

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>



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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

1 _____

How old are you?

Fill in **one** circle only

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

2 _____

Are you female or male?

Fill in **one** circle only

- Female -----○
- Male -----○

3 _____

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

Number of years you have taught

4 _____

Do you have a teaching license or certificate?

Yes _____ No _____

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

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

- | | Yes | No |
|---|-------|-------|
| a) Education - <Primary/Elementary>-----○ | _____ | _____ |
| b) Education - Secondary -----○ | _____ | _____ |
| c) Mathematics -----○ | _____ | _____ |
| d) Science -----○ | _____ | _____ |
| e) Other -----○ | _____ | _____ |

B. If your major or main area of study was education, did you have a <specialization> in any of the following?

Fill in **one** circle for each row

- | | Yes | No |
|----------------------------|-------|-------|
| a) Mathematics -----○ | _____ | _____ |
| b) Science -----○ | _____ | _____ |
| c) Language/reading -----○ | _____ | _____ |
| d) Other subject -----○ | _____ | _____ |

7

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

Fill in **one** circle for each row

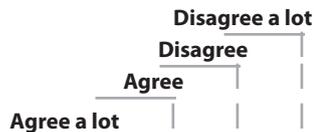


- a) Discussions about how to teach a particular concept -- ○ -- ○ -- ○ -- ○
- b) Working on preparing instructional materials ----- ○ -- ○ -- ○ -- ○
- c) Visits to another teacher's classroom to observe his/her teaching ----- ○ -- ○ -- ○ -- ○
- d) Informal observations of **my** classroom by another teacher ----- ○ -- ○ -- ○ -- ○

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

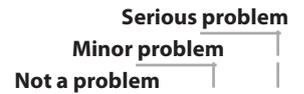


- a) This school is located in a safe neighborhood ----- ○ -- ○ -- ○ -- ○
- b) I feel safe at this school ----- ○ -- ○ -- ○ -- ○
- c) This school's security policies and practices are sufficient - ○ -- ○ -- ○ -- ○

9

In your current school, how severe is each problem?

Fill in **one** circle for each row

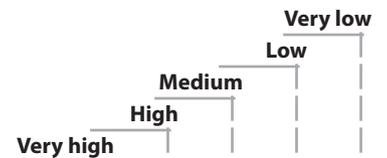


- a) The school building needs significant repair----- ○ -- ○ -- ○
- b) Classrooms are overcrowded----- ○ -- ○ -- ○
- c) Teachers do not have adequate workspace outside their classroom ----- ○ -- ○ -- ○
- d) Materials are not available to conduct experiments or investigations----- ○ -- ○ -- ○

10

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

Fill in **one** circle for each row



- 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 ----- ○ -- ○ -- ○ -- ○

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

Fill in **one** circle for each row

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

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

_____ *Write in the number of students*

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

_____ *Write in the number of <fourth grade> students*

13

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

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

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

If No, please go to question 15 

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

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 →

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

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

18

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

Yes No

Fill in **one** circle only -----○

If **No**, please go to question 20 →

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

Yes No

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

- | | Every or almost every lesson | About half the lessons | Some lessons | Never |
|---|------------------------------|------------------------|--------------|-------|
| a) Discover mathematics principles and concepts | ----○ | ---○ | ---○ | ---○ |
| b) Practice skills and procedures | -----○ | ---○ | ---○ | ---○ |
| c) Look up ideas and information | -----○ | ---○ | ---○ | ---○ |

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

	Every or almost every lesson	About half the lessons	Some lessons	Never
a) Practice adding, subtracting, multiplying, and dividing without using a calculator -----	-- ○ --	○ --	○ --	○ --
b) Work on fractions and decimals -----	-- ○ --	○ --	○ --	○ --
c) Measure things in the classroom and around the school -----	-- ○ --	○ --	○ --	○ --
d) Make tables, charts, or graphs -----	-- ○ --	○ --	○ --	○ --
e) Learn about shapes such as circles, triangles, rectangles, and cubes --	-- ○ --	○ --	○ --	○ --
f) Write equations for word problems -----	-- ○ --	○ --	○ --	○ --
g) Explain their answers ---	-- ○ --	○ --	○ --	○ --
h) Relate what they are learning in mathematics to their daily life -----	-- ○ --	○ --	○ --	○ --
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%

a) Number (includes computation with whole numbers, fractions, decimals and number patterns) ----- %

b) Geometric Shapes and Measures (includes two- and three-dimensional shapes, length, area and volume) ----- %

c) Data Display (includes reading, making, and interpreting tables and graphs) ----- %

d) Other, please specify:
----- %

Total ----- 100%

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

Not yet taught or
 just introduced
 Mostly taught this year
 Mostly taught before this year

A. Number

- a) Representing whole numbers using words, diagrams, or symbols ----- -- --
- b) Whole numbers including place value and ordering ----- -- --
- c) Computation with whole numbers ----- -- --
- d) Multiples and factors of numbers ----- -- --
- e) Estimation with whole numbers ----- -- --
- f) Problems involving proportions ----- -- --
- g) Fractions (parts of a whole or a collection, location on a number line) ----- -- --
- h) Equivalent fractions ----- -- --
- i) Comparing and ordering simple fractions ----- -- --
- j) Fractions represented by words, numbers, or models ----- -- --
- k) Adding and subtracting simple fractions ----- -- --
- l) Decimal place value including writing decimals using words and numbers ----- -- --
- m) Adding and subtracting with decimals ----- -- --
- n) Finding the missing number in a number sentence (e.g., if $17 + \underline{\quad} = 29$, what number would go in the blank to make the number sentence true?) ----- -- --
- o) Model simple situations involving unknowns with expressions or number sentences ----- -- --
- p) Extending patterns and finding missing terms in them ----- -- --
- q) Describing relationships between adjacent terms in a sequence ----- -- --
- 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) ----- -- --
- 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

Not yet taught or
 just introduced
 Mostly taught this year
 Mostly taught before this year

B. Geometric Shapes and Measures

- | | | | |
|---|---|---|---|
| a) Measuring and estimating lengths ----- | ○ | ○ | ○ |
| b) Parallel and perpendicular lines ----- | ○ | ○ | ○ |
| c) Comparing angles by size and drawing angles (e.g., a right angle, angles larger or smaller than a right angle) ----- | ○ | ○ | ○ |
| d) Elementary properties of common geometric shapes ----- | ○ | ○ | ○ |
| e) Recognizing relationships between three-dimensional shapes and their two-dimensional representations ----- | ○ | ○ | ○ |
| f) Calculating areas and perimeters of squares and rectangles of given dimensions ----- | ○ | ○ | ○ |
| g) Finding areas by covering with a given shape or counting squares ----- | ○ | ○ | ○ |
| h) Estimating areas and volumes ----- | ○ | ○ | ○ |
| i) Using informal coordinate systems to locate points in a plane ----- | ○ | ○ | ○ |
| j) Figures with line symmetry ----- | ○ | ○ | ○ |
| k) Reflections and rotations ----- | ○ | ○ | ○ |

C. Data Display

- | | | | |
|--|---|---|---|
| a) Reading data from tables, pictographs, bar graphs, or pie charts ----- | ○ | ○ | ○ |
| 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) ----- | ○ | ○ | ○ |
| 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) ----- | ○ | ○ | ○ |
| d) Comparing and matching different representations of the same data ----- | ○ | ○ | ○ |
| e) Organizing and displaying data using tables, pictographs, bar graphs, or pie charts ----- | ○ | ○ | ○ |

23 _____

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

Yes
No

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

If **No**, please go to question **26**

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 -----○

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

	Not applicable	Not at all	A little	Some	A lot

- a) Students with different academic abilities -----○--○--○--○--○
- b) Students who come from a wide range of backgrounds (e.g., economic, language) - ○--○--○--○--○
- c) Students with special needs, (e.g., hearing, vision, speech impairment, physical disabilities, mental or emotional/psychological impairment) -----○--○--○--○--○
- d) Uninterested students ○--○--○--○--○
- e) Disruptive students --○--○--○--○--○

27 _____

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

Fill in one circle for each row

	Yes	No

- a) Mathematics content -----○--○
- b) Mathematics pedagogy/instruction ----○--○
- c) Mathematics curriculum -----○--○
- d) Integrating information technology into mathematics -----○--○
- e) Improving students' critical thinking or problem solving skills -----○--○
- f) Mathematics assessment -----○--○

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

Fill in **one** circle for each row

	Not well prepared	Somewhat prepared	Very well prepared	Not applicable
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

A. Life Science

- a) Major body structures and their functions in humans and other organisms (plants and animals) ----- -- -- --
- b) Reproduction and development in plants and animals (passing on of general characteristics; life cycles of familiar organisms) ----- -- -- --
- c) Physical features, behavior, and survival of organisms living in different environments ----- -- -- --
- d) Relationships in a living community (e.g., simple food chains, predator-prey relationships) - -- -- --
- e) Changes in environments (effects of human activity, pollution and its prevention) ----- -- -- --
- f) Human health (e.g., transmission/prevention of communicable diseases, signs of health/illness, diet, exercise) ----- -- -- --

B. Physical Science

- a) Classification of objects/materials based on physical properties (e.g., mass, shape, volume, color, hardness, texture, heat/electrical conductivity, magnetic attraction) ----- -- -- --
- b) Forming and separating mixtures ----- -- -- --
- 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) ----- -- -- --
- d) Familiar changes in materials (e.g., decaying of animal/plant matter, burning, rusting, cooking) ----- -- -- --
- e) Common energy sources/forms and their practical uses (e.g., wind, sun, electricity, burning fuel, moving water, food) ----- -- -- --
- f) Light (e.g. sources and behavior) ----- -- -- --
- g) Electrical circuits ----- -- -- --
- h) Properties of magnets ----- -- -- --
- i) Forces that cause objects to move (e.g., gravity, push/pull forces) ----- -- -- --

C. Earth Science

- a) Features of Earth’s landscape (e.g., mountains, plains, rivers, deserts) ----- -- -- --
- b) Water on Earth (location, types, and movement) ----- -- -- --
- c) Air (composition, proof of its existence, uses, and importance for supporting life) ----- -- -- --
- d) Common features of Earth’s landscape (e.g., mountains, plains, rivers, deserts) and relationship to human use (e.g., farming, irrigation, land development) ----- -- -- --
- e) Weather conditions from day to day or over the seasons ----- -- -- --
- f) Fossils of animals and plants (age, formation) ----- -- -- --
- 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

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

 Write in the number of students

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

 Write in the number of <fourth grade> students

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?

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

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

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

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** →

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

- | | | | | |
|----|---|------------------------|-----------------------|-----------------------|
| | Every or almost every lesson | About half the lessons | Some lessons | Never |
| a) | Do scientific procedures or experiments ----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| b) | Study natural phenomena through simulations ----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| c) | Practice skills and procedures ----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| d) | Look up ideas and information ----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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 |
|--|------------------------------|------------------------|--------------|-------|
| a) Observe natural phenomena such as the weather or a plant growing and describe what they see | ○ | ○ | ○ | ○ |
| b) Watch me do a science experiment | ○ | ○ | ○ | ○ |
| c) Design or plan experiments or investigations | ○ | ○ | ○ | ○ |
| d) Do experiments or investigations | ○ | ○ | ○ | ○ |
| e) Work together in small groups on experiments or investigations | ○ | ○ | ○ | ○ |
| f) Read their textbooks or other resource materials | ○ | ○ | ○ | ○ |
| g) Have students memorize facts and principles | ○ | ○ | ○ | ○ |
| h) Give explanations about something they are studying | ○ | ○ | ○ | ○ |
| i) Relate what they are learning in science to their daily lives | ○ | ○ | ○ | ○ |
| 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) ----- %
- b) Physical science (includes topics in physics and chemistry) ----- %
- c) Earth science (includes Earth and the solar system) ----- %
- d) Other, please specify:
----- %
- Total** ----- 100%

35

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

- | | 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?

Fill in **one** circle only

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

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

			Not yet taught or just introduced
	Mostly taught this year		
	Mostly taught before this year		

A. Life Science

- a) Types, characteristics, and classification of living things ----- ○ -- ○ -- ○
- b) Major body structures and their function in humans and other organisms
(plants and animals) ----- ○ -- ○ -- ○
- c) General steps in the life cycle of familiar organisms
(e.g., humans, butterflies, frogs, plants) ----- ○ -- ○ -- ○
- d) Plant and animal reproduction (passing on of general characteristics) ----- ○ -- ○ -- ○
- e) Physical features, behavior, and survival of plants and animals
in different environments ----- ○ -- ○ -- ○
- f) Bodily actions in response to outside conditions (e.g., heat, cold, danger)
and activities (e.g., exercise) ----- ○ -- ○ -- ○
- g) Energy requirements of plants and animals (energy from the sun to make food and to
provide energy for growth and repair) ----- ○ -- ○ -- ○
- h) Relationships in a living community (e.g., simple food chains
using common plants and animals and predator-prey relationships) ----- ○ -- ○ -- ○
- i) Changes in environments (effects of human activity, pollution and its prevention) ----- ○ -- ○ -- ○
- j) Ways that common communicable diseases (e.g., colds, influenza)
are transmitted; signs, prevention, and treatment of illness ----- ○ -- ○ -- ○
- 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

	Not yet taught or just introduced	
	Mostly taught this year	
	Mostly taught before this year	

B. Physical Science

- | | | | | | |
|--|---|----|---|----|---|
| a) Classification of objects and materials based on physical properties ----- | ○ | -- | ○ | -- | ○ |
| b) Properties and uses of metals ----- | ○ | -- | ○ | -- | ○ |
| c) Forming and separating mixtures ----- | ○ | -- | ○ | -- | ○ |
| d) Properties and uses of water ----- | ○ | -- | ○ | -- | ○ |
| e) States of matter (solids, liquids, and gases) and differences in their physical properties in terms of shape and volume ----- | ○ | -- | ○ | -- | ○ |
| f) Changes in state of matter by heating and cooling (melting, freezing, boiling, evaporation, condensation) ----- | ○ | -- | ○ | -- | ○ |
| g) Familiar changes in materials (e.g., decaying of animal/plant matter, burning, rusting, cooking) --- | ○ | -- | ○ | -- | ○ |
| h) Common energy sources/forms and their practical uses (e.g., wind, sun, electricity, burning fuel, water wheel, food) ----- | ○ | -- | ○ | -- | ○ |
| i) Heat flow and temperature ----- | ○ | -- | ○ | -- | ○ |
| j) Common sources of light and related phenomena (e.g., formation of rainbows and shadows, visibility of objects, mirrors, colors) ----- | ○ | -- | ○ | -- | ○ |
| k) Production of sound by vibrations ----- | ○ | -- | ○ | -- | ○ |
| l) Electrical circuits ----- | ○ | -- | ○ | -- | ○ |
| m) Magnets (north and south poles, magnetic attraction, and repulsion) ----- | ○ | -- | ○ | -- | ○ |
| 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

	Not yet taught or just introduced	
	Mostly taught this year	
	Mostly taught before this year	

C. Earth Science

- a) Rocks, minerals, sand, and soil ----- ○ -- ○ -- ○
- b) Water on Earth (location, types, and movement) ----- ○ -- ○ -- ○
- c) Air (composition, proof of its existence,
uses, and importance for supporting life) ----- ○ -- ○ -- ○
- 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) ----- ○ -- ○ -- ○
- e) Use and conservation of Earth's natural resources ----- ○ -- ○ -- ○
- f) Earth's water cycle (water flowing in rivers from
mountains to sea, cloud formation and precipitation) ----- ○ -- ○ -- ○
- g) Weather conditions from day to day or over the seasons ----- ○ -- ○ -- ○
- h) Fossils of animals and plants (age, formation) ----- ○ -- ○ -- ○
- i) Earth's solar system (planets, sun, moon) ----- ○ -- ○ -- ○
- j) Earth's rotation on its axis (e.g., day and night, appearance of shadows) ----- ○ -- ○ -- ○



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** →

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 -----○

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

A lot

Some

A little

Not at all

Not applicable

- a) Students with different academic abilities -----○--○--○--○--○
- b) Students who come from a wide range of backgrounds (e.g., economic, language) - ○--○--○--○--○
- c) Students with special needs, (e.g., hearing, vision, speech impairment, physical disabilities, mental or emotional/psychological impairment) -----○--○--○--○--○
- d) Uninterested students ○--○--○--○--○
- e) Disruptive students --○--○--○--○--○

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 -----○--○
- b) Science pedagogy/instruction -----○--○
- c) Science curriculum-----○--○
- d) Integrating information technology into science-----○--○
- e) Improving students' critical thinking or inquiry skills -----○--○
- f) Science assessment -----○--○

Thank You

**for completing
this questionnaire**



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

Teacher Questionnaire

<Grade 4>