



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
Potomac Center Plaza (PCP), 550 12th St., SW, 4th floor
Washington, DC 20202
USA

The National Center for Education Statistics (NCES), within the U.S. Department of Education, conducts TIMSS in the United States as authorized by the Education Sciences Reform Act of 2002 (ESRA 2002, 20 U.S.C. §9543). All of the information you provide 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.C. §9573 and 6 U.S.C. §151).

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TIMSS & PIRLS
International Study Center
Lynch School of Education
BOSTON COLLEGE

Teacher Questionnaire

Your school has agreed to participate in TIMSS 2019 (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 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 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 study.

It is estimated that you will need about 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 place it in the accompanying envelope and return it to the TIMSS school coordinator.

NCES is authorized to collect information from this questionnaire under the Education Sciences Reform Act of 2002 (ESRA 2002, 20 U.S.C. §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. All of the information you provide 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.C. §9573 and 6 U.S.C. §151). Your responses 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: Trends in International Mathematics and Science Study (TIMSS), National Center for Education Statistics, Potomac Center Plaza (PCP), 550 12th St., SW, 4th floor, Washington, DC 20202.

TIMSS 2019

Thank you.

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., Ed.D.) --- (6)

6 _____

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

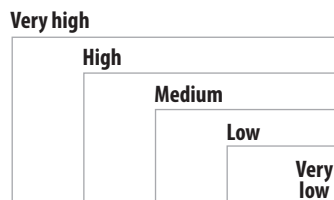
Fill in only **one** circle for each row.

	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' ability to inspire students ----- (1) — (2) — (3) — (4) — (5)
- e) Parental involvement in school activities ----- (1) — (2) — (3) — (4) — (5)
- f) Parental commitment to ensure that students are ready to learn ----- (1) — (2) — (3) — (4) — (5)
- g) Parental expectations for student achievement ----- (1) — (2) — (3) — (4) — (5)
- h) Parental support for student achievement ----- (1) — (2) — (3) — (4) — (5)
- i) Students' desire to do well in school ----- (1) — (2) — (3) — (4) — (5)
- j) Students' ability to reach school's academic goals ----- (1) — (2) — (3) — (4) — (5)
- k) Students' respect for classmates who excel academically ----- (1) — (2) — (3) — (4) — (5)
- l) Collaboration between school leadership (including master teachers) and teachers to plan instruction ----- (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.



- 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

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
a) I am content with my profession as a teacher -----	①	②	③	④
b) I find my work full of meaning and purpose -----	①	②	③	④
c) I am enthusiastic about my job -----	①	②	③	④
d) My work inspires me -----	①	②	③	④
e) I am proud of the work I do -----	①	②	③	④

10

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

About Teaching the TIMSS Class

Questions 11 - 14 ask about instruction for the eighth-grade students in the TIMSS class.

11

How many students are in this class?

_____ students
Write in the number.

12

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

_____ students in this class
Write in the number.

13

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)

14

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

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

Not at all
Some
A lot

- a) Students lacking prerequisite knowledge or skills ----- (1) — (2) — (3)
- b) Students suffering from lack of basic nutrition ----- (1) — (2) — (3)
- c) Students suffering from not enough sleep ----- (1) — (2) — (3)
- d) Students absent from class ---- (1) — (2) — (3)
- e) Disruptive students ----- (1) — (2) — (3)
- f) Uninterested students ----- (1) — (2) — (3)
- g) Students with mental, emotional, or psychological impairment ----- (1) — (2) — (3)
- h) Students with difficulties understanding the language of instruction ----- (1) — (2) — (3)

Questions 15 - 17 ask about science instruction for the eighth-grade students in the TIMSS class.

15

In a typical week, how much time do you spend teaching science 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.

16

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) Work in mixed ability groups --	①	②	③	④
n) Work in same ability groups ---	①	②	③	④

17

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

18

Question 18 asks about computer use for teaching science to the eighth-grade students in the TIMSS class.

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 19)

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 do activities on computers during science lessons to support learning for:

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) Whole class ----- | ① | ② | ③ | ④ |
| b) Low-performing students ----- | ① | ② | ③ | ④ |
| c) High-performing students ----- | ① | ② | ③ | ④ |
| d) Students with special needs ----- | ① | ② | ③ | ④ |

Science Topics Taught to the TIMSS Class

Question 19 asks about the topics taught and the content covered in teaching science to the eighth-grade students in the TIMSS class.

19

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, insects) ----- ① — ② — ③
- b) Major organs and organ systems in humans and other organisms (structure/function, life processes)----- 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 (inherited versus acquired/learned characteristics)----- ① — ② — ③
- e) Role of variation and adaptation in survival/extinction of species (including fossil evidence) ----- ① — ② — ③
- f) Interdependence of populations of organisms in an ecosystem (e.g., carbon and water cycles, energy flow, food webs, competition, predation, human impacts on ecosystems)----- ① — ② — ③
- g) Human health (e.g., causes, transmission, and prevention of common infectious diseases, immunity) and the importance of diet, exercise, and other lifestyle choices in maintaining health ----- ① — ② — ③

B. Chemistry

- a) Particulate structure, classification, and composition of matter (protons, neutrons, electrons, atoms, molecules, elements, compounds, mixtures) ----- ① — ② — ③
- b) The periodic table as an organizing principle for the known elements----- ① — ② — ③
- c) Physical and chemical properties of matter----- ① — ② — ③
- d) Mixtures and solutions (e.g., solvent, solute, concentration/dilution) ----- ① — ② — ③
- e) Properties of common acids and bases (e.g., acids have pH less than 7, reactions with indicators produce color changes, acids and bases neutralize each other)----- ① — ② — ③
- f) Characteristics of chemical reactions (e.g., transformation of reactants, evidence of chemical change) ----- ① — ② — ③
- g) Matter and energy in chemical reactions (conservation of matter, familiar exothermic and endothermic reactions, factors affecting reaction rates) ----- ① — ② — ③
- h) 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, changes in volume and/or pressure, physical changes) ----- ① — ② — ③
- b) Energy transformation and transfer (e.g., forms of energy, energy conservation, heat temperature, equilibrium) ----- ① — ② — ③
- c) Basic properties/behaviors of light (reflection, refraction, color, shadows, simple ray diagrams) ----- ① — ② — ③
- d) Basic properties/behaviors of sound (vibrations that produce sound, transmission through media, loudness, pitch) ----- ① — ② — ③
- e) Electric circuits (e.g., electrical conductors/insulators and the flow of electricity in series/parallel circuits) ----- ① — ② — ③
- f) Properties and uses of permanent magnets and electromagnets ----- ① — ② — ③
- g) Motion and forces (e.g., basic description of motion, common mechanical forces, properties of forces, effects of forces, simple machines, buoyancy, effects of density and pressure) ----- ① — ② — ③

D. Earth Science


- a) Earth's structure and physical features (e.g., Earth's crust, mantle, and core; composition and relative distribution of water; composition of Earth's atmosphere) ----- ① — ② — ③
- b) Earth's processes, cycles, and history (e.g., rock cycle, major geological events, formation of fossils and fossil fuels, water cycle, weather versus climate) ----- ① — ② — ③
- c) Earth's resources, their use, and conservation (e.g., renewable/nonrenewable resources, human use of land and water resources) ----- ① — ② — ③
- d) Earth in the Solar System and the universe (phenomena on Earth: seasons, eclipses, tides, phases of moon; members of the Solar System; physical features of Earth) ----- ① — ② — ③

Question 20 asks about science homework for the eighth-grade students in the TIMSS class.

20

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 21)

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.



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)

Questions 21 - 22 ask about science assessment for the eighth-grade students in the TIMSS class.

21

How much importance do you place on the following assessment strategies in science?

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



a) Observing students as they work ----- (1) — (2) — (3)

b) Asking students to answer questions during class ----- (1) — (2) — (3)

c) Short, regular written assessments ----- (1) — (2) — (3)

d) Longer tests (e.g., unit tests or exams) ----- (1) — (2) — (3)

e) Long-term projects ----- (1) — (2) — (3)

22

About how often do eighth-grade students in this class take science tests on computers or tablets?

Fill in **one** circle only.

More than once a month --- (1)

Once a month --- (2)

Twice a year -- (3)

Once a year --- (4)

Never -- (5)

23

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

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

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

24

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

Thank You

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

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BOSTON
COLLEGE

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Grade 8



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