Identification Label

TIMSS 2011

Teacher Questionnaire

Science

<Grade 8>

<TIMSS National Research Center Name>
<Address>

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

Teacher *Questionnaire*

Your school has agreed to participate in TIMSS 2011 (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 more than 60 countries in order to help improve teaching and learning worldwide.

This questionnaire is addressed to teachers of <eighth-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 secondary 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 45 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 2011

About You

1

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

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

2

Are you female or male?

*Check **one** circle only.*

Female --- ◯
Male --- ◯

3

How old are you?

*Check **one** circle only.*

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

4

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

*Check **one** circle only.*

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

5

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

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

	Yes	No
a) Mathematics	◯	◯
b) Biology	◯	◯
c) Physics	◯	◯
d) Chemistry	◯	◯
e) <Earth Science>	◯	◯
f) Education–Mathematics	◯	◯
g) Education–Science	◯	◯
h) Education–General	◯	◯
i) Other	◯	◯

6

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' 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	○	○	○	○	○

7

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	○	○	○	○
b) I feel safe at this school	○	○	○	○
c) This school's security policies and practices are sufficient	○	○	○	○
d) The students behave in an orderly manner	○	○	○	○
e) The students are respectful of the teachers	○	○	○	○

8

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	○	○	○	○
b) Classrooms are overcrowded	○	○	○	○
c) Teachers have too many teaching hours	○	○	○	○
d) Teachers do not have adequate workspace for preparation, collaboration, or meeting with students	○	○	○	○
e) Teachers do not have adequate instructional materials and supplies	○	○	○	○

9

A. Do you use computers in your teaching in any of the following ways?

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

	Yes	No
a) For preparation	○	○
b) For administration	○	○
c) In your classroom instruction	○	○

If Yes to "classroom instruction"

B. How much do you agree with the following statements about using computers in your classroom instruction?

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

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) I feel comfortable using computers in my teaching	○	○	○	○
b) When I have technical problems, I have ready access to computer support staff in my school	○	○	○	○
c) I receive adequate support for integrating computers in my teaching activities	○	○	○	○

10

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

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

	Never or almost never	2 or 3 times per month	1–3 times per week	Daily or almost daily
a) Discuss how to teach a particular topic	○	○	○	○
b) Collaborate in planning and preparing instructional materials	○	○	○	○
c) Share what I have learned about my teaching experiences	○	○	○	○
d) Visit another classroom to learn more about teaching	○	○	○	○
e) Work together to try out new ideas	○	○	○	○

11

How much do you agree with the following statements?

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

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) I am content with my profession as a teacher	○	○	○	○
b) I am satisfied with being a teacher at this school	○	○	○	○
c) I had more enthusiasm when I began teaching than I have now	○	○	○	○
d) I do important work as a teacher	○	○	○	○
e) I plan to continue as a teacher for as long as I can	○	○	○	○
f) I am frustrated as a teacher	○	○	○	○

12

How many students are in this class?

_____ students
Write in a number.

13

How many <eighth-grade> students experience difficulties understanding <u>spoken</u> <language of test>?

_____ students in this class
Write in a number.

14

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) Summarize what students should have learned from the lesson	○	○	○	○
b) Relate the lesson to students' daily lives	○	○	○	○
c) Use questioning to elicit reasons and explanations	○	○	○	○
d) Encourage all students to improve their performance	○	○	○	○
e) Praise students for good effort	○	○	○	○
f) Bring interesting materials to class	○	○	○	○

15

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

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

	Not applicable	Not at all	Some	A lot
a) Students lacking prerequisite knowledge or skills	○	○	○	○
b) Students suffering from lack of basic nutrition	○	○	○	○
c) Students suffering from not enough sleep	○	○	○	○
d) Students with special needs (e.g., physical disabilities, mental or emotional/ psychological impairment)	○	○	○	○
e) Disruptive students	○	○	○	○
f) Uninterested students	○	○	○	○

16

For the typical student in this class, how often do you do these things?

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

	At least once a week	Once or twice a month	4–6 times a year	1–3 times a year	Never
a) Meet or talk individually with the student's parents to discuss his/her learning progress	○	○	○	○	○
b) Send home a progress report on the student's learning	○	○	○	○	○

Questions 17–19 ask about science instruction for the <eighth-grade> students in the <TIMSS class/class with the TIMSS students>.

17

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

_____hours and _____minutes per week

Write in the hours and minutes.

18

In teaching science to this class, how confident do you feel to do the following?

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

	Very confident	Somewhat confident	Not confident
a) Answer students' questions about science	○	○	○
b) Explain science concepts or principles by doing science experiments	○	○	○
c) Provide challenging tasks for capable students	○	○	○
d) Adapt my teaching to engage students' interest	○	○	○
e) Help students appreciate the value of learning science	○	○	○

19

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

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

	Every or almost every lesson	About half the lessons	Some lessons	Never
a) Observe natural phenomena and describe what they see	○	○	○	○
b) Watch me demonstrate an experiment or investigation	○	○	○	○
c) Design or plan experiments or investigations	○	○	○	○
d) Conduct experiments or investigations	○	○	○	○
e) Read their textbooks or other resource materials	○	○	○	○
f) Have students memorize facts and principles	○	○	○	○
g) Use scientific formulas and laws to solve routine problems	○	○	○	○
h) Give explanations about something they are studying	○	○	○	○
i) Relate what they are learning in science to their daily lives	○	○	○	○
j) Do field work outside of class	○	○	○	○
k) Take a written test or quiz	○	○	○	○

Questions 20–21 ask about resources for teaching science to the <eighth-grade> students in the <TIMSS class/class with the TIMSS students>.

20

When you teach science to this class, how do you use the following resources?

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

	Basis for instruction	Supplement	Not used
a) Textbooks	○	○	○
b) Workbooks or worksheets	○	○	○
c) Science equipment and materials	○	○	○
d) Computer software for science instruction	○	○	○
e) Reference materials (e.g., encyclopedia, dictionary)	○	○	○

21

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

*Check **one** circle only.*

Yes ○

No ○ → **(If No, go to #22)**

If Yes,

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

*Check **one** circle only.*

Yes ○

No ○

C. How often do you have the students do the following computer activities 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	○	○	○	○
e) Process and analyze data	○	○	○	○

Questions 22–23 ask about the topics taught and the content covered in teaching science to the <eighth-grade> students in the <TIMSS class/class with the TIMSS students>.

22

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 <eighth 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. Biology			
a) Major organs and organ systems in humans and other organisms (structure/function, life processes that maintain stable bodily conditions)	○	○	○
b) Cells and their functions, including respiration and photosynthesis as cellular processes	○	○	○
c) Reproduction (sexual and asexual) and heredity (passing on of traits, inherited versus acquired/learned characteristics)	○	○	○
d) Role of variation and adaptation in survival/extinction of species in a changing environment	○	○	○
e) Interdependence of populations of organisms in an ecosystem (e.g., energy flow, food webs, competition, predation) and the impact of changes in the physical environment on populations (e.g., climate, water supply)	○	○	○
f) Reasons for increase in world's human population (e.g., advances in medicine, sanitation), and the effects of population growth on the environment	○	○	○
g) Human health (causes of infectious diseases, methods of infection, prevention, immunity) and the importance of diet and exercise in maintaining health	○	○	○
B. Chemistry			
a) Classification, composition, and particulate structure of matter (elements, compounds, mixtures, molecules, atoms, protons, neutrons, electrons)	○	○	○
b) Solutions (solvent, solute, concentration/dilution, effect of temperature on solubility)	○	○	○
c) Properties and uses of common acids and bases	○	○	○
d) Chemical change (transformation of reactants, evidence of chemical change, conservation of matter, common oxidation reactions – combustion, rusting, tarnishing)	○	○	○

22

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 <eighth 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. Physics			
a) Physical states and changes in matter (explanations of properties in terms of movement and distance between particles; phase change, thermal expansion, and changes in volume and/or pressure)	○	○	○
b) Energy forms, transformations, heat, and temperature	○	○	○
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)	○	○	○
d) Electric circuits (flow of current; types of circuits - parallel/series; current/voltage relationship) and properties and uses of permanent magnets and electromagnets	○	○	○
e) Forces and motion (types of forces, basic description of motion, effects of density and pressure)	○	○	○
D. Earth Science			
a) Earth's structure and physical features (Earth's crust, mantle and core; composition and relative distribution of water, and composition of air)	○	○	○
b) Earth's processes, cycles and history (rock cycle; water cycle; weather patterns; major geological events; formation of fossils and fossil fuels)	○	○	○
c) Earth's resources, their use and conservation (e.g., renewable/nonrenewable resources, human use of land/soil, water resources)	○	○	○
d) 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)	○	○	○

23

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

Write in the percentage for each.

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

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

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

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

e) Other ---------- _____%

Total = 100%

Question 24 asks about science homework for the <eighth-grade> students in the <TIMSS class/class with the TIMSS students>.

24

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 #25)**
- 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 --- ◯
- 61–90 minutes --- ◯
- More than 90 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) Have students correct their own homework ----------	◯	◯	◯
c) Discuss the homework in class ----------	◯	◯	◯
d) Monitor whether or not the homework was completed ----	◯	◯	◯
e) Use the homework to contribute towards students' grades or marks -----	◯	◯	◯

Questions 25–27 ask about science assessment for the <eighth-grade> students in the <TIMSS class/class with the TIMSS students>.

25

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) Evaluation of students' ongoing work	◯	◯	◯
b) Classroom tests (for example, teacher-made or textbook tests)	◯	◯	◯
c) National or regional achievement tests	◯	◯	◯

26

How often do you give a science test or examination to this class?

*Check **one** circle only.*

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

27

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

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

	Always or almost always	Sometimes	Never or almost never
a) Questions based on knowing facts and concepts	◯	◯	◯
b) Questions based on the application of knowledge and understanding	◯	◯	◯
c) Questions involving developing hypotheses and designing scientific investigations	◯	◯	◯
d) Questions requiring explanations or justifications	◯	◯	◯

28

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	◯	◯
b) Science pedagogy/instruction	◯	◯
c) Science curriculum	◯	◯
d) Integrating information technology into science	◯	◯
e) Improving students' critical thinking or inquiry skills	◯	◯
f) Science assessment	◯	◯
g) Addressing individual students' needs	◯	◯

29

How well prepared do you feel you are to teach the following science topics?
If a topic is not in the <eighth-grade> curriculum or you are not responsible for teaching this topic, please choose "Not applicable."

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

	Not applicable	Very well prepared	Somewhat prepared	Not well prepared
A. Biology				
a) Major organs and organ systems in humans and other organisms (structure/function, life processes that maintain stable bodily conditions)	○	○	○	○
b) Cells and their functions, including respiration and photosynthesis as cellular processes	○	○	○	○
c) Reproduction (sexual and asexual) and heredity (passing on of traits, inherited versus acquired/learned characteristics)	○	○	○	○
d) Role of variation and adaptation in survival/extinction of species in a changing environment	○	○	○	○
e) Interdependence of populations of organisms in an ecosystem (e.g., energy flow, food webs, competition, predation) and the impact of changes in the physical environment on populations (e.g., climate, water supply)	○	○	○	○
f) Reasons for increase in world's human population (e.g., advances in medicine, sanitation), and the effects of population growth on the environment	○	○	○	○
g) Human health (causes of infectious diseases, methods of infection, prevention, immunity) and the importance of diet and exercise in maintaining health	○	○	○	○
B. Chemistry				
a) Classification, composition, and particulate structure of matter (elements, compounds, mixtures, molecules, atoms, protons, neutrons, electrons)	○	○	○	○
b) Solutions (solvent, solute, concentration/dilution, effect of temperature on solubility)	○	○	○	○
c) Properties and uses of common acids and bases	○	○	○	○
d) Chemical change (transformation of reactants, evidence of chemical change, conservation of matter, common oxidation reactions – combustion, rusting, tarnishing)	○	○	○	○

29

How well prepared do you feel you are to teach the following science topics?
If a topic is not in the <eighth-grade> curriculum or you are not responsible for teaching this topic, please choose "Not applicable."

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

	Not applicable	Very well prepared	Somewhat prepared	Not well prepared
C. Physics				
a) Physical states and changes in matter (explanations of properties in terms of movement and distance between particles; phase change, thermal expansion, and changes in volume and/or pressure)	○	○	○	○
b) Energy forms, transformations, heat, and temperature	○	○	○	○
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)	○	○	○	○
d) Electric circuits (flow of current; types of circuits - parallel/series; current/voltage relationship) and properties and uses of permanent magnets and electromagnets	○	○	○	○
e) Forces and motion (types of forces, basic description of motion, effects of density and pressure)	○	○	○	○
D. Earth Science				
a) Earth's structure and physical features (Earth's crust, mantle and core; composition and relative distribution of water, and composition of air)	○	○	○	○
b) Earth's processes, cycles and history (rock cycle; water cycle; weather patterns; major geological events; formation of fossils and fossil fuels)	○	○	○	○
c) Earth's resources, their use and conservation (e.g., renewable/nonrenewable resources, human use of land/soil, water resources)	○	○	○	○
d) 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)	○	○	○	○

Thank You

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

BOSTON
COLLEGE

timssandpirls.bc.edu

TIMSS 2011

Teacher Questionnaire

Science

<Grade 8>

International Association
for the Evaluation of
Educational Achievement