



Identification Label

TRENDS IN INTERNATIONAL MATHEMATICS AND SCIENCE STUDY

Teacher Questionnaire

<Grade 4>

<TIMSS National Research Center Name>

<Address>



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

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Teacher Questionnaire

Your school has agreed to participate in TIMSS 2015 (Trends in International Mathematics and Science Study), an educational research project sponsored by the International Association for the Evaluation of Educational Achievement (IEA). TIMSS measures trends in student achievement in mathematics and science and studies differences in national education systems in almost 60 countries in order to help improve teaching and learning worldwide.

This questionnaire is addressed to teachers of <fourth grade> students, and seeks information about teachers' academic and professional backgrounds, classroom resources, instructional practices, and attitudes toward teaching. Since your class has been selected as part of a nationwide sample, your responses are very important in helping to describe primary/elementary education in <country>.

Some of the questions in the questionnaire refer to the "**TIMSS class**" or "**this class**". This is the class that is identified on the front of this booklet, and which will be tested as part of TIMSS 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.

Since TIMSS is an international study and all countries are using the same questionnaire, you may find that some of the questions seem unusual or are not entirely relevant to you or schools in <country>. Nevertheless, it is important that you do your best to answer all of the questions so comparisons can be made across countries in the studies.

It is estimated that you will need approximately 35 minutes to complete this questionnaire. We appreciate the time and effort that this takes and thank you for your cooperation and contribution.

When you have completed the questionnaire, please place it in the accompanying envelope and return it to:

<Insert country-specific information here>.

Thank you.

TIMSS 2015

About You

G1

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

_____ years
Please **round** to the nearest whole number.

G2

Are you female or male?

Check **one** circle only.

Female ---

Male ---

G3

How old are you?

Check **one** circle only.

Under 25 ---

25–29 ---

30–39 ---

40–49 ---

50–59 ---


60 or more ---

G4

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

Check **one** circle only.

Did not complete <Upper secondary education—ISCED Level 3> ---

<Upper secondary education—ISCED Level 3> --- 

(If you have not completed <post-secondary or tertiary education>, go to #G6)

<Post-secondary, non-tertiary education—ISCED Level 4> ---

<Short-cycle tertiary education—ISCED Level 5> ---

<Bachelor's or equivalent level—ISCED Level 6> ---

<Master's or equivalent level—ISCED Level 7> ---

<Doctor or equivalent level—ISCED Level 8> ---

G5

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

Check **one** circle for each line.

- | | Yes | No |
|---------------------------------------|-----------------------|-----------------------|
| a) Education—Primary/Elementary ----- | <input type="radio"/> | <input type="radio"/> |
| b) Education—Secondary ----- | <input type="radio"/> | <input type="radio"/> |
| c) Mathematics ----- | <input type="radio"/> | <input type="radio"/> |
| d) Science ----- | <input type="radio"/> | <input type="radio"/> |
| e) <language of test> ----- | <input type="radio"/> | <input type="radio"/> |
| f) Other ----- | <input type="radio"/> | <input type="radio"/> |

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

Check **one** circle for each line.

- | | Yes | No |
|---------------------------|-----------------------|-----------------------|
| a) Mathematics ----- | <input type="radio"/> | <input type="radio"/> |
| b) Science ----- | <input type="radio"/> | <input type="radio"/> |
| c) Language/reading ----- | <input type="radio"/> | <input type="radio"/> |
| d) Other subject ----- | <input type="radio"/> | <input type="radio"/> |

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

Check **one** circle for each line.

- Very high
High
Medium
Low
Very low
- a) Teachers' understanding of the school's curricular goals --- --- --- --- ---
 - b) Teachers' degree of success in implementing the school's curriculum ----- --- --- --- ---
 - c) Teachers' expectations for student achievement ----- --- --- --- ---
 - d) Teachers working together to improve student achievement ----- --- --- --- ---
 - e) Teachers' ability to inspire students ----- --- --- --- ---
 - f) Parental involvement in school activities ----- --- --- --- ---
 - g) Parental commitment to ensure that students are ready to learn ----- --- --- --- ---
 - h) Parental expectations for student achievement ----- --- --- --- ---
 - i) Parental support for student achievement ----- --- --- --- ---
 - j) Parental pressure for the school to maintain high academic standards ----- --- --- --- ---

Check **one** circle for each line.

- Very high
High
Medium
Low
Very low
- k) Students' desire to do well in school ----- --- --- --- ---
 - l) Students' ability to reach school's academic goals ----- --- --- --- ---
 - m) Students' respect for classmates who excel in school ----- --- --- --- ---
 - n) Clarity of the school's educational objectives ----- --- --- --- ---
 - o) Collaboration between school leadership and teachers to plan instruction --- --- --- --- ---
 - p) Amount of instructional support provided to teachers by school leadership ----- --- --- --- ---
 - q) School leadership's support for teachers' professional development ----- --- --- --- ---

G7

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

Check **one** circle for each line.

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) This school is located in a safe neighborhood -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b) I feel safe at this school -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c) This school's security policies and practices are sufficient -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d) The students behave in an orderly manner -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e) The students are respectful of the teachers -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f) The students respect school property -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g) This school has clear rules about student conduct -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h) This school's rules are enforced in a fair and consistent manner -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

G8

In your current school, how severe is each problem?

Check **one** circle for each line.

	Not a problem	Minor problem	Moderate problem	Serious problem
a) The school building needs significant repair -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b) Teachers do not have adequate workspace (e.g., for preparation, collaboration, or meeting with students) -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c) Teachers do not have adequate instructional materials and supplies -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d) The school classrooms are not cleaned often enough -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e) The school classrooms need maintenance work -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f) Teachers do not have adequate technological resources -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g) Teachers do not have adequate support for using technology -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

G9

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

Check **one** circle for each line.

	Very often	Often	Sometimes	Never or almost never
a) Discuss how to teach a particular topic -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b) Collaborate in planning and preparing instructional materials -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c) Share what I have learned about my teaching experiences -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d) Visit another classroom to learn more about teaching -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e) Work together to try out new ideas -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f) Work as a group on implementing the curriculum -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g) Work with teachers from other grades to ensure continuity in learning -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

G10

How often do you feel the following way about being a teacher?

Check **one** circle for each line.

	Very often	Often	Sometimes	Never or almost never
a) I am content with my profession as a teacher -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b) I am satisfied with being a teacher at this school -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c) I find my work full of meaning and purpose -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d) I am enthusiastic about my job -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e) My work inspires me -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f) I am proud of the work I do -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g) I am going to continue teaching for as long as I can -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

G11

Indicate the extent to which you agree or disagree with each of the following statements.

Check **one** circle for each line.

		Agree a lot						
			Agree a little					
				Disagree a little				
					Disagree a lot			
a) There are too many students in the classes -----	<input type="radio"/>	—	<input type="radio"/>	—	<input type="radio"/>	—	<input type="radio"/>	
b) I have too much material to cover in class -----	<input type="radio"/>	—	<input type="radio"/>	—	<input type="radio"/>	—	<input type="radio"/>	
c) I have too many teaching hours -----	<input type="radio"/>	—	<input type="radio"/>	—	<input type="radio"/>	—	<input type="radio"/>	
d) I need more time to prepare for class -----	<input type="radio"/>	—	<input type="radio"/>	—	<input type="radio"/>	—	<input type="radio"/>	
e) I need more time to assist individual students -----	<input type="radio"/>	—	<input type="radio"/>	—	<input type="radio"/>	—	<input type="radio"/>	
f) I feel too much pressure from parents -----	<input type="radio"/>	—	<input type="radio"/>	—	<input type="radio"/>	—	<input type="radio"/>	
g) I have difficulty keeping up with all of the changes to the curriculum -----	<input type="radio"/>	—	<input type="radio"/>	—	<input type="radio"/>	—	<input type="radio"/>	
h) I have too many administrative tasks -----	<input type="radio"/>	—	<input type="radio"/>	—	<input type="radio"/>	—	<input type="radio"/>	

G12

A. How many students are in this class?

_____ students
Write in the number.

B. How many of the students in #G12A are in <fourth grade>?

_____ <fourth grade> students
Write in the number.

G13

How many <fourth grade> students experience difficulties understanding spoken <language of test>?

_____ students in this class
Write in the number.

G14

How often do you do the following in teaching this class?

Check **one** circle for each line.

- | | Every or almost every lesson | About half the lessons | Some lessons | Never |
|--|------------------------------|------------------------|-----------------------|-----------------------|
| a) Relate the lesson to students' daily lives ----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| b) Ask students to explain their answers ----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| c) Bring interesting materials to class ----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| d) Ask students to complete challenging exercises that require them to go beyond the instruction ----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| e) Encourage classroom discussions among students ----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| f) Link new content to students' prior knowledge ----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| g) Ask students to decide their own problem solving procedures ----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| h) Encourage students to express their ideas in class ----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

G15

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

Check **one** circle for each line.

- | | Not at all | Some | A lot |
|---|-----------------------|-----------------------|-----------------------|
| a) Students lacking prerequisite knowledge or skills ----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| b) Students suffering from lack of basic nutrition ----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| c) Students suffering from not enough sleep ----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| d) Disruptive students ----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| e) Uninterested students ----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| f) Students with physical disabilities ----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| g) Students with mental, emotional, or psychological disabilities ----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Teaching Mathematics to the TIMSS Class

M1

In a typical week, how much time do you spend teaching mathematics to the students in this class?

_____ minutes per week
 Write in the number of minutes per week.
 Please convert the number of hours into minutes.

M2

In teaching mathematics to this class, how would you characterize your confidence in doing the following?

Check **one** circle for each line.

- Very high
 High
 Medium
 Low
- a) Inspiring students to learn mathematics ----- -- -- --
 - b) Showing students a variety of problem solving strategies ----- -- -- --
 - c) Providing challenging tasks for the highest achieving students ----- -- -- --
 - d) Adapting my teaching to engage students' interest ----- -- -- --
 - e) Helping students appreciate the value of learning mathematics ----- -- -- --
 - f) Assessing student comprehension of mathematics ----- -- -- --
 - g) Improving the understanding of struggling students ----- -- -- --
 - h) Making mathematics relevant to students ----- -- -- --
 - i) Developing students' higher-order thinking skills ----- -- -- --

M3

In teaching mathematics to this class, how often do you ask students to do the following?

Check **one** circle for each line.

- Every or almost every lesson
 About half the lessons
 Some lessons
 Never
- a) Listen to me explain new mathematics content ----- -- -- --
 - b) Listen to me explain how to solve problems ----- -- -- --
 - c) Memorize rules, procedures, and facts ----- -- -- --
 - d) Work problems (individually or with peers) with my guidance ----- -- -- --
 - e) Work problems together in the whole class with direct guidance from me ----- -- -- --
 - f) Work problems (individually or with peers) while I am occupied by other tasks ----- -- -- --
 - g) Take a written test or quiz ----- -- -- --
 - h) Work in mixed ability groups -- -- -- --
 - i) Work in same ability groups -- -- -- --

M4

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


Check **one** circle only.

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

M5

A. Do the students in this class have computers (including tablets) available to use during their mathematics lessons?

Check **one** circle only.

- Yes ---
- No --- 
- (If No, go to #M6)

If Yes,

B. What access do the students have to computers?

Check **one** circle for each line.

- | | Yes | No |
|--|-----------------------|-----------------------|
| a) Each student has a computer ----- | <input type="radio"/> | <input type="radio"/> |
| b) The class has computers that students can share ----- | <input type="radio"/> | <input type="radio"/> |
| c) The school has computers that the class can use sometimes ----- | <input type="radio"/> | <input type="radio"/> |

C. How often do you have the students do the following activities on computers during mathematics lessons?

Check **one** circle for each line.

- | | Every or almost every day | Once or twice a week | Once or twice a month | Never or almost never |
|--|---------------------------|-----------------------|-----------------------|-----------------------|
| a) Explore mathematics principles and concepts ----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| b) Practice skills and procedures - | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| c) Look up ideas and information ----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

M6

The following list includes the main topics addressed by the TIMSS mathematics test. Choose the response that best describes when the students in this class have been taught each topic. If a topic was in the curriculum before the <fourth grade>, please choose “Mostly taught before this year.” 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.”

Check **one** circle for each line.

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

A. Number

- a) Concepts of whole numbers, including place value and ordering ----- — —
- b) Adding, subtracting, multiplying, and/or dividing with whole numbers ----- — —
- c) Concepts of multiples and factors; odd and even numbers ----- — —
- d) Concepts of fractions (fractions as parts of a whole or of a collection, or as a location on a number line) ----- — —
- e) Adding and subtracting with fractions, comparing and ordering fractions ----- — —
- f) Concepts of decimals, including place value and ordering, adding and subtracting with decimals ----- — —
- g) Number sentences (finding the missing number, modeling simple situations with number sentences) ----- — —
- h) Number patterns (extending number patterns and finding missing terms) ----- — —

B. Geometric Shapes and Measures

- a) Lines: measuring, estimating length of; parallel and perpendicular lines ----- — —
- b) Comparing and drawing angles ----- — —
- c) Using informal coordinate systems to locate points in a plane (e.g., in square B4) ----- — —
- d) Elementary properties of common geometric shapes ----- — —
- e) Reflections and rotations ----- — —
- f) Relationships between two-dimensional and three-dimensional shapes ----- — —
- g) Finding and estimating areas, perimeters, and volumes ----- — —


C. Data Display

- a) Reading and representing data from tables, pictographs, bar graphs, or pie charts ----- — —
- b) Drawing conclusions from data displays ----- — —

M7

A. How often do you usually assign mathematics homework to the students in this class?

Check **one** circle only.

I do not assign mathematics homework --- 
(Go to #M8)

Less than once a week ---

1 or 2 times a week ---

3 or 4 times a week ---

Every day ---

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

Check **one** circle only.

15 minutes or less ---

16–30 minutes ---

31–60 minutes ---

More than 60 minutes ---

C. How often do you do the following with the mathematics homework assignments for this class?

Check **one** circle for each line.

Always or almost always

Sometimes

Never or almost never

a) Correct assignments and give feedback to students ----- --- ---

b) Discuss the homework in class ----- --- ---

c) Monitor whether or not the homework was completed ----- --- ---

M8

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

Check **one** circle for each line.

Major emphasis

Some emphasis

Little or no emphasis

a) Assessment of students' ongoing work ----- --- ---

b) Classroom tests (for example, teacher-made or textbook tests) ----- --- ---

c) National or regional achievement tests ----- --- ---

M9

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

Check **one** circle for each line.

- | | Yes | No |
|---|-----------------------|-----------------------|
| a) Mathematics content ----- | <input type="radio"/> | <input type="radio"/> |
| b) Mathematics pedagogy/instruction ----- | <input type="radio"/> | <input type="radio"/> |
| c) Mathematics curriculum ----- | <input type="radio"/> | <input type="radio"/> |
| d) Integrating information
technology into mathematics ----- | <input type="radio"/> | <input type="radio"/> |
| e) Improving students' critical thinking or
problem solving skills ----- | <input type="radio"/> | <input type="radio"/> |
| f) Mathematics assessment ----- | <input type="radio"/> | <input type="radio"/> |
| g) Addressing individual students' needs ----- | <input type="radio"/> | <input type="radio"/> |

M10

In the past two years, how many hours in total have you spent in formal <in-service/professional development> (e.g., workshops, seminars, etc.) for mathematics?

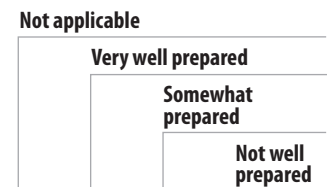
Check **one** circle only.

- None ---
- Less than 6 hours ---
- 6–15 hours ---
- 16–35 hours ---
- More than 35 hours ---

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

If a topic is not in the <fourth grade> curriculum or you are not responsible for teaching this topic, please choose "Not applicable."

Check **one** circle for each line.



A. Number

- a) Concepts of whole numbers, including place value and ordering ----- — — —
- b) Adding, subtracting, multiplying, and/or dividing with whole numbers ----- — — —
- c) Concepts of multiples and factors; odd and even numbers ----- — — —
- d) Concepts of fractions (fractions as parts of a whole or of a collection, or as a location on a number line) ----- — — —
- e) Adding and subtracting with fractions, comparing and ordering fractions ----- — — —
- f) Concepts of decimals, including place value and ordering, adding and subtracting with decimals ----- — — —
- g) Number sentences (finding the missing number, modeling simple situations with number sentences) ----- — — —
- h) Number patterns (extending number patterns and finding missing terms) ----- — — —

B. Geometric Shapes and Measures

- a) Lines: measuring, estimating length of; parallel and perpendicular lines ----- — — —
- b) Comparing and drawing angles ----- — — —
- c) Using informal coordinate systems to locate points in a plane (e.g., in square B4) ----- — — —
- d) Elementary properties of common geometric shapes ----- — — —
- e) Reflections and rotations ----- — — —
- f) Relationships between two-dimensional and three-dimensional shapes ----- — — —
- g) Finding and estimating areas, perimeters, and volumes ----- — — —

C. Data Display

- a) Reading and representing data from tables, pictographs, bar graphs, or pie charts ----- — — —
- b) Drawing conclusions from data displays ----- — — —

S1

A. Is science taught mainly as a separate subject (i.e., not integrated with other subjects) to the students in this class?

Check **one** circle only.

Yes ---

No ---

B. Please estimate the time that you spend on science topics with students in this class.

_____ minutes per week

Write in the number of minutes per week.

Please convert the number of hours into minutes.

S2

In teaching science to this class, how would you characterize your confidence in doing the following?

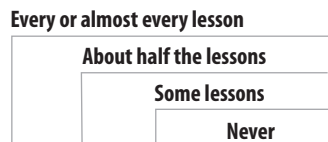
Check **one** circle for each line.

	Very high	High	Medium	Low
a) Inspiring students to learn science -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b) Explaining science concepts or principles by doing science experiments -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c) Providing challenging tasks for the highest achieving students -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d) Adapting my teaching to engage students' interest -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e) Helping students appreciate the value of learning science -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f) Assessing student comprehension of science -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g) Improving the understanding of struggling students -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h) Making science relevant to students -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i) Developing students' higher-order thinking skills -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j) Teaching science using inquiry methods -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

S3

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

Check **one** circle for each line.



- a) Listen to me explain new science content -----
- b) Observe natural phenomena such as the weather or a plant growing and describe what they see -----
- c) Watch me demonstrate an experiment or investigation ---
- d) Design or plan experiments or investigations -----
- e) Conduct experiments or investigations -----
- f) Present data from experiments or investigations -----
- g) Interpret data from experiments or investigations -----
- h) Use evidence from experiments or investigations to support conclusions -----
- i) Read their textbooks or other resource materials -----
- j) Have students memorize facts and principles -----
- k) Do field work outside the class
- l) Take a written test or quiz -----
- m) Work in mixed ability groups --
- n) Work in same ability groups --

S4

A. Do the students in this class have computers (including tablets) available to use during their science lessons?

Check **one** circle only.

- Yes ---
- No ---
- (If No, go to #55)

If Yes,

B. What access do the students have to computers?

Check **one** circle for each line.

-
- Yes
No
- a) Each student has a computer -----
 - b) The class has computers that students can share -----
 - c) The school has computers that the class can use sometimes -----

C. How often do you have the students do the following activities on computers during science lessons?

Check **one** circle for each line.

-
- Every or almost every day
Once or twice a week
Once or twice a month
Never or almost never
- a) Practice skills and procedures -
 - b) Look up ideas and information -----
 - c) Do scientific procedures or experiments -----
 - d) Study natural phenomena through simulations -----

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

Check **one** circle for each line.



A. Life Science

- a) Characteristics of living things and the major groups of living things (e.g., mammals, birds, insects, flowering plants) ----- — —
- b) Major body structures and their functions in humans, other animals, and plants ----- — —
- c) Life cycles of common plants and animals (e.g., humans, butterflies, frogs, flowering plants) ----- — —
- d) Understanding that some characteristics are inherited and some are the result of the environment ----- — —
- e) How physical features and behaviors help living things survive in their environments ----- — —
- f) Relationships in communities and ecosystems (e.g., simple food chains, predator-prey relationships, human impacts on the environment) ----- — —
- g) Human health (transmission and prevention of diseases, symptoms of health and illness, importance of a healthy diet and exercise) ----- — —

B. Physical Science

- a) States of matter (solid, liquid, gas) and properties of the states of matter (volume, shape); how the state of matter changes by heating or cooling ----- — —
- b) Classifying materials based on physical properties (e.g., weight/mass, volume, conducting heat, conducting electricity, magnetic attraction) ----- — —
- c) Mixtures and how to separate a mixture into its components (e.g., sifting, filtering, evaporation, using a magnet) ----- — —
- d) Chemical changes in everyday life (e.g., decaying, burning, rusting, cooking) ----- — —
- e) Common sources of energy (e.g., the Sun, electricity, wind) and uses of energy (heating and cooling homes, providing light) ----- — —
- f) Light and sound in everyday life (e.g., understanding shadows and reflection, understanding that vibrating objects make sound) ----- — —
- g) Electricity and simple circuits (e.g., identifying materials that are conductors, recognizing that electricity can be changed to light or sound, knowing that a circuit must be complete to work correctly) ----- — —
- h) Properties of magnets (e.g., knowing that like poles repel and opposite poles attract, recognizing that magnets can attract some objects) ----- — —
- i) Forces that cause objects to move (e.g., gravity, pushing/pulling) ----- — —

(continued)

Choose the response that best describes when the students in this class have been taught each topic. If a topic was in the curriculum before the <fourth grade>, please choose "Mostly taught before this year." 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."

Check **one** circle for each line.

Mostly taught before this year

Mostly taught this year

Not yet taught or just introduced

C. Earth Science

- a) Common features of the Earth's landscape (e.g., mountains, plains, deserts, rivers, oceans) and their relationship to human use (farming, irrigation, land development) ----- — —
- b) Where water is found on the Earth and how it moves in and out of the air (e.g., evaporation, rainfall, cloud formation, dew formation) ----- — —
- c) Understanding that weather can change from day to day, from season to season, and by geographic location ----- — —
- d) Understanding what fossils are and what they can tell us about past conditions on Earth ----- — —
- e) Objects in the solar system (the Sun, the Earth, the Moon, and other planets) and their movements (the Earth and other planets revolve around the Sun, the Moon revolves around the Earth) ----- — —
- f) Understanding how day and night result from the Earth's rotation on its axis and how the Earth's rotation results in changing shadows throughout the day ----- — —
- g) Understanding how seasons are related to the Earth's annual movement around the Sun ----- — —

S6

A. How often do you usually assign science homework to the students in this class?

Check **one** circle only.

I do not assign science homework --- 

(Go to #S7)

Less than once a week ---

1 or 2 times a week ---

3 or 4 times a week ---

Every day ---

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

Check **one** circle only.

15 minutes or less ---

16–30 minutes ---

31–60 minutes ---

More than 60 minutes ---

C. How often do you do the following with the science homework assignments for this class?

Check **one** circle for each line.

Always or almost always

Sometimes

Never or almost never

a) Correct assignments and give feedback to students ----- --- ---

b) Discuss the homework in class ----- --- ---

c) Monitor whether or not the homework was completed ----- --- ---

S7

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

Check **one** circle for each line.

Major emphasis

Some emphasis

Little or no emphasis

a) Assessment of students' ongoing work ----- --- ---

b) Classroom tests (for example, teacher-made or textbook tests) ----- --- ---

c) National or regional achievement tests ----- --- ---

S8

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

Check **one** circle for each line.

- | | Yes | No |
|--|-----------------------|-----------------------|
| a) Science content ----- | <input type="radio"/> | <input type="radio"/> |
| b) Science pedagogy/instruction ----- | <input type="radio"/> | <input type="radio"/> |
| c) Science curriculum ----- | <input type="radio"/> | <input type="radio"/> |
| d) Integrating information
technology into science ----- | <input type="radio"/> | <input type="radio"/> |
| e) Improving students' critical thinking or
inquiry skills ----- | <input type="radio"/> | <input type="radio"/> |
| f) Science assessment ----- | <input type="radio"/> | <input type="radio"/> |
| g) Addressing individual students' needs ----- | <input type="radio"/> | <input type="radio"/> |
| h) Integrating science with other subjects
(e.g., mathematics, technology)----- | <input type="radio"/> | <input type="radio"/> |

S9

In the past two years, how many hours in total have you spent in formal <in-service/professional development> (e.g., workshops, seminars, etc.) for science?

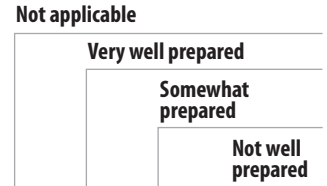
Check **one** circle only.

- None ---
- Less than 6 hours ---
- 6–15 hours ---
- 16–35 hours ---
- More than 35 hours ---

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

If a topic is not in the <fourth grade> curriculum or you are not responsible for teaching this topic, please choose "Not applicable."

Check **one** circle for each line.



A. Life Science

- a) Characteristics of living things and the major groups of living things (e.g., mammals, birds, insects, flowering plants) ----- — — —
- b) Major body structures and their functions in humans, other animals, and plants ----- — — —
- c) Life cycles of common plants and animals (e.g., humans, butterflies, frogs, flowering plants) ----- — — —
- d) Understanding that some characteristics are inherited and some are the result of the environment ----- — — —
- e) How physical features and behaviors help living things survive in their environments ----- — — —
- f) Relationships in communities and ecosystems (e.g., simple food chains, predator-prey relationships, human impacts on the environment) ----- — — —
- g) Human health (transmission and prevention of diseases, symptoms of health and illness, importance of a healthy diet and exercise) ----- — — —

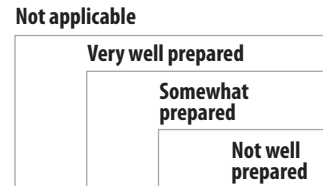
B. Physical Science

- a) States of matter (solid, liquid, gas) and properties of the states of matter (volume, shape); how the state of matter changes by heating or cooling ----- — — —
- b) Classifying materials based on physical properties (e.g., weight/mass, volume, conducting heat, conducting electricity, magnetic attraction) ----- — — —
- c) Mixtures and how to separate a mixture into its components (e.g., sifting, filtering, evaporation, using a magnet) ----- — — —
- d) Chemical changes in everyday life (e.g., decaying, burning, rusting, cooking) ----- — — —
- e) Common sources of energy (e.g., the Sun, electricity, wind) and uses of energy (heating and cooling homes, providing light) ----- — — —
- f) Light and sound in everyday life (e.g., understanding shadows and reflection, understanding that vibrating objects make sound) ----- — — —
- g) Electricity and simple circuits (e.g., identifying materials that are conductors, recognizing that electricity can be changed to light or sound, knowing that a circuit must be complete to work correctly) ----- — — —
- h) Properties of magnets (e.g., knowing that like poles repel and opposite poles attract, recognizing that magnets can attract some objects) ----- — — —
- i) Forces that cause objects to move (e.g., gravity, pushing/pulling) ----- — — —

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

If a topic is not in the <fourth grade> curriculum or you are not responsible for teaching this topic, please choose "Not applicable."

Check **one** circle for each line.



C. Earth Science

- a) Common features of the Earth's landscape (e.g., mountains, plains, deserts, rivers, oceans) and their relationship to human use (farming, irrigation, land development) ----- — — —
- b) Where water is found on the Earth and how it moves in and out of the air (e.g., evaporation, rainfall, cloud formation, dew formation) ----- — — —
- c) Understanding that weather can change from day to day, from season to season, and by geographic location ----- — — —
- d) Understanding what fossils are and what they can tell us about past conditions on Earth ----- — — —
- e) Objects in the solar system (the Sun, the Earth, the Moon, and other planets) and their movements (the Earth and other planets revolve around the Sun, the Moon revolves around the Earth) ----- — — —
- f) Understanding how day and night result from the Earth's rotation on its axis and how the Earth's rotation results in changing shadows throughout the day ----- — — —
- g) Understanding how seasons are related to the Earth's annual movement around the Sun ----- — — —

Thank You

Thank you for the thought, time, and effort you have put into completing this questionnaire.



BOSTON
COLLEGE

TIMSS 2015

TRENDS IN INTERNATIONAL MATHEMATICS AND SCIENCE STUDY

Teacher Questionnaire

<Grade 4>



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