TIMSS 2023 Curriculum Questionnaire—Fourth Grade

The TIMSS 2023 Curriculum Questionnaire is designed to collect basic information about the structure of the education system as well as the organization, content, and implementation of the mathematics and/or science curricula in each country.

The questionnaire should be completed by National Research Coordinators, drawing on the expertise of curriculum specialists and educators. Please submit this questionnaire by **January 31, 2024.**

Please note that the General Module is the same for the fourth and eighth grades. National Research Coordinators of countries participating in TIMSS 2023 at both the fourth and eighth grade should complete the General Module at only one of the grade levels. The Mathematics and Science Modules should be completed for both grades.

If you have any questions about the content of this questionnaire, please contact the TIMSS & PIRLS International Study Center at Boston College: timss@bc.edu

If you have any technical questions about how to complete this questionnaire, please contact IEA Hamburg: timss@iea-hamburg.de

GENERAL MODULE

To be completed by all countries participating in TIMSS

Grade Structure and Student Flow

G1. What is your country's name for the grade(s) tested in TIMSS 2023, in English (e.g., grade 4, grade 8)?

G2. A. In your country, what is the stated official policy or regulation on students' age of entry to primary school (ISCED Level 1)?

Examples: "Children begin school during the calendar year of their 6th birthday"; "Children must be 6 years old by the end of June to begin school the following September."

B. If the official policy allows some parental discretion or choice, please describe the usual practice.

Example: "Even though the official policy is that students can begin school in the year when they turn 6 years old, children typically begin primary school at age 7 because their parents feel they will benefit from being more mature."

G3. A. Has the stated official policy changed in the last 10 years?

*Click **one** circle only.*

- ◯ Yes
- ◯ No

B. *If Yes*... How did the policy change, and what is the status of implementation?

G4. What are the ages (or grades) of compulsory education in your country?

Example: "Ages 6-16; Grades 1-9."

G5. Beginning with ISCED Level 1, what grades of schooling are provided to students through ISCED Level 3 (upper secondary)?

Example: "Grades 1-12."

G6. Does your country have a policy on the promotion and retention of students across grades 1-8?

Example: "Automatic promotion for grades 1-5, dependent on academic progress for grades 6-8."

*Click **one** circle only.*

- ◯ Yes
- ◯ No

Please describe:

G7. Does your country have a nationally mandated number of school days per year?

*Click **one** circle only.*

- ◯ Yes
- ◯ No

Please describe:

Languages of Instruction

G8. A. State the official language(s) and describe the major language subgroups in your country.

B. Describe the languages of instruction for mathematics and science in the fourth and eighth grades. For example, is the instruction in these grades for these subjects presented to the students in their native language or in a second language?

Early Childhood Education

Early childhood education (ISCED Level 0) is subdivided into:

- ***Early childhood educational development (ECED)*** *programs for children under age 3; and*
- ***Pre-primary education (PPE)*** *programs including Kindergarten for children age 3 or older.*

G9. A. Are the following forms of early childhood education available in your country?

*Click **one** circle for each line.*

	Yes	*No*	*Varies by State*
a) Government-sponsored ECED programs	○	○	○
b) Government-sponsored PPE programs	○	○	○
c) Private ECED programs	○	○	○
d) Private PPE programs	○	○	○
e) Targeted ECED programs for certain subgroups (e.g., low-income families)	○	○	○
f) Targeted PPE programs for certain subgroups (e.g., low-income families)	○	○	○

B. How many years can children attend ECED and PPE programs altogether?

*Click **one** circle only.*

- ○ 1 year
- ○ 2 years
- ○ 3 years
- ○ 4 or more years

C. If your country has an integrated or unitary system of early childhood education (i.e., is not formally divided into ECED and PPE), please describe:

Comments:

G10. Does your country have national curriculum guidance documents for ECED or PPE programs?

*Click **one** circle for each line.*

	Yes	*No*
a) ECED programs for children under age 3	○	○
b) PPE programs for children age 3 or older	○	○

Examinations

G11. A. Does an educational authority in your country (e.g., National Ministry of Education) administer examinations that have consequences for individual students, such as entry to a higher school system, entry to a university, and/or exiting or graduating from secondary school?

*Click **one** circle only.*

- ◯ Yes
- ◯ No

B. *If Yes*... Please describe the grades at which the exams are given, the subjects that are assessed, and the purpose of each exam.

Example: "There is an exam including language and mathematics given at the end of grade 8 to determine placement for entry to secondary school."

Environmental Sustainability

G12. Are there any national efforts or initiatives related to promoting sustainability or environmentalism in schools in your country?

*Click **one** circle only.*

- ◯ Yes
- ◯ No

If Yes… Please describe.

Social-Emotional Learning

G13. Are there any national efforts or initiatives related to promoting social-emotional learning in your country?

*Click **one** circle only.*

- ◯ Yes
- ◯ No

If Yes… Please describe.

Teacher Preparation

G14. A. What is the main preparation route(s) for teachers of students in the fourth and eighth grades?

If your country participates in TIMSS at one grade level, answer for that grade level only.

*Click **all that apply** in each column.*

	Fourth Grade	*Eighth Grade*
a) Completion of a university degree in education	☐	☐
b) Completion of a graduate degree in education	☐	☐
c) Completion of a teachers college or normal school degree	☐	☐
d) Completion of a specialized teaching program following a university degree	☐	☐

Comments:

B. Does the main preparation route(s) include an extended supervised practicum?

*Click **one** circle only.*

- ◯ Yes
- ◯ No

If Yes… How long is this period?

C. In addition to the main teacher preparation route(s), are there other requirements for being a teacher of students in the fourth and eighth grades?

If your country participates in TIMSS at one grade level, answer for that grade level only.

*Click **all that apply** in each column.*

	Fourth Grade	*Eighth Grade*
a) Passing a qualifying examination (e.g., licensing, certification)	☐	☐
b) Completion of a probationary teaching period *If Yes*... How long is this period for each grade?	☐	☐
c) Completion of a mentoring or induction program (e.g., experienced teachers work with novice teachers to provide instructional guidance)	☐	☐
d) Other, please specify for each grade:	☐	☐

D. In the last 10 years, has there been a change in the stated official policy about the requirements for being a teacher of students in the fourth or eighth grades?

*Click **one** circle only.*

- ◯ Yes
- ◯ No

If Yes… How did the policy change, and what is the status of implementation?

G15. Describe any differences between the preparation of fourth grade teachers and the preparation of eighth grade teachers to teach mathematics and science in your country.

If your country only participates in TIMSS at the fourth grade, please skip this question.

Principal Preparation

G16. A. What are the current requirements for being a principal of a school with fourth grade or eighth grade students?

If your country participates in TIMSS at one grade level, answer for that grade level only.

*Click **all that apply** for each column.*

	Fourth Grade	*Eighth Grade*
a) Teaching experience	☐	☐
b) Completion of a specialized school leadership training program (not an academic degree)	☐	☐
c) Graduate degree in school leadership	☐	☐
d) Other, please specify for each grade:	☐	☐

B. In the last 10 years, has there been a change in the stated official policy about the requirements for being a principal of a school with fourth grade or eighth grade students?

*Click **one** circle only.*

- ◯ Yes
- ◯ No

If Yes… How did the policy change, and what is the status of implementation?

COVID-19 and Policy Changes

G17. Did the COVID-19 pandemic lead to any enduring education policy changes in your country?

*Click **one** circle only.*

- ◯ Yes
- ◯ No

If Yes… Please describe.

Example: "Remote learning has remained an option for some students with health issues even after schools reopened."

MATHEMATICS MODULE GRADE 4

To be completed by all countries participating in TIMSS at the fourth grade

This mathematics module refers to the national curriculum that was in effect for the fourth grade students assessed in TIMSS 2023—the curriculum that covers mathematics instruction at the fourth grade of primary/elementary school for the majority of students. If you do not have a national curriculum, please summarize for your state or provincial curricula.

About the Fourth Grade Mathematics Curriculum

This mathematics module refers to the national curriculum that was in effect for the fourth grade students assessed in TIMSS 2023—the curriculum that covers mathematics instruction at the fourth grade of primary/elementary school for the majority of students. If you do not have a national curriculum, please summarize for your state or provincial curricula.

M1. Does your country have a national curriculum that covers mathematics instruction at the fourth grade of primary/elementary school?

*Click **one** circle only.*

- ◯ Yes
- ◯ No

If Yes… Comments:

If No… What is the highest level of decision-making authority (e.g., state or province) that provides a curriculum that covers mathematics instruction at the fourth grade of primary/elementary school?

M2. A. In what year was the 2022-2023 mathematics curriculum introduced?

Comments (e.g., status of implementation):

B. Is the mathematics curriculum currently being revised?

*Click **one** circle only.*

- ◯ Yes
- ◯ No

If Yes… Please explain:

If No… Comments:

Curriculum Specifications

This mathematics module refers to the national curriculum that was in effect for the fourth grade students assessed in TIMSS 2023—the curriculum that covers mathematics instruction at the fourth grade of primary/elementary school for the majority of students. If you do not have a national curriculum, please summarize for your state or provincial curricula.

M3. Does the curriculum or any other official document prescribe the percentage of <u>total</u> instructional time to be devoted to <u>mathematics</u> instruction at the fourth grade of primary/elementary school?

*Click **one** circle only.*

- ◯ Yes
- ◯ No

If Yes… Please specify the percentage:

Comments:

M4. Does the fourth grade mathematics curriculum include any of the following?

*Click **one** circle for each line.*

	Yes	*No*
a) Recommendations for the amount of time to be spent on particular areas or topics	◯	◯
b) Recommendations for assessment methods	◯	◯
c) Recommendations for instructional activities	◯	◯
d) Recommendations for connecting mathematics to everyday contexts	◯	◯
e) Other, please specify:	◯	◯

M5. How is the mathematics curriculum implementation evaluated?

*Click **one** circle for each line.*

	Yes	*No*
a) Visits by inspectors	○	○
b) Research programs (e.g., large scale curriculum evaluations)	○	○
c) School self-evaluation	○	○
d) National or regional examinations	○	○
e) Other, please specify:	○	○

Comments:

Use of Digital Devices

This mathematics module refers to the national curriculum that was in effect for the fourth grade students assessed in TIMSS 2023—the curriculum that covers mathematics instruction at the fourth grade of primary/elementary school for the majority of students. If you do not have a national curriculum, please summarize for your state or provincial curricula.

M6. A. Does the national curriculum contain statements/policies about the use of digital devices (e.g., computers, tablets, calculators) in grade 4 mathematics instruction?

*Click **one** circle only.*

- ○ Yes
- ○ No

If Yes… What are the statements/policies?

B. Does the national curriculum contain statements/policies about student use of digital devices (e.g., computers, tablets, calculators) in grade 4 mathematics tests or examinations?

*Click **one** circle only.*

- ◯ Yes
- ◯ No

If Yes… What are the statements/policies?

Comments:

Specialist Mathematics Teachers

M7. At what grade(s) are students first taught by mathematics subject specialists rather than general classroom teachers?

Fourth Grade Mathematics Topics Covered

This mathematics module refers to the national curriculum that was in effect for the fourth grade students assessed in TIMSS 2023—the curriculum that covers mathematics instruction at the fourth grade of primary/elementary school for the majority of students. If you do not have a national curriculum, please summarize for your state or provincial curricula.

M8. According to the national mathematics curriculum, what proportion of grade 4 students should have been taught each of the following topics or skills by the end of grade 4?

A. Number

*Click **one** circle for each line.*

	Proportion of Grade 4 Students Expected to be Taught Topic or Skill		
	All or almost all students	*Only the more advanced students*	*Not included in the curriculum through Grade 4*
a) Recognize place value of numbers to 6 digits, connect representations of numbers (words, symbols, and models including number lines), and compare numbers	○	○	○
b) Add and subtract up to 4-digit numbers	○	○	○
c) Multiply (up to 3-digit by 1-digit and 2-digit by 2-digit numbers) and divide (up to 3-digit by 1-digit numbers)	○	○	○
d) Solve problems involving odd and even numbers, multiples and factors of numbers, rounding numbers (up to the nearest powers of 10), and making estimates	○	○	○
e) Combine two or more properties of numbers or operations to solve a problem	○	○	○
f) Find the missing number or operation in a number sentence (e.g., 17 + w = 29)	○	○	○
g) Match or write expressions or number sentences to represent problem situations that may involve unknowns	○	○	○
h) Match, describe, or use relationships in a well-defined pattern (e.g., describe the relationship between adjacent terms and generate pairs of whole numbers given a rule)	○	○	○
i) Describe a fraction as part of a whole or collection; connect different representations of fractions (words, numbers, and models); compare the size of fractions; add and subtract simple fractions with like denominators	○	○	○
j) Connect different representations of decimals (words, numbers, and models); compare and order decimals and relate decimals to fractions; round decimals; add and subtract decimals (up to two decimal places)	○	○	○

Comments:

B. Measurement and Geometry

*Click **one** circle for each line.*

	Proportion of Grade 4 Students Expected to be Taught Topic or Skill		
	All or almost all students	*Only the more advanced students*	*Not included in the curriculum through Grade 4*
a) Measure, estimate, add, and subtract lengths (millimeters, centimeters, meters, kilometers)	○	○	○
b) Add and subtract mass (gram and kilogram), volume (milliliter and liter), and time (minutes and hours); select appropriate types and sizes of units and read scales	○	○	○
c) Determine perimeters of polygons, areas of rectangles, areas of shapes covered with squares or partial squares, and volumes filled with cubes	○	○	○
d) Recognize and draw parallel and perpendicular lines, right angles, and angles smaller or larger than a right angle; compare the relative size of angles	○	○	○
e) Use elementary properties, including line and rotational symmetry, to describe and create common two-dimensional shapes (circle, triangles, quadrilaterals, and other polygons)	○	○	○
f) Use elementary properties to describe three dimensional shapes (cubes, rectangular solids, cones, cylinders, and spheres), the differences among them, and how they relate to their two-dimensional representations	○	○	○

Comments:

C. Data

*Click **one** circle for each line.*

	Proportion of Grade 4 Students Expected to be Taught Topic or Skill		
	All or almost all students	*Only the more advanced students*	*Not included in the curriculum through Grade 4*
a) Read data from tables, pictographs, bar graphs, line graphs, and pie charts	○	○	○
b) Create or complete tables, pictographs, bar graphs, line graphs, and pie charts	○	○	○
c) Interpret and use data to answer questions that go beyond directly reading data displays	○	○	○
d) Combine or compare data from two or more sources and draw conclusions based on two or more datasets	○	○	○

Comments:

SCIENCE MODULE GRADE 4

To be completed by all countries participating in TIMSS at the fourth grade

This science module refers to the national curriculum that was in effect for the fourth grade students assessed in TIMSS 2023—the curriculum that covers science instruction at the fourth grade of primary/elementary school for the majority of students. If you do not have a national curriculum, please summarize for your state or provincial curricula.

About the Fourth Grade Science Curriculum

This science module refers to the national curriculum that was in effect for the fourth grade students assessed in TIMSS 2023—the curriculum that covers science instruction at the fourth grade of primary/elementary school for the majority of students. If you do not have a national curriculum, please summarize for your state or provincial curricula.

S1. Does your country have a national curriculum that covers science instruction at the fourth grade of primary/elementary school?

*Click **one** circle only.*

- ◯ Yes
- ◯ No

If Yes… Comments:

If No… What is the highest level of decision-making authority (e.g., state or province) that provides a curriculum that covers science instruction at the fourth grade of primary/elementary school?

S2. A. In what year was the 2022-2023 science curriculum introduced?

Comments (e.g., status of implementation):

B. Is the science curriculum currently being revised?

*Click **one** circle only.*

- ◯ Yes
- ◯ No

If Yes… Please explain:

If No… Comments:

Curriculum Specifications

This science module refers to the national curriculum that was in effect for the fourth grade students assessed in TIMSS 2023—the curriculum that covers science instruction at the fourth grade of primary/elementary school for the majority of students. If you do not have a national curriculum, please summarize for your state or provincial curricula.

S3. Does the curriculum or any other official document prescribe the percentage of <u>total</u> instructional time to be devoted to <u>science</u> instruction at the fourth grade of primary/elementary school?

*Click **one** circle only.*

- ◯ Yes
- ◯ No

If Yes… Please specify the percentage:

Comments:

S4. Does the fourth grade science curriculum include any of the following?

*Click **one** circle for each line.*

	Yes	*No*
a) Recommendations for the amount of time to be spent on particular areas or topics	○	○
b) Recommendations for assessment methods	○	○
c) Recommendations for instructional activities	○	○
d) Recommendations for connecting science to other subjects	○	○
e) Other, please specify:	○	○

S5. How is the science curriculum implementation evaluated?

*Click **one** circle for each line.*

	Yes	*No*
a) Visits by inspectors	○	○
b) Research programs (e.g., large scale curriculum evaluations)	○	○
c) School self-evaluation	○	○
d) National or regional examinations	○	○
e) Other, please specify:	○	○

Comments:

Use of Digital Devices

This science module refers to the national curriculum that was in effect for the fourth grade students assessed in TIMSS 2023—the curriculum that covers science instruction at the fourth grade of primary/elementary school for the majority of students. If you do not have a national curriculum, please summarize for your state or provincial curricula.

S6. Does the national curriculum contain statements/policies about the use of digital devices (e.g., computers, tablets, calculators) in grade 4 science instruction?

*Click **one** circle only.*

- ○ Yes
- ○ No

If Yes… What are the statements/policies?

Specialist Science Teachers

S7. At what grade(s) are students first taught by science subject specialists rather than general classroom teachers?

Fourth Grade Science Topics Covered

This science module refers to the national curriculum that was in effect for the fourth grade students assessed in TIMSS 2023—the curriculum that covers science instruction at the fourth grade of primary/elementary school for the majority of students. If you do not have a national curriculum, please summarize for your state or provincial curricula.

S8. According to the national science curriculum, what proportion of grade 4 students should have been taught each of the following topics or skills by the end of grade 4?

A. Life Science

*Click **one** circle for each line.*

	Proportion of Grade 4 Students Expected to be Taught Topic or Skill		
	All or almost all students	*Only the more advanced students*	*Not included in the curriculum through Grade 4*
a) Differences between living and non-living things; what living things require to live	○	○	○
b) Physical and behavioral characteristics of major groups of living things (e.g., birds, mammals, plants)	○	○	○
c) Functions of major structures in plants and animals (e.g., bones, lungs, stem, leaves)	○	○	○
d) Stages of life cycles; differences among the life cycles of common plants and animals (e.g., frogs, butterflies, flowering plants)	○	○	○
e) Inheritance and reproductive strategies (e.g., plants producing many seeds, mammals caring for their young)	○	○	○
f) Inherited and acquired characteristics in plants and animals	○	○	○
g) Physical features of plants and animals that help them survive in their environment	○	○	○
h) Responses of plants and animals to changes in environmental conditions	○	○	○
i) The positive and negative impacts of humans on the environment	○	○	○
j) Plants and animals in common ecosystems (e.g., desert, forest, grassland)	○	○	○
k) Relationships in simple food chains	○	○	○
l) Competition in ecosystems	○	○	○
m) Ways of promoting human health and preventing the transmission of common communicable diseases	○	○	○

Comments:

B. Physical Science

*Click **one** circle for each line.*

	Proportion of Grade 4 Students Expected to be Taught Topic or Skill		
	All or almost all students	*Only the more advanced students*	*Not included in the curriculum through Grade 4*
a) Solids, liquids, gases, and their characteristics	○	○	○
b) Physical properties as a basis for classifying matter (e.g., mass, volume, ability to conduct heat)	○	○	○
c) Describe examples of mixtures and how they can be physically separated	○	○	○
d) Magnetic attraction and repulsion	○	○	○
e) Physical changes observed in everyday life (e.g., dissolving, crushing)	○	○	○
f) Chemical changes observed in everyday life (e.g., decaying, burning)	○	○	○
g) Common sources of energy (e.g., the Sun, wind, oil, gas)	○	○	○
h) Common phenomena related to the behavior of light (e.g., shadows, reflections)	○	○	○
i) Common phenomena related to the behavior of sound (e.g., echoes)	○	○	○
j) Heat transfer (e.g., energy flows from a warmer object to a colder object)	○	○	○
k) Electricity and simple electrical circuits	○	○	○
l) Familiar forces and the motion of objects (e.g., gravity, friction)	○	○	○
m) Examples of simple machines (e.g., levers, ramps, pulleys)	○	○	○

Comments:

C. Earth Science

*Click **one** circle for each line.*

	Proportion of Grade 4 Students Expected to be Taught Topic or Skill		
	All or almost all students	*Only the more advanced students*	*Not included in the curriculum through Grade 4*
a) Physical characteristics of Earth (e.g., fresh and salt water, air)	○	○	○
b) Earth's renewable and non-renewable resources	○	○	○
c) Changes in Earth's surface over time	○	○	○
d) Fossils and what they show about Earth's history	○	○	○
e) How weather can vary across geographic locations and seasons	○	○	○
f) Earth's rising average temperatures and results of this change (e.g., melting ice caps, higher ocean levels)	○	○	○
g) Composition of the Solar System (e.g., Sun, planets)	○	○	○
h) Earth's motion and related patterns observed on Earth (e.g., day and night, seasons)	○	○	○

Comments:

This completes the *Grade 4 TIMSS 2023 Curriculum Questionnaire*. Please click "Submit Data" to complete data entry and submit your responses to IEA.

Thank you for completing the TIMSS 2023 Curriculum Questionnaire.