IEA TIMSS 2019

Place Label Here

School ID: ____ ____ ____ ____

Class ID: ____ ____ ____ ____ ____ ____

Teacher ID: ____ ____ ____ ____ ____ ____

Link #: ____ ____ Subject: ____ ____

Checksum: ____ ____ ____ ____ ____

TRENDS IN INTERNATIONAL MATHEMATICS AND SCIENCE STUDY

Teacher Questionnaire

Grade 4

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 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 fourth-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 the 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.

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

A. 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) Education—Primary/Elementary	①	②
b) Education—Secondary	①	②
c) Mathematics	①	②
d) Science	①	②
e) English	①	②
f) Other	①	②

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

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

	Yes	No
a) Mathematics	①	②
b) Science	①	②
c) Language/reading	①	②
d) Other subject	①	②

School Emphasis on Academic Success

7

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

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

	Very high	High	Medium	Low	Very low
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

School Environment

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

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

11

A. How many students are in this class?

_____ students
Write in the number.

B. How many of the students in question 11A are in fourth grade?

_____ fourth-grade students
Write in the number.

12

How many fourth-grade students experience difficulties understanding <u>spoken</u> 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) Bring interesting materials to class	1	2	3	4
d) Ask students to complete challenging exercises that require them to go beyond the instruction	1	2	3	4
e) Encourage classroom discussions among students	1	2	3	4
f) Link new content to students' prior knowledge	1	2	3	4
g) Ask students to decide their own problem solving procedures	1	2	3	4
h) 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 - 16 ask about mathematics instruction for the <u>fourth-grade</u> students in the TIMSS class.

15

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.

16

In teaching mathematics to this class, how often do you ask students 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 mathematics content	1	2	3	4
b) Listen to me explain how to solve problems	1	2	3	4
c) Memorize rules, procedures, and facts	1	2	3	4
d) Practice procedures on their own	1	2	3	4
e) Apply what they have learned to new problem situations on their own	1	2	3	4
f) Work problems together in the whole class with direct guidance from me	1	2	3	4
g) Work in mixed ability group	1	2	3	4
h) Work in same ability groups	1	2	3	4

Questions 17 - 18 ask about calculator and computer use for teaching mathematics to the fourth-grade students in the TIMSS class.

17

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

*Fill in **one** circle only.*

Yes, with unrestricted use --- ①

Yes, with restricted use --- ②

No, calculators are not permitted --- ③

18

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

Mathematics Topics Taught to the TIMSS Class

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

19

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."

	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	1	2	3
b) Adding, subtracting, multiplying, and dividing with whole numbers	1	2	3
c) Concepts of multiples and factors; odd and even numbers	1	2	3
d) Number sentences (finding the missing number, representing problem situations with number sentences)	1	2	3
e) Number patterns (extending number patterns and finding missing terms)	1	2	3
f) Concepts of fractions, including representing, comparing and ordering, adding and subtracting simple fractions	1	2	3
g) Concepts of decimals, including place value and ordering, adding and subtracting with decimals	1	2	3
B. Measurement and Geometry			
a) Solving problems involving length, including measuring and estimating	1	2	3
b) Solving problems involving mass, volume, and time	1	2	3
c) Finding and estimating perimeter, area, and volume	1	2	3
d) Parallel and perpendicular lines	1	2	3
e) Comparing and drawing angles	1	2	3
f) Elementary properties of common geometric shapes	1	2	3
g) Three-dimensional shapes, including relationships with their two-dimensional representations	1	2	3
C. Data			
a) Reading and interpreting data from tables, pictographs, bar graphs, line graphs, and pie charts	1	2	3
b) Organizing and representing data to help answer questions	1	2	3
c) Drawing conclusions from data displays	1	2	3

Mathematics Homework for the TIMSS Class

Question 20 asks about mathematics homework for the <u>fourth-grade</u> students in the TIMSS class.

20

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

*Fill in **one** circle only.*

- I do not assign mathematics 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 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.)

*Fill in **one** circle only.*

- 15 minutes or less --- ①
- 16–30 minutes --- ②
- 31–60 minutes --- ③
- More than 60 minutes --- ④

C. How often do you do the following with the mathematics 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) Discuss the homework in class	①	②	③
c) Monitor whether or not the homework was completed	①	②	③

Mathematics Assessment of the TIMSS Class

Questions 21-22 ask about mathematics assessment for the <u>fourth-grade</u> students in the TIMSS class.

21

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

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

	A Lot	Some	None
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 fourth-grade students in this class take mathematics 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?

B. Do you need future professional development in any of the following?

	*Fill in **one** circle for each row.*		*Fill in **one** circle for each row.*	
	Yes	**No**	**Yes**	**No**
a) Mathematics content	①	②	①	②
b) Mathematics pedagogy/ instruction	①	②	①	②
c) Mathematics curriculum	①	②	①	②
d) Integrating technology into mathematics instruction	①	②	①	②
e) Improving students' critical thinking or problem solving skills	①	②	①	②
f) Mathematics 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 mathematics?

*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

Questions 25 - 26 ask about science instruction for the fourth-grade students in the TIMSS class.

25

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

*Fill in **one** circle only.*

Yes --- ①

No --- ②

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.

26

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 such as the weather or a plant growing 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) Do field work outside the class	①	②	③	④
l) Work in mixed ability groups	①	②	③	④
m) Work in same ability groups	①	②	③	④

Question 27 asks about computer use for teaching science to the fourth-grade students in the TIMSS class.

27

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 28)**

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

Question 28 asks about the topics taught and the content covered in teaching science to the fourth-grade students in the TIMSS class.

28

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."

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

	Mostly taught before this year	Mostly taught this year	Not yet taught or just introduced
A. Life Science			
a) Physical and behavioral characteristics of living things and major groups of living things (e.g., mammals, birds, insects, flowering plants)	①	②	③
b) Major body structures and their functions in humans, other animals, and plants	①	②	③
c) Life cycles of common plants and animals (e.g., flowering plants, butterflies, frogs)	①	②	③
d) Characteristics of plants and animals that are inherited	①	②	③
e) Interactions between organisms and their environments (e.g., physical features and behaviors that help living things survive in their environments)	①	②	③
f) Relationships in ecosystems (e.g., simple food chains, predator-prey relationships, competition)	①	②	③
g) Human health (transmission and prevention of diseases, everyday behaviors that promote good health)	①	②	③
B. Physical Science			
a) States of matter (solid, liquid, gas) and their properties (volume, shape)	①	②	③
b) Classifying materials based on physical properties (e.g., weight/mass, volume, state of matter, conductivity of heat or electricity)	①	②	③
c) Mixtures, including methods for separating a mixture into its components (e.g., sifting, filtering, evaporation, using a magnet)	①	②	③
d) Properties of magnets (e.g., like poles repel and opposite poles attract, magnets can attract some objects)	①	②	③
e) Physical changes in everyday life (e.g., changes of state, dissolving)	①	②	③
f) Chemical changes in everyday life (e.g., decaying, burning, rusting, cooking)	①	②	③
g) Common sources of energy (e.g., the Sun, wind, oil) and uses of energy (heating and cooling homes, providing light)	①	②	③
h) Light and sound in everyday life (e.g., shadows and reflections, vibrating objects make sound)	①	②	③
i) Heat transfer (e.g., energy flows from a hot object to a colder object)	①	②	③
j) Electricity and simple electrical circuits (e.g., a circuit must be complete to work correctly)	①	②	③
k) Forces that cause objects to move (e.g., gravity, pushing/pulling) or change their motion (e.g., friction)	①	②	③
l) Simple machines (e.g., levers, pulleys, wheels, ramps) that help make motion easier	①	②	③

28 **(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."

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

	Mostly taught before this year	Mostly taught this year	Not yet taught or just introduced
C. Earth Science			
a) Physical makeup of Earth's surface (e.g., land and water in unequal proportions, sources of fresh and salt water)	1	2	3
b) Earth's resources used in everyday life (e.g., water, wind, soil, forests, oil, natural gas, minerals)	1	2	3
c) Changes in Earth's surface over time (e.g., mountain building, weathering, erosion)	1	2	3
d) Fossils and what they can tell us about past conditions on Earth	1	2	3
e) Weather and climate (e.g., daily, seasonal, and locational variations versus long term trends)	1	2	3
f) Objects in the Solar System (the Sun, the Earth, the Moon, and other planets) and their movements	1	2	3
g) Earth's motion and related patterns observed on Earth (e.g., day and night, seasons)	1	2	3

Science Homework for the TIMSS Class

Question 29 asks about science homework for the fourth-grade students in the TIMSS class.

29

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 30)**
- 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
- More than 60 minutes --- ④

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) Discuss the homework in class	①	②	③
c) Monitor whether or not the homework was completed	①	②	③

Science Assessment of the TIMSS Class

Questions 30-31 ask about science assessment for the fourth-grade students in the TIMSS class.

30

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

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

	A Lot	Some	None
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

31

About how often do fourth-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

32

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

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

B. Do you need future professional development in any of the following?

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

	A. Yes	A. No	B. Yes	B. No
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
h) Integrating science with other subjects (e.g., mathematics, technology)	①	②	①	②

33

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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