examination	○	○

8

A. Do you have a teaching license or certificate? ATBGTLCE

	No	Yes
*Fill in **one** circle only*	○	○

*If **No**, please go to question **9***

B. What type of license or certificate do you hold? ATBGTELC

*Fill in **one** circle only*

- <Full certificate> ○
- <Provisional certificate> ○
- <Emergency certificate> ○
- Other ○

(Please specify:_____)

About Your School

9 **How would you characterize each of the following within your school?**

*Fill in **one** circle for each row*

	Very low	Low	Medium	High	Very high
ATBGCHTS a) Teachers' job satisfaction	○	○	○	○	○
ATBGCHTU b) Teachers' understanding of the school's curricular goals	○	○	○	○	○
ATBGCHTC c) Teachers' degree of success in implementing the school's curriculum	○	○	○	○	○
ATBGCHES d) Teachers' expectations for student achievement	○	○	○	○	○
ATBGCHPS e) Parental support for student achievement	○	○	○	○	○
ATBGCHPI f) Parental involvement in school activities	○	○	○	○	○
ATBGCHSR g) Students' regard for school property	○	○	○	○	○
ATBGCHSD h) Students' desire to do well in school	○	○	○	○	○

10 **Thinking about your CURRENT school, indicate the extent to which you agree or disagree with each of the following statements.**

*Fill in **one** circle for each row*

	Disagree a lot	Disagree	Agree	Agree a lot
a) This school facility (building and grounds) is in need of significant repair ATBGCURE	○	○	○	○
b) This school is located in a safe neighborhood ATBGCUSN	○	○	○	○
c) I feel safe at this school ATBGCUSA	○	○	○	○
d) This school's security policies and practices are sufficient ATBGCUAS	○	○	○	○

11 **How often do you have the following types of interactions with other teachers?**

*Fill in **one** circle for each row*

	Daily or almost daily	1-3 times per week	2 or 3 times per month	Never or almost never
a) Discussions about how to teach a particular concept ATBGOTDC	○	○	○	○
b) Working on preparing instructional materials ATBGOTPM	○	○	○	○
c) Visits to another teacher's classroom to observe his/her teaching ATBGOTVT	○	○	○	○
d) Informal observations of **my** classroom by another teacher ATBGOTAT	○	○	○	○

About Teaching Mathematics

12

Considering your training and experience in both mathematics content and instruction, how ready do you feel you are to teach these topics at the <fourth> grade?

*Fill in **one** circle for each row*

		Very ready	Ready	Not ready
	A. Number			
ATBMRT01	a) Adding, subtracting, multiplying and/or dividing with whole numbers	○	○	○
ATBMRT02	b) Fractions (parts of a whole or a collection, location on a number line)	○	○	○
ATBMRT03	c) Fractions or decimals represented by words, numbers, or models	○	○	○
ATBMRT04	d) Adding and subtracting with decimals	○	○	○
	B. Patterns, Equations, and Relationships			
ATBMRT05	a) Patterns of numbers or shapes (extending sequences and finding missing terms)	○	○	○
ATBMRT06	b) Simple equations	○	○	○
ATBMRT07	c) Finding a rule for a relationship given some pairs of numbers	○	○	○
	C. Measurement			
ATBMRT08	a) Recognizing and selecting appropriate units to measure length, weight, time, and temperature	○	○	○
ATBMRT09	b) Estimating and measuring length, area, volume, weight, and time	○	○	○
	D. Geometry			
ATBMRT10	a) Familiar two- and three-dimensional shapes and their properties	○	○	○
ATBMRT11	b) Congruent triangles (i.e., same shape and size)	○	○	○
ATBMRT12	c) Relationships between two-dimensional and three-dimensional shapes	○	○	○
ATBMRT13	d) Translation, reflection, and rotation (<shifts, flips, and turns> of shapes)	○	○	○
	E. Data			
ATBMRT14	a) Recognizing what various numbers, symbols, and points mean in data displays	○	○	○
ATBMRT15	b) Displaying data using tables, pictographs, and bar graphs	○	○	○
ATBMRT16	c) Drawing conclusions from data displays	○	○	○

13

In the past two years, have you participated in professional development in any of the following?

*Fill in **one** circle for each row*

		Yes	No
ATBMPDMT	a) Mathematics content	○	○
ATBMPDMP	b) Mathematics pedagogy/instruction	○	○
ATBMPDMC	c) Mathematics curriculum	○	○
ATBMPDIT	d) Integrating information technology into mathematics	○	○
ATBGPDCT	e) Improving students' critical thinking or problem solving skills	○	○
ATBMPDMA	f) Mathematics assessment	○	○

Teaching Mathematics to the TIMSS Class

Questions 14–29 refer to the TIMSS class. Remember, "the TIMSS class" is the class which is identified on the cover of this questionnaire, and which will be tested as part of TIMSS 2003 in your school.

14

ATBMSTUD

A. How many students are in the TIMSS class for mathematics?

_____
Write in the number of students

ATBMSTDQ

B. How many students in Question 14A are in the <fourth grade> ?

_____
Write in the number of <fourth grade> students

15

ATBMTIMT

How many minutes per week do you teach mathematics to the <fourth-grade> students in the TIMSS class?

_____
Write in the number of minutes per week

16

ATBMTBTC

A. Do you use a textbook(s) in teaching mathematics to the <fourth-grade> students in the TIMSS class?

No
Yes

*Fill in **one** circle only* ---------- ○ --- ○

*If **No**, please go to question* **17**

ATBMTXBU

B. How do you use a textbook(s) in teaching mathematics to the <fourth-grade> students in the TIMSS class?

*Fill in **one** circle only*

As the primary basis for my lessons ---------- ○
As a supplementary resource ---------- ○

17

In a typical week of mathematics lessons for the <fourth grade> students in the TIMSS class, what percentage of time do students spend on each of the following activities?

Write in the percent
The total should add to 100%

a)	Reviewing homework ----------	_____%	ATBMPTRH
b)	Listening to lecture-style presentations ----------	_____%	ATBMPTLS
c)	Working problems with your guidance ----------	_____%	ATBMPTYG
d)	Working problems on their own without your guidance ----------	_____%	ATBMPTOO
e)	Listening to you re-teach and clarify content/procedures ---------	_____%	ATBMPTRT
f)	Taking tests or quizzes ----------	_____%	ATBMPTTQ
g)	Participating in classroom management tasks not related to the lesson's content/purpose (e.g., interruptions and keeping order) ----------	_____%	ATBMPTCM
h)	Other student activities ----------	_____%	ATBMPTOA
Total	----------	100%	

ATBMCAML

18

Are the <fourth-grade> students in the TIMSS class permitted to use calculators during mathematics lessons?

*Fill in **one** circle only*

- Yes, with unrestricted use ○
- Yes, with restricted use ○
- No, calculators are not permitted ○

*If **No,** please go to question* **22**

ATBMHSHC

19

How many <fourth-grade> students in the TIMSS class have calculators available to use during mathematics lessons?

*Fill in **one** circle only*

- All ○
- Most ○
- About half ○
- Some ○
- None ○

20

How often do the <fourth-grade> students in the TIMSS class use calculators in their mathematics lessons for the following activities?

*Fill in **one** circle for each row*

	Never	Some lessons	About half the lessons	Every or almost every lesson
a) Check answers	○	○	○	○
b) Do routine computations	○	○	○	○
c) Solve complex problems	○	○	○	○
d) Explore number concepts	○	○	○	○

ATBMCALA
ATBMCALR
ATBMCALS
ATBMCALE

21

ATBMCATE

How often are the <fourth grade> students in the TIMSS class permitted to use calculators during tests or examinations?

*Fill in **one** circle only*

- Always ○
- Sometimes ○
- Never ○

22

ATBMCOMA

A. Do the <fourth-grade> students in the TIMSS class have computers available to use during their mathematics lessons?

	No	Yes
*Fill in **one** circle only*	○	○

*If **No**, please go to question* **24**

ATBMINTA

B. Do any of the computers have access to the Internet?

	No	Yes
*Fill in **one** circle only*	○	○

23

In teaching mathematics to the <fourth-grade> students in the TIMSS class, how often do you have students use a computer for the following activities?

*Fill in **one** circle for each row*

	Never	Some lessons	About half the lessons	Every or almost every lesson
a) Discover mathematics principles and concepts	○	○	○	○
b) Practice skills and procedures	○	○	○	○
c) Look up ideas and information	○	○	○	○

ATBMCADM
ATBMCASP
ATBMCALI

24

In teaching mathematics to the <fourth-grade> students in the TIMSS class, how often do you usually ask them to do the following?

*Fill in **one** circle for each row*

	Never	Some lessons	About half the lessons	Every or almost every lesson
ATBMASPC a) Practice adding, subtracting, multiplying, and dividing without using a calculator	○	○	○	○
ATBMASWF b) Work on fractions and decimals	○	○	○	○
ATBMASMS c) Measure things in the classroom and around the school	○	○	○	○
ATBMASMG d) Make tables, charts, or graphs	○	○	○	○
ATBMASLC e) Learn about shapes such as circles, triangles, rectangles, and cubes	○	○	○	○
ATBMASWP f) Write equations for word problems	○	○	○	○
ATBMASSG g) Work together in small groups	○	○	○	○
ATBMASEA h) Explain their answers	○	○	○	○

25

By the end of this school year, approximately what percentage of teaching time will you have spent during this school year on each of the following mathematics content areas for the <fourth-grade> students in the TIMSS class?

Write in the percent
The total should add to 100%

a)	Number (includes computation with whole numbers, fractions, and decimals) _____%	ATBMTTNU
b)	Patterns, Equations, and Relationships (includes sequences of numbers or shapes, simple equations, and finding rules) _____%	ATBMTTPA
c)	Measurement (includes recognizing units and using tools) _____%	ATBMTTME
d)	Geometry (includes two- and three- dimensional shapes) _____%	ATBMTTGE
e)	Data (includes reading, making, and interpreting tables and graphs) _____%	ATBMTTDA
f)	Other, please specify: _____ _____%	ATBMCOTH
Total		100%

26

The following list includes the main topics addressed by the TIMSS mathematics test. Choose the response that best describes when the <fourth-grade> students in the TIMSS class have been taught each topic. If a topic was taught half this year and half before this year, please choose "Mostly taught this year."

*Fill in **one** circle for each row*

		Not yet taught or just introduced	Mostly taught this year	Mostly taught before this year
	A. Number			
ATBMTA01	a) Whole numbers including place value and ordering	○	○	○
ATBMTA02	b) Represent whole numbers using words, diagrams, or symbols	○	○	○
ATBMTA03	c) Properties of whole numbers such as odd and even, multiples, or factors	○	○	○
ATBMTA04	d) Computation with whole numbers	○	○	○
ATBMTA05	e) Estimation with whole numbers	○	○	○
ATBMTA06	f) Fractions (parts of a whole or a collection, location on a number line)	○	○	○
ATBMTA07	g) Equivalent fractions	○	○	○
ATBMTA08	h) Compare and order fractions	○	○	○
ATBMTA09	i) Fractions or decimals represented by words, numbers, or models	○	○	○
ATBMTA10	j) Adding and subtracting fractions with the same denominator	○	○	○
ATBMTA11	k) Adding and subtracting with decimals (tenths and/or hundredths)	○	○	○
ATBMTA12	l) Simple proportional reasoning	○	○	○
	B. Patterns, Equations, and Relationships			
ATBMTA13	a) Patterns of numbers or shapes (extending sequences and finding missing terms)	○	○	○
ATBMTA14	b) Equality using equations, areas, volumes, masses/weights	○	○	○
ATBMTA15	c) Missing number in an equation (e.g., if 17 + ___ = 29, what number would go in the blank to make the equation true?)	○	○	○
ATBMTA16	d) Simple equations	○	○	○
ATBMTA17	e) Pairs of numbers following a given rule (e.g., multiply the first number by 3 and add 2 to get the second number)	○	○	○
ATBMTA18	f) Finding a rule for a relationship given some pairs of numbers	○	○	○

26 continued

The following list includes the main topics addressed by the TIMSS mathematics test. Choose the response that best describes when the <fourth-grade> students in the TIMSS class have been taught each topic. If a topic was taught half this year and half before this year, please choose "Mostly taught this year."

*Fill in **one** circle for each row*

		Not yet taught or just introduced	Mostly taught this year	Mostly taught before this year
	C. Measurement			
ATBMTA19	a) Non-standard units to measure length, area, volume, and time (e.g., paper clips for length, tiles for area, sugar cubes for volume)	○	○	○
ATBMTA20	b) Standard units to measure length, area, mass/weight, angle, and time (e.g., kilometers for car trips, centimeters for human height)	○	○	○
ATBMTA21	c) Conversion factors between standard units (e.g., hours to minutes, grams to kilograms)	○	○	○
ATBMTA22	d) Instruments to measure length, weight, time, and temperature in problem situations (e.g., rulers and scales)	○	○	○
ATBMTA23	e) Calculating areas and perimeters of squares	○	○	○
ATBMTA24	f) Estimating length, area, volume, weight, and time	○	○	○
	D. Geometry			
ATBMTA25	a) Angles greater than, equal to, or less than a right angle (or 90º)	○	○	○
ATBMTA26	b) Parallel and perpendicular lines	○	○	○
ATBMTA27	c) Familiar two- and three-dimensional shapes and their properties	○	○	○
ATBMTA28	d) Congruent triangles (i.e., same shape and size)	○	○	○
ATBMTA29	e) Similar triangles (i.e., same shape and different size)	○	○	○
ATBMTA30	f) Points in a plane	○	○	○
ATBMTA31	g) Relationships between two-dimensional and three-dimensional shapes	○	○	○
ATBMTA32	h) Informal coordinate systems	○	○	○
ATBMTA33	i) Symmetry about a line	○	○	○
ATBMTA34	j) Two-dimensional symmetrical figures	○	○	○
ATBMTA35	k) Translation, reflection, and rotation (<shifts, flips, and turns> of shapes)	○	○	○

26 continued

The following list includes the main topics addressed by the TIMSS mathematics test. Choose the response that best describes when the <fourth-grade> students in the TIMSS class have been taught each topic. If a topic was taught half this year and half before this year, please choose "Mostly taught this year."

*Fill in **one** circle for each row*

		Not yet taught or just introduced	Mostly taught this year	Mostly taught before this year
	E. Data			
ATBMTA36	a) Recognizing what various numbers, symbols, and points mean in data displays	○	○	○
ATBMTA37	b) Organizing a set of data by one characteristic (e.g., height, color, age, shape)	○	○	○
ATBMTA38	c) Reading data directly from tables, pictographs, bar graphs, and pie charts	○	○	○
ATBMTA39	d) Displaying data using tables, pictographs, and bar graphs	○	○	○
ATBMTA40	e) Comparing and matching different representations of the same data	○	○	○
ATBMTA41	f) Characteristics of related data sets (e.g., given data or representations of data on student heights in two classes, identify the class with the shortest/tallest person)	○	○	○
ATBMTA42	g) Drawing conclusions from data displays	○	○	○

ATBMHMWO

27

Do you assign mathematics homework to the <fourth-grade> students in the TIMSS class?

	No	Yes
*Fill in **one** circle only*	○	○

*If **No**, please go to question* **30** ➡

ATBMHWMC

28

How often do you usually assign mathematics homework to the <fourth-grade> students in the TIMSS class?

*Fill in **one** circle only*

- Every or almost every lesson ○
- About half the lessons ○
- Some lessons ○

ATBMHWKM

29

When you assign mathematics homework to the <fourth-grade> students in the TIMSS class, about how many minutes do you usually assign? (Consider the time it would take an average student in your class.)

*Fill in **one** circle only*

- Fewer than 15 minutes ○
- 15-30 minutes ○
- 31-60 minutes ○
- 61-90 minutes ○
- More than 90 minutes ○

About Teaching Science

30

Considering your training and experience in both science content and instruction, how ready do you feel you are to teach these topics at the <fourth> grade?

*Fill in **one** circle for each row*

		Very ready	Ready	Not ready
	A. Life Science			
ATBSRT01	a) Major body structures and their functions in humans and other organisms (plant and animals)	○	○	○
ATBSRT02	b) Reproduction and development in plants and animals (passing on of general characteristics; life cycles of familiar organisms)	○	○	○
ATBSRT03	c) Physical features, behavior, and survival of organisms living in different environments	○	○	○
ATBSRT04	d) Relationships in a living community (e.g., simple food chains, predator/prey relationships)	○	○	○
ATBSRT05	e) Changes in environments (effects of human activity, pollution and its prevention)	○	○	○
ATBSRT06	f) Human health (e.g., transmission/prevention of communicable diseases, signs of health/illness, diet, exercise)	○	○	○
	B. Physical Science			
ATBSRT07	a) Classification of objects/materials based on physical properties (e.g., mass, shape, volume, color, hardness, texture, heat/electrical conductivity, magnetic attraction)	○	○	○
ATBSRT08	b) Forming and separating mixtures	○	○	○
ATBSRT09	c) Chemical and physical changes (e.g., decaying of animal/plant matter, burning, rusting)	○	○	○
ATBSRT10	d) States of matter (solids, liquids, gases) and differences in their physical properties (shape, volume), including changes in state of water by heating and cooling (melting, freezing, boiling)	○	○	○
ATBSRT11	e) Common energy sources/forms and their practical uses (e.g., wind, sun, electricity, burning fuel, water wheel, food)	○	○	○
ATBSRT12	f) Common uses of electricity and electrical circuits	○	○	○
ATBSRT13	g) Forces that cause objects to move (e.g., gravity, push/pull forces)	○	○	○
	C. Earth Science			
ATBSRT14	a) Features of Earth's landscape (e.g., mountains, plains, rivers, deserts)	○	○	○
ATBSRT15	b) Water on Earth (location, types, and movement)	○	○	○
ATBSRT16	c) Air (composition, proof of its existence, uses, and importance for supporting life)	○	○	○
ATBSRT17	d) Common features of the Earth's landscape (e.g., mountains, plains, rivers, deserts) and relationship to human use (e.g., farming, irrigation, land development)	○	○	○
ATBSRT18	e) Fossils of animals and plants (age, formation)	○	○	○
ATBSRT19	f) Earth's solar system (planets, sun, moon)	○	○	○

31

In the past two years, have you participated in professional development in any of the following?

*Fill in **one** circle for each row*

			Yes	No
ATBSPDST	a)	Science content	○	○
ATBSPDSP	b)	Science pedagogy/instruction	○	○
ATBSPDSC	c)	Science curriculum	○	○
ATBSPDIT	d)	Integrating information technology into science	○	○
ATBGPDIN	e)	Improving students' critical thinking or inquiry skills	○	○
ATBSPDSA	f)	Science assessment	○	○

Teaching Science to the TIMSS Class

Questions 32 - 42 refer to the TIMSS class. Remember, "the TIMSS class" is the class which is identified on the cover of this questionnaire, and which will be tested as part of TIMSS 2003 in your school.

32

ATBSSTUD

A. How many students are in the TIMSS class for science?

_____

Write in the number of students

ATBSSTDQ

B. How many students in Question 32A are in the <fourth grade> ?

_____

Write in the number of <fourth grade> students

33

ATBSSSBJ

Is science taught mainly as a separate subject (i.e., not integrated with other subjects) to the <fourth-grade> students in the TIMSS class?

No
Yes

*Fill in **one** circle only* ---------- ○ --- ○

ATBSYMWT

A. If YES...

How many minutes per week do you teach science to the <fourth-grade> students in the TIMSS class?

_____

Write in the number of minutes per week

ATBSNMWT

B. If NO...

Please estimate the number of minutes per week that you spend on science topics with the <fourth-grade> students in the TIMSS class.

_____

Write in the number of minutes per week

34

ATBSTBTC

A. Do you use a textbook(s) in teaching science to the <fourth-grade> students in the TIMSS class?

No
Yes

*Fill in **one** circle only* ---------- ○ --- ○

*If **No**, please go to question* **35** ➡

ATBSTXBU

B. How do you use a textbook(s) in teaching science to the <fourth-grade> students in the TIMSS class?

*Fill in **one** circle only*

As the primary basis for my lessons ---------- ○

As a supplementary resource ---------- ○

35

ATBSCOMA

A. Do the <fourth grade> students in the TIMSS class have computers available to use when you are teaching science?

No
Yes

*Fill in **one** circle only* ○ ○

*If **No**, please go to question* **37**

ATBSINTA

B. Do any of the computers have access to the Internet?

No
Yes

*Fill in **one** circle only* ○ ○

36

In teaching science to the <fourth-grade> students in the TIMSS class, how often do you have students use a computer for the following activities?

*Fill in **one** circle for each row*

	Never	Some lessons	About half the lessons	Every or almost every lesson	
a) Do scientific procedures or experiments	○	○	○	○	ATBSCAPE
b) Study natural phenomena through simulations	○	○	○	○	ATBSCANP
c) Practice skills and procedures	○	○	○	○	ATBSCASP
d) Look up ideas and information	○	○	○	○	ATBSCALI

37

In teaching science to the <fourth grade> students in the TIMSS class, how often do you usually ask them to do the following?

*Fill in **one** circle for each row*

	Never	Some lessons	About half the lessons	Every or almost every lesson	
a) Watch me do a science experiment	○	○	○	○	ATBSCSWE
b) Design or plan experiments or investigations	○	○	○	○	ATBSCSDP
c) Do experiments or investigations	○	○	○	○	ATBSCSDI
d) Work together in small groups on experiments or investigations	○	○	○	○	ATBSCSSG
e) Relate what they are learning in science to their daily lives	○	○	○	○	ATBSCSDL
f) Write or give explanations about something they are studying	○	○	○	○	ATBSCSWS
g) Observe something like the weather or a plant growing and write down what they see	○	○	○	○	ATBSCSOS
h) Present their work to the class	○	○	○	○	ATBSCSPW

38

By the end of this school year, approximately what percentage of teaching time will you have spent during this school year on each of the following science content areas for the <fourth-grade> students in the TIMSS class?

Write in the percent
The total should add to 100%

ATBSPTLS a) Life science (includes characteristics and cycles of living things, environmental science, and human health) ----------_____%

ATBSPTPS b) Physical science (includes topics in physics and chemistry) --------_____%

ATBSPTES c) Earth science (includes Earth's physical features, natural resources, weather, and solar system) ----------_____%

ATBSCOTH d) Other, please specify:

_____ --------_____%

Total ---------- 100%

39

The following list includes the main topics addressed by the TIMSS science test. Choose the response that best describes when the <fourth-grade> students in the TIMSS class have been taught each topic. If a topic was taught half this year and half before this year, please choose "Mostly taught this year."

*Fill in **one** circle for each row*

		Not yet taught or just introduced	Mostly taught this year	Mostly taught before this year
	A. Life Science			
ATBSTA01	a) Types, characteristics, and classification of living things	○	○	○
ATBSTA02	b) Major body structures and their function in humans and other organisms (plants and animals)	○	○	○
ATBSTA03	c) Bodily actions in response to outside conditions (e.g., heat, cold, danger) and activities (e.g., exercise)	○	○	○
ATBSTA04	d) The general steps in the life cycle of familiar organisms (e.g., humans, insects, frogs, plants)	○	○	○
ATBSTA05	e) Plant and animal reproduction (passing on of general characteristics)	○	○	○
ATBSTA06	f) Physical features, behavior, and survival of plants and animals in different environments	○	○	○
ATBSTA07	g) Relationships in a living community (e.g., simple food chains using common plants and animals and predator/prey relationships)	○	○	○
ATBSTA08	h) Changes in environments (effects of human activity, pollution and its prevention)	○	○	○
ATBSTA09	i) Ways that common communicable diseases (e.g., colds, influenza) are transmitted; signs, prevention, and treatment of illness	○	○	○
ATBSTA10	j) Ways of maintaining good health, including diet and exercise	○	○	○

39 continued

The following list includes the main topics addressed by the TIMSS science test. Choose the response that best describes when the <fourth-grade> students in the TIMSS class have been taught each topic. If a topic was taught half this year and half before this year, please choose "Mostly taught this year."

*Fill in **one** circle for each row*

		Not yet taught or just introduced	Mostly taught this year	Mostly taught before this year
	B. Physical Science			
ATBSTA11	a) Classification of objects and materials based on physical properties	○	○	○
ATBSTA12	b) Properties and uses of metals	○	○	○
ATBSTA13	c) Forming and separating mixtures	○	○	○
ATBSTA14	d) Properties and uses of water	○	○	○
ATBSTA15	e) Chemical and physical changes (e.g., decaying of animal/plant matter, burning, rusting)	○	○	○
ATBSTA16	f) States of matter (solids, liquids and gases) and differences in their physical properties in terms of shape and volume	○	○	○
ATBSTA17	g) Changes in state of water by heating and cooling (melting, freezing, boiling)	○	○	○
ATBSTA18	h) Common energy sources/forms and their practical uses (e.g., wind, sun, electricity, burning fuel, water wheel, food)	○	○	○
ATBSTA19	i) Heat flow and temperature	○	○	○
ATBSTA20	j) Common sources of light and related phenomena (e.g., formation of rainbows and shadows, visibility of objects, mirrors, colors)	○	○	○
ATBSTA21	k) Common uses of electricity and electrical circuits	○	○	○
ATBSTA22	l) Magnets (north and south poles, magnetic attraction and repulsion)	○	○	○
ATBSTA23	m) Forces that cause objects to move (e.g., gravity, push/pull forces)	○	○	○

39 continued

The following list includes the main topics addressed by the TIMSS science test. Choose the response that best describes when the <fourth-grade> students in the TIMSS class have been taught each topic. If a topic was taught half this year and half before this year, please choose "Mostly taught this year."

*Fill in **one** circle for each row*

		Not yet taught or just introduced	Mostly taught this year	Mostly taught before this year
	C. Earth Science			
ATBSTA24	a) Rocks, minerals, sand, and soil	○	○	○
ATBSTA25	b) Water on Earth (location, types, and movement)	○	○	○
ATBSTA26	c) Air (composition, proof of its existence, uses, and importance for supporting life)	○	○	○
ATBSTA27	d) Common features of the Earth's landscape (e.g., mountains, plains, rivers, deserts) and relationship to human use (e.g., farming, irrigation, land development)	○	○	○
ATBSTA28	e) Use and conservation of Earth's natural resources	○	○	○
ATBSTA29	f) Earth's water cycle (water flowing in rivers from mountains to sea, cloud formation and precipitation)	○	○	○
ATBSTA30	g) Weather conditions from day to day or over the seasons	○	○	○
ATBSTA31	h) Fossils of animals and plants (age, formation)	○	○	○
ATBSTA32	i) Earth's solar system (planets, sun, moon)	○	○	○

ATBSHMWO

40

Do you assign science homework to the <fourth-grade> students in the TIMSS class?

No
Yes

*Fill in **one** circle only* ○ ○

*If **No**, you have completed the questionnaire*

ATBSHWMC

41

How often do you usually assign science homework to the <fourth-grade> students in the TIMSS class?

*Fill in **one** circle only*

Every or almost every lesson ○
About half the lessons ○
Some lessons ○

42

ATBSHWKM

When you assign science homework to the <fourth-grade> students in the TIMSS class, about how many minutes do you usually assign? (Consider the time it would take an average student in your class.)

*Fill in **one** circle only*

Fewer than 15 minutes ○
15-30 minutes ○
31-60 minutes ○
61-90 minutes ○
More than 90 minutes ○

Thank You

for completing this questionnaire

TIMSS International Study Center
Boston College
Chestnut Hill, MA 02467

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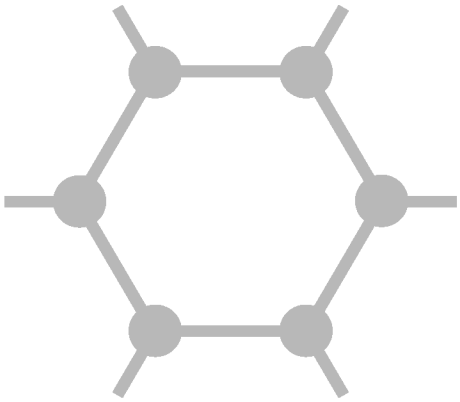


Section 10

Fourth Grade – School Questionnaire (SCQ1)

<TIMSS National Research Center Name>
<Address>

Identification Label

School ID: _____

Stratum ID: _____

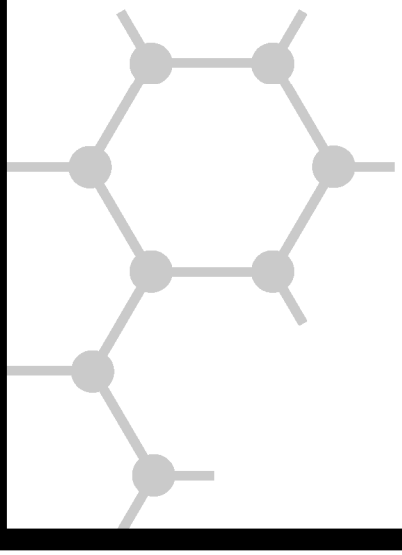
IEA Trends in International Mathematics and Science Study

TIMSS 2003

Main Survey

School Questionnaire

<Grade 4>



General Directions

Your school has agreed to participate in TIMSS 2003, a large international study of student learning in mathematics and science in more than 50 countries around the world. Sponsored by the International Association for the Evaluation of Educational Achievement (IEA), TIMSS (for Trends in International Mathematics and Science Study) is measuring trends in student achievement and studying differences in national education systems in order to help improve the teaching and learning of mathematics and science worldwide.

This questionnaire is addressed to school principals and department heads who are asked to supply information about their schools. Since your school has been selected as part of a nationwide sample, your responses are very important in helping to describe the school system in <country>.

It is important that you answer each question carefully so that the information provided reflects the situation in your school as accurately as possible. Some of the questions will require that you look up school records, so you may wish to arrange for the assistance of another staff member to help provide this information.

Please identify a time and place where you will be able to complete this questionnaire without being interrupted. This should require no more than 30 minutes. To make it as easy as possible for you to respond, most questions may be answered simply by filling in the appropriate circle.

Once you have completed the questionnaire, place it in the return envelope provided and return it to: <Country Specific Information>

Thank you very much for the time and effort you have put into responding to this questionnaire.

The School Characteristics

<Some of the questions in this questionnaire ask about your school in general. If your school has a wide range of grades, please try to answer such questions with regard to the primary grades.>

1

ACBGLOWG
ACBGHIGG

What are the lowest and highest grade levels in your school?

*Fill in **one** circle for each column*

	A: Lowest Grade	B: Highest Grade
Kindergarten	○	○
1	○	○
2	○	○
3	○	○
4	○	○
5	○	○
6	○	○
7	○	○
8	○	○
9	○	○
10	○	○
11	○	○
12	○	○
13	○	○

2

ACBGTENR

A. What is the total school enrollment (number of students) in all grades?

*Number of students:*_____

ACBGEENR

B. What is the enrollment in the <fourth grade>?

*Number of students:*_____

3

ACBGCOMU

How many people live in the city, town, or area where your school is located?

*Fill in **one** circle only*

- More than 500,000 people ○
- 100,001 to 500,000 people ○
- 50,001 to 100,000 people ○
- 15,001 to 50,000 people ○
- 3,001 to 15,000 people ○
- Fewer than 3,000 people ○

4

ACBGASTD

On a typical school day, what percentage of students are absent from school for any reason?

*Fill in **one** circle only*

- Less than 5% ○
- 5 to 10% ○
- 11 to 20% ○
- More than 20% ○

5

ACBGENRS

A. Of the students who were enrolled in your school at the start of this school year, about what percentage is still enrolled?

*Fill in **one** circle only*

- 96 to 100% ○
- 90 to 95% ○
- 80 to 89% ○
- Less than 80% ○

ACBGENSY

B. What percentage of the students in your school enrolled after the beginning of the school year?

*Fill in **one** circle only*

- Less than 5% ○
- 5 to 10% ○
- 11 to 20% ○
- More than 20% ○

6

A. Approximately what percentage of students in your school have the following backgrounds?

*Fill in **one** circle for each row*

	More than 50%	26 to 50%	11 to 25%	0 to 10%
a) Come from economically disadvantaged homes (ACBGSBED)	○	○	○	○
b) Come from economically affluent homes (ACBGSBEA)	○	○	○	○

B. Approximately what percentage of students in your school have <language of test> as their native language? (ACBGNALA)

*Fill in **one** circle only*

- More than 90% ○
- 76 to 90% ○
- 50 to 75% ○
- Less than 50% ○

7

How would you characterize each of the following within your school?

*Fill in **one** circle for each row*

	Very low	Low	Medium	High	Very high	
a) Teachers' job satisfaction	○	○	○	○	○	ACBGCHTS
b) Teachers' understanding of the school's curricular goals	○	○	○	○	○	ACBGCHTU
c) Teachers' degree of success in implementing the school's curriculum	○	○	○	○	○	ACBGCHTC
d) Teachers' expectations for student achievement	○	○	○	○	○	ACBGCHES
e) Parental support for student achievement	○	○	○	○	○	ACBGCHPS
f) Parental involvement in school activities	○	○	○	○	○	ACBGCHPI
g) Students' regard for school property	○	○	○	○	○	ACBGCHSR
h) Students' desire to do well in school	○	○	○	○	○	ACBGCHSD

Your Role as Principal

8

ACBGYEPS

Including this year, how long have you been principal of this school?

*Number of years:*_____

9

By the end of this school year, approximately what percentage of time in your role as principal will you have spent on these activities?

Write in the percent
The total should add to 100%

ACBGAPAD a) Administrative duties (e.g., hiring, budgeting, scheduling) ---------- _____%

ACBGAPIL b) Instructional leadership (e.g., developing curriculum and pedagogy) ---------- _____%

ACBGAPST c) Supervising and evaluating teachers and other staff ---------- _____%

ACBGAPTE d) Teaching ---------- _____%

ACBGAPPR e) Public relations and fundraising -- _____%

ACBGAPOT f) Other ---------- _____%

Total ---------- 100%

Parental Involvement

10

Does your school expect parents to do the following?

*Fill in **one** circle for each row*

		No	Yes
a)	Attend special events (e.g., science fair, concert, sporting events) ACBGEPSE	○	○
b)	Raise funds for the school ACBGEPRF	○	○
c)	Volunteer for school projects, programs, and trips ACBGEPVO	○	○
d)	Ensure that their child completes his/her homework ACBGEPCH	○	○
e)	Serve on school committees (e.g., select school personnel, review school finances) ACBGEPSC	○	○

<Fourth-grade> Instruction in Mathematics and Science

11

ACBGDYSO

A. How many days per year is your school open for instruction for <fourth-grade> students?

Number of days: _____

B. How many instructional days are there in the school week (typical calendar week from Monday through Sunday) for <fourth-grade> students?

*Fill in **one** circle for each column*

ACBGDWFU
ACBGDWHA

	Number of FULL days (over 4 hours)	Number of HALF days (4 hours or less)
1 day	○	○
2 days	○	○
3 days	○	○
4 days	○	○
5 days	○	○
6 days	○	○
None	○	○

C. To the nearest half-hour, what is the total instructional time in a typical full day (excluding lunch breaks, study hall, and after school activities) for <fourth-grade> students?

ACBGTITD

*Fill in **one** circle only*

- 4 hours or less ○
- 4.5 hours ○
- 5 hours ○
- 5.5 hours ○
- 6 hours ○
- 6.5 hours or more ○

12

ACBMODLA

How does your school organize mathematics instruction for <fourth-grade> students with different levels of ability?

*Fill in **one** circle only*

- Students study the same mathematics curriculum ○
- Students study the same mathematics curriculum, but at different levels of difficulty ○
- Students study different mathematics curricula according to their ability levels ○

13

ACBMGAMC

Are <fourth-grade> students in your school grouped by ability within their mathematics lessons?

*Fill in **one** circle only* ○ No ○ Yes

14

Does your school do any of the following for students in the <fourth grade>?

*Fill in **one** circle for each row*

	No	Yes
a) Offer enrichment mathematics	○	○
b) Offer remedial mathematics	○	○

ACBMSOEM
ACBMSORM

<Fourth-grade> Teachers in Your School

15 ACBSODLA

How does your school organize science instruction for <fourth-grade> students with different levels of ability?

*Fill in **one** circle only*

- Students study the same science curriculum ○
- Students study the same science curriculum, but at different levels of difficulty ○
- Students study different science curricula according to their ability levels ○

16 ACBSGASC

Are <fourth-grade> students in your school grouped by ability within their science lessons?

	No	Yes
*Fill in **one** circle only*	○	○

17

Does your school do any of the following for students in the <fourth grade>?

*Fill in **one** circle for each row*

	No	Yes
a) Offer enrichment science (ACBSSOES)	○	○
b) Offer remedial science (ACBSSORS)	○	○

18 ACBGFTVY

How difficult was it to fill <fourth-grade> teaching vacancies for this school year?

*Fill in **one** circle only*

- Were no vacancies ○
- Easy to fill vacancies ○
- Somewhat difficult ○
- Very difficult ○

19 ACBGBONS

Does your school currently use any incentives (e.g., pay, housing, signing bonus) to recruit or retain <fourth-grade> teachers?

	No	Yes
*Fill in **one** circle only*	○	○

20 During this school year, how often have your <fourth-grade> teachers been involved in professional development opportunities for mathematics and science targeted at the following?

*Fill in **one** circle for each row*

		More than 10 times	6 to 10 times	3 to 5 times	1 to 2 times	Never
ACBGPDIC	a) Supporting the implementation of the national or regional curriculum	○	○	○	○	○
ACBGPDSG	b) Designing or supporting the school's own improvement goals	○	○	○	○	○
ACBGPDIK	c) Improving content knowledge	○	○	○	○	○
ACBGPDTS	d) Improving teaching skills	○	○	○	○	○
ACBGPDUT	e) Using information and communication technology for educational purposes	○	○	○	○	○

21 In your school, are any of the following used to evaluate the practice of <fourth-grade> teachers?

*Fill in **one** circle for each row*

		Yes	No	
	a) Observations by the principal or senior staff	○	○	ACBMEPOS
	b) Observations by inspectors or other persons external to the school	○	○	ACBMEPOE
	c) Student achievement	○	○	ACBMEPSA
	d) Teacher peer review	○	○	ACBMEPTR

Student Behavior

22

How often does each of the following problem behaviors occur among <fourth-grade> students in your school?

If the behavior occurs, how severe a problem does it present?

		A. Frequency in your school (Fill in **one** circle for each row in this section: Never / Rarely / Monthly / Weekly / Daily)		B. Severity of problem in your school (Fill in **one** circle for each row in this section: Not a problem / Minor problem / Serious problem)	
a)	Arriving late at school	ACBGFP01			ACBGSP01
b)	Absenteeism (i.e., unjustified absences)	ACBGFP02			ACBGSP02
c)	Skipping class <hours/periods>	ACBGFP03			ACBGSP03
d)	Violating dress code	ACBGFP04			ACBGSP04
e)	Classroom disturbance	ACBGFP05			ACBGSP05
f)	Cheating	ACBGFP06			ACBGSP06
g)	Profanity	ACBGFP07			ACBGSP07
h)	Vandalism	ACBGFP08			ACBGSP08
i)	Theft	ACBGFP09			ACBGSP09
j)	Intimidation or verbal abuse of other students	ACBGFP10			ACBGSP10
k)	Physical injury to other students	ACBGFP11			ACBGSP11
l)	Intimidation or verbal abuse of teachers or staff	ACBGFP12			ACBGSP12
m)	Physical injury to teachers or staff	ACBGFP13			ACBGSP13

Resources and Technology

23

Is your school's capacity to provide instruction affected by a shortage or inadequacy of any of the following?

*Fill in **one** circle for each row*

		None	A little	Some	A lot
ACBGST01	a) Instructional materials (e.g., textbook)	○	○	○	○
ACBGST02	b) Budget for supplies (e.g., paper, pencils)	○	○	○	○
ACBGST03	c) School buildings and grounds	○	○	○	○
ACBGST04	d) Heating/cooling and lighting systems	○	○	○	○
ACBGST05	e) Instructional space (e.g., classrooms)	○	○	○	○
ACBGST06	f) Special equipment for handicapped students	○	○	○	○
ACBMST07	g) Computers for mathematics instruction	○	○	○	○
ACBMST08	h) Computer software for mathematics instruction	○	○	○	○
ACBMST09	i) Calculators for mathematics instruction	○	○	○	○
ACBMST10	j) Library materials relevant to mathematics instruction	○	○	○	○
ACBMST11	k) Audio-visual resources for mathematics instruction	○	○	○	○

*Fill in **one** circle for each row*

		None	A little	Some	A lot
ACBSST12	l) Science laboratory equipment and materials	○	○	○	○
ACBSST13	m) Computers for science instruction	○	○	○	○
ACBSST14	n) Computer software for science instruction	○	○	○	○
ACBSST15	o) Calculators for science instruction	○	○	○	○
ACBSST16	p) Library materials relevant to science instruction	○	○	○	○
ACBSST17	q) Audio-visual resources for science instruction	○	○	○	○
ACBGSH18	r) Teachers	○	○	○	○
ACBGSH19	s) Computer support staff	○	○	○	○

24

ACBGCMPS

A. What is the total number of computers in your school that can be used for educational purposes by <fourth-grade> students?

*Number of computers:*_____

*If **None,** please go to question* **25**

ACBGCMPI

B. How many of these computers have access to the Internet (e-mail or World Wide Web) for educational purposes?

*Fill in **one** circle only*

- All ○
- Most ○
- Some ○
- None ○

25

ACBGHTTE

A. Is anyone available to help your teachers use information and communication technology for teaching and learning?

- No ○
- Yes ○

*Fill in **one** circle only*

*If **No**, you have completed the questionnaire*

ACBGPHTE

B. Which of the following statements best describes the person at this school who helps teachers use information and communication technology for teaching and learning?

*Fill in **one** circle for the best description of that person. If more than one person, choose the one person who spends the most time on this work.*

- A full-time school level coordinator (who has no other job responsibility) ○
- A library media specialist who also serves as computer coordinator ○
- A teacher who also has the title of this type of coordinator ○
- A teacher who provides leadership informally to other teachers ○
- A district-level coordinator ○
- The principal or another school administrator ○
- Other person ○

Thank You

for completing this questionnaire

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Chestnut Hill, MA 02467

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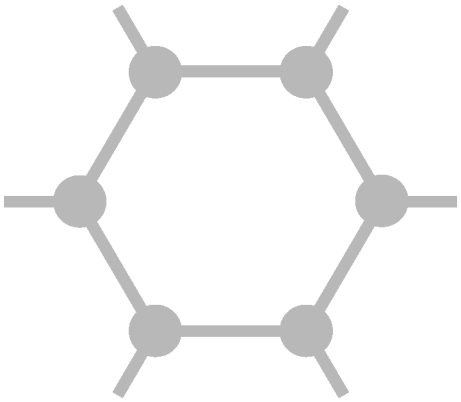


Section 1

Fourth Grade – Mathematics Curriculum Questionnaire (CQM1)

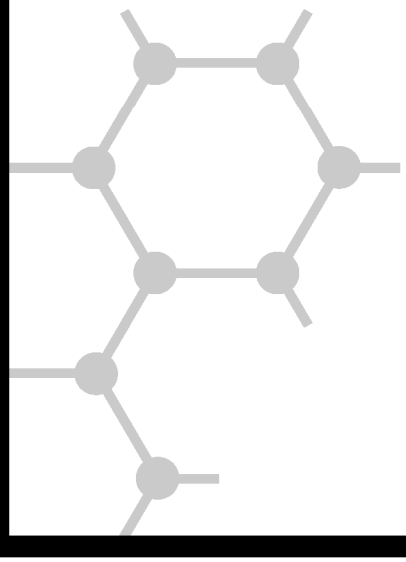
IEA Trends in International Mathematics and Science Study

T I M S S 2003

Main Survey

Curriculum Questionnaire

Mathematics
<Grade 4>



General Directions

This questionnaire is addressed to National Research Coordinators, who are asked to supply information about their nation's intended curriculum in mathematics. This will help provide background information for interpretation of the school and achievement data collected in other parts of the TIMSS 2003 study. Your responses are very important in helping to provide a better understanding of the study results.

We ask that you or your nominee complete this questionnaire, working with others as necessary (e.g., curriculum supervisors of mathematics representative of those at the <grade 4> level in your country). It is important that you answer each question carefully and provide additional information where requested so that as accurate a picture as possible of your country's curriculum is presented in the final reports.

Your cooperation in completing this questionnaire is greatly appreciated

Contact Information

Country: _____

Name of Individual Completing Report: _____

Position of Individual Completing Report: _____

Address: _____

_____

Email: _____

Phone: _____

Fax: _____

Others (and positions) involved in providing information in completing questionnaire:

_____

_____

_____

_____

National Curriculum

IMPORTANT: Throughout this questionnaire, the term "national curriculum" is intended to include any centrally-supported curriculum. The curriculum need not be mandated but it should be strongly recommended or at least widely used. This curriculum may not necessarily be articulated in a formal document, or different aspects of the curriculum may appear in different documents.

1

CQM1q01A **A. Does your country have a national curriculum that includes mathematics at <grade 4>?**

No
Yes

*Fill in **one** circle only* ----------○ --- ○

***Note:** If **No**, please complete the remainder of the questionnaire based on your best informed judgment of the intended mathematics curriculum for the majority of <grade 4> students in your country. If it is impossible to answer a particular question, just make a note and move to the next question.*

CQM1q01B **B. If there is not a national curriculum, what is the highest level of decision-making authority that provides a curriculum for <grade 4> mathematics?**

_____

_____

CQM1q01C **C. In what year was the current intended mathematics curriculum for <grade 4> introduced?**

_____

CQM1q01D **D. Is the intended mathematics curriculum that includes <grade 4> currently being revised?**

No
Yes

*Fill in **one** circle only* ----------○ --- ○

2

CQM1q02A **A. Across grades K-12, does an education authority in your country (e.g., National Ministry of Education) administer examinations in mathematics that have consequences for individual students, such as determining grade promotion, entry to a higher school system, entry to university, and/or exiting or graduating from high school?**

No
Yes

*Fill in **one** circle only* ----------○ --- ○

*If **No**, please go to question **3*** →

CQM1q02B **B. If YES, please describe the authority which administers examinations in mathematics, and list the grades at which they are given.**

_____

CQM1q02B_Grade _____

_____

_____

3

Are any of the following methods used to help implement the national mathematics curriculum at <grade 4>?

*Fill in **one** circle for each row*

		Yes	No
CQM1q03a	a) Mandated or recommended textbook(s)	○	○
CQM1q03b	b) Instructional or pedagogical guide	○	○
CQM1q03c	c) Ministry notes and directives	○	○
CQM1q03d	d) Curriculum evaluation during or after implementation	○	○
CQM1q03e	e) Specifically developed or recommended instructional activities	○	○
CQM1q03f	f) National assessments based on student samples	○	○
CQM1q03g	g) A system of school inspection or audit	○	○
CQM1q03h	h) Other	○	○
CQM1q03h_Oth	(Please specify:_____)		

CQM1q03_Com Comments: _____

_____

_____

_____

4

Does the national curriculum specify the amount of instructional time that should be devoted to mathematics?

*Fill in **one** circle for each row*

		Yes	No	
CQM1q04a	a) at <grade 2>	○	○	
CQM1q04a_Per	If **Yes**, what percentage of total instructional time is supposed to be devoted to mathematics? _____			
CQM1q04b	b) at <grade 4>	○	○	
CQM1q04b_Per	If **Yes**, what percentage of total instructional time is supposed to be devoted to mathematics? _____			

Pedagogical Approach

5 CQM1q05

Which best describes how the national mathematics curriculum at <grade 4> addresses the issue of students with different levels of ability?

*Fill in **one** circle only*

- The same curriculum is prescribed for all students ○
- The same curriculum is prescribed for students of different ability levels, but at different levels of difficulty ○
- Different curricula are prescribed for students of different ability levels ○

CQM1q05_Com

Comments: _____

_____

_____

_____

6

How much emphasis does the national mathematics curriculum at <grade 4> place on the following?

*Fill in **one** circle for each row*

		None	Very little	Some	A lot	
a)	Mastering basic skills	○	○	○	○	CQM1q06a
b)	Understanding mathematical concepts and principles	○	○	○	○	CQM1q06b
c)	Applying mathematics in real-life contexts	○	○	○	○	CQM1q06c
d)	Communicating mathematically	○	○	○	○	CQM1q06d
e)	Reasoning mathematically	○	○	○	○	CQM1q06e
f)	Incorporating the experiences of different ethnic/cultural groups	○	○	○	○	CQM1q06f
g)	Integrating mathematics with other subjects	○	○	○	○	CQM1q06g

CQM1q06_Com

Comments: _____

_____

_____

_____

Calculators and Computers

7

CQM1q07A

A. Does the national curriculum contain statements/policies about the use of calculators in <grade 4> mathematics?

No
Yes

*Fill in **one** circle only* ○ --- ○

*If **No**, please go to question* **8**

CQM1q07B

B. If YES, what are the statements/policies?

_____

_____

_____

_____

8

CQM1q08A

A. Does the national curriculum contain statements/policies about the use of computers in <grade 4> mathematics?

No
Yes

*Fill in **one** circle only* ○ --- ○

*If **No**, please go to question* **9**

CQM1q08B

B. If YES, what are the statements/policies?

_____

_____

_____

_____

Teacher Education and Certification

9

A. Do <grade 4> mathematics teachers receive specific preparation in how to teach the intended mathematics curriculum at <grade 4>?

*Fill in **one** circle for each row*

		No	Yes
CQM1q09Aa	a) As part of pre-service education	○	○
CQM1q09Ab	b) As part of in-service education	○	○

CQM1q09B **B. If you answered YES to either (a) or (b), describe the nature of the preparation.**

_____

_____

_____

_____

10

Which are the current requirements for being a mathematics teacher at <grade 4>?

*Fill in **one** circle for each row*

		No	Yes
CQM1q10a	a) Pre-practicum and supervised practicum in the field	○	○
CQM1q10b	b) Passing an examination	○	○
CQM1q10c	c) <ISCED 5A, first degree>	○	○
CQM1q10d	d) Completion of a probationary teaching period	○	○
CQM1q10d_Length	If **Yes**, how long is this period?_____		
CQM1q10e	e) Completion of a mentoring or induction program	○	○
CQM1q10f	f) Other	○	○
CQM1q10f_Oth	(Please specify:_____)		

11

CQM1q11A **A. Is there a process to license or certify <grade 4> mathematics teachers?**

	No	Yes
*Fill in **one** circle only*	○	○

*If **No**, please go to question* **12** ➡

B. If YES, who certifies/licenses <grade 4> mathematics teachers?

*Fill in **one** circle for each row*

		No	Yes
CQM1q11Ba	a) Minister/Ministry of Education	○	○
CQM1q11Bb	b) National/state licensing board	○	○
CQM1q11Bc	c) Universities/colleges	○	○
CQM1q11Bd	d) Teacher organization/union	○	○
CQM1q11Be	e) Other	○	○
CQM1q11Be_Oth	(Please specify:_____)		

CQM1q11B_Com Comments: _____

_____

_____

_____

Grade 4 Mathematics Topics

12

According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>?

Across grades K-12, at what grade(s) are the topics primarily intended to be taught?

Be sure to include curriculum expectations for all grades up to and including <grade 4>. If there are not any specifications to this detail, please indicate national expectations to the best of your ability.

If part of a topic does not apply (e.g., location on a number line in topic (f) below), please cross out that part and answer for the major part of the topic.

		Proportion of <grade 4> students expected to be taught topic *Fill in **one** circle for each row* Not included in the curriculum through <grade 4> / Only the more able students / All or almost all students	Grade(s) topic is expected to be taught K-12	
	A. Number			
CQM1q12Aa	a) Whole numbers including place value and ordering	○ ○ ○	_____	CQM1q12Aa_Grade
CQM1q12Ab	b) Represent whole numbers using words, diagrams, or symbols	○ ○ ○	_____	CQM1q12Ab_Grade
CQM1q12Ac	c) Properties of whole numbers such as odd and even, multiples, or factors	○ ○ ○	_____	CQM1q12Ac_Grade
CQM1q12Ad	d) Computations with whole numbers	○ ○ ○	_____	CQM1q12Ad_Grade
CQM1q12Ae	e) Estimation with whole numbers	○ ○ ○	_____	CQM1q12Ae_Grade
CQM1q12Af	f) Fractions (parts of a whole or a collection, location on a number line)	○ ○ ○	_____	CQM1q12Af_Grade
CQM1q12Ag	g) Equivalent fractions	○ ○ ○	_____	CQM1q12Ag_Grade
CQM1q12Ah	h) Compare and order fractions	○ ○ ○	_____	CQM1q12Ah_Grade
CQM1q12Ai	i) Fractions or decimals represented by words, numbers, or models	○ ○ ○	_____	CQM1q12Ai_Grade
CQM1q12Aj	j) Adding and subtracting fractions with the same denominator	○ ○ ○	_____	CQM1q12Aj_Grade
CQM1q12Ak	k) Adding and subtracting with decimals (tenths and/or hundredths)	○ ○ ○	_____	CQM1q12Ak_Grade
CQM1q12Al	l) Simple proportional reasoning	○ ○ ○	_____	CQM1q12Al_Grade
	B. Patterns, Equations, and Relationships			
CQM1q12Ba	a) Number patterns including extending sequences and finding missing terms of numeric and geometric patterns	○ ○ ○	_____	CQM1q12Ba_Grade
CQM1q12Bb	b) Equality using equations, areas, volumes, masses/weights	○ ○ ○	_____	CQM1q12Bb_Grade
CQM1q12Bc	c) Missing number in an equation (e.g., if 17 + __ = 29, what number would go in the blank to make the equation true?)	○ ○ ○	_____	CQM1q12Bc_Grade
CQM1q12Bd	d) Modeling simple situations involving unknowns with an equation	○ ○ ○	_____	CQM1q12Bd_Grade
CQM1q12Be	e) Pairs of numbers following a given rule (e.g., multiply the first number by 3 and add 2 to get the second number)	○ ○ ○	_____	CQM1q12Be_Grade
CQM1q12Bf	f) Finding a rule for a relationship given some pairs of numbers	○ ○ ○	_____	CQM1q12Bf_Grade

12 continued

		Proportion of <grade 4> students expected to be taught topic	Grade(s) topic is expected to be taught K-12	
		*Fill in **one** circle for each row*		
		Not included in the curriculum through <grade 4> / Only the more able students / All or almost all students		
	C. Measurement			
CQM1q12Ca	a) Non-standard units to measure length, area, volume, and time (e.g., paper clips for length, tiles for area, sugar cubes for volume)	○ ○ ○	_____	CQM1q12Ca_Grade
CQM1q12Cb	b) Standard units to measure length, area, mass/weight, angle, and time (e.g., kilometers for car trips, centimeters for human height)	○ ○ ○	_____	CQM1q12Cb_Grade
CQM1q12Cc	c) Conversion factors between standard units (e.g., hours to minutes, grams to kilograms)	○ ○ ○	_____	CQM1q12Cc_Grade
CQM1q12Cd	d) Instruments to measure length, weight, time, and temperature in problem situations (e.g., rulers and scales)	○ ○ ○	_____	CQM1q12Cd_Grade
CQM1q12Ce	e) Calculating areas and perimeters of squares	○ ○ ○	_____	CQM1q12Ce_Grade
CQM1q12Cf	f) Estimating length, area, volume, weight, and time	○ ○ ○	_____	CQM1q12Cf_Grade
	D. Geometry			
CQM1q12Da	a) Angles greater than, equal to, or less than a right angle (or 90°)	○ ○ ○	_____	CQM1q12Da_Grade
CQM1q12Db	b) Parallel and perpendicular lines	○ ○ ○	_____	CQM1q12Db_Grade
CQM1q12Dc	c) Familiar two- and three-dimensional shapes and their properties	○ ○ ○	_____	CQM1q12Dc_Grade
CQM1q12Dd	d) Congruent triangles	○ ○ ○	_____	CQM1q12Dd_Grade
CQM1q12De	e) Similar triangles	○ ○ ○	_____	CQM1q12De_Grade
CQM1q12Df	f) Points in a plane	○ ○ ○	_____	CQM1q12Df_Grade
CQM1q12Dg	g) Relationships between two-dimensional and three-dimensional shapes (nets)	○ ○ ○	_____	CQM1q12Dg_Grade
CQM1q12Dh	h) Informal coordinate systems	○ ○ ○	_____	CQM1q12Dh_Grade
CQM1q12Di	i) Symmetry about a line	○ ○ ○	_____	CQM1q12Di_Grade
CQM1q12Dj	j) Two-dimensional symmetrical figures	○ ○ ○	_____	CQM1q12Dj_Grade
CQM1q12Dk	k) Translation, reflection, and rotation	○ ○ ○	_____	CQM1q12Dk_Grade

12 continued

According to the national mathematics curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>?

Across grades K-12, at what grade(s) are the topics primarily intended to be taught?

Be sure to include curriculum expectations for all grades up to and including <grade 4>. If there are not any specifications to this detail, please indicate national expectations to the best of your ability.

If part of a topic does not apply, please cross out that part and answer for the major part of the topic.

		Proportion of <grade 4> students expected to be taught topic *Fill in **one** circle for each row* Not included in the curriculum through <grade 4> Only the more able students All or almost all students	Grade(s) topic is expected to be taught K-12	
	E. Data			
CQM1q12Ea	a) Recognizing what various numbers, symbols, and points mean in data displays	○ ○ ○ ○	_____	CQM1q12Ea_Grade
CQM1q12Eb	b) Organizing a set of data by one characteristic (e.g., height, color, age, shape)	○ ○ ○ ○	_____	CQM1q12Eb_Grade
CQM1q12Ec	c) Reading data directly from tables, pictographs, bar graphs, and pie charts	○ ○ ○ ○	_____	CQM1q12Ec_Grade
CQM1q12Ed	d) Displaying data using tables, pictographs, and bar graphs	○ ○ ○ ○	_____	CQM1q12Ed_Grade
CQM1q12Ee	e) Comparing and matching different representations of the same data	○ ○ ○ ○	_____	CQM1q12Ee_Grade
CQM1q12Ef	f) Characteristics of related data sets (e.g., given data or representations of data on student heights in two classes, identify the class with the shortest/tallest person)	○ ○ ○ ○	_____	CQM1q12Ef_Grade
CQM1q12Eg	g) Drawing conclusions from data displays	○ ○ ○ ○	_____	CQM1q12Eg_Grade

Thank You

for completing this questionnaire

TIMSS International Study Center
Boston College
Chestnut Hill, MA 02467

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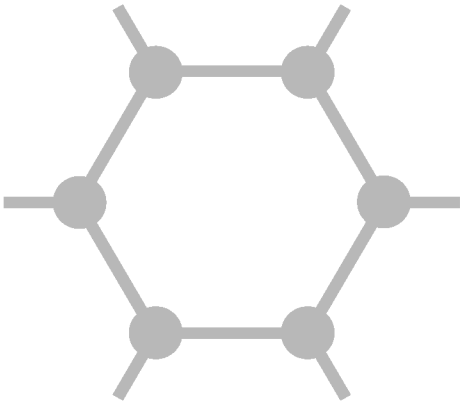


Section 12

Fourth Grade – Science Curriculum Questionnaire (CQS1)

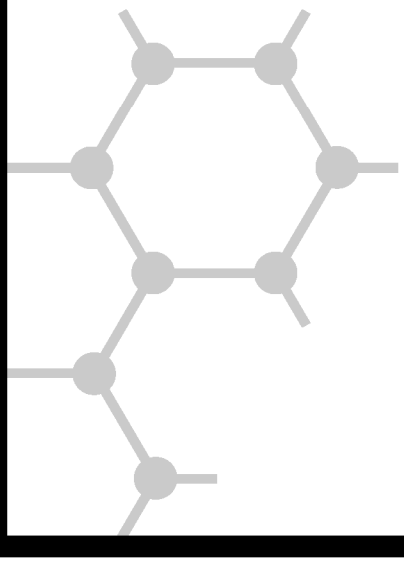
IEA Trends in International Mathematics and Science Study

T I M S S 2003

Main Survey

Curriculum Questionnaire

Science
<Grade 4>



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Your cooperation in completing this questionnaire is greatly appreciated

Contact Information

Country: _____

Name of Individual Completing Report: _____

Position of Individual Completing Report: _____

Address: _____

_____

Email: _____

Phone: _____

Fax: _____

Others (and positions) involved in providing information in completing questionnaire:

_____

_____

_____

_____

National Curriculum

IMPORTANT: Throughout this questionnaire, the term "national curriculum" is intended to include any centrally-supported curriculum. The curriculum need not be mandated but it should be strongly recommended or at least widely used. This curriculum may not necessarily be articulated in a formal document, or different aspects of the curriculum may appear in different documents.

1

CQS1q01A

A. Does your country have a national curriculum that includes science at <grade 4>?

No
Yes

*Fill in **one** circle only* ----------○ --- ○

***Note**: If **No**, please complete the remainder of the questionnaire based on your best informed judgment of the intended science curriculum for the majority of <grade 4> students in your country. If it is impossible to answer a particular question, just make a note and move to the next question.*

CQS1q01B

B. If there is not a national curriculum, what is the highest level of decision-making authority that provides a curriculum for <grade 4> science?

_____

_____

CQS1q01C

C. In what year was the current intended science curriculum for <grade 4> introduced?

_____

CQS1q01D

D. Is the intended science curriculum that includes <grade 4> currently being revised?

No
Yes

*Fill in **one** circle only* ----------○ --- ○

2

CQS1q02A

A. Across grades K-12, does an education authority in your country (e.g., National Ministry of Education) administer examinations in science that have consequences for individual students, such as determining grade promotion, entry to a higher school system, entry to university, and/or exiting or graduating from high school?

No
Yes

*Fill in **one** circle only* ----------○ --- ○

*If **No**, please go to question* **3** ➡

CQS1q02B

B. If YES, please describe the authority which administers examinations in science, and list the grades at which they are given.

CQS1q02B_Grade

If examinations in separate science subjects such as life science, physical science, and earth science are given at different grades, please indicate this.

_____

_____

_____

_____

_____

_____

3

Are any of the following methods used to help implement the national science curriculum at <grade 4>?

*Fill in **one** circle for each row*

			Yes	No
CQS1q03a	a)	Mandated or recommended textbook(s)	○	○
CQS1q03b	b)	Instructional or pedagogical guide	○	○
CQS1q03c	c)	Ministry notes and directives	○	○
CQS1q03d	d)	Curriculum evaluation during or after implementation	○	○
CQS1q03e	e)	Specifically developed or recommended instructional activities	○	○
CQS1q03f	f)	National assessments based on student samples	○	○
CQS1q03g	g)	A system of school inspection or audit	○	○
CQS1q03h	h)	Other	○	○
CQS1q03h_Oth		(Please specify:_____)		

CQS1q03_Com Comments: _____

_____

_____

_____

4

Does the national curriculum specify the amount of instructional time that should be devoted to science?

*Fill in **one** circle for each row*

			Yes	No	
CQS1q04a	a)	at <grade 2>	○	○	
CQS1q04a_Per		If **Yes**, what percentage of total instructional time is supposed to be devoted to science? _____			
CQS1q04b	b)	at <grade 4>	○	○	
CQS1q04b_Per		If **Yes**, what percentage of total instructional time is supposed to be devoted to science? _____			

Pedagogical Approach

5 CQS1q05

Which best describes how the national science curriculum at <grade 4> addresses the issue of students with different levels of ability?

*Fill in **one** circle only*

- The same curriculum is prescribed for all students ○
- The same curriculum is prescribed for students of different ability levels, but at different levels of difficulty ○
- Different curricula are prescribed for students of different ability levels ○

CQS1q05_Com Comments: _____

_____

_____

_____

6

How much emphasis does the national science curriculum at <grade 4> place on the following?

*Fill in **one** circle for each row*

		None	Very little	Some	A lot	
a)	Knowing basic science facts	○	○	○	○	CQS1q06a
b)	Understanding science concepts	○	○	○	○	CQS1q06b
c)	Writing explanations about what was observed and why it happened	○	○	○	○	CQS1q06c
d)	Designing and planning experiments or investigations	○	○	○	○	CQS1q06d
e)	Conducting experiments or investigations	○	○	○	○	CQS1q06e
f)	Integrating science with other subjects	○	○	○	○	CQS1q06f
g)	Learning about technology and its impact on society	○	○	○	○	CQS1q06g
h)	Understanding human impact on the environment	○	○	○	○	CQS1q06h
i)	Incorporating the experiences of different ethnic/cultural groups	○	○	○	○	CQS1q06i

CQS1q06_Com Comments: _____

_____

_____

_____

Computers

7

CQS1q07A

A. Does the national curriculum contain statements/policies about the emphasis that should be placed on scientific inquiry in <grade 4> science?

No
Yes

*Fill in **one** circle only*

*If **No**, please go to question **8***

CQS1q07B

B. If YES, what are the statements/policies?

_____

_____

_____

_____

8

CQS1q08A

A. Does the national curriculum contain statements/policies about the use of computers in <grade 4> science?

No
Yes

*Fill in **one** circle only*

*If **No**, please go to question **9***

CQS1q08B

B. If YES, what are the statements/policies?

_____

_____

_____

_____

Teacher Education and Certification

9

A. Do <grade 4> science teachers receive specific preparation in how to teach the intended science curriculum at <grade 4>

*Fill in **one** circle for each row*

		No	Yes
CQS1q09Aa	a) As part of pre-service education	○	○
CQS1q09Ab	b) As part of in-service education	○	○

B. If you answered YES to either (a) or (b), describe the nature of the preparation. CQS1q09B

_____

_____

_____

_____

10

Which are the current requirements for being a science teacher at <grade 4>?

*Fill in **one** circle for each row*

		No	Yes
CQS1q10a	a) Pre-practicum and supervised practicum in the field	○	○
CQS1q10b	b) Passing an examination	○	○
CQS1q10c	c) <ISCED 5A, first degree>	○	○
CQS1q10d	d) Completion of a probationary teaching period	○	○
	If **Yes**, how long is this period?_____		
CQS1q10e	e) Completion of a mentoring or induction program	○	○
CQS1q10f	f) Other	○	○
CQS1q10f_Oth	(Please specify:_____)		

11

A. Is there a process to license or certify <grade 4> science teachers? CQS1q11A

	No	Yes
*Fill in **one** circle only*	○	○

*If **No**, please go to question* **12** →

B. If YES, who certifies/licenses <grade 4> science teachers?

*Fill in **one** circle for each row*

		No	Yes
CQS1q11Ba	a) Minister/Ministry of Education	○	○
CQS1q11Bb	b) National/state licensing board	○	○
CQS1q11Bc	c) Universities/colleges	○	○
CQS1q11Bd	d) Teacher organization/union	○	○
CQS1q11Be	e) Other	○	○
CQS1q11Be_Oth	(Please specify:_____)		

Comments: _____ CQS1q11B_Com

_____

_____

_____

Grade 4 Science Topics

12

According to the national science curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>?

Across grades K-12, at what grade(s) are the topics primarily intended to be taught?

Be sure to include curriculum expectations for all grades up to and including <grade 4>. If there are not any specifications to this detail, please indicate national expectations to the best of your ability.

If part of a topic does not apply (e.g., methods of preventing and treating illness in topic (i) below), please cross out that part and answer for the major part of the topic.

		Proportion of <grade 4> students expected to be taught topic *Fill in **one** circle for each row* Not included in the curriculum through <grade 4> Only the more able students All or almost all students	Grade(s) topic is expected to be taught K-12	
	A. Life Science			
CQS1q12Aa	a) Types, characteristics, and classification of living things (common features of living things; characteristics of humans and other major groups of organisms)	○ ○ ○	_____	CQS1q12Aa_Grade
CQS1q12Ab	b) Major body structures and their function in humans and other organisms (plants and animals)	○ ○ ○	_____	CQS1q12Ab_Grade
CQS1q12Ac	c) Bodily actions in response to outside conditions (e.g., heat, cold, danger) and activities (e.g., exercise)	○ ○ ○	_____	CQS1q12Ac_Grade
CQS1q12Ad	d) The general steps in the life cycle of familiar organisms (e.g., humans, insects, frogs, plants)	○ ○ ○	_____	CQS1q12Ad_Grade
CQS1q12Ae	e) Plant and animal reproduction (passing on of general characteristics)	○ ○ ○	_____	CQS1q12Ae_Grade
CQS1q12Af	f) Physical features, patterns of behavior and survival of plants and animals in different environments	○ ○ ○	_____	CQS1q12Af_Grade
CQS1q12Ag	g) Relationships in a living community (e.g., simple food chains using common plants and animals and predator/prey relationships)	○ ○ ○	_____	CQS1q12Ag_Grade
CQS1q12Ah	h) Changes in environments (effects of human activity, pollution and its prevention)	○ ○ ○	_____	CQS1q12Ah_Grade
CQS1q12Ai	i) Ways that common communicable diseases (e.g., colds, influenza) are transmitted; signs of health/illness and some methods of preventing and treating illness	○ ○ ○	_____	CQS1q12Ai_Grade
CQS1q12Aj	j) Ways of maintaining good health, including diet and exercise	○ ○ ○	_____	CQS1q12Aj_Grade

12 continued

		Proportion of <grade 4> students expected to be taught topic	Grade(s) topic is expected to be taught K-12	
		*Fill in **one** circle for each row*		
		Not included in the curriculum through <grade 4> / Only the more able students / All or almost all students		
	B. Physical Science			
CQS1q12Ba	a) Classification of objects and materials on the basis of observable physical properties	○ ○ ○	_____	CQS1q12Ba_Grade
CQS1q12Bb	b) Properties and uses of metals	○ ○ ○	_____	CQS1q12Bb_Grade
CQS1q12Bc	c) Forming and separating mixtures	○ ○ ○	_____	CQS1q12Bc_Grade
CQS1q12Bd	d) Properties and uses of water	○ ○ ○	_____	CQS1q12Bd_Grade
CQS1q12Be	e) Chemical and physical changes (e.g., decaying of animal/plant matter, burning, rusting)	○ ○ ○	_____	CQS1q12Be_Grade
CQS1q12Bf	f) States of matter (solids, liquids, and gases) and differences in their physical properties in terms of shape and volume	○ ○ ○	_____	CQS1q12Bf_Grade
CQS1q12Bg	g) Changes in state of water by heating and cooling (melting, freezing, boiling)	○ ○ ○	_____	CQS1q12Bg_Grade
CQS1q12Bh	h) Common energy sources/forms and their practical uses (e.g., wind, sun, electricity, burning fuel, water wheel, food)	○ ○ ○	_____	CQS1q12Bh_Grade
CQS1q12Bi	i) Heat flow and temperature	○ ○ ○	_____	CQS1q12Bi_Grade
CQS1q12Bj	j) Common sources of light (e.g., bulb, flame, sun) and familiar physical phenomena related to light (e.g., formation of rainbows and shadows, visibility of objects, mirrors, colors)	○ ○ ○	_____	CQS1q12Bj_Grade
CQS1q12Bk	k) Common uses of electricity and electrical circuits	○ ○ ○	_____	CQS1q12Bk_Grade
CQS1q12Bl	l) Magnets (north and south poles, magnetic attraction and repulsion)	○ ○ ○	_____	CQS1q12Bl_Grade
CQS1q12Bm	m) Forces that cause objects to move (e.g., gravity, push/pull forces)	○ ○ ○	_____	CQS1q12Bm_Grade

12 continued

According to the national science curriculum, what proportion of <grade 4> students should have been taught each of the following topics or skills by the end of <grade 4>?

Across grades K-12, at what grade(s) are the topics primarily intended to be taught?

Be sure to include curriculum expectations for all grades up to and including <grade 4>. If there are not any specifications to this detail, please indicate national expectations to the best of your ability.

If part of a topic does not apply, please cross out that part and answer for the major part of the topic.

		Proportion of <grade 4> students expected to be taught topic *Fill in **one** circle for each row* Not included in the curriculum through <grade 4> Only the more able students All or almost all students	Grade(s) topic is expected to be taught K-12	
	C. Earth Science			
CQS1q12Ca	a) Rocks, minerals, sand, and soil (physical properties, locations, and uses of these materials)	○ ○ ○	_____	CQS1q12Ca_Grade
CQS1q12Cb	b) Water on Earth (location, types, and movement)	○ ○ ○	_____	CQS1q12Cb_Grade
CQS1q12Cc	c) Air (composition, proof of its existence, uses, and importance for supporting life)	○ ○ ○	_____	CQS1q12Cc_Grade
CQS1q12Cd	d) Common features of the Earth's landscape (e.g., mountains, plains rivers, deserts) and relationship to human use (e.g., farming, irrigation, land development)	○ ○ ○	_____	CQS1q12Cd_Grade
CQS1q12Ce	e) Use and conservation of Earth's natural resources	○ ○ ○	_____	CQS1q12Ce_Grade
CQS1q12Cf	f) Earth's water cycle (water flowing in rivers from mountains to sea, cloud formation and precipitation)	○ ○ ○	_____	CQS1q12Cf_Grade
CQS1q12Cg	g) Weather conditions from day to day or over the seasons	○ ○ ○	_____	CQS1q12Cg_Grade
CQS1q12Ch	h) Fossils of animals and plants (age, formation)	○ ○ ○	_____	CQS1q12Ch_Grade
CQS1q12Ci	i) Earth's solar system (planets, sun, moon)	○ ○ ○	_____	CQS1q12Ci_Grade

Thank You

for completing this questionnaire

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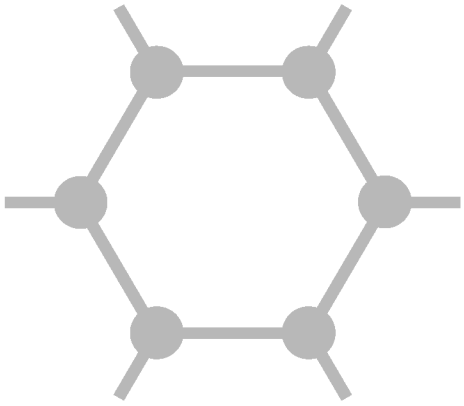

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