

**Memorandum****United States Department of Education  
Institute of Education Sciences  
National Center for Education Statistics**

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**DATE:** November 18, 2021  
**TO:** Robert Sivinski, OMB  
**THROUGH:** Carrie Clarady, NCES  
**FROM:** Lydia Malley, NCES  
**SUBJECT:** Trends in International Mathematics and Science Study (TIMSS) Field Test Data Collection and Main Study Sampling and Recruitment - FT International Questionnaire Update 30D Revision Change Memo (OMB# 1850-0695 v.18).

The Trends in International Mathematics and Science Study (TIMSS), conducted by the National Center for Education Statistics (NCES), within the U.S. Department of Education (ED), is an international assessment of fourth and eighth grade students' achievement in mathematics and science. Since its inception in 1995, TIMSS has continued to assess students every 4 years (1995, 1999, 2003, 2007, 2011, 2015, and 2019), with the next TIMSS assessment, TIMSS 2023, being the eighth iteration of the study. In TIMSS 2023, approximately 65 countries or education systems will participate. The United States will participate in TIMSS 2023 to continue to monitor the progress of its students compared to that of other nations and to provide data on factors that may influence student achievement.

TIMSS is led by the International Association for the Evaluation of Educational Achievement (IEA), an international collective of research organizations and government agencies that create the frameworks used to develop the assessment, the survey instruments, and the study timeline. IEA decides and agrees upon a common set of standards, procedures, and timelines for collecting and reporting data, all of which must be followed by all participating countries. As a result, TIMSS is able to provide a reliable and comparable measure of student skills in participating countries. In the U.S., NCES conducts this study in collaboration with the IEA and a number of contractors (RTI International, AnLar, Measurement Incorporated, and Strategic Communications) to ensure proper implementation of the study and adoption of practices in adherence to the IEA's standards. Participation in TIMSS is consistent with NCES's mandate of acquiring and disseminating data on educational activities and student achievement in the United States compared with foreign nations [The Educational Sciences Reform Act of 2002 (ESRA 2002, 20 U.S.C. §9543)].

Because TIMSS is a collaborative effort among many parties, the United States must adhere to the international schedule set forth by the IEA, including the availability of final field test and main study plans as well as draft and final questionnaires. In order to meet the international data collection schedule, to align with recruitment for other NCES studies (e.g., the National Assessment of Education Progress, NAEP), and for schools to put the TIMSS 2023 field test assessment on their Spring 2022 calendars, recruitment activities for the field test were approved in May 2021 (OMB# 1850-0695 v16) and began in June of 2021. The field test data collection and the main study sampling, recruitment, and data collection were approved in October 2021 (OMB# 1850-0695 v17). The field test data collection will be conducted in March and April 2022. Recruitment for the main study will begin in March 2022 with data collection occurring in March through June 2023.

This submission is to request approval for the changes to the study questionnaires between 2019 and 2023, with a 30-day public comment period. The documents attached here are the final international versions of the TIMSS 2023 Field Test instruments, as provided by IEA. Adaptation activities to fit the field test questionnaire text into the U.S. education context are currently underway. The final internationally approved U.S. questionnaires for the field test and main study will be submitted via change memos in January 2022 and January 2023, respectively.

Changes to the Student, Teacher, and School Questionnaires are provided in the table below. The draft 2023 field test questionnaires and proposed national items are provided in Appendix C.

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# TIMSS 2023 Student Questionnaire - Grade 4

## Changes from TIMSS 2019 Data Collection

### COVERS AND DIRECTIONS

TIMSS 2023 Field Test Location	TIMSS 2019 Data Collection Location	Type of Change	TIMSS 2023 Field Test Text	TIMSS 2019 Data Collection Text
Front cover	Front cover	Field Test Version' has been added	Field Test Version	-
		Copyright year has been changed from '2018' to '2021'	IEA, 2021	IEA, 2018
Directions	Directions	No changes	-	-
Example 3b	Example 3b	Revised	Ice cream tastes good	I like ice cream
Example 3c	Example 3c	Revised	Waking up early is difficult	I do not like waking up early
Footers	Footers	Add 'Field Test'	Field Test <Grade 4> Student Questionnaire	<Grade 4> Student Questionnaire
Back cover	Back cover	Copyright year has been changed from '2018' to '2021'	IEA, 2021	IEA, 2018

### ITEMS

TIMSS 2023 Field Test Question #	TIMSS 2019 Data Collection Question #	Type of Change	TIMSS 2023 Field Test Question or Response Option	TIMSS 2019 Data Collection Question or Response Option
	1A	Revised question wording and response options	Which of these describes you? Fill one circle only. - Girl - Boy - Other - Prefer not to say	Are you a girl or a boy? Fill one circle only. - Girl - Boy

	2b	Revised response options	<ul style="list-style-type: none"> <li>- 2010</li> <li>- 2011</li> <li>- 2012</li> <li>- 2013</li> <li>- 2014</li> <li>- 2015</li> <li>- 2016</li> <li>- Other</li> </ul>	<ul style="list-style-type: none"> <li>- 2006</li> <li>- 2007</li> <li>- 2008</li> <li>- 2009</li> <li>- 2010</li> <li>- 2011</li> <li>- 2012</li> <li>- Other</li> </ul>
	5a	Revised item wording	Your own computer or tablet	A computer or tablet
	-	New item added	A shared computer or tablet you can use	-
	5e	Revised item wording	Your own smartphone	A mobile phone
	-	New item added	A shared smartphone you can use	-
	5d	Revised item wording	Access to the internet	Internet connection
	5f	Revised item wording	A gaming system (e.g., PlayStation, Nintendo Switch, Xbox)	A gaming system (e.g., PlayStation, Wii, Xbox)
	G5c	Item deleted	-	VCR, DVD, or Blu-ray player
	6	Revised question wording	Were your parents/guardians born in the United States?	Were your parents/guardians born in the United States ("United States" includes the 50 states, its territories, the District of Columbia, and U.S. military bases abroad.)

	-	New item added	<p>How much do you agree with these statements? Fill one circle for each line.</p> <ul style="list-style-type: none"> <li>- Agree a lot</li> <li>- Agree a little</li> <li>- Disagree a little</li> <li>- Disagree a lot</li> </ul> <p>a) I can write and edit text on a computer b) I can create school presentations using a computer, tablet, or smartphone c) I can create tables, charts, and graphs using a computer, tablet, or smartphone d) I can find information that I need online e) I can tell if a website is trustworthy f) I can easily do new things on computer, laptops, or smartphones g) I can help my friends or family members with their computer, laptops, or smartphones</p>	-
	13b	Revised item wording	Teachers at this school care about me	Teachers at my school are fair to me
	-	New item added	I have friends at this school	-
	-	New item added	Students in this school respect me	-
	-	New item added	Students at this school like me the way I am	-

	14	Revised question wording	During this school year, how often have other students from your school done any of the following things to you in person, through messaging, or through social media?	During this school year, how often have other students from your school done any of the following things to you, including through textings or the Internet?
	16b	Revised item wording	I do not like doing mathematics	I wish I did not have to study mathematics
	17a	Revised item wording	My teacher makes it clear what we should learn in each lesson	I know what my teacher expects me to do
	-	New item added	My teacher gives me helpful feedback on my work	-
	-	New item added	My teacher lets me show what I have learned	-
	-	New item added	My teacher asks me to explain my answers	-
	18b	Revised item wording	There is too much noise for student to work well	There is disruptive noise
	18c	Item deleted	-	It is too disorderly for students to work well
	18d	Revised item wording	My teacher has to wait a long time for students to be quiet	My teacher has to wait a long time for students to quiet down
	18f	Revised item wording	Students do not follow the classroom rules	My teacher has to keep telling us to follow the classroom rules
	-	New item added	Other students' behavior makes it hard for me to concentrate	-
	19d	Revised item wording	Mathematics is easy for me	I learn things quickly in mathematics
	19e	Item deleted	-	Mathematics makes me nervous
	19g	Revised item wording	I am good at explaining mathematics to others	My teacher tells me I am good at mathematics
	21b	Revised item wording	I do not like doing science	I wish I did not have to study science

	22a	Revised item wording	My teacher makes it clear what we should learn in each lesson	I know what my teacher expects me to do
	-	New item added	My teacher gives me helpful feedback on my work	-
	-	New item added	My teacher lets me show what I have learned	-
	-	New item added	My teacher asks me to explain my answers	-
	-	New question added	<p>How often do these things happen in your science lessons?</p> <p>Fill one circle for each line.</p> <ul style="list-style-type: none"> <li>- Every or almost every lesson</li> <li>- About half the lessons</li> <li>- Some lessons</li> <li>- Never</li> </ul> <p>a) Students don't listen to what the teacher says</p> <p>b) There is too much noise for students to work well</p> <p>c) My teacher has to wait a long time for students to be quiet</p> <p>d) Students interrupt the teacher</p> <p>e) Students do not follow the classroom rules</p> <p>f) Other students' behavior makes it hard for me to concentrate</p>	-
	23d	Revised and renumbered	Science is easy for me	I learn things quickly in science
	23e	New item added	I am good at explaining science to others	My teacher tells me I am good at science

	24	Question deleted		<p>How hard was this test compared to most other tests you have taken this year in school?</p> <p>Fill in one oval only.</p> <p>Easier than other tests</p> <p>About as hard as other tests</p> <p>Harder than other tests</p> <p>Much harder than other tests</p>
	25	Question deleted		<p>How hard did you try on this test compared to how hard you tried on most other tests you have taken this year in school?</p> <p>Fill in one oval only.</p> <p>Not as hard as on other tests</p> <p>About as hard as on other tests</p> <p>Harder than on other tests</p> <p>Much harder than on other tests</p>
	26	Question deleted		<p>How important was it to you to do well on this test?</p> <p>Fill in one oval only.</p> <p>Not very important</p> <p>Somewhat important</p> <p>Important</p> <p>Very important</p>

# TIMSS 2023 Student Questionnaire - Grade 8

## Changes from TIMSS 2019 Data Collection

### COVERS AND DIRECTIONS

TIMSS 2023 Field Test Location	TIMSS 2019 Data Collection Location	Type of Change	TIMSS 2023 Field Test Text	TIMSS 2019 Data Collection Text
Front cover	Front cover	Field Test Version' has been added	Field Test Version	-
		Copyright year has been changed from '2018' to '2021'	IEA, 2021	IEA, 2018
Directions	Directions	No changes	-	-
Example 3b	Example 3b	Revised	Ice cream tastes good	I like ice cream
Example 3c	Example 3c	Revised	Waking up early is difficult	I do not like waking up early
Footers	Footers	Add 'Field Test'	Field Test Grade 8 Student Questionnaire	Grade 8 Student Questionnaire
Back cover	Back cover	Copyright year has been changed from '2018' to '2021'	IEA, 2021	IEA, 2018

### ITEMS

TIMSS 2023 Field Test Question #	TIMSS 2019 Data Collection Question #	Type of Change	TIMSS 2023 Field Test Question or Response Option	TIMSS 2019 Data Collection Question or Response Option
	1A	Revised question wording and response options	Which of these describes you? Fill one circle only. - Girl - Boy - Other - Prefer not to say	Are you a girl or a boy? Fill one circle only. - Girl - Boy

	2b	Revised response options	<ul style="list-style-type: none"> <li>- 2005</li> <li>- 2006</li> <li>- 2007</li> <li>- 2008</li> <li>- 2009</li> <li>- 2010</li> <li>- 2011</li> <li>- 2012</li> <li>- 2013</li> <li>- Other</li> </ul>	<ul style="list-style-type: none"> <li>-2001</li> <li>- 2002</li> <li>- 2003</li> <li>- 2004</li> <li>- 2005</li> <li>- 2006</li> <li>- 2007</li> <li>- 2008</li> <li>- 2009</li> <li>- Other</li> </ul>
	5a	Revised item wording	Your own computer or tablet	A computer or tablet
	-	New item added	A shared computer or tablet you can use	-
	5e	Revised item wording	Your own smartphone	A mobile phone
	-	New item added	A shared smartphone you can use	-
	5d	Revised item wording	Access to the internet	Internet connection
	5f	Revised item wording	A gaming system (e.g., PlayStation, Nintendo Switch, Xbox)	A gaming system (e.g., PlayStation, Wii, Xbox)
	G5c	Item deleted	-	VCR, DVD, or Blu-ray player
	8	Revised question wording	Were your parents/guardians born in the United States?	Were your parents/guardians born in the United States ("United States" includes the 50 states, its territories, the District of Columbia, and U.S. military bases abroad.)
	15	Revised question wording and response options	<p>How often do you use the internet to do the following tasks for mathematics or science schoolwork (including classroom tasks, homework, and studying outside of class)?</p> <ul style="list-style-type: none"> <li>- At least once a week</li> <li>- Once or twice a month</li> <li>- Never or almost never</li> </ul>	<p>Do you use the Internet to do any of the following tasks for schoolwork (including classroom tasks, homework, studying outside of class)?</p> <ul style="list-style-type: none"> <li>- Yes</li> <li>- No</li> </ul>
	15d	Revised item wording	Ask my teacher questions	Communicate with the

				teacher
	15e	Revised item wording	Find information, articles, or tutorials about mathematics or science	Find information, articles, or tutorials to aid in understanding mathematics or science
	-	New question added	<p>How much do you agree with these statements?            Fill one circle for each line.</p> <ul style="list-style-type: none"> <li>- Agree a lot</li> <li>- Agree a little</li> <li>- Disagree a little</li> <li>- Disagree a lot</li> </ul> <p>a) I can write and edit text on a computer            b) I can create school presentations using a computer, tablet, or smartphone            c) I can create tables, charts, and graphs using a computer, tablet, or smartphone            d) I can find information that I need online            e) I can tell if a website is trustworthy            f) I can easily do new things on computer, laptops, or smartphones            g) I can help my friends or family members with their computer, laptops, or smartphones</p>	-
	16d	Revised item wording	Teachers at this school care about me	Teachers at my school are fair to me
	-	New item added	I have friends at this school	-
	-	New item added	Students in this school respect me	-

	-	New item added	Students at this school like me the way I am	-
	17	Revised question wording	During this school year, how often have other students from your school done any of the following things to you in person, through messaging, or through social media?	During this school year, how often have other students from your school done any of the following things to you, including through textings or the Internet?
	17e	Revised item wording	Said hurtful things to or about me because of my cultural background (e.g., race, ethnicity, religion)	Insulted a member of my family
	16b	Revised item wording	I do not like doing mathematics	I wish I did not have to study mathematics
	20a	Revised item wording	My teacher makes it clear what we should learn in each lesson	I know what my teacher expects me to do
	20f	Item deleted	-	My teacher links new lessons to what I already know
	-	New item added	My teacher gives me helpful feedback on my work	-
	-	New item added	My teacher lets me show what I have learned	-
	-	New item added	My teacher asks me to explain my answers	-
	-	New item added	My teacher asks us to apply what we have learned in new situations	-
	21b	Revised item wording	There is too much noise for student to work well	There is disruptive noise
	21c	Item deleted	-	It is too disorderly for students to work well
	21d	Revised item wording	My teacher has to wait a long time for students to be quiet	My teacher has to wait a long time for students to quiet down
	21f	Revised item wording	Students do not follow the classroom rules	My teacher has to keep telling us to follow the classroom rules

	-	New item added	Other students' behavior makes it hard for me to concentrate	-
	22b	Revised item wording	Mathematics is harder for me than for many of my classmates	Mathematics is more difficult for me than for many of my classmates
	22d	Revised item wording	Mathematics is easy for me	I learn things quickly in mathematics
	19e	Item deleted	-	Mathematics makes me nervous
	22g	New item added	I am good at explaining mathematics to others	My teacher tells me I am good at mathematics
	25b	Revised item wording	I do not like doing science	I wish I did not have to study science
	26a	Revised item wording	My teacher makes it clear what we should learn in each lesson	I know what my teacher expects me to do
	26f	Item deleted	-	My teacher links new lessons to what I already know
	-	New item added	My teacher gives me helpful feedback on my work	-
	-	New item added	My teacher lets me show what I have learned	-
	-	New item added	My teacher asks me to explain my answers	-
	-	New item added	My teacher asks us to apply what we have learned in new situations	-

		New question added	<p>How often do these things happen in your science lessons?</p> <p>Fill one circle for each line.</p> <p>Every or almost every lesson</p> <p>About half the lessons</p> <p>Some lessons</p> <p>Never</p> <p>a) Students don't listen to what the teacher says</p> <p>b) There is too much noise for students to work well</p> <p>c) My teacher has to wait a long time for students to be quiet</p> <p>d) Students interrupt the teacher</p> <p>e) Students do not follow the classroom rules</p> <p>f) Other students' behavior makes it hard for me to concentrate</p>	
	27d	Revised item wording	Science is easy for me	I learn things quickly in mathematics
	27f	Revised item wording	I am good at explaining science to others	My teacher tells me I am good at science

	29B	Question deleted		When your teacher gives you homework in the following subjects, about how many minutes do you usually spend on your homework? Fill in only one oval for each row. My teacher never gives me homework in... 1-15 minutes 16-30 minutes 31-60 minutes 61-90 minutes More than 90 minutes a) Mathematics b) Science
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## TIMSS 2023 Teacher Questionnaire - Grade 4

### Changes from TIMSS 2019 Data Collection

#### COVERS AND DIRECTIONS

TIMSS 2023 Field Test Location	TIMSS 2019 Data Collection Location	Type of Change	TIMSS 2023 Field Test Text	TIMSS 2019 Data Collection Text
Front cover	Front cover	Field Test Version' has been added	Field Test Version	-
		Copyright year has been changed from '2018' to '2021'	IEA, 2021	IEA, 2018
Directions	Directions	Change 'TIMSS 2019' to 'TIMSS 2023' in first paragraph and footer	TIMSS 2023	TIMSS 2019
Footers	Footers	Add 'Field Test'	Field Test Grade 4 Teacher Questionnaire	Grade 4 Teacher Questionnaire
Back cover	Back cover	Copyright year has been changed from '2018' to '2021'	IEA, 2021	IEA, 2018

#### ITEMS

TIMSS 2023 Field Test Question #	TIMSS 2019 Data Collection Question #	Type of Change	TIMSS 2023 Field Test Question or Response Option	TIMSS 2019 Data Collection Question or Response Option
	2	Revised question wording	By the end of this school year, how many years will you have been teaching altogether?	At the end of this school year, how many years will you have been teaching altogether?
	3	Revised question wording and response options	Which of these describes you? - Female - Male - Other - Prefer not to say	Are you female or male? - Female - Male
	71	Item deleted	-	Collaboration between school leadership (including master teachers) and teachers to plan instruction

	8	Revised question wording	How much do you agree or disagree with the following statements about your current school?	Thinking about your current school, indicate the extent to which you agree or disagree with each of the following statements.
	8a	Item deleted	-	This school is located in a safe neighborhood
	9	Revised question wording	How often do you have these feelings about being a teacher?	How often do you feel the following way about being a teacher?
	-	New item added	I feel appreciated as a teacher	-
	-	New item added	I enjoy the challenges of teaching	-
	10	Revised question wording	How much do you agree or disagree with the statements below?	Indicate the extent to which you agree or disagree with each of the following statements.
	13c	Revised item wording	Communicate goals of objectives for the lesson to the students	Bring interesting materials to class
	-	New item added	Distracted students	-
	Before 17	Revised section heading	Using Calculators and Digital Devices for Teaching Mathematics to the TIMSS Class	Using Calculators and Computers for Teaching Mathematics to the TIMSS Class
	Before 17	Instructions deleted		Questions 17 - 18 ask about calculator and computer use for teaching mathematics to the fourth-grade students in the TIMSS class.
	17	Revised question wording and response options	Are students in this class permitted to use calculators during mathematics lessons? Check one circle only. - Yes, with unrestricted use - Yes, with restricted use - No	Are students in this class permitted to use calculators during mathematics lessons? Check one circle only. - Yes, with unrestricted use - Yes, with restricted use - No, calculators are not permitted
	18A	Revised question wording	Do the students in this class have digital devices (including computers, tablets, or smartphones) to use during mathematics lessons?	Do the students in this class have computers (including tablets) available to use during their mathematics lessons?

	18B	Revised question wording	If yes, What access do the students have to digital devices?	If yes, What access do the students have to computers?
	18Ba	Revised item wording	The class has digital devices for each student to use	Each student has a computer
	18Bb	Revised item wording	The class has digital devices that students can share	The class has computers that students can share
	18Bc	Revised item wording	The school has digital devices that the class can use sometimes	The school has computers that the class can use sometimes
	-	New item added	Students bring their own digital devices	-
	18C	Question deleted	-	How often do you do activities on computers during mathematics lessons to support learning for: -Every or almost every day -Once or twice a week -Once or twice a month -Never or almost never a) Whole class b) Low-performing students c) High-performing students d) Students with special needs
	-	New question added added	How often do you have students use digital devices during mathematics instruction? Check one circle only. - At least once a week - Once or twice a month - A few times a year - Never or almost never	-

	-	New question added added	<p>How often do you ask the students in your class to use digital devices to do these mathematics activities?</p> <p>Check one circle for each line.</p> <ul style="list-style-type: none"> <li>- At least once a week</li> <li>- Once or twice a month</li> <li>- A few times a year</li> <li>- Never or almost never</li> </ul> <ul style="list-style-type: none"> <li>a) Practice problems and procedures</li> <li>b) Solve extended or contextualized problems</li> <li>c) Create graphs, tables, or other data displays</li> <li>d) Play games involving mathematics calculations or concepts</li> <li>e) Read the textbook or watch instructional videos</li> </ul>	-
	-	New question added added	<p>How much do each of these keep you from incorporating digital devices into mathematics instruction?</p> <ul style="list-style-type: none"> <li>- Not at all</li> <li>- Somewhat</li> <li>- A lot</li> </ul> <ul style="list-style-type: none"> <li>a) Not knowing how to use digital devices to improve student learning</li> <li>b) Not enough access to digital devices</li> <li>c) Keeping students on task when the class is using digital devices</li> <li>d) Lack of technology support from the school</li> </ul>	-
	Before 19	Instructions deleted		Question 19 asks about the topics taught and the content covered in teaching mathematics to the

				fourth-grade students in the TIMSS class.
	19	Revised question wording and response options	<p>The following list includes topics addressed by the TIMSS mathematics test. Choose the response that best describes when each topic is taught for students in this class.</p> <p>If a topic was in the curriculum before fourth 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 fourth grade curriculum for this year or you have not yet taught a topic, choose "Not yet taught".</p> <ul style="list-style-type: none"> <li>- Mostly taught before this year</li> <li>- Mostly taught this year</li> <li>- Not yet taught</li> </ul>	<p>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 &lt;fourth grade&gt;, 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."</p> <ul style="list-style-type: none"> <li>- Mostly taught before this year</li> <li>- Mostly taught this year</li> <li>- Not yet taught or just introduced</li> </ul>
	19Aa	Revised item wording	Recognize place value and order whole numbers	Concepts of whole numbers, including place value and ordering
	19Ab	Revised item wording	Add and subtract up to 4-digit numbers	Adding, subtracting, multiplying, and dividing with whole numbers
	19Ac	Revised item wording	Multiply up to 3-digit by 1-digit and 2-digit by 2-digit numbers	Concepts of multiples and factors, odd and even numbers
	19Ad	Revised item wording	Divide up to 3-digit by 1-digit numbers	Number sentences (finding the missing number, representing problem situations with number sentences)
	19Ae	Revised item wording	Solve problems with odd/even numbers, multiples, or factors	Number patterns (extending number patterns and finding missing terms)

	19Af	Revised item wording	Round or make estimations with whole numbers	Concepts of fractions, including representing, comparing and ordering, adding and subtracting simple fractions
	19Ag	Revised item wording	Find the missing number or operation in a number sentence	Concepts of decimals, including place value and ordering, adding and subtracting with decimals
	-	New item added	Extend a number pattern or find the missing number in a pattern	-
	-	New item added	Represent, compare, and order fractions	-
	-	New item added	Add and subtract simple fractions	-
	-	New item added	Represent, compare, and order decimals up to two decimal places	-
	-	New item added	Add and subtract with decimals up to two decimal places	-
	19Ba	Revised item wording	Measure, estimate, add, and subtract lengths	Solving problems involving length, including measuring and estimating
	19Bb	Revised item wording	Add and subtract mass, volume, or time in appropriate units	Solving problems involving mass, volume, and time
	19Bc	Revised item wording	Find perimeters of polygons	Finding and estimating perimeter, area, and volume
	19Bd	Revised item wording	Find areas of shapes covered with squares or volumes of shapes filled with cubes	Parallel and perpendicular lines
	19Be	Revised item wording	Recognize and draw parallel and perpendicular lines	Comparing and drawing angles
	19Bf	Revised item wording	Compare and draw angles	Elementary properties of common geometric shapes
	19Bg	Revised item wording	Describe and draw common two-dimensional shapes (e.g., circles, triangles, quadrilaterals)	Three-dimensional shapes, including relationships with their two-dimensional representations
	-	New item added	Describe and draw common three-dimensional shapes (e.g., cubes, rectangular solids, cones, cylinders, spheres)	-

	19Ca	Revised item wording	Read and interpret data displays	Reading and interpreting data from tables, pictographs, bar graphs, line graphs, and pie charts
	19Cb	Revised item wording	Create or complete data displays	Organizing and representing data to help answer questions
	19Cc	Revised item wording	Draw conclusions from two or more data sources	Drawing conclusions from data displays
	Before 20	Instructions deleted		Question 20 asks about mathematics homework for the fourth-grade students in the TIMSS class.
	20B	Question deleted	-	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.)
	Before 21	Instructions deleted		Questions 21-22 ask about mathematics assessment for the fourth-grade students in the TIMSS class.
	21	Revised question wording	How much importance do you place on these strategies to assess students' learning in mathematics?	How much importance do you place on the following assessment strategies in mathematics?
	24	Question deleted	-	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?
	Before 25	Instructions deleted	-	Questions 25 - 26 ask about science instruction for the fourth-grade students in the TIMSS class.
	26d	Item deleted	-	Design or plan experiments or investigations

	26e	Item deleted		Conduct experiments or investigations
	26f	Item deleted		Present data from experiments or investigations
	26g	Item deleted		Interpret data from experiments or investigations
	26h	Item deleted		Use evidence from experiments or investigations to support conclusions
	26j	Revised item wording	Memorize facts and principles	Have students memorize facts and principles
	-	New question added added	<p>How much emphasis do you place on the following when teaching science to students in this class?</p> <p>Check one circle for each line.</p> <ul style="list-style-type: none"> <li>- A lot</li> <li>- Some</li> <li>- None</li> </ul> <p>a) Encouraging students to ask questions about scientific phenomena</p> <p>b) Having students predict the outcomes of experiments or investigations</p> <p>c) Having students create representations (e.g., models, graphs) to explain scientific phenomena</p> <p>d) Having students use scientific concepts to explain phenomena</p>	-
	-	New question added added	<p>How often do you provide opportunities for students to do the following when teaching this class?</p> <p>Check one circle for each line.</p> <ul style="list-style-type: none"> <li>- Once a week or more</li> <li>- Once or twice a month</li> </ul>	-

			<ul style="list-style-type: none"> <li>- Once or twice every few months</li> <li>- Never or almost never</li> <li>a) Experiments or investigations that are carried out in a single lesson</li> <li>b) Experiments or investigations that are carried out over a series of lessons</li> <li>c) Hands-on activities to explore science concepts</li> <li>d) Experiments with a prescribed set of steps to answer a given question</li> <li>e) Experiments where students determine their own procedures to answer a given question</li> </ul>	
	-	New question added added	<p>How often do you go to a separate science laboratory when conducting experiments or investigations with students in this class? Check one circle only.</p> <ul style="list-style-type: none"> <li>- Always or almost always</li> <li>- Sometimes</li> <li>- Never or almost never</li> </ul>	-
	Before 27	Revised section heading	Using Digital Devices for Teaching Science to the TIMSS Class	Using Computers for Teaching Science to the TIMSS Class
	Before 27	Instructions deleted		Question 27 asks about computer use for teaching science to the fourth-grade students in the TIMSS class.
	27A	Revised question wording	Do the students in this class have digital devices (including computers, tablets, or smartphones) available to use during science lessons?	Do the students in this class have computers (including tablets) available to use during their science lessons?

	27B	Revised question wording	If yes, What access do the students have to digital devices?	If yes, What access do the students have to computers?
	29Ba	Revised item wording	The class has digital devices for each student to use	Each student has a computer
	27Bb	Revised item wording	The class has digital devices that students can share	The class has computers that students can share
	27Bc	Revised item wording	The school has digital devices that the class can use sometimes	The school has computers that the class can use sometimes
	-	New item added	Students bring their own digital devices	-
	27C	Question deleted	-	How often do you do activities on computers during science lessons to support learning for: -Every or almost every day -Once or twice a week -Once or twice a month -Never or almost never a) Whole class b) Low-performing students c) High-performing students d) Students with special needs
	-	New question added added	How often do you have students use digital devices during science instruction? Check one circle only. - At least once a week - Once or twice a month - A few times a year	-
	-	New question added	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 a) Solve extended or	

			<p>contextualized problems</p> <p>b) Create graphs, tables, or other data displays</p> <p>c) Play games involving science concepts</p> <p>d) Conduct virtual experiments or other simulations</p> <p>e) Read the textbook or watch instructional videos</p>	
	-	New question added	<p>How much do each of these keep you from incorporating digital devices into science instruction?</p> <p>- Not at all</p> <p>- Somewhat</p> <p>- A lot</p> <p>a) Not knowing how to use digital devices to improve student learning</p> <p>b) Not enough access to digital devices</p> <p>c) Keeping students on task when the class is using digital devices</p> <p>d) Lack of technology support from the school</p>	
	Before 28	Instructions deleted		Question 28 asks about the topics taught and the content covered in teaching science to the fourth-grade students in the TIMSS class.

	28	Revised question wording and response options	<p>The following list includes topics addressed by the TIMSS science test. Choose the response that best describes when each topic is taught for students in this class. If a topic was in the curriculum before fourth 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 fourth grade curriculum for this year or you have not yet taught a topic, choose "Not yet taught".</p> <ul style="list-style-type: none"> <li>- Mostly taught before this year</li> <li>- Mostly taught this year</li> <li>- Not yet taught</li> </ul>	<p>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 &lt;fourth grade&gt;, 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."</p> <ul style="list-style-type: none"> <li>- Mostly taught before this year</li> <li>- Mostly taught this year</li> <li>- Not yet taught or just introduced</li> </ul>
	28Aa	Revised item wording	Basic differences between living and nonliving things	Physical and behavioral characteristics of living things and major groups of living things (e.g., mammals, birds, insects, flowering plants)
	28Ab	Revised item wording	Defining characteristics of major groups of living things	Major body structures and their functions in humans, other animals, and plants
	28Ac	Revised item wording	Functions of major structures in living things (e.g., roots in plants)	Life cycles of common plants and animals (e.g., flowering plants, butterflies, frogs)
	28Ad	Revised item wording	Life cycle stages of common plants and animals (e.g., flowering plants, frogs)	Characteristics of plants and animals that are inherited

	28Ae	Revised item wording	Inherited characteristics of living things	Interactions between organisms and their environments (e.g., physical features and behaviors that help living things survive in their environments)
	28Af	Revised item wording	How living things survive in their environments (e.g., physical characteristics, behaviors)	Relationships in ecosystems (e.g., simple food chains, predator-prey relationships, competition)
	28Ag	Revised item wording	How human actions impact the environment	Human health (transmission and prevention of diseases, everyday behaviors that promote good health)
	-	New item added	Common ecosystems and their organisms (e.g., forest, desert)	-
	-	New item added	Interpreting simple food chains	-
	-	New item added	Competition within ecosystems	-
	-	New item added	Ways for humans to maintain good health and avoid illness	-
	28Ba	Revised item wording	Solids, liquids, gases, and how their shapes and volumes differ	States of matter (solid, liquid, gas) and their properties (volume, shape)
	28Bb	Revised item wording	Grouping objects based on their physical properties	Classifying materials based on physical properties (e.g., weight/mass, volume, state of matter, conductivity of heat or electricity)
	28Bc	Revised item wording	Examples of mixtures and how they can be separated (e.g., filtration, evaporation)	Mixtures, including methods for separating a mixture into its components (e.g., sifting, filtering, evaporation, using a magnet)
	28Be	Revised item wording	Magnetic attraction and repulsion	Physical changes in everyday life (e.g., changes of state, dissolving)

	28Bf	Revised item wording	Examples of physical and chemical changes in everyday life	Chemical changes in everyday life (e.g., decaying, burning, rusting, cooking)
	28Bg	Revised item wording	How to make solids dissolve faster in liquids (e.g., stirring, heating)	Common sources of energy (e.g., the Sun, wind, oil) and uses of energy (heating and cooling homes, providing light)
		New item added	Concentration of solutions	
	28Bh	Revised item wording	Sources of energy (e.g. the Sun, wind, water, coal, oil, and gas)	Light and sound in everyday life (e.g., shadows and reflections, vibrating objects make sound)
	28Bi	Revised item wording	How light is related to shadows, reflections, and rainbows	Heat transfer (e.g., energy flows from a hot object to a colder object)
	28Bj	Revised item wording	How vibrations are related to sound	Electricity and simple electrical circuits (e.g., a circuit must be complete to work correctly)
	28Bk	Revised item wording	Movement of heat from hotter to cooler objects	Forces that cause objects to move (e.g., gravity, pushing/pulling) or change their motion (e.g., friction)
	28Bl	Revised item wording	Simple electrical circuits	Simple machines (e.g., levers, pulleys, wheels, ramps) that help make motion easier
		New item added	How motion is affected by forces (e.g., gravity, pushing, pulling, friction)	-
	-	New item added	Examples of simple machines (e.g., levers, ramps)	-
	28Ca	Revised item wording	Composition of Earth's surface (i.e., land, fresh water, salt water)	Physical makeup of Earth's surface (e.g., land and water in unequal proportions, sources of fresh and salt water)
	28Cb	Revised item wording	Earth's resources and their use by humans	Earth's resources used in everyday life (e.g., water, wind, soil, forests, oil, natural gas, minerals)

	28Cc	Revised item wording	Renewable and nonrenewable resources	Changes in Earth's surface over time (e.g., mountain building, weathering, erosion)
	28Cd	Revised item wording	How wind and water change Earth's surface over time	Fossils and what they can tell us about past conditions on Earth
	28Ce	Revised item wording	What fossils can show about Earth's history	Weather and climate (e.g., daily, seasonal, and locational variations versus long term trends)
	28Cf	Revised item wording	How weather changes day to day and with geographic location	Objects in the Solar System (the Sun, the Earth, the Moon, and other planets) and their movements
	28Cg	Revised item wording	Effects of increasing temperatures on Earth	Earth's motion and related patterns observed on Earth (e.g., day and night, seasons)
	-	New item added	The Solar System (the Sun, Earth, Moon, and other planets)	-
	-	New item added	How Earth's motion causes day and night	-
	-	New item added	How Earth's annual movement around the Sun causes seasons or seasonal change	-
	29B	Question deleted	-	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.)
	Before 30	Instructions deleted		Questions 30-31 ask about science assessment for the fourth-grade students in the TIMSS class.
	30	Revised question wording	How much importance do you place on these strategies to assess students' learning in science?	How much importance do you place on the following assessment strategies in science?

	33	Question deleted	-	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?
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# TIMSS 2023 Teacher Questionnaire - Mathematics - Grade 8

## Changes from TIMSS 2019 Data Collection

### COVERS AND DIRECTIONS

TIMSS 2023 Field Test Location	TIMSS 2019 Data Collection Location	Type of Change	TIMSS 2023 Field Test Text	TIMSS 2019 Data Collection Text
Front cover	Front cover	Field Test Version' has been added	Field Test Version	-
		Copyright year has been changed from '2018' to '2021'	IEA, 2021	IEA, 2018
Directions	Directions	Replace 'TIMSS 2019' with 'TIMSS 2023' in first paragraph	TIMSS 2023	TIMSS 2019
Footers	Footers	Add 'Field Test'	Field Test Grade 8 Teacher Questionnaire	Grade 8 Teacher Questionnaire
Back cover	Back cover	Copyright year has been changed from '2018' to '2021'	IEA, 2021	IEA, 2018

### ITEMS

TIMSS 2023 Field Test Question #	TIMSS 2019 Data Collection Question #	Type of Change	TIMSS 2023 Field Test Question or Response Option	TIMSS 2019 Data Collection Question or Response Option
	2	Revised question wording	By the end of this school year, how many years will you have been teaching altogether?	At the end of this school year, how many years will you have been teaching altogether?
	3	Revised question wording and response options	Which of these describes you? - Female - Male - Other - Prefer not to say	Are you female or male? - Female - Male
	71	Item deleted	-	Collaboration between school leadership (including master teachers) and teachers to plan instruction

	8	Revised question wording	How much do you agree or disagree with the following statements about your current school?	Thinking about your current school, indicate the extent to which you agree or disagree with each of the following statements.
	8a	Item deleted	-	This school is located in a safe neighborhood
	9	Revised question wording	How often do you have these feelings about being a teacher?	How often do you feel the following way about being a teacher?
	-	New item added	I feel appreciated as a teacher	-
	-	New item added	I enjoy the challenges of teaching	-
	10	Revised question wording	How much do you agree or disagree with the statements below?	Indicate the extent to which you agree or disagree with each of the following statements.
	Before 10	Instructions deleted		Questions 11-14 ask about instruction for the eighth-grade students in the TIMSS class.
		New item added	Communicate goals or objectives for the lesson to the students	
	-	New item added	Distracted students	-
	Before 15	Instructions deleted		Questions 15 - 17 ask about mathematics instruction for the eighth-grade students in the TIMSS class.
	Before 18	Revised section heading	Using Calculators and Digital Devices for Teaching Mathematics to the TIMSS Class	Using Calculators and Computers for Teaching Mathematics to the TIMSS Class
	Before 18	Instructions deleted		Questions 18 - 19 ask about calculator and computer use for teaching mathematics to the eighth-grade students in the TIMSS class.
	18	Revised response option wording	Are students in this class permitted to use calculators during mathematics lessons? Check one circle only. - Yes, with unrestricted use - Yes, with restricted use - No	Are students in this class permitted to use calculators during mathematics lessons? Check one circle only. - Yes, with unrestricted use - Yes, with restricted use - No, calculators are not permitted

	19A	Revised question wording	Do the students in this class have digital devices (including computers, tablets, or smartphones) to use during mathematics lessons?	Do the students in this class have computers (including tablets) available to use during their mathematics lessons?
	19B	Revised question wording	If yes, What access do the students have to digital devices?	If yes, What access do the students have to computers?
	19Ba	Revised item wording	The class has digital devices for each student to use	Each student has a computer
	19Bb	Revised item wording	The class has digital devices that students can share	The class has computers that students can share
	19Bc	Revised item wording	The school has digital devices that the class can use sometimes	The school has computers that the class can use sometimes
		New item added	Students bring their own digital devices	
	19C	Question deleted		How often do you do activities on computers during mathematics lessons to support learning for: -Every or almost every day -Once or twice a week -Once or twice a month -Never or almost never a) Whole class b) Low-performing students c) High-performing students d) Students with special needs
		New question added	How often do you have students use digital devices during mathematics instruction? Check one circle only. - At least once a week - Once or twice a month - A few times a year	

	-	New question added	<p>How often do you ask the students in your class to use digital devices to do these mathematics activities?</p> <p>Check one circle for each line.</p> <ul style="list-style-type: none"> <li>- At least once a week</li> <li>- Once or twice a month</li> <li>- A few times a year</li> <li>- Never or almost never</li> </ul> <ul style="list-style-type: none"> <li>a) Practice problems and procedures</li> <li>b) Solve extended or contextualized problems</li> <li>c) Create graphs, tables, or other data displays</li> <li>d) Play games involving mathematics calculations or concepts</li> <li>e) Read the textbook or watch instructional videos</li> </ul>	
		New question added added	<p>How much do each of these keep you from incorporating digital devices into mathematics instruction?</p> <ul style="list-style-type: none"> <li>- Not at all</li> <li>- Somewhat</li> <li>- A lot</li> </ul> <ul style="list-style-type: none"> <li>a) Not knowing how to use digital devices to improve student learning</li> <li>b) Not enough access to digital devices</li> <li>c) Keeping students on task when the class is using digital devices</li> <li>d) Lack of technology support from the school</li> </ul>	
	Before 20	Instructions deleted		Question 20 asks about the topics taught and the content covered in teaching mathematics to the

				eighth-grade students in the TIMSS class.
	20	Revised question wording and response options	<p>The following list includes topics addressed by the TIMSS mathematics test. Choose the response that best describes when each topic is taught for students in this class.</p> <p>If a topic 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".</p> <ul style="list-style-type: none"> <li>- Mostly taught before this year</li> <li>- Mostly taught this year</li> <li>- Not yet taught</li> </ul>	<p>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 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."</p> <ul style="list-style-type: none"> <li>- Mostly taught before this year</li> <li>- Mostly taught this year</li> <li>- Not yet taught or just introduced</li> </ul>
	20Aa	Revised item wording	Add and subtract positive and negative numbers	Computing with negative numbers
	20Ab	Revised item wording	Find and use factors, multiples, positive powers, or square roots of whole numbers	Concepts of fractions and decimals
	20Ac	Revised item wording	Compare fractions and decimals	Solving problems involving proportions and percents
		New item added	Add, subtract, and multiply fractions and decimals	-
		New item added	Divide fractions and decimals by a whole number	-
		New item added	Determine proportions and ratios	
		New item added	Find percentages and convert between percentages and fractions/decimals	

## TIMSS 2023 Teacher Questionnaire - Science - Grade 8

### Changes from TIMSS 2019 Data Collection

#### COVERS AND DIRECTIONS

TIMSS 2023 Field Test Location	TIMSS 2019 Data Collection Location	Type of Change	TIMSS 2023 Field Test Text	TIMSS 2019 Data Collection Text
Front cover	Front cover	Field Test Version' has been added	Field Test Version	-
		Copyright year has been changed from '2018' to '2021'	IEA, 2021	IEA, 2018
Directions	Directions	Replace 'TIMSS 2019' with 'TIMSS 2023' in first paragraph	TIMSS 2023	TIMSS 2019
Footers	Footers	Add 'Field Test'	Field Test Grade 8 Teacher Questionnaire	Grade 8 Teacher Questionnaire
Back cover	Back cover	Copyright year has been changed from '2018' to '2021'	IEA, 2021	IEA, 2018

#### ITEMS

TIMSS 2023 Field Test Question #	TIMSS 2019 Data Collection Question #	Type of Change	TIMSS 2023 Field Test Question or Response Option	TIMSS 2019 Data Collection Question or Response Option
	2	Revised question wording	By the end of this school year, how many years will you have been teaching altogether?	At the end of this school year, how many years will you have been teaching altogether?
	3	Revised question wording and response options	Which of these describes you? - Female - Male - Other - Prefer not to say	Are you female or male? - Female - Male
	71	Item deleted	-	Collaboration between school leadership (including master teachers) and teachers to plan instruction

	8	Revised question wording	How much do you agree or disagree with the following statements about your current school?	Thinking about your current school, indicate the extent to which you agree or disagree with each of the following statements.
	8a	Item deleted	-	This school is located in a safe neighborhood
	9	Revised question wording	How often do you have these feelings about being a teacher?	How often do you feel the following way about being a teacher?
	-	New item added	I feel appreciated as a teacher	-
	-	New item added	I enjoy the challenges of teaching	-
	10	Revised question wording	How much do you agree or disagree with the statements below?	Indicate the extent to which you agree or disagree with each of the following statements.
	Before 10	Instructions deleted		Questions 11-14 ask about instruction for the eighth-grade students in the TIMSS class.
		New item added	Communicate goals or objectives for the lesson to the students	
	-	New item added	Distracted students	-
	Before 15	Instructions deleted		Questions 15 - 17 ask about science instruction for the eighth-grade students in the TIMSS class.
	16d	Item deleted	-	Design or plan experiments or investigations
	16e	Item deleted		Conduct experiments or investigations
	16f	Item deleted		Present data from experiments or investigations
	16g	Item deleted		Interpret data from experiments or investigations
	16h	Item deleted		Use evidence from experiments or investigations to support conclusions
	16j	Revised item wording	Memorize facts and principles	Have students memorize facts and principles

	-	New question added added	<p>How much emphasis do you place on the following when teaching science to students in this class? Check one circle for each line.</p> <ul style="list-style-type: none"> <li>- A lot</li> <li>- Some</li> <li>- None</li> </ul> <p>a) Encouraging students to ask questions about scientific phenomena b) Having students predict the outcomes of experiments or investigations c) Having students create representations (e.g., models, graphs) to explain scientific phenomena d) Having students use scientific concepts to explain phenomena</p>	-
	-	New question added added	<p>How often do you provide opportunities for students to do the following when teaching this class? Check one circle for each line.</p> <ul style="list-style-type: none"> <li>- Once a week or more</li> <li>- Once or twice a month</li> <li>- Once or twice every few months</li> <li>- Never or almost never</li> </ul> <p>a) Experiments or investigations that are carried out in a single lesson b) Experiments or investigations that are carried out over a series of lessons c) Hands-on activities to explore science concepts d) Experiments with a prescribed set of steps to answer a given question</p>	-

			e) Experiments where students determine their own procedures to answer a given question	
	-	New question added added	<p>How often do you go to a separate science laboratory when conducting experiments or investigations with students in this class?</p> <p>Check one circle only.</p> <ul style="list-style-type: none"> <li>- Always or almost always</li> <li>- Sometimes</li> <li>- Never or almost never</li> </ul>	-
	Before 18	Revised section heading	Using Digital Devices for Teaching Science to the TIMSS Class	Using Computers for Teaching Science to the TIMSS Class
	Before 18	Instructions deleted		Question 18 asks about computer use for teaching science to the fourth-grade students in the TIMSS class.
	18A	Revised question wording	Do the students in this class have digital devices (including computers, tablets, or smartphones) to use during science lessons at school?	Do the students in this class have computers (including tablets) available to use during their science lessons?
	18B	Revised question wording	If yes, What access do the students have to digital devices?	If yes, What access do the students have to computers?
	18Ba	Revised item wording	The class has digital devices for each student to use	Each student has a computer
	18Bb	Revised item wording	The class has digital devices that students can share	The class has computers that students can share
	18Bc	Revised item wording	The school has digital devices that the class can use sometimes	The school has computers that the class can use sometimes
	-	New item added	Students bring their own digital devices	-

	18C	Question deleted	-	How often do you do activities on computers during science lessons to support learning for: -Every or almost every day -Once or twice a week -Once or twice a month -Never or almost never a) Whole class b) Low-performing students c) High-performing students d) Students with special needs
	-	New question added added	How often do you have students use digital devices during science instruction? Check one circle only. - At least once a week - Once or twice a month - A few times a year	-
	-	New question added	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 a) Solve extended or contextualized problems b) Create graphs, tables, or other data displays c) Play games involving science concepts d) Conduct virtual experiments or other simulations e) Read the textbook or watch instructional videos	

	-	New question added	<p>How much do each of these keep you from incorporating digital devices into science instruction?</p> <ul style="list-style-type: none"> <li>- Not at all</li> <li>- Somewhat</li> <li>- A lot</li> </ul> <p>a) Not knowing how to use digital devices to improve student learning</p> <p>b) Not enough access to digital devices</p> <p>c) Keeping students on task when the class is using digital devices</p> <p>d) Lack of technology support from the school</p>	
	Before 19	Instructions deleted		Question 19 asks about the topics taught and the content covered in teaching science to the eighth-grade students in the TIMSS class.
	19	Revised question wording and response options	<p>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.</p> <p>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".</p> <ul style="list-style-type: none"> <li>- Mostly taught before this year</li> <li>- Mostly taught this year</li> <li>- Not yet taught</li> </ul>	<p>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."</p> <ul style="list-style-type: none"> <li>- Mostly taught before this year</li> <li>- Mostly taught this year</li> <li>- Not yet taught or just introduced</li> </ul>
	19Aa	Revised item wording	Defining characteristics of major	Differences among major

			taxonomic groups of organisms	taxonomic groups of organisms (plants, animals, fungi, mammals, birds, reptiles, fish, amphibians, insects)
	19Ab	Revised item wording	Structures and functions of major organs and organ systems	Major organs and organ systems in humans and other organisms (structure/function, life processes)
	19Ac	Revised item wording	How animals maintain stable body conditions	Cells, their structure and functions, including respiration and photosynthesis as cellular processes
	19Ad	Revised item wording	Major structures and functions in plant and animal cells	Life cycles, sexual reproduction, and heredity (inherited versus acquired/learned characteristics)
	19Ae	Revised item wording	Basic processes of photosynthesis	Role of variation and adaptation in survival/extinction of species (including fossil evidence)
	19Af	Revised item wording	Basic processes of cellular respiration	Interdependence of populations of organisms in an ecosystem (e.g., carbon and water cycles, energy flow, food webs, competition, predation, human impacts on ecosystems)
	19Ag	Revised item wording	Life cycles of mammals, birds, amphibians, insects, and plants	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)
	-	New item added	Processes for reproduction and inheritance in plants and animals	-
	-	New item added	How variation in traits relates to natural selection and changes in life on Earth over time	-
		New item added	Interpreting food web diagrams and the flow of energy in ecosystems	

		New item added	Cycling of water, oxygen, and carbon through ecosystems	
		New item added	Predation, competition, and symbiosis in ecosystems	
	-	New item added	How changes in an ecosystem affect the populations or organisms that live there	-
	-	New item added	How human actions can positively or negatively impact the environment	-
	-	New item added	How to prevent transmission of common diseases among humans	-
	-	New item added	Importance of diet, exercise, and lifestyle choices for maintaining good human health	-
	19Ba	Revised item wording	Structure of atoms (i.e., protons, neutrons, electrons), and molecules	Particular structure, classification, and composition of matter (protons, neutrons, electrons, atoms, molecules, elements, compounds, mixtures)
	19Bb	Revised item wording	Differences among elements, compounds, and mixtures	The periodic table as an organizing principle for the known elements
	19Bc	Revised item wording	How to interpret the periodic table of elements	Physical and chemical properties of matter
	19Bd	Revised item wording	Classifying matter according to physical and chemical properties	Mixtures and solutions (e.g., solvent, solute, concentration/dilution)
	19Be	Revised item wording	Methods for separating mixtures	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)
	19Bf	Revised item wording	Solution concentration and rate of dissolving	Characteristics of chemical reactions (e.g., transformation of reactants, evidence of chemical change)

	19Bg	Revised item wording	Properties of acids and bases	Matter and energy in chemical reactions ( conservation of matter, familiar exothermic and endothermic reactions, factors affecting reaction rates)
	19Bh	Revised item wording	Matter and energy in chemical reactions, including evidence of chemical change	The role of electrons in chemical bonds
	-	New item added	How to change the rate of chemical reactions	-
	-	New item added	Chemical bonds (e.g., role of electrons)	-
	19Ca	Revised item wording	Separation and motion of atoms/molecules in solids, liquids, and gases	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)
	19Cb	Revised item wording	Characteristics of matter and energy during state changes	Energy transformation and transfer (e.g., forms of energy, energy conservation, heat, temeprature, equilibrium)
	19Cc	Revised item wording	Types of energy (e.g., kinetic, potential, thermal) and examples of energy transformations	Basic properties/behaviors of light (reflection, refraction, color, shadows, simple ray diagrams)
	19Cd	Revised item wording	Thermal conductivity and the transfer of thermal energy between objects of different temperatures	Basic properties of sound (vibrations that produce sound, transmission through media, loudness, pitch)
	19Ce	Revised item wording	Reflection, refraction, or absorption of light	Electric circuits (e.g., electrical conductors/insulators and the flow of electricity in series/parallel circuits)
	19Cf	Revised item wording	Characteristics of sound (i.e., amplitude, frequency) and its transmission, reflection, and absorption	Properties and uses of permanent magnets and electromagnets

	19Cg	Revised item wording	Electrical conductors and simple electrical circuits	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)
	-	New item added	Polarity, strength, and uses of permanent magnets and electromagnets	-
	-	New item added	Speed as distance changing over time	-
	-	New item added	Acceleration as speed changing over time	-
	-	New item added	Effects of common forces on speed and direction of motion	-
	-	New item added	Density and buoyancy	-
	-	New item added	Functioning of simple machines (e.g., levers, inclined planes, pulleys)	-
	19Da	Revised item wording	Earth's structure and distribution of water on its surface	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)
	19Db	Revised item wording	Gases present in Earth's atmosphere and their relative abundance	Earth's processes, cycles, and history (e.g., rock cycle, major geological events, formation of fossils and fossil fuels water cycle, weather versus climate)
	19Dc	Revised item wording	Changes in temperature and pressure based on altitude	Earth's resource, their use, and conservation (e.g., renewable/nonrenewable resources, human use of land and water resources)

	19Dd	Revised item wording	How geological events impact Earth's surface	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)
	-	New item added	Processes in the rock cycle (e.g., lava cooling, weathering)	-
	-	New item added	How fossils form and what they show about Earth's history	-
	-	New item added	Processes in Earth's water cycle	-
	-	New item added	Differences between weather and climate and geographic factors affecting climate	-
	-	New item added	Evidence for climate change	-
	-	New item added	Use and conservation of Earth's resources, including land, water, and renewable and nonrenewable energy sources	-
	-	New item added	Phenomena caused by the motion of Earth and the Moon (e.g., seasons, tides, Moon phases)	-
	-	New item added	The Sun as a star and physical features of the Earth, Moon, and other planets	-
	Before 20	Instructions deleted	-	Question 20 asks about science homework for the eighth-grade students in the TIMSS class.
	20B	Question deleted	-	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.)
	Before 21	Instructions deleted	-	Questions 21 - 22 ask about science assessment for the eighth-grade students in the TIMSS class.
	21	Revised question wording	How much importance do you	How much importance do you

			place on these strategies to assess students' learning in science?	place on the following assessment strategies in science?
	24	Question deleted	-	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?

## TIMSS 2023 School Questionnaire - Grade 4

### Changes from TIMSS 2019 Data Collection

#### COVERS AND DIRECTIONS

TIMSS 2023 Field Test Location	TIMSS 2019 Data Collection Location	Type of Change	TIMSS 2023 Field Test Text	TIMSS 2019 Data Collection Text
Front Cover	Front Cover	Field Test Version' has been added	Field Test Version	-
		Copyright year has been changed from '2018' to '2021'	IEA, 2021	IEA, 2018
Directions	Directions	Change 'TIMSS 2019' to 'TIMSS 2023' in first paragraph and footer	TIMSS 2023	TIMSS 2019
		Removed "When you have completed the questionnaire, please place it in the accompanying envelope and return it to the TIMSS school coordinator."		When you have completed the questionnaire, please place it in the accompanying envelope and return it to the TIMSS school coordinator.
Footers	Footers	Add 'Field Test'	Field Test Grade 4 School Questionnaire	Grade 4 School Questionnaire
Back Cover	Back Cover	Copyright year has been changed from '2018' to '2021'	IEA, 2021	IEA, 2018

#### ITEMS

TIMSS 2023 Field Test Question #	TIMSS 2019 Data Collection Question #	Type of Change	TIMSS 2023 Field Test Question or Response Option	TIMSS 2019 Data Collection Question or Response Option

	1	changed date	What is the total enrollment of students in your school as of April 1, 2022?	What is the total enrollment of students in your school as of March 1, 2022?
	2	Information in brackets has been updated for 2022 field test.	What is the total enrollment of fourth-grade students in your school as of March 1, 2022?	What is the total enrollment of fourth-grade students in your school as of April 1, 2022?
	4		Around the 1st of October 2021, what percentage of students at this school were eligible to receive free or reduced-price lunches through the National School Lunch Program?	Around the 1st of October 2018, what percentage of students at this school were eligible to receive free or reduced-price lunches through the National School Lunch Program?
	7	question deleted		What type of school is this? Fill in one circle only. Regular public school A regular public school with a magnet program A magnet school or school with a special program emphasis (e.g., Montessori, science/math school, performing arts school, talented/gifted school, foreign language immersion school) Special education: a school that primarily serves students with disabilities Alternative: a school designed to address the needs of students, typically at risk of educational failure, which cannot be met in

				regular schools Vocational Charter School Private (independent) Private (religiously affiliated) Other
	9	question deleted		Which best characterizes the average income level of the school's immediate area? High Medium Low
	10B		Write in the number of minutes per day. Please convert the number of hours into minutes.	Write in the number of hours and minutes per day.
	14			Does your school have a school library?
	14B	Delete items	-	If Yes, B. Approximately how many books (print) with different titles does your school library have (exclude magazines and periodicals)?
	15			Does your school have classroom libraries?
	-	New item added	Do students in your school have access to a library or media center with the following? Check one circle for each line. - Yes - No a) High speed internet access b) Digital devices (e.g., laptops, tablets, PCs) c) Printed learning materials (e.g., textbooks)	-
	17Ah	Revised	Digital devices for student use	Computer technology for teaching and learning (e.g., computers or tablets for student

				use)
	21	Deleted question		<p>In your school, are any of the following used to evaluate the practice of fourth-grade teachers?</p> <p>Yes</p> <p>No</p> <p>a) Observations by the principal or senior staff</p> <p>b) Observations by inspectors or other persons external to the school</p> <p>c) Student achievement</p> <p>d) Teacher peer review</p>
	23		<p>By the end of this school year, how many years will you have been a principal altogether?</p>	<p>By the end of this school year, how many years altogether will you have been a principal?</p>
	-	New item added	<p>For how long was your school fully closed for in-person instruction because of the COVID-19 pandemic?</p> <p>-The school did not fully close</p> <p>-Less than one month</p> <p>-One to three months</p> <p>-More than three months</p> <p>a) 2019-2020 school year</p> <p>b) 2020-2021 school year</p> <p>c) 2021-2022 school year</p>	-

	-	<p>New item added</p>	<p>Did your school provide these additional remote learning resources during the COVID-19 pandemic?</p> <ul style="list-style-type: none"> <li>- Yes</li> <li>- No</li> </ul> <p>a) Printed learning materials for students (e.g., worksheets, textbooks)</p> <p>b) Digital devices (e.g., laptops, tablets) for students</p> <p>c) Online resources for students</p> <p>d) Pedagogical resources for teachers</p> <p>e) Digital devices (e.g., laptops, tablets) for teachers</p> <p>f) Technical support for teachers</p>	
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## TIMSS 2023 School Questionnaire - Grade 8

### Changes from TIMSS 2019 Data Collection

#### COVERS AND DIRECTIONS

TIMSS 2023 Field Test Location	TIMSS 2019 Data Collection Location	Type of Change	TIMSS 2023 Field Test Text	TIMSS 2019 Data Collection Text
Front Cover	Front Cover	Field Test Version' has been added	Field Test Version	-
		Copyright year has been changed from '2018' to '2021'	IEA, 2021	IEA, 2018
Directions	Directions	Year at the bottom of the page has been updated for 2023 cycle	TIMSS 2023	TIMSS 2019
Footers	Footers	Add 'Field Test'	Field Test Grade 8 School Questionnaire	Grade 8 School Questionnaire
Back Cover	Back Cover	Copyright year has been changed from '2018' to '2021'	IEA, 2021	IEA, 2018

#### ITEMS

TIMSS 2023 Field Test Question #	TIMSS 2019 Data Collection Question #	Type of Change	TIMSS 2023 Field Test Question or Response Option	TIMSS 2019 Data Collection Question or Response Option
	1	Information in brackets has been updated for 2022 field test.	What is the total enrollment of students in your school as of April 1, 2022?	What is the total enrollment of students in your school as of March 1, 2022?

	2	Information in brackets has been updated for 2022 field test.	What is the total enrollment of eighth-grade students in your school as of March 1, 2022?	What is the total enrollment of eighth-grade students in your school as of April 1, 2022?
	4		Around the 1st of October 2021, what percentage of students at this school were eligible to receive free or reduced-price lunches through the National School Lunch Program?	Around the 1st of October 2018, what percentage of students at this school were eligible to receive free or reduced-price lunches through the National School Lunch Program?
	7	question deleted		What type of school is this? Fill in one circle only. Regular public school A regular public school with a magnet program A magnet school or school with a special program emphasis (e.g., Montessori, science/math school, performing arts school, talented/gifted school, foreign language immersion school) Special education: a school that primarily serves students with disabilities Alternative: a school designed to address the needs of students, typically at risk of educational failure, which cannot be met in regular schools Vocational Charter School Private (independent) Private (religiously affiliated) Other

	9	question deleted		Which best characterizes the average income level of the school's immediate area? High Medium Low
	10B		Write in the number of minutes per day. Please convert the number of hours into minutes.	Write in the number of hours and minutes per day.
	14			Does your school have a school library?
	14B	Delete items	-	If Yes, B. Approximately how many books (print) with different titles does your school library have (exclude magazines and periodicals)?
	15			Does your school have classroom libraries?
	16	Deleted question		Does your school provide students access to digital learning resources (e.g., books, videos)?
	-	New item added	Do students in your school have access to these resources? Check one circle for each line. - Yes - No a) A library or media center b) Digital devices (e.g., computers, laptops, tablets) c) High speed internet	-
	17Ah	Revised	Digital devices for student use	Computer technology for teaching and learning (e.g., computers or tablets for student use)
	22	Deleted question		In your school, are any of the following used to evaluate the practice of eighth-grade mathematics teachers?

				<p>Yes No a) Observations by the principal or senior staff b) Observations by inspectors or other persons external to the school c) Student achievement d) Teacher peer review</p>
	23	Deleted question		<p>In your school, are any of the following used to evaluate the practice of eighth-grade science teachers?</p> <p>Yes No a) Observations by the principal or senior staff b) Observations by inspectors or other persons external to the school c) Student achievement d) Teacher peer review</p>
	24		By the end of this school year, how many years will you have been a principal altogether?	By the end of this school year, how many years altogether will you have been a principal?
	-	New item added	<p>For how long was your school fully closed for in-person instruction because of the COVID-19 pandemic?</p> <p>-The school did not fully close -Less than one month -One to three months -More than three months</p> <p>a) 2019-2020 school year b) 2020-2021 school year c) 2021-2022 school year</p>	-

	-	<p>New item added</p>	<p>Did your school provide these additional remote learning resources during the COVID-19 pandemic?</p> <ul style="list-style-type: none"> <li>- Yes</li> <li>- No</li> </ul> <p>a) Printed learning materials for students (e.g., worksheets, textbooks)</p> <p>b) Digital devices (e.g., laptops, tablets) for students</p> <p>c) Online resources for students</p> <p>d) Pedagogical resources for teachers</p> <p>e) Digital devices (e.g., laptops, tablets) for teachers</p> <p>f) Technical support for teachers</p>	
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