TRENDS IN INTERNATIONAL MATHEMATICS AND SCIENCE STUDY

TIMSS



TIMSS 2007 User Guide for the International Database

Supplement 1

International Version of the TIMSS 2007 Background and Curriculum Questionnaires

TIMSS & PIRLS
International Study Center
Lynch School of Education, Boston College

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TIMSS 2007 User Guide for the International Database

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Supplement 1

International Version of the TIMSS 2007 Background and Curriculum Questionnaires

Overview

The TIMSS 2007 international database includes data for all questionnaires administered as part of the TIMSS 2007 assessment. This supplement contains the international version of the TIMSS 2007 background questionnaires and curriculum questionnaires in the following 11 sections:

Section 1: Fourth Grade Student Questionnaire

Section 2: Fourth Grade Teacher Questionnaire

Section 3: Fourth Grade School Questionnaire

Section 4: Fourth Grade Mathematics Curriculum Questionnaire

Section 5: Fourth Grade Science Curriculum Questionnaire

Section 6: Eighth Grade Student Questionnaire - General Science Version & Eighth Grade Student Questionnaire - Separate Science Subjects Version

Section 7: Eighth Grade Mathematics Teacher Questionnaire

Section 8: Eighth Grade Science Teacher Questionnaire

Section 9: Eighth Grade School Questionnaire

Section 10: Eighth Grade Mathematics Curriculum Questionnaire

Section 11: Eighth Grade Science Curriculum Questionnaire

Each section contains a table that lists detailed information for each question, followed by the international version of the questionnaire with variable names labeled in the margin. For the eighth grade student questionnaires, although there are two versions of the questionnaire, only one table is presented where it is indicated whether the variables were included in the general science, the separate science subjects, or both questionnaires.

Exhibits S1.1 through S1.11 list the questions for each of the TIMSS 2007 questionnaires by their location and variable name, and indicate whether a variable was available in 2003. The availability of these variables in earlier cycles can be found in the TIMSS 1999 and TIMSS 1995 User Guides. The question numbers associated with each variable are indicated by field locations (see Exhibit 4.8 in Chapter 4).

The TIMSS 2007 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 version 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 the questionnaires by text inserted within carets (<country-specific>). The NRC was to substitute, if necessary, an appropriate national adaptation that would retain the same basic interpretation as the text within carets. These national adaptations of the background questionnaires are documented in Supplement 2.

Fourth Grade
Student Questionnaire



Section 1

Exhibit S1.1 Index of International Background Variables for the TIMSS 2007 Student Questionnaire - Fourth Grade

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
SQ1-01A	What year were you born?	AS4GBRTY	ASBGBRTY	
SQ1-01B	What month were you born?	AS4GBRTM	ASBGBRTM	
SQ1-02	Are you a girl or a boy?	AS4GSEX	ASBGSEX	
SQ1-03	How often do you speak <language of test> at home?	AS4GOLAN	ASBGOLAN	
SQ1-04	About how many books are there in your home? (Do not count magazines, newspapers, or your school books.)	AS4GBOOK	ASBGBOOK	
SQ1-05a	Do you have a calculator in your home?	AS4GTH01	ASBGPS01	
SQ1-05b	Do you have a computer in your home? (do not include PlayStation®, GameCube®, XBox®, or other TV/video game computers)	AS4GTH02	ASBGPS02	
SQ1-05c	Do you have a study desk/table for your use in your home?	AS4GTH03	ASBGPS03	
SQ1-05d	Do you have a dictionary in your home?	AS4GTH04	ASBGPS04	
SQ1-05e	Do you have an Internet connection in your home?	AS4GTH05	Not available	
SQ1-05f	Do you have a <country-specific> in your home?	AS4GTH06	ASBGPS05	
SQ1-05g	Do you have a <country-specific> in your home?	AS4GTH07	ASBGPS06	
SQ1-05h	Do you have a <country-specific> in your home?	AS4GTH08	ASBGPS07	
SQ1-05i	Do you have a <country-specific> in your home?	AS4GTH09	ASBGPS08	
SQ1-06a	How much do you agree with this statement about learning mathematics? - I usually do well in mathematics	AS4MAWEL	ASBMTWEL	
SQ1-06b	How much do you agree with this statement about learning mathematics? - I would like to do more mathematics in school	AS4MAMOR	ASBMTMOR	
SQ1-06c	How much do you agree with this statement about learning mathematics? - Mathematics is harder for me than for many of my classmates	AS4MACLM	ASBMTCLM	
SQ1-06d	How much do you agree with this statement about learning mathematics? - I enjoy learning mathematics	AS4MAENJ	ASBMTENJ	
SQ1-06e	How much do you agree with this statement about learning mathematics? - I am just not good at mathematics	AS4MANOT	ASBMTNOT	
SQ1-06f	How much do you agree with this statement about learning mathematics? - I learn things quickly in mathematics	AS4MAQKY	ASBMTQKY	
SQ1-06g	How much do you agree with this statement about learning mathematics? - Mathematics is boring	AS4MABOR	Not available	
SQ1-06h	How much do you agree with this statement about learning mathematics? - I like mathematics	AS4MALIK	Not available	
SQ1-07a	In your mathematics lessons, how often do you practice adding, subtracting, multiplying, and dividing without using a calculator?	AS4MHASM	ASBMHASM	

Exhibit S1.1 Index of International Background Variables for the TIMSS 2007 Student Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
SQ1-07b	In your mathematics lessons, how often do you work on fractions and decimals?	AS4MHWFD	ASBMHWFD	
SQ1-07c	In your mathematics lessons, how often do you measure things in the classroom and around the school?	AS4MHMCL	ASBMHMCL	
SQ1-07d	In your mathematics lessons, how often do you make tables, charts, or graphs?	AS4MHTCG	ASBMHTCG	
SQ1-07e	In your mathematics lessons, how often do you learn about shapes such as circles, triangles, rectangles, and cubes?	AS4MHCTR	ASBMHCTR	Modified wording in 2007
SQ1-07f	In your mathematics lessons, how often do you memorize how to work problems?	AS4MHMWP	Not available	
SQ1-07g	In your mathematics lessons, how often do you work with other students in small groups?	AS4MHWSG	ASBMHWSG	
SQ1-07h	In your mathematics lessons, how often do you explain your answers?	AS4MHEXP	ASBMHEXP	
SQ1-07i	In your mathematics lessons, how often do you work problems on your own?	AS4MHWPO	ASBMHWPO	
SQ1-07j	In your mathematics lessons, how often do you use a calculator?	AS4MHCAL	ASBMHCAL	
SQ1-07k	In your mathematics lessons, how often do you use a computer?	AS4MHCOM	Not available	
SQ1-08a	How much do you agree with this statement about learning science? - I usually do well in science	AS4SAWEL	ASBSTWEL	
SQ1-08b	How much do you agree with this statement about learning science? - I would like to do more science in school	AS4SAMOR	ASBSTMOR	
SQ1-08c	How much do you agree with this statement about learning science? - Science is harder for me than for many of my classmates	AS4SACLM	ASBSTCLM	
SQ1-08d	How much do you agree with this statement about learning science? - I enjoy learning science	AS4SAENJ	ASBSTENJ	
SQ1-08e	How much do you agree with this statement about learning science? - I am just not good at science	AS4SANOT	ASBSTNOT	
SQ1-08f	How much do you agree with this statement about learning science? - I learn things quickly in science	AS4SAQKY	ASBSTQKY	
SQ1-08g	How much do you agree with this statement about learning science? - Science is boring	AS4SABOR	Not available	
SQ1-08h	How much do you agree with this statement about learning science? - I like science	AS4SALIK	Not available	
SQ1-09a	In school, how often do you look at something like the weather or a plant growing and write down what you see?	AS4SLWPS	ASBSLWPS	
SQ1-09b	In school, how often do you watch the teacher do a science experiment?	AS4SWATE	ASBSWATE	
SQ1-09c	In school, how often do you design or plan a science experiment or investigation?	AS4SHPEX	ASBSHPEX	

Exhibit S1.1 Index of International Background Variables for the TIMSS 2007 Student Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
SQ1-09d	In school, how often do you do a science experiment or investigation?	AS4SDESI	ASBSDSEI	
SQ1-09e	In school, how often do you work with other students in a small group on a science experiment or investigation?	AS4SHWGX	ASBSHWGX	
SQ1-09f	In school, how often do you read books about science?	AS4SRBSC	Not available	
SQ1-09g	In school, how often do you memorize science facts?	AS4SMESF	Not available	
SQ1-09h	In school, how often do you write or give an explanation for something you are studying in science?	AS4SWESS	ASBSWESS	
SQ1-09i	In school, how often do you work on science problems on your own?	AS4SWSPO	ASBSHWPX	Modified wording in 2007
SQ1-09j	In school, how often do you use a computer in science lessons?	AS4SCOSL	Not available	
SQ1-10A	Do you ever use a computer? (Do not include PlayStation®, GameCube®, XBox®, or other TV/video game computers.)	AS4GUSEC	ASBGUSEC	
SQ1-10Ba	Do you use a computer at home?	AS4GCHOM	ASBGCHOM	
SQ1-10Bb	Do you use a computer at school?	AS4GCSCH	ASBGCSCH	
SQ1-10Bc	Do you use a computer elsewhere (e.g., public library, friend's home, Internet café)?	AS4GCELS	ASBGCLIB ASBGCFRH ASBGCCAF ASBGCELS	Collapsed 4 variables from 2003 into 1 in 2007
SQ1-10Ca	How often do you use a computer for your mathematics schoolwork?	AS4MCSWM	Not available	
SQ1-10Cb	How often do you use a computer for your science schoolwork?	AS4SCSWS	Not available	
SQ1-11a	How much do you agree with the statement? - I like being in school	AS4GALBS	ASBGALBS	
SQ1-11b	How much do you agree with the statement? - I think that students in my school try to do their best	AS4GATTB	ASBGATTB	
SQ1-11c	How much do you agree with the statement? - I think that teachers in my school want students to do their best	AS4GATSB	ASBGATSB	
SQ1-12a	In school during the last month, was something of yours stolen?	AS4GSTOL	ASBGSTOL	
SQ1-12b	In school during the last month, were you hit or hurt by other students?	AS4GHURT	ASBGHURT	
SQ1-12c	In school during the last month, were you made to do things you didn't want to do by other students?	AS4GMADE	ASBGMADE	
SQ1-12d	In school during the last month, were you made fun of or called names?	AS4GMFUN	ASBGMFUN	
SQ1-12e	In school during the last month, were you left out of activities by other students?	AS4GLEFT	ASBGLEFT	
SQ1-13a	On a normal school day, how much time do you spend before or after school watching television and videos?	AS4GWATV	ASBGWATV	

Exhibit S1.1 Index of International Background Variables for the TIMSS 2007 Student Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
SQ1-13b	On a normal school day, how much time do you spend before or after school playing computer games?	AS4GPLCG	ASBGPLCG	
SQ1-13c	On a normal school day, how much time do you spend before or after school playing or talking with friends?	AS4GPLFD	ASBGPLFD	
SQ1-13d	On a normal school day, how much time do you spend before or after school doing jobs at home?	AS4GJOHM	ASBGJOHM	
SQ1-13e	On a normal school day, how much time do you spend before or after school playing sports?	AS4GPLSP	ASBGPLSP	
SQ1-13f	On a normal school day, how much time do you spend before or after school reading a book for enjoyment?	AS4GREBO	ASBGREBO	
SQ1-13g	On a normal school day, how much time do you spend before or after school using the Internet?	AS4GUSIN	ASBGUSIN	
SQ1-13h	On a normal school day, how much time do you spend before or after school doing homework?	AS4GDOHW	ASBGDOHW	
SQ1-14A	How often does your teacher give you homework in mathematics?	AS4MOHWG	ASBMHWMA	
SQ1-14B	When your teacher gives you mathematics homework, about how many minutes do you usually spend on your homework?	AS4MSHWM	ASBMHWMG	Modified wording in 2007
SQ1-15A	How often does your teacher give you homework in science?	AS4SOHWG	ASBSHWMA	
SQ1-15B	When your teacher gives you science homework, about how many minutes do you usually spend on your homework?	AS4SSHWM	ASBSHWMG	Modified wording in 2007
SQ1-16A	Was your mother (or stepmother or female guardian) born in <country>?	AS4GMBRN	ASBGMBRN	
SQ1-16B	Was your father (or stepfather or male guardian) born in <country>?	AS4GFBRN	ASBGFBRN	
SQ1-17A	Were you born in <country>?	AS4GBORN	ASBGBORN	
SQ1-17B	If you were not born in <country>, how old were you when you came to <country>?	AS4GBRNC	ASBGBRNC	

Identification Label

Student ID:

Student Name:

Trends in International Mathematics and Science Study

TIMSS 2007

Student Questionnaire

<Grade 4>

<TIMSS National Research Center Name>
<Address>

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General Directions

In this questionnaire, 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 respond.

Each question is followed by a number of answers. Shade in the circle next to 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*

		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 an answer to a question, put an "x" over your first choice, and then fill in the circle for your new choice. 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?

AS4GBRTY

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

Year

1994 - ○
1995 - ○
1996 - ○
1997 - ○
1998 - ○
1999 - ○
2000 - ○
Other - ○

AS4GBRTM

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

Month

January - ○
February - ○
March - ○
April - ○
May - ○
June - ○
July - ○
August - ○
September - ○
October - ○
November - ○
December - ○

2

AS4GSEX

Are you a girl or a boy?

*Fill in **one** circle only*

Girl ---------- ①
Boy ---------- ②

3

AS4GOLAN

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

AS4GBOOK

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



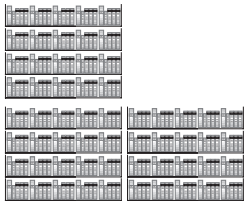
Enough to fill one bookcase (26-100 books) ③ This shows 100 books



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 things at your home?

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

			Yes	No
AS4GTH01	a)	Calculator	①	②
AS4GTH02	b)	Computer (do not include PlayStation®, GameCube®, XBox®, or other TV/video game computers)	①	②
AS4GTH03	c)	Study desk/table for your use	①	②
AS4GTH04	d)	Dictionary	①	②
AS4GTH05	e)	Internet connection	①	②
AS4GTH06	f)	<country-specific>	①	②
AS4GTH07	g)	<country-specific>	①	②
AS4GTH08	h)	<country-specific>	①	②
AS4GTH09	i)	<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
AS4MAWEL	a) I usually do well in mathematics	①	②	③	④
AS4MAMOR	b) I would like to do more mathematics in school	①	②	③	④
AS4MACLM	c) Mathematics is harder for me than for many of my classmates	①	②	③	④
AS4MAENJ	d) I enjoy learning mathematics	①	②	③	④
AS4MANOT	e) I am just not good at mathematics	①	②	③	④
AS4MAQKY	f) I learn things quickly in mathematics	①	②	③	④
AS4MABOR	g) Mathematics is boring	①	②	③	④
AS4MALIK	h) I like 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
AS4MHASM	a)	I practice adding, subtracting, multiplying, and dividing without using a calculator	①	②	③	④
AS4MHWFD	b)	I work on fractions and decimals	①	②	③	④
AS4MHMCL	c)	I measure things in the classroom and around the school	①	②	③	④
AS4MHTCG	d)	I make tables, charts, or graphs	①	②	③	④
AS4MHCTR	e)	I learn about shapes such as circles, triangles, rectangles, and cubes	①	②	③	④
AS4MHMWP	f)	I memorize how to work problems	①	②	③	④
AS4MHWSG	g)	I work with other students in small groups	①	②	③	④
AS4MHEXP	h)	I explain my answers	①	②	③	④
AS4MHWPO	i)	I work problems on my own	①	②	③	④
AS4MHCAL	j)	I use a calculator	①	②	③	④
AS4MHCOM	k)	I use a computer	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
AS4SAWEL	a) I usually do well in science	①	②	③	④
AS4SAMOR	b) I would like to do more science in school	①	②	③	④
AS4SACLM	c) Science is harder for me than for many of my classmates	①	②	③	④
AS4SAENJ	d) I enjoy learning science	①	②	③	④
AS4SANOT	e) I am just not good at science	①	②	③	④
AS4SAQKY	f) I learn things quickly in science	①	②	③	④
AS4SABOR	g) Science is boring	①	②	③	④
AS4SALIK	h) I like 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
AS4SLWPS	a) I look at something like the weather or a plant growing and write down what I see	①	②	③	④
AS4SWATE	b) I watch the teacher do a science experiment	①	②	③	④
AS4SHPEX	c) I design or plan a science experiment or investigation	①	②	③	④
AS4SDESI	d) I do a science experiment or investigation	①	②	③	④
AS4SHWGX	e) I work with other students in a small group on a science experiment or investigation	①	②	③	④
AS4SRBSC	f) I read books about science	①	②	③	④
AS4SMESF	g) I memorize science facts	①	②	③	④
AS4SWESS	h) I write or give an explanation for something I am studying in science	①	②	③	④
AS4SWSPO	i) I work science problems on my own	①	②	③	④
AS4SCOSL	j) I use a computer in science lessons	①	②	③	④

Computers

10

AS4GUSEC

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
AS4GCHOM	a) At home	①	②
AS4GCSCH	b) At school	①	②
AS4GCELS	c) Elsewhere (e.g., public library, friend's home, Internet café)	①	②

C. How often do you use a computer for your schoolwork (in and out of school)?

*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
AS4MCSWM	a) In mathematics	①	②	③	④	⑤
AS4SCSWS	b) In science	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
AS4GALBS	a) I like being in school	①	②	③	④
AS4GATTB	b) I think that students in my school try to do their best	①	②	③	④
AS4GATSB	c) 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
AS4GSTOL	a) Something of mine was stolen	①	②
AS4GHURT	b) I was hit or hurt by other student(s) (for example, shoving, hitting, kicking)	①	②
AS4GMADE	c) I was made to do things I didn't want to do by other students	①	②
AS4GMFUN	d) I was made fun of or called names	①	②
AS4GLEFT	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
AS4GWATV	a) I watch television and videos	①	②	③	④	⑤
AS4GPLCG	b) I play computer games	①	②	③	④	⑤
AS4GPLFD	c) I play or talk with friends	①	②	③	④	⑤
AS4GJOHM	d) I do jobs at home	①	②	③	④	⑤
AS4GPLSP	e) I play sports	①	②	③	④	⑤
AS4GREBO	f) I read a book for enjoyment	①	②	③	④	⑤
AS4GUSIN	g) I use the Internet	①	②	③	④	⑤
AS4GDOHW	h) I do homework	①	②	③	④	⑤

Homework

14

AS4MOHWG

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* **15** →

AS4MSHWM

B. When your teacher gives you mathematics homework, about how many minutes do you usually spend on your homework?

*Fill in **one** circle only*

- Zero minutes ---------- ①
- 1 - 15 minutes ---------- ②
- 16–30 minutes ---------- ③
- 31–60 minutes ---------- ④
- 61–90 minutes ---------- ⑤
- More than 90 minutes ---------- ⑥

Homework (Continued)

15

AS4SOHWG

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* **16** →

AS4SSHWM

B. When your teacher gives you science homework, about how many minutes do you usually spend on your homework?

*Fill in **one** circle only*

- Zero minutes ---------- ①
- 1 - 15 minutes ---------- ②
- 16–30 minutes ---------- ③
- 31–60 minutes ---------- ④
- 61–90 minutes ---------- ⑤
- More than 90 minutes ---------- ⑥

More About You

16

AS4GMBRN **A. Was your mother (or stepmother or female guardian) born in <country>?**

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

AS4GFBRN **B. Was your father (or stepfather or male guardian) born in <country>?**

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

17

AS4GBORN **A. Were you born in <country>?**

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

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

AS4GBRNC **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 & PIRLS
International Study Center
Lynch School of Education, Boston College

Student Questionnaire

<Grade 4>

Fourth Grade
Teacher Questionnaire

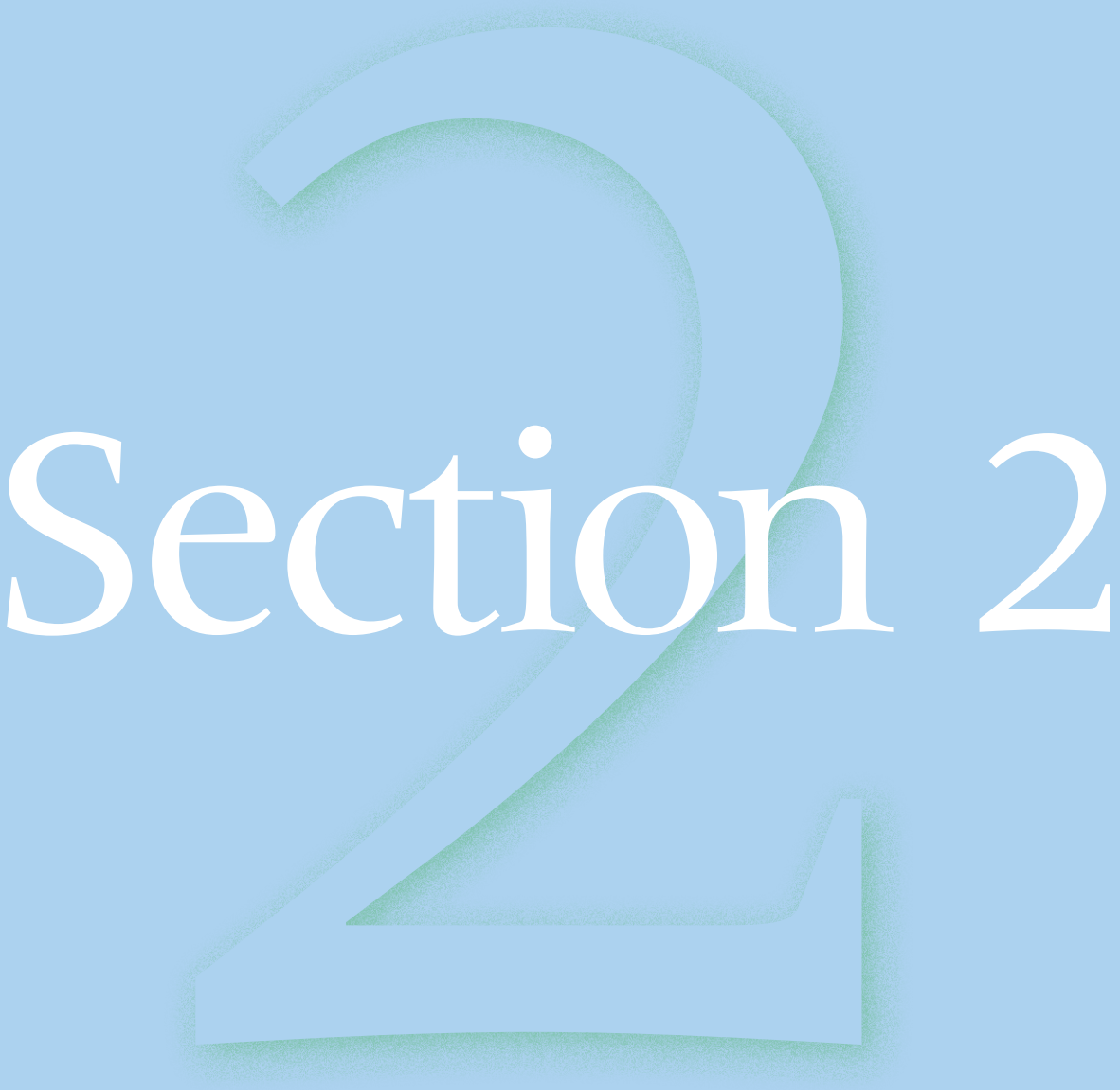


Exhibit S1.2 Index of International Background Variables for the TIMSS 2007 Teacher Questionnaire - Fourth Grade

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQ1-01	How old are you?	AT4GAGE	ATBGAGE	
TQ1-02	Are you female or male?	AT4GSEX	ATBGSEX	
TQ1-03	By the end of this school year, how many years will you have been teaching altogether?	AT4GTAUT	ATBGTAUT	
TQ1-04	Do you have a teaching license or certificate?	AT4GTLCE	ATBGTLCE	
TQ1-05	What is the highest level of formal education you have completed?	AT4GFEDC	ATBGFEDC	
TQ1-06Aa	During your <post-secondary> education, was education <Primary/ Elementary> your major or main area of study?	AT4GPSEP	ATBGPSEP	
TQ1-06Ab	During your <post-secondary> education, was education-secondary your major or main area of study?	AT4GPSES	ATBGPSES	
TQ1-06Ac	During your <post-secondary> education, was mathematics your major or main area of study?	AT4MPSMA	ATBMPSMA	
TQ1-06Ad	During your <post-secondary> education, was science your major or main area of study?	AT4SPSSC	ATBSPSSC	
TQ1-06Ae	During your <post-secondary> education, was other your major or main area of study?	AT4GPSOT	ATBGPSOT	
TQ1-06Ba	If your major or main area of study was education, did you have a <specialization> in mathematics?	AT4MEDMA	ATBMEDMA	
TQ1-06Bb	If your major or main area of study was education, did you have a <specialization> in science?	AT4SEDSC	ATBSEDSC	
TQ1-06Bc	If your major or main area of study was education, did you have a <specialization> in language/reading?	AT4GEDLR	ATBGEDLR	
TQ1-06Bd	If your major or main area of study was education, did you have a <specialization> in any other subject?	AT4GEDOT	ATBGEDOT	
TQ1-07a	How often do you have discussions about how to teach a particular concept with other teachers?	AT4GOTDC	ATBGOTDC	
TQ1-07b	How often do you work on preparing instructional materials with other teachers?	AT4GOTPM	ATBGOTPM	
TQ1-07c	How often do you visit another teacher's classroom to observe his/her teaching?	AT4GOTVT	ATBGOTVT	
TQ1-07d	How often do you have informal observations of your classroom by another teacher?	AT4GOTAT	ATBGOTAT	
TQ1-08a	Thinking about your current school, indicate the extent to which you agree or disagree that this school is located in a safe neighborhood.	AT4GCUSN	ATBGCUSN	
TQ1-08b	Thinking about your current school, indicate the extent to which you agree or disagree that you feel safe at this school.	AT4GCUSA	ATBGCUSA	

Exhibit S1.2 Index of International Background Variables for the TIMSS 2007 Teacher Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQ1-08c	Thinking about your current school, indicate the extent to which you agree or disagree that this school's security policies and practices are sufficient.	AT4GCUAS	ATBGCUAS	
TQ1-09a	In your current school, how severe is this problem? - The school building needs significant repair	AT4GSPBR	Not available	
TQ1-09b	In your current school, how severe is this problem? - Classrooms are overcrowded	AT4GSPCO	Not available	
TQ1-09c	In your current school, how severe is this problem? - Teachers do not have adequate workspace outside their classroom	AT4GSPWO	Not available	
TQ1-09d	In your current school, how severe is this problem? - Materials are not available to conduct experiments or investigations	AT4GSPME	Not available	
TQ1-10a	How would you characterize teachers' job satisfaction within your school?	AT4GCHTS	ATBGCHTS	
TQ1-10b	How would you characterize teachers' understanding of the school's curricular goals within your school?	AT4GCHTU	ATBGCHTU	
TQ1-10c	How would you characterize teachers' degree of success in implementing the school's curriculum within your school?	AT4GCHTC	ATBGCHTC	
TQ1-10d	How would you characterize teachers' expectations for student achievement within your school?	AT4GCHES	ATBGCHES	
TQ1-10e	How would you characterize parental support for student achievement within your school?	AT4GCHPS	ATBGCHPS	
TQ1-10f	How would you characterize parental involvement in school activities within your school?	AT4GCHPI	ATBGCHPI	
TQ1-10g	How would you characterize students' regard for school property within your school?	AT4GCHSR	ATBGCHSR	
TQ1-10h	How would you characterize students' desire to do well in school within your school?	AT4GCHSD	ATBGCHSD	
TQ1-11Aa	How well prepared do you feel you are to teach number topics? - Whole numbers including place value and ordering	AT4MTT01	Options modified in 2007. See Questions TQ1-12A and TQ1-12B in 2003 for sub-topics.	
TQ1-11Ab	How well prepared do you feel you are to teach number topics? - Adding, subtracting, multiplying and/or dividing with whole numbers	AT4MTT02	Options modified in 2007. See Questions TQ1-12A and TQ1-12B in 2003 for sub-topics.	
TQ1-11Ac	How well prepared do you feel you are to teach number topics? - Fractions (parts of a whole or a collection, location on a number line)	AT4MTT03	Options modified in 2007. See Questions TQ1-12A and TQ1-12B in 2003 for sub-topics.	

Exhibit S1.2 Index of International Background Variables for the TIMSS 2007 Teacher Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQ1-11Ad	How well prepared do you feel you are to teach number topics - Fractions represented by words, numbers, or models	AT4MTT04	Options modified in 2007. See Questions TQ1-12A and TQ1-12B in 2003 for sub-topics.	
TQ1-11Ae	How well prepared do you feel you are to teach number topics? - Comparing and ordering fractions	AT4MTT05	Options modified in 2007. See Questions TQ1-12A and TQ1-12B in 2003 for sub-topics.	
TQ1-11Af	How well prepared do you feel you are to teach number topics? - Adding and subtracting with fractions	AT4MTT06	Options modified in 2007. See Questions TQ1-12A and TQ1-12B in 2003 for sub-topics.	
TQ1-11Ag	How well prepared do you feel you are to teach number topics? - Adding and subtracting with decimals	AT4MTT07	Options modified in 2007. See Questions TQ1-12A and TQ1-12B in 2003 for sub-topics.	
TQ1-11Ah	How well prepared do you feel you are to teach number topics?- Number sentences (finding the missing number, modeling simple situations with number sentences)	AT4MTT08	Options modified in 2007. See Questions TQ1-12A and TQ1-12B in 2003 for sub-topics.	
TQ1-11Ai	How well prepared do you feel you are to teach number topics? - Number patterns (extending number patterns and finding missing terms)	AT4MTT09	Options modified in 2007. See Questions TQ1-12A and TQ1-12B in 2003 for sub-topics.	
TQ1-11Aj	How well prepared do you feel you are to teach number topics? - Relationships between given pairs of whole numbers	AT4MTT10	Options modified in 2007. See Questions TQ1-12A and TQ1-12B in 2003 for sub-topics.	
TQ1-11Ba	How well prepared do you feel you are to teach geometric shapes and measures topics? - Comparing and drawing angles	AT4MTT11	Options modified in 2007. See Questions TQ1-12C and TQ1-12D in 2003 for sub-topics.	
TQ1-11Bb	How well prepared do you feel you are to teach geometric shapes and measures topics? - Elementary properties of common geometric shapes	AT4MTT12	Options modified in 2007. See Questions TQ1-12C and TQ1-12D in 2003 for sub-topics.	
TQ1-11Bc	How well prepared do you feel you are to teach geometric shapes and measures topics? - Relationships between two-dimensional and three-dimensional shapes	AT4MTT13	Options modified in 2007. See Questions TQ1-12C and TQ1-12D in 2003 for sub-topics.	

Exhibit S1.2 Index of International Background Variables for the TIMSS 2007 Teacher Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQ1-11Bd	How well prepared do you feel you are to teach geometric shapes and measures topics? - Finding areas and perimeters	AT4MTT14	Options modified in 2007. See Questions TQ1-12C and TQ1-12D in 2003 for sub-topics.	
TQ1-11Be	How well prepared do you feel you are to teach geometric shapes and measures topics? - Estimating areas and volumes	AT4MTT15	Options modified in 2007. See Questions TQ1-12C and TQ1-12D in 2003 for sub-topics.	
TQ1-11Bf	How well prepared do you feel you are to teach geometric shapes and measures topics? - Using informal coordinate systems to locate points in a plane	AT4MTT16	Options modified in 2007. See Questions TQ1-12C and TQ1-12D in 2003 for sub-topics.	
TQ1-11Bg	How well prepared do you feel you are to teach geometric shapes and measures topics? - Reflections and rotations	AT4MTT17	Options modified in 2007. See Questions TQ1-12C and TQ1-12D in 2003 for sub-topics.	
TQ1-11Ca	How well prepared do you feel you are to teach data display topics? - Reading data from tables, pictographs, bar graphs, or pie charts	AT4MTT18	Options modified in 2007. See Question TQ1-12E in 2003 for sub-topics.	
TQ1-11Cb	How well prepared do you feel you are to teach data display topics? - Drawing conclusions from data displays	AT4MTT19	Options modified in 2007. See Question TQ1-12E in 2003 for sub-topics.	
TQ1-11Cc	How well prepared do you feel you are to teach data display topics? - Displaying data using tables, pictographs, bar graphs, or pie charts	AT4MTT20	Options modified in 2007. See Question TQ1-12E in 2003 for sub-topics.	
TQ1-12A	How many students are in the TIMSS class for mathematics?	AT4MSTUD	ATBMSTUD	
TQ1-12B	How many students in the TIMSS class for mathematics are in the <fourth-grade>?	AT4MSTDQ	ATBMSTDQ	
TQ1-13	How many minutes per week do you teach mathematics to the <fourth-grade> students in the TIMSS class?	AT4MTIMT	ATBMTIMT	
TQ1-14A	Do you use a textbook(s) in teaching mathematics to the <fourth-grade> students in the TIMSS class?	AT4MTBTC	ATBMTBTC	
TQ1-14B	How do you use a textbook(s) in teaching mathematics to the <fourth-grade> students in the TIMSS class?	AT4MTXBU	ATBMTXBU	
TQ1-15a	In a typical week of mathematics lessons for the <fourth-grade> students in the TIMSS class, what percentage of time do students spend reviewing homework?	AT4MPTRH	ATBMPTRH	

Exhibit S1.2 Index of International Background Variables for the TIMSS 2007 Teacher Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQ1-15b	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?	AT4MPTLS	ATBMPTLS	
TQ1-15c	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?	AT4MPTYG	ATBMPTYG	
TQ1-15d	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?	AT4MPTOO	ATBMPTOO	
TQ1-15e	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?	AT4MPTRT	ATBMPTRT	
TQ1-15f	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?	AT4MPTTQ	ATBMPTTQ	
TQ1-15g	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)?	AT4MPTCM	ATBMPTCM	
TQ1-15h	In a typical week of mathematics lessons for the <fourth-grade> students in the TIMSS class, what percentage of time do students spend other student activities?	AT4MPTOA	ATBMPTOA	
TQ1-16	Are the <fourth-grade> students in the TIMSS class permitted to use calculators during mathematics lessons?	AT4MCAML	ATBMCAML	
TQ1-17a	How often do the <fourth-grade> students in the TIMSS class use calculators in their mathematics lessons to check answers?	AT4MCALA	ATBMCALA	
TQ1-17b	How often do the <fourth-grade> students in the TIMSS class use calculators in their mathematics lessons to do routine computations?	AT4MCALR	ATBMCALR	
TQ1-17c	How often do the <fourth-grade> students in the TIMSS class use calculators in their mathematics lessons to solve complex problems?	AT4MCALS	ATBMCALS	
TQ1-17d	How often do the <fourth-grade> students in the TIMSS class use calculators in their mathematics lessons to explore number concepts?	AT4MCALE	ATBMCALE	
TQ1-18A	Do the <fourth-grade> students in the TIMSS class have computer(s) available to use during their mathematics lessons?	AT4MCOMA	ATBMCOMA	
TQ1-18B	Do any of the computer(s) have access to the Internet?	AT4MINTA	ATBMINTA	
TQ1-19a	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?	AT4MCADM	ATBMCADM	

Exhibit S1.2 Index of International Background Variables for the TIMSS 2007 Teacher Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQ1-19b	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?	AT4MCASP	ATBMCASP	
TQ1-19c	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?	AT4MCALI	ATBMCALI	
TQ1-20a	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?	AT4MASPC	ATBMASPC	
TQ1-20b	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?	AT4MASWF	ATBMASWF	
TQ1-20c	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?	AT4MASMS	ATBMASMS	
TQ1-20d	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?	AT4MASMG	ATBMASMG	
TQ1-20e	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?	AT4MASLC	ATBMASLC	
TQ1-20f	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?	AT4MASWP	ATBMASWP	
TQ1-20g	In teaching mathematics to the <fourth-grade> students in the TIMSS class, how often do you usually ask them to explain their answers?	AT4MASEA	ATBMASEA	
TQ1-20h	In teaching mathematics to the <fourth-grade> students in the TIMSS class, how often do you usually ask them to relate what they are learning in mathematics to their daily life?	AT4MASDL	Not available	
TQ1-20i	In teaching mathematics to the <fourth-grade> students in the TIMSS class, how often do you usually ask them to memorize formulas and procedures?	AT4MASMF	Not available	
TQ1-21a	By the end of this school year, approximately what percentage of teaching time will you have spent during this school year on numbers (including computation with whole numbers, fractions, decimals and number patterns) for the <fourth-grade> students in the TIMSS class?	AT4MTTNU	See Question TQ1-25 in 2003 for topics.	
TQ1-21b	By the end of this school year, approximately what percentage of teaching time will you have spent during this school year on geometric shapes and measures (including two- and three-dimensional shapes, length, area and volume) for the <fourth-grade> students in the TIMSS class?	AT4MTTGM	See Question TQ1-25 in 2003 for topics.	

Exhibit S1.2 Index of International Background Variables for the TIMSS 2007 Teacher Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQ1-21c	By the end of this school year, approximately what percentage of teaching time will you have spent during this school year on data display (including reading, making, and interpreting tables and graphs) for the <fourth-grade> students in the TIMSS class?	AT4MTTDD	See Question TQ1-25 in 2003 for topics.	
TQ1-21d	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?	AT4MCOTH	See Question TQ1-25 in 2003 for topics.	
TQ1-22Aa	When were the <fourth-grade> students in the TIMSS class taught number topics? - Representing whole numbers using words, diagrams, or symbols	AT4MTI01	See Questions TQ1-26A and TQ1-26B in 2003 for sub-topics.	
TQ1-22Ab	When were the <fourth-grade> students in the TIMSS class taught number topics? - Whole numbers including place value and ordering	AT4MTI02	See Questions TQ1-26A and TQ1-26B in 2003 for sub-topics.	
TQ1-22Ac	When were the <fourth-grade> students in the TIMSS class taught number topics? - Computation with whole numbers	AT4MTI03	See Questions TQ1-26A and TQ1-26B in 2003 for sub-topics.	
TQ1-22Ad	When were the <fourth-grade> students in the TIMSS class taught number topics? - Multiples and factors of numbers	AT4MTI04	See Questions TQ1-26A and TQ1-26B in 2003 for sub-topics.	
TQ1-22Ae	When were the <fourth-grade> students in the TIMSS class taught number topics - Estimation with whole numbers	AT4MTI05	See Questions TQ1-26A and TQ1-26B in 2003 for sub-topics.	
TQ1-22Af	When were the <fourth-grade> students in the TIMSS class taught number topics? - Problems involving proportions	AT4MTI06	See Questions TQ1-26A and TQ1-26B in 2003 for sub-topics.	
TQ1-22Ag	When were the <fourth-grade> students in the TIMSS class taught number topics? - Fractions (parts of a whole or a collection, location on a number line)	AT4MTI07	See Questions TQ1-26A and TQ1-26B in 2003 for sub-topics.	
TQ1-22Ah	When were the <fourth-grade> students in the TIMSS class taught number topics? - Equivalent fractions	AT4MTI08	See Questions TQ1-26A and TQ1-26B in 2003 for sub-topics.	
TQ1-22Ai	When were the <fourth-grade> students in the TIMSS class taught number topics? - Comparing and ordering simple fractions	AT4MTI09	See Questions TQ1-26A and TQ1-26B in 2003 for sub-topics.	
TQ1-22Aj	When were the <fourth-grade> students in the TIMSS class taught number topics? - Fractions represented by words, numbers, or models	AT4MTI10	See Questions TQ1-26A and TQ1-26B in 2003 for sub-topics.	

Exhibit S1.2 Index of International Background Variables for the TIMSS 2007 Teacher Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQ1-22Ak	When were the <fourth-grade> students in the TIMSS class taught number topics? - Adding and subtracting simple fractions	AT4MTI11	See Questions TQ1-26A and TQ1-26B in 2003 for sub-topics.	
TQ1-22Al	When were the <fourth-grade> students in the TIMSS class taught number topics? - Decimal place value including writing decimals using words and numbers	AT4MTI12	See Questions TQ1-26A and TQ1-26B in 2003 for sub-topics.	
TQ1-22Am	When were the <fourth-grade> students in the TIMSS class taught number topics? - Adding and subtracting with decimals	AT4MTI13	See Questions TQ1-26A and TQ1-26B in 2003 for sub-topics.	
TQ1-22An	When were the <fourth-grade> students in the TIMSS class taught number topics? - Finding the missing number in a number sentence	AT4MTI14	See Questions TQ1-26A and TQ1-26B in 2003 for sub-topics.	
TQ1-22Ao	When were the <fourth-grade> students in the TIMSS class taught number topics? - Model simple situations involving unknowns with expressions or number sentences	AT4MTI15	See Questions TQ1-26A and TQ1-26B in 2003 for sub-topics.	
TQ1-22Ap	When were the <fourth-grade> students in the TIMSS class taught number topics? - Extending patterns and finding missing terms in them	AT4MTI16	See Questions TQ1-26A and TQ1-26B in 2003 for sub-topics.	
TQ1-22Aq	When were the <fourth-grade> students in the TIMSS class taught number topics? - Describing relationships between adjacent terms in a sequence	AT4MTI17	See Questions TQ1-26A and TQ1-26B in 2003 for sub-topics.	
TQ1-22Ar	When were the <fourth-grade> students in the TIMSS class taught number topics - Generating pairs of numbers following a given rule	AT4MTI18	See Questions TQ1-26A and TQ1-26B in 2003 for sub-topics.	
TQ1-22As	When were the <fourth-grade> students in the TIMSS class taught number topics? - Finding a rule for a relationship given some pairs of numbers which satisfy the relationship	AT4MTI19	See Questions TQ1-26A and TQ1-26B in 2003 for sub-topics.	
TQ1-22Ba	When were the <fourth-grade> students in the TIMSS class taught geometric shapes and measures topics? - Measuring and estimating lengths	AT4MTI20	See Questions TQ1-26C and TQ1-26D in 2003 for sub-topics.	
TQ1-22Bb	When were the <fourth-grade> students in the TIMSS class taught geometric shapes and measures topics? - Parallel and perpendicular lines	AT4MTI21	See Questions TQ1-26C and TQ1-26D in 2003 for sub-topics.	
TQ1-22Bc	When were the <fourth-grade> students in the TIMSS class taught geometric shapes and measures topics? - Comparing angles by size and drawing angles	AT4MTI22	See Questions TQ1-26C and TQ1-26D in 2003 for sub-topics.	
TQ1-22Bd	When were the <fourth-grade> students in the TIMSS class taught geometric shapes and measures topics? - Elementary properties of common geometric shapes	AT4MTI23	See Questions TQ1-26C and TQ1-26D in 2003 for sub-topics.	

Exhibit S1.2 Index of International Background Variables for the TIMSS 2007 Teacher Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQ1-22Be	When were the <fourth-grade> students in the TIMSS class taught geometric shapes and measures topics? - Recognizing relationships between three-dimensional shapes and their two-dimensional representations	AT4MTI24	See Questions TQ1-26C and TQ1-26D in 2003 for sub-topics.	
TQ1-22Bf	When were the <fourth-grade> students in the TIMSS class taught geometric shapes and measures topics? - Calculating areas and perimeters of squares and rectangles of given dimensions	AT4MTI25	See Questions TQ1-26C and TQ1-26D in 2003 for sub-topics.	
TQ1-22Bg	When were the <fourth-grade> students in the TIMSS class taught geometric shapes and measures topics? - Finding areas by covering with a given shape or counting squares	AT4MTI26	See Questions TQ1-26C and TQ1-26D in 2003 for sub-topics.	
TQ1-22Bh	When were the <fourth-grade> students in the TIMSS class taught geometric shapes and measures topics? - Estimating areas and volumes	AT4MTI27	See Questions TQ1-26C and TQ1-26D in 2003 for sub-topics.	
TQ1-22Bi	When were the <fourth-grade> students in the TIMSS class taught geometric shapes and measures topics? - Using informal coordinate systems to locate points in a plane	AT4MTI28	See Questions TQ1-26C and TQ1-26D in 2003 for sub-topics.	
TQ1-22Bj	When were the <fourth-grade> students in the TIMSS class taught geometric shapes and measures topics? - Figures with line symmetry	AT4MTI29	See Questions TQ1-26C and TQ1-26D in 2003 for sub-topics.	
TQ1-22Bk	When were the <fourth-grade> students in the TIMSS class taught geometric shapes and measures topics? - Reflections and rotations	AT4MTI30	See Questions TQ1-26C and TQ1-26D in 2003 for sub-topics.	
TQ1-22Ca	When were the <fourth-grade> students in the TIMSS class taught data display topics? - Reading data from tables, pictographs, bar graphs, or pie charts	AT4MTI31	See Question TQ1-26E in 2003 for sub-topics.	
TQ1-22Cb	When were the <fourth-grade> students in the TIMSS class taught data display topics? - Comparing information from related data sets	AT4MTI32	See Question TQ1-26E in 2003 for sub-topics.	
TQ1-22Cc	When were the <fourth-grade> students in the TIMSS class taught data display topics? - Using information from data displays to answer questions that go beyond directly reading the data displayed	AT4MTI33	See Question TQ1-26E in 2003 for sub-topics.	
TQ1-22Cd	When were the <fourth-grade> students in the TIMSS class taught data display topics? - Comparing and matching different representations of the same data	AT4MTI34	See Question TQ1-26E in 2003 for sub-topics.	
TQ1-22Ce	When were the <fourth-grade> students in the TIMSS class taught data display topics? - Organizing and displaying data using tables, pictographs, bar graphs, or pie charts	AT4MTI35	See Question TQ1-26E in 2003 for sub-topics.	
TQ1-23	Do you assign mathematics homework to the <fourth-grade> students in the TIMSS class?	AT4MHMWO	ATBMHMWO	
TQ1-24	How often do you usually assign mathematics homework to the <fourth-grade> students in the TIMSS class?	AT4MHWMC	ATBMHWMC	

Exhibit S1.2 Index of International Background Variables for the TIMSS 2007 Teacher Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQ1-25	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?)	AT4MHWKM	ATBMHWKM	
TQ1-26a	In your view, to what extent do students with different academic abilities limit how you teach mathematics to the TIMSS class?	AT4MVMSA	Not available	
TQ1-26b	In your view, to what extent do students who come from a wide range of backgrounds limit how you teach mathematics to the TIMSS class?	AT4MVMSW	Not available	
CQ1-26c	In your view, to what extent do students with special needs limit how you teach mathematics to the TIMSS class?	AT4MVMSS	Not available	
TQ1-26d	In your view, to what extent do uninterested students limit how you teach mathematics to the TIMSS class?	AT4MVMUS	Not available	
TQ1-26e	In your view, to what extent do disruptive students limit how you teach mathematics to the TIMSS class?	AT4MVMDS	Not available	
TQ1-27a	In the past two years, have you participated in professional development in mathematics content?	AT4MPDMT	ATBMPDMT	
TQ1-27b	In the past two years, have you participated in professional development in mathematics pedagogy/instruction?	AT4MPDMP	ATBMPDMP	
TQ1-27c	In the past two years, have you participated in professional development in mathematics curriculum?	AT4MPDMC	ATBMPDMC	
TQ1-27d	In the past two years, have you participated in professional development in integrating information technology into mathematics?	AT4MPDIT	ATBMPDIT	
TQ1-27e	In the past two years, have you participated in professional development in improving students' critical thinking or problem solving skills?	AT4GPDCT	ATBGPDCT	
TQ1-27f	In the past two years, have you participated in professional development in mathematics assessment?	AT4MPDMA	ATBMPDMA	
TQ1-28Aa	How well prepared do you feel to teach life science topics? - Major body structures and their functions in humans and other organisms (plants and animals)	AT4SPT01	Options modified in 2007. See Question TQ1-30A in 2003 for sub-topics.	
TQ1-28Ab	How well prepared do you feel to teach life science topics? - Reproduction and development in plants and animals (passing on of general characteristics; life cycles of familiar organisms)	AT4SPT02	Options modified in 2007. See Question TQ1-30A in 2003 for sub-topics.	
TQ1-28Ac	How well prepared do you feel to teach life science topics? - Physical features, behavior, and survival of organisms living in different environments	AT4SPT03	Options modified in 2007. See Question TQ1-30A in 2003 for sub-topics.	
TQ1-28Ad	How well prepared do you feel to teach life science topics? - Relationships in a living community (e.g., simple food chains, predator-prey relationships)	AT4SPT04	Options modified in 2007. See Question TQ1-30A in 2003 for sub-topics.	

Exhibit S1.2 Index of International Background Variables for the TIMSS 2007 Teacher Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQ1-28Ae	How well prepared do you feel to teach life science topics? - Changes in environments (effects of human activity, pollution and its prevention)	AT4SPT05	Options modified in 2007. See Question TQ1-30A in 2003 for sub-topics.	
TQ1-28Af	How well prepared do you feel to teach life science topics? - Human health (e.g., transmission/prevention of communicable diseases, signs of health/ illness, diet, exercise)	AT4SPT06	Options modified in 2007. See Question TQ1-30A in 2003 for sub-topics.	
TQ1-28Ba	How well prepared do you feel to teach physical science topics? - Classification of objects/materials based on physical properties (e.g., mass, shape, volume, color, hardness, texture, heat/electrical conductivity, magnetic attraction)	AT4SPT07	Options modified in 2007. See Question TQ1-30B in 2003 for sub-topics.	
TQ1-28Bb	How well prepared do you feel to teach physical science topics? - Forming and separating mixtures	AT4SPT08	Options modified in 2007. See Question TQ1-30B in 2003 for sub-topics.	
TQ1-28Bc	How well prepared do you feel to teach physical science topics? - States of matter (solids, liquids, gases) and differences in their physical properties (shape, volume), including changes in state of matter by heating and cooling (melting, freezing, boiling, evaporating, condensation)	AT4SPT09	Options modified in 2007. See Question TQ1-30B in 2003 for sub-topics.	
TQ1-28Bd	How well prepared do you feel to teach physical science topics? - Familiar changes in materials (e.g., decaying of animal/plant matter, burning, rusting, cooking)	AT4SPT10	Options modified in 2007. See Question TQ1-30B in 2003 for sub-topics.	
TQ1-28Be	How well prepared do you feel to teach physical science topics? - Common energy sources/forms and their practical uses (e.g., wind, sun, electricity, burning fuel, moving water, food)	AT4SPT11	Options modified in 2007. See Question TQ1-30B in 2003 for sub-topics.	
TQ1-28Bf	How well prepared do you feel to teach physical science topics? - Light (e.g. sources and behavior)	AT4SPT12	Options modified in 2007. See Question TQ1-30B in 2003 for sub-topics.	
TQ1-28Bg	How well prepared do you feel to teach physical science topics? - Electrical circuits	AT4SPT13	Options modified in 2007. See Question TQ1-30B in 2003 for sub-topics.	
TQ1-28Bh	How well prepared do you feel to teach physical science topics? - Properties of magnets	AT4SPT14	Options modified in 2007. See Question TQ1-30B in 2003 for sub-topics.	
TQ1-28Bi	How well prepared do you feel to teach physical science topics? - Forces that cause objects to move (e.g., gravity, push/pull forces)	AT4SPT15	Options modified in 2007. See Question TQ1-30B in 2003 for sub-topics.	
TQ1-28Ca	How well prepared do you feel to teach earth science topics? - Features of Earth's landscape (e.g., mountains, plains, rivers, deserts)	AT4SPT16	Options modified in 2007. See Question TQ1-30C in 2003 for sub-topics.	
TQ1-28Cb	How well prepared do you feel to teach earth science topics? - Water on Earth (location, types, and movement)	AT4SPT17	Options modified in 2007. See Question TQ1-30C in 2003 for sub-topics.	

Exhibit S1.2 Index of International Background Variables for the TIMSS 2007 Teacher Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQ1-28Cc	How well prepared do you feel to teach earth science topics? - Air (composition, proof of its existence, uses, and importance for supporting life)	AT4SPT18	Options modified in 2007. See Question TQ1-30C in 2003 for sub-topics.	
TQ1-28Cd	How well prepared do you feel to teach earth science topics? - Common features of Earth's landscape (e.g., mountains, plains, rivers, deserts) and relationship to human use (e.g., farming, irrigation, land development)	AT4SPT19	Options modified in 2007. See Question TQ1-30C in 2003 for sub-topics.	
TQ1-28Ce	How well prepared do you feel to teach earth science topics? - Weather conditions from day to day or over the seasons	AT4SPT20	Options modified in 2007. See Question TQ1-30C in 2003 for sub-topics.	
TQ1-28Cf	How well prepared do you feel to teach earth science topics? - Fossils of animals and plants (age, formation)	AT4SPT21	Options modified in 2007. See Question TQ1-30C in 2003 for sub-topics.	
TQ1-28Cg	How well prepared do you feel to teach earth science topics? - Earth's solar system (planets, sun, moon)	AT4SPT22	Options modified in 2007. See Question TQ1-30C in 2003 for sub-topics.	
TQ1-29A	How many students are in the TIMSS class for science?	AT4SSTUD	ATBSSTUD	
TQ1-29B	How many students in the TIMSS class for science are in the <fourth-grade>?	AT4SSTDQ	ATBSSTDQ	
TQ1-30	Is science taught mainly as a separate subject (i.e., not integrated with other subjects) to the <fourth-grade> students in the TIMSS class?	AT4SSSBJ	ATBSSSBJ	
TQ1-30A	If YES… How many minutes per week do you teach science to the <fourth-grade> students in the TIMSS class?	AT4SYMWT	ATBSYMWT	
TQ1-30B	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.	AT4SNMWT	ATBSNMWT	
TQ1-31A	Do the <fourth-grade> students in the TIMSS class have computer(s) available to use when you are teaching science?	AT4SCOMA	ATBSCOMA	
TQ1-31B	Do any of the computer(s) have access to the Internet?	AT4SINTA	ATBSINTA	
TQ1-32a	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?	AT4SCAPE	ATBSCAPE	
TQ1-32b	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?	AT4SCANP	ATBSCANP	
TQ1-32c	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?	AT4SCASP	ATBSCASP	
TQ1-32d	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?	AT4SCALI	ATBSCALI	
TQ1-33a	In teaching science to the <fourth-grade> students in the TIMSS class, how often do you usually ask them to observe natural phenomena such as the weather or a plant growing and describe what they see?	AT4SCSOS	ATBSCSOS	Modified wording in 2007

Exhibit S1.2 Index of International Background Variables for the TIMSS 2007 Teacher Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQ1-33b	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?	AT4SCSWE	ATBSCSWE	
TQ1-33c	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?	AT4SCSDP	ATBSCSDP	
TQ1-33d	In teaching science to the <fourth-grade> students in the TIMSS class, how often do you usually ask them to do experiments or investigations?	AT4SCSDI	ATBSCSDI	
TQ1-33e	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?	AT4SCSSG	ATBSCSSG	
TQ1-33f	In teaching science to the <fourth-grade> students in the TIMSS class, how often do you usually ask them to read their textbooks or other resource materials?	AT4SCSRO	Not available	
TQ1-33g	In teaching science to the <fourth-grade> students in the TIMSS class, how often do you usually ask them to memorize facts and principles?	AT4SCSHF	Not available	
TQ1-33h	In teaching science to the <fourth-grade> students in the TIMSS class, how often do you usually ask them to give explanations about something they are studying?	AT4SCSGS	ATBSCSWS	Modified wording in 2007
TQ1-33i	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?	AT4SCSDL	ATBSCSDL	
TQ1-33j	In teaching science to the <fourth-grade> students in the TIMSS class, how often do you usually ask them to work individually at their own pace?	AT4SCSWI	Not available	
TQ1-34a	By the end of this school year, approximately what percentage of teaching time will you have spent during this school year on life science for the <fourth-grade> students in the TIMSS class?	AT4SPTLS	See Question TQ1-38 in 2003 for topics.	
TQ1-34b	By the end of this school year, approximately what percentage of teaching time will you have spent during this school year on physical science for the <fourth-grade> students in the TIMSS class?	AT4SPTPS	See Question TQ1-38 in 2003 for topics.	
TQ1-34c	By the end of this school year, approximately what percentage of teaching time will you have spent during this school year on Earth science for the <fourth-grade> students in the TIMSS class?	AT4SPTES	See Question TQ1-38 in 2003 for topics.	
TQ1-34d	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?	AT4SCOTH	See Question TQ1-38 in 2003 for topics.	
TQ1-35A	Do you use a textbook(s) in teaching science to the <fourth-grade> students in the TIMSS class?	AT4STBTC	ATBSTBTC	
TQ1-35B	How do you use a textbook(s) in teaching science to the <fourth-grade> students in the TIMSS class?	AT4STXBU	ATBSTXBU	

Exhibit S1.2 Index of International Background Variables for the TIMSS 2007 Teacher Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQ1-36Aa	When were the <fourth-grade> students in the TIMSS class taught life science topics? - Types, characteristics, and classification of living things	AT4STI01	See Question TQ1-39A in 2003 for sub-topics.	
TQ1-36Ab	When were the <fourth-grade> students in the TIMSS class taught life science topics? - Major body structures and their function in humans and other organisms (plants and animals)	AT4STI02	See Question TQ1-39A in 2003 for sub-topics.	
TQ1-36Ac	When were the <fourth-grade> students in the TIMSS class taught life science topics? - General steps in the life cycle of familiar organisms (e.g., humans, butterflies, frogs, plants)	AT4STI03	See Question TQ1-39A in 2003 for sub-topics.	
TQ1-36Ad	When were the <fourth-grade> students in the TIMSS class taught life science topics? - Plant and animal reproduction (passing on of general characteristics)	AT4STI04	See Question TQ1-39A in 2003 for sub-topics.	
TQ1-36Ae	When were the <fourth-grade> students in the TIMSS class taught life science topics? - Physical features, behavior, and survival of plants and animals in different environments	AT4STI05	See Question TQ1-39A in 2003 for sub-topics.	
TQ1-36Af	When were the <fourth-grade> students in the TIMSS class taught life science topics? - Bodily actions in response to outside conditions (e.g., heat, cold, danger) and activities (e.g., exercise)	AT4STI06	See Question TQ1-39A in 2003 for sub-topics.	
TQ1-36Ag	When were the <fourth-grade> students in the TIMSS class taught life science topics? - Energy requirements of plants and animals (energy from the sun to make food and to provide energy for growth and repair)	AT4STI07	See Question TQ1-39A in 2003 for sub-topics.	
TQ1-36Ah	When were the <fourth-grade> students in the TIMSS class taught life science topics? - Relationships in a living community (e.g., simple food chains using common plants and animals and predator-prey relationships)	AT4STI08	See Question TQ1-39A in 2003 for sub-topics.	
TQ1-36Ai	When were the <fourth-grade> students in the TIMSS class taught life science topics? - Changes in environments (effects of human activity, pollution and its prevention)	AT4STI09	See Question TQ1-39A in 2003 for sub-topics.	
TQ1-36Aj	When were the <fourth-grade> students in the TIMSS class taught life science topics? - Ways that common communicable diseases (e.g., colds, influenza) are transmitted; signs, prevention, and treatment of illness	AT4STI10	See Question TQ1-39A in 2003 for sub-topics.	
TQ1-36Ak	When were the <fourth-grade> students in the TIMSS class taught life science topics? - Ways of maintaining good health, including diet and exercise	AT4STI11	See Question TQ1-39A in 2003 for sub-topics.	
TQ1-36Ba	When were the <fourth-grade> students in the TIMSS class taught physical science topics? - Classification of objects and materials based on physical properties	AT4STI12	See Question TQ1-39B in 2003 sub-topics.	
TQ1-36Bb	When were the <fourth-grade> students in the TIMSS class taught physical science topics?- Properties and uses of metals	AT4STI13	See Question TQ1-39B in 2003 sub-topics.	
TQ1-36Bc	When were the <fourth-grade> students in the TIMSS class taught physical science topics? - Forming and separating mixtures	AT4STI14	See Question TQ1-39B in 2003 sub-topics.	

Exhibit S1.2 Index of International Background Variables for the TIMSS 2007 Teacher Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQ1-36Bd	When were the <fourth-grade> students in the TIMSS class taught physical science topics? - Properties and uses of water	AT4STI15	See Question TQ1-39B in 2003 sub-topics.	
TQ1-36Be	When were the <fourth-grade> students in the TIMSS class taught physical science topics? - States of matter (solids, liquids, and gases) and differences in their physical properties in terms of shape and volume	AT4STI16	See Question TQ1-39B in 2003 sub-topics.	
TQ1-36Bf	When were the <fourth-grade> students in the TIMSS class taught physical science topics? - Changes in state of matter by heating and cooling (melting, freezing, boiling, evaporation, condensation)	AT4STI17	See Question TQ1-39B in 2003 sub-topics.	
TQ1-36Bg	When were the <fourth-grade> students in the TIMSS class taught physical science topics? - Familiar changes in materials (e.g., decaying of animal/plant matter, burning, rusting, cooking)	AT4STI18	See Question TQ1-39B in 2003 sub-topics.	
TQ1-36Bh	When were the <fourth-grade> students in the TIMSS class taught physical science topics? - Common energy sources/forms and their practical uses (e.g., wind, sun, electricity, burning fuel, water wheel, food)	AT4STI19	See Question TQ1-39B in 2003 sub-topics.	
TQ1-36Bi	When were the <fourth-grade> students in the TIMSS class taught physical science topics? - Heat flow and temperature	AT4STI20	See Question TQ1-39B in 2003 sub-topics.	
TQ1-36Bj	When were the <fourth-grade> students in the TIMSS class taught physical science topics? - Common sources of light and related phenomena (e.g., formation of rainbows and shadows, visibility of objects, mirrors, colors)	AT4STI21	See Question TQ1-39B in 2003 sub-topics.	
TQ1-36Bk	When were the <fourth-grade> students in the TIMSS class taught physical science topics? - Production of sound by vibrations	AT4STI22	See Question TQ1-39B in 2003 sub-topics.	
TQ1-36Bl	When were the <fourth-grade> students in the TIMSS class taught physical science topics? - Electrical circuits	AT4STI23	See Question TQ1-39B in 2003 sub-topics.	
TQ1-36Bm	When were the <fourth-grade> students in the TIMSS class taught physical science topics? - Magnets (north and south poles, magnetic attraction, and repulsion)	AT4STI24	See Question TQ1-39B in 2003 sub-topics.	
TQ1-36Bn	When were the <fourth-grade> students in the TIMSS class taught physical science topics? - Forces that cause objects to move (e.g., gravity, push/pull forces)	AT4STI25	See Question TQ1-39B in 2003 sub-topics.	
TQ1-36Ca	When were the <fourth-grade> students in the TIMSS class taught earth science topics? - Rocks, minerals, sand, and soil	AT4STI26	See Question TQ1-39C in 2003 for sub-topics.	
TQ1-36Cb	When were the <fourth-grade> students in the TIMSS class taught earth science topics? - Water on Earth (location, types, and movement)	AT4STI27	See Question TQ1-39C in 2003 for sub-topics.	
TQ1-36Cc	When were the <fourth-grade> students in the TIMSS class taught earth science topics? - Air (composition, proof of its existence, uses, and importance for supporting life)	AT4STI28	See Question TQ1-39C in 2003 for sub-topics.	

Exhibit S1.2 Index of International Background Variables for the TIMSS 2007 Teacher Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQ1-36Cd	When were the <fourth-grade> students in the TIMSS class taught earth science topics? - Common features of the Earth's landscape (e.g., mountains, plains, rivers, deserts) and relationship to human use (e.g., farming, irrigation, land development)	AT4STI29	See Question TQ1-39C in 2003 for sub-topics.	
TQ1-36Ce	When were the <fourth-grade> students in the TIMSS class taught earth science topics? - Use and conservation of Earth's natural resources	AT4STI30	See Question TQ1-39C in 2003 for sub-topics.	
TQ1-36Cf	When were the <fourth-grade> students in the TIMSS class taught earth science topics? - Earth's water cycle (water flowing in rivers from mountains to sea, cloud formation and precipitation)	AT4STI31	See Question TQ1-39C in 2003 for sub-topics.	
TQ1-36Cg	When were the <fourth-grade> students in the TIMSS class taught earth science topics? - Weather conditions from day to day or over the seasons	AT4STI32	See Question TQ1-39C in 2003 for sub-topics.	
TQ1-36Ch	When were the <fourth-grade> students in the TIMSS class taught earth science topics? - Fossils of animals and plants (age, formation)	AT4STI33	See Question TQ1-39C in 2003 for sub-topics.	
TQ1-36Ci	When were the <fourth-grade> students in the TIMSS class taught earth science topics? - Earth's solar system (planets, sun, moon)	AT4STI34	See Question TQ1-39C in 2003 for sub-topics.	
TQ1-36Cj	When were the <fourth-grade> students in the TIMSS class taught earth science topics? - Earth's rotation on its axis (e.g., day and night, appearance of shadows)	AT4STI35	See Question TQ1-39C in 2003 for sub-topics.	
TQ1-37	Do you assign science homework to the <fourth-grade> students in the TIMSS class?	AT4SHMWO	ATBSHMWO	
TQ1-38	How often do you usually assign science homework to the <fourth-grade> students in the TIMSS class?	AT4SHWMC	ATBSHWMC	
TQ1-39	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.)	AT4SHWKM	ATBSHWKM	
TQ1-40a	In your view, to what extent do students with different academic abilities limit how you teach science to the TIMSS class?	AT4SVSSA	Not available	
TQ1-40b	In your view, to what extent do students who come from a wide range of backgrounds limit how you teach science to the TIMSS class?	AT4SVSSW	Not available	
TQ1-40c	In your view, to what extent do students with special needs limit how you teach science to the TIMSS class?	AT4SVSSS	Not available	
TQ1-40d	In your view, to what extent do uninterested students limit how you teach science to the TIMSS class?	AT4SVSUS	Not available	
TQ1-40e	In your view, to what extent do disruptive students limit how you teach science to the TIMSS class?	AT4SVSDS	Not available	
TQ1-41a	In the past two years, have you participated in professional development in science content?	AT4SPDST	ATBSPDST	

Exhibit S1.2 Index of International Background Variables for the TIMSS 2007 Teacher Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQ1-41b	In the past two years, have you participated in professional development in science pedagogy/instruction?	AT4SPDSP	ATBSPDSP	
TQ1-41c	In the past two years, have you participated in professional development in science curriculum?	AT4SPDSC	ATBSPDSC	
TQ1-41d	In the past two years, have you participated in professional development in integrating information technology into science?	AT4SPDIT	ATBSPDIT	
TQ1-41e	In the past two years, have you participated in professional development in improving students' critical thinking or inquiry skills?	AT4GPDIN	ATBGPDIN	
TQ1-41f	In the past two years, have you participated in professional development in science assessment?	AT4SPDSA	ATBSPDSA	

Identification Label

Teacher Name: _____

Class Name:_____

Teacher ID: _____ Teacher Link #_____

Trends in International Mathematics and Science Study

TIMSS 2007

Teacher Questionnaire

<Grade 4>

<TIMSS National Research Center Name>
<Address>

International Association for the Evaluation
of Educational Achievement
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General Directions

Your school has agreed to participate in TIMSS 2007, a large international study of student learning in mathematics and science in more than 60 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 2007 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 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.

Teacher Background Information

AT4GAGE

1 **How old are you?**

*Fill in **one** circle only*

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

AT4GSEX

2 **Are you female or male?**

*Fill in **one** circle only*

- Female
- Male

AT4GTAUT

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

_____
Number of years you have taught

AT4GTLCE

4 **Do you have a teaching license or certificate?**

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

AT4GFEDC

5 **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 4>
- Finished <ISCED 5B>
- Finished < ISCED 5A, first degree>
- Finished <ISCED 5A, second degree> or higher

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	
a)	Education - <Primary/Elementary>	○	○	AT4GPSEP
b)	Education - Secondary	○	○	AT4GPSES
c)	Mathematics	○	○	AT4MPSMA
d)	Science	○	○	AT4SPSSC
e)	Other	○	○	AT4GPSOT

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	
a)	Mathematics	○	○	AT4MEDMA
b)	Science	○	○	AT4SEDSC
c)	Language/reading	○	○	AT4GEDLR
d)	Other subject	○	○	AT4GEDOT

About Your School

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

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

	Never or almost never	2 or 3 times per month	1-3 times per week	Daily or almost daily	
a) Discussions about how to teach a particular concept	○	○	○	○	AT4GOTDC
b) Working on preparing instructional materials	○	○	○	○	AT4GOTPM
c) Visits to another teacher's classroom to observe his/her teaching	○	○	○	○	AT4GOTVT
d) Informal observations of **my** classroom by another teacher	○	○	○	○	AT4GOTAT

8 **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	
a) This school is located in a safe neighborhood	○	○	○	○	AT4GCUSN
b) I feel safe at this school	○	○	○	○	AT4GCUSA
c) This school's security policies and practices are sufficient	○	○	○	○	AT4GCUAS

9 **In your current school, how severe is each problem?**

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

	Not a problem	Minor problem	Serious problem	
a) The school building needs significant repair	○	○	○	AT4GSPBR
b) Classrooms are overcrowded	○	○	○	AT4GSPCO
c) Teachers do not have adequate workspace outside their classroom	○	○	○	AT4GSPWO
d) Materials are not available to conduct experiments or investigations	○	○	○	AT4GSPME

10 **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	
a) Teachers' job satisfaction	○	○	○	○	○	AT4GCHTS
b) Teachers' understanding of the school's curricular goals	○	○	○	○	○	AT4GCHTU
c) Teachers' degree of success in implementing the school's curriculum	○	○	○	○	○	AT4GCHTC
d) Teachers' expectations for student achievement	○	○	○	○	○	AT4GCHES
e) Parental support for student achievement	○	○	○	○	○	AT4GCHPS
f) Parental involvement in school activities	○	○	○	○	○	AT4GCHPI
g) Students' regard for school property	○	○	○	○	○	AT4GCHSR
h) Students' desire to do well in school	○	○	○	○	○	AT4GCHSD

About Teaching Mathematics

11

How well prepared do you feel you are to teach the following mathematics topics?

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

		Not applicable	Very well prepared	Somewhat prepared	Not well prepared
	A. Number				
AT4MTT01	a) Whole numbers including place value and ordering	○	○	○	○
AT4MTT02	b) Adding, subtracting, multiplying and/or dividing with whole numbers	○	○	○	○
AT4MTT03	c) Fractions (parts of a whole or a collection, location on a number line)	○	○	○	○
AT4MTT04	d) Fractions represented by words, numbers, or models	○	○	○	○
AT4MTT05	e) Comparing and ordering fractions	○	○	○	○
AT4MTT06	f) Adding and subtracting with fractions	○	○	○	○
AT4MTT07	g) Adding and subtracting with decimals	○	○	○	○
AT4MTT08	h) Number sentences (finding the missing number, modeling simple situations with number sentences)	○	○	○	○
AT4MTT09	i) Number patterns (extending number patterns and finding missing terms)	○	○	○	○
AT4MTT10	j) Relationships between given pairs of whole numbers	○	○	○	○
	B. Geometric Shapes and Measures				
AT4MTT11	a) Comparing and drawing angles	○	○	○	○
AT4MTT12	b) Elementary properties of common geometric shapes	○	○	○	○
AT4MTT13	c) Relationships between two-dimensional and three-dimensional shapes	○	○	○	○
AT4MTT14	d) Finding areas and perimeters	○	○	○	○
AT4MTT15	e) Estimating areas and volumes	○	○	○	○
AT4MTT16	f) Using informal coordinate systems to locate points in a plane	○	○	○	○
AT4MTT17	g) Reflections and rotations	○	○	○	○
	C. Data Display				
AT4MTT18	a) Reading data from tables, pictographs, bar graphs, or pie charts	○	○	○	○
AT4MTT19	b) Drawing conclusions from data displays	○	○	○	○
AT4MTT20	c) Displaying data using tables, pictographs, bar graphs, or pie charts	○	○	○	○

Teaching Mathematics to the TIMSS Class

Questions 12-26 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 2007 in your school.

12

AT4MSTUD

A. How many students are in the TIMSS class for mathematics?

_____
Write in the number of students

AT4MSTDQ

B. How many students in Question 12A are in the <fourth-grade> ?

_____
Write in the number of <fourth grade> students

13

AT4MTIMT

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

14

AT4MTBTC

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* **15**

AT4MTXBU

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 ○

15

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	_____% AT4MPTRH
b)	Listening to lecture-style presentations	_____% AT4MPTLS
c)	Working problems with your guidance	_____% AT4MPTYG
d)	Working problems on their own without your guidance	_____% AT4MPTOO
e)	Listening to you re-teach and clarify content/procedures	_____% AT4MPTRT
f)	Taking tests or quizzes	_____% AT4MPTTQ
g)	Participating in classroom management tasks not related to the lesson's content/purpose (e.g., interruptions and keeping order)	_____% AT4MPTCM
h)	Other student activities	_____% AT4MPTOA
Total		100%

AT4MCAML

16 **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* **18** →

AT4MCALA
AT4MCALR
AT4MCALS
AT4MCALE

17 **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	○	○	○	○

AT4MCOMA

18 **A. Do the <fourth-grade> students in the TIMSS class have computer(s) available to use during their mathematics lessons?**

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

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

AT4MINTA

B. Do any of the computer(s) have access to the Internet?

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

19 **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	○	○	○	○

AT4MCADM
AT4MCASP
AT4MCALI

20

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
AT4MASPC	a) Practice adding, subtracting, multiplying, and dividing without using a calculator	○	○	○	○
AT4MASWF	b) Work on fractions and decimals	○	○	○	○
AT4MASMS	c) Measure things in the classroom and around the school	○	○	○	○
AT4MASMG	d) Make tables, charts, or graphs	○	○	○	○
AT4MASLC	e) Learn about shapes such as circles, triangles, rectangles, and cubes	○	○	○	○
AT4MASWP	f) Write equations for word problems	○	○	○	○
AT4MASEA	g) Explain their answers	○	○	○	○
AT4MASDL	h) Relate what they are learning in mathematics to their daily life	○	○	○	○
AT4MASMF	i) Memorize formulas and procedures	○	○	○	○

21

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%

AT4MTTNU	a) Number (includes computation with whole numbers, fractions, decimals and number patterns)	_____%
AT4MTTGM	b) Geometric Shapes and Measures (includes two- and three-dimensional shapes, length, area and volume)	_____%
AT4MTTDD	c) Data Display (includes reading, making, and interpreting tables and graphs)	_____%
AT4MCOTH	d) Other, please specify: _____	_____%
	Total	100%

22

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 but not yet completed, please choose "Mostly taught this year." If a topic is not in the curriculum, please choose "Not yet taught or just introduced."

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

		Mostly taught before this year	Mostly taught this year	Not yet taught or just introduced
	A. Number			
AT4MTI01	a) Representing whole numbers using words, diagrams, or symbols	○	○	○
AT4MTI02	b) Whole numbers including place value and ordering	○	○	○
AT4MTI03	c) Computation with whole numbers	○	○	○
AT4MTI04	d) Multiples and factors of numbers	○	○	○
AT4MTI05	e) Estimation with whole numbers	○	○	○
AT4MTI06	f) Problems involving proportions	○	○	○
AT4MTI07	g) Fractions (parts of a whole or a collection, location on a number line)	○	○	○
AT4MTI08	h) Equivalent fractions	○	○	○
AT4MTI09	i) Comparing and ordering simple fractions	○	○	○
AT4MTI10	j) Fractions represented by words, numbers, or models	○	○	○
AT4MTI11	k) Adding and subtracting simple fractions	○	○	○
AT4MTI12	l) Decimal place value including writing decimals using words and numbers	○	○	○
AT4MTI13	m) Adding and subtracting with decimals	○	○	○
AT4MTI14	n) Finding the missing number in a number sentence (e.g., if 17 + ___ = 29, what number would go in the blank to make the number sentence true?)	○	○	○
AT4MTI15	o) Model simple situations involving unknowns with expressions or number sentences	○	○	○
AT4MTI16	p) Extending patterns and finding missing terms in them	○	○	○
AT4MTI17	q) Describing relationships between adjacent terms in a sequence	○	○	○
AT4MTI18	r) Generating pairs of numbers following a given rule (e.g., multiply the first number by 3 and add 2 to get the second number)	○	○	○
AT4MTI19	s) Finding a rule for a relationship given some pairs of numbers which satisfy the relationship	○	○	○

22 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 but not yet completed, please choose "Mostly taught this year." If a topic is not in the curriculum, please choose "Not yet taught or just introduced."

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

		Mostly taught before this year	Mostly taught this year	Not yet taught or just introduced
	B. Geometric Shapes and Measures			
AT4MTI20	a) Measuring and estimating lengths	○	○	○
AT4MTI21	b) Parallel and perpendicular lines	○	○	○
AT4MTI22	c) Comparing angles by size and drawing angles (e.g., a right angle, angles larger or smaller than a right angle)	○	○	○
AT4MTI23	d) Elementary properties of common geometric shapes	○	○	○
AT4MTI24	e) Recognizing relationships between three-dimensional shapes and their two-dimensional representations	○	○	○
AT4MTI25	f) Calculating areas and perimeters of squares and rectangles of given dimensions	○	○	○
AT4MTI26	g) Finding areas by covering with a given shape or counting squares	○	○	○
AT4MTI27	h) Estimating areas and volumes	○	○	○
AT4MTI28	i) Using informal coordinate systems to locate points in a plane	○	○	○
AT4MTI29	j) Figures with line symmetry	○	○	○
AT4MTI30	k) Reflections and rotations	○	○	○
	C. Data Display			
AT4MTI31	a) Reading data from tables, pictographs, bar graphs, or pie charts	○	○	○
AT4MTI32	b) Comparing information from related data sets, (e.g., given graphs showing the favorite flavors of ice cream in different classes, identify the class with chocolate as the most popular flavor)	○	○	○
AT4MTI33	c) Using information from data displays to answer questions that go beyond directly reading the data displayed (e.g., by performing computations, drawing conclusions and making predictions)	○	○	○
AT4MTI34	d) Comparing and matching different representations of the same data	○	○	○
AT4MTI35	e) Organizing and displaying data using tables, pictographs, bar graphs, or pie charts	○	○	○

AT4MHMWO

23 **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 **26***

AT4MHWMC

24 **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 ○

AT4MHWKM

25 **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 ○

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

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

	A lot	Some	A little	Not at all	Not applicable	
a) Students with different academic abilities	○	○	○	○	○	AT4MVMSA
b) Students who come from a wide range of backgrounds (e.g., economic, language)	○	○	○	○	○	AT4MVMSW
c) Students with special needs, (e.g., hearing, vision, speech impairment, physical disabilities, mental or emotional/psychological impairment)	○	○	○	○	○	AT4MVMSS
d) Uninterested students	○	○	○	○	○	AT4MVMUS
e) Disruptive students	○	○	○	○	○	AT4MVMDS

27 **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	
a) Mathematics content	○	○	AT4MPDMT
b) Mathematics pedagogy/instruction	○	○	AT4MPDMP
c) Mathematics curriculum	○	○	AT4MPDMC
d) Integrating information technology into mathematics	○	○	AT4MPDIT
e) Improving students' critical thinking or problem solving skills	○	○	AT4GPDCT
f) Mathematics assessment	○	○	AT4MPDMA

About Teaching Science

28

How well prepared do you feel to teach the following science topics?

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

		Not applicable	Very well prepared	Somewhat prepared	Not well prepared
	A. Life Science				
AT4SPT01	a) Major body structures and their functions in humans and other organisms (plants and animals)	○	○	○	○
AT4SPT02	b) Reproduction and development in plants and animals (passing on of general characteristics; life cycles of familiar organisms)	○	○	○	○
AT4SPT03	c) Physical features, behavior, and survival of organisms living in different environments	○	○	○	○
AT4SPT04	d) Relationships in a living community (e.g., simple food chains, predator-prey relationships)	○	○	○	○
AT4SPT05	e) Changes in environments (effects of human activity, pollution and its prevention)	○	○	○	○
AT4SPT06	f) Human health (e.g., transmission/prevention of communicable diseases, signs of health/illness, diet, exercise)	○	○	○	○
	B. Physical Science				
AT4SPT07	a) Classification of objects/materials based on physical properties (e.g., mass, shape, volume, color, hardness, texture, heat/electrical conductivity, magnetic attraction)	○	○	○	○
AT4SPT08	b) Forming and separating mixtures	○	○	○	○
AT4SPT09	c) States of matter (solids, liquids, gases) and differences in their physical properties (shape, volume), including changes in state of matter by heating and cooling (melting, freezing, boiling, evaporating, condensation)	○	○	○	○
AT4SPT10	d) Familiar changes in materials (e.g., decaying of animal/plant matter, burning, rusting, cooking)	○	○	○	○
AT4SPT11	e) Common energy sources/forms and their practical uses (e.g., wind, sun, electricity, burning fuel, moving water, food)	○	○	○	○
AT4SPT12	f) Light (e.g. sources and behavior)	○	○	○	○
AT4SPT13	g) Electrical circuits	○	○	○	○
AT4SPT14	h) Properties of magnets	○	○	○	○
AT4SPT15	i) Forces that cause objects to move (e.g., gravity, push/pull forces)	○	○	○	○
	C. Earth Science				
AT4SPT16	a) Features of Earth's landscape (e.g., mountains, plains, rivers, deserts)	○	○	○	○
AT4SPT17	b) Water on Earth (location, types, and movement)	○	○	○	○
AT4SPT18	c) Air (composition, proof of its existence, uses, and importance for supporting life)	○	○	○	○
AT4SPT19	d) Common features of Earth's landscape (e.g., mountains, plains, rivers, deserts) and relationship to human use (e.g., farming, irrigation, land development)	○	○	○	○
AT4SPT20	e) Weather conditions from day to day or over the seasons	○	○	○	○
AT4SPT21	f) Fossils of animals and plants (age, formation)	○	○	○	○
AT4SPT22	g) Earth's solar system (planets, sun, moon)	○	○	○	○

Teaching Science to the TIMSS Class

Questions 29-40 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 2007 in your school.

29

AT4SSTUD

A. How many students are in the TIMSS class for science?

_____
Write in the number of students

AT4SSTDQ

B. How many students in Question 29A are in the <fourth-grade> ?

_____
Write in the number of <fourth grade> students

30

AT4SSSBJ

Is science taught mainly as a separate subject (i.e., not integrated with other subjects) to the <fourth-grade> students in the TIMSS class?

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

AT4SYMWT

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

AT4SNMWT

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

31

AT4SCOMA

A. Do the <fourth-grade> students in the TIMSS class have computer(s) available to use when you are teaching science?

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

*If **No**, please go to question **33*** →

AT4SINTA

B. Do any of the computer(s) have access to the Internet?

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

32

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	○	○	○	○	AT4SCAPE
b) Study natural phenomena through simulations	○	○	○	○	AT4SCANP
c) Practice skills and procedures	○	○	○	○	AT4SCASP
d) Look up ideas and information	○	○	○	○	AT4SCALI

33

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*

		Every or almost every lesson	About half the lessons	Some lessons	Never
AT4SCSOS	a) Observe natural phenomena such as the weather or a plant growing and describe what they see	○	○	○	○
AT4SCSWE	b) Watch me do a science experiment	○	○	○	○
AT4SCSDP	c) Design or plan experiments or investigations	○	○	○	○
AT4SCSDI	d) Do experiments or investigations	○	○	○	○
AT4SCSSG	e) Work together in small groups on experiments or investigations	○	○	○	○
AT4SCSRO	f) Read their textbooks or other resource materials	○	○	○	○
AT4SCSHF	g) Have students memorize facts and principles	○	○	○	○
AT4SCSGS	h) Give explanations about something they are studying	○	○	○	○
AT4SCSDL	i) Relate what they are learning in science to their daily lives	○	○	○	○
AT4SCSWI	j) Work individually at their own pace	○	○	○	○

34

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%

a)	Life science (includes environmental issues)	_____% AT4SPTLS
b)	Physical science (includes topics in physics and chemistry)	_____% AT4SPTPS
c)	Earth science (includes Earth and the solar system)	_____% AT4SPTES
d)	Other, please specify: _____	_____% AT4SCOTH
Total		100%

35

A. Do you use a textbook(s) in teaching science to the <fourth-grade> students in the TIMSS class? AT4STBTC

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

*If **No**, please go to question **36***

B. How do you use a textbook(s) in teaching science to the <fourth-grade> students in the TIMSS class? AT4STXBU

*Fill in **one** circle only*

As the primary basis for my lessons ○

As a supplementary resource ○

36

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 but not yet completed, please choose "Mostly taught this year." If a topic is not in the curriculum, please choose "Not yet taught or just introduced."

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

		Mostly taught before this year	Mostly taught this year	Not yet taught or just introduced
	A. Life Science			
AT4STI01	a) Types, characteristics, and classification of living things	○	○	○
AT4STI02	b) Major body structures and their function in humans and other organisms (plants and animals)	○	○	○
AT4STI03	c) General steps in the life cycle of familiar organisms (e.g., humans, butterflies, frogs, plants)	○	○	○
AT4STI04	d) Plant and animal reproduction (passing on of general characteristics)	○	○	○
AT4STI05	e) Physical features, behavior, and survival of plants and animals in different environments	○	○	○
AT4STI06	f) Bodily actions in response to outside conditions (e.g., heat, cold, danger) and activities (e.g., exercise)	○	○	○
AT4STI07	g) Energy requirements of plants and animals (energy from the sun to make food and to provide energy for growth and repair)	○	○	○
AT4STI08	h) Relationships in a living community (e.g., simple food chains using common plants and animals and predator-prey relationships)	○	○	○
AT4STI09	i) Changes in environments (effects of human activity, pollution and its prevention)	○	○	○
AT4STI10	j) Ways that common communicable diseases (e.g., colds, influenza) are transmitted; signs, prevention, and treatment of illness	○	○	○
AT4STI11	k) Ways of maintaining good health, including diet and exercise	○	○	○



36 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 but not yet completed, please choose "Mostly taught this year." If a topic is not in the curriculum, please choose "Not yet taught or just introduced."

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

		Mostly taught before this year	Mostly taught this year	Not yet taught or just introduced
	B. Physical Science			
AT4STI12	a) Classification of objects and materials based on physical properties	○	○	○
AT4STI13	b) Properties and uses of metals	○	○	○
AT4STI14	c) Forming and separating mixtures	○	○	○
AT4STI15	d) Properties and uses of water	○	○	○
AT4STI16	e) States of matter (solids, liquids, and gases) and differences in their physical properties in terms of shape and volume	○	○	○
AT4STI17	f) Changes in state of matter by heating and cooling (melting, freezing, boiling, evaporation, condensation)	○	○	○
AT4STI18	g) Familiar changes in materials (e.g., decaying of animal/plant matter, burning, rusting, cooking)	○	○	○
AT4STI19	h) Common energy sources/forms and their practical uses (e.g., wind, sun, electricity, burning fuel, water wheel, food)	○	○	○
AT4STI20	i) Heat flow and temperature	○	○	○
AT4STI21	j) Common sources of light and related phenomena (e.g., formation of rainbows and shadows, visibility of objects, mirrors, colors)	○	○	○
AT4STI22	k) Production of sound by vibrations	○	○	○
AT4STI23	l) Electrical circuits	○	○	○
AT4STI24	m) Magnets (north and south poles, magnetic attraction, and repulsion)	○	○	○
AT4STI25	n) Forces that cause objects to move (e.g., gravity, push/pull forces)	○	○	○

36 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 but not yet completed, please choose "Mostly taught this year." If a topic is not in the curriculum, please choose "Not yet taught or just introduced."

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

		Mostly taught before this year	Mostly taught this year	Not yet taught or just introduced
	C. Earth Science			
AT4STI26	a) Rocks, minerals, sand, and soil	○	○	○
AT4STI27	b) Water on Earth (location, types, and movement)	○	○	○
AT4STI28	c) Air (composition, proof of its existence, uses, and importance for supporting life)	○	○	○
AT4STI29	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)	○	○	○
AT4STI30	e) Use and conservation of Earth's natural resources	○	○	○
AT4STI31	f) Earth's water cycle (water flowing in rivers from mountains to sea, cloud formation and precipitation)	○	○	○
AT4STI32	g) Weather conditions from day to day or over the seasons	○	○	○
AT4STI33	h) Fossils of animals and plants (age, formation)	○	○	○
AT4STI34	i) Earth's solar system (planets, sun, moon)	○	○	○
AT4STI35	j) Earth's rotation on its axis (e.g., day and night, appearance of shadows)	○	○	○



AT4SHMWO

37

Do you assign science homework to the <fourth-grade> students in the TIMSS class?

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

*If **No**, please go to question **40***

AT4SHWMC

38

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 ○

AT4SHWKM

39

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 ○

40

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

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

	Not applicable	Not at all	A little	Some	A lot	
a) Students with different academic abilities		○	○	○	○	AT4SVSSA
b) Students who come from a wide range of backgrounds (e.g., economic, language)		○	○	○	○	AT4SVSSW
c) Students with special needs, (e.g., hearing, vision, speech impairment, physical disabilities, mental or emotional/psychological impairment)		○	○	○	○	AT4SVSSS
d) Uninterested students		○	○	○	○	AT4SVSUS
e) Disruptive students		○	○	○	○	AT4SVSDS

41

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	
a) Science content	○	○	AT4SPDST
b) Science pedagogy/instruction	○	○	AT4SPDSP
c) Science curriculum	○	○	AT4SPDSC
d) Integrating information technology into science	○	○	AT4SPDIT
e) Improving students' critical thinking or inquiry skills	○	○	AT4GPDIN
f) Science assessment	○	○	AT4SPDSA

Thank You

for completing this questionnaire



TIMSS & PIRLS
International Study Center
Lynch School of Education, Boston College

Teacher Questionnaire

<Grade 4>

Fourth Grade
School Questionnaire

Section 3

Exhibit S1.3 Index of International Background Variables for the TIMSS 2007 School Questionnaire - Fourth Grade

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
SCQ1-1A	What is the total school enrollment (number of students) in all grades?	AC4GTENR	ACBGTENR	
SCQ1-1B	What is the enrollment in the <fourth-grade>?	AC4GEENR	ACBGEENR	
SCQ1-2	How many people live in the city, town, or area where your school is located?	AC4GCOMU	ACBGCOMU	
SCQ1-3a	Approximately what percentage of students in your school Come from economically disadvantaged homes?	AC4GSBED	ACBGSBED	
SCQ1-3b	Approximately what percentage of students in your school come from economically affluent homes?	AC4GSBEA	ACBGSBEA	
SCQ1-4	Approximately what percentage of students in your school have <language of test> as their native language?	AC4GNALA	ACBGNALA	
SCQ1-5A	How many days per year is your school open for instruction (for <fourth-grade> students in your school)?	AC4GDYSO	ACBGDYSO	Modified wording in 2007
SCQ1-5Ba	What is the total instructional time (hours), excluding breaks, in a typical day (for the <fourth-grade> students in your school)?	AC4GHTIT	Not available	
SCQ1-5Bb	What is the total instructional time (minutes), excluding breaks, in a typical day (for the <fourth-grade> students in your school)?	AC4GMTIT	Not available	
SCQ1-5C	In one calendar week, how many days is the school open for instruction (for the <fourth-grade> students in your school)?	AC4GDSOI	Not available	
SCQ1-6a	By the end of the school year, approximately what percentage of time in your role as principal will you have spent on administrative duties?	AC4GAPAD	ACBGAPAD	
SCQ1-6b	By the end of the school year, approximately what percentage of time in your role as principal will you have spent on instructional leadership?	AC4GAPIL	ACBGAPIL	
SCQ1-6c	By the end of the school year, approximately what percentage of time in your role as principal will you have spent on supervising and evaluating teachers and other staff?	AC4GAPST	ACBGAPST	
SCQ1-6d	By the end of the school year, approximately what percentage of time in your role as principal will you have spent on teaching?	AC4GAPTE	ACBGAPTE	
SCQ1-6e	By the end of the school year, approximately what percentage of time in your role as principal will you have spent on public relations and fundraising?	AC4GAPPR	ACBGAPPR	
SCQ1-6f	By the end of the school year, approximately what percentage of time in your role as principal will you have spent on other activities?	AC4GAPOT	ACBGAPOT	
SCQ1-7a	Does your school ask parents to attend special events?	AC4GAPSE	ACBGEPSE	
SCQ1-7b	Does your school ask parents to raise funds for the school?	AC4GAPRF	ACBGEPRF	
SCQ1-7c	Does your school ask parents to volunteer for school projects, programs, and trips?	AC4GAPVO	ACBGEPVO	
SCQ1-7d	Does your school ask parents to ensure that their child completes his/her homework?	AC4GAPCH	ACBGEPCH	

Exhibit S1.3 Index of International Background Variables for the TIMSS 2007 School Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
SCQ1-7e	Does your school ask parents to serve on school committees?	AC4GAPSC	ACBGEPSC	
SCQ1-8a	How would you characterize teachers' job satisfaction?	AC4GCHTS	ACBGCHTS	
SCQ1-8b	How would you characterize teachers' understanding of the school's curricular goals?	AC4GCHTU	ACBGCHTU	
SCQ1-8c	How would you characterize teachers' degree of success in implementing the school's curriculum?	AC4GCHTC	ACBGCHTC	
SCQ1-8d	How would you characterize teachers' expectations for student achievement?	AC4GCHES	ACBGCHES	
SCQ1-8e	How would you characterize parental support for student achievement?	AC4GCHPS	ACBGCHPS	
SCQ1-8f	How would you characterize parental involvement in school activities?	AC4GCHPI	ACBGCHPI	
SCQ1-8g	How would you characterize students' regard for school property?	AC4GCHSR	ACBGCHSR	
SCQ1-8h	How would you characterize students' desire to do well in school?	AC4GCHSD	ACBGCHSD	
SCQ1-9	Are <fourth-grade> students in your school grouped by ability for their mathematics lessons?	AC4MGAMC	ACBMGAMC	
SCQ1-10a	Does your school offer enrichment mathematics for students in the <fourth-grade>?	AC4MSOEM	ACBMSOEM	
SCQ1-10b	Does your school offer remedial mathematics for students in the <fourth-grade>?	AC4MSORM	ACBMSORM	
SCQ1-11	Are <fourth-grade> students in your school grouped by ability for their science lessons?	AC4SGASC	ACBSGASC	
SCQ1-12a	Does your school offer enrichment science for students in the <fourth-grade>?	AC4SSOES	ACBSSOES	
SCQ1-12b	Does your school offer remedial science for students in the <fourth-grade>?	AC4SSORS	ACBSSORS	
SCQ1-13a	In the past two years, what percentage of your <fourth-grade> teachers have been involved in professional development opportunities for mathematics and science targeted at supporting the implementation of the national or regional curriculum?	AC4GPDIC	ACBGPDIC	Options changed in 2007
SCQ1-13b	In the past two years, what percentage of your <fourth-grade> teachers have been involved in professional development opportunities for mathematics and science targeted at designing or supporting the school's own improvement goals?	AC4GPDSG	ACBGPDSG	Options changed in 2007
SCQ1-13c	In the past two years, what percentage of your <fourth-grade> teachers have been involved in professional development opportunities for mathematics and science targeted at improving content knowledge?	AC4GPDIK	ACBGPDIK	Options changed in 2007
SCQ1-13d	In the past two years, what percentage of your <fourth-grade> teachers have been involved in professional development opportunities for mathematics and science targeted at improving teaching skills?	AC4GPDTS	ACBGPDTS	Options changed in 2007

Exhibit S1.3 Index of International Background Variables for the TIMSS 2007 School Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
SCQ1-13e	In the past two years, what percentage of your <fourth-grade> teachers have been involved in professional development opportunities for mathematics and science targeted at using information and communication technology for educational purposes?	AC4GPDUT	ACBGPDUT	Options changed in 2007
SCQ1-14a	In your school, are observations by the principal or senior staff used to evaluate the practice of <fourth-grade> teachers?	AC4MEPOS	ACBMEPOS	
SCQ1-14b	In your school, are observations by inspectors or other persons external to the school used to evaluate the practice of <fourth-grade> teachers?	AC4MEPOE	ACBMEPOE	
SCQ1-14c	In your school, is student achievement used to evaluate the practice of <fourth-grade> teachers?	AC4MEPSA	ACBMEPSA	
SCQ1-14d	In your school, is teacher peer review used to evaluate the practice of <fourth-grade> teachers?	AC4MEPTR	ACBMEPTR	
SCQ1-15	How difficult was it to fill <fourth-grade> teaching vacancies for this school year?	AC4GFTVY	ACBGFTVY	
SCQ1-16	Does your school currently use any incentives (e.g., pay, housing, signing bonus, smaller classes) to recruit or retain <fourth-grade> teachers?	AC4GBONS	ACBGBONS	
SCQ1-17Aa	How often does arriving late at school occur among <fourth-grade> students in your school?	AC4GFP01	ACBGFP01	
SCQ1-17Ab	How often does absenteeism (i.e. unjustified behavior) occur among <fourth-grade> students in your school?	AC4GFP02	ACBGFP02	
SCQ1-17Ac	How often does skipping class <hours/periods> occur among <fourth-grade> students in your school?	AC4GFP03	ACBGFP03	
SCQ1-17Ad	How often does violating dress code occur among <fourth-grade> students in your school?	AC4GFP04	ACBGFP04	
SCQ1-17Ae	How often does classroom disturbance occur among <fourth-grade> students in your school?	AC4GFP05	ACBGFP05	
SCQ1-17Af	How often does cheating occur among <fourth-grade> students in your school?	AC4GFP06	ACBGFP06	
SCQ1-17Ag	How often does profanity occur among <fourth-grade> students in your school?	AC4GFP07	ACBGFP07	
SCQ1-17Ah	How often does vandalism occur among <fourth-grade> students in your school?	AC4GFP08	ACBGFP08	
SCQ1-17Ai	How often does theft occur among <fourth-grade> students in your school?	AC4GFP09	ACBGFP09	
SCQ1-17Aj	How often does intimidation or verbal abuse of other students occur among <fourth-grade> students in your school?	AC4GFP10	ACBGFP10	
SCQ1-17Ak	How often does physical injury to other students occur among <fourth-grade> students in your school?	AC4GFP11	ACBGFP11	

Exhibit S1.3 Index of International Background Variables for the TIMSS 2007 School Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
SCQ1-17Al	How often does intimidation or verbal abuse of teachers or staff occur among <fourth-grade> students in your school?	AC4GFP12	ACBGFP12	
SCQ1-17Am	How often does physical injury to teachers or staff occur among <fourth-grade> students in your school?	AC4GFP13	ACBGFP13	
SCQ1-17Ba	If the behavior occurs, how severe is the problem? - Arriving late at school	AC4GSP01	ACBGSP01	
SCQ1-17Bb	If the behavior occurs, how severe is the problem? - Absenteeism (i.e., unjustified absences)	AC4GSP02	ACBGSP02	
SCQ1-17Bc	If the behavior occurs, how severe is the problem? - Skipping class <hours/periods>	AC4GSP03	ACBGSP03	
SCQ1-17Bd	If the behavior occurs, how severe is the problem? - Violating dress code	AC4GSP04	ACBGSP04	
SCQ1-17Be	If the behavior occurs, how severe is the problem? - Classroom disturbance	AC4GSP05	ACBGSP05	
SCQ1-17Bf	If the behavior occurs, how severe is the problem? - Cheating	AC4GSP06	ACBGSP06	
SCQ1-17Bg	If the behavior occurs, how severe is the problem? - Profanity	AC4GSP07	ACBGSP07	
SCQ1-17Bh	If the behavior occurs, how severe is the problem? - Vandalism	AC4GSP08	ACBGSP08	
SCQ1-17Bi	If the behavior occurs, how severe is the problem? - Theft	AC4GSP09	ACBGSP09	
SCQ1-17Bj	If the behavior occurs, how severe is the problem? - Intimidation or verbal abuse of other students	AC4GSP10	ACBGSP10	
SCQ1-17Bk	If the behavior occurs, how severe is the problem? - Physical injury to other students	AC4GSP11	ACBGSP11	
SCQ1-17Bl	If the behavior occurs, how severe is the problem? - Intimidation or verbal abuse of teachers or staff	AC4GSP12	ACBGSP12	
SCQ1-17Bm	If the behavior occurs, how severe is the problem? - Physical injury to teachers or staff	AC4GSP13	ACBGSP13	
SCQ1-18a	Is your school's capacity to provide instruction affected by a shortage or inadequacy of instructional materials (e.g., textbook)?	AC4GST01	ACBGST01	
SCQ1-18b	Is your school's capacity to provide instruction affected by a shortage or inadequacy of budget for supplies (e.g., paper, pencils)?	AC4GST02	ACBGST02	
SCQ1-18c	Is your school's capacity to provide instruction affected by a shortage or inadequacy of school buildings and grounds?	AC4GST03	ACBGST03	
SCQ1-18d	Is your school's capacity to provide instruction affected by a shortage or inadequacy of heating/cooling and lighting systems?	AC4GST04	ACBGST04	
SCQ1-18e	Is your school's capacity to provide instruction affected by a shortage or inadequacy of instructional space (e.g., classrooms)?	AC4GST05	ACBGST05	
SCQ1-18f	Is your school's capacity to provide instruction affected by a shortage or inadequacy of special equipment for handicapped students?	AC4GST06	ACBGST06	

Exhibit S1.3 Index of International Background Variables for the TIMSS 2007 School Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
SCQ1-18g	Is your school's capacity to provide instruction affected by a shortage or inadequacy of computers for mathematics instruction?	AC4GMT07	ACBGST07	
SCQ1-18h	Is your school's capacity to provide instruction affected by a shortage or inadequacy of computer software for mathematics instruction?	AC4GMT08	ACBGST08	
SCQ1-18i	Is your school's capacity to provide instruction affected by a shortage or inadequacy of calculators for mathematics instruction?	AC4GMT09	ACBGST09	
SCQ1-18j	Is your school's capacity to provide instruction affected by a shortage or inadequacy of library materials relevant to mathematics instruction?	AC4GMT10	ACBGST10	
SCQ1-18k	Is your school's capacity to provide instruction affected by a shortage or inadequacy of audio-visual resources for mathematics instruction?	AC4GMT11	ACBGST11	
SCQ1-18l	Is your school's capacity to provide instruction affected by a shortage or inadequacy of science laboratory equipment and materials?	AC4SST12	ACBGST12	
SCQ1-18m	Is your school's capacity to provide instruction affected by a shortage or inadequacy of computers for science instruction?	AC4SST13	ACBGST13	
SCQ1-18n	Is your school's capacity to provide instruction affected by a shortage or inadequacy of computer software for science instruction?	AC4SST14	ACBGST14	
SCQ1-18o	Is your school's capacity to provide instruction affected by a shortage or inadequacy of calculators for science instruction?	AC4SST15	ACBGST15	
SCQ1-18p	Is your school's capacity to provide instruction affected by a shortage or inadequacy of library materials relevant to science instruction?	AC4SST16	ACBGST16	
SCQ1-18q	Is your school's capacity to provide instruction affected by a shortage or inadequacy of audio-visual resources for science instruction?	AC4SST17	ACBGST17	
SCQ1-18r	Is your school's capacity to provide instruction affected by a shortage or inadequacy of teachers?	AC4GSH18	ACBGSH18	
SCQ1-18s	Is your school's capacity to provide instruction affected by a shortage or inadequacy of computer support staff?	AC4GSH19	ACBGSH19	
SCQ1-19A	Does your school have a science laboratory?	AC4SSLAB	Not available	
SCQ1-19B	Do teachers usually have assistance available when students are conducting science experiments?	AC4STASE	Not available	
SCQ1-20A	What is the total number of computers in your school that can be used for educational purposes by <fourth-grade> students?	AC4GCMPS	ACBGCMPS	
SCQ1-20B	How many of these computers have access to the Internet (e-mail or World Wide Web) for educational purposes?	AC4GCMPI	ACBGCMPI	
SCQ1-21	Is anyone available to help your teachers use information and communication technology for teaching and learning?	AC4GHTTE	ACBGHTTE	

Identification Label

School ID:

School Name:

Trends in International Mathematics and Science Study

TIMSS 2007

School Questionnaire

<Grade 4>

<TIMSS National Research Center Name>
<Address>

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of Educational Achievement
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General Directions

Your school has agreed to participate in TIMSS 2007, a large international study of student learning in mathematics and science in more than 60 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.

School Characteristics

1

AC4GTENR

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

*Number of students:*_____

AC4GEENR

B. What is the enrollment in the <fourth-grade>?

*Number of students:*_____

2

AC4GCOMU

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 ○
- 3,000 people or fewer ○

3

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%
AC4GSBED a) Come from economically disadvantaged homes	○	○	○	○
AC4GSBEA b) Come from economically affluent homes	○	○	○	○

4

AC4GNALA

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% ○

5

For the <fourth-grade> students in your school:

AC4GDYSO

A. How many days per year is your school open for instruction?

_____ *days*
(write in number)

AC4GHTIT
AC4GMTIT

B. What is the total instructional time, excluding breaks, in a typical day?

_____ *hours and* _____ *minutes*
(write in the number of hours and minutes)

AC4GDSOI

C. In one calendar week, how many days is the school open for instruction?

*Fill in **one** circle only*

- 6 days ○
- 5 1/2 days ○
- 5 days ○
- 4 1/2 days ○
- 4 days ○
- Other ○

Please specify _____

Your Role as Principal

6 **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%

AC4GAPAD a) Administrative duties (e.g., hiring, budgeting, scheduling, meetings) ---------- _____%

AC4GAPIL b) Instructional leadership (e.g., developing curriculum and pedagogy) ---------- _____%

AC4GAPST c) Supervising and evaluating teachers and other staff ---------- _____%

AC4GAPTE d) Teaching ---------- _____%

AC4GAPPR e) Public relations and fundraising ---- _____%

AC4GAPOT f) Other ---------- _____%

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

Parental Involvement

7 **Does your school ask parents to do the following?**

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

		Yes	No
AC4GAPSE	a) Attend special events (e.g., science fair, concert, sporting events)	○	○
AC4GAPRF	b) Raise funds for the school	○	○
AC4GAPVO	c) Volunteer for school projects, programs, and trips	○	○
AC4GAPCH	d) Ensure that their child completes his/her homework	○	○
AC4GAPSC	e) Serve on school committees (e.g., select school personnel, review school finances)	○	○

School Climate for Learning

8

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
AC4GCHTS	a) Teachers' job satisfaction	○	○	○	○	○
AC4GCHTU	b) Teachers' understanding of the school's curricular goals	○	○	○	○	○
AC4GCHTC	c) Teachers' degree of success in implementing the school's curriculum	○	○	○	○	○
AC4GCHES	d) Teachers' expectations for student achievement	○	○	○	○	○
AC4GCHPS	e) Parental support for student achievement	○	○	○	○	○
AC4GCHPI	f) Parental involvement in school activities	○	○	○	○	○
AC4GCHSR	g) Students' regard for school property	○	○	○	○	○
AC4GCHSD	h) Students' desire to do well in school	○	○	○	○	○

<Fourth-grade> Instruction in Mathematics and Science

9

Are <fourth-grade> students in your school grouped by ability for their mathematics lessons? AC4MGAMC

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

10

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

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

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

AC4MSOEM
AC4MSORM

11

Are <fourth-grade> students in your school grouped by ability for their science lessons? AC4SGASC

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

12

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

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

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

AC4SSOES
AC4SSORS

<Fourth-grade> Teachers in Your School

13

In the past two years, what percentage of your <fourth-grade> teachers have been involved in professional development opportunities for mathematics and science targeted at the following?

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

	None	25% or fewer	26 – 50%	51 –75%	76 – 100%
AC4GPDIC a) Supporting the implementation of the national or regional curriculum	○	○	○	○	○
AC4GPDSG b) Designing or supporting the school's own improvement goals	○	○	○	○	○
AC4GPDIK c) Improving content knowledge	○	○	○	○	○
AC4GPDTS d) Improving teaching skills	○	○	○	○	○
AC4GPDUT e) Using information and communication technology for educational purposes	○	○	○	○	○

14

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
AC4MEPOS a) Observations by the principal or senior staff	○	○
AC4MEPOE b) Observations by inspectors or other persons external to the school	○	○
AC4MEPSA c) Student achievement	○	○
AC4MEPTR d) Teacher peer review	○	○

15

How difficult was it to fill <fourth-grade> teaching vacancies for this school year? AC4GFTVY

*Fill in **one** circle only*

- Were no vacancies ○
- Easy to fill vacancies ○
- Somewhat difficult ○
- Very difficult ○

16

Does your school currently use any incentives (e.g., pay, housing, signing bonus, smaller classes) to recruit or retain <fourth-grade> teachers? AC4GBONS

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

Student Behavior

17

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)					B. Severity of problem in your school (Fill in **one** circle for each row in this section)			
		Never	Rarely	Monthly	Weekly	Daily		Not a problem	Minor problem	Serious problem
AC4GFP01	a) Arriving late at school	○	○	○	○	○	AC4GSP01	○	○	○
AC4GFP02	b) Absenteeism (i.e., unjustified absences)	○	○	○	○	○	AC4GSP02	○	○	○
AC4GFP03	c) Skipping class <hours/periods>	○	○	○	○	○	AC4GSP03	○	○	○
AC4GFP04	d) Violating dress code	○	○	○	○	○	AC4GSP04	○	○	○
AC4GFP05	e) Classroom disturbance	○	○	○	○	○	AC4GSP05	○	○	○
AC4GFP06	f) Cheating	○	○	○	○	○	AC4GSP06	○	○	○
AC4GFP07	g) Profanity	○	○	○	○	○	AC4GSP07	○	○	○
AC4GFP08	h) Vandalism	○	○	○	○	○	AC4GSP08	○	○	○
AC4GFP09	i) Theft	○	○	○	○	○	AC4GSP09	○	○	○
AC4GFP10	j) Intimidation or verbal abuse of other students	○	○	○	○	○	AC4GSP10	○	○	○
AC4GFP11	k) Physical injury to other students	○	○	○	○	○	AC4GSP11	○	○	○
AC4GFP12	l) Intimidation or verbal abuse of teachers or staff	○	○	○	○	○	AC4GSP12	○	○	○
AC4GFP13	m) Physical injury to teachers or staff	○	○	○	○	○	AC4GSP13	○	○	○

Resources and Technology

18

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
AC4GST01	a) Instructional materials (e.g., textbook)	○	○	○	○
AC4GST02	b) Budget for supplies (e.g., paper, pencils)	○	○	○	○
AC4GST03	c) School buildings and grounds	○	○	○	○
AC4GST04	d) Heating/cooling and lighting systems	○	○	○	○
AC4GST05	e) Instructional space (e.g., classrooms)	○	○	○	○
AC4GST06	f) Special equipment for handicapped students	○	○	○	○
AC4GMT07	g) Computers for mathematics instruction	○	○	○	○
AC4GMT08	h) Computer software for mathematics instruction	○	○	○	○
AC4GMT09	i) Calculators for mathematics instruction	○	○	○	○
AC4GMT10	j) Library materials relevant to mathematics instruction	○	○	○	○
AC4GMT11	k) Audio-visual resources for mathematics instruction	○	○	○	○

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

		None	A little	Some	A lot
AC4SST12	l) Science laboratory equipment and materials	○	○	○	○
AC4SST13	m) Computers for science instruction	○	○	○	○
AC4SST14	n) Computer software for science instruction	○	○	○	○
AC4SST15	o) Calculators for science instruction	○	○	○	○
AC4SST16	p) Library materials relevant to science instruction	○	○	○	○
AC4SST17	q) Audio-visual resources for science instruction	○	○	○	○
AC4GSH18	r) Teachers	○	○	○	○
AC4GSH19	s) Computer support staff	○	○	○	○

19

AC4SSLAB

A. Does your school have a science laboratory?

*Fill in **one** circle only*

- ○ No
- ○ Yes

AC4STASE

B. Do teachers usually have assistance available when students are conducting science experiments?

*Fill in **one** circle only*

- ○ No
- ○ Yes

20

AC4GCMPS

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* **21**

AC4GCMPI

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

21

AC4GHTTE

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

*Fill in **one** circle only*

- ○ No
- ○ Yes

Thank You

for completing this questionnaire



TIMSS & PIRLS
International Study Center
Lynch School of Education, Boston College

School Questionnaire

<Grade 4>

Fourth Grade Mathematics Curriculum Questionnaire

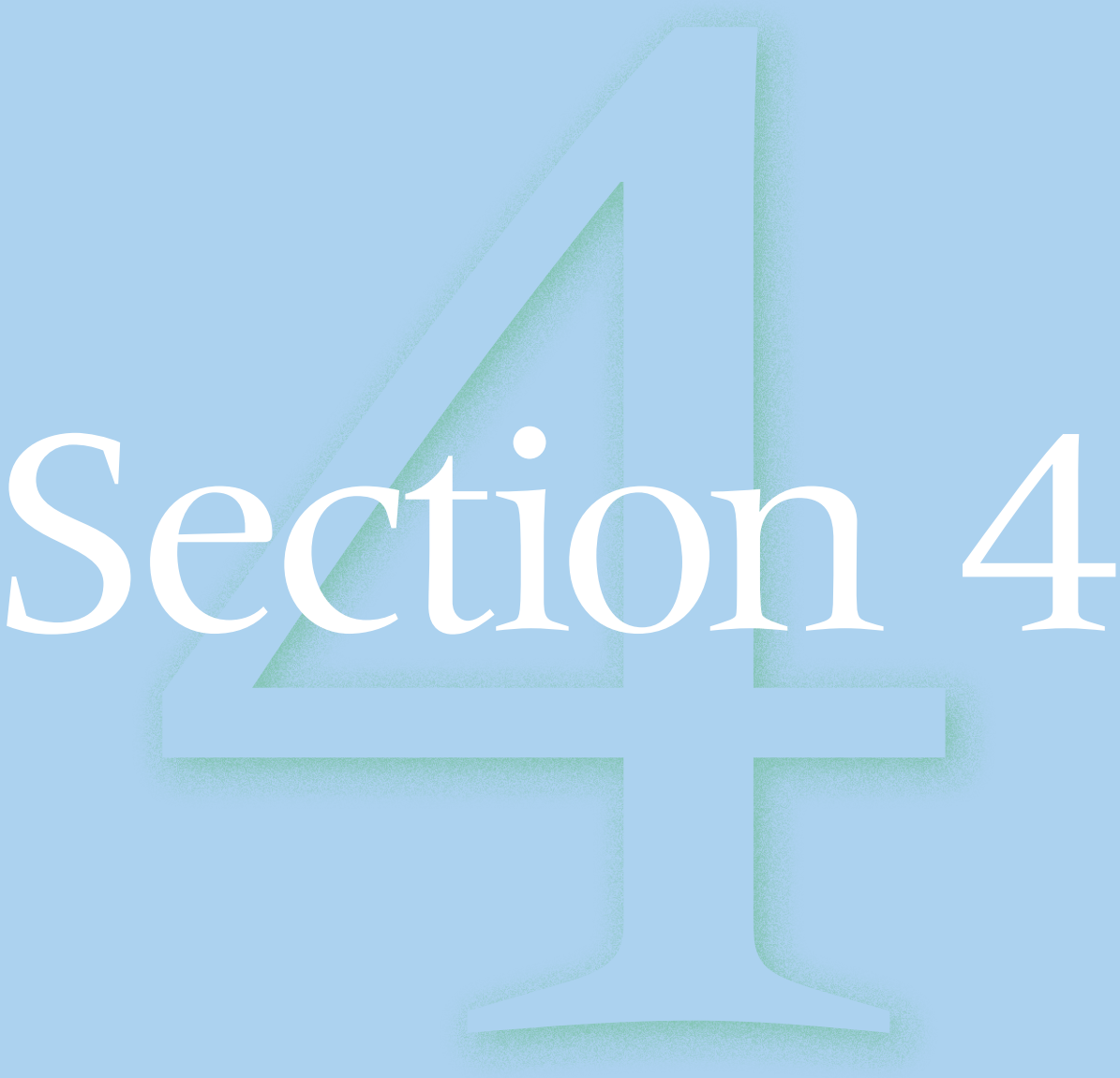


Exhibit S1.4 Index of International Background Variables for the TIMSS 2007 Mathematics Curriculum Questionnaire - Fourth Grade

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQM1-1	Does your country have a national curriculum that covers mathematics instruction at the fourth grade of primary/elementary schooling?	AUBMNCC	CQM1q01A	Modified in 2007
CQM1-1n	If No… What is the highest level of decision-making authority (e.g., state or province) that provides a curriculum that covers mathematics instruction at the fourth grade of primary/elementary schooling?	AUBMNCCN	CQM1q01B	Modified in 2007
CQM1-1y	Does your country have a national curriculum that covers mathematics instruction at the fourth grade of primary/elementary schooling? If Yes… Comments:	AUBMNCCY	Not available	
CQM1-2	What is the grade-to-grade structure of the primary/elementary school curriculum that covers mathematics instruction (e.g., grades 1-5; grades 1-3, 4-5; grades 1, 2-4)?	AUBMGGS	Not available	
CQM1-2_Com	What is the grade-to-grade structure of the primary/elementary school curriculum that covers mathematics instruction (e.g., grades 1-5; grades 1-3, 4-5; grades 1, 2-4)? Comments:	AUBMGGSC	Not available	
CQM1-3	In what year was the current mathematics curriculum introduced?	AUBMYMCI	CQM1q01C	Modified in 2007
CQM1-3_Com	In what year was the current mathematics curriculum introduced? Comments:	AUBMYMCC	Not available	
CQM1-4	Is the mathematics curriculum currently being revised?	AUBMMCR	CQM1q01D	Modified in 2007
CQM1-4y	Is the mathematics curriculum currently being revised? If Yes… Please explain:	AUBMMCRY	Not available	
CQM1-4n	Is the mathematics curriculum currently being revised? If No… Comments:	AUBMMCRN	Not available	
CQM1-5a	Does the mathematics curriculum prescribe goals and objectives?	AUBMMPGO	Not available	
CQM1-5b	Does the mathematics curriculum prescribe processes or methods?	AUBMMPPM	Not available	
CQM1-5c	Does the mathematics curriculum prescribe materials?	AUBMMPMA	Not available	
CQM1-5d	Does the mathematics curriculum prescribe the percentage of students reaching defined goals?	AUBMMPRG	Not available	
CQM1-5e	Does the mathematics curriculum prescribe other?	AUBMMPOT	Not available	
CQM1-5e_Sfy	Does the mathematics curriculum prescribe other? Please specify:	AUBMMPPS	Not available	
CQM1-5_Com	Does the mathematics curriculum prescribe other? Comments:	AUBMMPCO	Not available	
CQM1-6a	Does the national curriculum contain statements/policies about the use of calculators in grade 4 mathematics?	AUBMNPC	CQM1q07A	
CQM1-6y	Does the national curriculum contain statements/policies about the use of calculators in grade 4 mathematics? If Yes… What are the statements/policies?	AUBMNPCY	CQM1q07B	
CQM1-6n	Does the national curriculum contain statements/policies about the use of calculators in grade 4 mathematics? If No… Comments:	AUBMNPCN	Not available	
CQM1-7	Does the national curriculum contain statements/policies about the use of computers in grade 4 mathematics?	AUBMNPO	CQM1q08A	

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Exhibit S1.4 Index of International Background Variables for the TIMSS 2007 Mathematics Curriculum Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQM1-7y	Does the national curriculum contain statements/policies about the use of computers in grade 4 mathematics? If Yes… What are the statements/policies?	AUBMNPOY	CQM1q08B	
CQM1-7n	Does the national curriculum contain statements/policies about the use of computers in grade 4 mathematics? If no… Comments:	AUBMNPON	Not available	
CQM1-8a	How much emphasis does the national mathematics curriculum place on mastering basic skills and procedures?	AUBMCESK	CQM1q06a	
CQM1-8b	How much emphasis does the national mathematics curriculum place on understanding mathematical concepts and principles?	AUBMCECP	CQM1q06b	
CQM1-8c	How much emphasis does the national mathematics curriculum place on applying mathematics in real-life contexts?	AUBMCERL	CQM1q06c	
CQM1-8d	How much emphasis does the national mathematics curriculum place on communicating mathematically?	AUBMCECM	CQM1q06d	
CQM1-8e	How much emphasis does the national mathematics curriculum place on reasoning mathematically?	AUBMCERM	CQM1q06e	
CQM1-8f	How much emphasis does the national mathematics curriculum place on incorporating the experiences of different ethnic/cultural groups?	AUBMCEEC	CQM1q06f	
CQM1-8g	How much emphasis does the national mathematics curriculum place on integrating mathematics with other subjects?	AUBMCEOS	CQM1q06g	
CQM1-8_Com	How much emphasis does the national mathematics curriculum place on the following? Comments:	AUBMCECO	Not available	
CQM1-9Aa1	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught number topics by the end of grade 4? - Representing whole numbers using words, diagrams, or symbols	AUBMA9A1	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	
CQM1-9Aa2	Across grades K-12, at what grade(s) is above number topic primarily intended to be taught?	AUBMA9A2	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	
CQM1-9Ab1	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught number topics by the end of grade 4? - Whole numbers including place value and ordering	AUBMA9B1	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	
CQM1-9Ab2	Across grades K-12, at what grade(s) is above number topic primarily intended to be taught?	AUBMA9B2	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	
CQM1-9Ac1	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught number topics by the end of grade 4? - Computation with whole numbers	AUBMA9C1	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	
CQM1-9Ac2	Across grades K-12, at what grade(s) is above number topic primarily intended to be taught?	AUBMA9C2	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	

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Exhibit S1.4 Index of International Background Variables for the TIMSS 2007 Mathematics Curriculum Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQM1-9Ad1	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught number topics by the end of grade 4? - Multiples and factors of numbers	AUBMA9D1	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	
CQM1-9Ad2	Across grades K-12, at what grade(s) is above number topic primarily intended to be taught?	AUBMA9D2	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	
CQM1-9Ae1	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught number topics by the end of grade 4? - Estimation with whole numbers	AUBMA9E1	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	
CQM1-9Ae2	Across grades K-12, at what grade(s) is above number topic primarily intended to be taught?	AUBMA9E2	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	
CQM1-9Af1	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught number topics by the end of grade 4? - Problems involving proportions	AUBMA9F1	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	
CQM1-9Af2	Across grades K-12, at what grade(s) is above number topic primarily intended to be taught?	AUBMA9F2	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	
CQM1-9Ag1	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught number topics by the end of grade 4? - Fractions (parts of a whole or a collection, location on a number line)	AUBMA9G1	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	
CQM1-9Ag2	Across grades K-12, at what grade(s) is above number topic primarily intended to be taught?	AUBMA9G2	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	
CQM1-9Ah1	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught number topics by the end of grade 4? - Equivalent fractions	AUBMA9H1	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	
CQM1-9Ah2	Across grades K-12, at what grade(s) is above number topic primarily intended to be taught?	AUBMA9H2	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	
CQM1-9Ai1	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught number topics by the end of grade 4? - Comparing and ordering simple fractions	AUBMA9I1	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	
CQM1-9Ai2	Across grades K-12, at what grade(s) is above number topic primarily intended to be taught?	AUBMA9I2	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	
CQM1-9Aj1	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught number topics by the end of grade 4? - Fractions represented by words, numbers, or models	AUBMA9J1	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	

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Exhibit S1.4 Index of International Background Variables for the TIMSS 2007 Mathematics Curriculum Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQM1-9Aj2	Across grades K-12, at what grade(s) is above number topic primarily intended to be taught?	AUBMA9J2	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	
CQM1-9Ak1	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught number topics by the end of grade 4? - Adding and subtracting simple fractions	AUBMA9K1	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	
CQM1-9Ak2	Across grades K-12, at what grade(s) is above number topic primarily intended to be taught?	AUBMA9K2	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	
CQM1-9Al1	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught number topics by the end of grade 4? - Decimal place value including writing decimals using words and numbers	AUBMA9L1	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	
CQM1-9Al2	Across grades K-12, at what grade(s) is above number topic primarily intended to be taught?	AUBMA9L2	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	
CQM1-9Am1	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught number topics by the end of grade 4? - Adding and subtracting with decimals	AUBMA9M1	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	
CQM1-9Am2	Across grades K-12, at what grade(s) is above number topic primarily intended to be taught?	AUBMA9M2	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	
CQM1-9An1	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught number topics by the end of grade 4? - Finding the missing number in a number sentence (e.g., if 17 + ___= 29, what number would go in the blank to make the number sentence true?)	AUBMA9N1	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	
CQM1-9An2	Across grades K-12, at what grade(s) is above number topic primarily intended to be taught?	AUBMA9N2	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	
CQM1-9Ao1	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught number topics by the end of grade 4? - Model simple situations involving unknowns with expressions or number sentences	AUBMA9O1	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	
CQM1-9Ao2	Across grades K-12, at what grade(s) is above number topic primarily intended to be taught?	AUBMA9O2	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	
CQM1-9Ap1	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught number topics by the end of grade 4? - Extending patterns and finding missing terms in them	AUBMA9P1	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	

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Exhibit S1.4 Index of International Background Variables for the TIMSS 2007 Mathematics Curriculum Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQM1-9Ap2	Across grades K-12, at what grade(s) is above number topic primarily intended to be taught?	AUBMA9P2	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	
CQM1-9Aq1	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught number topics by the end of grade 4? - Describing relationships between adjacent terms in a sequence	AUBMA9Q1	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	
CQM1-9Aq2	Across grades K-12, at what grade(s) is above number topic primarily intended to be taught?	AUBMA9Q2	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	
CQM1-9Ar1	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught number topics by the end of grade 4? - Generating pairs of numbers following a given rule (e.g., multiply the first number by 3 and add 2 to get the second number)	AUBMA9R1	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	
CQM1-9Ar2	Across grades K-12, at what grade(s) is above number topic primarily intended to be taught?	AUBMA9R2	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	
CQM1-9As1	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught number topics by the end of grade 4? - Finding a rule for a relationship given some pairs of numbers which satisfy the relationship	AUBMA9S1	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	
CQM1-9As2	Across grades K-12, at what grade(s) is above number topic primarily intended to be taught?	AUBMA9S2	See Questions CQM1q12A and CQM1q12B in 2003 for sub-topics.	
CQM1-9A_Com	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught each of the following number topics or skills by the end of grade 4? Comments:	AUBMM9CA	Not available	
CQM1-9Ba1	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught geometric shapes and measures topics by the end of grade 4? - Measuring and estimating lengths	AUBMB9A1	See Questions CQM1q12C and CQM1q12D in 2003 for sub-topics.	
CQM1-9Ba2	Across grades K-12, at what grade(s) is above geometric shapes and measures topic primarily intended to be taught?	AUBMB9A2	See Questions CQM1q12C and CQM1q12D in 2003 for sub-topics.	
CQM1-9Bb1	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught geometric shapes and measures topics by the end of grade 4? - Parallel and perpendicular lines	AUBMB9B1	See Questions CQM1q12C and CQM1q12D in 2003 for sub-topics.	
CQM1-9Bb2	Across grades K-12, at what grade(s) is above geometric shapes and measures topic primarily intended to be taught?	AUBMB9B2	See Questions CQM1q12C and CQM1q12D in 2003 for sub-topics.	

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Exhibit S1.4 Index of International Background Variables for the TIMSS 2007 Mathematics Curriculum Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQM1-9Bc1	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught geometric shapes and measures topics by the end of grade 4? - Comparing angles by size and drawing angles (e.g., a right angle, angles larger or smaller than a right angle)	AUBMB9C1	See Questions CQM1q12C and CQM1q12D in 2003 for sub-topics.	
CQM1-9Bc2	Across grades K-12, at what grade(s) is above geometric shapes and measures topic primarily intended to be taught?	AUBMB9C2	See Questions CQM1q12C and CQM1q12D in 2003 for sub-topics.	
CQM1-9Bd1	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught geometric shapes and measures topics by the end of grade 4? - Elementary properties of common geometric shapes	AUBMB9D1	See Questions CQM1q12C and CQM1q12D in 2003 for sub-topics.	
CQM1-9Bd2	Across grades K-12, at what grade(s) is above geometric shapes and measures topic primarily intended to be taught?	AUBMB9D2	See Questions CQM1q12C and CQM1q12D in 2003 for sub-topics.	
CQM1-9Be1	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught geometric shapes and measures topics by the end of grade 4? - Recognizing relationships between three-dimensional shapes and their two-dimensional representations	AUBMB9E1	See Questions CQM1q12C and CQM1q12D in 2003 for sub-topics.	
CQM1-9Be2	Across grades K-12, at what grade(s) is above geometric shapes and measures topic primarily intended to be taught?	AUBMB9E2	See Questions CQM1q12C and CQM1q12D in 2003 for sub-topics.	
CQM1-9Bf1	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught geometric shapes and measures topics by the end of grade 4? - Calculating areas and perimeters of squares and rectangles of given dimensions	AUBMB9F1	See Questions CQM1q12C and CQM1q12D in 2003 for sub-topics.	
CQM1-9Bf2	Across grades K-12, at what grade(s) is above geometric shapes and measures topic primarily intended to be taught?	AUBMB9F2	See Questions CQM1q12C and CQM1q12D in 2003 for sub-topics.	
CQM1-9Bg1	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught geometric shapes and measures topics by the end of grade 4? - Finding areas by covering with a given shape or counting squares	AUBMB9G1	See Questions CQM1q12C and CQM1q12D in 2003 for sub-topics.	
CQM1-9Bg2	Across grades K-12, at what grade(s) is above geometric shapes and measures topic primarily intended to be taught?	AUBMB9G2	See Questions CQM1q12C and CQM1q12D in 2003 for sub-topics.	
CQM1-9Bh1	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught geometric shapes and measures topics by the end of grade 4? - Estimating areas and volumes	AUBMB9H1	See Questions CQM1q12C and CQM1q12D in 2003 for sub-topics.	

* In TIMSS 2003 the location of each curriculum questionnaire item was used as its corresponding variable name.

Exhibit S1.4 Index of International Background Variables for the TIMSS 2007 Mathematics Curriculum Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQM1-9Bh2	Across grades K-12, at what grade(s) is above geometric shapes and measures topic primarily intended to be taught?	AUBMB9H2	See Questions CQM1q12C and CQM1q12D in 2003 for sub-topics.	
CQM1-9Bi1	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught geometric shapes and measures topics by the end of grade 4? - Using informal coordinate systems to locate points in a plane	AUBMB9I1	See Questions CQM1q12C and CQM1q12D in 2003 for sub-topics.	
CQM1-9Bi2	Across grades K-12, at what grade(s) is above geometric shapes and measures topic primarily intended to be taught?	AUBMB9I2	See Questions CQM1q12C and CQM1q12D in 2003 for sub-topics.	
CQM1-9Bj1	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught geometric shapes and measures topics by the end of grade 4? - Figures with line symmetry	AUBMB9J1	See Questions CQM1q12C and CQM1q12D in 2003 for sub-topics.	
CQM1-9Bj2	Across grades K-12, at what grade(s) is above geometric shapes and measures topic primarily intended to be taught?	AUBMB9J2	See Questions CQM1q12C and CQM1q12D in 2003 for sub-topics.	
CQM1-9Bk1	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught geometric shapes and measures topics by the end of grade 4? - Reflections and rotations	AUBMB9K1	See Questions CQM1q12C and CQM1q12D in 2003 for sub-topics.	
CQM1-9Bk2	Across grades K-12, at what grade(s) is above geometric shapes and measures topic primarily intended to be taught?	AUBMB9K2	See Questions CQM1q12C and CQM1q12D in 2003 for sub-topics.	
CQM1-9B_Com	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught each of the following geometric shapes and measures topics or skills by the end of grade 4? Comments:	AUBMM9CB	Not available	
CQM1-9Ca1	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught data display topics by the end of grade 4? - Reading data from tables, pictographs, bar graphs, or pie charts	AUBMC9A1	See Question CQM1q12E in 2003 for sub-topics.	
CQM1-9Ca2	Across grades K-12, at what grade(s) is above data display topic primarily intended to be taught?	AUBMC9A2	See Question CQM1q12E in 2003 for sub-topics.	
CQM1-9Cb1	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught data display topics by the end of grade 4? - Comparing information from related data sets (e.g., given graphs showing the favorite flavors of ice cream in different classes, identify the class with chocolate as the most popular flavor)	AUBMC9B1	See Question CQM1q12E in 2003 for sub-topics.	
CQM1-9Cb2	Across grades K-12, at what grade(s) is above data display topic primarily intended to be taught?	AUBMC9B2	See Question CQM1q12E in 2003 for sub-topics.	

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Exhibit S1.4 Index of International Background Variables for the TIMSS 2007 Mathematics Curriculum Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQM1-9Cc1	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught data display topics by the end of grade 4? - Using information from data displays to answer questions that go beyond directly reading the data displayed (e.g., by performing computations, drawing conclusions, and making predictions)	AUBMC9C1	See Question CQM1q12E in 2003 for sub-topics.	
CQM1-9Cc2	Across grades K-12, at what grade(s) is above data display topic primarily intended to be taught?	AUBMC9C2	See Question CQM1q12E in 2003 for sub-topics.	
CQM1-9Cd1	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught data display topics by the end of grade 4? - Comparing and matching different representations of the same data	AUBMC9D1	See Question CQM1q12E in 2003 for sub-topics.	
CQM1-9Cd2	Across grades K-12, at what grade(s) is above data display topic primarily intended to be taught?	AUBMC9D2	See Question CQM1q12E in 2003 for sub-topics.	
CQM1-9Ce1	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught data display topics by the end of grade 4?- Organizing and displaying data using tables, pictographs, bar graphs, or pie charts	AUBMC9E1	See Question CQM1q12E in 2003 for sub-topics.	
CQM1-9Ce2	Across grades K-12, at what grade(s) is above data display topic primarily intended to be taught?	AUBMC9E2	See Question CQM1q12E in 2003 for sub-topics.	
CQM1-9C_Com	According to the national mathematics curriculum, what proportion of grade 4 students should have been taught each of the following data display topics or skills by the end of grade 4? Comments:	AUBMM9CC	Not available	
CQM1-10	Which best describes how the mathematics curriculum addresses the issue of students with different levels of ability?	AUBMCDA	CQM1q05	
CQM1-10_Com	Which best describes how the mathematics curriculum addresses the issue of students with different levels of ability? Comments:	AUBMCDAC	Not available	
CQM1-11a	Is the mathematics curriculum made available in the form of official publication containing the curriculum?	AUBMCMAA	Not available	
CQM1-11b	Is the mathematics curriculum made available in the form of ministry notes and directives?	AUBMCMAM	Not available	
CQM1-11c	Is the mathematics curriculum made available in the form of mandated or recommended textbooks?	AUBMCMAT	Not available	
CQM1-11d	Is the mathematics curriculum made available in the form of instructional or pedagogical guide?	AUBMCMAI	Not available	
CQM1-11e	Is the mathematics curriculum made available in the form of specifically developed or recommended instructional activities?	AUBMCMAS	Not available	
CQM1-11f	Is the mathematics curriculum made available in the form of other?	AUBMCMAO	Not available	
CQM1-11f_Sfy	In what form is the mathematics curriculum made available? Please specify:	AUBMCMAP	Not available	

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Exhibit S1.4 Index of International Background Variables for the TIMSS 2007 Mathematics Curriculum Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQM1-11_Com	In what form is the mathematics curriculum made available? Comments:	AUBMCMAC	Not available	
CQM1-12a1	In a typical week, what is the total amount of instructional time prescribed by the curriculum at the fourth grade of primary/elementary school? (hours)	AUBMITTH	Not available	
CQM1-12a2	In a typical week, what is the total amount of instructional time prescribed by the curriculum at the fourth grade of primary/elementary school? (minutes)	AUBMITTM	Not available	
CQM1-12b	What percentage of total instructional time is supposed to be devoted to mathematics instruction at the fourth grade of primary/elementary school?	AUBMIDM	CQM1q04b_Per	Modified in 2007
CQM1-12_Com	In a typical week, what is the total amount of instructional time prescribed by the curriculum at the fourth grade of primary/elementary school? Comments:	AUBMIDMC	Not available	
CQM1-12c	Is there a policy to assign mathematics homework at the fourth grade of primary/elementary school?	AUBMPAH	Not available	
CQM1-12cy	Is there a policy to assign mathematics homework at the fourth grade of primary/elementary school? If Yes… What is the policy?	AUBMPAHY	Not available	
CQM1-12cn	Is there a policy to assign mathematics homework at the fourth grade of primary/elementary school? If No… Comments:	AUBMPAHN	Not available	
CQM1-13	Is there an official policy to provide remedial mathematics instruction at the fourth grade of primary/elementary school?	AUBMPPI	Not available	
CQM1-13y	Is there an official policy to provide remedial mathematics instruction at the fourth grade of primary/elementary school? If Yes… What is the policy?	AUBMPPIY	Not available	
CQM1-13n	Is there an official policy to provide remedial mathematics instruction at the fourth grade of primary/elementary school? If No… Comments:	AUBMPPIN	Not available	
CQM1-14a	Is a degree from a teacher education program a current requirement for being a primary/elementary grade teacher?	AUBMCRDE	CQM1q10c	Modified in 2007
CQM1-14b	Is a pre-practicum during teacher education program a current requirement for being a primary/elementary grade teacher?	AUBMCRPP	CQM1q10a	Modified in 2007
CQM1-14c	Is a supervised practicum in the field a current requirement for being a primary/elementary grade teacher?	AUBMCRSU	CQM1q10a	Modified in 2007
CQM1-14d	Is passing a certification examination a current requirement for being a primary/elementary grade teacher?	AUBMCRCE	CQM1q10b	Modified in 2007
CQM1-14e	Is completion of a probationary teaching period a current requirement for being a primary/elementary grade teacher?	AUBMCRPE	CQM1q10d	
CQM1-14y	Is completion of a probationary teaching period a current requirement for being a primary/elementary grade teacher? If Yes… How long is this period?	AUBMCRLO	CQM1q10d_Length	
CQM1-14f	Is a completion of a mentoring or induction program a current requirement for being a primary/elementary grade teacher?	AUBMCRIN	CQM1q10e	
CQM1-14g	Is other a current requirement for being a primary/elementary grade teacher?	AUBMCROT	CQM1q10f	

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Exhibit S1.4 Index of International Background Variables for the TIMSS 2007 Mathematics Curriculum Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQM1-14g_Sfy	Which are the requirements for being a primary/elementary grade teacher? Please specify:	AUBMCRP	CQM1q10f_Oth	
CQM1-14_Com	Which are the requirements for being a primary/elementary grade teacher? Comments:	AUBMCRCO	Not available	
CQM1-15	Is there a process to license or certify primary/elementary grade teachers?	AUBMPLT	CQM1q11A	
CQM1-15a	If Yes… Who certifies/licenses primary/elementary grade teachers? Minister/ Ministry of Education	AUBMPLTM	CQM1q11Ba	
CQM1-15b	If Yes… Who certifies/licenses primary/elementary grade teachers? National/ state licensing board	AUBMPLTL	CQM1q11Bb	
CQM1-15c	If Yes… Who certifies/licenses primary/elementary grade teachers? Universities/ colleges	AUBMPLTU	CQM1q11Bc	
CQM1-15d	If Yes… Who certifies/licenses primary/elementary grade teachers? Teacher organization/union	AUBMPLTT	CQM1q11Bd	
CQM1-15e	If Yes… Who certifies/licenses primary/elementary grade teachers? Other	AUBMPLTO	CQM1q11Be	
CQM1-15e_Sfy	Is there a process to license or certify primary/elementary grade teachers? Please specify:	AUBMPLTP	CQM1q11Be_Oth	
CQM1-15_Com	Is there a process to license or certify primary/elementary grade teachers? Comments:	AUBMPLTC	Not available	
CQM1-15n	Is there a process to license or certify primary/elementary grade teachers? If No… Comments:	AUBMPLTN	Not available	
CQM1-16	As part of pre-service education, do prospective teachers receive specific preparation in how to teach the mathematics curriculum?	AUBMSP	CQM1q09Aa	Modified in 2007
CQM1-16_Com	As part of pre-service education, do prospective teachers receive specific preparation in how to teach the mathematics curriculum? Comments:	AUBMSPCO	Not available	
CQM1-17a	Do practicing teachers get help implementing the mathematics curriculum through in-service training?	AUBMHIIS	CQM1q09Ab	Modified in 2007
CQM1-17b	Do practicing teachers get help implementing the mathematics curriculum through expert teacher/mentor?	AUBMHIET	Not available	
CQM1-17c	Do practicing teachers get help implementing the mathematics curriculum through reduced teaching load for new teachers?	AUBMHIRL	Not available	
CQM1-17d	Do practicing teachers get help implementing the mathematics curriculum through other?	AUBMHIOT	Not available	
CQM1-17d_Sfy	How do practicing teachers get help to implement the mathematics curriculum? Please specify:	AUBMHIPS	Not available	
CQM1-17_Com	How do practicing teachers get help to implement the mathematics curriculum? Comments:	AUBMHICO	Not available	

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Exhibit S1.4 Index of International Background Variables for the TIMSS 2007 Mathematics Curriculum Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQM1-18a	If changes were made to the mathematics curriculum, would a teacher learn about them through special conferences/seminars on curriculum?	AUBMLCC	Not available	
CQM1-18b	If changes were made to the mathematics curriculum, would a teacher learn about them through Ministry (Department of Education, Government, Board of Education) Website?	AUBMLCMW	Not available	
CQM1-18c	If changes were made to the mathematics curriculum, would a teacher learn about them through printed copies of curriculum distributed to schools?	AUBMLCCD	Not available	
CQM1-18d	If changes were made to the mathematics curriculum, would a teacher learn about them through teachers receiving their own printed copy?	AUBMLCOC	Not available	
CQM1-18e	If changes were made to the mathematics curriculum, would a teacher learn about them through professional development/in-service education?	AUBMLCPD	Not available	
CQM1-18f	If changes were made to the mathematics curriculum, would a teacher learn about them through Ministry Notes?	AUBMLCMN	Not available	
CQM1-18g	If changes were made to the mathematics curriculum, would a teacher learn about them through professional association newsletter?	AUBMLCAN	Not available	
CQM1-18h	If changes were made to the mathematics curriculum, would a teacher learn about them through education journals?	AUBMLCEJ	Not available	
CQM1-18i	If changes were made to the mathematics curriculum, would a teacher learn about them through other educational authorities?	AUBMLCEA	Not available	
CQM1-18j	If changes were made to the mathematics curriculum, would a teacher learn about them through other?	AUBMLCOT	Not available	
CQM1-18j_Sfy	If changes were made to the mathematics curriculum, how would a teacher learn about them? Please specify:	AUBMLCPS	Not available	
CQM1-18_Com	If changes were made to the mathematics curriculum, how would a teacher learn about them? Comments:	AUBMLACO	Not available	
CQM1-19a	Are parents informed about the mathematics curriculum from teachers?	AUBMPITE	Not available	
CQM1-19b	Are parents informed about the mathematics curriculum from the school administration?	AUBMPISC	Not available	
CQM1-19c	Are parents informed about the mathematics curriculum from public awareness campaigns?	AUBMPIPU	Not available	
CQM1-19d	Are parents informed about the mathematics curriculum from Ministry Website?	AUBMPIMW	Not available	
CQM1-19e	Are parents informed about the mathematics curriculum from Ministry brochures and documents?	AUBMPIMD	Not available	
CQM1-19f	Are parents informed about the mathematics curriculum through parents' associations/organizations?	AUBMPIPA	Not available	

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Exhibit S1.4 Index of International Background Variables for the TIMSS 2007 Mathematics Curriculum Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQM1-19g	Are parents informed about the mathematics curriculum from other?	AUBMPIOT	Not available	
CQM1-19g_Sfy	How are parents informed about the mathematics curriculum? Please specify:	AUBMPIPS	Not available	
CQM1-19_Com	How are parents informed about the mathematics curriculum? Comments:	AUBMPICO	Not available	
CQM1-20	Is there a policy to encourage parental involvement in the schools attended by fourth-grade students?	AUBMEPI	Not available	
CQM1-20y	Is there a policy to encourage parental involvement in the schools attended by fourth-grade students? If Yes… What is the policy?	AUBMEPIY	Not available	
CQM1-20n	Is there a policy to encourage parental involvement in the schools attended by fourth-grade students? If No… Comments:	AUBMEPIN	Not available	
CQM1-21a	Is the mathematics curriculum implementation evaluated through visits by inspectors?	AUBMIEIN	Not available	
CQM1-21b	Is the mathematics curriculum implementation evaluated through research programs?	AUBMIERP	Not available	
CQM1-21c	Is the mathematics curriculum implementation evaluated through school self-evaluation?	AUBMIESE	Not available	
CQM1-21d	Is the mathematics curriculum implementation evaluated through national or regional assessments?	AUBMIEAS	Not available	
CQM1-21e	Is the mathematics curriculum implementation evaluated through other?	AUBMIEOT	Not available	
CQM1-21e_Sfy	How is the mathematics curriculum implementation evaluated? Please specify:	AUBMIEPS	Not available	
CQM1-21_Com	How is the mathematics curriculum implementation evaluated? Comments:	AUBMIECO	Not available	
CQM1-22	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 a university, and/or exiting or graduating from high school?	AUBMAAE	CQM1q02A	
CQM1-22y	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 a university, and/or exiting or graduating from high school? If Yes… Please describe the authority which administers examinations in mathematics, and list the grades at which they are given:	AUBMAAEY	CQM1q02B	

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Exhibit S1.4 Index of International Background Variables for the TIMSS 2007 Mathematics Curriculum Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQM1-22y_Grades	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 a university, and/or exiting or graduating from high school? If Yes… Please list the grades at which they are given (Grades with Examinations, see Exhibit 5 in TIMSS 2007 Encyclopedia):	AUBMAAEY_ Grades	Not available	
CQM1-22n	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 a university, and/or exiting or graduating from high school? If No… Comments:	AUBMAAEN	Not available	
CQM1-A1	What is your country's name for the grade tested in TIMSS 2007 in English?	AUBMCNTG	Not available	
CQM1-A2	In your country, what was the stated official policy or regulation on students' age of entry to primary school (ISCED Level 1) in 2002-2003?	AUBMRAEP	Not available	
CQM1-A3	In your country, what was the usual age of students when they began primary school (ISCED Level 1) in 2002-2003?	AUBMABSC	Not available	
CQM1-A4	Does your country have a policy on the promotion and retention of students across grades 1-8 (e.g., automatic promotion for grades 1-5, dependent on academic progress for grades 6-8)?	AUBMPPR	Not available	
CQM1-A4n	Does your country have a policy on the promotion and retention of students across grades 1-8 (e.g., automatic promotion for grades 1-5, dependent on academic progress for grades 6-8)? If No… Please describe:	AUBMPPRN	Not available	
CQM1-A4y	Does your country have a policy on the promotion and retention of students across grades 1-8 (e.g., automatic promotion for grades 1-5, dependent on academic progress for grades 6-8)? If Yes… Comments:	AUBMPPRY	Not available	
CQM1-A5	Does your country have a nationally mandated number of school days per year?	AUBMNSD	Not available	
CQM1-A5_Com	Does your country have a nationally mandated number of school days per year? Please describe:	AUBMNSDD	Not available	
Years of Compulsary Schooling (1)	Complete the ages and grades for the years of schooling at the preprimary and primary / secondary levels for your country in the spaces provided below - Preprimary Compulsory Schooling / Ages	AUBMPPCA	Not available	
Years of Compulsary Schooling (2)	Complete the ages and grades for the years of schooling at the preprimary and primary / secondary levels for your country in the spaces provided below - Preprimary Compulsory Schooling / Grades	AUBMPPCG	Not available	
Years of Compulsary Schooling (3)	Complete the ages and grades for the years of schooling at the preprimary and primary / secondary levels for your country in the spaces provided below - Preprimary Schooling Provided / Ages	AUBMPPPA	Not available	

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Exhibit S1.4 Index of International Background Variables for the TIMSS 2007 Mathematics Curriculum Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
Years of Compulsary Schooling (4)	Complete the ages and grades for the years of schooling at the preprimary and primary / secondary levels for your country in the spaces provided below - Preprimary Schooling Provided / Grades	AUBMPPPG	Not available	
Years of Compulsary Schooling (5)	Complete the ages and grades for the years of schooling at the preprimary and primary / secondary levels for your country in the spaces provided below - Primary and Secondary Compulsory Schooling / Ages	AUBMPSCA	Not available	
Years of Compulsary Schooling (6)	Complete the ages and grades for the years of schooling at the preprimary and primary / secondary levels for your country in the spaces provided below - Primary and Secondary Compulsory Schooling / Grades	AUBMPSCG	Not available	
Years of Compulsary Schooling (7)	Complete the ages and grades for the years of schooling at the preprimary and primary / secondary levels for your country in the spaces provided below - Primary and Secondary Schooling Provided/ Ages	AUBMPSPA	Not available	
Years of Compulsary Schooling (8)	Complete the ages and grades for the years of schooling at the preprimary and primary / secondary levels for your country in the spaces provided below - Primary and Secondary Schooling provided/ Grades	AUBMPSPG	Not available	

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TIMSS 2007 Mathematics Curriculum Questionnaire

Mathematics Curriculum and Instruction in Primary/Elementary Schools

AUBMNCC

1. Does your country have a national curriculum that covers mathematics instruction at the fourth grade of primary/elementary schooling?

*Check **one** circle only.*

Yes--- ○

No--- ○

AUBMNCCN

If No…
What is the highest level of decision-making authority (e.g., state or province) that provides a curriculum that covers mathematics instruction at the fourth grade of primary/elementary schooling?

AUBMNCCY

If Yes…
Comments:

AUBMGGS

2. What is the grade-to-grade structure of the primary/elementary school curriculum that covers mathematics instruction (e.g., grades 1-5; grades 1-3, 4-5; grades 1, 2-4)?

AUBMGGSC

Comments:

AUBMYMCI

3. In what year was the current mathematics curriculum introduced?

Refers to the national curriculum that covers mathematics instruction at the fourth grade of primary/elementary schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

AUBMYMCC

Comments:

AUBMMCR

4. Is the mathematics curriculum currently being revised?

*Check **one** circle only.*

Yes--- ○
No--- ○

Refers to the national curriculum that covers mathematics instruction at the fourth grade of primary/elementary schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

AUBMMCRY

If Yes…
Please explain:

AUBMMCRN

If No…
Comments:

5. What does the mathematics curriculum prescribe?

*Check **one** circle for each line.*

	Yes	No
AUBMMPGO a) Goals and objectives---------	○	○
AUBMMPPM b) Processes or methods--------	○	○
AUBMMPMA c) Materials----------	○	○
AUBMMPRG d) Percentage of students reaching defined goals----------	○	○
AUBMMPOT e) Other----------	○	○
AUBMMPPS Please specify: _____		

Refers to the national curriculum that covers mathematics instruction at the fourth grade of primary/elementary schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

AUBMMPCO Comments:

AUBMNPC

6. Does the national curriculum contain statements/policies about the use of calculators in grade 4 mathematics?

*Check **one** circle only.*

Yes--- ○

No--- ○

Refers to the national curriculum that covers mathematics instruction at the fourth grade of primary/elementary schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

AUBMNPCY

If Yes…
What are the statements/policies?

AUBMNPCN

If No…
Comments:

AUBMNPO

7. Does the national curriculum contain statements/policies about the use of computers in grade 4 mathematics?

*Check **one** circle only.*

Yes--- ○

No--- ○

Refers to the national curriculum that covers mathematics instruction at the fourth grade of primary/elementary schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

AUBMNPOY

If Yes…
What are the statements/policies?

AUBMNPON

If No…
Comments:

8. How much emphasis does the national mathematics curriculum place on the following?

*Check **one** circle for each line.*

	None	Very Little	Some	A lot
AUBMCESK a) Mastering basic skills and procedures----------	○	○	○	○
AUBMCECP b) Understanding mathematical concepts and principles----------	○	○	○	○
AUBMCERL c) Applying mathematics in real-life contexts----------	○	○	○	○
AUBMCECM d) Communicating mathematically-----	○	○	○	○
AUBMCERM e) Reasoning mathematically----------	○	○	○	○
AUBMCEEC f) Incorporating the experiences of different ethnic/cultural groups-------	○	○	○	○
AUBMCEOS g) Integrating mathematics with other subjects----------	○	○	○	○

Refers to the national curriculum that covers mathematics instruction at the fourth grade of primary/elementary schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

AUBMCECO Comments:

9. 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 part A topic (g)), please explain in the comment field.

	Proportion of grade 4 students expected to be taught topic *Check **one** circle for each line.*			Grade(s) topic is expected to be taught K-12
	All or almost all students	**Only the more able students**	**Not included in the curriculum through grade 4**	
A. Number				
AUBMA9A1 a) Representing whole numbers using words, diagrams, or symbols----------	○	○	○	_____ AUBMA9A2
AUBMA9B1 b) Whole numbers including place value and ordering-------	○	○	○	_____ AUBMA9B2
AUBMA9C1 c) Computation with whole numbers----------	○	○	○	_____ AUBMA9C2
AUBMA9D1 d) Multiples and factors of numbers----------	○	○	○	_____ AUBMA9D2
AUBMA9E1 e) Estimation with whole numbers----------	○	○	○	_____ AUBMA9E2
AUBMA9F1 f) Problems involving proportions----------	○	○	○	_____ AUBMA9F2
AUBMA9G1 g) Fractions (parts of a whole or a collection, location on a number line)----------	○	○	○	_____ AUBMA9G2
AUBMA9H1 h) Equivalent fractions----------	○	○	○	_____ AUBMA9H2

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AUBMA9I1	i) Comparing and ordering simple fractions----------	_____	AUBMA9I2
AUBMA9J1	j) Fractions represented by words, numbers, or models----	_____	AUBMA9J2
AUBMA9K1	k) Adding and subtracting simple fractions----------	_____	AUBMA9K2
AUBMA9L1	l) Decimal place value including writing decimals using words and numbers----------	_____	AUBMA9L2
AUBMA9M1	m) Adding and subtracting with decimals----------	_____	AUBMA9M2
AUBMA9N1	n) Finding the missing number in a number sentence (e.g., if 17 + ___= 29, what number would go in the blank to make the number sentence true?)----	_____	AUBMA9N2
AUBMA9O1	o) Model simple situations involving unknowns with expressions or number sentences----------	_____	AUBMA9O2
AUBMA9P1	p) Extending patterns and finding missing terms in them----------	_____	AUBMA9P2
AUBMA9Q1	q) Describing relationships between adjacent terms in a sequence----------	_____	AUBMA9Q2
AUBMA9R1	r) Generating pairs of numbers following a given rule (e.g., multiply the first number by 3 and add 2 to get the second number)----------	_____	AUBMA9R2
AUBMA9S1	s) Finding a rule for a relationship given some pairs of numbers which satisfy the relationship----------	_____	AUBMA9S2

Refers to the national curriculum that covers mathematics instruction at the fourth grade of primary/elementary schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

AUBMM9CA Comments:

9

		Proportion of grade 4 students expected to be taught topic *Check **one** circle for each line.*			Grade(s) topic is expected to be taught K-12	
		All or almost all students	Only the more able students	Not included in the curriculum through grade 4		
	B. Geometric Shapes and Measures					
AUBMB9A1	a) Measuring and estimating lengths----------	○	○	○	_____	AUBMB9A2
AUBMB9B1	b) Parallel and perpendicular lines----------	○	○	○	_____	AUBMB9B2
AUBMB9C1	c) Comparing angles by size and drawing angles (e.g., a right angle, angles larger or smaller than a right angle)----------	○	○	○	_____	AUBMB9C2
AUBMB9D1	d) Elementary properties of common geometric shapes----	○	○	○	_____	AUBMB9D2
AUBMB9E1	e) Recognizing relationships between three-dimensional shapes and their two-dimensional representations---	○	○	○	_____	AUBMB9E2
AUBMB9F1	f) Calculating areas and perimeters of squares and rectangles of given dimensions----------	○	○	○	_____	AUBMB9F2
AUBMB9G1	g) Finding areas by covering with a given shape or counting squares----------	○	○	○	_____	AUBMB9G2
AUBMB9H1	h) Estimating areas and volumes----------	○	○	○	_____	AUBMB9H2
AUBMB9I1	i) Using informal coordinate systems to locate points in a plane----------	○	○	○	_____	AUBMB9I2
AUBMB9J1	j) Figures with line symmetry---	○	○	○	_____	AUBMB9J2
AUBMB9K1	k) Reflections and rotations------	○	○	○	_____	AUBMB9K2

Refers to the national curriculum that covers mathematics instruction at the fourth grade of primary/elementary schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

AUBMM9CB

Comments:

	Proportion of grade 4 students expected to be taught topic *Check **one** circle for each line.*			Grade(s) topic is expected to be taught K-12	
	All or almost all students	**Only the more able students**	**Not included in the curriculum through grade 4**		
C. Data Display					
AUBMC9A1 a) Reading data from tables, pictographs, bar graphs, or pie charts----------	○	○	○	_____	AUBMC9A2
AUBMC9B1 b) Comparing information from related data sets (e.g., given graphs showing the favorite flavors of ice cream in different classes, identify the class with chocolate as the most popular flavor)----------	○	○	○	_____	AUBMC9B2
AUBMC9C1 c) Using information from data displays to answer questions that go beyond directly reading the data displayed (e.g., by performing computations, drawing conclusions, and making predictions)----------	○	○	○	_____	AUBMC9C2
AUBMC9D1 d) Comparing and matching different representations of the same data----------	○	○	○	_____	AUBMC9D2
AUBMC9E1 e) Organizing and displaying data using tables, pictographs, bar graphs, or pie charts-------	○	○	○	_____	AUBMC9E2

Refers to the national curriculum that covers mathematics instruction at the fourth grade of primary/elementary schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

AUBMM9CC

Comments:

AUBMCDA

10. Which best describes how the mathematics curriculum addresses the issue of students with different levels of ability?

Please answer for students in regular classes, and explain provisions for special needs students in the comment box.

*Check **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--

Refers to the national curriculum that covers mathematics instruction at the fourth grade of primary/elementary schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

AUBMCDAC

Comments:

11. In what form is the mathematics curriculum made available?

*Check **one** circle for each line.*

		Yes	No
AUBMCMAA	a) Official publication containing the curriculum----------	○	○
AUBMCMAM	b) Ministry notes and directives----------	○	○
AUBMCMAT	c) Mandated or recommended textbooks----------	○	○
AUBMCMAI	d) Instructional or pedagogical guide----------	○	○
AUBMCMAS	e) Specifically developed or recommended instructional activities----	○	○
AUBMCMAO	f) Other----------	○	○

AUBMCMAP Please specify:

_____

Refers to the national curriculum that covers mathematics instruction at the fourth grade of primary/elementary schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

AUBMCMAC Comments:

12. a) In a typical week, what is the total amount of instructional time prescribed by the curriculum at the fourth grade of primary/elementary school?

AUBMITTH AUBMITTM ☐ hours and ☐ minutes

b) What percentage of total instructional time is supposed to be devoted to **mathematics** instruction at the fourth grade of primary/elementary school?

AUBMIDM ☐ % of total
Write in a number

AUBMIDMC Comments:

AUBMPAH c) Is there a policy to assign mathematics homework at the fourth grade of primary/elementary school?

*Check **one** circle only.*

Yes--- ○
No--- ○

AUBMPAHY *If Yes…*
What is the policy?

AUBMPAHN *If No…*
Comments:

AUBMPPI

13. Is there an official policy to provide remedial mathematics instruction at the fourth grade of primary/elementary school?

*Check **one** circle only.*

Yes--- ○
No--- ○

AUBMPPIY

If Yes…
What is the policy?

AUBMPPIN

If No…
Comments:

14. Which are the current requirements for being a primary/elementary grade teacher?

*Check **one** circle for each line.*

		Yes	No
AUBMCRDE	a) A degree from a teacher education program----------	○	○
AUBMCRPP	b) Pre-practicum during teacher education program----------	○	○
AUBMCRSU	c) Supervised practicum in the field----------	○	○
AUBMCRCE	d) Passing a certification examination----------	○	○
AUBMCRPE	e) Completion of a probationary teaching period----------	○	○
AUBMCRLO	*If Yes…* How long is this period? _____		
AUBMCRIN	f) Completion of a mentoring or induction program----------	○	○
AUBMCROT	g) Other----------	○	○
AUBMCRP	Please specify: _____		

Refers to the requirements encompassing fourth grade.

AUBMCRCO Comments:

AUBMPLT

15. Is there a process to license or certify primary/elementary grade teachers?

*Check **one** circle only.*

Yes--- ○
No--- ○

Refers to the requirements encompassing fourth grade.

If Yes…
Who certifies/licenses primary/elementary grade teachers?

*Check **one** circle for each line.*

	Yes	No
AUBMPLTM a) Minister/Ministry of Education----------	○	○
AUBMPLTL b) National/state licensing board----------	○	○
AUBMPLTU c) Universities/colleges----------	○	○
AUBMPLTT d) Teacher organization/union----------	○	○
AUBMPLTO e) Other----------	○	○

AUBMPLTP Please specify:

_____

AUBMPLTC Comments:

If No…
AUBMPLTN Comments:

19

AUBMSP

16. As part of pre-service education, do prospective teachers receive specific preparation in how to teach the mathematics curriculum?

*Check **one** circle only.*

Yes---
No---

AUBMSPCO

Comments:

17. How do practicing teachers get help to implement the mathematics curriculum?

*Check **one** circle for each line.*

	Yes	No
AUBMHIIS a) In-service training----------		
AUBMHIET b) Expert teacher/mentor----------		
AUBMHIRL c) Reduced teaching load for new teachers----		
AUBMHIOT d) Other----------		

AUBMHIPS

Please specify:

_____

AUBMHICO

Comments:

18. If changes were made to the mathematics curriculum, how would a teacher learn about them?

*Check **one** circle for each line.*

		Yes	No
AUBMLCC	a) Special conferences/seminars on curriculum----------	○	○
AUBMLCMW	b) Ministry (Department of Education, Government, Board of Education) Website----------	○	○
AUBMLCCD	c) Printed copies of curriculum distributed to schools----------	○	○
AUBMLCOC	d) Teachers receive own printed copy----------	○	○
AUBMLCPD	e) Professional development/in-service education----------	○	○
AUBMLCMN	f) Ministry Notes----------	○	○
AUBMLCAN	g) Professional association newsletter----------	○	○
AUBMLCEJ	h) Education journals----------	○	○
AUBMLCEA	i) Other educational authorities----------	○	○
AUBMLCOT	j) Other----------	○	○

AUBMLCPS Please specify:

_____

AUBMLACO Comments:

21

19. How are parents informed about the mathematics curriculum?

*Check **one** circle for each line.*

	Yes	No
AUBMPITE a) From teachers----------	○	○
AUBMPISC b) From the school administration----------	○	○
AUBMPIPU c) From public awareness campaigns----------	○	○
AUBMPIMW d) From Ministry Website----------	○	○
AUBMPIMD e) From Ministry brochures and documents--------	○	○
AUBMPIPA f) Through parents' associations/organizations----	○	○
AUBMPIOT g) Other----------	○	○

AUBMPIPS Please specify:

_____

AUBMPICO Comments:

AUBMEPI

20. Is there a policy to encourage parental involvement in the schools attended by fourth-grade students?

*Check **one** circle only.*

Yes--- ○

No--- ○

AUBMEPIY

If Yes…
What is the policy?

AUBMEPIN

If No…
Comments:

21. How is the mathematics curriculum implementation evaluated?

*Check **one** circle for each line.*

	Yes	No
AUBMIEIN a) Visits by inspectors----------	○	○
AUBMIERP b) Research programs----------	○	○
AUBMIESE c) School self-evaluation----------	○	○
AUBMIEAS d) National or regional assessments----------	○	○
AUBMIEOT e) Other----------	○	○

AUBMIEPS Please specify:

_____

AUBMIECO Comments:

AUBMAAE

22. 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 a university, and/or exiting or graduating from high school?

*Check **one** circle only.*

Yes--- ○

No--- ○

AUBMAAEY
AUBMAAEY_Grades

If Yes…
Please describe the authority which administers examinations in mathematics, and list the grades at which they are given:

AUBMAAEN

If No…
Comments:

Addendum on Amount of Schooling for Students Tested in TIMSS 2007

AUBMCNTG

1. What is your country's name for the grade tested in TIMSS 2007 in English?

AUBMRAEP

2. In your country, what was the stated official policy or regulation on students' age of entry to primary school (ISCED Level 1) in 2002-2003?

   Examples: "Children begin school during the calendar year of their 6th birthday", "children must be 6 years old by the end of June to begin school the following September".

AUBMABSC

3. In your country, what was the usual age of students when they began primary school (ISCED Level 1) in 2002-2003? (Note: This response may be the same as that for question 2.)

AUBMPPR

4. Does your country have a policy on the promotion and retention of students across grades 1-8 (e.g., automatic promotion for grades 1-5, dependent on academic progress for grades 6-8)?

*Check **one** circle only.*

Yes--- ○
No--- ○

AUBMPPRN

If No…
Please describe:

AUBMPPRY

If Yes…
Comments:

AUBMNSD

5. Does your country have a nationally mandated number of school days per year?

*Check **one** circle only.*

Yes--- ○
No--- ○

AUBMNSDD

Please describe:

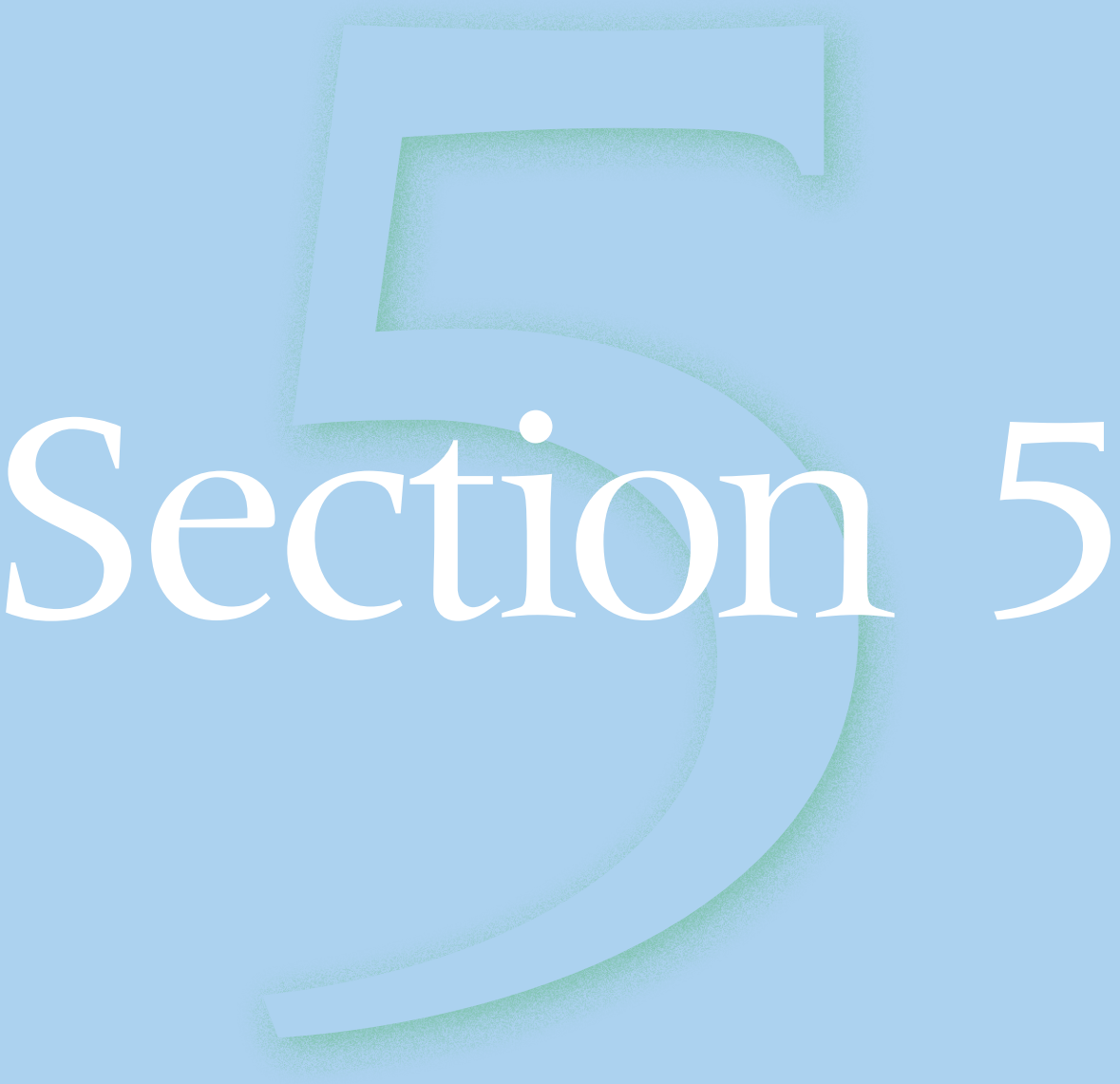
Years of Compulsory Schooling

INSTRUCTIONS: Complete the ages and grades for the years of schooling at the preprimary and primary/secondary levels for your country in the spaces provided below. Specify by what date the student must be this age (e.g., must be age 6 by September 1st).

Preprimary Compulsory Schooling		Preprimary Schooling Provided		Primary and Secondary Compulsory Schooling		Primary and Secondary Schooling Provided	
Ages	Grades	Ages	Grades	Ages	Grades	Ages	Grades
AUBMPPCA	AUBMPPCG	AUBMPPPA	AUBMPPPG	AUBMPSCA	AUBMPSCG	AUBMPSPA	AUBMPSPG

SOURCE: IEA's Trends in International Mathematics and Science Study (TIMSS) 2007

Fourth Grade
Science Curriculum
Questionnaire



Section 5

Exhibit S1.5 Index of International Background Variables for the TIMSS 2007 Science Curriculum Questionnaire - Fourth Grade

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQS1-1	Does your country have a national curriculum that covers science instruction at the fourth grade of primary/elementary schooling?	AUBSNCC	CQS1q01A	Modified in 2007
CQS1-1n	If No… What is the highest level of decision-making authority (e.g., state or province) that provides a curriculum that covers science instruction at the fourth grade of primary/elementary schooling?	AUBSNCCN	CQS1q01B	Modified in 2007
CQS1-1y	Does your country have a national curriculum that covers science instruction at the fourth grade of primary/elementary schooling? If Yes… Comments:	AUBSNCCY	Not available	
CQS1-2	What is the grade-to-grade structure of the primary/elementary school curriculum that covers science instruction (e.g., grades 1-5; grades 1-3, 4-5; grades 1, 2-4)?	AUBSGGS	Not available	
CQS1-2_Com	What is the grade-to-grade structure of the primary/elementary school curriculum that covers science instruction (e.g., grades 1-5; grades 1-3, 4-5; grades 1, 2-4)? Comments:	AUBSGGSC	Not available	
CQS1-3	In what year was the current science curriculum introduced?	AUBSYSCI	CQS1q01C	Modified in 2007
CQS1-3_Com	In what year was the current science curriculum introduced? Comments:	AUBSYSCC	Not available	
CQS1-4	Is the science curriculum currently being revised?	AUBSSCR	CQS1q01D	Modified in 2007
CQS1-4y	Is the science curriculum currently being revised? If Yes… Please explain:	AUBSSCRY	Not available	
CQS1-4n	Is the science curriculum currently being revised? If No… Comments:	AUBSSCRN	Not available	
CQS1-5a	Does the science curriculum prescribe goals and objectives?	AUBSSPGO	Not available	
CQS1-5b	Does the science curriculum prescribe processes or methods?	AUBSSPPM	Not available	
CQS1-5c	Does the science curriculum prescribe materials?	AUBSSPMA	Not available	
CQS1-5d	Does the science curriculum prescribe the percentage of students reaching defined goals?	AUBSSPRG	Not available	
CQS1-5e	Does the science curriculum prescribe other?	AUBSSPOT	Not available	
CQS1-5e_Sfy	What does the science curriculum prescribe? Please specify:	AUBSSPPS	Not available	
CQS1-5_Com	What does the science curriculum prescribe? Comments:	AUBSSPCO	Not available	
CQS1-6	Does the national curriculum contain statements/policies about the use of computers in grade 4 science?	AUBSNPO	CQS1q08A	
CQS1-6y	Does the national curriculum contain statements/policies about the use of computers in grade 4 science? If Yes… What are the statements/policies?	AUBSNPOY	CQS1q08B	
CQS1-6n	Does the national curriculum contain statements/policies about the use of computers in grade 4 science? If No… Comments:	AUBSNPON	Not available	
CQS1-7a	How much emphasis does the national science curriculum place on knowing basic science facts and principles?	AUBSCEKF	CQS1q06a	

* In TIMSS 2003 the location of each curriculum questionnaire item was used as its corresponding variable name.

Exhibit S1.5 Index of International Background Variables for the TIMSS 2007 Science Curriculum Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQS1-7b	How much emphasis does the national science curriculum place on observing natural phenomena and describing what is seen?	AUBSCEOP	Not available	
CQS1-7c	How much emphasis does the national science curriculum place on providing explanations about what is being studied?	AUBSCEEX	Not available	
CQS1-7d	How much emphasis does the national science curriculum place on designing and planning experiments or investigations?	AUBSCEDE	CQS1q06d	
CQS1-7e	How much emphasis does the national science curriculum place on conducting experiments or investigations?	AUBSCECE	CQS1q06e	
CQS1-7f	How much emphasis does the national science curriculum place on integrating science with other subjects?	AUBSCEIS	CQS1q06f	
CQS1-7g	How much emphasis does the national science curriculum place on relating what students are learning to their daily lives?	AUBSCEDL	Not available	
CQS1-7h	How much emphasis does the national science curriculum place on incorporating the experiences of different ethnic/cultural groups?	AUBSCEEC	CQS1q06i	
CQS1-7_Com	How much emphasis does the national science curriculum place on the following? Comments:	AUBSCECO	Not available	
CQS1-8Aa1	According to the national science curriculum, what proportion of grade 4 students should have been taught life science topics by the end of grade 4? - Types, characteristics, and classification of living things	AUBSA8A1	See Question CQS1q12A in 2003 for sub-topics.	
CQS1-8Aa2	Across grades K-12, at what grade(s) is above life science topic primarily intended to be taught?	AUBSA8A2	See Question CQS1q12A in 2003 for sub-topics.	
CQS1-8Ab1	According to the national science curriculum, what proportion of grade 4 students should have been taught life science topics by the end of grade 4? - Major body structures and their function in humans and other organisms (plants and animals)	AUBSA8B1	See Question CQS1q12A in 2003 for sub-topics.	
CQS1-8Ab2	Across grades K-12, at what grade(s) is above life science topic primarily intended to be taught?	AUBSA8B2	See Question CQS1q12A in 2003 for sub-topics.	
CQS1-8Ac1	According to the national science curriculum, what proportion of grade 4 students should have been taught life science topics by the end of grade 4? - General steps in the life cycle of familiar organisms (e.g., humans, butterflies, frogs, plants)	AUBSA8C1	See Question CQS1q12A in 2003 for sub-topics.	
CQS1-8Ac2	Across grades K-12, at what grade(s) is above life science topic primarily intended to be taught?	AUBSA8C2	See Question CQS1q12A in 2003 for sub-topics.	
CQS1-8Ad1	According to the national science curriculum, what proportion of grade 4 students should have been taught life science topics by the end of grade 4? - Plant and animal reproduction (passing on of general characteristics)	AUBSA8D1	See Question CQS1q12A in 2003 for sub-topics.	
CQS1-8Ad2	Across grades K-12, at what grade(s) is above life science topic primarily intended to be taught?	AUBSA8D2	See Question CQS1q12A in 2003 for sub-topics.	

* In TIMSS 2003 the location of each curriculum questionnaire item was used as its corresponding variable name.

Exhibit S1.5 Index of International Background Variables for the TIMSS 2007 Science Curriculum Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQS1-8Ae1	According to the national science curriculum, what proportion of grade 4 students should have been taught life science topics by the end of grade 4? - Physical features, behavior and survival of plants and animals in different environments	AUBSA8E1	See Question CQS1q12A in 2003 for sub-topics.	
CQS1-8Ae2	Across grades K-12, at what grade(s) is above life science topic primarily intended to be taught?	AUBSA8E2	See Question CQS1q12A in 2003 for sub-topics.	
CQS1-8Af1	According to the national science curriculum, what proportion of grade 4 students should have been taught life science topics by the end of grade 4? - Bodily actions in response to outside conditions (e.g., heat, cold, danger) and activities (e.g., exercise)	AUBSA8F1	See Question CQS1q12A in 2003 for sub-topics.	
CQS1-8Af2	Across grades K-12, at what grade(s) is above life science topic primarily intended to be taught?	AUBSA8F2	See Question CQS1q12A in 2003 for sub-topics.	
CQS1-8Ag1	According to the national science curriculum, what proportion of grade 4 students should have been taught life science topics by the end of grade 4? - Energy requirements of plants and animals (energy from the sun to make food and to provide energy for growth and repair)	AUBSA8G1	See Question CQS1q12A in 2003 for sub-topics.	
CQS1-8Ag2	Across grades K-12, at what grade(s) is above life science topic primarily intended to be taught?	AUBSA8G2	See Question CQS1q12A in 2003 for sub-topics.	
CQS1-8Ah1	According to the national science curriculum, what proportion of grade 4 students should have been taught life science topics by the end of grade 4? - Relationships in a living community (e.g., simple food chains using common plants and animals and predator-prey relationships)	AUBSA8H1	See Question CQS1q12A in 2003 for sub-topics.	
CQS1-8Ah2	Across grades K-12, at what grade(s) is above life science topic primarily intended to be taught?	AUBSA8H2	See Question CQS1q12A in 2003 for sub-topics.	
CQS1-8Ai1	According to the national science curriculum, what proportion of grade 4 students should have been taught life science topics by the end of grade 4? - Changes in environments (effects of human activity, pollution and its prevention)	AUBSA8I1	See Question CQS1q12A in 2003 for sub-topics.	
CQS1-8Ai2	Across grades K-12, at what grade(s) is above life science topic primarily intended to be taught?	AUBSA8I2	See Question CQS1q12A in 2003 for sub-topics.	
CQS1-8Aj1	According to the national science curriculum, what proportion of grade 4 students should have been taught life science topics by the end of grade 4? - Ways that common communicable diseases (e.g., colds, influenza) are transmitted; signs, prevention, and treatment of illness	AUBSA8J1	See Question CQS1q12A in 2003 for sub-topics.	
CQS1-8Aj2	Across grades K-12, at what grade(s) is above life science topic primarily intended to be taught?	AUBSA8J2	See Question CQS1q12A in 2003 for sub-topics.	
CQS1-8Ak1	According to the national science curriculum, what proportion of grade 4 students should have been taught life science topics by the end of grade 4? - Ways of maintaining good health, including diet and exercise	AUBSA8K1	See Question CQS1q12A in 2003 for sub-topics.	

* In TIMSS 2003 the location of each curriculum questionnaire item was used as its corresponding variable name.

Exhibit S1.5 Index of International Background Variables for the TIMSS 2007 Science Curriculum Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQS1-8Ak2	Across grades K-12, at what grade(s) is above life science topic primarily intended to be taught?	AUBSA8K2	See Question CQS1q12A in 2003 for sub-topics.	
CQS1-8A_Com	According to the national science curriculum, what proportion of grade 4 students should have been taught the following topics or skills by the end of grade 4? Comments:	AUBSS8CA	Not available	
CQS1-8Ba1	According to the national science curriculum, what proportion of grade 4 students should have been taught physical science topics by the end of grade 4? - Classification of objects and materials based on physical properties	AUBSB8A1	See Question CQS1q12B in 2003 for sub-topics.	
CQS1-8Ba2	Across grades K-12, at what grade(s) is above physical science topic primarily intended to be taught?	AUBSB8A2	See Question CQS1q12B in 2003 for sub-topics.	
CQS1-8Bb1	According to the national science curriculum, what proportion of grade 4 students should have been taught physical science topics by the end of grade 4? - Properties and uses of metals	AUBSB8B1	See Question CQS1q12B in 2003 for sub-topics.	
CQS1-8Bb2	Across grades K-12, at what grade(s) is above physical science topic primarily intended to be taught?	AUBSB8B2	See Question CQS1q12B in 2003 for sub-topics.	
CQS1-8Bc1	According to the national science curriculum, what proportion of grade 4 students should have been taught physical science topics by the end of grade 4? - Forming and separating mixtures	AUBSB8C1	See Question CQS1q12B in 2003 for sub-topics.	
CQS1-8Bc2	Across grades K-12, at what grade(s) is above physical science topic primarily intended to be taught?	AUBSB8C2	See Question CQS1q12B in 2003 for sub-topics.	
CQS1-8Bd1	According to the national science curriculum, what proportion of grade 4 students should have been taught physical science topics by the end of grade 4?- Properties and uses of water	AUBSB8D1	See Question CQS1q12B in 2003 for sub-topics.	
CQS1-8Bd2	Across grades K-12, at what grade(s) is above physical science topic primarily intended to be taught?	AUBSB8D2	See Question CQS1q12B in 2003 for sub-topics.	
CQS1-8Be1	According to the national science curriculum, what proportion of grade 4 students should have been taught physical science topics by the end of grade 4? - States of matter (solids, liquids, and gases) and differences in their physical properties in terms of shape and volume	AUBSB8E1	See Question CQS1q12B in 2003 for sub-topics.	
CQS1-8Be2	Across grades K-12, at what grade(s) is above physical science topic primarily intended to be taught?	AUBSB8E2	See Question CQS1q12B in 2003 for sub-topics.	
CQS1-8Bf1	According to the national science curriculum, what proportion of grade 4 students should have been taught physical science topics by the end of grade 4? - Changes in state of matter by heating and cooling (melting, freezing, boiling, evaporation, condensation)	AUBSB8F1	See Question CQS1q12B in 2003 for sub-topics.	
CQS1-8Bf2	Across grades K-12, at what grade(s) is above physical science topic primarily intended to be taught?	AUBSB8F2	See Question CQS1q12B in 2003 for sub-topics.	

* In TIMSS 2003 the location of each curriculum questionnaire item was used as its corresponding variable name.

Exhibit S1.5 Index of International Background Variables for the TIMSS 2007 Science Curriculum Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQS1-8Bg1	According to the national science curriculum, what proportion of grade 4 students should have been taught physical science topics by the end of grade 4? - Familiar changes in materials (e.g., decaying of animal/plant matter, burning, rusting, cooking)	AUBSB8G1	See Question CQS1q12B in 2003 for sub-topics.	
CQS1-8Bg2	Across grades K-12, at what grade(s) is above physical science topic primarily intended to be taught?	AUBSB8G2	See Question CQS1q12B in 2003 for sub-topics.	
CQS1-8Bh1	According to the national science curriculum, what proportion of grade 4 students should have been taught physical science topics by the end of grade 4? - Common energy sources/forms and their practical uses (e.g., wind, sun, electricity, burning fuel, water wheel, food)	AUBSB8H1	See Question CQS1q12B in 2003 for sub-topics.	
CQS1-8Bh2	Across grades K-12, at what grade(s) is above physical science topic primarily intended to be taught?	AUBSB8H2	See Question CQS1q12B in 2003 for sub-topics.	
CQS1-8Bi1	According to the national science curriculum, what proportion of grade 4 students should have been taught physical science topics by the end of grade 4? - Heat flow and temperature	AUBSB8I1	See Question CQS1q12B in 2003 for sub-topics.	
CQS1-8Bi2	Across grades K-12, at what grade(s) is above physical science topic primarily intended to be taught?	AUBSB8I2	See Question CQS1q12B in 2003 for sub-topics.	
CQS1-8Bj1	According to the national science curriculum, what proportion of grade 4 students should have been taught physical science topics by the end of grade 4? - Common sources of light and related phenomena (e.g., formation of rainbows and shadows, visibility of objects, mirrors, colors)	AUBSB8J1	See Question CQS1q12B in 2003 for sub-topics.	
CQS1-8Bj2	Across grades K-12, at what grade(s) is above physical science topic primarily intended to be taught?	AUBSB8J2	See Question CQS1q12B in 2003 for sub-topics.	
CQS1-8Bk1	According to the national science curriculum, what proportion of grade 4 students should have been taught physical science topics by the end of grade 4? - Production of sound by vibrations	AUBSB8K1	See Question CQS1q12B in 2003 for sub-topics.	
CQS1-8Bk2	Across grades K-12, at what grade(s) is above physical science topic primarily intended to be taught?	AUBSB8K2	See Question CQS1q12B in 2003 for sub-topics.	
CQS1-8Bl1	According to the national science curriculum, what proportion of grade 4 students should have been taught physical science topics by the end of grade 4? - Electrical circuits	AUBSB8L1	See Question CQS1q12B in 2003 for sub-topics.	
CQS1-8Bl2	Across grades K-12, at what grade(s) is above physical science topic primarily intended to be taught?	AUBSB8L2	See Question CQS1q12B in 2003 for sub-topics.	
CQS1-8Bm1	According to the national science curriculum, what proportion of grade 4 students should have been taught physical science topics by the end of grade 4? - Magnets (north and south poles, magnetic attraction, and repulsion)	AUBSB8M1	See Question CQS1q12B in 2003 for sub-topics.	
CQS1-8Bm2	Across grades K-12, at what grade(s) is above physical science topic primarily intended to be taught?	AUBSB8M2	See Question CQS1q12B in 2003 for sub-topics.	

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Exhibit S1.5 Index of International Background Variables for the TIMSS 2007 Science Curriculum Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQS1-8Bn1	According to the national science curriculum, what proportion of grade 4 students should have been taught physical science topics by the end of grade 4? - Forces that cause objects to move (e.g., gravity, push/pull forces)	AUBSB8N1	See Question CQS1q12B in 2003 for sub-topics.	
CQS1-8Bn2	Across grades K-12, at what grade(s) is above physical science topic primarily intended to be taught?	AUBSB8N2	See Question CQS1q12B in 2003 for sub-topics.	
CQS1-8B_Com	According to the national science curriculum, what proportion of grade 4 students should have been taught the following topics or skills by the end of grade 4? Comments:	AUBSS8CB	Not available	
CQS1-8Ca1	According to the national science curriculum, what proportion of grade 4 students should have been taught earth science topics by the end of grade 4? - Rocks, minerals, sand, and soil	AUBSC8A1	See Question CQS1q12C in 2003 for sub-topics.	
CQS1-8Ca2	Across grades K-12, at what grade(s) is above earth science topic primarily intended to be taught?	AUBSC8A2	See Question CQS1q12C in 2003 for sub-topics.	
CQS1-8Cb1	According to the national science curriculum, what proportion of grade 4 students should have been taught earth science topics by the end of grade 4? - Water on Earth (location, types, and movement)	AUBSC8B1	See Question CQS1q12C in 2003 for sub-topics.	
CQS1-8Cb2	Across grades K-12, at what grade(s) is above earth science topic primarily intended to be taught?	AUBSC8B2	See Question CQS1q12C in 2003 for sub-topics.	
CQS1-8Cc1	According to the national science curriculum, what proportion of grade 4 students should have been taught earth science topics by the end of grade 4? - Air (composition, proof of its existence, uses, and importance for supporting life)	AUBSC8C1	See Question CQS1q12C in 2003 for sub-topics.	
CQS1-8Cc2	Across grades K-12, at what grade(s) is above earth science topic primarily intended to be taught?	AUBSC8C2	See Question CQS1q12C in 2003 for sub-topics.	
CQS1-8Cd1	According to the national science curriculum, what proportion of grade 4 students should have been taught earth science topics by the end of grade 4? - Common features of the Earth's landscape (e.g., mountains, plains, rivers, deserts) and relationship to human use (e.g., farming, irrigation, land development)	AUBSC8D1	See Question CQS1q12C in 2003 for sub-topics.	
CQS1-8Cd2	Across grades K-12, at what grade(s) is above earth science topic primarily intended to be taught?	AUBSC8D2	See Question CQS1q12C in 2003 for sub-topics.	
CQS1-8Ce1	According to the national science curriculum, what proportion of grade 4 students should have been taught earth science topics by the end of grade 4? - Use and conservation of Earth's natural resources	AUBSC8E1	See Question CQS1q12C in 2003 for sub-topics.	
CQS1-8Ce2	Across grades K-12, at what grade(s) is above earth science topic primarily intended to be taught?	AUBSC8E2	See Question CQS1q12C in 2003 for sub-topics.	

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Exhibit S1.5 Index of International Background Variables for the TIMSS 2007 Science Curriculum Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQS1-8Cf1	According to the national science curriculum, what proportion of grade 4 students should have been taught earth science topics by the end of grade 4? - Earth's water cycle (water flowing in rivers from mountains to sea, cloud formation and precipitation)	AUBSC8F1	See Question CQS1q12C in 2003 for sub-topics.	
CQS1-8Cf2	Across grades K-12, at what grade(s) is above earth science topic primarily intended to be taught?	AUBSC8F2	See Question CQS1q12C in 2003 for sub-topics.	
CQS1-8Cg1	According to the national science curriculum, what proportion of grade 4 students should have been taught earth science topics by the end of grade 4? - Weather conditions from day to day or over the seasons	AUBSC8G1	See Question CQS1q12C in 2003 for sub-topics.	
CQS1-8Cg2	Across grades K-12, at what grade(s) is above earth science topic primarily intended to be taught?	AUBSC8G2	See Question CQS1q12C in 2003 for sub-topics.	
CQS1-8Ch1	According to the national science curriculum, what proportion of grade 4 students should have been taught earth science topics by the end of grade 4? - Fossils of animals and plants (age, formation)	AUBSC8H1	See Question CQS1q12C in 2003 for sub-topics.	
CQS1-8Ch2	Across grades K-12, at what grade(s) is above earth science topic primarily intended to be taught?	AUBSC8H2	See Question CQS1q12C in 2003 for sub-topics.	
CQS1-8Ci1	According to the national science curriculum, what proportion of grade 4 students should have been taught earth science topics by the end of grade 4? - Earth's solar system (planets, sun, moon)	AUBSC8I1	See Question CQS1q12C in 2003 for sub-topics.	
CQS1-8Ci2	Across grades K-12, at what grade(s) is above earth science topic primarily intended to be taught?	AUBSC8I2	See Question CQS1q12C in 2003 for sub-topics.	
CQS1-8Cj1	According to the national science curriculum, what proportion of grade 4 students should have been taught earth science topics by the end of grade 4? - Earth's rotation on its axis (e.g., day and night, appearance of shadows)	AUBSC8J1	See Question CQS1q12C in 2003 for sub-topics.	
CQS1-8Cj2	Across grades K-12, at what grade(s) is above earth science topic primarily intended to be taught?	AUBSC8J2	See Question CQS1q12C in 2003 for sub-topics.	
CQS1-8C_Com	According to the national science curriculum, what proportion of grade 4 students should have been taught the following topics or skills by the end of grade 4? Comments:	AUBSS8CC	Not available	
CQS1-9	Which best describes how the science curriculum addresses the issue of students with different levels of ability?	AUBSCDA	CQS1q05	
CQS1-9_Com	Which best describes how the science curriculum addresses the issue of students with different levels of ability? Comments:	AUBSCDAC	Not available	
CQS1-10a	Is the science curriculum made available in the form of official publication containing the curriculum?	AUBSCMA	Not available	
CQS1-10b	Is the science curriculum made available in the form of ministry notes and directives?	AUBSCMAM	Not available	

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Exhibit S1.5 Index of International Background Variables for the TIMSS 2007 Science Curriculum Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQS1-10c	Is the science curriculum made available in the form of mandated or recommended textbooks?	AUBSCMAT	Not available	
CQS1-10d	Is the science curriculum made available in the form of instructional or pedagogical guide?	AUBSCMAI	Not available	
CQS1-10e	Is the science curriculum made available in the form of specifically developed or recommended instructional activities?	AUBSCMAS	Not available	
CQS1-10f	Is the science curriculum made available in the form of other?	AUBSCMAO	Not available	
CQS1-10f_Sfy	In what form is the science curriculum made available? Please specify:	AUBSCMAP	Not available	
CQS1-10_Com	In what form is the science curriculum made available? Comments:	AUBSCMAC	Not available	
CQS1-11a1	In a typical week, what is the total amount of instructional time prescribed by the curriculum at the fourth grade of primary/elementary school? (hours)	AUBSITTH	Not available	
CQS1-11a2	In a typical week, what is the total amount of instructional time prescribed by the curriculum at the fourth grade of primary/elementary school? (minutes)	AUBSITTM	Not available	
CQS1-11b	What percentage of total instructional time is supposed to be devoted to science instruction at the fourth grade of primary/elementary school?	AUBSIDS	CQS1q04b_Per	Modified in 2007
CQS1-11_Com	In a typical week, what is the total amount of instructional time prescribed by the curriculum at the fourth grade of primary/elementary school? Comments:	AUBSIDSC	Not available	
CQS1-11c	Is there a policy to assign science homework at the fourth grade of primary/ elementary school?	AUBSPAH	Not available	
CQS1-11cy	Is there a policy to assign science homework at the fourth grade of primary/ elementary school? If Yes… What is the policy?	AUBSPAHY	Not available	
CQS1-11cn	Is there a policy to assign science homework at the fourth grade of primary/ elementary school? If No… Comments:	AUBSPAHN	Not available	
CQS1-12	Is there an official policy to provide remedial science instruction at the fourth grade of primary/elementary school?	AUBSPPI	Not available	
CQS1-12y	Is there an official policy to provide remedial science instruction at the fourth grade of primary/elementary school? If Yes… What is the policy?	AUBSPPIY	Not available	
CQS1-12n	Is there an official policy to provide remedial science instruction at the fourth grade of primary/elementary school? If No… Comments:	AUBSPPIN	Not available	
CQS1-13a	Is a degree from a teacher education program a current requirement for being a primary/elementary grade teacher?	AUBSCRDE	CQS1q10c	Modified in 2007
CQS1-13b	Is a pre-practicum during teacher education program a current requirement for being a primary/elementary grade teacher?	AUBSCRPP	CQS1q10a	Modified in 2007
CQS1-13c	Is a supervised practicum in the field a current requirement for being a primary/elementary grade teacher?	AUBSCRSU	CQS1q10a	Modified in 2007

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Exhibit S1.5 Index of International Background Variables for the TIMSS 2007 Science Curriculum Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQS1-13d	Is passing a certification examination a current requirement for being a primary/elementary grade teacher?	AUBSCRCE	CQS1q10b	Modified in 2007
CQS1-13e	Is completion of a probationary teaching period a current requirement for being a primary/elementary grade teacher?	AUBSCRPE	CQS1q10d	
CQS1-13y	Is completion of a probationary teaching period a current requirement for being a primary/elementary grade teacher? If Yes… How long is this period?	AUBSCRLO	CQS1q10d_Oth	
CQS1-13f	Is a completion of a mentoring or induction program a current requirement for being a primary/elementary grade teacher?	AUBSCRIN	CQS1q10e	
CQS1-13g	Is other a current requirement for being a primary/elementary grade teacher?	AUBSCROT	CQS1q10f	
CQS1-13g_Sfy	Which are the current requirements for being a primary/elementary grade teacher? Please specify:	AUBSCRP	CQS1q10f_Oth	
CQS1-13_Com	Which are the current requirements for being a primary/elementary grade teacher? Comments:	AUBSCRCO	Not available	
CQS1-14	Is there a process to license or certify primary/elementary grade teachers?	AUBSPLT	CQS1q11A	
CQS1-14a	If Yes… Who certifies/licenses primary/elementary grade teachers? Minister/ Ministry of Education	AUBSPLTM	CQS1q11Ba	
CQS1-14b	If Yes… Who certifies/licenses primary/elementary grade teachers? National/ state licensing board	AUBSPLTL	CQS1q11Bb	
CQS1-14c	If Yes… Who certifies/licenses primary/elementary grade teachers? Universities/ colleges	AUBSPLTU	CQS1q11Bc	
CQS1-14d	If Yes… Who certifies/licenses primary/elementary grade teachers? Teacher organization/union	AUBSPLTT	CQS1q11Bd	
CQS1-14e	If Yes… Who certifies/licenses primary/elementary grade teachers? Other	AUBSPLTO	CQS1q11Be	
CQS1-14e_Sfy	Is there a process to license or certify primary/elementary grade teachers? Please specify:	AUBSPLTP	CQS1q11Be_Oth	
CQS1-14_Com	Is there a process to license or certify primary/elementary grade teachers? Comments:	AUBSPLTC	Not available	
CQS1-14n	Is there a process to license or certify primary/elementary grade teachers? If No… Comments:	AUBSPLTN	Not available	
CQS1-15	As part of pre-service education, do prospective teachers receive specific preparation in how to teach the science curriculum?	AUBSSP	CQS1q09Aa	Modified in 2007
CQS1-15_Com	As part of pre-service education, do prospective teachers receive specific preparation in how to teach the science curriculum? Comments:	AUBSSPCC	Not available	
CQS1-16a	Do practicing teachers get help implementing the science curriculum through in-service training?	AUBSHIIS	CQS1q09Ab	Modified in 2007

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Exhibit S1.5 Index of International Background Variables for the TIMSS 2007 Science Curriculum Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQS1-16b	Do practicing teachers get help implementing the science curriculum through expert teacher/mentor?	AUBSHIET	Not available	
CQS1-16c	Do practicing teachers get help implementing the science curriculum through reduced teaching load for new teachers?	AUBSHIRL	Not available	
CQS1-16d	Do practicing teachers get help implementing the science curriculum through other?	AUBSHIOT	Not available	
CQS1-16d_Sfy	How do practicing teachers get help to implement the science curriculum? Please specify:	AUBSHIPS	Not available	
CQS1-16_Com	How do practicing teachers get help to implement the science curriculum? Comments:	AUBSHICO	Not available	
CQS1-17a	If changes were made to the science curriculum, would a teacher learn about them through special conferences/seminars on curriculum?	AUBSLCC	Not available	
CQS1-17b	If changes were made to the science curriculum, would a teacher learn about them through Ministry (Department of Education, Government, Board of Education) Website?	AUBSLCMW	Not available	
CQS1-17c	If changes were made to the science curriculum, would a teacher learn about them through printed copies of curriculum distributed to schools?	AUBSLCCD	Not available	
CQS1-17d	If changes were made to the science curriculum, would a teacher learn about them through teachers receiving their own printed copy?	AUBSLCOC	Not available	
CQS1-17e	If changes were made to the science curriculum, would a teacher learn about them through professional development/in-service education?	AUBSLCPD	Not available	
CQS1-17f	If changes were made to the science curriculum, would a teacher learn about them through Ministry Notes?	AUBSLCMN	Not available	
CQS1-17g	If changes were made to the science curriculum, would a teacher learn about them through professional association newsletter?	AUBSLCAN	Not available	
CQS1-17h	If changes were made to the science curriculum, would a teacher learn about them through education journals?	AUBSLCEJ	Not available	
CQS1-17i	If changes were made to the science curriculum, would a teacher learn about them through other educational authorities?	AUBSLCEA	Not available	
CQS1-17j	If changes were made to the science curriculum, would a teacher learn about them through other?	AUBSLCOT	Not available	
CQS1-17j_Sfy	If changers were made to the science curriculum, how would a teacher learn about them? Please specify:	AUBSLCPS	Not available	
CQS1-17_Com	If changers were made to the science curriculum, how would a teacher learn about them? Comments:	AUBSLACO	Not available	
CQS1-18a	Are parents informed about the science curriculum from teachers?	AUBSPITE	Not available	

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Exhibit S1.5 Index of International Background Variables for the TIMSS 2007 Science Curriculum Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQS1-18b	Are parents informed about the science curriculum from the school administration?	AUBSPISC	Not available	
CQS1-18c	Are parents informed about the science curriculum from public awareness campaigns?	AUBSPIPU	Not available	
CQS1-18d	Are parents informed about the science curriculum from Ministry Website?	AUBSPIMW	Not available	
CQS1-18e	Are parents informed about the science curriculum from Ministry brochures and documents?	AUBSPIMD	Not available	
CQS1-18f	Are parents informed about the science curriculum through parents' associations/organizations?	AUBSPIPA	Not available	
CQS1-18g	Are parents informed about the science curriculum from other?	AUBSPIOT	Not available	
CQS1-18g_Sfy	How are parents informed about the science curriculum? Please specify:	AUBSPIPS	Not available	
CQS1-18_Com	How are parents informed about the science curriculum? Comments:	AUBSPICO	Not available	
CQS1-19	Is there a policy to encourage parental involvement in the schools attended by fourth-grade students?	AUBSEPI	Not available	
CQS1-19y	Is there a policy to encourage parental involvement in the schools attended by fourth-grade students? If Yes… What is the policy?	AUBSEPIY	Not available	
CQS1-19n	Is there a policy to encourage parental parental involvement in the schools attended by fourth-grade students? If No… Comments:	AUBSEPIN	Not available	
CQS1-20a	Is the science curriculum implementation evaluated through visits by inspectors?	AUBSIEIN	Not available	
CQS1-20b	Is the science curriculum implementation evaluated through research programs?	AUBSIERP	Not available	
CQS1-20c	Is the science curriculum implementation evaluated through school self-evaluation?	AUBSIESE	Not available	
CQS1-20d	Is the science curriculum implementation evaluated through national or regional assessments?	AUBSIEAS	Not available	
CQS1-20e	Is the science curriculum implementation evaluated through other?	AUBSIEOT	Not available	
CQS1-20e_Sfy	How is the science curriculum implementation evaluated? Please specify:	AUBSIEPS	Not available	
CQS1-20e_Com	How is the science curriculum implementation evaluated? Comments:	AUBSIECO	Not available	
CQS1-21	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 a university, and/or exiting or graduating from high school?	AUBSAAE	CQS1q02A	

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Exhibit S1.5 Index of International Background Variables for the TIMSS 2007 Science Curriculum Questionnaire - Fourth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQS1-21y	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 a university, and/or exiting or graduating from high school? If Yes… Please describe the authority which administers examinations in science, and list the grades at which they are given:	AUBSAAEY	CQS1q02B	
CQS1-22y_Grades	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 a university, and/or exiting or graduating from high school? If Yes… Please list the grades at which they are given (Grades with Examinations, see Exhibit 5 in TIMSS 2007 Encyclopedia):	AUBSAAEY_Grades	Not available	
CQS1-21n	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 a university, and/or exiting or graduating from high school? If No… Comments:	AUBSAAEN	Not available	

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TIMSS 2007 Science Curriculum Questionnaire

Science Curriculum and Instruction in Primary/Elementary Schools

AUBSNCC

1. Does your country have a national curriculum that covers science instruction at the fourth grade of primary/elementary schooling?

*Check **one** circle only.*

Yes--- ○

No--- ○

AUBSNCCN

If No…
What is the highest level of decision-making authority (e.g., state or province) that provides a curriculum that covers science instruction at the fourth grade of primary/elementary schooling?

AUBSNCCY

If Yes…
Comments:

AUBSGGS

2. What is the grade-to-grade structure of the primary/elementary school curriculum that covers science instruction (e.g., grades 1-5; grades 1-3, 4-5; grade 1, 2-4)?

AUBSGGSC

Comments:

AUBSYSCI

3. In what year was the current science curriculum introduced?

Refers to the national curriculum that covers science instruction at the fourth grade of primary/elementary schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

AUBSYSCC

Comments:

AUBSSCR

4. Is the science curriculum currently being revised?

*Check **one** circle only.*

Yes--- ○

No--- ○

Refers to the national curriculum that covers science instruction at the fourth grade of primary/elementary schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

AUBSSCRY

If Yes…
Please explain:

AUBSSCRN

If No…
Comments:

5. What does the science curriculum prescribe?

*Check **one** circle for each line.*

	Yes	No
AUBSSPGO a) Goals and objectives---------	○	○
AUBSSPPM b) Processes or methods--------	○	○
AUBSSPMA c) Materials----------	○	○
AUBSSPRG d) Percentage of students reaching defined goals----------	○	○
AUBSSPOT e) Other----------	○	○

AUBSSPPS Please specify:

_____

Refers to the national curriculum that covers science instruction at the fourth grade of primary/elementary schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

AUBSSPCO Comments:

AUBSNPO

6. Does the national curriculum contain statements/policies about the use of computers in grade 4 science?

*Check **one** circle only.*

Yes--- ○

No--- ○

Refers to the national curriculum that covers science instruction at the fourth grade of primary/elementary schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

AUBSNPOY

If Yes…
What are the statements/policies?

AUBSNPON

If No…
Comments:

7. How much emphasis does the national science curriculum place on the following?

*Check **one** circle for each line.*

	None	Very Little	Some	A lot
AUBSCEKF a) Knowing basic science facts and principles	○	○	○	○
AUBSCEOP b) Observing natural phenomena and describing what is seen	○	○	○	○
AUBSCEEX c) Providing explanations about what is being studied	○	○	○	○
AUBSCEDE d) Designing and planning experiments or investigations	○	○	○	○
AUBSCECE e) Conducting experiments or investigations	○	○	○	○
AUBSCEIS f) Integrating science with other subjects	○	○	○	○
AUBSCEDL g) Relating what students are learning to their daily lives	○	○	○	○
AUBSCEEC h) Incorporating the experiences of different ethnic/cultural groups	○	○	○	○

Refers to the national curriculum that covers science instruction at the fourth grade of primary/elementary schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

AUBSCECO Comments:

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8. 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., frogs in part A topic (c)), please explain in the comment field.

	Proportion of grade 4 students expected to be taught topic *Check **one** circle for each line.*			Grade(s) topic is expected to be taught K-12	
	All or almost all students	**Only the more able students**	**Not included in the curriculum through grade 4**		
A. Life Science					
AUBSA8A1 a) Types, characteristics, and classification of living things-	○	○	○	_____	AUBSA8A2
AUBSA8B1 b) Major body structures and their function in humans and other organisms (plants and animals)----------	○	○	○	_____	AUBSA8B2
AUBSA8C1 c) General steps in the life cycle of familiar organisms (e.g., humans, butterflies, frogs, plants)----------	○	○	○	_____	AUBSA8C2
AUBSA8D1 d) Plant and animal reproduction (passing on of general characteristics)----------	○	○	○	_____	AUBSA8D2

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AUBSA8E1	e) Physical features, behavior and survival of plants and animals in different environments----------	_____	AUBSA8E2
AUBSA8F1	f) Bodily actions in response to outside conditions (e.g., heat, cold, danger) and activities (e.g., exercise)----------	_____	AUBSA8F2
AUBSA8G1	g) Energy requirements of plants and animals (energy from the sun to make food and to provide energy for growth and repair)----------	_____	AUBSA8G2
AUBSA8H1	h) Relationships in a living community (e.g., simple food chains using common plants and animals and predator-prey relationships)----------	_____	AUBSA8H2
AUBSA8I1	i) Changes in environments (effects of human activity, pollution and its prevention)--	_____	AUBSA8I2
AUBSA8J1	j) Ways that common communicable diseases (e.g., colds, influenza) are transmitted; signs, prevention, and treatment of illness--------	_____	AUBSA8J2
AUBSA8K1	k) Ways of maintaining good health, including diet and exercise----------	_____	AUBSA8K2

Refers to the national curriculum that covers science instruction at the fourth grade of primary/elementary schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

AUBSS8CA Comments:

		Proportion of grade 4 students expected to be taught topic *Check **one** circle for each line.*			Grade(s) topic is expected to be taught K-12	
		All or almost all students	Only the more able students	Not included in the curriculum through grade 4		
	B. Physical Science					
AUBSB8A1	a) Classification of objects and materials based on physical properties----------	○	○	○	_____	AUBSB8A2
AUBSB8B1	b) Properties and uses of metals-	○	○	○	_____	AUBSB8B2
AUBSB8C1	c) Forming and separating mixtures----------	○	○	○	_____	AUBSB8C2
AUBSB8D1	d) Properties and uses of water--	○	○	○	_____	AUBSB8D2
AUBSB8E1	e) States of matter (solids, liquids, and gases) and differences in their physical properties in terms of shape and volume----------	○	○	○	_____	AUBSB8E2
AUBSB8F1	f) Changes in state of matter by heating and cooling (melting, freezing, boiling, evaporation, condensation)----------	○	○	○	_____	AUBSB8F2
AUBSB8G1	g) Familiar changes in materials (e.g., decaying of animal/plant matter, burning, rusting, cooking)----------	○	○	○	_____	AUBSB8G2
AUBSB8H1	h) Common energy sources/forms and their practical uses (e.g., wind, sun, electricity, burning fuel, water wheel, food)----------	○	○	○	_____	AUBSB8H2
AUBSB8I1	i) Heat flow and temperature----	○	○	○	_____	AUBSB8I2

AUBSB8J1

j) Common sources of light and related phenomena (e.g., formation of rainbows and shadows, visibility of objects, mirrors, colors)---------- _____ AUBSB8J2

AUBSB8K1

k) Production of sound by vibrations---------- _____ AUBSB8K2

AUBSB8L1

l) Electrical circuits---------- _____ AUBSB8L2

AUBSB8M1

m) Magnets (north and south poles, magnetic attraction, and repulsion)---------- _____ AUBSB8M2

AUBSB8N1

n) Forces that cause objects to move (e.g., gravity, push/pull forces)---------- _____ AUBSB8N2

Refers to the national curriculum that covers science instruction at the fourth grade of primary/elementary schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

AUBSS8CB

Comments:

		Proportion of grade 4 students expected to be taught topic *Check **one** circle for each line.*			Grade(s) topic is expected to be taught K-12	
		All or almost all students	Only the more able students	Not included in the curriculum through grade 4		
	C. Earth Science					
AUBSC8A1	a) Rocks, minerals, sand, and soil----------	○	○	○	_____	AUBSC8A2
AUBSC8B1	b) Water on Earth (location, types, and movement)----------	○	○	○	_____	AUBSC8B2
AUBSC8C1	c) Air (composition, proof of its existence, uses, and importance for supporting life)----------	○	○	○	_____	AUBSC8C2
AUBSC8D1	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)	○	○	○	_____	AUBSC8D2
AUBSC8E1	e) Use and conservation of Earth's natural resources------	○	○	○	_____	AUBSC8E2
AUBSC8F1	f) Earth's water cycle (water flowing in rivers from mountains to sea, cloud formation and precipitation)--	○	○	○	_____	AUBSC8F2
AUBSC8G1	g) Weather conditions from day to day or over the seasons-----	○	○	○	_____	AUBSC8G2
AUBSC8H1	h) Fossils of animals and plants (age, formation)----------	○	○	○	_____	AUBSC8H2
AUBSC8I1	i) Earth's solar system (planets, sun, moon)----------	○	○	○	_____	AUBSC8I2
AUBSC8J1	j) Earth's rotation on its axis (e.g., day and night, appearance of shadows)-------	○	○	○	_____	AUBSC8J2

Refers to the national curriculum that covers science instruction at the fourth grade of primary/elementary schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

AUBSS8CC

Comments:

AUBSCDA

9. Which best describes how the science curriculum addresses the issue of students with different levels of ability?

Please answer for students in regular classes, and explain provisions for special needs students in the comment box.

*Check **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--	○

Refers to the national curriculum that covers science instruction at the fourth grade of primary/elementary schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

AUBSCDAC

Comments:

10. In what form is the science curriculum made available?

*Check **one** circle for each line.*

		Yes	No
AUBSCMA	a) Official publication containing the curriculum----------	○	○
AUBSCMAM	b) Ministry notes and directives----------	○	○
AUBSCMAT	c) Mandated or recommended textbooks----------	○	○
AUBSCMAI	d) Instructional or pedagogical guide----------	○	○
AUBSCMAS	e) Specifically developed or recommended instructional activities----	○	○
AUBSCMAO	f) Other----------	○	○

AUBSCMAP Please specify:

_____

Refers to the national curriculum that covers science instruction at the fourth grade of primary/elementary schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

AUBSCMAC Comments:

11. a) In a typical week, what is the total amount of instructional time prescribed by the curriculum at the fourth grade of primary/elementary school?

AUBSITTH AUBSITTM ☐ hours and ☐ minutes

b) What percentage of total instructional time is supposed to be devoted to **science** instruction at the fourth grade of primary/elementary school?

AUBSIDS ☐ % of total
Write in a number

AUBSIDSC Comments:

c) Is there a policy to assign science homework at the fourth grade of primary/elementary school?

*Check **one** circle only.*

Yes--- ○
No--- ○

AUBSPAHY *If Yes…*
What is the policy?

AUBSPAHN *If No…*
Comments:

AUBSPPI

12. Is there an official policy to provide remedial science instruction at the fourth grade of primary/elementary school?

*Check **one** circle only.*

Yes--- ○

No--- ○

AUBSPPIY

If Yes…
What is the policy?

AUBSPPIN

If No…
Comments:

13. Which are the current requirements for being a primary/elementary grade teacher?

*Check **one** circle for each line.*

		Yes	No
AUBSCRDE	a) A degree from a teacher education program----------	○	○
AUBSCRPP	b) Pre-practicum during teacher education program----------	○	○
AUBSCRSU	c) Supervised practicum in the field----------	○	○
AUBSCRCE	d) Passing a certification examination----------	○	○
AUBSCRPE	e) Completion of a probationary teaching period----------	○	○
AUBSCRLO	*If Yes…* How long is this period? _____		
AUBSCRIN	f) Completion of a mentoring or induction program----------	○	○
AUBSCROT	g) Other----------	○	○
AUBSCRP	Please specify: _____		

Refers to the requirements encompassing fourth grade.

AUBSCRCO Comments:

AUBSPLT

14. Is there a process to license or certify primary/elementary grade teachers?

*Check **one** circle only.*

Yes---
No---

Refers to the requirements encompassing fourth grade.

If Yes…
Who certifies/licenses primary/elementary grade teachers?

*Check **one** circle for each line.*

	Yes	No
AUBSPLTM a) Minister/Ministry of Education----------		
AUBSPLTL b) National/state licensing board----------		
AUBSPLTU c) Universities/colleges----------		
AUBSPLTT d) Teacher organization/union----------		
AUBSPLTO e) Other----------		
AUBSPLTP Please specify: _____		

AUBSPLTC Comments:

AUBSPLTN *If No…*
Comments:

AUBSSP

15. As part of pre-service education, do prospective teachers receive specific preparation in how to teach the science curriculum?

*Check **one** circle only.*

Yes---
No---

AUBSSPCC

Comments:

16. How do practicing teachers get help to implement the science curriculum?

*Check **one** circle for each line.*

	Yes	No
AUBSHIIS a) In-service training----------		
AUBSHIET b) Expert teacher/mentor----------		
AUBSHIRL c) Reduced teaching load for new teachers----		
AUBSHIOT d) Other----------		

AUBSHIPS Please specify:

_____

AUBSHICO

Comments:

17. If changes were made to the science curriculum, how would a teacher learn about them?

*Check **one** circle for each line.*

		Yes	No
AUBSLCC	a) Special conferences/seminars on curriculum----------	○	○
AUBSLCMW	b) Ministry (Department of Education, Government, Board of Education) Website----------	○	○
AUBSLCCD	c) Printed copies of curriculum distributed to schools----------	○	○
AUBSLCOC	d) Teachers receive own printed copy----------	○	○
AUBSLCPD	e) Professional development/in-service education----------	○	○
AUBSLCMN	f) Ministry Notes----------	○	○
AUBSLCAN	g) Professional association newsletter----------	○	○
AUBSLCEJ	h) Education journals----------	○	○
AUBSLCEA	i) Other educational authorities----------	○	○
AUBSLCOT	j) Other----------	○	○

AUBSLCPS Please specify:

_____

AUBSLACO Comments:

18. How are parents informed about the science curriculum?

*Check **one** circle for each line.*

	Yes	No
AUBSPITE a) From teachers----------	○	○
AUBSPISC b) From the school administration----------	○	○
AUBSPIPU c) From public awareness campaigns----------	○	○
AUBSPIMW d) From Ministry Website----------	○	○
AUBSPIMD e) From Ministry brochures and documents--------	○	○
AUBSPIPA f) Through parents' associations/organizations----	○	○
AUBSPIOT g) Other----------	○	○

AUBSPIPS Please specify:

_____

AUBSPICO Comments:

AUBSEPI

19. Is there a policy to encourage parental involvement in the schools attended by fourth-grade students?

*Check **one** circle only.*

Yes--- ○

No--- ○

AUBSEPIY

If Yes…
What is the policy?

AUBSEPIN

If No…
Comments:

20. How is the science curriculum implementation evaluated?

*Check **one** circle for each line.*

	Yes	No
AUBSIEIN a) Visits by inspectors----------	○	○
AUBSIERP b) Research programs----------	○	○
AUBSIESE c) School self-evaluation----------	○	○
AUBSIEAS d) National or regional assessments----------	○	○
AUBSIEOT e) Other----------	○	○

AUBSIEPS Please specify:

_____

AUBSIECO Comments:

AUBSAAE

21. 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 a university, and/or exiting or graduating from high school?

*Check **one** circle only.*

Yes--- ○

No--- ○

AUBSAAEY
AUBSAAEY_Grades

If Yes…
Please describe the authority which administers examinations in science, and list the grades at which they are given:

AUBSAAEN

If No…
Comments:

Eighth Grade
Student Questionnaire
General Science Version

Eighth Grade
Student Questionnaire
Separate Science Subjects Version

Section 6

Exhibit S1.6 Index of International Background Variables for the TIMSS 2007 Student Questionnaire - Eighth Grade

TIMSS 2007 General Question Location	TIMSS 2007 Separate Science Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
SQ2-01A	SQ2S-01A	What year were you born?	BS4GBRTY	BSBGBRTY	
SQ2-01B	SQ2S-01B	What month were you born?	BS4GBRTM	BSBGBRTM	
SQ2-02	SQ2S-02	Are you a girl or a boy?	BS4GSEX	BSBGSEX	
SQ2-03	SQ2S-03	How often do you speak <language of test> at home?	BS4GOLAN	BSBGOLAN	
SQ2-04	SQ2S-04	About how many books are there in your home? (Do not count magazines, newspapers, or your school books.)	BS4GBOOK	BSBGBOOK	
SQ2-05a	SQ2S-05a	Do you have a calculator in your home?	BS4GTH01	BSBGPS01	
SQ2-05b	SQ2S-05b	Do you have a computer in your home? (do not include PlayStation®, GameCube®, XBox®, or other TV/video game computers)	BS4GTH02	BSBGPS02	
SQ2-05c	SQ2S-05c	Do you have a study desk/table for your use in your home?	BS4GTH03	BSBGPS03	
SQ2-05d	SQ2S-05d	Do you have a dictionary in your home?	BS4GTH04	BSBGPS04	
SQ2-05e	SQ2S-05e	Do you have an Internet connection in your home?	BS4GTH05	Not available	
SQ2-05f	SQ2S-05f	Do you have a <country-specific> in your home?	BS4GTH06	BSBGPS05	
SQ2-05g	SQ2S-05g	Do you have a <country-specific> in your home?	BS4GTH07	BSBGPS06	
SQ2-05h	SQ2S-05h	Do you have a <country-specific> in your home?	BS4GTH08	BSBGPS07	
SQ2-05i	SQ2S-05i	Do you have a <country-specific> in your home?	BS4GTH09	BSBGPS08	
SQ2-06A	SQ2S-06A	What is the highest level of education completed by your mother (or stepmother or female guardian)?	BS4GMFED	BSBGMFED	Modified options in 2007
SQ2-06B	SQ2S-06B	What is the highest level of education completed by your father (or stepfather or male guardian)?	BS4GFMED	BSBGFMED	Modified options in 2007
SQ2-07	SQ2S-07	How far in school do you expect to go?	BS4GHFSG	BSBGHFSG	
SQ2-08a	SQ2S-08a	How much do you agree with this statement about learning mathematics? - I usually do well in mathematics	BS4MAWEL	BSBMTWEL	
SQ2-08b	SQ2S-08b	How much do you agree with this statement about learning mathematics? - I would like to do more mathematics in school	BS4MAMOR	BSBMTMOR	
SQ2-08c	SQ2S-08c	How much do you agree with this statement about learning mathematics? - Mathematics is more difficult for me than for many of my classmates	BS4MACLM	BSBMTCLM	
SQ2-08d	SQ2S-08d	How much do you agree with this statement about learning mathematics? - I enjoy learning mathematics	BS4MAENJ	BSBMTENJ	
SQ2-08e	SQ2S-08e	How much do you agree with this statement about learning mathematics? - Mathematics is not one of my strengths	BS4MASTR	BSBMTSTR	

Exhibit S1.6 Index of International Background Variables for the TIMSS 2007 Student Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 General Question Location	TIMSS 2007 Separate Science Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
SQ2-08f	SQ2S-08f	How much do you agree with this statement about learning mathematics? - I learn things quickly in mathematics	BS4MAQKY	BSBMTQKY	
SQ2-08g	SQ2S-08g	How much do you agree with this statement about learning mathematics? - Mathematics is boring	BS4MABOR	Not available	
SQ2-08h	SQ2S-08h	How much do you agree with this statement about learning mathematics? - I like mathematics	BS4MALIK	Not available	
SQ2-09a	SQ2S-09a	How much do you agree with this statement about mathematics? - I think learning mathematics will help me in my daily life	BS4MAHDL	BSBMAHDL	
SQ2-09b	SQ2S-09b	How much do you agree with this statement about mathematics? - I need mathematics to learn other school subjects	BS4MAOSS	BSBMAOSS	
SQ2-09c	SQ2S-09c	How much do you agree with this statement about mathematics? - I need to do well in mathematics to get into the <university> of my choice	BS4MAUNI	BSBMAUNI	
SQ2-09d	SQ2S-09d	How much do you agree with this statement about mathematics? - I need to do well in mathematics to get the job I want	BS4MAGET	BSBMAGET	
SQ2-10a	SQ2S-10a	In your mathematics lessons, how often do you practice adding, subtracting, multiplying, and dividing without using a calculator?	BS4MHASM	BSBMHASM	
SQ2-10b	SQ2S-10b	In your mathematics lessons, how often do you work on fractions and decimals?	BS4MHWFD	BSBMHWFD	
SQ2-10c	SQ2S-10c	In your mathematics lessons, how often do you solve problems about geometric shapes, lines and angles?	BS4MHGSA	Not available	
SQ2-10d	SQ2S-10d	In your mathematics lessons, how often do you interpret data in tables, charts, or graphs?	BS4MHGCT	BSBMHGCT	
SQ2-10e	SQ2S-10e	In your mathematics lessons, how often do you write equations and functions to represent relationships?	BS4MHEFR	BSBMHEFR	
SQ2-10f	SQ2S-10f	In your mathematics lessons, how often do you memorize formulas and procedures?	BS4MHFRR	Not available	
SQ2-10g	SQ2S-10g	In your mathematics lessons, how often do you explain your answers?	BS4MHEXP	BSBMHEXP	
SQ2-10h	SQ2S-10h	In your mathematics lessons, how often do you relate what you are learning in mathematics to your daily lives?	BS4MHMDL	BSBMHMDL	
SQ2-10i	SQ2S-10i	In your mathematics lessons, how often do you decide on your own procedures for solving complex problems?	BS4MHSCP	BSBMHSCP	
SQ2-10j	SQ2S-10j	In your mathematics lessons, how often do you review your homework?	BS4MHROH	BSBMHROH	

Exhibit S1.6 Index of International Background Variables for the TIMSS 2007 Student Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 General Question Location	TIMSS 2007 Separate Science Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
SQ2-10k	SQ2S-10k	In your mathematics lessons, how often do you listen to the teacher give a lecture-style presentation?	BS4MHLSP	BSBMHLSP	
SQ2-10l	SQ2S-10l	In your mathematics lessons, how often do you work problems on your own?	BS4MHWPO	BSBMHWPO	
SQ2-10m	SQ2S-10m	In your mathematics lessons, how often do you work together in small groups?	BS4MHWSG	BSBMHWSG	
SQ2-10n	SQ2S-10n	In your mathematics lessons, how often do you begin your homework in class?	BS4MHBHC	BSBMHBHC	
SQ2-10o	SQ2S-10o	In your mathematics lessons, how often do you have a quiz or test?	BS4MHHQT	BSBMHHQT	
SQ2-10p	SQ2S-10p	In your mathematics lessons, how often do you use calculators?	BS4MHCAL	BSBMHCAL	
SQ2-10q	SQ2S-10q	In your mathematics lessons, how often do you use computers?	BS4MHCOM	Not available	
SQ2-11a	--	How much do you agree with this statement about learning science? - I usually do well in science	BS4SAWEL	BSBSTWEL	
SQ2-11b	--	How much do you agree with this statement about learning science? - I would like to take more science in school	BS4SAMOR	BSBSTMOR	
SQ2-11c	--	How much do you agree with this statement about learning science? - Science is more difficult for me than for many of my classmates	BS4SACLM	BSBSTCLM	
SQ2-11d	--	How much do you agree with this statement about learning science? - I enjoy learning science	BS4SAENJ	BSBSTENJ	
SQ2-11e	--	How much do you agree with this statement about learning science? - Science is not one of my strengths	BS4SASTR	BSBSTSTR	
SQ2-11f	--	How much do you agree with this statement about learning science? - I learn things quickly in science	BS4SAQKY	BSBSTQKY	
SQ2-11g	--	How much do you agree with this statement about learning science? - Science is boring	BS4SABOR	Not available	
SQ2-11h	--	How much do you agree with this statement about learning science? - I like science	BS4SALIK	Not available	
SQ2-12a	--	How much do you agree with this statement about science? - I think learning science will help me in my daily life	BS4SAHDL	BSBSAHDL	
SQ2-12b	--	How much do you agree with this statement about science? - I need science to learn other school subjects	BS4SAOSS	BSBSAOSS	
SQ2-12c	--	How much do you agree with this statement about science? - I need to do well in science to get into the <university> of my choice	BS4SAUNI	BSBSAUNI	
SQ2-12d	--	How much do you agree with this statement about science? - I need to do well in science to get the job I want	BS4SAGET	BSBSAGET	

Exhibit S1.6 Index of International Background Variables for the TIMSS 2007 Student Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 General Question Location	TIMSS 2007 Separate Science Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
SQ2-13a	--	In your science lessons, how often do you make observations and describe what you see?	BS4SHOBS	Not available	
SQ2-13b	--	In your science lessons, how often do you watch the teacher demonstrate an experiment or investigation?	BS4SHDEI	BSBSHDEI	
SQ2-13c	--	In your science lessons, how often do you design or plan an experiment or investigation?	BS4SHPEI	BSBSHPEI	
SQ2-13d	--	In your science lessons, how often do you conduct an experiment or investigation?	BS4SHCEI	BSBSHCEI	
SQ2-13e	--	In your science lessons, how often do you work in small groups on an experiment or investigation?	BS4SHWGO	BSBSHWGO	
SQ2-13f	--	In your science lessons, how often do you read your science textbooks and other resource materials?	BS4SHTEX	Not available	
SQ2-13g	--	In your science lessons, how often do you memorize science facts and principles?	BS4SHFAP	Not available	
SQ2-13h	--	In your science lessons, how often do you use scientific formulas and laws to solve problems?	BS4SHLAW	Not available	
SQ2-13i	--	In your science lessons, how often do you give explanations about what you are studying?	BS4SHEOS	Not available	
SQ2-13j	--	In your science lessons, how often do you relate what you are learning in science to your daily lives?	BS4SHMDL	BSBSHMDL	
SQ2-13k	--	In your science lessons, how often do you review your homework?	BS4SHROH	BSBSHROH	
SQ2-13l	--	In your science lessons, how often do you listen to the teacher give a lecture-style presentation?	BS4SHLSP	BSBSHLSP	
SQ2-13m	--	In your science lessons, how often do you work problems on your own?	BS4SHWPO	BSBSHWPO	
SQ2-13n	--	In your science lessons, how often do you begin your homework in class?	BS4SHBHC	BSBSHBHC	
SQ2-13o	--	In your science lessons, how often do you have a quiz or test?	BS4SHHQT	BSBSHHQT	
SQ2-13p	--	In your science lessons, how often do you use computers?	BS4SHCOM	Not available	
SQ2-14A	SQS2-27A	Do you ever use a computer? (Do not include PlayStation®, GameCube®, XBox®, or other TV/video game computers.)	BS4GUSEC	BSBGUSEC	
SQ2-14Ba	SQS2-27Ba	Do you use a computer at home?	BS4GCHOM	BSBGCHOM	
SQ2-14Bb	SQS2-27Bb	Do you use a computer at school?	BS4GCSCH	BSBGCSCH	

Exhibit S1.6 Index of International Background Variables for the TIMSS 2007 Student Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 General Question Location	TIMSS 2007 Separate Science Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
SQ2-14Bc	SQS2-27Bc	Do you use a computer elsewhere?	BS4GCELS	BSBGCLIB BSBGCFRH BSBGCCAF BSBGCELS	Collapsed 4 variables from 2003 into 1 in 2007
SQ2-14Ca	SQS2-27Ca	How often do you use a computer for your mathematics schoolwork?	BS4MCSWM	Not available	
SQ2-14Cb	--	How often do you use a computer for your science schoolwork?	BS4SCSWS	Not available	
SQ2-15a	SQS2-28a	How much do you agree with this statement about your school? - I like being in school	BS4GALBS	BSBGALBS	
SQ2-15b	SQS2-28b	How much do you agree with this statement about your school? - I think that students in my school try to do their best.	BS4GATTB	BSBGATTB	
SQ2-15c	SQS2-28c	How much do you agree with this statement about your school? - I think that teachers in my school want students to do their best.	BS4GATSB	BSBGATSB	
SQ2-16a	SQS2-29a	In school during the last month, was something of yours stolen?	BS4GSTOL	BSBGSTOL	
SQ2-16b	SQS2-29b	In school during the last month, were you hit or hurt by other students?	BS4GHURT	BSBGHURT	
SQ2-16c	SQS2-29c	In school during the last month, were you made to do things you didn't want to do by other students?	BS4GMADE	BSBGMADE	
SQ2-16d	SQS2-29d	In school during the last month, were you made fun of or called names?	BS4GMFUN	BSBGMFUN	
SQ2-16e	SQS2-29e	In school during the last month, were you left out of activities by other students?	BS4GLEFT	BSBGLEFT	
SQ2-17a	SQS2-30a	On a normal school day, how much time do you spend before or after school watching television and videos?	BS4GWATV	BSBGWATV	
SQ2-17b	SQS2-30b	On a normal school day, how much time do you spend before or after school playing computer games?	BS4GPLCG	BSBGPLCG	
SQ2-17c	SQS2-30c	On a normal school day, how much time do you spend before or after school playing or talking with friends?	BS4GPLFD	BSBGPLFD	
SQ2-17d	SQS2-30d	On a normal school day, how much time do you spend before or after school doing jobs at home?	BS4GJOHM	BSBGJOHM	
SQ2-17e	SQS2-30e	On a normal school day, how much time do you spend before or after school working at a paid job?	BS4GWKPJ	BSBGWKPJ	
SQ2-17f	SQS2-30f	On a normal school day, how much time do you spend before or after school playing sports?	BS4GPLSP	BSBGPLSP	
SQ2-17g	SQS2-30g	On a normal school day, how much time do you spend before or after school reading a book for enjoyment?	BS4GREBO	BSBGREBO	

Exhibit S1.6 Index of International Background Variables for the TIMSS 2007 Student Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 General Question Location	TIMSS 2007 Separate Science Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
SQ2-17h	SQS2-30h	On a normal school day, how much time do you spend before or after school using the Internet?	BS4GUSIN	BSBGUSIN	
SQ2-17i	SQS2-30i	On a normal school day, how much time do you spend before or after school doing homework?	BS4GDOHW	BSBGDOHW	
SQ2-18A	SQS2-31Aa	How often does your teacher give you homework in mathematics?	BS4MOHWG	BSBMHWMA	
SQ2-18B	SQS2-31Ba	When your teacher gives you mathematics homework, about how many minutes do you usually spend on your homework?	BS4MSHWM	BSBMHWMG	Modified wording in 2007
SQ2-19A	--	How often does your teacher give you homework in science?	BS4SOHWG	BSBSHWMA	
SQ2-19B	--	When your teacher gives you science homework, about how many minutes do you usually spend on your homework?	BS4SSHWM	BSBSHWMG	Modified wording in 2007
SQ2-20A	SQS2-32A	Was your mother (or stepmother or female guardian) born in <country>?	BS4GMBRN	BSBGMBRN	
SQ2-20B	SQS2-32B	Was your father (or stepfather or male guardian) born in <country>?	BS4GFBRN	BSBGFBRN	
SQ2-21A	SQS2-33A	Were you born in <country>?	BS4GBORN	BSBGBORN	
SQ2-21B	SQS2-33B	If you were not born in <country>, how old were you when you came to <country>?	BS4GBRNC	BSBGBRNC	
--	SQ2S-11	Are you studying biology in school this year?	BS4BSBIO	BSBBSBIO	
--	SQ2S-12a	How much do you agree with this statement about learning biology? - I usually do well in biology	BS4BAWEL	BSBBTWEL	
--	SQ2S-12b	How much do you agree with this statement about learning biology? - I would like to take more biology in school	BS4BAMOR	BSBBTMOR	
--	SQ2S-12c	How much do you agree with this statement about learning biology? - Biology is more difficult for me than for many of my classmates	BS4BACLM	BSBBTCLM	
--	SQ2S-12d	How much do you agree with this statement about learning biology? - I enjoy learning biology	BS4BAENJ	BSBBTENJ	
--	SQ2S-12e	How much do you agree with this statement about learning biology? - Biology is not one of my strengths	BS4BASTR	BSBBTSTR	
--	SQ2S-12f	How much do you agree with this statement about learning biology? - I learn things quickly in biology	BS4BAQKY	BSBBTQKY	
--	SQ2S-12g	How much do you agree with this statement about learning biology? - Biology is boring	BS4BABOR	Not available	
--	SQ2S-12h	How much do you agree with this statement about learning biology? - I like biology	BS4BALIK	Not available	

Exhibit S1.6 Index of International Background Variables for the TIMSS 2007 Student Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 General Question Location	TIMSS 2007 Separate Science Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
--	SQ2S-13a	How much do you agree with this statement about biology? - I think learning biology will help me in my daily life	BS4BAHDL	BSBBAHDL	
--	SQ2S-13b	How much do you agree with this statement about biology? - I need biology to learn other school subjects	BS4BAOSS	BSBBAOSS	
--	SQ2S-13c	How much do you agree with this statement about biology? - I need to do well in biology to get into the <university> of my choice	BS4BAUNI	BSBBAUNI	
--	SQ2S-13d	How much do you agree with this statement about biology? - I need to do well in biology to get the job I want	BS4BAGET	BSBBAGET	
--	SQS2-14a	In your biology lessons, how often do you make observations and describe what you see?	BS4BHOBS	Not available	
--	SQS2-14b	In your biology lessons, how often do you watch the teacher demonstrate an experiment or investigation?	BS4BHDEI	BSBBHDEI	
--	SQS2-14c	In your biology lessons, how often do you design or plan an experiment or investigation?	BS4BHPEI	BSBBHPEI	
--	SQS2-14d	In your biology lessons, how often do you conduct an experiment or investigation?	BS4BHCEI	BSBBHCEI	
--	SQS2-14e	In your biology lessons, how often do you work in small groups on an experiment or investigation?	BS4BHWGO	BSBBHWGO	
--	SQS2-14f	In your biology lessons, how often do you read your biology textbooks and other resource material?	BS4BHTEX	Not available	
--	SQS2-14g	In your biology lessons, how often do you memorize science facts and principles?	BS4BHFAP	Not available	
--	SQS2-14h	In your biology lessons, how often do you use scientific formulas and laws to solve problems?	BS4BHLAW	Not available	
--	SQS2-14i	In your biology lessons, how often do you give explanations about what you are studying?	BS4BHEOS	Not available	
--	SQS2-14j	In your biology lessons, how often do you relate what you are learning in biology to your daily lives?	BS4BHMDL	BSBBHMDL	
--	SQS2-14k	In your biology lessons, how often do you review your homework?	BS4BHROH	BSBBHROH	
--	SQS2-14l	In your biology lessons, how often do you listen to the teacher give a lecture-style presentation?	BS4BHLSP	BSBBHLSP	
--	SQS2-14m	In your biology lessons, how often do you work problems on your own?	BS4BHWPO	BSBBHWPO	
--	SQS2-14n	In your biology lessons, how often do you begin your homework in class?	BS4BHBHC	BSBBHBHC	

Exhibit S1.6 Index of International Background Variables for the TIMSS 2007 Student Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 General Question Location	TIMSS 2007 Separate Science Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
--	SQS2-14o	In your biology lessons, how often do you have a quiz or test?	BS4BHHQT	BSBBHHQT	
--	SQS2-14p	In your biology lessons, how often do you use computers?	BS4BHCOM	Not available	
--	SQ2S-15	Are you studying earth science in school this year?	BS4EARTH	BSBEARTH	
--	SQ2S-16a	How much do you agree with this statement about learning earth science? - I usually do well in earth science	BS4EAWEL	BSBETWEL	
--	SQ2S-16b	How much do you agree with this statement about learning earth science? - I would like to take more earth science in school	BS4EAMOR	BSBETMOR	
--	SQ2S-16c	How much do you agree with this statement about learning earth science? - Earth science is more difficult for me than for many of my classmates	BS4EACLM	BSBETCLM	
--	SQ2S-16d	How much do you agree with this statement about learning earth science? - I enjoy learning earth science	BS4EAENJ	BSBETENJ	
--	SQ2S-16e	How much do you agree with this statement about learning earth science? - Earth science is not one of my strengths	BS4EASTR	BSBETSTR	
--	SQ2S-16f	How much do you agree with this statement about learning earth science? - I learn things quickly in earth science	BS4EAQKY	BSBETQKY	
--	SQ2S-16g	How much do you agree with this statement about learning earth science? - Earth science is boring	BS4EABOR	Not available	
--	SQ2S-16h	How much do you agree with this statement about learning earth science? - I like earth science	BS4EALIK	Not available	
--	SQ2S-17a	How much do you agree with this statement about earth science? - I think learning earth science will help me in my daily life	BS4EAHDL	BSBEAHDL	
--	SQ2S-17b	How much do you agree with this statement about earth science? - I need earth science to learn other school subjects	BS4EAOSS	BSBEAOSS	
--	SQ2S-17c	How much do you agree with this statement about earth science? - I need to do well in earth science to get into the <university> of my choice	BS4EAUNI	BSBEAUNI	
--	SQ2S-17d	How much do you agree with this statement about earth science? - I need to do well in earth science to get the job I want	BS4EAGET	BSBEAGET	
--	SQS2-18a	In your earth science lessons, how often do you make observations and describe what you see?	BS4EHOBS	Not available	
--	SQS2-18b	In your earth science lessons, how often do you watch the teacher demonstrate an experiment or investigation?	BS4EHDEI	BSBEHDEI	
--	SQS2-18c	In your earth science lessons, how often do you design or plan an experiment or investigation?	BS4EHPEI	BSBEHPEI	

Exhibit S1.6 Index of International Background Variables for the TIMSS 2007 Student Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 General Question Location	TIMSS 2007 Separate Science Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
--	SQS2-18d	In your earth science lessons, how often do you conduct an experiment or investigation?	BS4EHCEI	BSBEHCEI	
--	SQS2-18e	In your earth science lessons, how often do you work in small groups on an experiment or investigation?	BS4EHWGO	BSBEHWGO	
--	SQS2-18f	In your earth science lessons, how often do you read your earth science textbooks and other resource materials?	BS4EHTEX	Not available	
--	SQS2-18g	In your earth science lessons, how often do you memorize science facts and principles?	BS4EHFAP	Not available	
--	SQS2-18h	In your earth science lessons, how often do you use scientific formulas and laws to solve problems?	BS4EHLAW	Not available	
--	SQS2-18i	In your earth science lessons, how often do you give explanations about what you are studying?	BS4EHEOS	Not available	
--	SQS2-18j	In your earth science lessons, how often do you relate what you are learning in earth science to your daily lives?	BS4EHMDL	BSBEHMDL	
--	SQS2-18k	In your earth science lessons, how often do you review your homework?	BS4EHROH	BSBEHROH	
--	SQS2-18l	In your earth science lessons, how often do you listen to the teacher give a lecture-style presentation?	BS4EHLSP	BSBEHLSP	
--	SQS2-18m	In your earth science lessons, how often do you work problems on your own?	BS4EHWPO	BSBEHWPO	
--	SQS2-18n	In your earth science lessons, how often do you begin your homework in class?	BS4EHBHC	BSBEHBHC	
--	SQS2-18o	In your earth science lessons, how often do you have a quiz or test?	BS4EHHQT	BSBEHHQT	
--	SQS2-18p	In your earth science lessons, how often do you use computers?	BS4EHCOM	Not available	
--	SQ2S-19	Are you studying chemistry in school this year?	BS4CCHEM	BSBCCHEM	
--	SQ2S-20a	How much do you agree with this statement about learning chemistry? - I usually do well in chemistry	BS4CAWEL	BSBCTWEL	
--	SQ2S-20b	How much do you agree with this statement about learning chemistry? - I would like to take more chemistry in school	BS4CAMOR	BSBCTMOR	
--	SQ2S-20c	How much do you agree with this statement about learning chemistry? - Chemistry is more difficult for me than for many of my classmates	BS4CACLM	BSBCTCLM	
--	SQ2S-20d	How much do you agree with this statement about learning chemistry? - I enjoy learning chemistry	BS4CAENJ	BSBCTENJ	

Exhibit S1.6 Index of International Background Variables for the TIMSS 2007 Student Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 General Question Location	TIMSS 2007 Separate Science Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
--	SQ2S-20e	How much do you agree with this statement about learning chemistry? - Chemistry is not one of my strengths	BS4CASTR	BSBCTSTR	
--	SQ2S-20f	How much do you agree with this statement about learning chemistry? - I learn things quickly in chemistry	BS4CAQKY	BSBCTQKY	
--	SQ2S-20g	How much do you agree with this statement about learning chemistry? - Chemistry is boring	BS4CABOR	Not available	
--	SQ2S-20h	How much do you agree with this statement about learning chemistry? - I like chemistry	BS4CALIK	Not available	
--	SQ2S-21a	How much do you agree with this statement about chemistry? - I think learning chemistry will help me in my daily life	BS4CAHDL	BSBCAHDL	
--	SQ2S-21b	How much do you agree with this statement about chemistry? - I need chemistry to learn other school subjects	BS4CAOSS	BSBCAOSS	
--	SQ2S-21c	How much do you agree with this statement about chemistry? - I need to do well in chemistry to get into the <university> of my choice	BS4CAUNI	BSBCAUNI	
--	SQ2S-21d	How much do you agree with this statement about chemistry? - I need to do well in chemistry to get the job I want	BS4CAGET	BSBCAGET	
--	SQS2-22a	In your chemistry lessons, how often do you make observations and describe what you see?	BS4CHOBS	Not available	
--	SQS2-22b	In your chemistry lessons, how often do you watch the teacher demonstrate an experiment or investigation?	BS4CHDEI	BSBCHDEI	
--	SQS2-22c	In your chemistry lessons, how often do you design or plan an experiment or investigation?	BS4CHPEI	BSBCHPEI	
--	SQS2-22d	In your chemistry lessons, how often do you conduct an experiment or investigation?	BS4CHCEI	BSBCHCEI	
--	SQS2-22e	In your chemistry lessons, how often do you work in small groups on an experiment or investigation?	BS4CHWGO	BSBCHWGO	
--	SQS2-22f	In your chemistry lessons, how often do you read your chemistry textbooks and other resource materials?	BS4CHTEX	Not available	
--	SQS2-22g	In your chemistry lessons, how often do you memorize science facts and principles?	BS4CHFAP	Not available	
--	SQS2-22h	In your chemistry lessons, how often do you use scientific formulas and laws to solve problems?	BS4CHLAW	Not available	
--	SQS2-22i	In your chemistry lessons, how often do you give explanations about what you are studying?	BS4CHEOS	Not available	

Exhibit S1.6 Index of International Background Variables for the TIMSS 2007 Student Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 General Question Location	TIMSS 2007 Separate Science Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
--	SQS2-22j	In your chemistry lessons, how often do you relate what you are learning in chemistry to your daily lives?	BS4CHMDL	BSBCHMDL	
--	SQS2-22k	In your chemistry lessons, how often do you review your homework?	BS4CHROH	BSBCHROH	
--	SQS2-22l	In your chemistry lessons, how often do you listen to the teacher give a lecture-style presentation?	BS4CHLSP	BSBCHLSP	
--	SQS2-22m	In your chemistry lessons, how often do you work problems on your own?	BS4CHWPO	BSBCHWPO	
--	SQS2-22n	In your chemistry lessons, how often do you begin your homework in class?	BS4CHBHC	BSBCHBHC	
--	SQS2-22o	In your chemistry lessons, how often do you have a quiz or test?	BS4CHHQT	BSBCHHQT	
--	SQS2-22p	How often do you use computers in your chemistry lessons?	BS4CHCOM	Not available	
--	SQ2S-23	Are you studying physics in school this year?	BS4PPHY	BSBPPHY	
--	SQ2S-24a	How much do you agree with this statement about learning physics? - I usually do well in physics	BS4PAWEL	BSBPTWEL	
--	SQ2S-24b	How much do you agree with this statement about learning physics? - I would like to take more physics in school	BS4PAMOR	BSBPTMOR	
--	SQ2S-24c	How much do you agree with this statement about learning physics? - Physics is more difficult for me than for many of my classmates	BS4PACLM	BSBPTCLM	
--	SQ2S-24d	How much do you agree with this statement about learning physics? - I enjoy learning physics	BS4PAENJ	BSBPTENJ	
--	SQ2S-24e	How much do you agree with this statement about learning physics? - Physics is not one of my strengths	BS4PASTR	BSBPTSTR	
--	SQ2S-24f	How much do you agree with this statement about learning physics? - I learn things quickly in physics	BS4PAQKY	BSBPTQKY	
--	SQ2S-24g	How much do you agree with this statement about learning physics? - Physics is boring	BS4PABOR	Not available	
--	SQ2S-24h	How much do you agree with this statement about learning physics? - I like physics	BS4PALIK	Not available	
--	SQ2S-25a	How much do you agree with this statement about physics? - I think learning physics will help me in my daily life	BS4PAHDL	BSBPAHDL	
--	SQ2S-25b	How much do you agree with this statement about physics? - I need physics to learn other school subjects	BS4PAOSS	BSBPAOSS	
--	SQ2S-25c	How much do you agree with this statement about physics? - I need to do well in physics to get into the <university> of my choice	BS4PAUNI	BSBPAUNI	

Exhibit S1.6 Index of International Background Variables for the TIMSS 2007 Student Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 General Question Location	TIMSS 2007 Separate Science Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
--	SQ2S-25d	How much do you agree with this statement about physics? - I need to do well in physics to get the job I want	BS4PAGET	BSBPAGET	
--	SQS2-26a	In your physics lessons, how often do you make observations and describe what you see?	BS4PHOBS	Not available	
--	SQS2-26b	In your physics lessons, how often do you watch the teacher demonstrate an experiment or investigation?	BS4PHDEI	BSBPHDEI	
--	SQS2-26c	In your physics lessons, how often do you design or plan an experiment or investigation?	BS4PHPEI	BSBPHPEI	
--	SQS2-26d	In your physics lessons, how often do you conduct an experiment or investigation?	BS4PHCEI	BSBPHCEI	
--	SQS2-26e	In your physics lessons, how often do you work in small groups on an experiment or investigation?	BS4PHWGO	BSBPHWGO	
--	SQS2-26f	In your physics lessons, how often do you read your physics textbooks and other resource materials?	BS4PHTEX	Not available	
--	SQS2-26g	In your physics lessons, how often do you memorize science facts and principles?	BS4PHFAP	Not available	
--	SQS2-26h	In your physics lessons, how often do you use scientific formulas and laws to solve problems?	BS4PHLAW	Not available	
--	SQS2-26i	In your physics lessons, how often do you give explanations about what you are studying?	BS4PHEOS	Not available	
--	SQS2-26j	In your physics lessons, how often do you relate what you are learning in physics to your daily lives?	BS4PHMDL	BSBPHMDL	
--	SQS2-26k	In your physics lessons, how often do you review your homework?	BS4PHROH	BSBPHROH	
--	SQS2-26l	In your physics lessons, how often do you listen to the teacher give a lecture-style presentation?	BS4PHLSP	BSBPHLSP	
--	SQS2-26m	In your physics lessons, how often do you work problems on your own?	BS4PHWPO	BSBPHWPO	
--	SQS2-26n	In your physics lessons, how often do you begin your homework in class?	BS4PHBHC	BSBPHBHC	
--	SQS2-26o	In your physics lessons, how often do you have a quiz or test?	BS4PHHQT	BSBPHHQT	
--	SQS2-26p	In your physics lessons, how often do you use computers?	BS4PHCOM	Not available	
--	SQS2-27Cb	How often do you use a computer for your biology schoolwork?	BS4BCSWB	Not available	
--	SQS2-27Cc	How often do you use a computer for your earth science schoolwork?	BS4ECSWE	Not available	
--	SQS2-27Cd	How often do you use a computer for your chemistry schoolwork?	BS4CCSWC	Not available	

Exhibit S1.6 Index of International Background Variables for the TIMSS 2007 Student Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 General Question Location	TIMSS 2007 Separate Science Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
--	SQS2-27Ce	How often do you use a computer for your physics schoolwork?	BS4PCSWP	Not available	
--	SQS2-31Ab	How often does your teacher give you homework in biology?	BS4BOHWG	BSBBTGHW	
--	SQS2-31Ac	How often does your teacher give you homework in earth science?	BS4EOHWG	BSBETGHW	
--	SQS2-31Ad	How often does your teacher give you homework in chemistry?	BS4COHWG	BSBCTGHW	
--	SQS2-31Ae	How often does your teacher give you homework in physics?	BS4POHWG	BSBPTGHW	
--	SQS2-31Bb	When your teacher gives you homework in biology, about how many minutes do you usually spend on your homework?	BS4BSHWM	BSBBHWMI	Modified wording in 2007
--	SQS2-31Bc	When your teacher gives you homework in earth science, about how many minutes do you usually spend on your homework?	BS4ESHWM	BSBEHWMI	Modified wording in 2007
--	SQS2-31Bd	When your teacher gives you homework in chemistry, about how many minutes do you usually spend on your homework?	BS4CSHWM	BSBCHWMI	Modified wording in 2007
--	SQS2-31Be	When your teacher gives you homework in physics, about how many minutes do you usually spend on your homework?	BS4PSHWM	BSBPHWMI	Modified wording in 2007

Identification Label

Student ID:

Student Name:

Trends in International Mathematics and Science Study

TIMSS 2007

Student Questionnaire

<Grade 8>

<TIMSS National Research Center Name>
<Address>

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General Directions

In this questionnaire, 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 respond.

Each question is followed by a number of answers. Shade in the circle next to 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*

		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 an answer to a question, put an "x" over your first choice, and then fill in the circle for your new choice. 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?

BS4GBRTY

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

Year

1989 - ○
1990 - ○
1991 - ○
1992 - ○
1993 - ○
1994 - ○
1995 - ○
1996 - ○
Other - ○

BS4GBRTM

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

Month

January - ○
February - ○
March - ○
April - ○
May - ○
June - ○
July - ○
August - ○
September - ○
October - ○
November - ○
December - ○

2

Are you a girl or a boy?

BS4GSEX

*Fill in **one** circle only*

Girl ---------- ①
Boy ---------- ②

3

BS4GOLAN

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

BS4GBOOK

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 things at your home?

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

			Yes	No
BS4GTH01	a)	Calculator	①	②
BS4GTH02	b)	Computer (do not include PlayStation®, GameCube®, XBox®, or other TV/video game computers)	①	②
BS4GTH03	c)	Study desk/table for your use	①	②
BS4GTH04	d)	Dictionary	①	②
BS4GTH05	e)	Internet connection	①	②
BS4GTH06	f)	<country-specific>	①	②
BS4GTH07	g)	<country-specific>	①	②
BS4GTH08	h)	<country-specific>	①	②
BS4GTH09	i)	<country-specific>	①	②

6

BS4GMFED

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

*Fill in **one** circle only*

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

BS4GFMED

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

*Fill in **one** circle only*

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

About You (Continued)

7

BS4GHFSG

How far in school do you expect to go?

*Fill in **one** circle only*

Finish <ISCED 3> ---------- ①
Finish <ISCED 4> ---------- 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
BS4MAWEL	a) I usually do well in mathematics	①	②	③	④
BS4MAMOR	b) I would like to take more mathematics in school	①	②	③	④
BS4MACLM	c) Mathematics is more difficult for me than for many of my classmates	①	②	③	④
BS4MAENJ	d) I enjoy learning mathematics	①	②	③	④
BS4MASTR	e) Mathematics is not one of my strengths	①	②	③	④
BS4MAQKY	f) I learn things quickly in mathematics	①	②	③	④
BS4MABOR	g) Mathematics is boring	①	②	③	④
BS4MALIK	h) I like mathematics	①	②	③	④

Mathematics in School (Continued)

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
BS4MAHDL	a) I think learning mathematics will help me in my daily life	①	②	③	④
BS4MAOSS	b) I need mathematics to learn other school subjects	①	②	③	④
BS4MAUNI	c) I need to do well in mathematics to get into the <university> of my choice	①	②	③	④
BS4MAGET	d) 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
BS4MHASM	a) We practice adding, subtracting, multiplying, and dividing without using a calculator	①	②	③	④
BS4MHWFD	b) We work on fractions and decimals	①	②	③	④
BS4MHGSA	c) We solve problems about geometric shapes, lines and angles	①	②	③	④
BS4MHGCT	d) We interpret data in tables, charts, or graphs	①	②	③	④
BS4MHEFR	e) We write equations and functions to represent relationships	①	②	③	④
BS4MHFRR	f) We memorize formulas and procedures	①	②	③	④
BS4MHEXP	g) We explain our answers	①	②	③	④
BS4MHMDL	h) We relate what we are learning in mathematics to our daily lives	①	②	③	④
BS4MHSCP	i) We decide on our own procedures for solving complex problems	①	②	③	④
BS4MHROH	j) We review our homework	①	②	③	④
BS4MHLSP	k) We listen to the teacher give a lecture-style presentation	①	②	③	④
BS4MHWPO	l) We work problems on our own	①	②	③	④
BS4MHWSG	m) We work together in small groups	①	②	③	④
BS4MHBHC	n) We begin our homework in class	①	②	③	④
BS4MHHQT	o) We have a quiz or test	①	②	③	④
BS4MHCAL	p) We use calculators	①	②	③	④
BS4MHCOM	q) We use computers	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
BS4SAWEL	a) I usually do well in science	①	②	③	④
BS4SAMOR	b) I would like to take more science in school	①	②	③	④
BS4SACLM	c) Science is more difficult for me than for many of my classmates	①	②	③	④
BS4SAENJ	d) I enjoy learning science	①	②	③	④
BS4SASTR	e) Science is not one of my strengths	①	②	③	④
BS4SAQKY	f) I learn things quickly in science	①	②	③	④
BS4SABOR	g) Science is boring	①	②	③	④
BS4SALIK	h) I like 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
BS4SAHDL	a) I think learning science will help me in my daily life	①	②	③	④
BS4SAOSS	b) I need science to learn other school subjects	①	②	③	④
BS4SAUNI	c) I need to do well in science to get into the <university> of my choice	①	②	③	④
BS4SAGET	d) I need to do well in science to get the job I want	①	②	③	④

Science in School (Continued)

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
BS4SHOBS	a) We make observations and describe what we see	①	②	③	④
BS4SHDEI	b) We watch the teacher demonstrate an experiment or investigation	①	②	③	④
BS4SHPEI	c) We design or plan an experiment or investigation	①	②	③	④
BS4SHCEI	d) We conduct an experiment or investigation	①	②	③	④
BS4SHWGO	e) We work in small groups on an experiment or investigation	①	②	③	④
BS4SHTEX	f) We read our science textbooks and other resource materials	①	②	③	④
BS4SHFAP	g) We memorize science facts and principles	①	②	③	④
BS4SHLAW	h) We use scientific formulas and laws to solve problems	①	②	③	④
BS4SHEOS	i) We give explanations about what we are studying	①	②	③	④
BS4SHMDL	j) We relate what we are learning in science to our daily lives	①	②	③	④
BS4SHROH	k) We review our homework	①	②	③	④
BS4SHLSP	l) We listen to the teacher give a lecture-style presentation	①	②	③	④
BS4SHWPO	m) We work problems on our own	①	②	③	④
BS4SHBHC	n) We begin our homework in class	①	②	③	④
BS4SHHQT	o) We have a quiz or test	①	②	③	④
BS4SHCOM	p) We use computers	①	②	③	④

Computers

14

BS4GUSEC

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
BS4GCHOM	a) At home	①	②
BS4GCSCH	b) At school	①	②
BS4GCELS	c) Elsewhere (e.g., public library, friend's home, Internet café)	①	②

C. How often do you use a computer for your schoolwork (in and out of school)?

*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
BS4MCSWM	a) In mathematics	①	②	③	④	⑤
BS4SCSWS	b) In science	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
BS4GALBS	a) I like being in school	①	②	③	④
BS4GATTB	b) I think that students in my school try to do their best	①	②	③	④
BS4GATSB	c) 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
BS4GSTOL	a) Something of mine was stolen	①	②
BS4GHURT	b) I was hit or hurt by other student(s) (e.g., shoving, hitting, kicking)	①	②
BS4GMADE	c) I was made to do things I didn't want to do by other students	①	②
BS4GMFUN	d) I was made fun of or called names	①	②
BS4GLEFT	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
BS4GWATV	a) I watch television and videos	①	②	③	④	⑤
BS4GPLCG	b) I play computer games	①	②	③	④	⑤
BS4GPLFD	c) I play or talk with friends	①	②	③	④	⑤
BS4GJOHM	d) I do jobs at home	①	②	③	④	⑤
BS4GWKPJ	e) I work at a paid job	①	②	③	④	⑤
BS4GPLSP	f) I play sports	①	②	③	④	⑤
BS4GREBO	g) I read a book for enjoyment	①	②	③	④	⑤
BS4GUSIN	h) I use the Internet	①	②	③	④	⑤
BS4GDOHW	i) I do homework	①	②	③	④	⑤

Homework

18

BS4MOHWG

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 **19***

BS4MSHWM

B. When your teacher gives you mathematics homework, about how many minutes do you usually spend on your homework?

*Fill in **one** circle only*

- Zero minutes ---------- ①
- 1 - 15 minutes ---------- ②
- 16–30 minutes ---------- ③
- 31–60 minutes ---------- ④
- 61–90 minutes ---------- ⑤
- More than 90 minutes ---------- ⑥

19

BS4SOHWG

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 **20***

BS4SSHWM

B. When your teacher gives you science homework, about how many minutes do you usually spend on your homework?

*Fill in **one** circle only*

- Zero minutes ---------- ①
- 1 - 15 minutes ---------- ②
- 16–30 minutes ---------- ③
- 31–60 minutes ---------- ④
- 61–90 minutes ---------- ⑤
- More than 90 minutes ---------- ⑥

More About You

20

BS4GMBRN

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

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

BS4GFBRN

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

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

21

BS4GBORN

A. Were you born in <country>?

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

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

BS4GBRNC

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 & PIRLS
International Study Center
Lynch School of Education, Boston College

Student Questionnaire

<Grade 8>

Identification Label

Student ID:

Student Name:

Trends in International Mathematics and Science Study

TIMSS 2007

Student Questionnaire

SEPARATE SCIENCE SUBJECTS
<Grade 8>

<TIMSS National Research Center Name>
<Address>

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of Educational Achievement
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General Directions

In this questionnaire, 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 respond.

Each question is followed by a number of answers. Shade in the circle next to 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*

		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 an answer to a question, put an "x" over your first choice, and then fill in the circle for your new choice. 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?

BS4GBRTY

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

Year

1989 - ○
1990 - ○
1991 - ○
1992 - ○
1993 - ○
1994 - ○
1995 - ○
1996 - ○
Other - ○

BS4GBRTM

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

Month

January - ○
February - ○
March - ○
April - ○
May - ○
June - ○
July - ○
August - ○
September - ○
October - ○
November - ○
December - ○

2

Are you a girl or a boy?

BS4GSEX

*Fill in **one** circle only*

Girl ---------- ①
Boy ---------- ②

3

BS4GOLAN

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

BS4GBOOK

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 things at your home?

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

			Yes	No
BS4GTH01	a)	Calculator	①	②
BS4GTH02	b)	Computer (do not include PlayStation®, GameCube®, XBox®, or other TV/video game computers)	①	②
BS4GTH03	c)	Study desk/table for your use	①	②
BS4GTH04	d)	Dictionary	①	②
BS4GTH05	e)	Internet connection	①	②
BS4GTH06	f)	<country-specific>	①	②
BS4GTH07	g)	<country-specific>	①	②
BS4GTH08	h)	<country-specific>	①	②
BS4GTH09	i)	<country-specific>	①	②

6

BS4GMFED

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

*Fill in **one** circle only*

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

BS4GFMED

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

*Fill in **one** circle only*

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

About You (Continued)

7

BS4GHFSG

How far in school do you expect to go?

*Fill in **one** circle only*

Finish <ISCED 3> ---------- ①
Finish <ISCED 4> ---------- 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
BS4MAWEL	a) I usually do well in mathematics	①	②	③	④
BS4MAMOR	b) I would like to take more mathematics in school	①	②	③	④
BS4MACLM	c) Mathematics is more difficult for me than for many of my classmates	①	②	③	④
BS4MAENJ	d) I enjoy learning mathematics	①	②	③	④
BS4MASTR	e) Mathematics is not one of my strengths	①	②	③	④
BS4MAQKY	f) I learn things quickly in mathematics	①	②	③	④
BS4MABOR	g) Mathematics is boring	①	②	③	④
BS4MALIK	h) I like mathematics	①	②	③	④

Mathematics in School (Continued)

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
BS4MAHDL	a) I think learning mathematics will help me in my daily life	①	②	③	④
BS4MAOSS	b) I need mathematics to learn other school subjects	①	②	③	④
BS4MAUNI	c) I need to do well in mathematics to get into the <university> of my choice	①	②	③	④
BS4MAGET	d) 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
BS4MHASM	a)	We practice adding, subtracting, multiplying, and dividing without using a calculator	①	②	③	④
BS4MHWFD	b)	We work on fractions and decimals	①	②	③	④
BS4MHGSA	c)	We solve problems about geometric shapes, lines and angles	①	②	③	④
BS4MHGCT	d)	We interpret data in tables, charts, or graphs	①	②	③	④
BS4MHEFR	e)	We write equations and functions to represent relationships	①	②	③	④
BS4MHFRR	f)	We memorize formulas and procedures	①	②	③	④
BS4MHEXP	g)	We explain our answers	①	②	③	④
BS4MHMDL	h)	We relate what we are learning in mathematics to our daily lives	①	②	③	④
BS4MHSCP	i)	We decide on our own procedures for solving complex problems	①	②	③	④
BS4MHROH	j)	We review our homework	①	②	③	④
BS4MHLSP	k)	We listen to the teacher give a lecture-style presentation	①	②	③	④
BS4MHWPO	l)	We work problems on our own	①	②	③	④
BS4MHWSG	m)	We work together in small groups	①	②	③	④
BS4MHBHC	n)	We begin our homework in class	①	②	③	④
BS4MHHQT	o)	We have a quiz or test	①	②	③	④
BS4MHCAL	p)	We use calculators	①	②	③	④
BS4MHCOM	q)	We use computers	①	②	③	④

Biology in School

11

BS4BSBIO

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
BS4BAWEL	a) I usually do well in biology	①	②	③	④
BS4BAMOR	b) I would like to take more biology in school	①	②	③	④
BS4BACLM	c) Biology is more difficult for me than for many of my classmates	①	②	③	④
BS4BAENJ	d) I enjoy learning biology	①	②	③	④
BS4BASTR	e) Biology is not one of my strengths	①	②	③	④
BS4BAQKY	f) I learn things quickly in biology	①	②	③	④
BS4BABOR	g) Biology is boring	①	②	③	④
BS4BALIK	h) I like 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
BS4BAHDL	a) I think learning biology will help me in my daily life	①	②	③	④
BS4BAOSS	b) I need biology to learn other school subjects	①	②	③	④
BS4BAUNI	c) I need to do well in biology to get into the <university> of my choice	①	②	③	④
BS4BAGET	d) I need to do well in biology to get the job I want	①	②	③	④

Biology in School (Continued)

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
BS4BHOBS	a) We make observations and describe what we see	①	②	③	④
BS4BHDEI	b) We watch the teacher demonstrate an experiment or investigation	①	②	③	④
BS4BHPEI	c) We design or plan an experiment or investigation	①	②	③	④
BS4BHCEI	d) We conduct an experiment or investigation	①	②	③	④
BS4BHWGO	e) We work in small groups on an experiment or investigation	①	②	③	④
BS4BHTEX	f) We read our biology textbooks and other resource materials	①	②	③	④
BS4BHFAP	g) We memorize science facts and principals	①	②	③	④
BS4BHLAW	h) We use scientific formulas and laws to solve problems	①	②	③	④
BS4BHEOS	i) We give explanations about what we are studying	①	②	③	④
BS4BHMDL	j) We relate what we are learning in biology to our daily lives	①	②	③	④
BS4BHROH	k) We review our homework	①	②	③	④
BS4BHLSP	l) We listen to the teacher give a lecture-style presentation	①	②	③	④
BS4BHWPO	m) We work problems on our own	①	②	③	④
BS4BHBHC	n) We begin our homework in class	①	②	③	④
BS4BHHQT	o) We have a quiz or test	①	②	③	④
BS4BHCOM	p) We use computers	①	②	③	④

Earth Science in School

15

BS4EARTH **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
BS4EAWEL	a) I usually do well in earth science	①	②	③	④
BS4EAMOR	b) I would like to take more earth science in school	①	②	③	④
BS4EACLM	c) Earth science is more difficult for me than for many of my classmates	①	②	③	④
BS4EAENJ	d) I enjoy learning earth science	①	②	③	④
BS4EASTR	e) Earth science is not one of my strengths	①	②	③	④
BS4EAQKY	f) I learn things quickly in earth science	①	②	③	④
BS4EABOR	g) Earth science is boring	①	②	③	④
BS4EALIK	h) I like earth science	①	②	③	④

Earth Science in School (Continued)

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
BS4EAHDL	a) I think learning earth science will help me in my daily life	①	②	③	④
BS4EAOSS	b) I need earth science to learn other school subjects	①	②	③	④
BS4EAUNI	c) I need to do well in earth science to get into the <university> of my choice	①	②	③	④
BS4EAGET	d) 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
BS4EHOBS	a) We make observations and describe what we see	①	②	③	④
BS4EHDEI	b) We watch the teacher demonstrate an experiment or investigation	①	②	③	④
BS4EHPEI	c) We design or plan an experiment or investigation	①	②	③	④
BS4EHCEI	d) We conduct an experiment or investigation	①	②	③	④
BS4EHWGO	e) We work in small groups on an experiment or investigation	①	②	③	④
BS4EHTEX	f) We read our earth science textbooks and other resource materials	①	②	③	④
BS4EHFAP	g) We memorize science facts and principles	①	②	③	④
BS4EHLAW	h) We use scientific formulas and laws to solve problems	①	②	③	④
BS4EHEOS	i) We give explanations about what we are studying	①	②	③	④
BS4EHMDL	j) We relate what we are learning in earth science to our daily lives	①	②	③	④
BS4EHROH	k) We review our homework	①	②	③	④
BS4EHLSP	l) We listen to the teacher give a lecture-style presentation	①	②	③	④
BS4EHWPO	m) We work problems on our own	①	②	③	④
BS4EHBHC	n) We begin our homework in class	①	②	③	④
BS4EHHQT	o) We have a quiz or test	①	②	③	④
BS4EHCOM	p) We use computers	①	②	③	④

Chemistry in School

19

BS4CCHEM

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
BS4CAWEL	a) I usually do well in chemistry	①	②	③	④
BS4CAMOR	b) I would like to take more chemistry in school	①	②	③	④
BS4CACLM	c) Chemistry is more difficult for me than for many of my classmates	①	②	③	④
BS4CAENJ	d) I enjoy learning chemistry	①	②	③	④
BS4CASTR	e) Chemistry is not one of my strengths	①	②	③	④
BS4CAQKY	f) I learn things quickly in chemistry	①	②	③	④
BS4CABOR	g) Chemistry is boring	①	②	③	④
BS4CALIK	h) I like 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
BS4CAHDL	a) I think learning chemistry will help me in my daily life	①	②	③	④
BS4CAOSS	b) I need chemistry to learn other school subjects	①	②	③	④
BS4CAUNI	c) I need to do well in chemistry to get into the <university> of my choice	①	②	③	④
BS4CAGET	d) I need to do well in chemistry to get the job I want	①	②	③	④

Chemistry in School (Continued)

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
BS4CHOBS	a) We make observations and describe what we see	①	②	③	④
BS4CHDEI	b) We watch the teacher demonstrate an experiment or investigation	①	②	③	④
BS4CHPEI	c) We design or plan an experiment or investigation	①	②	③	④
BS4CHCEI	d) We conduct an experiment or investigation	①	②	③	④
BS4CHWGO	e) We work in small groups on an experiment or investigation	①	②	③	④
BS4CHTEX	f) We read our chemistry textbooks and other resource materials	①	②	③	④
BS4CHFAP	g) We memorize science facts and principles	①	②	③	④
BS4CHLAW	h) We use scientific formulas and laws to solve problems	①	②	③	④
BS4CHEOS	i) We give explanations about what we are studying	①	②	③	④
BS4CHMDL	j) We relate what we are learning in chemistry to our daily lives	①	②	③	④
BS4CHROH	k) We review our homework	①	②	③	④
BS4CHLSP	l) We listen to the teacher give a lecture-style presentation	①	②	③	④
BS4CHWPO	m) We work problems on our own	①	②	③	④
BS4CHBHC	n) We begin our homework in class	①	②	③	④
BS4CHHQT	o) We have a quiz or test	①	②	③	④
BS4CHCOM	p) We use computers	①	②	③	④

Physics in School

23

BS4PPHY **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
BS4PAWEL	a) I usually do well in physics	①	②	③	④
BS4PAMOR	b) I would like to take more physics in school	①	②	③	④
BS4PACLM	c) Physics is more difficult for me than for many of my classmates	①	②	③	④
BS4PAENJ	d) I enjoy learning physics	①	②	③	④
BS4PASTR	e) Physics is not one of my strengths	①	②	③	④
BS4PAQKY	f) I learn things quickly in physics	①	②	③	④
BS4PABOR	g) Physics is boring	①	②	③	④
BS4PALIK	h) I like physics	①	②	③	④

Physics in School (Continued)

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
BS4PAHDL	a) I think learning physics will help me in my daily life	①	②	③	④
BS4PAOSS	b) I need physics to learn other school subjects	①	②	③	④
BS4PAUNI	c) I need to do well in physics to get into the <university> of my choice	①	②	③	④
BS4PAGET	d) 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
BS4PHOBS	a) We make observations and describe what we see	①	②	③	④
BS4PHDEI	b) We watch the teacher demonstrate an experiment or investigation	①	②	③	④
BS4PHPEI	c) We design or plan an experiment or investigation	①	②	③	④
BS4PHCEI	d) We conduct an experiment or investigation	①	②	③	④
BS4PHWGO	e) We work in small groups on an experiment or investigation	①	②	③	④
BS4PHTEX	f) We read our physics textbooks and other resource materials	①	②	③	④
BS4PHFAP	g) We memorize science facts and principles	①	②	③	④
BS4PHLAW	h) We use scientific formulas and laws to solve problems	①	②	③	④
BS4PHEOS	i) We give explanations about what we are studying	①	②	③	④
BS4PHMDL	j) We relate what we are learning in physics to our daily lives	①	②	③	④
BS4PHROH	k) We review our homework	①	②	③	④
BS4PHLSP	l) We listen to the teacher give a lecture-style presentation	①	②	③	④
BS4PHWPO	m) We work problems on our own	①	②	③	④
BS4PHBHC	n) We begin our homework in class	①	②	③	④
BS4PHHQT	o) We have a quiz or test	①	②	③	④
BS4PHCOM	p) We use computers	①	②	③	④

Computers

27

BS4GUSEC

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
BS4GCHOM	a) At home	①	②
BS4GCSCH	b) At school	①	②
BS4GCELS	c) Elsewhere (e.g., public library, friend's home, Internet café)	①	②

C. How often do you use a computer for your schoolwork (in and out of school)?

*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
BS4MCSWM	a) In mathematics	①	②	③	④	⑤
BS4BCSWB	b) In biology	①	②	③	④	⑤
BS4ECSWE	c) In earth science	①	②	③	④	⑤
BS4CCSWC	d) In chemistry	①	②	③	④	⑤
BS4PCSWP	e) In physics	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
BS4GALBS	a) I like being in school	①	②	③	④
BS4GATTB	b) I think that students in my school try to do their best	①	②	③	④
BS4GATSB	c) 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
BS4GSTOL	a) Something of mine was stolen	①	②
BS4GHURT	b) I was hit or hurt by other student(s) (e.g., shoving, hitting, kicking)	①	②
BS4GMADE	c) I was made to do things I didn't want to do by other students	①	②
BS4GMFUN	d) I was made fun of or called names	①	②
BS4GLEFT	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
BS4GWATV	a) I watch television and videos	①	②	③	④	⑤
BS4GPLCG	b) I play computer games	①	②	③	④	⑤
BS4GPLFD	c) I play or talk with friends	①	②	③	④	⑤
BS4GJOHM	d) I do jobs at home	①	②	③	④	⑤
BS4GWKPJ	e) I work at a paid job	①	②	③	④	⑤
BS4GPLSP	f) I play sports	①	②	③	④	⑤
BS4GREBO	g) I read a book for enjoyment	①	②	③	④	⑤
BS4GUSIN	h) I use the Internet	①	②	③	④	⑤
BS4GDOHW	i) I do homework	①	②	③	④	⑤

Homework

31

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
BS4MOHWG	a) Mathematics	①	②	③	④	⑤
BS4BOHWG	b) Biology	①	②	③	④	⑤
BS4EOHWG	c) Earth science	①	②	③	④	⑤
BS4COHWG	d) Chemistry	①	②	③	④	⑤
BS4POHWG	e) Physics	①	②	③	④	⑤

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

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

		Zero minutes	1 - 15 minutes	16–30 minutes	31–60 minutes	61–90 minutes	More than 90 minutes
BS4MSHWM	a) Mathematics	①	②	③	④	⑤	⑥
BS4BSHWM	b) Biology	①	②	③	④	⑤	⑥
BS4ESHWM	c) Earth science	①	②	③	④	⑤	⑥
BS4CSHWM	d) Chemistry	①	②	③	④	⑤	⑥
BS4PSHWM	e) Physics	①	②	③	④	⑤	⑥

More About You

32

BS4GMBRN

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

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

BS4GFBRN

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

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

33

BS4GBORN

A. Were you born in <country>?

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

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

BS4GBRNC

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 & PIRLS
International Study Center
Lynch School of Education, Boston College

Student Questionnaire

SEPARATE SCIENCE SUBJECTS
<Grade 8>

Eighth Grade Mathematics Teacher Questionnaire

Section 7

Exhibit S1.7 Index of International Background Variables for the TIMSS 2007 Mathematics Teacher Questionnaire - Eighth Grade

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQM2-01	How old are you?	BT4GAGE	BTBGAGE	
TQM2-02	Are you female or male?	BT4GSEX	BTBGSEX	
TQM2-03	By the end of this school year, how many years will you have been teaching altogether?	BT4GTAUT	BTBGTAUT	
TQM2-04	What is the highest level of formal education you have completed?	BT4GFEDC	BTBGFEDC	
TQM2-05a	During your <post-secondary> education, was your major or main area(s) of study mathematics?	BT4MPSMA	BTBMPSMA	
TQM2-05b	During your <post-secondary> education, was your major or main area(s) of study education - mathematics?	BT4MPSEM	BTBMPSEM	
TQM2-05c	During your <post-secondary> education, was your major or main area(s) of study science?	BT4SPSSC	BTBSPSSC	
TQM2-05d	During your <post-secondary> education, was your major or main area(s) of study education - science?	BT4SPSED	BTBSPSED	
TQM2-05e	During your <post-secondary> education, was your major or main area(s) of study education - general?	BT4GPSEG	BTBGPSEG	
TQM2-05f	During your <post-secondary> education, was your major or main area(s) of study other?	BT4GPSOT	BTBGPSOT	
TQM2-06	Do you have a teaching license or certificate?	BT4GTLCE	BTBGTLCE	
TQM2-07Aa	How well prepared do you feel you are to teach number topics? - Computing, estimating or approximating with whole numbers	BT4MTT01	Options modified in 2007. See Questions TQM2-09A and TQM2-09C in 2003 for sub-topics.	
TQM2-07Ab	How well prepared do you feel you are to teach number topics? - Representing decimals and fractions using words, numbers, or models (including number lines)	BT4MTT02	Options modified in 2007. See Questions TQM2-09A and TQM2-09C in 2003 for sub-topics.	
TQM2-07Ac	How well prepared do you feel you are to teach number topics? - Computing with fractions and decimals	BT4MTT03	Options modified in 2007. See Questions TQM2-09A and TQM2-09C in 2003 for sub-topics.	
TQM2-07Ad	How well prepared do you feel you are to teach number topics? - Representing, comparing, ordering, and computing with integers	BT4MTT04	Options modified in 2007. See Questions TQM2-09A and TQM2-09C in 2003 for sub-topics.	

Exhibit S1.7 Index of International Background Variables for the TIMSS 2007 Mathematics Teacher Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQM2-07Ae	How well prepared do you feel you are to teach number topics? - Problem solving involving percents and proportions	BT4MTT05	Options modified in 2007. See Questions TQM2-09A and TQM2-09C in 2003 for sub-topics.	
TQM2-07Ba	How well prepared do you feel you are to teach algebra topics? - Numeric, algebraic, and geometric patterns or sequences (extension, missing terms, generalization of patterns)	BT4MTT06	Options modified in 2007. See Question TQM2-09B in 2003 for sub-topics.	
TQM2-07Bb	How well prepared do you feel you are to teach algebra topics? - Simplifying and evaluating the algebraic expressions	BT4MTT07	Options modified in 2007. See Question TQM2-09B in 2003 for sub-topics.	
TQM2-07Bc	How well prepared do you feel you are to teach algebra topics? - Simple linear equations and inequalities, and simultaneous (two variables) equations	BT4MTT08	Options modified in 2007. See Question TQM2-09B in 2003 for sub-topics.	
TQM2-07Bd	How well prepared do you feel you are to teach algebra topics? - Equivalent representations of functions as ordered pairs, tables, graphs, words, or equations	BT4MTT09	Options modified in 2007. See Question TQM2-09B in 2003 for sub-topics.	
TQM2-07Ca	How well prepared do you feel you are to teach geometry topics? - Geometric properties of angles and geometric shapes (triangles, quadrilaterals, and other common polygons)	BT4MTT10	Options modified in 2007. See Questions TQM2-09C and TQM2-09D in 2003 for sub-topics.	
TQM2-07Cb	How well prepared do you feel you are to teach geometry topics? - Congruent figures and similar triangles	BT4MTT11	Options modified in 2007. See Questions TQM2-09C and TQM2-09D in 2003 for sub-topics.	
TQM2-07Cc	How well prepared do you feel you are to teach geometry topics? - Relationship between three-dimensional shapes and their two-dimensional representation	BT4MTT12	Options modified in 2007. See Questions TQM2-09C and TQM2-09D in 2003 for sub-topics.	
TQM2-07Cd	How well prepared do you feel you are to teach geometry topics? - Using appropriate measurement formulas for perimeters, circumferences, areas of circles, surface areas and volumes	BT4MTT13	Options modified in 2007. See Questions TQM2-09C and TQM2-09D in 2003 for sub-topics.	
TQM2-07Ce	How well prepared do you feel you are to teach geometry topics? - Cartesian plane - ordered pairs, equations, intercepts, intersections, and gradient	BT4MTT14	Options modified in 2007. See Questions TQM2-09C and TQM2-09D in 2003 for sub-topics.	

Exhibit S1.7 Index of International Background Variables for the TIMSS 2007 Mathematics Teacher Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQM2-07Cf	How well prepared do you feel you are to teach geometry topics? - Translation, reflection, and rotation	BT4MTT15	Options modified in 2007. See Questions TQM2-09C and TQM2-09D in 2003 for sub-topics.	
TQM2-07Da	How well prepared do you feel you are to teach data and chance topics? - Reading and displaying data using tables, pictographs, bar graphs, pie charts and line graphs	BT4MTT16	Options modified in 2007. See Question TQM2-09E in 2003 for sub-topics.	
TQM2-07Db	How well prepared do you feel you are to teach data and chance topics? - Interpreting data sets (e.g., draw conclusions, make predictions, and estimate values between and beyond given data points)	BT4MTT17	Options modified in 2007. See Question TQM2-09E in 2003 for sub-topics.	
TQM2-07Dc	How well prepared do you feel you are to teach data and chance topics? - Judging, predicting, and determining the chances of possible outcomes	BT4MTT18	Options modified in 2007. See Question TQM2-09E in 2003 for sub-topics.	
TQM2-08a	How often do you have discussions about how to teach a particular concept with other teachers?	BT4GOTDC	BTBGOTDC	
TQM2-08b	How often do you work on preparing instructional materials with other teachers?	BT4GOTPM	BTBGOTPM	
TQM2-08c	How often do you visit another teacher's classroom to observe his/her teaching?	BT4GOTVT	BTBGOTVT	
TQM2-08d	How often do you have informal observations of your classroom by another teacher?	BT4GOTAT	BTBGOTAT	
TQM2-09a	In the past two years, have you participated in professional development in mathematics content?	BT4MPDMT	BTBMPDMT	
TQM2-09b	In the past two years, have you participated in professional development in mathematics pedagogy/instruction?	BT4MPDMP	BTBMPDMP	
TQM2-09c	In the past two years, have you participated in professional development in mathematics curriculum?	BT4MPDMC	BTBMPDMC	
TQM2-09d	In the past two years, have you participated in professional development in integrating information technology into mathematics?	BT4MPDIT	BTBMPDIT	
TQM2-09e	In the past two years, have you participated in professional development in improving students' critical thinking or problem solving skills?	BT4GPDCT	BTBGPDCT	
TQM2-09f	In the past two years, have you participated in professional development in mathematics assessment?	BT4MPDMA	BTBMPDMA	
TQM2-10a	Thinking about your current school, indicate the extent to which you agree or disagree that this school is located in a safe neighborhood.	BT4GCUSN	BTBGCUSN	
TQM2-10b	Thinking about your current school, indicate the extent to which you agree or disagree that you feel safe at this school.	BT4GCUSA	BTBGCUSA	

Exhibit S1.7 Index of International Background Variables for the TIMSS 2007 Mathematics Teacher Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQM2-10c	Thinking about your current school, indicate the extent to which you agree or disagree that this school's security policies and practices are sufficient.	BT4GCUAS	BTBGCUAS	
TQM2-11a	In your current school, how severe is this problem? - The school building needs significant repair	BT4GSPBR	Not available	
TQM2-11b	In your current school, how severe is this problem? - Classrooms are overcrowded	BT4GSPCO	Not available	
TQM2-11c	In your current school, how severe is this problem? - Teachers do not have adequate workspace outside their classroom	BT4GSPWO	Not available	
TQM2-12a	How would you characterize teachers' job satisfaction within your school?	BT4GCHTS	BTBGCHTS	
TQM2-12b	How would you characterize teachers' understanding of the school's curricular goals within your school?	BT4GCHTU	BTBGCHTU	
TQM2-12c	How would you characterize teachers' degree of success in implementing the school's curriculum within your school?	BT4GCHTC	BTBGCHTC	
TQM2-12d	How would you characterize teachers' expectations for student achievement within your school?	BT4GCHES	BTBGCHES	
TQM2-12e	How would you characterize parental support for student achievement within your school?	BT4GCHPS	BTBGCHPS	
TQM2-12f	How would you characterize parental involvement in school activities within your school?	BT4GCHPI	BTBGCHPI	
TQM2-12g	How would you characterize students' regard for school property within your school?	BT4GCHSR	BTBGCHSR	
TQM2-12h	How would you characterize students' desire to do well in school within your school?	BT4GCHSD	BTBGCHSD	
TQM2-13	How many students are in the TIMSS class?	BT4MSTUD	BTBMSTUD	
TQM2-14	How many minutes per week do you teach mathematics to the <TIMSS class>?	BT4MTIMT	BTBMTIMT	
TQM2-15A	Do you use a textbook(s) in teaching mathematics to the <TIMSS class>?	BT4MTBTC	BTBMTBTC	
TQM2-15B	How do you use a textbook(s) in teaching mathematics to the <TIMSS class>?	BT4MTXBU	BTBMTXBU	
TQM2-16a	In a typical week of mathematics lessons for the <TIMSS class>, what percentage of time do students spend reviewing homework?	BT4MPTRH	BTBMPTRH	
TQM2-16b	In a typical week of mathematics lessons for the <TIMSS class>, what percentage of time do students spend listening to lecture-style presentations?	BT4MPTLS	BTBMPTLS	
TQM2-16c	In a typical week of mathematics lessons for the <TIMSS class>, what percentage of time do students spend working problems with your guidance?	BT4MPTYG	BTBMPTYG	

Exhibit S1.7 Index of International Background Variables for the TIMSS 2007 Mathematics Teacher Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQM2-16d	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?	BT4MPTOO	BTBMPTOO	
TQM2-16e	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?	BT4MPTRT	BTBMPTRT	
TQM2-16f	In a typical week of mathematics lessons for the <TIMSS class>, what percentage of time do students spend taking tests or quizzes?	BT4MPTTQ	BTBMPTTQ	
TQM2-16g	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)?	BT4MPTCM	BTBMPTCM	
TQM2-16h	In a typical week of mathematics lessons for the <TIMSS class>, what percentage of time do students spend other student activities?	BT4MPTOA	BTBMPTOA	
TQM2-17a	In teaching mathematics to the students in the TIMSS class, how often do you usually ask them to practice adding, subtracting, multiplying, and dividing without using a calculator?	BT4MASPC	BTBMASPC	
TQM2-17b	In teaching mathematics to the students in the TIMSS class, how often do you usually ask them to work on fractions and decimals?	BT4MASWF	BTBMASWF	
TQM2-17c	In teaching mathematics to the students in the TIMSS class, how often do you usually ask them to use knowledge of the properties of shapes, lines and angles to solve problems?	BT4MASUK	Not available	
TQM2-17d	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?	BT4MASID	BTBMASID	
TQM2-17e	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?	BT4MASRR	BTBMASRR	
TQM2-17f	In teaching mathematics to the students in the TIMSS class, how often do you usually ask them to memorize formulas and procedures?	BT4MASMF	Not available	
TQM2-17g	In teaching mathematics to the students in the TIMSS class, how often do you usually ask them to apply facts, concepts and procedures to solve routine problems?	BT4MASAC	Not available	
TQM2-17h	In teaching mathematics to the students in the TIMSS class, how often do you usually ask them to explain their answers?	BT4MASEA	BTBMASEA	
TQM2-17i	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?	BT4MASDL	BTBMASDL	

Exhibit S1.7 Index of International Background Variables for the TIMSS 2007 Mathematics Teacher Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQM2-17j	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?	BT4MASCP	BTBMASCP	
TQM2-17k	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?	BT4MASWS	BTBMASWS	
TQM2-17l	In teaching mathematics to the students in the TIMSS class, how often do you usually ask them to work together in small groups?	BT4MASSG	BTBMASSG	
TQM2-18a	In your view, to what extent do students with different academic abilities limit how you teach the TIMSS class?	BT4MLI01	BTBGLT01	
TQM2-18b	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?	BT4MLI02	BTBGLT02	
TQM2-18c	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?	BT4MLI03	BTBGLT03	
TQM2-18d	In your view, to what extent do uninterested students limit how you teach the TIMSS class?	BT4MLI04	BTBGLT04	
TQM2-18e	In your view, to what extent do disruptive students limit how you teach the TIMSS class?	BT4MLI05	BTBGLT06	
TQM2-18f	In your view, to what extent does a shortage of computer hardware limit how you teach the TIMSS class?	BT4MLI06	BTBGLT07	
TQM2-18g	In your view, to what extent does a shortage of computer software limit how you teach the TIMSS class?	BT4MLI07	BTBGLT08	
TQM2-18h	In your view, to what extent does a shortage of support for using computers limit how you teach the TIMSS class?	BT4MLI08	BTBGLT09	
TQM2-18i	In your view, to what extent does a shortage of textbooks for student use limit how you teach the TIMSS class?	BT4MLI09	BTBGLT10	
TQM2-18j	In your view, to what extent does a shortage of other instructional equipment for students' use limit how you teach the TIMSS class?	BT4MLI10	BTBGLT11	
TQM2-18k	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?	BT4MLI11	BTBGLT12	
TQM2-18l	In your view, to what extent do inadequate physical facilities limit how you teach the TIMSS class?	BT4MLI12	BTBGLT13	
TQM2-18m	In your view, to what extent does high student/teacher ratio limit how you teach the TIMSS class?	BT4MLI13	BTBGLT14	

Exhibit S1.7 Index of International Background Variables for the TIMSS 2007 Mathematics Teacher Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQM2-19a	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 and percent)?	BT4MCNUM	See Question TQM2-23 in 2003 for topics.	
TQM2-19b	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, formulas and relationships)?	BT4MCALG	See Question TQM2-23 in 2003 for topics.	
TQM2-19c	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)?	BT4MCGEO	See Question TQM2-23 in 2003 for topics.	
TQM2-19d	By the end of this school year, approximately what percentage of teaching time will you have spent during this school year on data and chance (e.g., reading, organizing and representing data, data interpretation and chance)?	BT4MCDAT	See Question TQM2-23 in 2003 for topics.	
TQM2-19e	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?	BT4MCOTH	See Question TQM2-23 in 2003 for topics.	
TQM2-20Aa	When were the students in the TIMSS class taught number topics? - Whole numbers including place value, factorization, and the four operations	BT4MTP01	See Questions TQM2-24A and TQM2-24C in 2003 for sub-topics.	
TQM2-20Ab	When were the students in the TIMSS class taught number topics? - Computations, estimations, or approximations involving whole numbers	BT4MTP02	See Questions TQM2-24A and TQM2-24C in 2003 for sub-topics.	
TQM2-20Ac	When were the students in the TIMSS class taught number topics? - Common fractions including equivalent fractions and ordering of fractions	BT4MTP03	See Questions TQM2-24A and TQM2-24C in 2003 for sub-topics.	
TQM2-20Ad	When were the students in the TIMSS class taught number topics? - Decimal including place value, ordering, and converting to common fractions (and vice versa)	BT4MTP04	See Questions TQM2-24A and TQM2-24C in 2003 for sub-topics.	
TQM2-20Ae	When were the students in the TIMSS class taught number topics? - Representing decimals and fractions using words, numbers, or models (including number lines)	BT4MTP05	See Questions TQM2-24A and TQM2-24C in 2003 for sub-topics.	
TQM2-20Af	When were the students in the TIMSS class taught number topics? - Computations with fractions	BT4MTP06	See Questions TQM2-24A and TQM2-24C in 2003 for sub-topics.	
TQM2-20Ag	When were the students in the TIMSS class taught number topics? - Computations with decimals	BT4MTP07	See Questions TQM2-24A and TQM2-24C in 2003 for sub-topics.	

Exhibit S1.7 Index of International Background Variables for the TIMSS 2007 Mathematics Teacher Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQM2-20Ah	When were the students in the TIMSS class taught number topics? - Representing, comparing, ordering, and computing with integers	BT4MTP08	See Questions TQM2-24A and TQM2-24C in 2003 for sub-topics.	
TQM2-20Ai	When were the students in the TIMSS class taught number topics? - Ratios (equivalence, division of a quantity by a given ratio)	BT4MTP09	See Questions TQM2-24A and TQM2-24C in 2003 for sub-topics.	
TQM2-20Aj	When were the students in the TIMSS class taught number topics? - Conversion of percents to fractions or decimals and vice versa	BT4MTP10	See Questions TQM2-24A and TQM2-24C in 2003 for sub-topics.	
TQM2-20Ba	When were the students in the TIMSS class taught algebra topics? - Numeric, algebraic, and geometric patterns or sequences (extension, missing terms, generalization of patterns)	BT4MTP11	See Question TQM2-24B in 2003 for sub-topics.	
TQM2-20Bb	When were the students in the TIMSS class taught algebra topics? - Sums, products, and powers of expressions containing variables	BT4MTP12	See Question TQM2-24B in 2003 for sub-topics.	
TQM2-20Bc	When were the students in the TIMSS class taught algebra topics? - Evaluating expressions for given numeric value	BT4MTP13	See Question TQM2-24B in 2003 for sub-topics.	
TQM2-20Bd	When were the students in the TIMSS class taught algebra topics? - Simplifying or comparing algebraic expressions	BT4MTP14	See Question TQM2-24B in 2003 for sub-topics.	
TQM2-20Be	When were the students in the TIMSS class taught algebra topics? - Modeling situations using expressions	BT4MTP15	See Question TQM2-24B in 2003 for sub-topics.	
TQM2-20Bf	When were the students in the TIMSS class taught algebra topics? - Evaluating functions/formulas for given values of the variables	BT4MTP16	See Question TQM2-24B in 2003 for sub-topics.	
TQM2-20Bg	When were the students in the TIMSS class taught algebra topics? - Simple linear equations and inequalities, and simultaneous (two variables) equations	BT4MTP17	See Question TQM2-24B in 2003 for sub-topics.	
TQM2-20Bh	When were the students in the TIMSS class taught algebra topics? - Equivalent representations of functions as ordered pairs, tables, graphs, words, or equations	BT4MTP18	See Question TQM2-24B in 2003 for sub-topics.	
TQM2-20Ca	When were the students in the TIMSS class taught geometry topics? - Angles - acute, right, straight, obtuse, reflex	BT4MTP19	See Questions TQM2-24C and TQM2-24D in 2003 for sub-topics.	
TQM2-20Cb	When were the students in the TIMSS class taught geometry topics? - Relationships for angles at a point, angles on a line, vertically opposite angles, angles associated with a transversal cutting parallel lines, and perpendicularity	BT4MTP20	See Questions TQM2-24C and TQM2-24D in 2003 for sub-topics.	
TQM2-20Cc	When were the students in the TIMSS class taught geometry topics? - Properties of geometric shapes: triangles, quadrilaterals, and other common polygons	BT4MTP21	See Questions TQM2-24C and TQM2-24D in 2003 for sub-topics.	

Exhibit S1.7 Index of International Background Variables for the TIMSS 2007 Mathematics Teacher Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQM2-20Cd	When were the students in the TIMSS class taught geometry topics? - Construct or draw triangles and rectangles of given dimensions	BT4MTP22	See Questions TQM2-24C and TQM2-24D in 2003 for sub-topics.	
TQM2-20Ce	When were the students in the TIMSS class taught geometry topics? - Congruent figures (triangles, quadrilaterals) and their corresponding measures	BT4MTP23	See Questions TQM2-24C and TQM2-24D in 2003 for sub-topics.	
TQM2-20Cf	When were the students in the TIMSS class taught geometry topics? - Similar triangles and recall their properties	BT4MTP24	See Questions TQM2-24C and TQM2-24D in 2003 for sub-topics.	
TQM2-20Cg	When were the students in the TIMSS class taught geometry topics? - Relationships between two-dimensional and three-dimensional shapes	BT4MTP25	See Questions TQM2-24C and TQM2-24D in 2003 for sub-topics.	
TQM2-20Ch	When were the students in the TIMSS class taught geometry topics? - Pythagorean Theorem (not proof) to find length of a side	BT4MTP26	See Questions TQM2-24C and TQM2-24D in 2003 for sub-topics.	
TQM2-20Ci	When were the students in the TIMSS class taught geometry topics? - Measurement, drawing, and estimation of the size of angles, the lengths of lines, areas, and volumes	BT4MTP27	See Questions TQM2-24C and TQM2-24D in 2003 for sub-topics.	
TQM2-20Cj	When were the students in the TIMSS class taught geometry topics? - Measurement formulas for perimeters, circumferences, areas of circles, surface areas, and volumes	BT4MTP28	See Questions TQM2-24C and TQM2-24D in 2003 for sub-topics.	
TQM2-20Ck	When were the students in the TIMSS class taught geometry topics? - Measures of irregular or compound areas (e.g., by covering with grids or dissecting and rearranging pieces)	BT4MTP29	See Questions TQM2-24C and TQM2-24D in 2003 for sub-topics.	
TQM2-20Cl	When were the students in the TIMSS class taught geometry topics? - Cartesian plane - ordered pairs, equations, intercepts, intersections, and gradient	BT4MTP30	See Questions TQM2-24C and TQM2-24D in 2003 for sub-topics.	
TQM2-20Cm	When were the students in the TIMSS class taught geometry topics? - Line and rotational symmetry for two-dimensional shapes	BT4MTP31	See Questions TQM2-24C and TQM2-24D in 2003 for sub-topics.	
TQM2-20Cn	When were the students in the TIMSS class taught geometry topics? - Translation, reflection, and rotation	BT4MTP32	See Questions TQM2-24C and TQM2-24D in 2003 for sub-topics.	
TQM2-20Da	When were the students in the TIMSS class taught data and chance topics? - Reading data from tables, pictographs, bar graphs, pie charts, and line graphs	BT4MTP33	See Questions TQM2-24E in 2003 for sub-topics.	
TQM2-20Db	When were the students in the TIMSS class taught data and chance topics? - Organizing and displaying data using tables, pictographs, bar graphs, pie charts, and line graphs	BT4MTP34	See Questions TQM2-24E in 2003 for sub-topics.	

Exhibit S1.7 Index of International Background Variables for the TIMSS 2007 Mathematics Teacher Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQM2-20Dc	When were the students in the TIMSS class taught data and chance topics? - Characteristics of data sets including mean, median, range, and shape of distribution (in general terms)	BT4MTP35	See Questions TQM2-24E in 2003 for sub-topics.	
TQM2-20Dd	When were the students in the TIMSS class taught data and chance topics? - Interpreting data sets (e.g., draw conclusions, make predictions, and estimate values between and beyond given data points)	BT4MTP36	See Questions TQM2-24E in 2003 for sub-topics.	
TQM2-20De	When were the students in the TIMSS class taught data and chance topics? - Data displays that could lead to misinterpretation (e.g., inappropriate grouping and misleading or distorted scales)	BT4MTP37	See Questions TQM2-24E in 2003 for sub-topics.	
TQM2-20Df	When were the students in the TIMSS class taught data and chance topics? - Using data from experiments to predict chances of future outcomes	BT4MTP38	See Questions TQM2-24E in 2003 for sub-topics.	
TQM2-20Dg	When were the students in the TIMSS class data and chance topics? - Taught using the chances of a particular outcome to solve problems	BT4MTP39	See Questions TQM2-24E in 2003 for sub-topics.	
TQM2-21	Are the students in the TIMSS class permitted to use calculators during mathematics lessons?	BT4MCAML	BTBMCAML	
TQM2-22a	How often do students in the TIMSS class use calculators in their mathematics lessons to check answers?	BT4MCALA	BTBMCALA	
TQM2-22b	How often do students in the TIMSS class use calculators in their mathematics lessons to do routine computations?	BT4MCALR	BTBMCALR	
TQM2-22c	How often do students in the TIMSS class use calculators in their mathematics lessons to solve complex problems?	BT4MCALS	BTBMCALS	
TQM2-22d	How often do students in the TIMSS class use calculators in their mathematics lessons to explore number concepts?	BT4MCALE	BTBMCALE	
TQM2-23A	Do students in the TIMSS class have computer(s) available to use during their mathematics lessons?	BT4MCOMA	BTBMCOMA	
TQM2-23B	Do any of the computer(s) have access to the Internet?	BT4MINTA	BTBMINTA	
TQM2-24a	In teaching mathematics to the TIMSS class, how often do you have students use a computer to discover mathematics principles and concepts?	BT4MCADM	BTBMCADM	
TQM2-24b	In teaching mathematics to the TIMSS class, how often do you have students use a computer to practice skills and procedures?	BT4MCASP	BTBMCASP	
TQM2-24c	In teaching mathematics to the TIMSS class, how often do you have students use a computer to look up ideas and information?	BT4MCALI	BTBMCALI	
TQM2-24d	In teaching mathematics to the TIMSS class, how often do you have students use a computer to process and analyze data?	BT4MCAPA	BTBMCAPA	
TQM2-25	Do you assign mathematics homework to the TIMSS class?	BT4MHMWO	BTBMHMWO	
TQM2-26	How often do you usually assign mathematics homework to the TIMSS class?	BT4MHWMC	BTBMHWMC	

Exhibit S1.7 Index of International Background Variables for the TIMSS 2007 Mathematics Teacher Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQM2-27	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.)	BT4MHWKM	BTBMHWKM	
TQM2-28a	How often do you assign doing problem/question sets as homework to the TIMSS class?	BT4MKHCP	BTBMKHCP	
TQM2-28b	How often do you assign gathering data and reporting as homework to the TIMSS class?	BT4MKHCG	BTBMKHCG	
TQM2-28c	How often do you assign finding one or more applications of the content covered as homework to the TIMSS class?	BT4MKHCA	BTBMKHCA	
TQM2-29a	How often do you monitor whether or not the homework was completed for the TIMSS class?	BT4MHDAM	BTBMHDAM	
TQM2-29b	How often do you correct assignments and then give feedback to students for the TIMSS class?	BT4MHDAF	BTBMHDAF	
TQM2-29c	How often do you have students correct their own homework in class for the TIMSS class?	BT4MHDAC	BTBMHDAC	
TQM2-29d	How often do you use the homework as a basis for class discussion for the TIMSS class?	BT4MHDAD	BTBMHDAD	
TQM2-29e	How often do you use the homework to contribute towards students' grades or marks for the TIMSS class?	BT4MHDAG	BTBMHDAG	
TQM2-30a	How much emphasis do you place on classroom tests (for example, teacher made or textbook tests) to monitor students' progress in mathematics?	BT4MEPCT	Not available	
TQM2-30b	How much emphasis do you place on national or regional achievement tests to monitor students' progress in mathematics?	BT4MEPNA	Not available	
TQM2-30c	How much emphasis do you place on your professional judgement to monitor students' progress in mathematics?	BT4MEPYJ	Not available	
TQM2-31	How often do you give a mathematics test or examination to the TIMSS class?	BT4MTEEX	BTBMTEEX	
TQM2-32	What item formats do you typically use in your mathematics tests or examinations?	BT4MWFTU	BTBMWFTU	
TQM2-33a	How often do you include questions based on recall of facts and procedures in your mathematics tests or examinations?	BT4MTEQP	Not available	
TQM2-33b	How often do you include questions involving application of mathematical procedures in your mathematics tests or examinations?	BT4MTEAP	BTBMTEAP	
TQM2-33c	How often do you include questions involving searching for patterns and relationships in your mathematics tests or examinations?	BT4MTESP	BTBMTESP	
TQM2-33d	How often do you include questions requiring explanations or justifications in your mathematics tests or examinations?	BT4MTEJU	BTBMTEJU	

Identification Label

Teacher Name: _____

Class Name:_____

Teacher ID: _____ Teacher Link #_____

Trends in International Mathematics and Science Study

TIMSS 2007

Teacher Questionnaire

MATHEMATICS
<Grade 8>

<TIMSS National Research Center Name>
<Address>

International Association for the Evaluation
of Educational Achievement
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General Directions

Your school has agreed to participate in TIMSS 2007, a large international study of student learning in mathematics and science in more than 60 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 2007 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 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.

Background Information

BT4GAGE

1 **How old are you?**

*Fill in **one** circle only*

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

BT4GSEX

2 **Are you female or male?**

*Fill in **one** circle only*

- Female ○
- Male ○

BT4GTAUT

3 **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

BT4GFEDC

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 4> ○
- Finished <ISCED 5B> ○
- Finished <ISCED 5A, first degree> ○
- Finished <ISCED 5A, second degree> or higher ○

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

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

		Yes	No	
a)	Mathematics	○	○	BT4MPSMA
b)	Education - Mathematics	○	○	BT4MPSEM
c)	Science	○	○	BT4SPSSC
d)	Education - Science	○	○	BT4SPSED
e)	Education - General	○	○	BT4GPSEG
f)	Other	○	○	BT4GPSOT

6 **Do you have a teaching license or certificate?**

	Yes	No	
*Fill in **one** circle only*	○	○	BT4GTLCE

Preparation to Teach (Continued)

7 How well prepared do you feel you are to teach the following topics?

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

		Not applicable	Very well prepared	Somewhat prepared	Not well prepared
	A. Number				
BT4MTT01	a) Computing, estimating or approximating with whole numbers	○	○	○	○
BT4MTT02	b) Representing decimals and fractions using words, numbers, or models (including number lines)	○	○	○	○
BT4MTT03	c) Computing with fractions and decimals	○	○	○	○
BT4MTT04	d) Representing, comparing, ordering, and computing with integers	○	○	○	○
BT4MTT05	e) Problem solving involving percents and proportions	○	○	○	○
	B. Algebra				
BT4MTT06	a) Numeric, algebraic, and geometric patterns or sequences (extension, missing terms, generalization of patterns)	○	○	○	○
BT4MTT07	b) Simplifying and evaluating the algebraic expressions	○	○	○	○
BT4MTT08	c) Simple linear equations and inequalities, and simultaneous (two variables) equations	○	○	○	○
BT4MTT09	d) Equivalent representations of functions as ordered pairs, tables, graphs, words, or equations	○	○	○	○
	C. Geometry				
BT4MTT10	a) Geometric properties of angles and geometric shapes (triangles, quadrilaterals, and other common polygons)	○	○	○	○
BT4MTT11	b) Congruent figures and similar triangles	○	○	○	○
BT4MTT12	c) Relationship between three–dimensional shapes and their two-dimensional representation	○	○	○	○
BT4MTT13	d) Using appropriate measurement formulas for perimeters, circumferences, areas of circles, surface areas and volumes	○	○	○	○
BT4MTT14	e) Cartesian plane - ordered pairs, equations, intercepts, intersections, and gradient	○	○	○	○
BT4MTT15	f) Translation, reflection, and rotation	○	○	○	○
	D. Data and Chance				
BT4MTT16	a) Reading and displaying data using tables, pictographs, bar graphs, pie charts and line graphs	○	○	○	○
BT4MTT17	b) Interpreting data sets (e.g., draw conclusions, make predictions, and estimate values between and beyond given data points)	○	○	○	○
BT4MTT18	c) Judging, predicting, and determining the chances of possible outcomes	○	○	○	○

Professional Development

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

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

	Never or almost never	2 or 3 times per month	1-3 times per week	Daily or almost daily
BT4GOTDC a) Discussions about how to teach a particular concept	○	○	○	○
BT4GOTPM b) Working on preparing instructional materials	○	○	○	○
BT4GOTVT c) Visits to another teacher's classroom to observe his/her teaching	○	○	○	○
BT4GOTAT d) Informal observations of **my** classroom by another teacher	○	○	○	○

9 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
BT4MPDMT a) Mathematics content	○	○
BT4MPDMP b) Mathematics pedagogy/instruction	○	○
BT4MPDMC c) Mathematics curriculum	○	○
BT4MPDIT d) Integrating information technology into mathematics	○	○
BT4GPDCT e) Improving students' critical thinking or problem solving skills	○	○
BT4MPDMA f) Mathematics assessment	○	○

Your 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*

	Agree a lot	Agree	Disagree	Disagree a lot
BT4GCUSN a) This school is located in a safe neighborhood	○	○	○	○
BT4GCUSA b) I feel safe at this school	○	○	○	○
BT4GCUAS c) This school's security policies and practices are sufficient	○	○	○	○

11 In your current school, how severe is each problem?

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

	Not a problem	Minor Problem	Serious problem
BT4GSPBR a) The school building needs significant repair	○	○	○
BT4GSPCO b) Classrooms are overcrowded	○	○	○
BT4GSPWO c) Teachers do not have adequate workspace outside their classroom	○	○	○

Your School (Continued)

12

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
BT4GCHTS	a) Teachers' job satisfaction	○	○	○	○	○
BT4GCHTU	b) Teachers' understanding of the school's curricular goals	○	○	○	○	○
BT4GCHTC	c) Teachers' degree of success in implementing the school's curriculum	○	○	○	○	○
BT4GCHES	d) Teachers' expectations for student achievement	○	○	○	○	○
BT4GCHPS	e) Parental support for student achievement	○	○	○	○	○
BT4GCHPI	f) Parental involvement in school activities	○	○	○	○	○
BT4GCHSR	g) Students' regard for school property	○	○	○	○	○
BT4GCHSD	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 2007 in your school.

BT4MSTUD

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

_____
Write in the number of students

BT4MTIMT

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

_____
Write in the number of minutes per week

BT4MTBTC

15

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

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

*If **No**, please go to question* **16**

BT4MTXBU

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 ○

16 **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	_____% BT4MPTRH
b)	Listening to lecture-style presentations	_____% BT4MPTLS
c)	Working problems with your guidance	_____% BT4MPTYG
d)	Working problems on their own without your guidance	_____% BT4MPTOO
e)	Listening to you re-teach and clarify content/procedures	_____% BT4MPTRT
f)	Taking tests or quizzes	_____% BT4MPTTQ
g)	Participating in classroom management tasks not related to the lesson's content/purpose (e.g., interruptions and keeping order)	_____% BT4MPTCM
h)	Other student activities	_____% BT4MPTOA
Total		100%

Teaching Mathematics to the TIMSS Class

17 **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*

		Every or almost every lesson	About half the lessons	Some lessons	Never
BT4MASPC	a) Practice adding, subtracting, multiplying, and dividing without using a calculator	○	○	○	○
BT4MASWF	b) Work on fractions and decimals	○	○	○	○
BT4MASUK	c) Use knowledge of the properties of shapes, lines and angles to solve problems	○	○	○	○
BT4MASID	d) Interpret data in tables, charts or graphs	○	○	○	○
BT4MASRR	e) Write equations and functions to represent relationships	○	○	○	○
BT4MASMF	f) Memorize formulas and procedures	○	○	○	○
BT4MASAC	g) Apply facts, concepts and procedures to solve routine problems	○	○	○	○
BT4MASEA	h) Explain their answers	○	○	○	○
BT4MASDL	i) Relate what they are learning in mathematics to their daily lives	○	○	○	○
BT4MASCP	j) Decide on their own procedures for solving complex problems	○	○	○	○
BT4MASWS	k) Work on problems for which there is no immediately obvious method of solution	○	○	○	○
BT4MASSG	l) Work together in small groups	○	○	○	○

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

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

		Not applicable	Not at all	A little	Some	A lot
	Students					
BT4MLI01	a) Students with different academic abilities	○	○	○	○	○
BT4MLI02	b) Students who come from a wide range of backgrounds (e.g., economic, language)	○	○	○	○	○
BT4MLI03	c) Students with special needs (e.g., hearing, vision, speech impairment, physical disabilities, mental or emotional/psychological impairment)	○	○	○	○	○
BT4MLI04	d) Uninterested students	○	○	○	○	○
BT4MLI05	e) Disruptive students	○	○	○	○	○
	Resources					
BT4MLI06	f) Shortage of computer hardware	○	○	○	○	○
BT4MLI07	g) Shortage of computer software	○	○	○	○	○
BT4MLI08	h) Shortage of support for using computers	○	○	○	○	○
BT4MLI09	i) Shortage of textbooks for student use	○	○	○	○	○
BT4MLI10	j) Shortage of other instructional equipment for students' use	○	○	○	○	○
BT4MLI11	k) Shortage of equipment for your use in demonstrations and other exercises	○	○	○	○	○
BT4MLI12	l) Inadequate physical facilities	○	○	○	○	○
BT4MLI13	m) High student/teacher ratio	○	○	○	○	○

19

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%

BT4MCNUM a) Number (e.g., whole numbers, fractions, decimals, ratio, proportion and percent) ---------- _____%

BT4MCALG b) Algebra (e.g., patterns, equations, formulas and relationships) ---------- _____%

BT4MCGEO c) Geometry (e.g., lines and angles, shapes, congruence and similarity, spatial relationships, symmetry and transformations) ---------- _____%

BT4MCDAT d) Data and Chance (e.g., reading, organizing and representing data, data interpretation and chance) ---------- _____%

BT4MCOTH e) Other, please specify:

_____ ---------- _____%

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



Teaching Mathematics to the TIMSS Class (Continued)

20

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 but not yet completed, please choose "Mostly taught this year." If a topic is not in the curriculum, please choose "Not yet taught or just introduced."

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

		Mostly taught before this year	Mostly taught this year	Not yet taught or just introduced
	A. Number			
BT4MTP01	a) Whole numbers including place value, factorization, and the four operations	○	○	○
BT4MTP02	b) Computations, estimations, or approximations involving whole numbers	○	○	○
BT4MTP03	c) Common fractions including equivalent fractions and ordering of fractions	○	○	○
BT4MTP04	d) Decimal including place value, ordering, and converting to common fractions (and vice versa)	○	○	○
BT4MTP05	e) Representing decimals and fractions using words, numbers, or models (including number lines)	○	○	○
BT4MTP06	f) Computations with fractions	○	○	○
BT4MTP07	g) Computations with decimals	○	○	○
BT4MTP08	h) Representing, comparing, ordering, and computing with integers	○	○	○
BT4MTP09	i) Ratios (equivalence, division of a quantity by a given ratio)	○	○	○
BT4MTP10	j) Conversion of percents to fractions or decimals and vice versa	○	○	○
	B. Algebra			
BT4MTP11	a) Numeric, algebraic, and geometric patterns or sequences (extension, missing terms, generalization of patterns)	○	○	○
BT4MTP12	b) Sums, products, and powers of expressions containing variables	○	○	○
BT4MTP13	c) Evaluating expressions for given numeric value	○	○	○
BT4MTP14	d) Simplifying or comparing algebraic expressions	○	○	○
BT4MTP15	e) Modeling situations using expressions	○	○	○
BT4MTP16	f) Evaluating functions/formulas for given values of the variables	○	○	○
BT4MTP17	g) Simple linear equations and inequalities, and simultaneous (two variables) equations	○	○	○
BT4MTP18	h) Equivalent representations of functions as ordered pairs, tables, graphs, words, or equations	○	○	○

20 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 but not yet completed, please choose "Mostly taught this year." If a topic is not in the curriculum, please choose "Not yet taught or just introduced."

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

		Mostly taught before this year	Mostly taught this year	Not yet taught or just introduced
	C. Geometry			
BT4MTP19	a) Angles - acute, right, straight, obtuse, reflex	○	○	○
BT4MTP20	b) Relationships for angles at a point, angles on a line, vertically opposite angles, angles associated with a transversal cutting parallel lines, and perpendicularity	○	○	○
BT4MTP21	c) Properties of geometric shapes: triangles, quadrilaterals, and other common polygons	○	○	○
BT4MTP22	d) Construct or draw triangles and rectangles of given dimensions	○	○	○
BT4MTP23	e) Congruent figures (triangles, quadrilaterals) and their corresponding measures	○	○	○
BT4MTP24	f) Similar triangles and recall their properties	○	○	○
BT4MTP25	g) Relationships between two-dimensional and three-dimensional shapes	○	○	○
BT4MTP26	h) Pythagorean theorem (not proof) to find length of a side	○	○	○
BT4MTP27	i) Measurement, drawing, and estimation of the size of angles, the lengths of lines, areas, and volumes	○	○	○
BT4MTP28	j) Measurement formulas for perimeters, circumferences, areas of circles, surface areas, and volumes	○	○	○
BT4MTP29	k) Measures of irregular or compound areas (e.g., by covering with grids or dissecting and rearranging pieces)	○	○	○
BT4MTP30	l) Cartesian plane - ordered pairs, equations, intercepts, intersections, and gradient	○	○	○
BT4MTP31	m) Line and rotational symmetry for two-dimensional shapes	○	○	○
BT4MTP32	n) Translation, reflection, and rotation	○	○	○
	D. Data and Chance			
BT4MTP33	a) Reading data from tables, pictographs, bar graphs, pie charts, and line graphs	○	○	○
BT4MTP34	b) Organizing and displaying data using tables, pictographs, bar graphs, pie charts, and line graphs	○	○	○
BT4MTP35	c) Characteristics of data sets including mean, median, range, and shape of distribution (in general terms)	○	○	○
BT4MTP36	d) Interpreting data sets (e.g., draw conclusions, make predictions, and estimate values between and beyond given data points)	○	○	○
BT4MTP37	e) Data displays that could lead to misinterpretation (e.g., inappropriate grouping and misleading or distorted scales)	○	○	○
BT4MTP38	f) Using data from experiments to predict chances of future outcomes	○	○	○
BT4MTP39	g) Using the chances of a particular outcome to solve problems	○	○	○

Calculators and Computers in the TIMSS Class

BT4MCAML

21 **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* **23**

BT4MCALA
BT4MCALR
BT4MCALS
BT4MCALE

22 **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	○	○	○	○
b) Do routine computations	○	○	○	○
c) Solve complex problems	○	○	○	○
d) Explore number concepts	○	○	○	○

BT4MCOMA

23 **A. Do students in the TIMSS class have computer(s) available to use during their mathematics lessons?**

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

*If **No,** please go to question* **25**

BT4MINTA

B. Do any of the computer(s) have access to the Internet?

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

24 **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	○	○	○	○
b) Practice skills and procedures	○	○	○	○
c) Look up ideas and information	○	○	○	○
d) Process and analyze data	○	○	○	○

BT4MCADM
BT4MCASP
BT4MCALI
BT4MCAPA

Homework

BT4MHMWO

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

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

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

BT4MHWMC

26 **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 ○

BT4MHWKM

27 **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 ○

28 **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	○	○	○	BT4MKHCP
b) Gathering data and reporting	○	○	○	BT4MKHCG
c) Finding one or more applications of the content covered	○	○	○	BT4MKHCA

29 **How often do you do the following with the mathematics homework assignments for the TIMSS class?**

*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	○	○	○	BT4MHDAM
b) Correct assignments and then give feedback to students	○	○	○	BT4MHDAF
c) Have students correct their own homework in class	○	○	○	BT4MHDAC
d) Use the homework as a basis for class discussion	○	○	○	BT4MHDAD
e) Use the homework to contribute towards students' grades or marks	○	○	○	BT4MHDAG

Assessment

30 How much emphasis do you place on the following sources to monitor students' progress in mathematics?

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

		No emphasis	Little emphasis	Some emphasis	Major emphasis
BT4MEPCT	a) Classroom tests (for example, teacher made or textbook tests)	○	○	○	○
BT4MEPNA	b) National or regional achievement tests	○	○	○	○
BT4MEPYJ	c) Your professional judgement	○	○	○	○

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

BT4MTEEX

*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*

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

BT4MWFTU

*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 ○

33 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
BT4MTEQP	a) Questions based on recall of facts and procedures	○	○	○
BT4MTEAP	b) Questions involving application of mathematical procedures	○	○	○
BT4MTESP	c) Questions involving searching for patterns and relationships	○	○	○
BT4MTEJU	d) Questions requiring explanations or justifications	○	○	○

Thank You

for completing this questionnaire



TIMSS & PIRLS
International Study Center
Lynch School of Education, Boston College

Teacher Questionnaire

MATHEMATICS
<Grade 8>

Eighth Grade
Science Teacher Questionnaire



Exhibit S1.8 Index of International Background Variables for the TIMSS 2007 Science Teacher Questionnaire - Eighth Grade

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQS2_01	How old are you?	BT4GAGE	BTBGAGE	
TQS2_02	Are you female or male?	BT4GSEX	BTBGSEX	
TQS2_03	By the end of this school year, how many years will you have been teaching altogether?	BT4GTAUT	BTBGTAUT	
TQS2_04	What is the highest level of formal education you have completed?	BT4GFEDC	BTBGFEDC	Modified wording in 2007
TQS2_05a	During your <post-secondary> education, was your major or main area(s) of study biology?	BT4SPSBI	BTBSPSBI	
TQS2_05b	During your <post-secondary> education, was your major or main area(s) of study physics?	BT4SPSPH	BTBSPSPH	
TQS2_05c	During your <post-secondary> education, was your major or main area(s) of study chemistry?	BT4SPSCH	BTBSPSCH	
TQS2_05d	During your <post-secondary> education, was your major or main area(s) of study <earth science>?	BT4SPSES	BTBSPSES	
TQS2_05e	During your <post-secondary> education, was your major or main area(s) of study education-science?	BT4SPSED	BTBSPSED	
TQS2_05f	During your <post-secondary> education, was your major or main area(s) of study mathematics?	BT4MPSMA	BTBMPSMA	
TQS2_05g	During your <post-secondary> education, was your major or main area(s) of study education-mathematics?	BT4MPSEM	BTBMPSEM	
TQS2_05h	During your <post-secondary> education, was your major or main area(s) of study education-general?	BT4GPSEG	BTBGPSEG	
TQS2_05i	During your <post-secondary> education, was your major or main area(s) of study other?	BT4GPSOT	BTBGPSOT	
TQS2_06	Do you have a teaching license or certificate?	BT4GTLCE	BTBGTLCE	
TQS2_07Aa	How well prepared do you feel you are to teach biology topics? - Major organs and organ systems in humans and other organisms (structure/function, life processes that maintain stable bodily conditions)	BT4STT01	Options modified in 2007. See Question TQS2-09A in 2003 for sub-topics.	
TQS2_07Ab	How well prepared do you feel you are to teach biology topics? - Cells and their functions, including respiration and photosynthesis as cellular processes	BT4STT02	Options modified in 2007. See Question TQS2-09A in 2003 for sub-topics.	
TQS2_07Ac	How well prepared do you feel you are to teach biology topics? - Reproduction (sexual and asexual) and heredity (passing on of traits, inherited versus acquired/learned characteristics)	BT4STT03	Options modified in 2007. See Question TQS2-09A in 2003 for sub-topics.	

Exhibit S1.8 Index of International Background Variables for the TIMSS 2007 Science Teacher Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQS2_07Ad	How well prepared do you feel you are to teach biology topics? - The role of variation and adaptation in survival/extinction of species in a changing environment	BT4STT04	Options modified in 2007. See Question TQS2-09A in 2003 for sub-topics.	
TQS2_07Ae	How well prepared do you feel you are to teach biology topics? - The interaction of living organisms and the physical environment in an ecosystem (energy flow, food webs, effect of changes, cycling of materials)	BT4STT05	Options modified in 2007. See Question TQS2-09A in 2003 for sub-topics.	
TQS2_07Af	How well prepared do you feel you are to teach biology topics? - Trends in human population and its effects on the environment	BT4STT06	Options modified in 2007. See Question TQS2-09A in 2003 for sub-topics.	
TQS2_07Ag	How well prepared do you feel you are to teach biology topics? - The impact of natural hazards on humans, wildlife, and the environment	BT4STT07	Options modified in 2007. See Question TQS2-09A in 2003 for sub-topics.	
TQS2_07Ba	How well prepared do you feel you are to teach chemistry topics? - The classification and composition of matter (properties of elements, compounds, mixtures)	BT4STT08	Options modified in 2007. See Question TQS2-09B in 2003 for sub-topics.	
TQS2_07Bb	How well prepared do you feel you are to teach chemistry topics? - Particulate structure of matter (molecules, atoms, protons, neutrons, and electrons)?	BT4STT09	Options modified in 2007. See Question TQS2-09B in 2003 for sub-topics.	
TQS2_07Bc	How well prepared do you feel you are to teach chemistry topics? - Solutions (solvent, solute, concentration/dilution, effect of temperature on solubility)	BT4STT10	Options modified in 2007. See Question TQS2-09B in 2003 for sub-topics.	
TQS2_07Bd	How well prepared do you feel you are to teach chemistry topics? - Properties and uses of common acids and bases	BT4STT11	Options modified in 2007. See Question TQS2-09B in 2003 for sub-topics.	
TQS2_07Be	How well prepared do you feel you are to teach chemistry topics? - Chemical change (transformation of reactants, evidence of chemical change, conservation of matter, common oxidation reactions - combustion and rusting)	BT4STT12	Options modified in 2007. See Question TQS2-09B in 2003 for sub-topics.	
TQS2_07Ca	How well prepared do you feel you are to teach physics topics? - Physical states and changes in matter (explanations of properties in terms of movement/ distance between particles; phase change, thermal expansion and changes in volume and/or pressure)	BT4STT13	Options modified in 2007. See Question TQS2-09C in 2003 for sub-topics.	
TQS2_07Cb	How well prepared do you feel you are to teach physics topics? - Energy forms, transformations, heat, and temperature	BT4STT14	Options modified in 2007. See Question TQS2-09C in 2003 for sub-topics.	
TQS2_07Cc	How well prepared do you feel you are to teach physics topics? - Basic properties/behaviors of light (reflection, refraction, light and color, simple ray diagrams) and sound (transmission through media, loudness, pitch, amplitude, frequency, relative speed of light and sound)	BT4STT15	Options modified in 2007. See Question TQS2-09C in 2003 for sub-topics.	

Exhibit S1.8 Index of International Background Variables for the TIMSS 2007 Science Teacher Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQS2_07Cd	How well prepared do you feel you are to teach physics topics? - Electric circuits (flow of current; types of circuits - parallel/series; current/voltage relationship)	BT4STT16	Options modified in 2007. See Question TQS2-09C in 2003 for sub-topics.	
TQS2_07Ce	How well prepared do you feel you are to teach physics topics? - Properties of permanent magnets and electromagnets	BT4STT17	Options modified in 2007. See Question TQS2-09C in 2003 for sub-topics.	
TQS2_07Cf	How well prepared do you feel you are to teach physics topics? - Forces and motion (types of forces, basic description of motion, use of distance/time graphs, effects of density and pressure)	BT4STT18	Options modified in 2007. See Question TQS2-09C in 2003 for sub-topics.	
TQS2_07Da	How well prepared do you feel you are to teach earth science topics? - Earth's structure and physical features (Earth's crust, mantle and core; use of topographic maps)	BT4STT19	See Question TQS2-09D and TQS2-09E in 2003 for sub-topics.	
TQS2_07Db	How well prepared do you feel you are to teach earth science topics? - Earth's processes, cycles and history (rock cycle; water cycle; weather patterns; major geological events; formation of fossils and fossil fuels)	BT4STT20	See Question TQS2-09D and TQS2-09E in 2003 for sub-topics.	
TQS2_07Dc	How well prepared do you feel you are to teach earth science topics? - Environmental concerns (e.g., pollution, global warming, acid rain)	BT4STT21	See Question TQS2-09D and TQS2-09E in 2003 for sub-topics.	
TQS2_07Dd	How well prepared do you feel you are to teach earth science topics? - The use and conservation of Earth's natural resources (renewable/non-renewable resources, human use of land/soil and water resources)	BT4STT22	See Question TQS2-09D and TQS2-09E in 2003 for sub-topics.	
TQS2_07De	How well prepared do you feel you are to teach earth science topics? - 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)	BT4STT23	See Question TQS2-09D and TQS2-09E in 2003 for sub-topics.	
TQS2_08a	How often do you have discussions about how to teach a particular concept with other teachers?	BT4GOTDC	BTBGOTDC	
TQS2_08b	How often do you work on preparing instructional materials with other teachers?	BT4GOTPM	BTBGOTPM	
TQS2_08c	How often do you visit another teacher's classroom to observe his/her teaching?	BT4GOTVT	BTBGOTVT	
TQS2_08d	How often do you have informal observations of your classroom by another teacher?	BT4GOTAT	BTBGOTAT	
TQS2_09a	In the past two years, have you participated in professional development in science content?	BT4SPDST	BTBSPDST	
TQS2_09b	In the past two years, have you participated in professional development in science pedagogy/instruction?	BT4SPDSP	BTBSPDSP	

Exhibit S1.8 Index of International Background Variables for the TIMSS 2007 Science Teacher Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQS2_09c	In the past two years, have you participated in professional development in science curriculum?	BT4SPDSC	BTBSPDSC	
TQS2_09d	In the past two years, have you participated in professional development in integrating information technology into science?	BT4SPDIT	BTBSPDIT	
TQS2_09e	In the past two years, have you participated in professional development in improving students' critical thinking or inquiry skills?	BT4GPDIN	BTBGPDIN	
TQS2_09f	In the past two years, have you participated in professional development in science assessment?	BT4SPDSA	BTBSPDSA	
TQS2_10a	Thinking about your current school, indicate the extent to which you agree or disagree that this school is located in a safe neighborhood.	BT4GCUSN	BTBGCUSN	
TQS2_10b	Thinking about your current school, indicate the extent to which you agree or disagree that you feel safe at this school.	BT4GCUSA	BTBGCUSA	
TQS2_10c	Thinking about your current school, indicate the extent to which you agree or disagree that this school's security policies and practices are sufficient.	BT4GCUAS	BTBGCUAS	
TQS2_11a	In your current school, how severe this problem? - The school building needs significant repair.	BT4GSPBR	Not available	
TQS2_11b	In your current school, how severe this problem? - Classrooms are overcrowded	BT4GSPCO	Not available	
TQS2_11c	In your current school, how severe this problem? - Teachers do not have adequate workspace outside their classroom	BT4GSPWO	Not available	
TQS2_11d	In your current school, how severe this problem? - Materials are not available to conduct experiments or investigations	BT4GSPME	Not available	
TQS2_12a	How would you characterize teachers' job satisfaction within your school?	BT4GCHTS	BTBGCHTS	
TQS2_12b	How would you characterize teachers' understanding of the school's curricular goals within your school?	BT4GCHTU	BTBGCHTU	
TQS2_12c	How would you characterize teachers' degree of success in implementing the school's curriculum within your school?	BT4GCHTC	BTBGCHTC	
TQS2_12d	How would you characterize teachers' expectations for student achievement within your school?	BT4GCHES	BTBGCHES	
TQS2_12e	How would you characterize parental support for student achievement within your school?	BT4GCHPS	BTBGCHPS	
TQS2_12f	How would you characterize parental involvement in school activities within your school?	BT4GCHPI	BTBGCHPI	
TQS2_12g	How would you characterize students' regard for school property within your school?	BT4GCHSR	BTBGCHSR	
TQS2_12h	How would you characterize students' desire to do well in school within your school?	BT4GCHSD	BTBGCHSD	

Exhibit S1.8 Index of International Background Variables for the TIMSS 2007 Science Teacher Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQS2_13	How many students are in the <TIMSS class/class with the TIMSS students>?	BT4SSTUD	BTBSSTUD	
TQS2_14	How many minutes per week do you teach science to the <TIMSS class>?	BT4STIMT	BTBSTIMT	
TQS2_15A	Do you use a textbook(s) in teaching science to the <TIMSS class>?	BT4STBTC	BTBSTBTC	
TQS2_15B	How do you use a textbook(s) in teaching science to the <TIMSS class>?	BT4STXBU	BTBSTXBU	
TQS2_16a	In a typical week of science lessons for the <TIMSS class>, what percentage of time do students spend reviewing homework?	BT4SPTRH	BTBSPTRH	
TQS2_16b	In a typical week of science lessons for the <TIMSS class>, what percentage of time do students spend listening to lecture-style presentations?	BT4SPTLS	BTBSPTLS	
TQS2_16c	In a typical week of science lessons for the <TIMSS class>, what percentage of time do students spend working problems with your guidance?	BT4SPTYG	BTBSPTYG	
TQS2_16d	In a typical week of science lessons for the <TIMSS class>, what percentage of time do students spend working problems on their own without your guidance?	BT4SPTOO	BTBSPTOO	
TQS2_16e	In a typical week of science lessons for the <TIMSS class>, what percentage of time do students spend listening to you re-teach and clarify content/ procedures?	BT4SPTRT	BTBSPTRT	
TQS2_16f	In a typical week of science lessons for the <TIMSS class>, what percentage of time do students spend taking tests or quizzes?	BT4SPTTQ	BTBSPTTQ	
TQS2_16g	In a typical week of science 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)?	BT4SPTCM	BTBSPTCM	
TQS2_16h	In a typical week of science lessons for the <TIMSS class>, what percentage of time do students spend on other student activities?	BT4SPTOA	BTBSPTOA	
TQS2_17a	In teaching science to the students in the <TIMSS class>, how often do you usually ask them to observe natural phenomena and describe what they see?	BT4SCSON	Not available	
TQS2_17b	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?	BT4SCSWD	BTBSCSWD	
TQS2_17c	In teaching science to the students in the <TIMSS class>, how often do you usually ask them to design or plan experiments or investigations?	BT4SCSDP	BTBSCSDP	
TQS2_17d	In teaching science to the students in the <TIMSS class>, how often do you usually ask them to conduct experiments or investigations?	BT4SCSEI	BTBSCSEI	
TQS2_17e	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?	BT4SCSSG	BTBSCSSG	
TQS2_17f	In teaching science to the students in the <TIMSS class>, how often do you usually ask them to read their textbooks or other resource materials?	BT4SCSRM	Not available	

Exhibit S1.8 Index of International Background Variables for the TIMSS 2007 Science Teacher Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQS2_17g	In teaching science to the students in the <TIMSS class>, how often do you usually ask them to memorize facts and principles?	BT4SCSHP	Not available	
TQS2_17h	In teaching science to the students in the <TIMSS class>, how often do you usually ask them to use scientific formulae and laws to solve routine problems?	BT4SCSUP	Not available	
TQS2_17i	In teaching science to the students in the <TIMSS class>, how often do you usually ask them to give explanations about something they are studying?	BT4SCSGS	Not available	
TQS2_17j	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?	BT4SCSDL	BTBSCSDL	
TQS2_18a	In your view, to what extent do students with different academic abilities limit how you teach the <TIMSS class>?	BT4SLI01	BTBGLT01	
TQS2_18b	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>?	BT4SLI02	BTBGLT02	
TQS2_18c	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>?	BT4SLI03	BTBGLT03	
TQS2_18d	In your view, to what extent do uninterested students limit how you teach the <TIMSS class>?	BT4SLI04	BTBGLT04	
TQS2_18e	In your view, to what extent do disruptive students limit how you teach the <TIMSS class>?	BT4SLI05	BTBGLT06	
TQS2_18f	In your view, to what extent does a shortage of computer hardware limit how you teach the <TIMSS class>?	BT4SLI06	BTBGLT07	
TQS2_18g	In your view, to what extent does a shortage of computer software limit how you teach the <TIMSS class>?	BT4SLI07	BTBGLT08	
TQS2_18h	In your view, to what extent does a shortage of support for using computers limit how you teach the <TIMSS class>?	BT4SLI08	BTBGLT09	
TQS2_18i	In your view, to what extent does a shortage of textbooks for student use limit how you teach the <TIMSS class>?	BT4SLI09	BTBGLT10	
TQS2_18j	In your view, to what extent does a shortage of other instructional equipment for students' use limit how you teach the <TIMSS class>?	BT4SLI10	BTBGLT11	
TQS2_18k	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>?	BT4SLI11	BTBGLT12	
TQS2_18l	In your view, to what extent do inadequate physical facilities limit how you teach the <TIMSS class>?	BT4SLI12	BTBGLT13	
TQS2_18m	In your view, to what extent does a high student/teacher ratio limit how you teach the <TIMSS class>?	BT4SLI13	BTBGLT14	

Exhibit S1.8 Index of International Background Variables for the TIMSS 2007 Science Teacher Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQS2_19a	By the end of this school year, approximately what percentage of teaching time will you have spent during this school year on biology (e.g., structure/function; life processes, reproduction/heredity, natural selection; ecosystems, human health) for the <TIMSS class>?	BT4SCLSC	See Question TQS2-23 in 2003 for topics.	
TQS2_19b	By the end of this school year, approximately what percentage of teaching time will you have spent during this school year on chemistry (e.g., classification, composition and properties of matter; chemical change) for the <TIMSS class>?	BT4SCCHE	See Question TQS2-23 in 2003 for topics.	
TQS2_19c	By the end of this school year, approximately what percentage of teaching time will you have spent during this school year on physics (e.g., physical states/ changes in matter; energy; light; sound; electricity and magnetism; forces and motion) for the <TIMSS class>?	BT4SCPHY	See Question TQS2-23 in 2003 for topics.	
TQS2_19d	By the end of this school year, approximately what percentage of teaching time will you have spent during this school year on earth science (e.g., Earth's structure, processes, and resources; the solar system and universe) for the <TIMSS class>?	BT4SCESC	See Question TQS2-23 in 2003 for topics.	
TQS2_19e	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 <TIMSS class>?	BT4SCOTH	See Question TQS2-23 in 2003 for topics.	
TQS2_20Aa	When were the students in the <TIMSS class> taught biology topics? - Classification of organisms on the basis of a variety of physical and behavioral characteristics	BT4STP01	See Question TQS2-24A in 2003 for sub-topics.	
TQS2_20Ab	When were the students in the <TIMSS class> taught biology topics? - Major organ systems in humans and other organisms	BT4STP02	See Question TQS2-24A in 2003 for sub-topics.	
TQS2_20Ac	When were the students in the <TIMSS class> taught biology topics? - How the systems function to maintain stable bodily conditions	BT4STP03	See Question TQS2-24A in 2003 for sub-topics.	
TQS2_20Ad	When were the students in the <TIMSS class> taught biology topics? - Cell structures and functions	BT4STP04	See Question TQS2-24A in 2003 for sub-topics.	
TQS2_20Ae	When were the students in the <TIMSS class> taught biology topics? - Photosynthesis and respiration (including substances used and produced) as processes of cells and organisms	BT4STP05	See Question TQS2-24A in 2003 for sub-topics.	
TQS2_20Af	When were the students in the <TIMSS class> taught biology topics? - Life cycles of organisms, including humans, plants, birds, insects	BT4STP06	See Question TQS2-24A in 2003 for sub-topics.	
TQS2_20Ag	When were the students in the <TIMSS class> taught biology topics? - Reproduction (sexual and asexual), and heredity (passing on of traits, inherited versus acquired/learned characteristics)	BT4STP07	See Question TQS2-24A in 2003 for sub-topics.	
TQS2_20Ah	When were the students in the <TIMSS class> taught biology topics? - The role of variation and adaptation in survival/extinction of species in a changing environment	BT4STP08	See Question TQS2-24A in 2003 for sub-topics.	

Exhibit S1.8 Index of International Background Variables for the TIMSS 2007 Science Teacher Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQS2_20Ai	When were the students in the <TIMSS class> taught biology topics? - Interaction of living organisms in an ecosystem (energy flow, food chains and food webs, food pyramids, and the effects of change upon the system)	BT4STP09	See Question TQS2-24A in 2003 for sub-topics.	
TQS2_20Aj	When were the students in the <TIMSS class> taught biology topics? - Cycling of materials in nature (water, carbon/oxygen cycle, decomposition of organisms)	BT4STP10	See Question TQS2-24A in 2003 for sub-topics.	
TQS2_20Ak	When were the students in the <TIMSS class> taught biology topics? - Trends in human population and its effects on the environment	BT4STP11	See Question TQS2-24A in 2003 for sub-topics.	
TQS2_20Al	When were the students in the <TIMSS class> taught biology topics? - The impact of natural hazards on humans, wildlife, and the environment	BT4STP12	See Question TQS2-24A in 2003 for sub-topics.	
TQS2_20Am	When were the students in the <TIMSS class> taught biology topics? - Causes of common infectious diseases, methods of infection/transmission, prevention, and the body's natural resistance and healing capabilities	BT4STP13	See Question TQS2-24A in 2003 for sub-topics.	
TQS2_20An	When were the students in the <TIMSS class> taught biology topics? - Preventive medicine methods (diet, hygiene, exercise, and lifestyle)	BT4STP14	See Question TQS2-24A in 2003 for sub-topics.	
TQS2_20Ba	When were the students in the <TIMSS class> taught chemistry topics? - Classification and composition of matter (physical and chemical properties, pure substances and mixtures, separation techniques)	BT4STP15	See Question TQS2-24B in 2003 for sub-topics.	
TQS2_20Bb	When were the students in the <TIMSS class> taught chemistry topics? - Particulate structure of matter (molecules, atoms, protons, neutrons, and electrons)?	BT4STP16	See Question TQS2-24B in 2003 for sub-topics.	
TQS2_20Bc	When were the students in the <TIMSS class> taught chemistry topics? - Solutions (solvents, solutes, effect of temperature on solubility)	BT4STP17	See Question TQS2-24B in 2003 for sub-topics.	
TQS2_20Bd	When were the students in the <TIMSS class> taught chemistry topics? - Properties and uses of water (composition, melting/boiling points, changes in density/volume)	BT4STP18	See Question TQS2-24B in 2003 for sub-topics.	
TQS2_20Be	When were the students in the <TIMSS class> taught chemistry topics? - Properties and uses of common acids and bases	BT4STP19	See Question TQS2-24B in 2003 for sub-topics.	
TQS2_20Bf	When were the students in the <TIMSS class> taught chemistry topics? - Chemical change (transformation of reactants, evidence of chemical change, conservation of matter)	BT4STP20	See Question TQS2-24B in 2003 for sub-topics.	
TQS2_20Bg	When were the students in the <TIMSS class> taught chemistry topics? - Common oxidation reactions (combustion, rusting), the need for oxygen and the relative tendency of familiar substances to undergo these reactions	BT4STP21	See Question TQS2-24B in 2003 for sub-topics.	
TQS2_20Bh	When were the students in the <TIMSS class> taught chemistry topics? - Classification of familiar chemical transformations as releasing or absorbing heat/energy	BT4STP22	See Question TQS2-24B in 2003 for sub-topics.	

Exhibit S1.8 Index of International Background Variables for the TIMSS 2007 Science Teacher Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQS2_20Ca	When were the students in the <TIMSS class> taught physics topics? - Physical states and changes in matter (explanations of properties including volume, shape, density, and compressibility in terms of movement/distance between particles, conservation of mass during physical changes)	BT4STP23	See Question TQS2-24C in 2003 for sub-topics.	
TQS2_20Cb	When were the students in the <TIMSS class> taught physics topics? - Processes of melting, freezing, evaporation, and condensation (phase change; melting/boiling points; effects of pressure and purity of substances)	BT4STP24	See Question TQS2-24C in 2003 for sub-topics.	
TQS2_20Cc	When were the students in the <TIMSS class> taught physics topics? - Energy forms, transformations, heat and temperature, including heat transfer	BT4STP25	See Question TQS2-24C in 2003 for sub-topics.	
TQS2_20Cd	When were the students in the <TIMSS class> taught physics topics? - Temperature changes related to changes in volume and/or pressure and to changes in movement or speed of particles	BT4STP26	See Question TQS2-24C in 2003 for sub-topics.	
TQS2_20Ce	When were the students in the <TIMSS class> taught physics topics? - Basic properties/behavior of light (reflection, refraction, light and color, simple ray diagrams)	BT4STP27	See Question TQS2-24C in 2003 for sub-topics.	
TQS2_20Cf	When were the students in the <TIMSS class> taught the physics topics? - Properties of sound (transmission through media, ways of describing sound (loudness, pitch, amplitude, frequency), relative speed)	BT4STP28	See Question TQS2-24C in 2003 for sub-topics.	
TQS2_20Cg	When were the students in the <TIMSS class> taught physics topics? - Electric circuits (flow of current, types of circuits – parallel/series) and relationship between voltage and current	BT4STP29	See Question TQS2-24C in 2003 for sub-topics.	
TQS2_20Ch	When were the students in the <TIMSS class> taught physics topics? - Properties of permanent magnets and electromagnets	BT4STP30	See Question TQS2-24C in 2003 for sub-topics.	
TQS2_20Ci	When were the students in the <TIMSS class> taught physics topics? - Forces and motion (types of forces, basic description of motion), use of distance/time graphs	BT4STP31	See Question TQS2-24C in 2003 for sub-topics.	
TQS2_20Cj	When were the students in the <TIMSS class> taught physics topics? - Effects of density and pressure	BT4STP32	See Question TQS2-24C in 2003 for sub-topics.	
TQS2_20Da	When were the students in the <TIMSS class> taught earth science topics? - Earth's structure and physical features (Earth's crust, mantle, and core; topographic maps)	BT4STP33	See Questions TQS2-24D and in TQS2-24E in 2003 for sub-topics.	
TQS2_20Db	When were the students in the <TIMSS class> taught earth science topics? - The physical state, movement, composition, and relative distribution of water on Earth	BT4STP34	See Questions TQS2-24D and in TQS2-24E in 2003 for sub-topics.	

Exhibit S1.8 Index of International Background Variables for the TIMSS 2007 Science Teacher Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQS2_20Dc	When were students in the <TIMSS class> taught earth science topics? - Earth's atmosphere and the relative abundance of its main components	BT4STP35	See Questions TQS2-24D and in TQS2-24E in 2003 for sub-topics.	
TQS2_20Dd	When were students in the <TIMSS class> taught earth science topics? - Earth's water cycle (steps, role of sun's energy, circulation/renewal of fresh water)	BT4STP36	See Questions TQS2-24D and in TQS2-24E in 2003 for sub-topics.	
TQS2_20De	When were students in the <TIMSS class> taught earth science topics? - Processes in the rock cycle and the formation of igneous, metamorphic, and sedimentary rock	BT4STP37	See Questions TQS2-24D and in TQS2-24E in 2003 for sub-topics.	
TQS2_20Df	When were students in the <TIMSS class> taught earth science topics? - Weather data/maps and changes in weather patterns (e.g., seasonal changes, effects of latitude, altitude, and geography)	BT4STP38	See Questions TQS2-24D and in TQS2-24E in 2003 for sub-topics.	
TQS2_20Dg	When were students in the <TIMSS class> taught earth science topics? - Geological processes occurring over millions of years? (e.g., erosion, mountain building, plate movement)	BT4STP39	See Questions TQS2-24D and in TQS2-24E in 2003 for sub-topics.	
TQS2_20Dh	When were students in the <TIMSS class> taught earth science topics? - Formation of fossils and fossil fuels	BT4STP40	See Questions TQS2-24D and in TQS2-24E in 2003 for sub-topics.	
TQS2_20Di	When were students in the <TIMSS class> taught earth science topics? - Environmental concerns (e.g., pollution, global warming, acid rain)	BT4STP41	See Questions TQS2-24D and in TQS2-24E in 2003 for sub-topics.	
TQS2_20Dj	When were students in the <TIMSS class> taught earth science topics? - Earth's resources (renewable/nonrenewable, conservation, waste management)	BT4STP42	See Questions TQS2-24D and in TQS2-24E in 2003 for sub-topics.	
TQS2_20Dk	When were students in the <TIMSS class> taught earth science topics? - Relationship of land management (e.g., pest control) to human use (e.g., farming)	BT4STP43	See Questions TQS2-24D and in TQS2-24E in 2003 for sub-topics.	
TQS2_20Dl	When were students in the <TIMSS class> taught earth science topics? - Supply and demand of fresh water resources	BT4STP44	See Questions TQS2-24D and in TQS2-24E in 2003 for sub-topics.	
TQS2_20Dm	When were students in the <TIMSS class> taught earth science topics? - 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)	BT4STP45	See Questions TQS2-24D and in TQS2-24E in 2003 for sub-topics.	
TQS2_20Dn	When were students in the <TIMSS class> taught earth science topics? - 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)	BT4STP46	See Questions TQS2-24D and in TQS2-24E in 2003 for sub-topics.	

Exhibit S1.8 Index of International Background Variables for the TIMSS 2007 Science Teacher Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQS2_21A	Do students in the <TIMSS class> have computer(s) available to use during their science lessons?	BT4SCOMA	BTBSCOMA	
TQS2_21B	Do any of the computer(s) have access to the Internet?	BT4SINTA	BTBSINTA	
TQS2_22a	In teaching science to the <TIMSS class>, how often do you have students use a computer to do scientific procedures or experiments?	BT4SCAPE	BTBSCAPE	
TQS2_22b	In teaching science to the <TIMSS class>, how often do you have students use a computer to study natural phenomena through simulations?	BT4SCANP	BTBSCANP	
TQS2_22c	In teaching science to the <TIMSS class>, how often do you have students use a computer to practice skills and procedures?	BT4SCASP	BTBSCASP	
TQS2_22d	In teaching science to the <TIMSS class>, how often do you have students use a computer to look up ideas and information?	BT4SCALI	BTBSCALI	
TQS2_22e	In teaching science to the <TIMSS class>, how often do you have students use a computer to process and analyze data?	BT4SCAPA	BTBSCAPA	
TQS2_23	Do you assign science homework to the <TIMSS class>?	BT4SHMWO	BTBSHMWO	
TQS2_24	How often do you usually assign science homework to the <TIMSS class>?	BT4SHWMC	BTBSHWMC	
TQS2_25	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?)	BT4SHWKM	BTBSHWKM	
TQS2_26a	How often do you assign doing problem/question sets as science homework to the <TIMSS class>?	BT4SKHCP	BTBSKHCP	
TQS2_26b	How often do you assign finding one or more applications of the content covered as science homework to the <TIMSS class>?	BT4SKHCA	BTBSKHCA	
TQS2_26c	How often do you assign reading from a textbook or supplementary materials as science homework to the <TIMSS class>?	BT4SKHCT	BTBSKHCT	
TQS2_26d	How often do you assign writing definitions or other short writing assignments as science homework to the <TIMSS class>?	BT4SKHCW	BTBSKHCW	
TQS2_26e	How often do you assign working on projects as science homework to the <TIMSS class>?	BT4SKHCR	BTBSKHCR	
TQS2_26f	How often do you assign working on small investigations or gathering data as science homework to the <TIMSS class>?	BT4SKHCS	BTBSKHCS	

Exhibit S1.8 Index of International Background Variables for the TIMSS 2007 Science Teacher Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
TQS2_26g	How often do you assign preparing reports as science homework to the <TIMSS class>?	BT4SKHCG	BTBSKHCG	
TQS2_27a	How often do you monitor whether or not the homework was completed for the students in the <TIMSS class>?	BT4SHDAM	BTBSHDAM	
TQS2_27b	How often do you correct assignments and then give feedback to students for the students in the <TIMSS class>?	BT4SHDAF	BTBSHDAF	
TQS2_27c	How often do you have students correct their own homework in class for the students in the <TIMSS class>?	BT4SHDAC	BTBSHDAC	
TQS2_27d	How often do you use the homework as a basis for class discussion for the students in the <TIMSS class>?	BT4SHDAD	BTBSHDAD	
TQS2_27e	How often do you use the homework to contribute towards students' grades or marks for the students in the <TIMSS class>?	BT4SHDAG	BTBSHDAG	
TQS2_28a	How much emphasis do you place on classroom tests (for example, teacher made or textbook tests) to monitor students' progress in science?	BT4SEPCT	Not available	
TQS2_28b	How much emphasis do you place on national or regional achievement tests to monitor students' progress in science?	BT4SEPNA	Not available	
TQS2_28c	How much emphasis do you place on your professional judgement to monitor students' progress in science?	BT4SEPYJ	Not available	
TQS2_29	How often do you give a science test or examination to the <TIMSS class>?	BT4STEEX	BTBSTEEX	
TQS2_30	What item formats do you typically use in your science tests or examinations?	BT4SWFTU	BTBSWFTU	
TQS2_31a	How often do you include questions based on knowing facts and concepts in your science tests or examinations?	BT4STERU	Not available	
TQS2_31b	How often do you include questions based on the application of knowledge and understanding in your science tests or examinations?	BT4STEIH	Not available	
TQS2_31c	How often do you include questions involving developing hypotheses and designing scientific investigations in your science tests or examinations?	BT4STEBR	Not available	
TQS2_31d	How often do you include questions requiring explanations or justifications in your science tests or examinations?	BT4STEJU	Not available	

Identification Label

Teacher Name: _____

Class Name:_____

Teacher ID: _____ Teacher Link #_____

Trends in International Mathematics and Science Study

TIMSS 2007

Teacher Questionnaire

SCIENCE
<Grade 8>

<TIMSS National Research Center Name>
<Address>

International Association for the Evaluation
of Educational Achievement
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General Directions

Your school has agreed to participate in TIMSS 2007, a large international study of student learning in mathematics and science in more than 60 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 2007 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 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.

Background Information

1 BT4GAGE

How old are you?

*Fill in **one** circle only*

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

2 BT4GSEX

Are you female or male?

*Fill in **one** circle only*

- Female ○
- Male ○

3 BT4GTAUT

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 BT4GFEDC

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 4> ○
- Finished <ISCED 5B> ○
- Finished < ISCED 5A, first degree> ○
- Finished <ISCED 5A, second degree> or higher ○

5

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

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

		No	Yes	
a)	Biology	○	○	BT4SPSBI
b)	Physics	○	○	BT4SPSPH
c)	Chemistry	○	○	BT4SPSCH
d)	<Earth Science>	○	○	BT4SPSES
e)	Education - Science	○	○	BT4SPSED
f)	Mathematics	○	○	BT4MPSMA
g)	Education - Mathematics	○	○	BT4MPSEM
h)	Education - General	○	○	BT4GPSEG
i)	Other	○	○	BT4GPSOT

6

Do you have a teaching license or certificate?

	No	Yes	
*Fill in **one** circle only*	○	○	BT4GTLCE

Preparation to Teach (Continued)

7 How well prepared do you feel you are to teach the following topics?

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

		Not well prepared	Somewhat prepared	Very well prepared	Not applicable
	A. Biology				
BT4STT01	a) Major organs and organ systems in humans and other organisms (structure/function, life processes that maintain stable bodily conditions)	○	○	○	○
BT4STT02	b) Cells and their functions, including respiration and photosynthesis as cellular processes	○	○	○	○
BT4STT03	c) Reproduction (sexual and asexual) and heredity (passing on of traits, inherited versus acquired/learned characteristics)	○	○	○	○
BT4STT04	d) Role of variation and adaptation in survival/extinction of species in a changing environment	○	○	○	○
BT4STT05	e) Interaction of living organisms and the physical environment in an ecosystem (energy flow, food webs, effect of changes, cycling of materials)	○	○	○	○
BT4STT06	f) Trends in human population and its effects on the environment	○	○	○	○
BT4STT07	g) Impact of natural hazards on humans, wildlife, and the environment	○	○	○	○
	B. Chemistry				
BT4STT08	a) Classification and composition of matter (properties of elements, compounds, mixtures)	○	○	○	○
BT4STT09	b) Particulate structure of matter (molecules, atoms, protons, neutrons, and electrons)	○	○	○	○
BT4STT10	c) Solutions (solvent, solute, concentration/dilution, effect of temperature on solubility)	○	○	○	○
BT4STT11	d) Properties and uses of common acids and bases	○	○	○	○
BT4STT12	e) Chemical change (transformation of reactants, evidence of chemical change, conservation of matter, common oxidation reactions - combustion and rusting)	○	○	○	○
	C. Physics				
BT4STT13	a) Physical states and changes in matter (explanations of properties in terms of movement/distance between particles; phase change, thermal expansion and changes in volume and/or pressure)	○	○	○	○
BT4STT14	b) Energy forms, transformations, heat, and temperature	○	○	○	○
BT4STT15	c) Basic properties/behaviors of light (reflection, refraction, light and color, simple ray diagrams) and sound (transmission through media, loudness, pitch, amplitude, frequency, relative speed of light and sound)	○	○	○	○
BT4STT16	d) Electric circuits (flow of current; types of circuits - parallel/series; current/voltage relationship)	○	○	○	○
BT4STT17	e) Properties of permanent magnets and electromagnets	○	○	○	○
BT4STT18	f) Forces and motion (types of forces, basic description of motion, use of distance/time graphs, effects of density and pressure)	○	○	○	○

7 Continued

How well prepared do you feel you are to teach the following topics?

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

		Not well prepared	Somewhat prepared	Very well prepared	Not applicable
	D. Earth Science				
BT4STT19	a) Earth's structure and physical features (Earth's crust, mantle and core; use of topographic maps)	○	○	○	○
BT4STT20	b) Earth's processes, cycles and history (rock cycle; water cycle; weather patterns; major geological events; formation of fossils and fossil fuels)	○	○	○	○
BT4STT21	c) Environmental concerns (e.g., pollution, global warming, acid rain)	○	○	○	○
BT4STT22	d) Use and conservation of Earth's natural resources (renewable/non-renewable resources, human use of land/soil and water resources)	○	○	○	○
BT4STT23	e) 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)	○	○	○	○

Professional Development

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

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

		Never or almost never	2 or 3 times per month	1-3 times per week	Daily or almost daily
BT4GOTDC	a) Discussions about how to teach a particular concept	○	○	○	○
BT4GOTPM	b) Working on preparing instructional materials	○	○	○	○
BT4GOTVT	c) Visits to another teacher's classroom to observe his/her teaching	○	○	○	○
BT4GOTAT	d) Informal observations of **my** classroom by another teacher	○	○	○	○

9 **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
BT4SPDST	a) Science content	○	○
BT4SPDSP	b) Science pedagogy/instruction	○	○
BT4SPDSC	c) Science curriculum	○	○
BT4SPDIT	d) Integrating information technology into science	○	○
BT4GPDIN	e) Improving students' critical thinking or inquiry skills	○	○
BT4SPDSA	f) Science assessment	○	○

Your 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*

		Agree a lot	Agree	Disagree	Disagree a lot
BT4GCUSN	a) This school is located in a safe neighborhood	○	○	○	○
BT4GCUSA	b) I feel safe at this school	○	○	○	○
BT4GCUAS	c) This school's security policies and practices are sufficient	○	○	○	○

11 **In your current school, how severe is each problem?**

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

		Not a problem	Minor problem	Serious problem
BT4GSPBR	a) The school building needs significant repair	○	○	○
BT4GSPCO	b) Classrooms are overcrowded	○	○	○
BT4GSPWO	c) Teachers do not have adequate workspace outside their classroom	○	○	○
BT4GSPME	d) Materials are not available to conduct science experiments or investigations	○	○	○

12

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
BT4GCHTS	a) Teachers' job satisfaction	○	○	○	○	○
BT4GCHTU	b) Teachers' understanding of the school's curricular goals	○	○	○	○	○
BT4GCHTC	c) Teachers' degree of success in implementing the school's curriculum	○	○	○	○	○
BT4GCHES	d) Teachers' expectations for student achievement	○	○	○	○	○
BT4GCHPS	e) Parental support for student achievement	○	○	○	○	○
BT4GCHPI	f) Parental involvement in school activities	○	○	○	○	○
BT4GCHSR	g) Students' regard for school property	○	○	○	○	○
BT4GCHSD	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 2007 in your school.

BT4SSTUD

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

_____
Write in the number of students

BT4STIMT

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

_____
Write in the number of minutes per week

BT4STBTC

15

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

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

*If **No**, please go to question* **16**

BT4STXBU

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 ○

16 **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	BT4SPTRH
b)	Listening to lecture-style presentations	BT4SPTLS
c)	Working problems with your guidance	BT4SPTYG
d)	Working problems on their own without your guidance	BT4SPTOO
e)	Listening to you re-teach and clarify content/procedures	BT4SPTRT
f)	Taking tests or quizzes	BT4SPTTQ
g)	Participating in classroom management tasks not related to the lesson's content/purpose (e.g., interruptions and keeping order)	BT4SPTCM
h)	Other student activities	BT4SPTOA
Total		100%

Teaching Science to the TIMSS Class

17 **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	
a) Observe natural phenomena and describe what they see	○	○	○	○	BT4SCSON
b) Watch me demonstrate an experiment or investigation	○	○	○	○	BT4SCSWD
c) Design or plan experiments or investigations	○	○	○	○	BT4SCSDP
d) Conduct experiments or investigations	○	○	○	○	BT4SCSEI
e) Work together in small groups on experiments or investigations	○	○	○	○	BT4SCSSG
f) Read their textbooks or other resource materials	○	○	○	○	BT4SCSRM
g) Have students memorize facts and principles	○	○	○	○	BT4SCSHP
h) Use scientific formulae and laws to solve routine problems	○	○	○	○	BT4SCSUP
i) Give explanations about something they are studying	○	○	○	○	BT4SCSGS
j) Relate what they are learning in science to their daily lives	○	○	○	○	BT4SCSDL

18 **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						
a) Students with different academic abilities	○	○	○	○	○	BT4SLI01
b) Students who come from a wide range of backgrounds (e.g., economic, language)	○	○	○	○	○	BT4SLI02
c) Students with special needs (e.g., hearing, vision, speech impairment, physical disabilities, mental or emotional/psychological impairment)	○	○	○	○	○	BT4SLI03
d) Uninterested students	○	○	○	○	○	BT4SLI04
e) Disruptive students	○	○	○	○	○	BT4SLI05
Resources						
f) Shortage of computer hardware	○	○	○	○	○	BT4SLI06
g) Shortage of computer software	○	○	○	○	○	BT4SLI07
h) Shortage of support for using computers	○	○	○	○	○	BT4SLI08
i) Shortage of textbooks for student use	○	○	○	○	○	BT4SLI09
j) Shortage of other instructional equipment for students' use	○	○	○	○	○	BT4SLI10
k) Shortage of equipment for your use in demonstrations and other exercises	○	○	○	○	○	BT4SLI11
l) Inadequate physical facilities	○	○	○	○	○	BT4SLI12
m) High student/teacher ratio	○	○	○	○	○	BT4SLI13

19

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%

BT4SCLSC a) Biology (e.g., structure/function; life processes, reproduction/heredity, natural selection; ecosystems, human health) ---------- _____%

BT4SCCHE b) Chemistry (e.g., classification, composition and properties of matter; chemical change) ---------- _____%

BT4SCPHY c) Physics (e.g., physical states/ changes in matter; energy; light; sound; electricity and magnetism; forces and motion) ---------- _____%

BT4SCESC d) Earth science (e.g., Earth's structure, processes, and resources; the solar system and universe) ---------- _____%

BT4SCOTH e) Other, please specify:

_____ ---------- _____%

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

20

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 but not yet completed, please choose "Mostly taught this year." If a topic is not in the curriculum, please choose "Not yet taught or just introduced."

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

		Mostly taught before this year	Mostly taught this year	Not yet taught or just introduced
	A. Biology			
BT4STP01	a) Classification of organisms on the basis of a variety of physical and behavioral characteristics	○	○	○
BT4STP02	b) Major organ systems in humans and other organisms	○	○	○
BT4STP03	c) How the systems function to maintain stable bodily conditions	○	○	○
BT4STP04	d) Cell structures and functions	○	○	○
BT4STP05	e) Photosynthesis and respiration (including substances used and produced) as processes of cells and organisms	○	○	○
BT4STP06	f) Life cycles of organisms, including humans, plants, birds, insects	○	○	○
BT4STP07	g) Reproduction (sexual and asexual), and heredity (passing on of traits, inherited versus acquired/learned characteristics)	○	○	○
BT4STP08	h) Role of variation and adaptation in survival/extinction of species in a changing environment	○	○	○
BT4STP09	i) Interaction of living organisms in an ecosystem (energy flow, food chains and food webs, food pyramids, and the effects of change upon the system)	○	○	○
BT4STP10	j) Cycling of materials in nature (water, carbon/oxygen cycle, decomposition of organisms)	○	○	○
BT4STP11	k) Trends in human population and its effects on the environment	○	○	○
BT4STP12	l) Impact of natural hazards on humans, wildlife, and the environment	○	○	○
BT4STP13	m) Causes of common infectious diseases, methods of infection/transmission, prevention, and the body's natural resistance and healing capabilities	○	○	○
BT4STP14	n) Preventive medicine methods (diet, hygiene, exercise, and lifestyle)	○	○	○



20 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 but not yet completed, please choose "Mostly taught this year." If a topic is not in the curriculum, please choose "Not yet taught or just introduced."

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

		Mostly taught before this year	Mostly taught this year	Not yet taught or just introduced
	B. Chemistry			
BT4STP15	a) Classification and composition of matter (physical and chemical properties, pure substances and mixtures, separation techniques)	○	○	○
BT4STP16	b) Particulate structure of matter (molecules, atoms, protons, neutrons, and electrons)	○	○	○
BT4STP17	c) Solutions (solvents, solutes, effect of temperature on solubility)	○	○	○
BT4STP18	d) Properties and uses of water (composition, melting/boiling points, changes in density/volume)	○	○	○
BT4STP19	e) Properties and uses of common acids and bases	○	○	○
BT4STP20	f) Chemical change (transformation of reactants, evidence of chemical change, conservation of matter)	○	○	○
BT4STP21	g) Common oxidation reactions (combustion, rusting), the need for oxygen and the relative tendency of familiar substances to undergo these reactions	○	○	○
BT4STP22	h) Classification of familiar chemical transformations as releasing or absorbing heat/energy	○	○	○

20 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 but not yet completed, please choose "Mostly taught this year." If a topic is not in the curriculum, please choose "Not yet taught or just introduced."

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

		Mostly taught before this year	Mostly taught this year	Not yet taught or just introduced
	C. Physics			
BT4STP23	a) Physical states and changes in matter (explanations of properties including volume, shape, density, and compressibility in terms of movement/distance between particles, conservation of mass during physical changes)	○	○	○
BT4STP24	b) Processes of melting, freezing, evaporation, and condensation (phase change; melting/boiling points; effects of pressure and purity of substances)	○	○	○
BT4STP25	c) Energy forms, transformations, heat and temperature, including heat transfer	○	○	○
BT4STP26	d) Temperature changes related to changes in volume and/or pressure and to changes in movement or speed of particles	○	○	○
BT4STP27	e) Basic properties/behavior of light (reflection, refraction, light and color, simple ray diagrams)	○	○	○
BT4STP28	f) Properties of sound (transmission through media, ways of describing sound (loudness, pitch, amplitude, frequency), relative speed)	○	○	○
BT4STP29	g) Electric circuits (flow of current, types of circuits – parallel/series) and relationship between voltage and current	○	○	○
BT4STP30	h) Properties of permanent magnets and electromagnets	○	○	○
BT4STP31	i) Forces and motion (types of forces, basic description of motion), use of distance/time graphs	○	○	○
BT4STP32	j) Effects of density and pressure	○	○	○



20 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 but not yet completed, please choose "Mostly taught this year." If a topic is not in the curriculum, please choose "Not yet taught or just introduced."

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

		Mostly taught before this year	Mostly taught this year	Not yet taught or just introduced
	D. Earth Science			
BT4STP33	a) Earth's structure and physical features (Earth's crust, mantle, and core; topographic maps)	○	○	○
BT4STP34	b) The physical state, movement, composition, and relative distribution of water on Earth	○	○	○
BT4STP35	c) Earth's atmosphere and the relative abundance of its main components	○	○	○
BT4STP36	d) Earth's water cycle (steps, role of sun's energy, circulation/renewal of fresh water)	○	○	○
BT4STP37	e) Processes in the rock cycle and the formation of igneous, metamorphic, and sedimentary rock	○	○	○
BT4STP38	f) Weather data/maps and changes in weather patterns (e.g., seasonal changes, effects of latitude, altitude, and geography)	○	○	○
BT4STP39	g) Geological processes occurring over millions of years (e.g., erosion, mountain building, plate movement)	○	○	○
BT4STP40	h) Formation of fossils and fossil fuels	○	○	○
BT4STP41	i) Environmental concerns (e.g., pollution, global warming, acid rain)	○	○	○
BT4STP42	j) Earth's resources (renewable/nonrenewable, conservation, waste management)	○	○	○
BT4STP43	k) Relationship of land management (e.g., pest control) to human use (e.g., farming)	○	○	○
BT4STP44	l) Supply and demand of fresh water resources	○	○	○
BT4STP45	m) 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)	○	○	○
BT4STP46	n) 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)	○	○	○

Computers in the TIMSS Class

21

BT4SCOMA

A. Do students in the <TIMSS class> have computer(s) available to use during their science lessons?

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

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

BT4SINTA

B. Do any of the computer(s) have access to the Internet?

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

22

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
BT4SCAPE a) Do scientific procedures or experiments	○	○	○	○
BT4SCANP b) Study natural phenomena through simulations	○	○	○	○
BT4SCASP c) Practice skills and procedures	○	○	○	○
BT4SCALI d) Look up ideas and information	○	○	○	○
BT4SCAPA e) Process and analyze data	○	○	○	○

Homework

23 BT4SHMWO

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

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

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

24 BT4SHWMC

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 ○

25 BT4SHWKM

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 ○

26

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	○	○	○	BT4SKHCP
b)	Finding one or more applications of the content covered	○	○	○	BT4SKHCA
c)	Reading from a textbook or supplementary materials	○	○	○	BT4SKHCT
d)	Writing definitions or other short writing assignments	○	○	○	BT4SKHCW
e)	Working on projects	○	○	○	BT4SKHCR
f)	Working on small investigations or gathering data	○	○	○	BT4SKHCS
g)	Preparing reports	○	○	○	BT4SKHCG

27

How often do you do the following with the science homework assignments for the students in the <TIMSS class>?

*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	○	○	○	BT4SHDAM
b)	Correct assignments and then give feedback to students	○	○	○	BT4SHDAF
c)	Have students correct their own homework in class	○	○	○	BT4SHDAC
d)	Use the homework as a basis for class discussion	○	○	○	BT4SHDAD
e)	Use the homework to contribute towards students' grades or marks	○	○	○	BT4SHDAG

Assessment

28 **How much emphasis do you place on the following sources to monitor students' progress in science?**

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

		No emphasis	Little emphasis	Some emphasis	Major emphasis
BT4SEPCT	a) Classroom tests (for example, teacher made or textbook tests)	○	○	○	○
BT4SEPNA	b) National or regional achievement tests	○	○	○	○
BT4SEPYJ	c) Your professional judgement	○	○	○	○

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

*Fill in **one** circle only*

BT4STEEX

- 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*

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

BT4SWFTU

*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 ○

31 **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
BT4STERU	a) Questions based on knowing facts and concepts	○	○	○
BT4STEIH	b) Questions based on the application of knowledge and understanding	○	○	○
BT4STEBR	c) Questions involving developing hypotheses and designing scientific investigations	○	○	○
BT4STEJU	d) Questions requiring explanations or justifications	○	○	○

Thank You

for completing this questionnaire



TIMSS & PIRLS
International Study Center
Lynch School of Education, Boston College

Teacher Questionnaire

SCIENCE
<Grade 8>

Eighth Grade
School Questionnaire

Section 9

Exhibit S1.9 Index of International Background Variables for the TIMSS 2007 School Questionnaire - Eighth Grade

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
SCQ2-1A	What is the total school enrollment (number of students) in all grades?	BC4GTENR	BCBGTENR	
SCQ2-1B	What is the enrollment in the <eighth-grade>?	BC4GEENR	BCBGEENR	
SCQ2-2	How many people live in the city, town, or area where your school is located?	BC4GCOMU	BCBGCOMU	
SCQ2-3a	Approximately what percentage of students in your school come from economically disadvantaged homes?	BC4GSBED	BCBGSBED	
SCQ2-3b	Approximately what percentage of students in your school come from economically affluent homes?	BC4GSBEA	BCBGSBEA	
SCQ2-4	Approximately what percentage of students in your school have <language of test> as their native language?	BC4GNALA	BCBGNALA	
SCQ2-5A	How many days per year is your school open for instruction (for the <eighth-grade> students)?	BC4GDYSO	BCBGDYSO	Modified wording in 2007
SCQ2-5Ba	What is the total instructional time (hours), excluding breaks, in a typical day (for the <eighth-grade> students in your school)?	BC4GHTIT	Not available	
SCQ2-5Bb	What is the remainder of instructional time (minutes), excluding breaks, in a typical day (for the <eighth-grade> students in your school)?	BC4GMTIT	Not available	
SCQ2-5C	In one calendar week, how many days is the school open for instruction (for the <eighth-grade> students in your school)?	BC4GDSOI	Not available	
SCQ2-6a	By the end of this school year, approximately what percentage of time in your role as principal will you have spent on administrative duties?	BC4GAPAD	BCBGAPAD	
SCQ2-6b	By the end of this school year, approximately what percentage of time in your role as principal will you have spent on instructional leadership?	BC4GAPIL	BCBGAPIL	
SCQ2-6c	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?	BC4GAPST	BCBGAPST	
SCQ2-6d	By the end of this school year, approximately what percentage of time in your role as principal will you have spent on teaching?	BC4GAPTE	BCBGAPTE	
SCQ2-6e	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?	BC4GAPPR	BCBGAPPR	
SCQ2-6f	By the end of this school year, approximately what percentage of time in your role as principal will you have spent on other?	BC4GAPOT	BCBGAPOT	
SCQ2-7a	Does your school ask parents to attend special events (e.g., science fair, concert, sporting events)?	BC4GAPSE	BCBGEPSE	
SCQ2-7b	Does your school ask parents to raise funds for the school?	BC4GAPRF	BCBGEPRF	
SCQ2-7c	Does your school ask parents to volunteer for school projects, programs, and trips?	BC4GAPVO	BCBGEPVO	

Exhibit S1.9 Index of International Background Variables for the TIMSS 2007 School Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
SCQ2-7d	Does your school ask parents to ensure that their child completes his/her homework?	BC4GAPCH	BCBGEPCH	
SCQ2-7e	Does your school ask parents to serve on school committees (e.g., select school personnel, review school finances)?	BC4GAPSC	BCBGEPSC	
SCQ2-8a	How would you characterize teachers' job satisfaction?	BC4GCHTS	BCBGCHTS	
SCQ2-8b	How would you characterize teachers' understanding of the school's curricular?	BC4GCHTU	BCBGCHTU	
SCQ2-8c	How would you characterize teachers' degree of success in implementing the school's curriculum?	BC4GCHTC	BCBGCHTC	
SCQ2-8d	How would you characterize teachers' expectations for student achievement?	BC4GCHES	BCBGCHES	
SCQ2-8e	How would you characterize parental support for student achievement?	BC4GCHPS	BCBGCHPS	
SCQ2-8f	How would you characterize parental involvement in school activities?	BC4GCHPI	BCBGCHPI	
SCQ2-8g	How would you characterize students' regard for school property?	BC4GCHSR	BCBGCHSR	
SCQ2-8h	How would you characterize students' desire to do well?	BC4GCHSD	BCBGCHSD	
SCQ2-9	Are <eighth grade> students in your school grouped by ability for their mathematics classes?	BC4MGAMC	BCBMGAMC	
SCQ2-10a	Does your school offer enrichment mathematics for students in the <eighth grade>?	BC4MSOEM	BCBMSOEM	
SCQ2-10b	Does your school offer remedial mathematics for students in the <eighth grade>?	BC4MSORM	BCBMSORM	
SCQ2-11	Are <eighth grade> students in your school grouped by ability for their science classes?	BC4SGASC	BCBSGASC	
SCQ2-12a	Does your school offer enrichment science for students in the <eighth grade>?	BC4SSOES	BCBSSOES	
SCQ2-12b	Does your school offer remedial science for students in the <eighth grade>?	BC4SSORS	BCBSSORS	
SCQ2-13a	In the past two years, what percentage of your <eighth grade> teachers have been involved in professional development opportunities for mathematics and science targeted at supporting the implementation of the national or regional curriculum?	BC4GPDIC	BCBGPDIC	Modified options in 2007
SCQ2-13b	In the past two years, what percentage of your <eighth grade> teachers have been involved in professional development opportunities for mathematics and science targeted at designing or supporting the school's own improvement goals?	BC4GPDSG	BCBGPDSG	Modified options in 2007
SCQ2-13c	In the past two years, what percentage of your <eighth grade> teachers have been involved in professional development opportunities for mathematics and science targeted at improving content knowledge?	BC4GPDIK	BCBGPDIK	Modified options in 2007

Exhibit S1.9 Index of International Background Variables for the TIMSS 2007 School Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
SCQ2-13d	In the past two years, what percentage of your <eighth grade> teachers have been involved in professional development opportunities for mathematics and science targeted at improving teaching skills?	BC4GPDTS	BCBGPDTS	Modified options in 2007
SCQ2-13e	In the past two years, what percentage of your <eighth grade> teachers have been involved in professional development opportunities for mathematics and science targeted at using information and communication technology for educational purposes?	BC4GPDUT	BCBGPDUT	Modified options in 2007
SCQ2-14a	In your school, are observations by the principal or senior staff used to evaluate the practice of <eighth-grade> mathematics teachers?	BC4MEPOS	BCBMEPOS	
SCQ2-14b	In your school, are observations by inspectors or other persons external to the school used to evaluate the practice of <eighth-grade> mathematics teachers?	BC4MEPOE	BCBMEPOE	
SCQ2-14c	In your school, is student achievement used to evaluate the practice of <eighth-grade> mathematics teachers?	BC4MEPSA	BCBMEPSA	
SCQ2-14d	In your school, is teacher peer review used to evaluate the practice of <eighth-grade> mathematics teachers?	BC4MEPTR	BCBMEPTR	
SCQ2-15a	In your school, are observations by the principal or senior staff used to evaluate the practice of <eighth-grade> science teachers?	BC4SEPOS	BCBSEPOS	
SCQ2-15b	In your school, are observations by inspectors or other persons external to the school used to evaluate the practice of <eighth-grade> science teachers?	BC4SEPOE	BCBSEPOE	
SCQ2-15c	In your school, is student achievement used to evaluate the practice of <eighth-grade> science teachers?	BC4SEPSA	BCBSEPSA	
SCQ2-15d	In your school, is teacher peer review used to evaluate the practice of <eighth-grade> science teachers?	BC4SEPTR	BCBSEPTR	
SCQ2-16a	How difficult was it to fill <eighth-grade> teaching vacancies for this school year for mathematics?	BC4MFVAY	BCBMFVAY	
SCQ2-16b	How difficult was it to fill <eighth-grade> teaching vacancies for this school year for science?	BC4SFVAY	BCBSFVAY	
SCQ2-16c	How difficult was it to fill <eighth-grade> teaching vacancies for this school year for computer science/information technology?	BC4SFVCY	BCBSFVCY	
SCQ2-17a	Does your school currently use any incentives (e.g., pay, housing, signing bonus, smaller classes) to recruit or retain <eighth-grade> teachers in mathematics?	BC4MRRTM	BCBMRRTM	
SCQ2-17b	Does your school currently use any incentives (e.g., pay, housing, signing bonus, smaller classes) to recruit or retain <eighth-grade> teachers in science?	BC4SRRTS	BCBSRRTS	
SCQ2-17c	Does your school currently use any incentives (e.g., pay, housing, signing bonus, smaller classes) to recruit or retain <eighth-grade> teachers in other?	BC4GRRTO	BCBGRRTO	

Exhibit S1.9 Index of International Background Variables for the TIMSS 2007 School Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
SCQ2-18Aa	How often does arriving late at school occur among <eighth-grade> students in your school?	BC4GFP01	BCBGFP01	
SCQ2-18Ab	How often does absenteeism (i.e unjustified behavior) occur among <eighth-grade> students in your school?	BC4GFP02	BCBGFP02	
SCQ2-18Ac	How often does skipping class <hours/periods> occur among <eighth-grade> students in your school?	BC4GFP03	BCBGFP03	
SCQ2-18Ad	How often does violating dress code occur among <eighth-grade> students in your school?	BC4GFP04	BCBGFP04	
SCQ2-18Ae	How often does classroom disturbance occur among <eighth-grade> students in your school?	BC4GFP05	BCBGFP05	
SCQ2-18Af	How often does cheating occur among <eighth-grade> students in your school?	BC4GFP06	BCBGFP06	
SCQ2-18Ag	How often does profanity occur among <eighth-grade> students in your school?	BC4GFP07	BCBGFP07	
SCQ2-18Ah	How often does vandalism occur among <eighth-grade> students in your school?	BC4GFP08	BCBGFP08	
SCQ2-18Ai	How often does theft occur among <eighth-grade> students in your school?	BC4GFP09	BCBGFP09	
SCQ2-18Aj	How often does intimidation or verbal abuse of other students occur among <eighth-grade> students in your school?	BC4GFP10	BCBGFP10	
SCQ2-18Ak	How often does physical injury to other students occur among <eighth-grade> students in your school?	BC4GFP11	BCBGFP11	
SCQ2-18Al	How often does intimidation or verbal abuse of teachers or staff occur among <eighth-grade> students in your school?	BC4GFP12	BCBGFP12	
SCQ2-18Am	How often does physical injury to teachers or staff occur among <eighth-grade> students in your school?	BC4GFP13	BCBGFP13	
SCQ2-18Ba	If the behavior occurs, how severe is the problem? - Arriving late at school	BC4GSP01	BCBGSP01	
SCQ2-18Bb	If the behavior occurs, how severe is the problem? - Absenteeism (i.e., unjustified absences)	BC4GSP02	BCBGSP02	
SCQ2-18Bc	If the behavior occurs, how severe is the problem? - Skipping class <hours/periods>	BC4GSP03	BCBGSP03	
SCQ2-18Bd	If the behavior occurs, how severe is the problem? - Violating dress code	BC4GSP04	BCBGSP04	
SCQ2-18Be	If the behavior occurs, how severe is the problem? - Classroom disturbance	BC4GSP05	BCBGSP05	
SCQ2-18Bf	If the behavior occurs, how severe is the problem? - Cheating	BC4GSP06	BCBGSP06	
SCQ2-18Bg	If the behavior occurs, how severe is the problem? - Profanity	BC4GSP07	BCBGSP07	
SCQ2-18Bh	If the behavior occurs, how severe is the problem? - Vandalism	BC4GSP08	BCBGSP08	

Exhibit S1.9 Index of International Background Variables for the TIMSS 2007 School Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
SCQ2-18Bi	If the behavior occurs, how severe is the problem? - Theft	BC4GSP09	BCBGSP09	
SCQ2-18Bj	If the behavior occurs, how severe is the problem? - Intimidation or verbal abuse of other students	BC4GSP10	BCBGSP10	
SCQ2-18Bk	If the behavior occurs, how severe is the problem? - Physical injury to other students	BC4GSP11	BCBGSP11	
SCQ2-18Bl	If the behavior occurs, how severe is the problem? - Intimidation or verbal abuse of teachers or staff	BC4GSP12	BCBGSP12	
SCQ2-18Bm	If the behavior occurs, how severe is the problem? - Physical injury to teachers or staff	BC4GSP13	BCBGSP13	
SCQ2-19a	Is your school's capacity to provide instruction affected by a shortage or inadequacy of instructional materials (e.g., textbook)?	BC4GST01	BCBGST01	
SCQ2-19b	Is your school's capacity to provide instruction affected by a shortage or inadequacy of budget for supplies (e.g., paper, pencils)?	BC4GST02	BCBGST02	
SCQ2-19c	Is your school's capacity to provide instruction affected by a shortage or inadequacy of school buildings and grounds?	BC4GST03	BCBGST03	
SCQ2-19d	Is your school's capacity to provide instruction affected by a shortage or inadequacy of heating/cooling and lighting systems?	BC4GST04	BCBGST04	
SCQ2-19e	Is your school's capacity to provide instruction affected by a shortage or inadequacy of instructional space (e.g., classrooms)?	BC4GST05	BCBGST05	
SCQ2-19f	Is your school's capacity to provide instruction affected by a shortage or inadequacy of special equipment for handicapped students?	BC4GST06	BCBGST06	
SCQ2-19g	Is your school's capacity to provide instruction affected by a shortage or inadequacy of computers for mathematics instruction?	BC4MST07	BCBMST07	
SCQ2-19h	Is your school's capacity to provide instruction affected by a shortage or inadequacy of computer software for mathematics instruction?	BC4MST08	BCBMST08	
SCQ2-19i	Is your school's capacity to provide instruction affected by a shortage or inadequacy of calculators for mathematics instruction?	BC4MST09	BCBMST09	
SCQ2-19j	Is your school's capacity to provide instruction affected by a shortage or inadequacy of library materials relevant to mathematics instruction?	BC4MST10	BCBMST10	
SCQ2-19k	Is your school's capacity to provide instruction affected by a shortage or inadequacy of audio-visual resources for mathematics instruction?	BC4MST11	BCBMST11	
SCQ2-19l	Is your school's capacity to provide instruction affected by a shortage or inadequacy of science laboratory equipment and materials?	BC4SST12	BCBSST12	
SCQ2-19m	Is your school's capacity to provide instruction affected by a shortage or inadequacy of computers for science instruction?	BC4SST13	BCBSST13	

Exhibit S1.9 Index of International Background Variables for the TIMSS 2007 School Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name	Notes
SCQ2-19n	Is your school's capacity to provide instruction affected by a shortage or inadequacy of computer software for science instruction?	BC4SST14	BCBSST14	
SCQ2-19o	Is your school's capacity to provide instruction affected by a shortage or inadequacy of calculators for science instruction?	BC4SST15	BCBSST15	
SCQ2-19p	Is your school's capacity to provide instruction affected by a shortage or inadequacy of library materials relevant to science instruction?	BC4SST16	BCBSST16	
SCQ2-19q	Is your school's capacity to provide instruction affected by a shortage or inadequacy of audio-visual resources for science instruction?	BC4SST17	BCBSST17	
SCQ2-19r	Is your school's capacity to provide instruction affected by a shortage or inadequacy of teachers?	BC4GSH18	BCBGSH18	
SCQ2-19s	Is your school's capacity to provide instruction affected by a shortage or inadequacy of computer support staff?	BC4GSH19	BCBGSH19	
SCQ2-20A	Does your school have a science laboratory?	BC4SSLAB	Not available	
SCQ2-20B	Do teachers usually have assistance available when students are conducting science experiments?	BC4STASE	Not available	
SCQ2-21A	What is the total number of computers in your school that can be used for educational purposes by <eighth-grade> students?	BC4GCMPS	BCBGCMPS	
SCQ2-21B	How many of these computers have access to the Internet (e-mail or World Wide Web) for educational purposes?	BC4GCMPI	BCBGCMPI	
SCQ2-22	Is anyone available to help your teachers use information and communication technology for teaching and learning?	BC4GHTTE	BCBGHTTE	

Identification Label

School ID:

School Name:

Trends in International Mathematics and Science Study

TIMSS 2007

School Questionnaire

<Grade 8>

<TIMSS National Research Center Name>
<Address>

International Association for the Evaluation
of Educational Achievement
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General Directions

Your school has agreed to participate in TIMSS 2007, a large international study of student learning in mathematics and science in more than 60 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.

School Characteristics

1

BC4GTENR **A. What is the total school enrollment (number of students) in all grades?**

*Number of students:*_____

BC4GEENR **B. What is the enrollment in the <eighth-grade>?**

*Number of students:*_____

2

BC4GCOMU **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 ○
- 3,000 people or fewer ○

3

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%
BC4GSBED a) Come from economically disadvantaged homes	○	○	○	○
BC4GSBEA b) Come from economically affluent homes	○	○	○	○

4

BC4GNALA **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% ○

5

For the <eighth-grade> students in your school:

BC4GDYSO **A. How many days per year is your school open for instruction?**

_____ *days*
(write in number)

BC4GHTIT BC4GMTIT **B. What is the total instructional time, excluding breaks, in a typical day?**

_____ *hours and* _____ *minutes*
(write in the number of hours and minutes)

BC4GDSOI **C. In one calendar week, how many days is the school open for instruction?**

*Fill in **one** circle only*

- 6 days ○
- 5 1/2 days ○
- 5 days ○
- 4 1/2 days ○
- 4 days ○
- Other ○

Please specify _____

Your Role as Principal

6 **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%

BC4GAPAD a) Administrative duties (e.g., hiring, budgeting, scheduling, meetings) ---------- _____%

BC4GAPIL b) Instructional leadership (e.g., developing curriculum and pedagogy) ---------- _____%

BC4GAPST c) Supervising and evaluating teachers and other staff ---------- _____%

BC4GAPTE d) Teaching ---------- _____%

BC4GAPPR e) Public relations and fundraising ---- _____%

BC4GAPOT f) Other ---------- _____%

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

Parental Involvement

7 **Does your school ask parents to do the following?**

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

		Yes	No
BC4GAPSE	a) Attend special events (e.g., science fair, concert, sporting events)	○	○
BC4GAPRF	b) Raise funds for the school	○	○
BC4GAPVO	c) Volunteer for school projects, programs, and trips	○	○
BC4GAPCH	d) Ensure that their child completes his/her homework	○	○
BC4GAPSC	e) Serve on school committees (e.g., select school personnel, review school finances)	○	○

School Climate for Learning

8

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	○	○	○	○	○
b) Teachers' understanding of the school's curricular goals	○	○	○	○	○
c) Teachers' degree of success in implementing the school's curriculum	○	○	○	○	○
d) Teachers' expectations for student achievement	○	○	○	○	○
e) Parental support for student achievement	○	○	○	○	○
f) Parental involvement in school activities	○	○	○	○	○
g) Students' regard for school property	○	○	○	○	○
h) Students' desire to do well in school	○	○	○	○	○

BC4GCHTS
BC4GCHTU
BC4GCHTC
BC4GCHES
BC4GCHPS
BC4GCHPI
BC4GCHSR
BC4GCHSD

<Eighth-grade> Instruction in Mathematics and Science

9

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

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

BC4MGAMC

10

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

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

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

BC4MSOEM
BC4MSORM

11

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

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

BC4SGASC

12

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

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

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

BC4SSOES
BC4SSORS

<Eighth-grade> Teachers in Your School

13 **In the past two years, what percentage of your <eighth-grade> teachers have been involved in professional development opportunities for mathematics and science targeted at the following?**

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

	None	25% or fewer	26 – 50%	51 –75%	76 – 100%
BC4GPDIC a) Supporting the implementation of the national or regional curriculum	○	○	○	○	○
BC4GPDSG b) Designing or supporting the school's own improvement goals	○	○	○	○	○
BC4GPDIK c) Improving content knowledge	○	○	○	○	○
BC4GPDTS d) Improving teaching skills	○	○	○	○	○
BC4GPDUT e) Using information and communication technology for educational purposes	○	○	○	○	○

14 **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*

	Yes	No
BC4MEPOS a) Observations by the principal or senior staff	○	○
BC4MEPOE b) Observations by inspectors or other persons external to the school	○	○
BC4MEPSA c) Student achievement	○	○
BC4MEPTR d) Teacher peer review	○	○

15 **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*

	Yes	No
BC4SEPOS a) Observations by the principal or senior staff	○	○
BC4SEPOE b) Observations by inspectors or other persons external to the school	○	○
BC4SEPSA c) Student achievement	○	○
BC4SEPTR d) Teacher peer review	○	○

16 **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*

	Were no vacancies in this subject	Easy to fill vacancies	Somewhat difficult	Very difficult
BC4MFVAY a) Mathematics	○	○	○	○
BC4SFVAY b) Science	○	○	○	○
BC4SFVCY c) Computer science / information technology	○	○	○	○

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

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

	Yes	No
BC4MRRTM a) Mathematics	○	○
BC4SRRTS b) Science	○	○
BC4GRRTO c) Other	○	○

Student Behavior

18

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)	
BC4GFP01	a) Arriving late at school	○ ○ ○ ○ ○	○ ○ ○	BC4GSP01
BC4GFP02	b) Absenteeism (i.e., unjustified absences)	○ ○ ○ ○ ○	○ ○ ○	BC4GSP02
BC4GFP03	c) Skipping class <hours/periods>	○ ○ ○ ○ ○	○ ○ ○	BC4GSP03
BC4GFP04	d) Violating dress code	○ ○ ○ ○ ○	○ ○ ○	BC4GSP04
BC4GFP05	e) Classroom disturbance	○ ○ ○ ○ ○	○ ○ ○	BC4GSP05
BC4GFP06	f) Cheating	○ ○ ○ ○ ○	○ ○ ○	BC4GSP06
BC4GFP07	g) Profanity	○ ○ ○ ○ ○	○ ○ ○	BC4GSP07
BC4GFP08	h) Vandalism	○ ○ ○ ○ ○	○ ○ ○	BC4GSP08
BC4GFP09	i) Theft	○ ○ ○ ○ ○	○ ○ ○	BC4GSP09
BC4GFP10	j) Intimidation or verbal abuse of other students	○ ○ ○ ○ ○	○ ○ ○	BC4GSP10
BC4GFP11	k) Physical injury to other students	○ ○ ○ ○ ○	○ ○ ○	BC4GSP11
BC4GFP12	l) Intimidation or verbal abuse of teachers or staff	○ ○ ○ ○ ○	○ ○ ○	BC4GSP12
BC4GFP13	m) Physical injury to teachers or staff	○ ○ ○ ○ ○	○ ○ ○	BC4GSP13

Resources and Technology

19

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
BC4GST01	a) Instructional materials (e.g., textbook)	○	○	○	○
BC4GST02	b) Budget for supplies (e.g., paper, pencils)	○	○	○	○
BC4GST03	c) School buildings and grounds	○	○	○	○
BC4GST04	d) Heating/cooling and lighting systems	○	○	○	○
BC4GST05	e) Instructional space (e.g., classrooms)	○	○	○	○
BC4GST06	f) Special equipment for handicapped students	○	○	○	○
BC4MST07	g) Computers for mathematics instruction	○	○	○	○
BC4MST08	h) Computer software for mathematics instruction	○	○	○	○
BC4MST09	i) Calculators for mathematics instruction	○	○	○	○
BC4MST10	j) Library materials relevant to mathematics instruction	○	○	○	○
BC4MST11	k) Audio-visual resources for mathematics instruction	○	○	○	○

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

		None	A little	Some	A lot
BC4SST12	l) Science laboratory equipment and materials	○	○	○	○
BC4SST13	m) Computers for science instruction	○	○	○	○
BC4SST14	n) Computer software for science instruction	○	○	○	○
BC4SST15	o) Calculators for science instruction	○	○	○	○
BC4SST16	p) Library materials relevant to science instruction	○	○	○	○
BC4SST17	q) Audio-visual resources for science instruction	○	○	○	○
BC4GSH18	r) Teachers	○	○	○	○
BC4GSH19	s) Computer support staff	○	○	○	○

20

BC4SSLAB

A. Does your school have a science laboratory?

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

BC4STASE

B. Do teachers usually have assistance available when students are conducting science experiments?

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

21

BC4GCMPS

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* **22**

BC4GCMPI

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 ○

22

BC4GHTTE

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

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

Thank You

for completing this questionnaire



TIMSS & PIRLS
International Study Center
Lynch School of Education, Boston College

School Questionnaire

<Grade 8>

Eighth Grade
Mathematics Curriculum Questionnaire

Section 10

Exhibit S1.10 Index of International Background Variables for the TIMSS 2007 Mathematics Curriculum Questionnaire - Eighth Grade

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQM2-1	Does your country have a national curriculum that covers mathematics instruction at the eighth grade of formal schooling?	BUBMNCC	CQM2q01A	Modified in 2007
CQM2-1n	If No… What is the highest level of decision-making authority (e.g., state or province) that provides a curriculum that covers mathematics instruction at the eighth grade of formal schooling?	BUBMNCCN	CQM2q01B	Modified in 2007
CQM2-1y	Does your country have a national curriculum that covers mathematics instruction at the eighth grade of formal schooling? If Yes… Comments:	BUBMNCCY	Not available	
CQM2-2	What is the grade-to-grade structure of the middle/lower secondarly school curriculum that covers mathematics instruction (e.g., grades 1-8; grades 4-8; grades 6-8; grades 7-9)?	BUBMGGS	Not available	
CQM2-2_Com	What is the grade-to-grade structure of the middle/lower secondarly school curriculum that covers mathematics instruction (e.g., grades 1-8; grades 4-8; grades 6-8; grades 7-9)? Comments:	BUBMGGSC	Not available	
CQM2-3	In what year was the current mathematics curriculum introduced?	BUBMYMCI	CQM2q01C	Modified in 2007
CQM2-3_Com	In what year was the current mathematics curriculum introduced? Comments:	BUBMYMCC	Not available	
CQM2-4	Is the mathematics curriculum currently being revised?	BUBMMCR	CQM2q01D	Modified in 2007
CQM2-4y	Is the mathematics curriculum currently being revised? If Yes… Please explain:	BUBMMCRY	Not available	
CQM2-4n	Is the mathematics curriculum currently being revised? If No… Comments:	BUBMMCRN	Not available	
CQM2-5a	Does the mathematics curriculum prescribe goals and objectives?	BUBMMPGO	Not available	
CQM2-5b	Does the mathematics curriculum prescribe processes or methods?	BUBMMPPM	Not available	
CQM2-5c	Does the mathematics curriculum prescribe materials?	BUBMMPMA	Not available	
CQM2-5d	Does the mathematics curriculum prescribe the percentage of students reaching defined goals?	BUBMMPRG	Not available	
CQM2-5e	Does the mathematics curriculum prescribe other?	BUBMMPOT	Not available	
CQM2-5e_Sfy	What does the mathematics curriculum prescribe? Please specify:	BUBMMPPS	Not available	
CQM2-5_Com	What does the mathematics curriculum prescribe? Comments:	BUBMMPCO	Not available	
CQM2-6	Does the national curriculum contain statements/policies about the use of calculators in grade 8 mathematics?	BUBMNPC	CQM2q07A	
CQM2-6y	Does the national curriculum contain statements/policies about the use of calculators in grade 8 mathematics? If Yes… What are the statements/policies?	BUBMNPCY	CQM2q07B	
CQM2-6n	Does the national curriculum contain statements/policies about the use of calculators in grade 8 mathematics? If No… Comments:	BUBMNPCN	Not available	
CQM2-7	Does the national curriculum contain statements/policies about the use of computers in grade 8 mathematics?	BUBMNPO	CQM2q08A	

* In TIMSS 2003 the location of each curriculum questionnaire item was used as its corresponding variable name.

Exhibit S1.10 Index of International Background Variables for the TIMSS 2007 Mathematics Curriculum Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQM2-7y	Does the national curriculum contain statements/policies about the use of computers in grade 8 mathematics? If Yes… What are the statements/policies?	BUBMNPOY	CQM2q08B	
CQM2-7n	Does the national curriculum contain statements/policies about the use of computers in grade 8 mathematics? If No… Comments:	BUBMNPON	Not available	
CQM2-8a	How much emphasis does the national mathematics curriculum place on mastering basic skills and procedures?	BUBMCESK	CQM2q06a	
CQM2-8b	How much emphasis does the national mathematics curriculum place on understanding mathematical concepts and principles?	BUBMCECP	CQM2q06b	
CQM2-8c	How much emphasis does the national mathematics curriculum place on applying mathematics in real-life contexts?	BUBMCERL	CQM2q06c	
CQM2-8d	How much emphasis does the national mathematics curriculum place on communicating mathematically?	BUBMCECM	CQM2q06d	
CQM2-8e	How much emphasis does the national mathematics curriculum place on reasoning mathematically?	BUBMCERM	CQM2q06e	
CQM2-8f	How much emphasis does the national mathematics curriculum place on incorporating the experiences of different ethnic/cultural groups?	BUBMCEEC	CQM2q06f	
CQM2-8g	How much emphasis does the national mathematics curriculum place on integrating mathematics with other subjects?	BUBMCEOS	CQM2q06g	
CQM2-8h	How much emphasis does the national mathematics curriculum place on deriving formal proofs?	BUBMCEFP	CQM2q06h	
CQM2-8_Com	How much emphasis does the national mathematics curriculum place on the following? Comments:	BUBMCECO	Not available	
CQM2-9Aa1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught number topics by the end of grade 8? - Whole numbers including place value, factorization, and the four operations	BUBMA9A1	See Questions CQM2q12A and CQM2q12C in 2003 for sub-topics.	
CQM2-9Aa2	Across grades K-12, at what grade(s) are above number topics primarily intended to be taught?	BUBMA9A2	See Questions CQM2q12A and CQM2q12C in 2003 for sub-topics.	
CQM2-9Ab1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught number topics by the end of grade 8? - Computations, estimations, or approximations involving whole numbers	BUBMA9B1	See Questions CQM2q12A and CQM2q12C in 2003 for sub-topics.	
CQM2-9Ab2	Across grades K-12, at what grade(s) are above number topics primarily intended to be taught?	BUBMA9B2	See Questions CQM2q12A and CQM2q12C in 2003 for sub-topics.	
CQM2-9Ac1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught number topics by the end of grade 8? - Common fractions including equivalent fractions and ordering of fractions	BUBMA9C1	See Questions CQM2q12A and CQM2q12C in 2003 for sub-topics.	

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Exhibit S1.10 Index of International Background Variables for the TIMSS 2007 Mathematics Curriculum Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQM2-9Ac2	Across grades K-12, at what grade(s) are above number topics primarily intended to be taught?	BUBMA9C2	See Questions CQM2q12A and CQM2q12C in 2003 for sub-topics.	
CQM2-9Ad1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught number topics by the end of grade 8? - Decimal including place value, ordering, and converting to common fractions (and vice versa)	BUBMA9D1	See Questions CQM2q12A and CQM2q12C in 2003 for sub-topics.	
CQM2-9Ad2	Across grades K-12, at what grade(s) are above number topics primarily intended to be taught?	BUBMA9D2	See Questions CQM2q12A and CQM2q12C in 2003 for sub-topics.	
CQM2-9Ae1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught number topics by the end of grade 8? - Representing decimals and fractions using words, numbers, or models (including number lines)	BUBMA9E1	See Questions CQM2q12A and CQM2q12C in 2003 for sub-topics.	
CQM2-9Ae2	Across grades K-12, at what grade(s) are above number topics primarily intended to be taught?	BUBMA9E2	See Questions CQM2q12A and CQM2q12C in 2003 for sub-topics.	
CQM2-9Af1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught number topics by the end of grade 8? - Computations with fractions	BUBMA9F1	See Questions CQM2q12A and CQM2q12C in 2003 for sub-topics.	
CQM2-9Af2	Across grades K-12, at what grade(s) are above number topics primarily intended to be taught?	BUBMA9F2	See Questions CQM2q12A and CQM2q12C in 2003 for sub-topics.	
CQM2-9Ag1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught number topics by the end of grade 8? - Computations with decimals	BUBMA9G1	See Questions CQM2q12A and CQM2q12C in 2003 for sub-topics.	
CQM2-9Ag2	Across grades K-12, at what grade(s) are above number topics primarily intended to be taught?	BUBMA9G2	See Questions CQM2q12A and CQM2q12C in 2003 for sub-topics.	
CQM2-9Ah1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught number topics by the end of grade 8? - Representing, comparing, ordering, and computing with integers	BUBMA9H1	See Questions CQM2q12A and CQM2q12C in 2003 for sub-topics.	
CQM2-9Ah2	Across grades K-12, at what grade(s) are above number topics primarily intended to be taught?	BUBMA9H2	See Questions CQM2q12A and CQM2q12C in 2003 for sub-topics.	
CQM2-9Ai1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught number topics by the end of grade 8? - Ratios (equivalence, division of a quantity by a given ratio)	BUBMA9I1	See Questions CQM2q12A and CQM2q12C in 2003 for sub-topics.	

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Exhibit S1.10 Index of International Background Variables for the TIMSS 2007 Mathematics Curriculum Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQM2-9Ai2	Across grades K-12, at what grade(s) are above number topics primarily intended to be taught?	BUBMA9I2	See Questions CQM2q12A and CQM2q12C in 2003 for sub-topics.	
CQM2-9Aj1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught number topics by the end of grade 8? - Conversion of percents to fractions or decimals and vice versa	BUBMA9J1	See Questions CQM2q12A and CQM2q12C in 2003 for sub-topics.	
CQM2-9Aj2	Across grades K-12, at what grade(s) are above number topics primarily intended to be taught?	BUBMA9J2	See Questions CQM2q12A and CQM2q12C in 2003 for sub-topics.	
CQM2-9A_Com	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught the following number topics or skills by the end of grade 8? Comments:	BUBMM9CA	Not available	
CQM2-9Ba1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught algebra topics by the end of grade 8? - Numeric, algebraic, and geometric patterns or sequences (extension, missing terms, generalization of patterns)	BUBMB9A1	See Question CQM2q12B in 2003 for sub-topics.	
CQM2-9Ba2	Across grades K-12, at what grade(s) are above algebra topics primarily intended to be taught?	BUBMB9A2	See Question CQM2q12B in 2003 for sub-topics.	
CQM2-9Bb1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught algebra topics by the end of grade 8? - Sums, products, and powers of expressions containing variables	BUBMB9B1	See Question CQM2q12B in 2003 for sub-topics.	
CQM2-9Bb2	Across grades K-12, at what grade(s) are above algebra topics primarily intended to be taught?	BUBMB9B2	See Question CQM2q12B in 2003 for sub-topics.	
CQM2-9Bc1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught algebra topics by the end of grade 8? - Evaluating expressions for given numeric value	BUBMB9C1	See Question CQM2q12B in 2003 for sub-topics.	
CQM2-9Bc2	Across grades K-12, at what grade(s) are above algebra topics primarily intended to be taught?	BUBMB9C2	See Question CQM2q12B in 2003 for sub-topics.	
CQM2-9Bd1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught algebra topics by the end of grade 8? - Simplifying or comparing algebraic expressions	BUBMB9D1	See Question CQM2q12B in 2003 for sub-topics.	
CQM2-9Bd2	Across grades K-12, at what grade(s) are above algebra topics primarily intended to be taught?	BUBMB9D2	See Question CQM2q12B in 2003 for sub-topics.	
CQM2-9Be1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught algebra topics by the end of grade 8? - Modeling situations using expressions	BUBMB9E1	See Question CQM2q12B in 2003 for sub-topics.	
CQM2-9Be2	Across grades K-12, at what grade(s) are above algebra topics primarily intended to be taught?	BUBMB9E2	See Question CQM2q12B in 2003 for sub-topics.	

* In TIMSS 2003 the location of each curriculum questionnaire item was used as its corresponding variable name.

Exhibit S1.10 Index of International Background Variables for the TIMSS 2007 Mathematics Curriculum Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQM2-9Bf1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught algebra topics by the end of grade 8? - Evaluating functions/formulas for given values of the variables	BUBMB9F1	See Question CQM2q12B in 2003 for sub-topics.	
CQM2-9Bf2	Across grades K-12, at what grade(s) are above algebra topics primarily intended to be taught?	BUBMB9F2	See Question CQM2q12B in 2003 for sub-topics.	
CQM2-9Bg1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught algebra topics by the end of grade 8? - Simple linear equations and inequalities, and simultaneous (two variables) equations	BUBMB9G1	See Question CQM2q12B in 2003 for sub-topics.	
CQM2-9Bg2	Across grades K-12, at what grade(s) are above algebra topics primarily intended to be taught?	BUBMB9G2	See Question CQM2q12B in 2003 for sub-topics.	
CQM2-9Bh1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught algebra topics by the end of grade 8? - Equivalent representations of functions as ordered pairs, tables, graphs, words, or equations	BUBMB9H1	See Question CQM2q12B in 2003 for sub-topics.	
CQM2-9Bh2	Across grades K-12, at what grade(s) are above algebra topics primarily intended to be taught?	BUBMB9H2	See Question CQM2q12B in 2003 for sub-topics.	
CQM2-9B_Com	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught the following algebra topics or skills by the end of grade 8? Comments:	BUBMM9CB	Not available	
CQM2-9Ca1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught geometry topics by the end of grade 8? - Angles - acute, right, straight, obtuse, reflex	BUBMC9A1	See Questions CQM2q12C and CQM2q12D in 2003 for sub-topics.	
CQM2-9Ca2	Across grades K-12, at what grade(s) are above geometry topics primarily intended to be taught?	BUBMC9A2	See Questions CQM2q12C and CQM2q12D in 2003 for sub-topics.	
CQM2-9Cb1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught geometry topics by the end of grade 8? - Relationships for angles at a point, angles on a line, vertically opposite angles, angles associated with a transversal cutting parallel lines, and perpendicularity	BUBMC9B1	See Questions CQM2q12C and CQM2q12D in 2003 for sub-topics.	
CQM2-9Cb2	Across grades K-12, at what grade(s) are above geometry topics primarily intended to be taught?	BUBMC9B2	See Questions CQM2q12C and CQM2q12D in 2003 for sub-topics.	
CQM2-9Cc1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught geometry topics by the end of grade 8? - Properties of geometric shapes: triangles, quadrilaterals, and other common polygons	BUBMC9C1	See Questions CQM2q12C and CQM2q12D in 2003 for sub-topics.	

* In TIMSS 2003 the location of each curriculum questionnaire item was used as its corresponding variable name.

Exhibit S1.10 Index of International Background Variables for the TIMSS 2007 Mathematics Curriculum Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQM2-9Cc2	Across grades K-12, at what grade(s) are above geometry topics primarily intended to be taught?	BUBMC9C2	See Questions CQM2q12C and CQM2q12D in 2003 for sub-topics.	
CQM2-9Cd1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught geometry topics by the end of grade 8? - Construct or draw triangles and rectangles of given dimensions	BUBMC9D1	See Questions CQM2q12C and CQM2q12D in 2003 for sub-topics.	
CQM2-9Cd2	Across grades K-12, at what grade(s) are above geometry topics primarily intended to be taught?	BUBMC9D2	See Questions CQM2q12C and CQM2q12D in 2003 for sub-topics.	
CQM2-9Ce1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught geometry topics by the end of grade 8? - Congruent figures (triangles, quadrilaterals) and their corresponding measures	BUBMC9E1	See Questions CQM2q12C and CQM2q12D in 2003 for sub-topics.	
CQM2-9Ce2	Across grades K-12, at what grade(s) are above geometry topics primarily intended to be taught?	BUBMC9E2	See Questions CQM2q12C and CQM2q12D in 2003 for sub-topics.	
CQM2-9Cf1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught geometry topics by the end of grade 8? - Similar triangles and recall their properties	BUBMC9F1	See Questions CQM2q12C and CQM2q12D in 2003 for sub-topics.	
CQM2-9Cf2	Across grades K-12, at what grade(s) are above geometry topics primarily intended to be taught?	BUBMC9F2	See Questions CQM2q12C and CQM2q12D in 2003 for sub-topics.	
CQM2-9Cg1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught geometry topics by the end of grade 8? - Relationships between two-dimensional and three-dimensional shapes	BUBMC9G1	See Questions CQM2q12C and CQM2q12D in 2003 for sub-topics.	
CQM2-9Cg2	Across grades K-12, at what grade(s) are above geometry topics primarily intended to be taught?	BUBMC9G2	See Questions CQM2q12C and CQM2q12D in 2003 for sub-topics.	
CQM2-9Ch1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught geometry topics by the end of grade 8?- Pythagorean theorem (not proof) to find length of a side	BUBMC9H1	See Questions CQM2q12C and CQM2q12D in 2003 for sub-topics.	
CQM2-9Ch2	Across grades K-12, at what grade(s) are above geometry topics primarily intended to be taught?	BUBMC9H2	See Questions CQM2q12C and CQM2q12D in 2003 for sub-topics.	
CQM2-9Ci1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught geometry topics by the end of grade 8? - Measurement, drawing, and estimation of the size of angles, the length of lines, areas, and volumes	BUBMC9I1	See Questions CQM2q12C and CQM2q12D in 2003 for sub-topics.	

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Exhibit S1.10 Index of International Background Variables for the TIMSS 2007 Mathematics Curriculum Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQM2-9Ci2	Across grades K-12, at what grade(s) are above geometry topics primarily intended to be taught?	BUBMC9I2	See Questions CQM2q12C and CQM2q12D in 2003 for sub-topics.	
CQM2-9Cj1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught geometry topics by the end of grade 8? - Measurement formulas for perimeters, circumferences, areas of circles, surface areas, and volumes	BUBMC9J1	See Questions CQM2q12C and CQM2q12D in 2003 for sub-topics.	
CQM2-9Cj2	Across grades K-12, at what grade(s) are above geometry topics primarily intended to be taught?	BUBMC9J2	See Questions CQM2q12C and CQM2q12D in 2003 for sub-topics.	
CQM2-9Ck1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught geometry topics by the end of grade 8? - Measures of irregular or compound areas (e.g., by covering with grids or dissecting and rearranging pieces)	BUBMC9K1	See Questions CQM2q12C and CQM2q12D in 2003 for sub-topics.	
CQM2-9Ck2	Across grades K-12, at what grade(s) are above geometry topics primarily intended to be taught?	BUBMC9K2	See Questions CQM2q12C and CQM2q12D in 2003 for sub-topics.	
CQM2-9Cl1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught geometry topics by the end of grade 8? - Cartesian plane – ordered pairs, equations, intercepts, intersections, and gradient	BUBMC9L1	See Questions CQM2q12C and CQM2q12D in 2003 for sub-topics.	
CQM2-9Cl2	Across grades K-12, at what grade(s) are above geometry topics primarily intended to be taught?	BUBMC9L2	See Questions CQM2q12C and CQM2q12D in 2003 for sub-topics.	
CQM2-9Cm1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught geometry topics by the end of grade 8? - Line and rotational symmetry for two-dimensional shapes	BUBMC9M1	See Questions CQM2q12C and CQM2q12D in 2003 for sub-topics.	
CQM2-9Cm2	Across grades K-12, at what grade(s) are above geometry topics primarily intended to be taught?	BUBMC9M2	See Questions CQM2q12C and CQM2q12D in 2003 for sub-topics.	
CQM2-9Cn1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught geometry topics by the end of grade 8? - Translation, reflection, and rotation	BUBMC9N1	See Questions CQM2q12C and CQM2q12D in 2003 for sub-topics.	
CQM2-9Cn2	Across grades K-12, at what grade(s) are above geometry topics primarily intended to be taught?	BUBMC9N2	See Questions CQM2q12C and CQM2q12D in 2003 for sub-topics.	
CQM2-9C_Com	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught the following geometry topics or skills by the end of grade 8? Comments:	BUBMM9CC	Not available	

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Exhibit S1.10 Index of International Background Variables for the TIMSS 2007 Mathematics Curriculum Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQM2-9Da1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught data and chance topics by the end of grade 8? - Reading data from tables, pictographs, bar graphs, pie charts, and line graphs	BUBMD9A1	See Question CQM2q12E in 2003 for sub-topics.	
CQM2-9Da2	Across grades K-12, at what grade(s) are above data and chance topics primarily intended to be taught?	BUBMD9A2	See Question CQM2q12E in 2003 for sub-topics.	
CQM2-9Db1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught data and chance topics by the end of grade 8? - Organizing and displaying data using tables, pictographs, bar graphs, pie charts, and line graphs	BUBMD9B1	See Question CQM2q12E in 2003 for sub-topics.	
CQM2-9Db2	Across grades K-12, at what grade(s) are above data and chance topics primarily intended to be taught?	BUBMD9B2	See Question CQM2q12E in 2003 for sub-topics.	
CQM2-9Dc1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught data and chance topics by the end of grade 8? - Characteristics of data sets including mean, median, range, and shape of distribution (in general terms)	BUBMD9C1	See Question CQM2q12E in 2003 for sub-topics.	
CQM2-9Dc2	Across grades K-12, at what grade(s) are above data and chance topics primarily intended to be taught?	BUBMD9C2	See Question CQM2q12E in 2003 for sub-topics.	
CQM2-9Dd1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught data and chance topics by the end of grade 8? - Interpreting data sets (e.g., draw conclusions, make predictions, and estimate values between and beyond given data points)	BUBMD9D1	See Question CQM2q12E in 2003 for sub-topics.	
CQM2-9Dd2	Across grades K-12, at what grade(s) are above data and chance topics primarily intended to be taught?	BUBMD9D2	See Question CQM2q12E in 2003 for sub-topics.	
CQM2-9De1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught data and chance topics by the end of grade 8? - Data display that could lead to misinterpretation (e.g., inappropriate grouping and misleading or distorted scales)	BUBMD9E1	See Question CQM2q12E in 2003 for sub-topics.	
CQM2-9De2	Across grades K-12, at what grade(s) are above data and chance topics primarily intended to be taught?	BUBMD9E2	See Question CQM2q12E in 2003 for sub-topics.	
CQM2-9Df1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught data and chance topics by the end of grade 8? - Using data from experiments to predict chances of future outcomes	BUBMD9F1	See Question CQM2q12E in 2003 for sub-topics.	
CQM2-9Df2	Across grades K-12, at what grade(s) are above data and chance topics primarily intended to be taught?	BUBMD9F2	See Question CQM2q12E in 2003 for sub-topics.	
CQM2-9Dg1	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught data and chance topics by the end of grade 8? - Using the chances of a particular outcome to solve problems	BUBMD9G1	See Question CQM2q12E in 2003 for sub-topics.	

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Exhibit S1.10 Index of International Background Variables for the TIMSS 2007 Mathematics Curriculum Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQM2-9Dg2	Across grades K-12, at what grade(s) are above data and chance topics primarily intended to be taught?	BUBMD9G2	See Question CQM2q12E in 2003 for sub-topics.	
CQM2-9D_Com	According to the national mathematics curriculum, what proportion of grade 8 students should have been taught the following data and chance topics or skills by the end of grade 8? Comments:	BUBMM9CD	Not available	
CQM2-10	Which best describes how the mathematics curriculum addresses the issue of students with different levels of ability?	BUBMCDA	CQM2q05	
CQM2-10_Com	Which best describes how the mathematics curriculum addresses the issue of students with different levels of ability? Comments:	BUBMCDAC	Not available	
CQM2-11a	Is the mathematics curriculum made available in the form of official publication containing the curriculum?	BUBMCMAA	Not available	
CQM2-11b	Is the mathematics curriculum made available in the form of ministry notes and directives?	BUBMCMAM	Not available	
CQM2-11c	Is the mathematics curriculum made available in the form of mandated or recommended textbooks?	BUBMCMAT	Not available	
CQM2-11d	Is the mathematics curriculum made available in the form of instructional or pedagogical guide?	BUBMCMAI	Not available	
CQM2-11e	Is the mathematics curriculum made available in the form of specifically developed or recommended instructional activities?	BUBMCMAS	Not available	
CQM2-11f	Is the mathematics curriculum made available in the form of other?	BUBMCMAO	Not available	
CQM2-11f_Sfy	In what form is the mathematics curriculum made available? Please specify:	BUBMCMAP	Not available	
CQM2-11_Com	In what form is the mathematics curriculum made available? Comments:	BUBMCMAC	Not available	
CQM2-12a1	In a typical week, what is the total amount of instructional time prescribed by the curriculum at the eighth grade of formal schooling? (hours)	BUBMITTH	Not available	
CQM2-12a2	In a typical week, what is the total amount of instructional time prescribed by the curriculum at the eighth grade of formal schooling? (minutes)	BUBMITTM	Not available	
CQM2-12b	What percentage of total instructional time is supposed to be devoted to mathematics instruction at the eighth grade of formal schooling?	BUBMIDM	CQM2q04c_Per	Modified in 2007
CQM2-12_Com	In a typical week, what is the total amount of instructional time prescribed by the curriculum at the eighth grade of formal schooling? Comments:	BUBMIDMC	Not available	
CQM2-12c	Is there a policy to assign mathematics homework at the eighth grade of formal schooling?	BUBMPAH	Not available	
CQM2-12cy	Is there a policy to assign mathematics homework at the eighth grade of formal schooling? If Yes… What is the policy?	BUBMPAHY	Not available	
CQM2-12cn	Is there a policy to assign mathematics homework at the eighth grade of formal schooling? If No… Comments:	BUBMPAHN	Not available	

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Exhibit S1.10 Index of International Background Variables for the TIMSS 2007 Mathematics Curriculum Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQM2-13	Is there an official policy to provide remedial mathematics instruction at the eighth grade of formal schooling?	BUBMPPI	Not available	
CQM2-13y	Is there an official policy to provide remedial mathematics instruction at the eighth grade of formal schooling? If Yes… What is the policy?	BUBMPPIY	Not available	
CQM2-13n	Is there an official policy to provide remedial mathematics instruction at the eighth grade of formal schooling? If No… Comments:	BUBMPPIN	Not available	
CQM2-14a	Is a degree from a teacher education program a current requirement for being a middle/lower secondary grade teacher?	BUBMCRDE	CQM2q10c	Modified in 2007
CQM2-14b	Is a pre-practicum during teacher education program a current requirement for being a middle/lower secondary grade teacher?	BUBMCRPP	CQM2q10a	Modified in 2007
CQM2-14c	Is a supervised practicum in the field a current requirement for being a middle/lower secondary grade teacher?	BUBMCRSU	CQM2q10a	Modified in 2007
CQM2-14d	Is passing a certification examination a current requirement for being a middle/lower secondary grade teacher?	BUBMCRCE	CQM2q10b	Modified in 2007
CQM2-14e	Is completion of a probationary teaching period a current requirement for being a middle/lower secondary grade teacher?	BUBMCRPE	CQM2q10d	
CQM2-14y	Is completion of a probationary teaching period a current requirement for being a middle/lower secondary grade teacher? If Yes… How long is this period?	BUBMCRLO	CQM2q10d_Length	
CQM2-14f	Is a completion of a mentoring or induction program a current requirement for being a middle/lower secondary grade teacher?	BUBMCRIN	CQM2q10e	
CQM2-14g	Is other a current requirement for being a middle/lower secondary grade teacher?	BUBMCROT	CQM2q10f	
CQM2-14g_Sfy	Which are the current requirements for being a middle/lower secondary grade teacher? Please specify:	BUBMCRP	CQM2q10f_Oth	
CQM2-14_Com	Which are the current requirements for being a middle/lower secondary grade teacher? Comments:	BUBMCRCO	Not available	
CQM2-15	Is there a process to license or certify middle/lower secondary grade teachers?	BUBMPLT	CQM2q11A	
CQM2-15a	If Yes… Who certifies/licenses middle/lower secondary grade teachers? Minister/Ministry of Education	BUBMPLTM	CQM2q11Ba	
CQM2-15b	If Yes… Who certifies/licenses middle/lower secondary grade teachers? National/state licensing board	BUBMPLTL	CQM2q11Bb	
CQM2-15c	If Yes… Who certifies/licenses middle/lower secondary grade teachers? Universities/colleges	BUBMPLTU	CQM2q11Bc	
CQM2-15d	If Yes… Who certifies/licenses middle/lower secondary grade teachers? Teacher organization/union	BUBMPLTT	CQM2q11Bd	

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Exhibit S1.10 Index of International Background Variables for the TIMSS 2007 Mathematics Curriculum Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQM2-15e	If Yes… Who certifies/licenses middle/lower secondary grade teachers? Other	BUBMPLTO	CQM2q11Be	
CQM2-15e_Sfy	Is there a process to license or certify middle/lower secondary grade teachers? Please specify:	BUBMPLTP	CQM2q11Be_Oth	
CQM2-15_Com	Is there a process to license or certify middle/lower secondary grade teachers? Comments:	BUBMPLTC	Not available	
CQM2-15n	Is there a process to license or certify middle/lower secondary grade teachers? If No… Comments:	BUBMPLTN	Not available	
CQM2-16	As part of pre-service education, do prospective teachers receive specific preparation in how to teach the mathematics curriculum?	BUBMSP	CQM2q09Aa	Modified in 2007
CQM2-16_Com	As part of pre-service education, do prospective teachers receive specific preparation in how to teach the mathematics curriculum? Comments:	BUBMSPCO	Not available	
CQM2-17a	Do practicing teachers get help implementing the mathematics curriculum through in-service training?	BUBMHIIS	CQM2q09Ab	Modified in 2007
CQM2-17b	Do practicing teachers get help implementing the mathematics curriculum through expert teacher/mentor?	BUBMHIET	Not available	
CQM2-17c	Do practicing teachers get help implementing the mathematics curriculum through reduced teaching load for new teachers?	BUBMHIRL	Not available	
CQM2-17d	Do practicing teachers get help implementing the mathematics curriculum through other?	BUBMHIOT	Not available	
CQM2-17_Sfy	How do practicing teachers get help to implement the mathematics curriculum? Please specify:	BUBMHIPS	Not available	
CQM2-17_Com	How do practicing teachers get help to implement the mathematics curriculum? Comments:	BUBMHICO	Not available	
CQM2-18a	If changes were made to the mathematics curriculum, would a teacher learn about them through special conferences/seminars on curriculum?	BUBMLCC	Not available	
CQM2-18b	If changes were made to the mathematics curriculum, would a teacher learn about them through Ministry (Department of Education, Government, Board of Education) Website?	BUBMLCMW	Not available	
CQM2-18c	If changes were made to the mathematics curriculum, would a teacher learn about them through printed copies of curriculum distributed to schools?	BUBMLCCD	Not available	
CQM2-18d	If changes were made to the mathematics curriculum, would a teacher learn about them through teachers receiving their own printed copy?	BUBMLCOC	Not available	
CQM2-18e	If changes were made to the mathematics curriculum, would a teacher learn about them through professional development/in-service education?	BUBMLCPD	Not available	
CQM2-18f	If changes were made to the mathematics curriculum, would a teacher learn about them through Ministry Notes?	BUBMLCMN	Not available	

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Exhibit S1.10 Index of International Background Variables for the TIMSS 2007 Mathematics Curriculum Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQM2-18g	If changes were made to the mathematics curriculum, would a teacher learn about them through professional association newsletter?	BUBMLCAN	Not available	
CQM2-18h	If changes were made to the mathematics curriculum, would a teacher learn about them through education journals?	BUBMLCEJ	Not available	
CQM2-18i	If changes were made to the mathematics curriculum, would a teacher learn about them through other educational authorities?	BUBMLCEA	Not available	
CQM2-18j	If changes were made to the mathematics curriculum, would a teacher learn about them through other?	BUBMLCOT	Not available	
CQM2-18j_Sfy	If changes were made to the mathematics curriculum, how would a teacher learn about them? Please specify:	BUBMLCPS	Not available	
CQM2-18_Com	If changes were made to the mathematics curriculum, how would a teacher learn about them? Comments:	BUBMLACO	Not available	
CQM2-19a	Are parents informed about the mathematics curriculum from teachers?	BUBMPITE	Not available	
CQM2-19b	Are parents informed about the mathematics curriculum from the school administration?	BUBMPISC	Not available	
CQM2-19c	Are parents informed about the mathematics curriculum from public awareness campaigns?	BUBMPIPU	Not available	
CQM2-19d	Are parents informed about the mathematics curriculum from Ministry Website?	BUBMPIMW	Not available	
CQM2-19e	Are parents informed about the mathematics curriculum from Ministry brochures and documents?	BUBMPIMD	Not available	
CQM2-19f	Are parents informed about the mathematics curriculum through parents' associations/organizations?	BUBMPIPA	Not available	
CQM2-19g	Are parents informed about the mathematics curriculum from other?	BUBMPIOT	Not available	
CQM2-19g_Sfy	How are parents informed about the mathematics curriculum? Please specify:	BUBMPIPS	Not available	
CQM2-19_Com	How are parents informed about the mathematics curriculum? Comments:	BUBMPICO	Not available	
CQM2-20	Is there a policy to encourage parental involvement in the schools attended by eighth-grade students?	BUBMEPI	Not available	
CQM2-20y	Is there a policy to encourage parental involvement in the schools attended by eighth-grade students? If Yes… What is the policy?	BUBMEPIY	Not available	
CQM2-20n	Is there a policy to encourage parental involvement in the schools attended by eighth-grade students? If No… Comments:	BUBMEPIN	Not available	
CQM2-21a	Is the mathematics curriculum implementation evaluated through visits by inspectors?	BUBMIEIN	Not available	

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Exhibit S1.10 Index of International Background Variables for the TIMSS 2007 Mathematics Curriculum Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQM2-21b	Is the mathematics curriculum implementation evaluated through research programs?	BUBMIERP	Not available	
CQM2-21c	Is the mathematics curriculum implementation evaluated through school self-evaluation?	BUBMIESE	Not available	
CQM2-21d	Is the mathematics curriculum implementation evaluated through national or regional assessments?	BUBMIEAS	Not available	
CQM2-21e	Is the mathematics curriculum implementation evaluated through other?	BUBMIEOT	Not available	
CQM2-21e_Sfy	How is the mathematics curriculum implementation evaluated? Please specify:	BUBMIEPS	Not available	
CQM2-21_Com	How is the mathematics curriculum implementation evaluated? Comments:	BUBMIECO	Not available	
CQM2-22	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 a university, and/or exiting or graduating from high school?	BUBMAAE	CQM2q02A	
CQM2-22y	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 a university, and/or exiting or graduating from high school? If Yes… Please describe the authority which administers examinations in mathematics, and list the grades at which they are given:	BUBMAAEY	CQM2q02B	
CQM2-22y_Grades	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 a university, and/or exiting or graduating from high school? If Yes… Please list the grades at which they are given (Grades with Examinations, see Exhibit 5 in TIMSS 2007 Encyclopedia):	BUBMAAEY_Grades	Not available	
CQM2-22n	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 a university, and/or exiting or graduating from high school? If No… Comments:	BUBMAAEN	Not available	
CQM2-A1	What is your country's name for the grade tested in TIMSS 2007 in English?	BUBMCNTG	Not available	
CQM2-A2	In your country, what was the stated official policy or regulation on students' age of entry to primary school (ISCED Level 1) in 1998-1999?	BUBMRAEP	Not available	
CQM2-A3	In your country, what was the usual age of students when they began primary school (ISCED Level 1) in 1998-1999?	BUBMABSC	Not available	

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Exhibit S1.10 Index of International Background Variables for the TIMSS 2007 Mathematics Curriculum Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQM2-A4	Does your country have a policy on the promotion and retention of students across grades 1-8 (e.g., automatic promotion for grades 1-5, dependent on academic progress for grades 6-8)?	BUBMPPR	Not available	
CQM2-A4n	Does your country have a policy on the promotion and retention of students across grades 1-8 (e.g., automatic promotion for grades 1-5, dependent on academic progress for grades 6-8)? If No… Please describe:	BUBMPPRN	Not available	
CQM2-A4y	Does your country have a policy on the promotion and retention of students across grades 1-8 (e.g., automatic promotion for grades 1-5, dependent on academic progress for grades 6-8)? If Yes… Comments:	BUBMPPRY	Not available	
CQM2-A5	Does your country have a nationally mandated number of school days per year?	BUBMNSD	Not available	
CQM2-A5a	Does your country have a nationally mandated number of school days per year? Please describe:	BUBMNSDD	Not available	
Years of Compulsary Schooling (1)	Complete the ages and grades for the years of schooling at the preprimary and primary / secondary levels for your country in the spaces provided below - Preprimary Compulsory Schooling / Ages	BUBMPPCA	Not available	
Years of Compulsary Schooling (2)	Complete the ages and grades for the years of schooling at the preprimary and primary / secondary levels for your country in the spaces provided below - Preprimary Compulsory Schooling / Grades	BUBMPPCG	Not available	
Years of Compulsary Schooling (3)	Complete the ages and grades for the years of schooling at the preprimary and primary / secondary levels for your country in the spaces provided below - Preprimary Schooling Provided / Ages	BUBMPPPA	Not available	
Years of Compulsary Schooling (4)	Complete the ages and grades for the years of schooling at the preprimary and primary / secondary levels for your country in the spaces provided below - Preprimary Schooling Provided / Grades	BUBMPPPG	Not available	
Years of Compulsary Schooling (5)	Complete the ages and grades for the years of schooling at the preprimary and primary / secondary levels for your country in the spaces provided below - Primary and Secondary Compulsory Schooling / Ages	BUBMPSCA	Not available	
Years of Compulsary Schooling (6)	Complete the ages and grades for the years of schooling at the preprimary and primary / secondary levels for your country in the spaces provided below - Primary and Secondary Compulsory Schooling / Grades	BUBMPSCG	Not available	
Years of Compulsary Schooling (7)	Complete the ages and grades for the years of schooling at the preprimary and primary / secondary levels for your country in the spaces provided below - Primary and Secondary Schooling Provided/ Ages	BUBMPSPA	Not available	
Years of Compulsary Schooling (8)	Complete the ages and grades for the years of schooling at the preprimary and primary / secondary levels for your country in the spaces provided below - Primary and Secondary Schooling provided/ Grades	BUBMPSPG	Not available	

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TIMSS 2007 Mathematics Curriculum Questionnaire

Mathematics Curriculum and Instruction in Middle/Lower Secondary Schools

BUBMNCC

1. Does your country have a national curriculum that covers mathematics instruction at the eighth grade of formal schooling?

*Check **one** circle only.*

Yes--- ○

No--- ○

BUBMNCCN

If No…
What is the highest level of decision-making authority (e.g., state or province) that provides a curriculum that covers mathematics instruction at the eighth grade of formal schooling?

BUBMNCCY

If Yes…
Comments:

BUBMGGS

2. What is the grade-to-grade structure of the middle/lower secondary school curriculum that covers mathematics instruction (e.g., grades 1-8; grades 4-8; grades 6-8; grades 7-9)?

BUBMGGSC

Comments:

BUBMYMCI

3. In what year was the current mathematics curriculum introduced?

Refers to the national curriculum that covers mathematics instruction at the eighth grade of formal schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

BUBMYMCC

Comments:

BUBMMCR

4. Is the mathematics curriculum currently being revised?

*Check **one** circle only.*

Yes--- ○
No--- ○

Refers to the national curriculum that covers mathematics instruction at the eighth grade of formal schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

BUBMMCRY

If Yes…
Please explain:

BUBMMCRN

If No…
Comments:

5. What does the mathematics curriculum prescribe?

*Check **one** circle for each line.*

	Yes	No
BUBMMPGO a) Goals and objectives---------	○	○
BUBMMPPM b) Processes or methods--------	○	○
BUBMMPMA c) Materials----------	○	○
BUBMMPRG d) Percentage of students reaching defined goals----------	○	○
BUBMMPOT e) Other----------	○	○

BUBMMPPS Please specify:

_____

Refers to the national curriculum that covers mathematics instruction at the eighth grade of formal schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

BUBMMPCO Comments:

BUBMNPC

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

*Check **one** circle only.*

Yes--- ○
No--- ○

Refers to the national curriculum that covers mathematics instruction at the eighth grade of formal schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

BUBMNPCY

If Yes…
What are the statements/policies?

BUBMNPCN

If No…
Comments:

BUBMNPO

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

*Check **one** circle only.*

Yes--- ○
No--- ○

Refers to the national curriculum that covers mathematics instruction at the eighth grade of formal schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

BUBMNPOY

If Yes…
What are the statements/policies?

BUBMNPON

If No…
Comments:

8. How much emphasis does the national mathematics curriculum place on the following?

*Check **one** circle for each line.*

	None	Very Little	Some	A lot
BUBMCESK a) Mastering basic skills and procedures----------	○	○	○	○
BUBMCECP b) Understanding mathematical concepts and principles----------	○	○	○	○
BUBMCERL c) Applying mathematics in real-life contexts----------	○	○	○	○
BUBMCECM d) Communicating mathematically-----	○	○	○	○
BUBMCERM e) Reasoning mathematically----------	○	○	○	○
BUBMCEEC f) Incorporating the experiences of different ethnic/cultural groups-------	○	○	○	○
BUBMCEOS g) Integrating mathematics with other subjects----------	○	○	○	○
BUBMCEFP h) Deriving formal proofs----------	○	○	○	○

Refers to the national curriculum that covers mathematics instruction at the eighth grade of formal schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

BUBMCECO Comments:

9. 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 part A topic (a)), please explain in the comment field.

	Proportion of grade 8 students expected to be taught topic *Check **one** circle for each line.*			Grade(s) topic is expected to be taught K-12	
	All or almost all students	**Only the more able students (top track)**	**Not included in the curriculum through grade 8**		
A. Number					
BUBMA9A1 a) Whole numbers including place value, factorization, and the four operations----------	○	○	○	_____	BUBMA9A2
BUBMA9B1 b) Computations, estimations, or approximations involving whole numbers----------	○	○	○	_____	BUBMA9B2
BUBMA9C1 c) Common fractions including equivalent fractions and ordering of fractions----------	○	○	○	_____	BUBMA9C2
BUBMA9D1 d) Decimal including place value, ordering, and converting to common fractions (and vice versa)------	○	○	○	_____	BUBMA9D2
BUBMA9E1 e) Representing decimals and fractions using words, numbers, or models (including number lines)-------	○	○	○	_____	BUBMA9E2

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BUBMA9F1 f) Computations with fractions-- _____ BUBMA9F2

BUBMA9G1 g) Computations with decimals-- _____ BUBMA9G2

BUBMA9H1 h) Representing, comparing, ordering, and computing with integers---------- _____ BUBMA9H2

BUBMA9I1 i) Ratios (equivalence, division of a quantity by a given ratio)- _____ BUBMA9I2

BUBMA9J1 j) Conversion of percents to fractions or decimals and vice versa---------- _____ BUBMA9J2

Refers to the national curriculum that covers mathematics instruction at the eighth grade of formal schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

BUBMM9CA Comments:

		Proportion of grade 8 students expected to be taught topic *Check **one** circle for each line.*			Grade(s) topic is expected to be taught K-12	
		All or almost all students	Only the more able students (top track)	Not included in the curriculum through grade 8		
	B. Algebra					
BUBMB9A1	a) Numeric, algebraic, and geometric patterns or sequences (extension, missing terms, generalization of patterns)----------	○	○	○	_____	BUBMB9A2
BUBMB9B1	b) Sums, products, and powers of expressions containing variables----------	○	○	○	_____	BUBMB9B2
BUBMB9C1	c) Evaluating expressions for given numeric value----------	○	○	○	_____	BUBMB9C2
BUBMB9D1	d) Simplifying or comparing algebraic expressions----------	○	○	○	_____	BUBMB9D2
BUBMB9E1	e) Modeling situations using expressions----------	○	○	○	_____	BUBMB9E2
BUBMB9F1	f) Evaluating functions/formulas for given values of the variables----------	○	○	○	_____	BUBMB9F2
BUBMB9G1	g) Simple linear equations and inequalities, and simultaneous (two variables) equations------	○	○	○	_____	BUBMB9G2
BUBMB9H1	h) Equivalent representations of functions as ordered pairs, tables, graphs, words, or equations----------	○	○	○	_____	BUBMB9H2

Refers to the national curriculum that covers mathematics instruction at the eighth grade of formal schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

BUBMM9CB

Comments:

		Proportion of grade 8 students expected to be taught topic *Check **one** circle for each line.*			Grade(s) topic is expected to be taught K-12	
		All or almost all students	Only the more able students (top track)	Not included in the curriculum through grade 8		
	C. Geometry					
BUBMC9A1	a) Angles – acute, right, straight, obtuse, reflex----------	○	○	○	_____	BUBMC9A2
BUBMC9B1	b) Relationships for angles at a point, angles on a line, vertically opposite angles, angles associated with a transversal cutting parallel lines, and perpendicularity----	○	○	○	_____	BUBMC9B2
BUBMC9C1	c) Properties of geometric shapes: triangles, quadrilaterals, and other common polygons----------	○	○	○	_____	BUBMC9C2
BUBMC9D1	d) Construct or draw triangles and rectangles of given dimensions----------	○	○	○	_____	BUBMC9D2
BUBMC9E1	e) Congruent figures (triangles, quadrilaterals) and their corresponding measures-------	○	○	○	_____	BUBMC9E2
BUBMC9F1	f) Similar triangles and recall their properties----------	○	○	○	_____	BUBMC9F2
BUBMC9G1	g) Relationships between two-dimensional and three-dimensional shapes----------	○	○	○	_____	BUBMC9G2
BUBMC9H1	h) Pythagorean theorem (not proof) to find length of a side	○	○	○	_____	BUBMC9H2
BUBMC9I1	i) Measurement, drawing, and estimation of the size of angles, the length of lines, areas, and volumes----------	○	○	○	_____	BUBMC9I2

BUBMC9J1

j) Measurement formulas for perimeters, circumferences, areas of circles, surface areas, and volumes----------  _____ BUBMC9J2

BUBMC9K1

k) Measures of irregular or compound areas (e.g., by covering with grids or dissecting and rearranging pieces)----------  _____ BUBMC9K2

BUBMC9L1

l) Cartesian plane – ordered pairs, equations, intercepts, intersections, and gradient-----  _____ BUBMC9L2

BUBMC9M1

m) Line and rotational symmetry for two-dimensional shapes---  _____ BUBMC9M2

BUBMC9N1

n) Translation, reflection, and rotation----------  _____ BUBMC9N2

Refers to the national curriculum that covers mathematics instruction at the eighth grade of formal schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

BUBMM9CC

Comments:

		Proportion of grade 8 students expected to be taught topic *Check **one** circle for each line.*			Grade(s) topic is expected to be taught K-12	
		All or almost all students	Only the more able students (top track)	Not included in the curriculum through grade 8		
	D. Data and Chance					
BUBMD9A1	a) Reading data from tables, pictographs, bar graphs, pie charts, and line graphs---------	○	○	○	_____	BUBMD9A2
BUBMD9B1	b) Organizing and displaying data using tables, pictographs, bar graphs, pie charts, and line graphs----------	○	○	○	_____	BUBMD9B2
BUBMD9C1	c) Characteristics of data sets including mean, median, range, and shape of distribution (in general terms)	○	○	○	_____	BUBMD9C2
BUBMD9D1	d) Interpreting data sets (e.g., draw conclusions, make predictions, and estimate values between and beyond given data points)----------	○	○	○	_____	BUBMD9D2
BUBMD9E1	e) Data display that could lead to misinterpretation (e.g., inappropriate grouping and misleading or distorted scales)----------	○	○	○	_____	BUBMD9E2
BUBMD9F1	f) Using data from experiments to predict chances of future outcomes----------	○	○	○	_____	BUBMD9F2
BUBMD9G1	g) Using the chances of a particular outcome to solve problems----------	○	○	○	_____	BUBMD9G2

Refers to the national curriculum that covers mathematics instruction at the eighth grade of formal schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

BUBMM9CD

Comments:

BUBMCDA

10. Which best describes how the mathematics curriculum addresses the issue of students with different levels of ability?

Please answer for students in regular classes, and explain provisions for special needs students in the comment box.

*Check **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-- ○

Refers to the national curriculum that covers mathematics instruction at the eighth grade of formal schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

BUBMCDAC

Comments:

11. In what form is the mathematics curriculum made available?

*Check **one** circle for each line.*

		Yes	No
BUBMCMAA	a) Official publication containing the curriculum----------	○	○
BUBMCMAM	b) Ministry notes and directives----------	○	○
BUBMCMAT	c) Mandated or recommended textbooks----------	○	○
BUBMCMAI	d) Instructional or pedagogical guide----------	○	○
BUBMCMAS	e) Specifically developed or recommended instructional activities----	○	○
BUBMCMAO	f) Other----------	○	○

BUBMCMAP Please specify:

_____

Refers to the national curriculum that covers mathematics instruction at the eighth grade of formal schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

BUBMCMAC Comments:

12. a) In a typical week, what is the total amount of instructional time prescribed by the curriculum at the eighth grade of formal schooling?

BUBMITTH
BUBMITTM

[ ] hours and [ ] minutes

b) What percentage of total instructional time is supposed to be devoted to **mathematics** instruction at the eighth grade of formal schooling?

BUBMIDM

[ ] % of total
Write in a number

BUBMIDMC

Comments:

BUBMPAH

c) Is there a policy to assign mathematics homework at the eighth grade of formal schooling?

*Check **one** circle only.*

Yes--- ○
No--- ○

BUBMPAHY

If Yes…
What is the policy?

BUBMPAHN

If No…
Comments:

BUBMPPI

13. Is there an official policy to provide remedial mathematics instruction at the eighth grade of formal schooling?

*Check **one** circle only.*

Yes--- ○
No--- ○

BUBMPPIY

If Yes…
What is the policy?

BUBMPPIN

If No…
Comments:

14. Which are the current requirements for being a middle/lower secondary grade teacher?

*Check **one** circle for each line.*

		Yes	No
BUBMCRDE	a) A degree from a teacher education program----------	○	○
BUBMCRPP	b) Pre-practicum during teacher education program----------	○	○
BUBMCRSU	c) Supervised practicum in the field----------	○	○
BUBMCRCE	d) Passing a certification examination----------	○	○
BUBMCRPE	e) Completion of a probationary teaching period----------	○	○
	If Yes… How long is this period? _____		
BUBMCRLO			
BUBMCRIN	f) Completion of a mentoring or induction program----------	○	○
BUBMCROT	g) Other----------	○	○
BUBMCRP	Please specify: _____		

Refers to the requirements encompassing eighth grade.

BUBMCRCO Comments:

20

BUBMPLT

15. Is there a process to license or certify middle/lower secondary grade teachers?

*Check **one** circle only.*

Yes---
No---

Refers to the requirements encompassing eighth grade.

If Yes…
Who certifies/licenses middle/lower secondary grade teachers?

*Check **one** circle for each line.*

	Yes	No
BUBMPLTM a) Minister/Ministry of Education----------		
BUBMPLTL b) National/state licensing board----------		
BUBMPLTU c) Universities/colleges----------		
BUBMPLTT d) Teacher organization/union----------		
BUBMPLTO e) Other----------		

BUBMPLTP Please specify:

_____

BUBMPLTC Comments:

BUBMPLTN *If No…*
Comments:

BUBMSP

16. As part of pre-service education, do prospective teachers receive specific preparation in how to teach the mathematics curriculum?

*Check **one** circle only.*

Yes---
No---

BUBMSPCO

Comments:

17. How do practicing teachers get help to implement the mathematics curriculum?

*Check **one** circle for each line.*

	Yes	No
BUBMHIIS a) In-service training----------		
BUBMHIET b) Expert teacher/mentor----------		
BUBMHIRL c) Reduced teaching load for new teachers----		
BUBMHIOT d) Other----------		

BUBMHIPS

Please specify:

_____

BUBMHICO

Comments:

18. If changes were made to the mathematics curriculum, how would a teacher learn about them?

*Check **one** circle for each line.*

		Yes	No
BUBMLCC	a) Special conferences/seminars on curriculum----------	○	○
BUBMLCMW	b) Ministry (Department of Education, Government, Board of Education) Website----------	○	○
BUBMLCCD	c) Printed copies of curriculum distributed to schools----------	○	○
BUBMLCOC	d) Teachers receive own printed copy----------	○	○
BUBMLCPD	e) Professional development/in-service education----------	○	○
BUBMLCMN	f) Ministry Notes----------	○	○
BUBMLCAN	g) Professional association newsletter----------	○	○
BUBMLCEJ	h) Education journals----------	○	○
BUBMLCEA	i) Other educational authorities----------	○	○
BUBMLCOT	j) Other----------	○	○

BUBMLCPS Please specify:

_____

BUBMLACO Comments:

19. How are parents informed about the mathematics curriculum?

*Check **one** circle for each line.*

	Yes	No
BUBMPITE a) From teachers	○	○
BUBMPISC b) From the school administration	○	○
BUBMPIPU c) From public awareness campaigns	○	○
BUBMPIMW d) From Ministry Website	○	○
BUBMPIMD e) From Ministry brochures and documents	○	○
BUBMPIPA f) Through parents' associations/organizations	○	○
BUBMPIOT g) Other	○	○

BUBMPIPS Please specify:

_____

BUBMPICO Comments:

BUBMEPI

20. Is there a policy to encourage parental involvement in the schools attended by eighth-grade students?

*Check **one** circle only.*

Yes--- ○
No--- ○

BUBMEPIY

If Yes…
What is the policy?

BUBMEPIN

If No…
Comments:

21. How is the mathematics curriculum implementation evaluated?

*Check **one** circle for each line.*

	Yes	No
BUBMIEIN a) Visits by inspectors----------	○	○
BUBMIERP b) Research programs----------	○	○
BUBMIESE c) School self-evaluation----------	○	○
BUBMIEAS d) National or regional assessments----------	○	○
BUBMIEOT e) Other----------	○	○

BUBMIEPS Please specify:

_____

BUBMIECO Comments:

BUBMAAE

22. 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 a university, and/or exiting or graduating from high school?

*Check **one** circle only.*

Yes--- ○

No--- ○

BUBMAAEY
BUBMAAEY_Grades

If Yes…
Please describe the authority which administers examinations in mathematics, and list the grades at which they are given:

BUBMAAEN

If No…
Comments:

Addendum on Amount of Schooling for Students Tested in TIMSS 2007

BUBMCNTG

1. What is your country's name for the grade tested in TIMSS 2007 in English?

BUBMRAEP

2. In your country, what was the stated official policy or regulation on students' age of entry to primary school (ISCED Level 1) in 1998-1999?

   Examples: "Children begin school during the calendar year of their 6th birthday", "children must be 6 years old by the end of June to begin school the following September".

BUBMABSC

3. In your country, what was the usual age of students when they began primary school (ISCED Level 1) in 1998-1999? (Note: This response may be the same as that for question 2.)

BUBMPPR

4. Does your country have a policy on the promotion and retention of students across grades 1-8 (e.g., automatic promotion for grades 1-5, dependent on academic progress for grades 6-8)?

*Check **one** circle only.*

Yes--- ○
No--- ○

BUBMPPRN

If No…
Please describe:

BUBMPPRY

If Yes…
Comments:

BUBMNSD

5. Does your country have a nationally mandated number of school days per year?

*Check **one** circle only.*

Yes--- ○
No--- ○

BUBMNSDD

Please describe:

Years of Compulsory Schooling

INSTRUCTIONS: Complete the ages and grades for the years of schooling at the preprimary and primary/secondary levels for your country in the spaces provided below. Specify by what date the student must be this age (e.g., must be age 6 by September 1st).

Preprimary Compulsory Schooling		Preprimary Schooling Provided		Primary and Secondary Compulsory Schooling		Primary and Secondary Schooling Provided	
Ages	Grades	Ages	Grades	Ages	Grades	Ages	Grades
BUBMPPCA	BUBMPPCG	BUBMPPPA	BUBMPPPG	BUBMPSCA	BUBMPSCG	BUBMPSPA	BUBMPSPG

SOURCE: IEA's Trends in International Mathematics and Science Study (TIMSS) 2007

Eighth Grade
Science Curriculum Questionnaire

Section 11

Exhibit S1.11 Index of International Background Variables for the TIMSS 2007 Science Curriculum Questionnaire - Eighth Grade

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQS2-1	Does your country have a national curriculum that covers science instruction at the eighth grade of formal schooling?	BUBSNCC	CQS2q01A	Modified in 2007
CQS2-1n	If No… What is the highest level of decision-making authority (e.g., state or province) that provides a curriculum that covers science instruction at the eighth grade of formal schooling?	BUBSNCCN	CQS2q01B	Modified in 2007
CQS2-1y	Does your country have a national curriculum that covers science instruction at the eighth grade of formal schooling? If Yes… Comments:	BUBSNCCY	Not available	
CQS2-2	What is the grade-to-grade structure of the middle/lower secondary school curriculum that covers science instruction (e.g., grades 1-8; grades 4-8; grades 6-8; grades 7-9)?	BUBSGGS	Not available	
CQS2-2_Com	What is the grade-to-grade structure of the middle/lower secondary school curriculum that covers science instruction (e.g., grades 1-8; grades 4-8; grades 6-8; grades 7-9)? Comments:	BUBSGGSC	Not available	
CQS2-3	By grade 8, are different science courses offered in separate subjects (e.g., biology, chemistry, physics, earth science)?	BUBSDC	CQS2q02A	
CQS2-3a1	If yes, please list the science subjects taught as separate courses (subject 1).	BUBSDCS1	CQS2q02B	
CQS2-3a2	Grades in which subject 1 is taught, up to and including grade 8?	BUBSDCG1	CQS2q02B	
CQS2-3b1	If yes, please list the science subjects taught as separate courses (subject 2).	BUBSDCS2	CQS2q02B	
CQS2-3b2	Grades in which subject 2 is taught, up to and including grade 8?	BUBSDCG2	CQS2q02B	
CQS2-3c1	If yes, please list the science subjects taught as separate courses (subject 3).	BUBSDCS3	CQS2q02B	
CQS2-3c2	Grades in which subject 3 is taught, up to and including grade 8?	BUBSDCG3	CQS2q02B	
CQS2-3d1	If yes, please list the science subjects taught as separate courses (subject 4).	BUBSDCS4	CQS2q02B	
CQS2-3d2	Grades in which subject 4 is taught, up to and including grade 8?	BUBSDCG4	CQS2q02B	
CQS2-3e1	If yes, please list the science subjects taught as separate courses (subject 5).	BUBSDCS5	CQS2q02B	
CQS2-3e2	Grades in which subject 5 is taught, up to and including grade 8?	BUBSDCG5	CQS2q02B	
CQS2-3f1	If yes, please list the science subjects taught as separate courses (subject 6).	BUBSDCS6	CQS2q02B	
CQS2-3f2	Grades in which subject 6 is taught, up to and including grade 8?	BUBSDCG6	CQS2q02B	
CQS2-3_Com	By grade 8, are different science courses offered in separate subjects (e.g., biology, chemistry, physics, earth science)? If No… Comments:	BUBSDCCO	Not available	
CQS2-4	In what year was the current science curriculum introduced?	BUBSYSCI	CQS2q01C	Modified in 2007
CQS2-4_Com	In what year was the current science curriculum introduced? Comments:	BUBSYSCC	Not available	
CQS2-5	Is the science curriculum currently being revised?	BUBSSCR	CQS2q01D	Modified in 2007

* In TIMSS 2003 the location of each curriculum questionnaire item was used as its corresponding variable name.

Exhibit S1.11 Index of International Background Variables for the TIMSS 2007 Science Curriculum Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQS2-5y	Is the science curriculum currently being revised? If Yes… Please explain:	BUBSSCRY	Not available	
CQS2-5n	Is the science curriculum currently being revised? If No… Comments:	BUBSSCRN	Not available	
CQS2-6a	Does the science curriculum prescribe goals and objectives?	BUBSSPGO	Not available	
CQS2-6b	Does the science curriculum prescribe processes or methods?	BUBSSPPM	Not available	
CQS2-6c	Does the science curriculum prescribe materials?	BUBSSPMA	Not available	
CQS2-6d	Does the science curriculum prescribe the percentage of students reaching defined goals?	BUBSSPRG	Not available	
CQS2-6e	Does the science curriculum prescribe other?	BUBSSPOT	Not available	
CQS2-6e_Sfy	What does the science curriculum prescribe? Please specify:	BUBSSPPS	Not available	
CQS2-6_Com	What does the science curriculum prescribe? Comments:	BUBSSPCO	Not available	
CQS2-7	Does the national curriculum contain statements/policies about the use of computers in grade 8 science?	BUBSNPO	CQSq09A	
CQS2-7y	Does the national curriculum contain statements/policies about the use of computers in grade 8 science? If Yes… What are the statements/policies?	BUBSNPOY	CQS2q09B	
CQS2-7n	Does the national curriculum contain statements/policies about the use of computers in grade 8 science? If No… Comments:	BUBSNPON	Not available	
CQS2-8a	How much emphasis does the national science curriculum place on knowing basic science facts and principles?	BUBSCEKF	CQS2q07a	
CQS2-8b	How much emphasis does the national science curriculum place on observing natural phenomena and describing what is seen?	BUBSCEOP	Not available	
CQS2-8c	How much emphasis does the national science curriculum place on providing explanations about what is being studied?	BUBSCEEX	Not available	
CQS2-8d	How much emphasis does the national science curriculum place on designing and planning experiments or investigations?	BUBSCEDE	CQS2q07e	
CQS2-8e	How much emphasis does the national science curriculum place on conducting experiments or investigations?	BUBSCECE	CQS2q07f	
CQS2-8f	How much emphasis does the national science curriculum place on integrating science with other subjects?	BUBSCEIS	CQS2q07h	
CQS2-8g	How much emphasis does the national science curriculum place on relating what students are learning to their daily lives?	BUBSCEDL	Not available	
CQS2-8h	How much emphasis does the national science curriculum place on incorporating the experiences of different ethnic/cultural groups?	BUBSCEEC	CQS2q07k	
CQS2-8_Com	How much emphasis does the national science curriculum place on the following? Comments:	BUBSCECO	Not available	

* In TIMSS 2003 the location of each curriculum questionnaire item was used as its corresponding variable name.

Exhibit S1.11 Index of International Background Variables for the TIMSS 2007 Science Curriculum Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQS2-9Aa1	According to the national science curriculum, what proportion of grade 8 students should have been taught biology topics by the end of grade 8? - Classification of organisms on the basis of a variety of physical and behavioral characteristics	BUBSA9A1	See Question CQS2q13A in 2003 for sub-topics.	
CQS2-9Aa2	Across grades K-12, at what grade(s) is above biology topic primarily intended to be taught?	BUBSA9A2	See Question CQS2q13A in 2003 for sub-topics.	
CQS2-9Ab1	According to the national science curriculum, what proportion of grade 8 students should have been taught biology topics by the end of grade 8? - Major organ systems in humans and other organisms	BUBSA9B1	See Question CQS2q13A in 2003 for sub-topics.	
CQS2-9Ab2	Across grades K-12, at what grade(s) is above biology topic primarily intended to be taught?	BUBSA9B2	See Question CQS2q13A in 2003 for sub-topics.	
CQS2-9Ac1	According to the national science curriculum, what proportion of grade 8 students should have been taught biology topics by the end of grade 8? - How the systems function to maintain stable bodily conditions	BUBSA9C1	See Question CQS2q13A in 2003 for sub-topics.	
CQS2-9Ac2	Across grades K-12, at what grade(s) is above biology topic primarily intended to be taught?	BUBSA9C2	See Question CQS2q13A in 2003 for sub-topics.	
CQS2-9Ad1	According to the national science curriculum, what proportion of grade 8 students should have been taught biology topics by the end of grade 8? - Cell structures and functions	BUBSA9D1	See Question CQS2q13A in 2003 for sub-topics.	
CQS2-9Ad2	Across grades K-12, at what grade(s) is above biology topic primarily intended to be taught?	BUBSA9D2	See Question CQS2q13A in 2003 for sub-topics.	
CQS2-9Ae1	According to the national science curriculum, what proportion of grade 8 students should have been taught biology topics by the end of grade 8? - Photosynthesis and respiration (including substances used and produced) as processes of cells and organisms	BUBSA9E1	See Question CQS2q13A in 2003 for sub-topics.	
CQS2-9Ae2	Across grades K-12, at what grade(s) is above biology topic primarily intended to be taught?	BUBSA9E2	See Question CQS2q13A in 2003 for sub-topics.	
CQS2-9Af1	According to the national science curriculum, what proportion of grade 8 students should have been taught biology topics by the end of grade 8? - Life cycles of organisms, including humans, plants, birds, insects	BUBSA9F1	See Question CQS2q13A in 2003 for sub-topics.	
CQS2-9Af2	Across grades K-12, at what grade(s) is above biology topic primarily intended to be taught?	BUBSA9F2	See Question CQS2q13A in 2003 for sub-topics.	
CQS2-9Ag1	According to the national science curriculum, what proportion of grade 8 students should have been taught biology topics by the end of grade 8? - Reproduction (sexual and asexual), and heredity (passing on of traits, inherited versus acquired/learned characteristics)	BUBSA9G1	See Question CQS2q13A in 2003 for sub-topics.	

* In TIMSS 2003 the location of each curriculum questionnaire item was used as its corresponding variable name.

Exhibit S1.11 Index of International Background Variables for the TIMSS 2007 Science Curriculum Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQS2-9Ag2	Across grades K-12, at what grade(s) is above biology topic primarily intended to be taught?	BUBSA9G2	See Question CQS2q13A in 2003 for sub-topics.	
CQS2-9Ah1	According to the national science curriculum, what proportion of grade 8 students should have been taught biology topics by the end of grade 8? - The role of variation and adaptation in survival/extinction of species in a changing environment	BUBSA9H1	See Question CQS2q13A in 2003 for sub-topics.	
CQS2-9Ah2	Across grades K-12, at what grade(s) is above biology topic primarily intended to be taught?	BUBSA9H2	See Question CQS2q13A in 2003 for sub-topics.	
CQS2-9Ai1	According to the national science curriculum, what proportion of grade 8 students should have been taught biology topics by the end of grade 8? - Interaction of living organisms in an ecosystem (energy flow, food chains and food webs, food pyramids, and the effects of change upon the system)	BUBSA9I1	See Question CQS2q13A in 2003 for sub-topics.	
CQS2-9Ai2	Across grades K-12, at what grade(s) is above biology topic primarily intended to be taught?	BUBSA9I2	See Question CQS2q13A in 2003 for sub-topics.	
CQS2-9Aj1	According to the national science curriculum, what proportion of grade 8 students should have been taught biology topics by the end of grade 8? - Cycling of materials in nature (water, carbon/oxygen cycle, decomposition of organisms)	BUBSA9J1	See Question CQS2q13A in 2003 for sub-topics.	
CQS2-9Aj2	Across grades K-12, at what grade(s) is above biology topic primarily intended to be taught?	BUBSA9J2	See Question CQS2q13A in 2003 for sub-topics.	
CQS2-9Ak1	According to the national science curriculum, what proportion of grade 8 students should have been taught biology topics by the end of grade 8? - Trends in human population and its effects on the environment	BUBSA9K1	See Question CQS2q13A in 2003 for sub-topics.	
CQS2-9Ak2	Across grades K-12, at what grade(s) is above biology topic primarily intended to be taught?	BUBSA9K2	See Question CQS2q13A in 2003 for sub-topics.	
CQS2-9Al1	According to the national science curriculum, what proportion of grade 8 students should have been taught biology topics by the end of grade 8? - Impact of natural hazards on humans, wildlife, and the environment	BUBSA9L1	See Question CQS2q13A in 2003 for sub-topics.	
CQS2-9Al2	Across grades K-12, at what grade(s) is above biology topic primarily intended to be taught?	BUBSA9L2	See Question CQS2q13A in 2003 for sub-topics.	
CQS2-9Am1	According to the national science curriculum, what proportion of grade 8 students should have been taught biology topics by the end of grade 8? - Causes of common infectious diseases, methods of infection/transmission, prevention, and the body's natural resistance and healing capabilities	BUBSA9M1	See Question CQS2q13A in 2003 for sub-topics.	
CQS2-9Am2	Across grades K-12, at what grade(s) is above biology topic primarily intended to be taught?	BUBSA9M2	See Question CQS2q13A in 2003 for sub-topics.	

* In TIMSS 2003 the location of each curriculum questionnaire item was used as its corresponding variable name.

Exhibit S1.11 Index of International Background Variables for the TIMSS 2007 Science Curriculum Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQS2-9An1	According to the national science curriculum, what proportion of grade 8 students should have been taught biology topics by the end of grade 8? - Preventive medicine methods (diet, hygiene, exercise, and lifestyle)	BUBSA9N1	See Question CQS2q13A in 2003 for sub-topics.	
CQS2-9An2	Across grades K-12, at what grade(s) is above biology topic primarily intended to be taught?	BUBSA9N2	See Question CQS2q13A in 2003 for sub-topics.	
CQS2-9A_Com	According to the national science curriculum, what proportion of grade 8 students should have been taught the following biology topics or skills by the end of grade 8? Comments:	BUBSS9CA	Not available	
CQS2-9Ba1	According to the national science curriculum, what proportion of grade 8 students should have been taught chemistry topics by the end of grade 8? - Classification and composition of matter (physical and chemical properties, pure substances and mixtures, separation techniques)	BUBSB9A1	See Question CQS2q13B in 2003 for sub-topics.	
CQS2-9Ba2	Across grades K-12, at what grade(s) is above chemistry topic primarily intended to be taught?	BUBSB9A2	See Question CQS2q13B in 2003 for sub-topics.	
CQS2-9Bb1	According to the national science curriculum, what proportion of grade 8 students should have been taught chemistry topics by the end of grade 8? - Particulate structure of matter (molecules, atoms, protons, neutrons, and electrons)	BUBSB9B1	See Question CQS2q13B in 2003 for sub-topics.	
CQS2-9Bb2	Across grades K-12, at what grade(s) is above chemistry topic primarily intended to be taught?	BUBSB9B2	See Question CQS2q13B in 2003 for sub-topics.	
CQS2-9Bc1	According to the national science curriculum, what proportion of grade 8 students should have been taught chemistry topics by the end of grade 8? - Solutions (solvents, solutes, effect of temperature on solubility)	BUBSB9C1	See Question CQS2q13B in 2003 for sub-topics.	
CQS2-9Bc2	Across grades K-12, at what grade(s) is above chemistry topic primarily intended to be taught?	BUBSB9C2	See Question CQS2q13B in 2003 for sub-topics.	
CQS2-9Bd1	According to the national science curriculum, what proportion of grade 8 students should have been taught chemistry topics by the end of grade 8? - Properties and uses of water (composition, melting/boiling points, changes in density/volume)	BUBSB9D1	See Question CQS2q13B in 2003 for sub-topics.	
CQS2-9Bd2	Across grades K-12, at what grade(s) is above chemistry topic primarily intended to be taught?	BUBSB9D2	See Question CQS2q13B in 2003 for sub-topics.	
CQS2-9Be1	According to the national science curriculum, what proportion of grade 8 students should have been taught chemistry topics by the end of grade 8? - Properties and uses of common acids and bases	BUBSB9E1	See Question CQS2q13B in 2003 for sub-topics.	
CQS2-9Be2	Across grades K-12, at what grade(s) is above chemistry topic primarily intended to be taught?	BUBSB9E2	See Question CQS2q13B in 2003 for sub-topics.	

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Exhibit S1.11 Index of International Background Variables for the TIMSS 2007 Science Curriculum Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQS2-9Bf1	According to the national science curriculum, what proportion of grade 8 students should have been taught chemistry topics by the end of grade 8? - Chemical change (transformation of reactants, evidence of chemical change, conservation of matter)	BUBSB9F1	See Question CQS2q13B in 2003 for sub-topics.	
CQS2-9Bf2	Across grades K-12, at what grade(s) is above chemistry topic primarily intended to be taught?	BUBSB9F2	See Question CQS2q13B in 2003 for sub-topics.	
CQS2-9Bg1	According to the national science curriculum, what proportion of grade 8 students should have been taught chemistry topics by the end of grade 8? - Common oxidation reactions (combustion, rusting), the need for oxygen and the relative tendency of familiar substances to undergo these reactions	BUBSB9G1	See Question CQS2q13B in 2003 for sub-topics.	
CQS2-9Bg2	Across grades K-12, at what grade(s) is above chemistry topic primarily intended to be taught?	BUBSB9G2	See Question CQS2q13B in 2003 for sub-topics.	
CQS2-9Bh1	According to the national science curriculum, what proportion of grade 8 students should have been taught chemistry topics by the end of grade 8? - Classification of familiar chemical transformations as releasing or absorbing heat/energy	BUBSB9H1	See Question CQS2q13B in 2003 for sub-topics.	
CQS2-9Bh2	Across grades K-12, at what grade(s) is above chemistry topic primarily intended to be taught?	BUBSB9H2	See Question CQS2q13B in 2003 for sub-topics.	
CQS2-9B_Com	According to the national science curriculum, what proportion of grade 8 students should have been taught the following chemistry topics or skills by the end of grade 8? Comments:	BUBSS9CB	Not available	
CQS2-9Ca1	According to the national science curriculum, what proportion of grade 8 students should have been taught physics topics by the end of grade 8? - Physical states and changes in matter (explanations of properties including volume, shape, density, and compressibility in terms of movement/distance between particles, conservation of mass during physical changes)	BUBSC9A1	See Question CQS2q13C in 2003 for sub-topics.	
CQS2-9Ca2	Across grades K-12, at what grade(s) is above physics topic primarily intended to be taught?	BUBSC9A2	See Question CQS2q13C in 2003 for sub-topics.	
CQS2-9Cb1	According to the national science curriculum, what proportion of grade 8 students should have been taught physics topics by the end of grade 8? - Processes of melting, freezing, evaporation, and condensation (phase change; melting/boiling points; effects of pressure and purity of substances)	BUBSC9B1	See Question CQS2q13C in 2003 for sub-topics.	
CQS2-9Cb2	Across grades K-12, at what grade(s) is above physics topic primarily intended to be taught?	BUBSC9B2	See Question CQS2q13C in 2003 for sub-topics.	
CQS2-9Cc1	According to the national science curriculum, what proportion of grade 8 students should have been taught physics topics by the end of grade 8? - Energy forms, transformations, heat and temperature, including heat transfer	BUBSC9C1	See Question CQS2q13C in 2003 for sub-topics.	

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Exhibit S1.11 Index of International Background Variables for the TIMSS 2007 Science Curriculum Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQS2-9Cc2	Across grades K-12, at what grade(s) is above physics topic primarily intended to be taught?	BUBSC9C2	See Question CQS2q13C in 2003 for sub-topics.	
CQS2-9Cd1	According to the national science curriculum, what proportion of grade 8 students should have been taught physics topics by the end of grade 8? - Temperature changes related to changes in volume and/or pressure and to changes in movement or speed of particles	BUBSC9D1	See Question CQS2q13C in 2003 for sub-topics.	
CQS2-9Cd2	Across grades K-12, at what grade(s) is above physics topic primarily intended to be taught?	BUBSC9D2	See Question CQS2q13C in 2003 for sub-topics.	
CQS2-9Ce1	According to the national science curriculum, what proportion of grade 8 students should have been taught physics topics by the end of grade 8? - Basic properties/behavior of light (reflection, refraction, light and color, simple ray diagrams)	BUBSC9E1	See Question CQS2q13C in 2003 for sub-topics.	
CQS2-9Ce2	Across grades K-12, at what grade(s) is above physics topic primarily intended to be taught?	BUBSC9E2	See Question CQS2q13C in 2003 for sub-topics.	
CQS2-9Cf1	According to the national science curriculum, what proportion of grade 8 students should have been taught physics topics by the end of grade 8? - Properties of sound (transmission through media, ways of describing sound (loudness, pitch, amplitude, frequency), relative speed)	BUBSC9F1	See Question CQS2q13C in 2003 for sub-topics.	
CQS2-9Cf2	Across grades K-12, at what grade(s) is above physics topic primarily intended to be taught?	BUBSC9F2	See Question CQS2q13C in 2003 for sub-topics.	
CQS2-9Cg1	According to the national science curriculum, what proportion of grade 8 students should have been taught physics topics by the end of grade 8? - Electric circuits (flow of current, types of circuits –parallel/series) and relationship between voltage and current	BUBSC9G1	See Question CQS2q13C in 2003 for sub-topics.	
CQS2-9Cg2	Across grades K-12, at what grade(s) is above physics topic primarily intended to be taught?	BUBSC9G2	See Question CQS2q13C in 2003 for sub-topics.	
CQS2-9Ch1	According to the national science curriculum, what proportion of grade 8 students should have been taught physics topics by the end of grade 8? - Properties of permanent magnets and electromagnets	BUBSC9H1	See Question CQS2q13C in 2003 for sub-topics.	
CQS2-9Ch2	Across grades K-12, at what grade(s) is above physics topic primarily intended to be taught?	BUBSC9H2	See Question CQS2q13C in 2003 for sub-topics.	
CQS2-9Ci1	According to the national science curriculum, what proportion of grade 8 students should have been taught physics topics by the end of grade 8? - Forces and motion (types of forces, basic description of motion), use of distance/time graphs	BUBSC9I1	See Question CQS2q13C in 2003 for sub-topics.	
CQS2-9Ci2	Across grades K-12, at what grade(s) is above physics topic primarily intended to be taught?	BUBSC9I2	See Question CQS2q13C in 2003 for sub-topics.	

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Exhibit S1.11 Index of International Background Variables for the TIMSS 2007 Science Curriculum Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQS2-9Cj1	According to the national science curriculum, what proportion of grade 8 students should have been taught physics topics by the end of grade 8? - Effects of density and pressure	BUBSC9J1	See Question CQS2q13C in 2003 for sub-topics.	
CQS2-9Cj2	Across grades K-12, at what grade(s) is above physics topic primarily intended to be taught?	BUBSC9J2	See Question CQS2q13C in 2003 for sub-topics.	
CQS2-9C_Com	According to the national science curriculum, what proportion of grade 8 students should have been taught the following physics topics or skills by the end of grade 8? Comments:	BUBSS9CC	Not available	
CQS2-9Da1	According to the national science curriculum, what proportion of grade 8 students should have been taught earth science topics by the end of grade 8? - Earth's structure and physical features (Earth's crust, mantle, and core; topographic maps)	BUBSD9A1	See Questions CQS2q13D and CQS2q13E in 2003 for sub-topics.	
CQS2-9Da2	Across grades K-12, at what grade(s) is above earth science topic primarily intended to be taught?	BUBSD9A2	See Questions CQS2q13D and CQS2q13E in 2003 for sub-topics.	
CQS2-9Db1	According to the national science curriculum, what proportion of grade 8 students should have been taught earth science topics by the end of grade 8? - The physical state, movement, composition, and relative distribution of water on Earth	BUBSD9B1	See Questions CQS2q13D and CQS2q13E in 2003 for sub-topics.	
CQS2-9Db2	Across grades K-12, at what grade(s) is above earth science topic primarily intended to be taught?	BUBSD9B2	See Questions CQS2q13D and CQS2q13E in 2003 for sub-topics.	
CQS2-9Dc1	According to the national science curriculum, what proportion of grade 8 students should have been taught earth science topics by the end of grade 8? - Earth's atmosphere and the relative abundance of its main components	BUBSD9C1	See Questions CQS2q13D and CQS2q13E in 2003 for sub-topics.	
CQS2-9Dc2	Across grades K-12, at what grade(s) is above earth science topic primarily intended to be taught?	BUBSD9C2	See Questions CQS2q13D and CQS2q13E in 2003 for sub-topics.	
CQS2-9Dd1	According to the national science curriculum, what proportion of grade 8 students should have been taught earth science topics by the end of grade 8?- Earth's water cycle (steps, role of sun's energy, circulation/renewal of fresh water)	BUBSD9D1	See Questions CQS2q13D and CQS2q13E in 2003 for sub-topics.	
CQS2-9Dd2	Across grades K-12, at what grade(s) is above earth science topic primarily intended to be taught?	BUBSD9D2	See Questions CQS2q13D and CQS2q13E in 2003 for sub-topics.	
CQS2-9De1	According to the national science curriculum, what proportion of grade 8 students should have been taught earth science topics by the end of grade 8?- Processes in the rock cycle and the formation of igneous, metamorphic, and sedimentary rock	BUBSD9E1	See Questions CQS2q13D and CQS2q13E in 2003 for sub-topics.	

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Exhibit S1.11 Index of International Background Variables for the TIMSS 2007 Science Curriculum Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQS2-9De2	Across grades K-12, at what grade(s) is above earth science topic primarily intended to be taught?	BUBSD9E2	See Questions CQS2q13D and CQS2q13E in 2003 for sub-topics.	
CQS2-9Df1	According to the national science curriculum, what proportion of grade 8 students should have been taught earth science topics by the end of grade 8? - Weather data/maps and changes in weather patterns (e.g., seasonal changes, effects of latitude, altitude, and geography)	BUBSD9F1	See Questions CQS2q13D and CQS2q13E in 2003 for sub-topics.	
CQS2-9Df2	Across grades K-12, at what grade(s) is above earth science topic primarily intended to be taught?	BUBSD9F2	See Questions CQS2q13D and CQS2q13E in 2003 for sub-topics.	
CQS2-9Dg1	According to the national science curriculum, what proportion of grade 8 students should have been taught earth science topics by the end of grade 8? - Geological processes occurring over millions of years (e.g., erosion, mountain building, plate movement) by the end of grade 8?	BUBSD9G1	See Questions CQS2q13D and CQS2q13E in 2003 for sub-topics.	
CQS2-9Dg2	Across grades K-12, at what grade(s) is above earth science topic primarily intended to be taught?	BUBSD9G2	See Questions CQS2q13D and CQS2q13E in 2003 for sub-topics.	
CQS2-9Dh1	According to the national science curriculum, what proportion of grade 8 students should have been taught earth science topics by the end of grade 8? - Formation of fossils and fossil fuels	BUBSD9H1	See Questions CQS2q13D and CQS2q13E in 2003 for sub-topics.	
CQS2-9Dh2	Across grades K-12, at what grade(s) is above earth science topic primarily intended to be taught?	BUBSD9H2	See Questions CQS2q13D and CQS2q13E in 2003 for sub-topics.	
CQS2-9Di1	According to the national science curriculum, what proportion of grade 8 students should have been taught earth science topics by the end of grade 8? - Environmental concerns (e.g., pollution, global warming, acid rain)	BUBSD9I1	See Questions CQS2q13D and CQS2q13E in 2003 for sub-topics.	
CQS2-9Di2	Across grades K-12, at what grade(s) is above earth science topic primarily intended to be taught?	BUBSD9I2	See Questions CQS2q13D and CQS2q13E in 2003 for sub-topics.	
CQS2-9Dj1	According to the national science curriculum, what proportion of grade 8 students should have been taught earth science topics by the end of grade 8? - Earth's resources (renewable/nonrenewable, conservation, waste management)	BUBSD9J1	See Questions CQS2q13D and CQS2q13E in 2003 for sub-topics.	
CQS2-9Dj2	Across grades K-12, at what grade(s) is above earth science topic primarily intended to be taught?	BUBSD9J2	See Questions CQS2q13D and CQS2q13E in 2003 for sub-topics.	
CQS2-9Dk1	According to the national science curriculum, what proportion of grade 8 students should have been taught earth science topics by the end of grade 8? - Relationship of land management (e.g., pest control) to human use (e.g., farming)	BUBSD9K1	See Questions CQS2q13D and CQS2q13E in 2003 for sub-topics.	

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Exhibit S1.11 Index of International Background Variables for the TIMSS 2007 Science Curriculum Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQS2-9Dk2	Across grades K-12, at what grade(s) is above earth science topic primarily intended to be taught?	BUBSD9K2	See Questions CQS2q13D and CQS2q13E in 2003 for sub-topics.	
CQS2-9Dl1	According to the national science curriculum, what proportion of grade 8 students should have been taught earth science topics by the end of grade 8? - Supply and demand of fresh water resources	BUBSD9L1	See Questions CQS2q13D and CQS2q13E in 2003 for sub-topics.	
CQS2-9Dl2	Across grades K-12, at what grade(s) is above earth science topic primarily intended to be taught?	BUBSD9L2	See Questions CQS2q13D and CQS2q13E in 2003 for sub-topics.	
CQS2-9Dm1	According to the national science curriculum, what proportion of grade 8 students should have been taught earth science topics by the end of grade 8? - 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, appearances of sun, moon, planets, and constellations)	BUBSD9M1	See Questions CQS2q13D and CQS2q13E in 2003 for sub-topics.	
CQS2-9Dm2	Across grades K-12, at what grade(s) is above earth science topic primarily intended to be taught?	BUBSD9M2	See Questions CQS2q13D and CQS2q13E in 2003 for sub-topics.	
CQS2-9Dn1	According to the national science curriculum, what proportion of grade 8 students should have been taught earth science topics by the end of grade 8? - 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)	BUBSD9N1	See Questions CQS2q13D and CQS2q13E in 2003 for sub-topics.	
CQS2-9Dn2	Across grades K-12, at what grade(s) is above earth science topic primarily intended to be taught?	BUBSD9N2	See Questions CQS2q13D and CQS2q13E in 2003 for sub-topics.	
CQS2-9D_Com	According to the national science curriculum, what proportion of grade 8 students should have been taught the following earth science topics or skills by the end of grade 8? Comments:	BUBSS9CD	Not available	
CQS2-10	Which best describes how the science curriculum addresses the issue of students with different levels of ability?	BUBSCDA	CQS2q06	
CQS2-10_Com	Which best describes how the science curriculum addresses the issue of students with different levels of ability? Comments:	BUBSCDAC	Not available	
CQS2-11a	Is the science curriculum made available in the form of official publication containing the curriculum?	BUBSCMA	Not available	
CQS2-11b	Is the science curriculum made available in the form of ministry notes and directives?	BUBSCMAM	Not available	

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Exhibit S1.11 Index of International Background Variables for the TIMSS 2007 Science Curriculum Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQS2-11c	Is the science curriculum made available in the form of mandated or recommended textbooks?	BUBSCMAT	Not available	
CQS2-11d	Is the science curriculum made available in the form of instructional or pedagogical guide?	BUBSCMAI	Not available	
CQS2-11e	Is the science curriculum made available in the form of specifically developed or recommended instructional activities?	BUBSCMAS	Not available	
CQS2-11f	Is the science curriculum made available in the form of other?	BUBSCMAO	Not available	
CQS2-11f_Sfy	In what form is the science curriculum made available? Please specify:	BUBSCMAP	Not available	
CQS2-11_Com	In what form is the science curriculum made available? Comments:	BUBSCMAC	Not available	
CQS2-12a1	In a typical week, what is the total amount of instructional time prescribed by the curriculum at the eighth grade of formal schooling? (hours)	BUBSITTH	Not available	
CQS2-12a2	In a typical week, what is the total amount of instructional time prescribed by the curriculum at the eighth grade of formal schooling? (minutes)	BUBSITTM	Not available	
CQS2-12b1	What percentage of total instructional time is supposed to be devoted to science instruction at the eighth grade of formal schooling?	BUBSIDS	CQS2q05c_Per	Modified in 2007
CQS2-12_Com	In a typical week, what is the total amount of instructional time prescribed by the curriculum at the eighth grade of formal schooling? Comments:	BUBSIDSC	Not available	
CQS2-12	Is there a policy to assign science homework at the eighth grade of formal schooling?	BUBSPAH	Not available	
CQS2-12cy	Is there a policy to assign science homework at the eighth grade of formal schooling? If Yes… What is the policy?	BUBSPAHY	Not available	
CQS2-12cn	Is there a policy to assign science homework at the eighth grade of formal schooling? If No… Comments:	BUBSPAHN	Not available	
CQS2-13	Is there an official policy to provide remedial science instruction at the eighth grade of formal schooling?	BUBSPPI	Not available	
CQS2-13y	Is there an official policy to provide remedial science instruction at the eighth grade of formal schooling? If Yes… What is the policy?	BUBSPPIY	Not available	
CQS2-13n	Is there an official policy to provide remedial science instruction at the eighth grade of formal schooling? If No… Comments:	BUBSPPIN	Not available	
CQS2-14a	Is a degree from a teacher education program a current requirement for being a middle/lower secondary grade teacher?	BUBSCRDE	CQS2q11c	Modified in 2007
CQS2-14b	Is a pre-practicum during teacher education program a current requirement for being a middle/lower secondary grade teacher?	BUBSCRPP	CQS2q11a	Modified in 2007
CQS2-14c	Is a supervised practicum in the field a current requirement for being a middle/lower secondary grade teacher?	BUBSCRSU	CQS2q11a	Modified in 2007

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Exhibit S1.11 Index of International Background Variables for the TIMSS 2007 Science Curriculum Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQS2-14d	Is passing a certification examination a current requirement for being a middle/ lower secondary grade teacher?	BUBSCRCE	CQS2q11b	Modified in 2007
CQS2-14e	Is completion of a probationary teaching period a current requirement for being a middle/lower secondary grade teacher?	BUBSCRPE	CQS2q11d	
CQS2-14y	Is completion of a probationary teaching period a current requirement for being a middle/lower secondary grade teacher? If Yes… How long is this period?	BUBSCRLO	CQS2q11d_Length	
CQS2-14f	Is a completion of a mentoring or induction program a current requirement for being a middle/lower secondary grade teacher?	BUBSCRIN	CQS2q11e	
CQS2-14g	Is other a current requirement for being a middle/lower secondary grade teacher?	BUBSCROT	CQS2q11f	
CQS2-14g_sfy	Which are the current requirements for being a middle/lower secondary grade teacher? Please specify:	BUBSCRP	CQS2q11f_Oth	
CQS2-14_Com	Which are the current requirements for being a middle/lower secondary grade teacher? Comments:	BUBSCRCO	Not available	
CQS2-15	Is there a process to license or certify middle/lower secondary grade teachers?	BUBSPLT	CQS2q12A	
CQS2-15a	If Yes… Who certifies/licenses middle/lower secondary grade teachers? Minister/Ministry of Education	BUBSPLTM	CQS2q12Ba	
CQS2-15b	If Yes… Who certifies/licenses middle/lower secondary grade teachers? National/state licensing board	BUBSPLTL	CQS2q12Bb	
CQS2-15c	If Yes… Who certifies/licenses middle/lower secondary grade teachers? Universities/colleges	BUBSPLTU	CQS2q12Bc	
CQS2-15d	If Yes… Who certifies/licenses middle/lower secondary grade teachers? Teacher organization/union	BUBSPLTT	CQS2q12Bd	
CQS2-15e	If Yes… Who certifies/licenses middle/lower secondary grade teachers? Other	BUBSPLTO	CQS2q12Be	
CQS2-15e_Sfy	Is there a process to license or certify middle/lower secondary grade teachers? Please specify:	BUBSPLTS	CQS2q12Be_Oth	
CQS2-15_Com	Is there a process to license or certify middle/lower secondary grade teachers? Comments:	BUBSPLTC	Not available	
CQS2-15n	Is there a process to license or certify middle/lower secondary grade teachers? If No… Comments:	BUBSPLTN	Not available	
CQS2-16	As part of pre-service education, do prospective teachers receive specific preparation in how to teach the science curriculum?	BUBSSP	CQS2q10Aa	Modified in 2007
CQS2-16_Com	As part of pre-service education, do prospective teachers receive specific preparation in how to teach the science curriculum? Comments:	BUBSSPCC	Not available	

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Exhibit S1.11 Index of International Background Variables for the TIMSS 2007 Science Curriculum Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQS2-17a	Do practicing teachers get help implementing the science curriculum through in-service training?	BUBSHIIS	CQS2q10Ab	Modified in 2007
CQS2-17b	Do practicing teachers get help implementing the science curriculum through expert teacher/mentor?	BUBSHIET	Not available	
CQS2-17c	Do practicing teachers get help implementing the science curriculum through reduced teaching load for new teachers?	BUBSHIRL	Not available	
CQS2-17d	Do practicing teachers get help implementing the science curriculum through other?	BUBSHIOT	Not available	
CQS2-17_Sfy	How do practicing teachers get help to implement the science curriculum? Please specify:	BUBSHIPS	Not available	
CQS2-17_Com	How do practicing teachers get help to implement the science curriculum? Comments:	BUBSHICO	Not available	
CQS2-18a	If changes were made to the science curriculum, would a teacher learn about them through special conferences/seminars on curriculum?	BUBSLCC	Not available	
CQS2-18b	If changes were made to the science curriculum, would a teacher learn about them through Ministry (Department of Education, Government, Board of Education) Website?	BUBSLCMW	Not available	
CQS2-18c	If changes were made to the science curriculum, would a teacher learn about them through printed copies of curriculum distributed to schools?	BUBSLCCD	Not available	
CQS2-18d	If changes were made to the science curriculum, would a teacher learn about them through teachers receiving their own printed copy?	BUBSLCOC	Not available	
CQS2-18e	If changes were made to the science curriculum, would a teacher learn about them through professional development/in-service education?	BUBSLCPD	Not available	
CQS2-18f	If changes were made to the science curriculum, would a teacher learn about them through Ministry Notes?	BUBSLCMN	Not available	
CQS2-18g	If changes were made to the science curriculum, would a teacher learn about them through professional association newsletter?	BUBSLCAN	Not available	
CQS2-18h	If changes were made to the science curriculum, would a teacher learn about them through education journals?	BUBSLCEJ	Not available	
CQS2-18i	If changes were made to the science curriculum, would a teacher learn about them through other educational authorities?	BUBSLCEA	Not available	
CQS2-18j	If changes were made to the science curriculum, would a teacher learn about them through other?	BUBSLCOT	Not available	
CQS2-18j_Sfy	If changes were made to the science curriculum, how would a teacher learn about them? Please specify:	BUBSLCPS	Not available	

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Exhibit S1.11 Index of International Background Variables for the TIMSS 2007 Science Curriculum Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQS2-18_Com	If changes were made to the science curriculum, how would a teacher learn about them? Comments:	BUBSLACO	Not available	
CQS2-19a	Are parents informed about the science curriculum from teachers?	BUBSPITE	Not available	
CQS2-19b	Are parents informed about the science curriculum from the school administration?	BUBSPISC	Not available	
CQS2-19c	Are parents informed about the science curriculum from public awareness campaigns?	BUBSPIPU	Not available	
CQS2-19d	Are parents informed about the science curriculum from Ministry Website?	BUBSPIMW	Not available	
CQS2-19e	Are parents informed about the science curriculum from Ministry brochures and documents?	BUBSPIMD	Not available	
CQS2-19f	Are parents informed about the science curriculum through parents' associations/organizations?	BUBSPIPA	Not available	
CQS2-19g	Are parents informed about the science curriculum from other?	BUBSPIOT	Not available	
CQS2-19g_Sfy	How are parents informed about the science curriculum? Please specify:	BUBSPIPS	Not available	
CQS2-19_Com	How are parents informed about the science curriculum? Comments:	BUBSPICO	Not available	
CQS2-20	Is there a policy to encourage parental involvement in the schools attended by eighth-grade students?	BUBSEPI	Not available	
CQS2-20y	Is there a policy to encourage parental involvement in the schools attended by eighth-grade students? If Yes… What is the policy?	BUBSEPIY	Not available	
CQS2-20n	Is there a policy to encourage parental involvement in the schools attended by eighth-grade students? If No… Comments:	BUBSEPIN	Not available	
CQS2-21a	Is the science curriculum implementation evaluated through visits by inspectors?	BUBSIEIN	Not available	
CQS2-21b	Is the science curriculum implementation evaluated through research programs?	BUBSIERP	Not available	
CQS2-21c	Is the science curriculum implementation evaluated through school self-evaluation?	BUBSIESE	Not available	
CQS2-21d	Is the science curriculum implementation evaluated through national or regional assessments?	BUBSIEAS	Not available	
CQS2-21e	Is the science curriculum implementation evaluated through other?	BUBSIEOT	Not available	
CQS2-21e_Sfy	How is the science curriculum implementation evaluated? Please specify:	BUBSIEPS	Not available	
CQS2-21_Com	How is the science curriculum implementation evaluated? Comments:	BUBSIECO	Not available	

* In TIMSS 2003 the location of each curriculum questionnaire item was used as its corresponding variable name.

Exhibit S1.11 Index of International Background Variables for the TIMSS 2007 Science Curriculum Questionnaire - Eighth Grade (*Continued*)

TIMSS 2007 Question Location	Variable Description	TIMSS 2007 Variable Name	TIMSS 2003 Variable Name*	Notes
CQS2-22	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 a university, and/or exiting or graduating from high school?	BUBSAAE	CQS2q03A	
CQS2-22y	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 a university, and/or exiting or graduating from high school? If Yes… Please describe the authority which administers examinations in science, and list the grades at which they are given:	BUBSAAEY	CQS2q03B	
CQS2-22y_Grades	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 a university, and/or exiting or graduating from high school? If Yes… Please list the grades at which they are given (Grades with Examinations, see Exhibit 5 in TIMSS 2007 Encyclopedia):	BUBSAAEY_Grades	Not available	
CQS2-22n	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 a university, and/or exiting or graduating from high school? If No… Comments:	BUBSAAEN	Not available	
Different Science Courses Offered (1)	If different science courses are offered in separate subjects, what percentage of total instructional time is supposed to be devoted to instruction in each science subject at the eighth grade of formal schooling? - Biology	BUBSIDB	Not available	
Different Science Courses Offered (2)	If different science courses are offered in separate subjects, what percentage of total instructional time is supposed to be devoted to instruction in each science subject at the eighth grade of formal schooling? - Chemistry	BUBSIDC	Not available	
Different Science Courses Offered (3)	If different science courses are offered in separate subjects, what percentage of total instructional time is supposed to be devoted to instruction in each science subject at the eighth grade of formal schooling? - Physics	BUBSIDP	Not available	
Different Science Courses Offered (4)	If different science courses are offered in separate subjects, what percentage of total instructional time is supposed to be devoted to instruction in each science subject at the eighth grade of formal schooling? - Earth Science	BUBSIDE	Not available	

* In TIMSS 2003 the location of each curriculum questionnaire item was used as its corresponding variable name.

TIMSS 2007 Science Curriculum Questionnaire

Science Curriculum and Instruction in Middle/Lower Secondary Schools

BUBSNCC

1. Does your country have a national curriculum that covers science instruction at the eighth grade of formal schooling?

*Check **one** circle only.*

Yes--- ○
No--- ○

BUBSNCCN

If No…
What is the highest level of decision-making authority (e.g., state or province) that provides a curriculum that covers science instruction at the eighth grade of formal schooling?

BUBSNCCY

If Yes…
Comments:

BUBSGGS

2. What is the grade-to-grade structure of the middle/lower secondary school curriculum that covers science instruction (e.g., grades 1-8; grades 4-8; grades 6-8; grades 7-9)?

BUBSGGSC

Comments:

BUBSDC

3. By grade 8, are different science courses offered in separate subjects (e.g., biology, chemistry, physics, earth science)?

*Check **one** circle only.*

Yes--- ○

No--- ○

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**	
BUBSDCS1	_____	_____	BUBSDCG1
BUBSDCS2	_____	_____	BUBSDCG2
BUBSDCS3	_____	_____	BUBSDCG3
BUBSDCS4	_____	_____	BUBSDCG4
BUBSDCS5	_____	_____	BUBSDCG5
BUBSDCS6	_____	_____	BUBSDCG6

BUBSDCCO

If No…
Comments:

BUBSYSCI

4. In what year was the current science curriculum introduced?

Refers to the national curriculum that covers science instruction at the eighth grade of formal schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

BUBSYSCC

Comments:

BUBSSCR

5. Is the science curriculum currently being revised?

*Check **one** circle only.*

Yes--- ○

No--- ○

Refers to the national curriculum that covers science instruction at the eighth grade of formal schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

BUBSSCRY

If Yes…
Please explain:

BUBSSCRN

If No…
Comments:

6. What does the science curriculum prescribe?

*Check **one** circle for each line.*

	Yes	No
BUBSSPGO a) Goals and objectives---------	○	○
BUBSSPPM b) Processes or methods--------	○	○
BUBSSPMA c) Materials----------	○	○
BUBSSPRG d) Percentage of students reaching defined goals----------	○	○
BUBSSPOT e) Other---------- Please specify: _____	○	○

Refers to the national curriculum that covers science instruction at the eighth grade of formal schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

BUBSSPCO Comments:

BUBSNPO

7. Does the national curriculum contain statements/policies about the use of computers in grade 8 science?

*Check **one** circle only.*

Yes--- ○

No--- ○

Refers to the national curriculum that covers science instruction at the eighth grade of formal schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

BUBSNPOY

If Yes…
What are the statements/policies?

BUBSNPON

If No…
Comments:

8. How much emphasis does the national science curriculum place on the following?

*Check **one** circle for each line.*

	None	Very Little	Some	A lot
BUBSCEKF a) Knowing basic science facts and principles	○	○	○	○
BUBSCEOP b) Observing natural phenomena and describing what is seen	○	○	○	○
BUBSCEEX c) Providing explanations about what is being studied	○	○	○	○
BUBSCEDE d) Designing and planning experiments or investigations	○	○	○	○
BUBSCECE e) Conducting experiments or investigations	○	○	○	○
BUBSCEIS f) Integrating science with other subjects	○	○	○	○
BUBSCEDL g) Relating what students are learning to their daily lives	○	○	○	○
BUBSCEEC h) Incorporating the experiences of different ethnic/cultural groups	○	○	○	○

Refers to the national curriculum that covers science instruction at the eighth grade of formal schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

BUBSCECO Comments:

8

9. 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 part A topic (g)), please explain in the comment field.

		Proportion of grade 8 students expected to be taught topic *Check **one** circle for each line.*			Grade(s) topic is expected to be taught K-12	
		All or almost all students	Only the more able students (top track)	Not included in the curriculum through grade 8		
	A. Biology					
BUBSA9A1	a) Classification of organisms on the basis of a variety of physical and behavioral characteristics----------	○	○	○	_____	BUBSA9A2
BUBSA9B1	b) Major organ systems in humans and other organisms--	○	○	○	_____	BUBSA9B2
BUBSA9C1	c) How the systems function to maintain stable bodily conditions----------	○	○	○	_____	BUBSA9C2
BUBSA9D1	d) Cell structures and functions--	○	○	○	_____	BUBSA9D2
BUBSA9E1	e) Photosynthesis and respiration (including substances used and produced) as processes of cells and organisms----------	○	○	○	_____	BUBSA9E2
BUBSA9F1	f) Life cycles of organisms, including humans, plants, birds, insects----------	○	○	○	_____	BUBSA9F2

BUBSA9G1	g) Reproduction (sexual and asexual), and heredity (passing on of traits, inherited versus acquired/learned characteristics)----------	_____	BUBSA9G2
BUBSA9H1	h) Role of variation and adaptation in survival/extinction of species in a changing environment----	_____	BUBSA9H2
BUBSA9I1	i) Interaction of living organisms in an ecosystem (energy flow, food chains and food webs, food pyramids, and the effects of change upon the system)----------	_____	BUBSA9I2
BUBSA9J1	j) Cycling of materials in nature (water, carbon/oxygen cycle, decomposition of organisms)	_____	BUBSA9J2
BUBSA9K1	k) Trends in human population and its effects on the environment----------	_____	BUBSA9K2
BUBSA9L1	l) Impact of natural hazards on humans, wildlife, and the environment----------	_____	BUBSA9L2
BUBSA9M1	m) Causes of common infectious diseases, methods of infection/transmission, prevention, and the body's natural resistance and healing capabilities----------	_____	BUBSA9M2
BUBSA9N1	n) Preventive medicine methods (diet, hygiene, exercise, and lifestyle)----------	_____	BUBSA9N2

Refers to the national curriculum that covers science instruction at the eighth grade of formal schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

BUBSS9CA Comments:

		Proportion of grade 8 students expected to be taught topic *Check **one** circle for each line.*			Grade(s) topic is expected to be taught K-12	
		All or almost all students	Only the more able students (top track)	Not included in the curriculum through grade 8		
	B. Chemistry					
BUBSB9A1	a) Classification and composition of matter (physical and chemical properties, pure substances and mixtures, separation techniques)----------	○	○	○	_____	BUBSB9A2
BUBSB9B1	b) Particulate structure of matter (molecules, atoms, protons, neutrons, and electrons)-------	○	○	○	_____	BUBSB9B2
BUBSB9C1	c) Solutions (solvents, solutes, effect of temperature on solubility)----------	○	○	○	_____	BUBSB9C2
BUBSB9D1	d) Properties and uses of water (composition, melting/boiling points, changes in density/volume)----------	○	○	○	_____	BUBSB9D2
BUBSB9E1	e) Properties and uses of common acids and bases------	○	○	○	_____	BUBSB9E2
BUBSB9F1	f) Chemical change (transformation of reactants, evidence of chemical change, conservation of matter)--------	○	○	○	_____	BUBSB9F2
BUBSB9G1	g) Common oxidation reactions (combustion, rusting), the need for oxygen and the relative tendency of familiar substances to undergo these reactions----------	○	○	○	_____	BUBSB9G2

BUBSB9H1

h) Classification of familiar chemical transformations as releasing or absorbing heat/energy----------



_____

BUBSB9H2

Refers to the national curriculum that covers science instruction at the eighth grade of formal schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

BUBSS9CB

Comments:

		Proportion of grade 8 students expected to be taught topic			Grade(s) topic is expected to be taught K-12	
		*Check **one** circle for each line.*				
		All or almost all students	Only the more able students (top track)	Not included in the curriculum through grade 8		
	C. Physics					
BUBSC9A1	a) Physical states and changes in matter (explanations of properties including volume, shape, density, and compressibility in terms of movement/distance between particles, conservation of mass during physical changes)----------	○	○	○	_____	BUBSC9A2
BUBSC9B1	b) Processes of melting, freezing, evaporation, and condensation (phase change; melting/boiling points; effects of pressure and purity of substances)----------	○	○	○	_____	BUBSC9B2
BUBSC9C1	c) Energy forms, transformations, heat and temperature, including heat transfer----------	○	○	○	_____	BUBSC9C2
BUBSC9D1	d) Temperature changes related to changes in volume and/or pressure and to changes in movement or speed of particles----------	○	○	○	_____	BUBSC9D2
BUBSC9E1	e) Basic properties/behavior of light (reflection, refraction, light and color, simple ray diagrams)----------	○	○	○	_____	BUBSC9E2

BUBSC9F1

f) Properties of sound (transmission through media, ways of describing sound (loudness, pitch, amplitude, frequency), relative speed)----



_____

BUBSC9F2

BUBSC9G1

g) Electric circuits (flow of current, types of circuits – parallel/series) and relationship between voltage and current----------



_____

BUBSC9G2

BUBSC9H1

h) Properties of permanent magnets and electromagnets--



_____

BUBSC9H2

BUBSC9I1

i) Forces and motion (types of forces, basic description of motion), use of distance/time graphs----------



_____

BUBSC9I2

BUBSC9J1

j) Effects of density and pressure----------



_____

BUBSC9J2

Refers to the national curriculum that covers science instruction at the eighth grade of formal schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

BUBSS9CC

Comments:

		Proportion of grade 8 students expected to be taught topic *Check **one** circle for each line.*			Grade(s) topic is expected to be taught K-12	
		All or almost all students	Only the more able students (top track)	Not included in the curriculum through grade 8		
	D. Earth Science					
BUBSD9A1	a) Earth's structure and physical features (Earth's crust, mantle, and core; topographic maps)----------	○	○	○	_____	BUBSD9A2
BUBSD9B1	b) The physical state, movement, composition, and relative distribution of water on Earth-	○	○	○	_____	BUBSD9B2
BUBSD9C1	c) Earth's atmosphere and the relative abundance of its main components----------	○	○	○	_____	BUBSD9C2
BUBSD9D1	d) Earth's water cycle (steps, role of sun's energy, circulation/renewal of fresh water)----------	○	○	○	_____	BUBSD9D2
BUBSD9E1	e) Processes in the rock cycle and the formation of igneous, metamorphic, and sedimentary rock----------	○	○	○	_____	BUBSD9E2
BUBSD9F1	f) Weather data/maps and changes in weather patterns (e.g., seasonal changes, effects of latitude, altitude, and geography)----------	○	○	○	_____	BUBSD9F2
BUBSD9G1	g) Geological processes occurring over millions of years (e.g., erosion, mountain building, plate movement)----	○	○	○	_____	BUBSD9G2
BUBSD9H1	h) Formation of fossils and fossil fuels----------	○	○	○	_____	BUBSD9H2

BUBSD9I1

i) Environmental concerns (e.g., pollution, global warming, acid rain)---------- _____ BUBSD9I2

BUBSD9J1

j) Earth's resources (renewable/nonrenewable, conservation, waste management)---------- _____ BUBSD9J2

BUBSD9K1

k) Relationship of land management (e.g., pest control) to human use (e.g., farming)---------- _____ BUBSD9K2

BUBSD9L1

l) Supply and demand of fresh water resources---------- _____ BUBSD9L2

BUBSD9M1

m) 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, appearances of sun, moon, planets, and constellations)---- _____ BUBSD9M2

BUBSD9N1

n) 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)---------- _____ BUBSD9N2

Refers to the national curriculum that covers science instruction at the eighth grade of formal schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

BUBSS9CD

Comments:

BUBSCDA

10. Which best describes how the science curriculum addresses the issue of students with different levels of ability?

Please answer for students in regular classes, and explain provisions for special needs students in the comment box.

*Check **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--

Refers to the national curriculum that covers science instruction at the eighth grade of formal schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

BUBSCDAC

Comments:

11. In what form is the science curriculum made available?

*Check **one** circle for each line.*

		Yes	No
BUBSCMA	a) Official publication containing the curriculum----------	○	○
BUBSCMAM	b) Ministry notes and directives----------	○	○
BUBSCMAT	c) Mandated or recommended textbooks----------	○	○
BUBSCMAI	d) Instructional or pedagogical guide----------	○	○
BUBSCMAS	e) Specifically developed or recommended instructional activities----	○	○
BUBSCMAO	f) Other----------	○	○

BUBSCMAP Please specify:

_____

Refers to the national curriculum that covers science instruction at the eighth grade of formal schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

BUBSCMAC Comments:

12. a) In a typical week, what is the total amount of instructional time prescribed by the curriculum at the eighth grade of formal schooling?

BUBSITTH
BUBSITTM

[ ] hours and [ ] minutes

b) What percentage of total instructional time is supposed to be devoted to **science** instruction at the eighth grade of formal schooling?

BUBSIDS

[ ] % of total
Write in a number

BUBSIDSC

Comments:

BUBSPAH

c) Is there a policy to assign science homework at the eighth grade of formal schooling?

*Check **one** circle only.*

Yes--- ○
No--- ○

BUBSPAHY

If Yes…
What is the policy?

BUBSPAHN

If No…
Comments:

19

BUBSPPI

13. Is there an official policy to provide remedial science instruction at the eighth grade of formal schooling?

*Check **one** circle only.*

Yes--- ○

No--- ○

BUBSPPIY

If Yes…
What is the policy?

BUBSPPIN

If No…
Comments:

14. Which are the current requirements for being a middle/lower secondary grade teacher?

*Check **one** circle for each line.*

	Yes	No
BUBSCRDE a) A degree from a teacher education program----------	○	○
BUBSCRPP b) Pre-practicum during teacher education program----------	○	○
BUBSCRSU c) Supervised practicum in the field----------	○	○
BUBSCRCE d) Passing a certification examination----------	○	○
BUBSCRPE e) Completion of a probationary teaching period----------	○	○
BUBSCRLO *If Yes…* How long is this period? _____		
BUBSCRIN f) Completion of a mentoring or induction program----------	○	○
BUBSCROT g) Other----------	○	○
BUBSCRP Please specify: _____		

Refers to the requirements encompassing eighth grade.

BUBSCRCO Comments:

BUBSPLT

15. Is there a process to license or certify middle/lower secondary grade teachers?

*Check **one** circle only.*

Yes---
No---

Refers to the requirements encompassing eighth grade.

If Yes…
Who certifies/licenses middle/lower secondary grade teachers?

*Check **one** circle for each line.*

	Yes	No
BUBSPLTM a) Minister/Ministry of Education----------		
BUBSPLTL b) National/state licensing board----------		
BUBSPLTU c) Universities/colleges----------		
BUBSPLTT d) Teacher organization/union----------		
BUBSPLTO e) Other----------		
BUBSPLTS Please specify: _____		

BUBSPLTC Comments:

BUBSPLTN *If No…*
Comments:

BUBSSP

16. As part of pre-service education, do prospective teachers receive specific preparation in how to teach the science curriculum?

*Check **one** circle only.*

Yes---
No---

BUBSSPCC

Comments:

17. How do practicing teachers get help to implement the science curriculum?

*Check **one** circle for each line.*

	Yes	No
BUBSHIIS a) In-service training----------		
BUBSHIET b) Expert teacher/mentor----------		
BUBSHIRL c) Reduced teaching load for new teachers----		
BUBSHIOT d) Other----------		

BUBSHIPS Please specify:

_____

BUBSHICO

Comments:

18. If changes were made to the science curriculum, how would a teacher learn about them?

*Check **one** circle for each line.*

		Yes	No
BUBSLCC	a) Special conferences/seminars on curriculum----------	○	○
BUBSLCMW	b) Ministry (Department of Education, Government, Board of Education) Website----------	○	○
BUBSLCCD	c) Printed copies of curriculum distributed to schools----------	○	○
BUBSLCOC	d) Teachers receive own printed copy----------	○	○
BUBSLCPD	e) Professional development/in-service education----------	○	○
BUBSLCMN	f) Ministry Notes----------	○	○
BUBSLCAN	g) Professional association newsletter----------	○	○
BUBSLCEJ	h) Education journals----------	○	○
BUBSLCEA	i) Other educational authorities----------	○	○
BUBSLCOT	j) Other----------	○	○

BUBSLCPS Please specify:

_____

BUBSLACO Comments:

19. How are parents informed about the science curriculum?

*Check **one** circle for each line.*

	Yes	No
BUBSPITE a) From teachers	○	○
BUBSPISC b) From the school administration	○	○
BUBSPIPU c) From public awareness campaigns	○	○
BUBSPIMW d) From Ministry Website	○	○
BUBSPIMD e) From Ministry brochures and documents	○	○
BUBSPIPA f) Through parents' associations/organizations	○	○
BUBSPIOT g) Other	○	○

Please specify:

_____

BUBSPICO Comments:

BUBSEPI

20. Is there a policy to encourage parental involvement in the schools attended by eighth-grade students?

*Check **one** circle only.*

Yes--- ○
No--- ○

BUBSEPIY

If Yes…
What is the policy?

BUBSEPIN

If No…
Comments:

21. How is the science curriculum implementation evaluated?

*Check **one** circle for each line.*

	Yes	No
BUBSIEIN a) Visits by inspectors----------	○	○
BUBSIERP b) Research programs----------	○	○
BUBSIESE c) School self-evaluation----------	○	○
BUBSIEAS d) National or regional assessments----------	○	○
BUBSIEOT e) Other----------	○	○

BUBSIEPS Please specify:

_____

BUBSIECO Comments:

BUBSAAE

22. 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 a university, and/or exiting or graduating from high school?

*Check **one** circle only.*

Yes--- ○

No--- ○

BUBSAAEY
BUBSAAEY_Grades

If Yes…
Please describe the authority which administers examinations in science, and list the grades at which they are given:

BUBSAAEN

If No…
Comments:

Addendum on Different Science Courses Offered for Students Tested in TIMSS 2007

If different science courses are offered in separate subjects, what percentage of total instructional time is supposed to be devoted to instruction in each science subject at the eighth grade of formal schooling?

(Please refer to question 12b)

Science Subject (e.g. biology, chemistry, physics, earth science)	**Percentage of Total** (Write in a number)	
Biology	_____	BUBSIDB
Chemistry	_____	BUBSIDC
Physics	_____	BUBSIDP
Earth Science	_____	BUBSIDE

Comments:

_____ BUBSIDSC

_____

_____

_____



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