

**TIMSS**  
**2015**

Place Label Here

School ID: \_\_\_\_\_

Class ID: \_\_\_\_\_

Teacher ID: \_\_\_\_\_

Link #: \_\_\_\_\_ Subject: \_\_\_\_\_

Checksum: \_\_\_\_\_

**TRENDS IN INTERNATIONAL MATHEMATICS AND SCIENCE STUDY**

# Teacher Questionnaire

## Science

### Grade 8

**National Center for Education Statistics**  
**U.S. Department of Education**  
1990 K St. NW  
Washington, DC 20006-5650



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

© IEA, 2014

*U.S. participation in this study is sponsored by the National Center for Education Statistics (NCES), U.S. Department of Education, and authorized by the Education Sciences Reform Act of 2002 (20 U.S.C., § 9543). Your responses are protected by federal statute (20 U.S.C., § 9573) and may be used only for statistical purposes and may not be disclosed, or used, in identifiable form for any other purpose except as required by law.*

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless such collection displays a valid OMB control number. The valid OMB control number for this voluntary information collection is 1850-0695. The time required to complete this information collection is estimated to average 30 minutes per respondent, including the time to review instructions, search existing data resources, gather the data needed, and complete and review the information collection. **If you have any comments concerning the accuracy of the time estimate(s), suggestions for improving the form, or comments or concerns regarding the status of your individual submission of this form, write directly to:** Trends in International Mathematics and Science Study (TIMSS), National Center for Education Statistics, U.S. Department of Education, 1990 K Street, N.W., Washington, D.C. 20006. OMB No. 1850-0695, Approval Expires 9/30/2017.  
869863 Printed in the USA by Pearson ISD10749

# 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 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 eighth-grade education in the United States.

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 that 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 the United States. 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 30 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 return it to the TIMSS school coordinator.

NCES is authorized to collect information from the questionnaire under the Education Science Reform Act of 2002 (ESRA 2002), 20 U.S. Code, § 9543. You do not have to provide the information requested. However, the information you provide will help the U.S. Department of Education's ongoing efforts to understand better how the educational system in the United States compares to that in other countries. There are no penalties should you choose not to participate in this study. Your answers may be used only for statistical purposes and may not be disclosed, or used, in identifiable form for any other purpose except as required by law (20 U.S. Code, § 9573). Your response will be combined with those from other participants to produce summary statistics and reports.

This survey is estimated to take an average of 30 minutes, including time for reviewing instructions, and completing and reviewing the collection of information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing burden, to: Stephen Provasnik, National Center for Education Statistics, U.S. Department of Education, 1990 K Street NW, Room 8123, Washington, DC 20006-5650. Do not return the completed form to this address.

Thank you.

# TIMSS 2015

# About You

## 1 \_\_\_\_\_

What year did you start teaching?

\_\_\_\_\_  
Please write in a year.

## 2 \_\_\_\_\_

At the end of this school year, how many years will you have taught altogether?

\_\_\_\_\_ years  
Please **round** to the nearest whole number.

## 3 \_\_\_\_\_

Are you female or male?

Fill in **one** circle only.

Female -- (1)

Male -- (2)

## 4 \_\_\_\_\_

How old are you?

Fill in **one** circle only.

Under 25 -- (1)

25–29 -- (2)

30–39 -- (3)

40–49 -- (4)

50–59 -- (5)

60 or more -- (6)

## 5 \_\_\_\_\_

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

Fill in **one** circle only.

Did not complete high school --- (1)

High school graduate --- (2) 

**(If you have not completed more than high school, go to question 7)**

Associate's degree  
(2-year college program) --- (3)

Bachelor's degree  
(4-year college program) --- (4)

Master's degree or professional  
degree (MD, DDS, lawyer, minister) --- (5)

Doctorate (Ph.D., or Ed.D.) --- (6)

## 6 \_\_\_\_\_

During your college or university education, what was your **major or main** area(s) of study?

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

	Yes	No
a) Mathematics -----	(1)	(2)
b) Biology -----	(1)	(2)
c) Physics -----	(1)	(2)
d) Chemistry -----	(1)	(2)
e) Earth Science -----	(1)	(2)
f) Education–Mathematics -----	(1)	(2)
g) Education–Science -----	(1)	(2)
h) Education–General -----	(1)	(2)
i) Other -----	(1)	(2)

## 7

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

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

- 
- a) Teachers' understanding of the school's curricular goals ----- (1) — (2) — (3) — (4) — (5)
- b) Teachers' degree of success in implementing the school's curriculum ----- (1) — (2) — (3) — (4) — (5)
- c) Teachers' expectations for student achievement ----- (1) — (2) — (3) — (4) — (5)
- d) Teachers working together to improve student achievement ----- (1) — (2) — (3) — (4) — (5)
- e) Teachers' ability to inspire students ----- (1) — (2) — (3) — (4) — (5)
- f) Parental involvement in school activities ----- (1) — (2) — (3) — (4) — (5)
- g) Parental commitment to ensure that students are ready to learn ----- (1) — (2) — (3) — (4) — (5)
- h) Parental expectations for student achievement ----- (1) — (2) — (3) — (4) — (5)
- i) Parental support for student achievement ----- (1) — (2) — (3) — (4) — (5)
- j) Parental pressure for the school to maintain high academic standards ----- (1) — (2) — (3) — (4) — (5)

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

- 
- k) Students' desire to do well in school ----- (1) — (2) — (3) — (4) — (5)
- l) Students' ability to reach school's academic goals ----- (1) — (2) — (3) — (4) — (5)
- m) Students' respect for classmates who excel in school ----- (1) — (2) — (3) — (4) — (5)
- n) Clarity of the school's educational objectives ----- (1) — (2) — (3) — (4) — (5)
- o) Collaboration between school leadership and teachers to plan instruction --- (1) — (2) — (3) — (4) — (5)
- p) Amount of instructional support provided to teachers by school leadership ----- (1) — (2) — (3) — (4) — (5)
- q) School leadership's support for teachers' professional development ----- (1) — (2) — (3) — (4) — (5)

8

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

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

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) This school is located in a safe neighborhood -----	①	②	③	④
b) I feel safe at this school -----	①	②	③	④
c) This school's security policies and practices are sufficient ----	①	②	③	④
d) The students behave in an orderly manner -----	①	②	③	④
e) The students are respectful of the teachers -----	①	②	③	④
f) The students respect school property -----	①	②	③	④
g) This school has clear rules about student conduct -----	①	②	③	④
h) This school's rules are enforced in a fair and consistent manner -----	①	②	③	④

9

In your current school, how severe is each problem?

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

	Not a problem	Minor problem	Moderate problem	Serious problem
a) The school building needs significant repair -----	①	②	③	④
b) Teachers do not have adequate workspace (e.g., for preparation, collaboration, or meeting with students) ----	①	②	③	④
c) Teachers do not have adequate instructional materials and supplies -----	①	②	③	④
d) The school classrooms are not cleaned often enough ----	①	②	③	④
e) The school classrooms need maintenance work -----	①	②	③	④
f) Teachers do not have adequate technological resources -----	①	②	③	④
g) Teachers do not have adequate support for using technology -----	①	②	③	④

## 10

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

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

- |  |            |       |           |                       |
|--|------------|-------|-----------|-----------------------|
|  | Very often | Often | Sometimes | Never or almost never |
|  | ①          | ②     | ③         | ④                     |
| a) Discuss how to teach a particular topic -----                               | ①          | ②     | ③         | ④                     |
| b) Collaborate in planning and preparing instructional materials -----         | ①          | ②     | ③         | ④                     |
| c) Share what I have learned about my teaching experiences -----               | ①          | ②     | ③         | ④                     |
| d) Visit another classroom to learn more about teaching -----                  | ①          | ②     | ③         | ④                     |
| e) Work together to try out new ideas -----                                    | ①          | ②     | ③         | ④                     |
| f) Work as a group on implementing the curriculum -----                        | ①          | ②     | ③         | ④                     |
| g) Work with teachers from other grades to ensure continuity in learning ----- | ①          | ②     | ③         | ④                     |

## 11

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

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

- |   |            |       |           |                       |
|---|------------|-------|-----------|-----------------------|
|   | Very often | Often | Sometimes | Never or almost never |
|   | ①          | ②     | ③         | ④                     |
| a) I am content with my profession as a teacher -----         | ①          | ②     | ③         | ④                     |
| b) I am satisfied with being a teacher at this school -----   | ①          | ②     | ③         | ④                     |
| c) I find my work full of meaning and purpose -----           | ①          | ②     | ③         | ④                     |
| d) I am enthusiastic about my job -----                       | ①          | ②     | ③         | ④                     |
| e) My work inspires me -----                                  | ①          | ②     | ③         | ④                     |
| f) I am proud of the work I do -----                          | ①          | ②     | ③         | ④                     |
| g) I am going to continue teaching for as long as I can ----- | ①          | ②     | ③         | ④                     |

12

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

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

- Agree a lot \_\_\_\_\_  
 Agree a little \_\_\_\_\_  
 Disagree a little \_\_\_\_\_  
 Disagree a lot \_\_\_\_\_
- a) There are too many students in the classes ----- ① — ② — ③ — ④
- b) I have too much material to cover in class ----- ① — ② — ③ — ④
- c) I have too many teaching hours ----- ① — ② — ③ — ④
- d) I need more time to prepare for class ----- ① — ② — ③ — ④
- e) I need more time to assist individual students ----- ① — ② — ③ — ④
- f) I feel too much pressure from parents ----- ① — ② — ③ — ④
- g) I have difficulty keeping up with all of the changes to the curriculum ----- ① — ② — ③ — ④
- h) I have too many administrative tasks ----- ① — ② — ③ — ④

Questions 13 - 16 ask about instruction for the eighth-grade students in the TIMSS class.

13

How many students are in this class?

\_\_\_\_\_ students  
Write in the number.

14

How many eighth-grade students experience difficulties understanding spoken English?

\_\_\_\_\_ students in this class  
Write in the number.

15

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

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

- Every or almost every lesson \_\_\_\_\_  
 About half the lessons \_\_\_\_\_  
 Some lessons \_\_\_\_\_  
 Never \_\_\_\_\_
- a) Relate the lesson to students' daily lives ----- ① — ② — ③ — ④
- b) Ask students to explain their answers ----- ① — ② — ③ — ④
- c) Ask students to complete challenging exercises that require them to go beyond the instruction ----- ① — ② — ③ — ④
- d) Encourage classroom discussions among students ----- ① — ② — ③ — ④
- e) Link new content to students' prior knowledge ---- ① — ② — ③ — ④
- f) Ask students to decide their own problem solving procedures ----- ① — ② — ③ — ④
- g) Encourage students to express their ideas in class ---- ① — ② — ③ — ④



## 19

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

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

- |   | Every or almost every lesson | About half the lessons | Some lessons | Never |
|---|------------------------------|------------------------|--------------|-------|
| a) Listen to me explain new science content -----                               | ①                            | ②                      | ③            | ④     |
| b) Observe natural phenomena and describe what they see ---                     | ①                            | ②                      | ③            | ④     |
| c) Watch me demonstrate an experiment or investigation -----                    | ①                            | ②                      | ③            | ④     |
| d) Design or plan experiments or investigations -----                           | ①                            | ②                      | ③            | ④     |
| e) Conduct experiments or investigations -----                                  | ①                            | ②                      | ③            | ④     |
| f) Present data from experiments or investigations -                            | ①                            | ②                      | ③            | ④     |
| g) Interpret data from experiments or investigations -                          | ①                            | ②                      | ③            | ④     |
| h) Use evidence from experiments or investigations to support conclusions ----- | ①                            | ②                      | ③            | ④     |
| i) Read their textbooks or other resource materials -----                       | ①                            | ②                      | ③            | ④     |
| j) Have students memorize facts and principles -----                            | ①                            | ②                      | ③            | ④     |
| k) Use scientific formulas and laws to solve routine problems -----             | ①                            | ②                      | ③            | ④     |
| l) Do field work outside of class--   | ①                            | ②                      | ③            | ④     |
| m) Take a written test or quiz-----   | ①                            | ②                      | ③            | ④     |
| n) Work in mixed ability groups --  | ①                            | ②                      | ③            | ④     |
| o) Work in same ability groups ---  | ①                            | ②                      | ③            | ④     |

## 20

Which best describes the science course you are teaching to the class with the TIMSS students?

Fill in **one** circle only.

- a) General science (several content areas of science taught separately)----- ①
- b) Integrated science (several content areas of science combined and taught together throughout the year) ----- ②
- c) Life science (e.g., biology, ecosystems, human health) ----- ③
- d) Physical science (e.g., physics or chemistry)----- ④
- e) Earth science (e.g., geology, Earth and the solar system, fossils)----- ⑤

# Using Computers for Teaching Science to the TIMSS Class

Question 21 asks about resources for teaching science to the eighth-grade students in the TIMSS class.

**21**

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

Fill in **one** circle only.

Yes -- (1)

No -- (2)

(If No, go to question 22)

**If Yes,**

**B. What access do the students have to computers?**

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

- |  | Yes | No  |
|--|-----|-----|
| a) Each student has a computer -----                               | (1) | (2) |
| b) The class has computers that students can share -----           | (1) | (2) |
| c) The school has computers that the class can use sometimes ----- | (1) | (2) |

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

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

- |  | Every or almost every day | Once or twice a week | Once or twice a month | Never or almost never |
|--|---------------------------|----------------------|-----------------------|-----------------------|
| a) Practice skills and procedures -----              | (1)                       | (2)                  | (3)                   | (4)                   |
| b) Look up ideas and information -----               | (1)                       | (2)                  | (3)                   | (4)                   |
| c) Do scientific procedures or experiments -----     | (1)                       | (2)                  | (3)                   | (4)                   |
| d) Study natural phenomena through simulations ----- | (1)                       | (2)                  | (3)                   | (4)                   |
| e) Process and analyze data -----                    | (1)                       | (2)                  | (3)                   | (4)                   |

## Science Topics Taught to the TIMSS Class

Question 22 asks about the topics taught and the content covered in teaching science to the eighth-grade students in the TIMSS class.

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."

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

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

### A. Biology

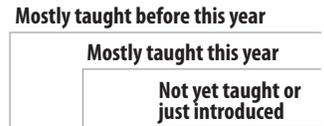
- a) Differences among major taxonomic groups of organisms (plants, animals, fungi, mammals, birds, reptiles, fish, amphibians) ----- ① — ② — ③
- b) Major organs and organ systems in humans and other organisms (structure/function, life processes that maintain stable bodily conditions) ----- ① — ② — ③
- c) Cells, their structure and functions, including respiration and photosynthesis as cellular processes ----- ① — ② — ③
- d) Life cycles, sexual reproduction, and heredity (passing on of traits, inherited versus acquired/learned characteristics) ----- ① — ② — ③
- e) Role of variation and adaptation in survival/extinction of species in a changing environment (including fossil evidence for changes in life on Earth over time) ----- ① — ② — ③
- f) Interdependence of populations of organisms in an ecosystem (e.g., energy flow, food webs, competition, predation) and factors affecting population size in an ecosystem ----- ① — ② — ③
- g) Human health (causes of infectious diseases, methods of infection, prevention, immunity) and the importance of diet and exercise in maintaining health ----- ① — ② — ③

### B. Chemistry

- a) Classification, composition, and particulate structure of matter (elements, compounds, mixtures, molecules, atoms, protons, neutrons, electrons) ----- ① — ② — ③
- b) Physical and chemical properties of matter ----- ① — ② — ③
- c) Mixtures and solutions (solvent, solute, concentration/dilution, effect of temperature on solubility) ----- ① — ② — ③
- d) Properties and uses of common acids and bases ----- ① — ② — ③
- e) Chemical change (transformation of reactants, evidence of chemical change, conservation of matter, common oxidation reactions – combustion, rusting, tarnishing) ----- ① — ② — ③
- f) The role of electrons in chemical bonds ----- ① — ② — ③

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.”

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



**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) ----- 1 — 2 — 3
- b) Energy forms, transformations, heat, and temperature ----- 1 — 2 — 3
- c) Basic properties/behaviors of light (reflection, refraction, light and color, simple ray diagrams) and sound (transmission through media, loudness, pitch, amplitude, frequency) ----- 1 — 2 — 3
- d) Electric circuits (flow of current; types of circuits – parallel/series) and properties and uses of permanent magnets and electromagnets ----- 1 — 2 — 3
- e) Forces and motion (types of forces, basic description of motion, effects of density and pressure) ----- 1 — 2 — 3

**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) ----- 1 — 2 — 3
- b) Earth’s processes, cycles, and history (rock cycle; water cycle; weather versus climate; major geological events; formation of fossils and fossil fuels) ----- 1 — 2 — 3
- c) Earth’s resources, their use and conservation (e.g., renewable/nonrenewable resources, human use of land/soil, water resources) ----- 1 — 2 — 3
- 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) ----- 1 — 2 — 3

Question 23 asks about science homework for the eighth-grade students in the TIMSS class.

**23**

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

Fill in **one** circle only.

I do not assign science homework --- (1)  (Go to question 24)

Less than once a week --- (2)

1 or 2 times a week --- (3)

3 or 4 times a week --- (4)

Every day --- (5)

**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.)**

Fill in **one** circle only.

15 minutes or less --- (1)

16–30 minutes --- (2)

31–60 minutes --- (3)

61–90 minutes --- (4)

More than 90 minutes --- (5)

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

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

Always or almost always

Sometimes

Never or almost never

a) Correct assignments and give feedback to students ----- (1) — (2) — (3)

b) Have students correct their own homework ----- (1) — (2) — (3)

c) Discuss the homework in class ----- (1) — (2) — (3)

d) Monitor whether or not the homework was completed ---- (1) — (2) — (3)

e) Use the homework to contribute towards students' grades or marks ----- (1) — (2) — (3)

Question 24 asks about science assessment for the eighth-grade students in the TIMSS class.

**24**

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

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

Major emphasis

Some emphasis

Little or no emphasis

a) Assessment of students' ongoing work ----- (1) — (2) — (3)

b) Classroom tests (for example, teacher-made or textbook tests) ----- (1) — (2) — (3)

c) State or district achievement tests ----- (1) — (2) — (3)

**25**

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

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

- |   | Yes | No |
|---|-----|----|
| a) Science content -----  | ①   | ②  |
| b) Science pedagogy/instruction -----                               | ①   | ②  |
| c) Science curriculum -----   | ①   | ②  |
| d) Integrating information technology<br>into science -----         | ①   | ②  |
| e) Improving students' critical thinking or<br>inquiry skills ----- | ①   | ②  |
| f) Science assessment -----   | ①   | ②  |
| g) Addressing individual students' needs -----                      | ①   | ②  |

**26**

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

Fill in **one** circle only.

- None --- ①
- Less than 6 hours --- ②
- 6–15 hours --- ③
- 16–35 hours --- ④
- More than 35 hours --- ⑤

**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."**

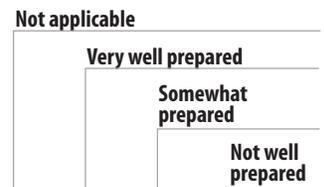
Fill in only **one** circle for each row.

	Not applicable	Very well prepared	Somewhat prepared	Not well prepared
<b>A. Biology</b>				
a) Differences among major taxonomic groups of organisms (plants, animals, fungi, mammals, birds, reptiles, fish, amphibians) -----	①	②	③	④
b) Major organs and organ systems in humans and other organisms (structure/function, life processes that maintain stable bodily conditions) -----	①	②	③	④
c) Cells, their structure and functions, including respiration and photosynthesis as cellular processes -----	①	②	③	④
d) Life cycles, sexual reproduction, and heredity (passing on of traits, inherited versus acquired/learned characteristics) -----	①	②	③	④
e) Role of variation and adaptation in survival/extinction of species in a changing environment (including fossil evidence for changes in life on Earth over time) -----	①	②	③	④
f) Interdependence of populations of organisms in an ecosystem (e.g., energy flow, food webs, competition, predation) and factors affecting population size in an ecosystem -----	①	②	③	④
g) Human health (causes of infectious diseases, methods of infection, prevention, immunity) and the importance of diet and exercise in maintaining health -----	①	②	③	④
<b>B. Chemistry</b>				
a) Classification, composition, and particulate structure of matter (elements, compounds, mixtures, molecules, atoms, protons, neutrons, electrons) -----	①	②	③	④
b) Physical and chemical properties of matter -----	①	②	③	④
c) Mixtures and solutions (solvent, solute, concentration/dilution, effect of temperature on solubility) -----	①	②	③	④
d) Properties and uses of common acids and bases -----	①	②	③	④
e) Chemical change (transformation of reactants, evidence of chemical change, conservation of matter, common oxidation reactions – combustion, rusting, tarnishing) -----	①	②	③	④
f) The role of electrons in chemical bonds -----	①	②	③	④

**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.”**

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



**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) ----- ① — ② — ③ — ④
- b) Energy forms, transformations, heat, and temperature ----- ① — ② — ③ — ④
- c) Basic properties/behaviors of light (reflection, refraction, light and color, simple ray diagrams) and sound (transmission through media, loudness, pitch, amplitude, frequency) ----- ① — ② — ③ — ④
- d) Electric circuits (flow of current; types of circuits – parallel/series) and properties and uses of permanent magnets and electromagnets ----- ① — ② — ③ — ④
- e) Forces and motion (types of forces, basic description of motion, effects of density and pressure) ----- ① — ② — ③ — ④

**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) ----- ① — ② — ③ — ④
- b) Earth’s processes, cycles, and history (rock cycle; water cycle; weather versus climate; major geological events; formation of fossils and fossil fuels) ----- ① — ② — ③ — ④
- c) Earth’s resources, their use and conservation (e.g., renewable/nonrenewable resources, human use of land/soil, water resources) ----- ① — ② — ③ — ④
- 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) ----- ① — ② — ③ — ④

# Thank You

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

---

**THIS PAGE LEFT BLANK ON PURPOSE**

**THIS PAGE LEFT BLANK ON PURPOSE**



BOSTON  
COLLEGE

**TIMSS**  
**2015**

TRENDS IN INTERNATIONAL MATHEMATICS AND SCIENCE STUDY

# Teacher Questionnaire Science

Grade 8



© IEA, 2014  
International Association  
for the Evaluation of  
Educational Achievement

[timss.bc.edu](http://timss.bc.edu)