



IEA

TIMSS

2023

Identification Label

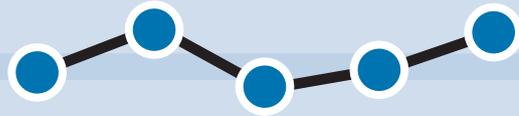
TRENDS IN INTERNATIONAL MATHEMATICS AND SCIENCE STUDY

Teacher Questionnaire Science

<Grade 8>

<TIMSS National Research Center Name>

<Address>



IEA

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

Teacher Questionnaire

Your school has agreed to participate in TIMSS 2023 (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 35 minutes to complete this questionnaire. We appreciate the time and effort that this takes and thank you for your cooperation and contribution.

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

<Insert country-specific information here>.

Thank you.

TIMSS 2023

About You

1

BTBG01 **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

BTBG02 **Which of these describes you?**

Check **one** circle only.

- Female ---
Male ---
<Other> ---

3

How old are you?

BTBG03 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?

BTBG04 Check **one** circle only.

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

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

(If you have not completed <post-secondary or tertiary education>, go to #6)

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

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

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

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

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

5

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

Check **one** circle for each line.

		Yes	No
BTBG05A	a) Mathematics -----	<input type="radio"/>	<input type="radio"/>
BTBG05B	b) Biology -----	<input type="radio"/>	<input type="radio"/>
BTBG05C	c) Physics -----	<input type="radio"/>	<input type="radio"/>
BTBG05D	d) Chemistry -----	<input type="radio"/>	<input type="radio"/>
BTBG05E	e) <Earth Science> -----	<input type="radio"/>	<input type="radio"/>
BTBG05F	f) Education—Mathematics -----	<input type="radio"/>	<input type="radio"/>
BTBG05G	g) Education—Science -----	<input type="radio"/>	<input type="radio"/>
BTBG05H	h) Education—General -----	<input type="radio"/>	<input type="radio"/>
BTBG05I	i) Other -----	<input type="radio"/>	<input type="radio"/>

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 _____	
BTBG06A	a) Teachers' understanding of the school's curricular goals	-----○-----○-----○-----○-----○	
BTBG06B	b) Teachers' degree of success in implementing the school's curriculum	-----○-----○-----○-----○-----○	
BTBG06C	c) Teachers' expectations for student achievement	-----○-----○-----○-----○-----○	
BTBG06D	d) Teachers' ability to inspire students	-----○-----○-----○-----○-----○	
BTBG06E	e) Parental involvement in school activities	-----○-----○-----○-----○-----○	
BTBG06F	f) Parental commitment to ensure that students are ready to learn	-----○-----○-----○-----○-----○	
BTBG06G	g) Parental expectations for student achievement	-----○-----○-----○-----○-----○	
BTBG06H	h) Parental support for student achievement	-----○-----○-----○-----○-----○	
BTBG06I	i) Students' desire to do well in school	-----○-----○-----○-----○-----○	
BTBG06J	j) Students' ability to reach school's academic goals	-----○-----○-----○-----○-----○	
BTBG06K	k) Students' respect for classmates who excel academically	-----○-----○-----○-----○-----○	

7

How much do you agree or disagree with the following statements about your current school?

Check **one** circle for each line.

		Agree a lot _____ Agree a little _____ Disagree a little _____ Disagree a lot _____	
BTBG07A	a) I feel safe at this school	-----○-----○-----○-----○	
BTBG07B	b) This school's security policies and practices are sufficient	-----○-----○-----○-----○	
BTBG07C	c) The students behave in an orderly manner	-----○-----○-----○-----○	
BTBG07D	d) The students are respectful of the teachers	-----○-----○-----○-----○	
BTBG07E	e) The students respect school property	-----○-----○-----○-----○	
BTBG07F	f) This school has clear rules about student conduct	-----○-----○-----○-----○	
BTBG07G	g) This school's rules are enforced in a fair and consistent manner	-----○-----○-----○-----○	

About Being a Teacher

8

How often do you have these feelings about being a teacher?

Check **one** circle for each line.

Very often
Often
Sometimes
Never or almost never

- BTBG08A a) I am content with my profession as a teacher ----- — — —
- BTBG08B b) I find my work full of meaning and purpose ----- — — —
- BTBG08C c) I am enthusiastic about my job ----- — — —
- BTBG08D d) My work inspires me ----- — — —
- BTBG08E e) I am proud of the work I do ----- — — —
- BTBG08F f) I feel appreciated as a teacher ----- — — —
- BTBG08G g) I enjoy the challenges of teaching ----- — — —

9

How much do you agree or disagree with the statements below?

Check **one** circle for each line.

Agree a lot
Agree a little
Disagree a little
Disagree a lot

- BTBG09A a) There are too many students in the classes ----- — — —
- BTBG09B b) I have too much material to cover in class ----- — — —
- BTBG09C c) I have too many teaching hours ----- — — —
- BTBG09D d) I need more time to prepare for class ----- — — —
- BTBG09E e) I need more time to assist individual students ----- — — —
- BTBG09F f) I feel too much pressure from parents ----- — — —
- BTBG09G g) I have difficulty keeping up with all of the changes to the curriculum ----- — — —
- BTBG09H h) I have too many administrative tasks ----- — — —

About Teaching the <TIMSS Class/Class with the TIMSS students>

10 How many students are in this class?

BTBG10 _____ students
Write in the number.

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

BTBG11 _____ students in this class
Write in the number.

12 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

- BTBG12A a) Relate the lesson to students' daily lives ----- — — —
- BTBG12B b) Ask students to explain their answers ----- — — —
- BTBG12C c) Communicate goals or objectives for the lesson to the students ----- — — —
- BTBG12D d) Ask students to complete challenging exercises that require them to go beyond the instruction ----- — — —
- BTBG12E e) Encourage classroom discussions among students ----- — — —
- BTBG12F f) Link new content to students' prior knowledge ----- — — —
- BTBG12G g) Ask students to decide their own problem solving procedures ----- — — —

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

Check **one** circle for each line.

Not at all

Some

A lot

- BTBG13A a) Students lacking prerequisite knowledge or skills ----- — —
- BTBG13B b) Students suffering from lack of basic nutrition ----- — —
- BTBG13C c) Students suffering from not enough sleep ----- — —
- BTBG13D d) Students absent from class ----- — —
- BTBG13E e) Disruptive students ----- — —
- BTBG13F f) Uninterested students ----- — —
- BTBG13G g) Distracted students ----- — —
- BTBG13H h) Students with mental, emotional, or psychological impairment ----- — —
- BTBG13I i) Students with difficulties understanding the language of instruction ----- — —

14

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

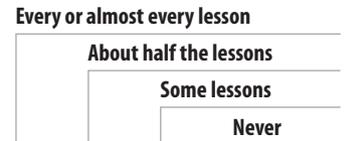
BTBS14

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

15

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

Check **one** circle for each line.



- BTBS15A a) Listen to me explain new science content ----- — — —
- BTBS15B b) Observe natural phenomena and describe what they see --- — — —
- BTBS15C c) Watch me demonstrate an experiment or investigation ----- — — —
- BTBS15D d) Read their textbooks or other resource materials ----- — — —
- BTBS15E e) Memorize facts and principles ----- — — —
- BTBS15F f) Use scientific formulas and laws to solve routine problems ----- — — —
- BTBS15G g) Do field work outside of class-- — — —
- BTBS15H h) Work in mixed ability groups -- — — —
- BTBS15I i) Work in same ability groups --- — — —

16

How much emphasis do you place on the following when teaching science to students in this class?

Check **one** circle for each line.

		A lot	Some	None
BTBS16A	a) Encouraging students to ask questions about scientific phenomena	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
BTBS16B	b) Having students predict the outcomes of experiments or investigations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
BTBS16C	c) Having students discuss variation in data from experiments or investigations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
BTBS16D	d) Having students use multiple sources of evidence to explain scientific phenomena	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
BTBS16E	e) Having students create representations (e.g., models, graphs) to explain scientific phenomena	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
BTBS16F	f) Having students use scientific concepts to explain phenomena	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
BTBS16G	g) Having students argue about science questions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
BTBS16H	h) Having students conduct experiments (hands-on or virtually)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

17

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

Check **one** circle for each line.

		At least once a week	Once or twice a month	A few times a year	Never or almost never
BTBS17A	a) Develop students' positive attitudes toward the natural environment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
BTBS17B	b) Encourage students to use less resources (e.g., <water, energy>)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
BTBS17C	c) Discuss how student actions in and outside of school can help the natural environment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
BTBS17D	d) Discuss environmental issues (e.g., <climate change, endangered animals>)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

18

Do you do these things to teach students about environmental issues and sustainability?

Check **one** circle for each line.

Yes No

- BTBS18A a) Take students to visit natural areas (e.g., <a pond or meadow>)----- —
- BTBS18B b) Have students participate in environmentally responsible activities (e.g., <pick up trash>) -- —
- BTBS18C c) Have students do research or projects on a particular environmental topic (e.g., <pollution, climate change>)----- —
- BTBS18D d) Provide opportunities for students to participate in outdoor environmental education programs outside of school ----- —

19

How much do you agree or disagree that education about environmental sustainability should be a priority for schools?

BTBS19

Check **one** circle only.

- Agree a lot ---
- Agree a little ---
- Disagree a little ---
- Disagree a lot ---

20

A. Do the students in this class have digital devices (including computers, tablets, or smartphones) available to use during science lessons?

BTBS20A

Check **one** circle only.

Yes ---

No ---

(If No, go to #21)

If Yes,

B. What access do the students have to digital devices?

Check **one** circle for each line.

	Yes	No
BTBS20BA a) The class has digital devices for each student to use -----	<input type="radio"/>	<input type="radio"/>
BTBS20BB b) The class has digital devices that students can share -----	<input type="radio"/>	<input type="radio"/>
BTBS20BC c) The school has digital devices that the class can use sometimes -----	<input type="radio"/>	<input type="radio"/>
BTBS20BD d) Students bring their own digital devices -----	<input type="radio"/>	<input type="radio"/>

C. How often do you have students use digital devices during science instruction?

BTBS20C

Check **one** circle only.

At least once a week ---

Once or twice a month ---

A few times a year ---

Never or almost never ---

D. How often do you ask the students in your class to use digital devices to do these science activities?

Check **one** circle for each line.

	At least once a week	Once or twice a month	A few times a year	Never or almost never
BTBS20DA a) Solve extended or contextualized problems -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
BTBS20DB b) Create graphs, tables, or other data displays -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
BTBS20DC c) Play games involving science concepts -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
BTBS20DD d) Conduct virtual experiments or other simulations -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
BTBS20DE e) Read the textbook or watch instructional videos -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
BTBS20DF f) Take a test -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

21

How much do each of these keep you from incorporating digital devices into science instruction?

Check **one** circle for each line.

	Not at all	Somewhat	A lot
BTBS21A a) Not knowing how to use digital devices to improve student learning -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
BTBS21B b) Not enough access to digital devices -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
BTBS21C c) Keeping students on task when the class is using digital devices -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
BTBS21D d) Lack of technical support from the school -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The following list includes topics and concepts addressed by the TIMSS science test. Choose the response that best describes when each topic or concept is taught for students in this class.

If a topic or concept was in the curriculum before <eighth grade>, choose “Mostly taught before this year.” If you have taught a topic this year, choose “Mostly taught this year.” If a topic is not in the <eighth grade> curriculum for this year or you have not yet taught a topic, choose “Not yet taught.”

Check **one** circle for each line.

Mostly taught before this year

Mostly taught this year

Not yet taught

A. Biology

- a) Defining characteristics of major taxonomic groups of organisms ----- — — BTBS22AA
- b) Structures and functions of major organs and organ systems ----- — — BTBS22AB
- c) How animals maintain stable body conditions ----- — — BTBS22AC
- d) Major structures and functions in plant and animal cells ----- — — BTBS22AD
- e) Basic processes of photosynthesis ----- — — BTBS22AE
- f) Basic processes of cellular respiration ----- — — BTBS22AF
- g) Life cycles of mammals, birds, amphibians, insects, and plants ----- — — BTBS22AG
- h) Processes for reproduction and inheritance in plants and animals ----- — — BTBS22AH
- i) How variation in traits relates to natural selection and changes in life on Earth over time ----- — — BTBS22AI
- j) Interpreting food web diagrams and the flow of energy in ecosystems ----- — — BTBS22AJ
- k) Cycling of water, oxygen, and carbon through ecosystems ----- — — BTBS22AK
- l) Predation, competition, and symbiosis in ecosystems ----- — — BTBS22AL
- m) How changes in an ecosystem affect the populations of organisms that live there ----- — — BTBS22AM
- n) How human actions can positively or negatively impact the environment ----- — — BTBS22AN
- o) How to prevent transmission of common diseases among humans ----- — — BTBS22AO
- p) Importance of diet, exercise, and lifestyle choices for maintaining good human health ----- — — BTBS22AP

B. Chemistry

- a) Structure of atoms (i.e., protons, neutrons, electrons) and molecules ----- — — BTBS22BA
- b) Differences among elements, compounds, and mixtures ----- — — BTBS22BB
- c) How to interpret the periodic table of elements ----- — — BTBS22BC
- d) Classifying matter according to physical and chemical properties ----- — — BTBS22BD
- e) Methods for separating mixtures ----- — — BTBS22BE
- f) Solution concentration and rate of dissolving ----- — — BTBS22BF
- g) Properties of acids and bases ----- — — BTBS22BG
- h) Matter and energy in chemical reactions, including evidence of chemical change ----- — — BTBS22BH
- i) How to change the rate of chemical reactions ----- — — BTBS22BI
- j) Chemical bonds (e.g., role of electrons) ----- — — BTBS22BJ

Choose the response that best describes when each topic or concept is taught for students in this class.

If a topic or concept was in the curriculum before <eighth grade>, choose “Mostly taught before this year.” If you have taught a topic this year, choose “Mostly taught this year.” If a topic is not in the <eighth grade> curriculum for this year or you have not yet taught a topic, choose “Not yet taught.”

Check **one** circle for each line.



C. Physics

- a) Separation and motion of atoms/molecules in solids, liquids, and gases ----- — — BTBS22CA
- b) Characteristics of matter and energy during state changes ----- — — BTBS22CB
- c) Types of energy (e.g., kinetic, potential, thermal) and examples of energy transformations ----- — — BTBS22CC
- d) Thermal conductivity and the transfer of thermal energy between objects of different temperatures ----- — — BTBS22CD
- e) Reflection, refraction, or absorption of light ----- — — BTBS22CE
- f) Characteristics of sound (i.e., amplitude, frequency) and its transmission, reflection, and absorption ----- — — BTBS22CF
- g) Electrical conductors and simple electrical circuits ----- — — BTBS22CG
- h) Polarity, strength, and uses of permanent magnets and electromagnets ----- — — BTBS22CH
- i) Speed as distance changing over time ----- — — BTBS22CI
- j) Acceleration as speed changing over time ----- — — BTBS22CJ
- k) Effects of common forces on speed and direction of motion ----- — — BTBS22CK
- l) Density and buoyancy ----- — — BTBS22CL
- m) Functioning of simple machines (e.g., levers, inclined planes, pulleys) ----- — — BTBS22CM

D. Earth Science

- a) Earth’s structure and distribution of water on its surface ----- — — BTBS22DA
- b) Gases present in Earth’s atmosphere and their relative abundance ----- — — BTBS22DB
- c) Changes in temperature and pressure based on altitude ----- — — BTBS22DC
- d) How geological events impact Earth’s surface ----- — — BTBS22DD
- e) Processes in the rock cycle (e.g., lava cooling, weathering) ----- — — BTBS22DE
- f) How fossils form and what they show about Earth’s history ----- — — BTBS22DF
- g) Processes in Earth’s water cycle ----- — — BTBS22DG
- h) Differences between weather and climate and geographic factors affecting climate ----- — — BTBS22DH
- i) Evidence for climate change ----- — — BTBS22DI
- j) Use and conservation of Earth’s resources, including land, water, and renewable and nonrenewable energy sources ----- — — BTBS22DJ
- k) Phenomena caused by the motion of Earth and the Moon (e.g., seasons, tides, Moon phases) ----- — — BTBS22DK
- l) The Sun as a star and physical features of the Earth, Moon, and other planets ----- — — BTBS22DL

23

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

BTBS23A

Check **one** circle only.

- I do not assign science homework --- 
(Go to #24)
- Less than once a week ---
- 1 or 2 times a week ---
- 3 or 4 times a week ---
- Every day ---

B. 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

- BTBS23BA a) Correct assignments and give feedback to students ----- — —
- BTBS23BB b) Have students correct their own homework ----- — —
- BTBS23BC c) Discuss the homework in class ----- — —
- BTBS23BD d) Monitor whether or not the homework was completed ----- — —
- BTBS23BE e) Use the homework to contribute towards students' grades or marks ----- — —

24

How much importance do you place on these strategies to assess students' learning in science?

Check **one** circle for each line.

A lot
Some
None

- BTBS24A a) Observing students as they work ----- — —
- BTBS24B b) Asking students to answer questions during class ----- — —
- BTBS24C c) Short, regular written assessments ----- — —
- BTBS24D d) Longer tests (e.g., unit tests or exams) ----- — —
- BTBS24E e) Long-term projects ----- — —

25

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?

Check **one** circle for each line.

Check **one** circle for each line.

	Yes	No	Yes	No		
a) Science content -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	BTBS25AA	BTBS25BA
b) Science pedagogy/ instruction-----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	BTBS25AB	BTBS25BB
c) Science curriculum -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	BTBS25AC	BTBS25BC
d) Integrating technology into science instruction ---	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	BTBS25AD	BTBS25BD
e) Improving students' critical thinking or inquiry skills-----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	BTBS25AE	BTBS25BE
f) Science assessment -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	BTBS25AF	BTBS25BF
g) Addressing individual students' needs-----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	BTBS25AG	BTBS25BG
h) Integrating environmentalism and sustainability into science instruction -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	BTBS25AH	BTBS25BH

Thank You

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



BOSTON
COLLEGE

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<Grade 8>



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for the Evaluation of
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