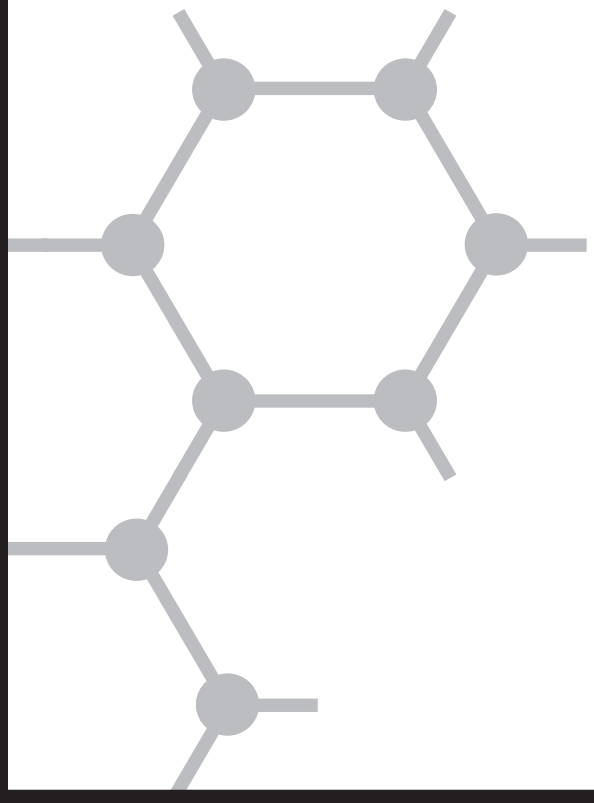
IEA Trends in International Mathematics and Science Study

TIMSS 2003

Main Survey



Curriculum Questionnaire

Mathematics
<Grade 4>

General Directions

This questionnaire is addressed to National Research Coordinators, who are asked to supply information about their nation's intended curriculum in mathematics. This will help provide background information for interpretation of the school and achievement data collected in other parts of the TIMSS 2003 study. Your responses are very important in helping to provide a better understanding of the study results.

We ask that you or your nominee complete this questionnaire, working with others as necessary (e.g., curriculum supervisors of mathematics representative of those at the <grade 4> level in your country). It is important that you answer each question carefully and provide additional information where requested so that as accurate a picture as possible of your country's curriculum is presented in the final reports.

Your cooperation in completing this questionnaire is greatly appreciated

Contact Information

Country: _____

Name of Individual Completing Report: _____

Position of Individual Completing Report: _____

Address: _____

_____

Email: _____

Phone: _____

Fax: _____

Others (and positions) involved in providing information in completing questionnaire:

_____

_____

_____

_____

National Curriculum

IMPORTANT: Throughout this questionnaire, the term "national curriculum" is intended to include any centrally-supported curriculum. The curriculum need not be mandated but it should be strongly recommended or at least widely used. This curriculum may not necessarily be articulated in a formal document, or different aspects of the curriculum may appear in different documents.

1

A. Does your country have a national curriculum that includes mathematics at <grade 4>?

No
Yes

*Fill in **one** circle only* ----------○ --- ○

***Note:** If **No**, please complete the remainder of the questionnaire based on your best informed judgment of the intended mathematics curriculum for the majority of <grade 4> students in your country. If it is impossible to answer a particular question, just make a note and move to the next question.*

B. If there is not a national curriculum, what is the highest level of decision-making authority that provides a curriculum for <grade 4> mathematics?

_____

_____

C. In what year was the current intended mathematics curriculum for <grade 4> introduced?

_____

D. Is the intended mathematics curriculum that includes <grade 4> currently being revised?

No
Yes

*Fill in **one** circle only* ----------○ --- ○

2

A. Across grades K-12, does an education authority in your country (e.g., National Ministry of Education) administer examinations in mathematics that have consequences for individual students, such as determining grade promotion, entry to a higher school system, entry to university, and/or exiting or graduating from high school?

No
Yes

*Fill in **one** circle only* ----------○ --- ○

*If **No**, please go to question **3***

B. If YES, please describe the authority which administers examinations in mathematics, and list the grades at which they are given.

_____

_____

_____

_____

3

Are any of the following methods used to help implement the national mathematics curriculum at <grade 4>?

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

		Yes	No
a)	Mandated or recommended textbook(s)	○	○
b)	Instructional or pedagogical guide	○	○
c)	Ministry notes and directives	○	○
d)	Curriculum evaluation during or after implementation	○	○
e)	Specifically developed or recommended instructional activities	○	○
f)	National assessments based on student samples	○	○
g)	A system of school inspection or audit	○	○
h)	Other	○	○

(Please specify:_____)

Comments: _____

_____

_____

_____

4

Does the national curriculum specify the amount of instructional time that should be devoted to mathematics?

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

		Yes	No
a)	at <grade 2>	○	○

If **Yes**, what percentage of total instructional time is supposed to be devoted to mathematics? _____

		Yes	No
b)	at <grade 4>	○	○

If **Yes**, what percentage of total instructional time is supposed to be devoted to mathematics? _____

Pedagogical Approach

5

Which best describes how the national mathematics curriculum at <grade 4> addresses the issue of students with different levels of ability?

*Fill in **one** circle only*

The same curriculum is prescribed for all students ○

The same curriculum is prescribed for students of different ability levels, but at different levels of difficulty ○

Different curricula are prescribed for students of different ability levels ○

Comments: _____

_____

_____

_____

6

How much emphasis does the national mathematics curriculum at <grade 4> place on the following?

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

		None	Very little	Some	A lot
a)	Mastering basic skills	○	○	○	○
b)	Understanding mathematical concepts and principles	○	○	○	○
c)	Applying mathematics in real-life contexts	○	○	○	○
d)	Communicating mathematically	○	○	○	○
e)	Reasoning mathematically	○	○	○	○
f)	Incorporating the experiences of different ethnic/cultural groups	○	○	○	○
g)	Integrating mathematics with other subjects	○	○	○	○

Comments: _____

_____

_____

_____

Calculators and Computers

7

A. Does the national curriculum contain statements/policies about the use of calculators in <grade 4> mathematics?

	No	Yes
*Fill in **one** circle only*	○	○

*If **No**, please go to question* **8**

B. If YES, what are the statements/policies?

_____

_____

_____

_____

8

A. Does the national curriculum contain statements/policies about the use of computers in <grade 4> mathematics?

	No	Yes
*Fill in **one** circle only*	○	○

*If **No**, please go to question* **9**

B. If YES, what are the statements/policies?

_____

_____

_____

_____

Teacher Education and Certification

9

A. Do <grade 4> mathematics teachers receive specific preparation in how to teach the intended mathematics curriculum at <grade 4>?

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

		No	Yes
a)	As part of pre-service education	○	○
b)	As part of in-service education	○	○

B. If you answered YES to either (a) or (b), describe the nature of the preparation.

_____

_____

_____

_____

10

Which are the current requirements for being a mathematics teacher at <grade 4>?

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

		No	Yes
a)	Pre-practicum and supervised practicum in the field	○	○
b)	Passing an examination	○	○
c)	<ISCED 5A, first degree>	○	○
d)	Completion of a probationary teaching period	○	○

If **Yes**, how long is this period?_____

e)	Completion of a mentoring or induction program	○	○
f)	Other	○	○

(Please specify:_____)

11

A. Is there a process to license or certify <grade 4> mathematics teachers?

	No	Yes
*Fill in **one** circle only*	○	○

*If **No**, please go to question* **12** →

B. If YES, who certifies/licenses <grade 4> mathematics teachers?

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

		No	Yes
a)	Minister/Ministry of Education	○	○
b)	National/state licensing board	○	○
c)	Universities/colleges	○	○
d)	Teacher organization/union	○	○
e)	Other	○	○

(Please specify:_____)

Comments: _____

_____

_____

_____

Grade 4 Mathematics Topics

12

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>?

Across grades K-12, at what grade(s) are the topics primarily intended to be taught?

Be sure to include curriculum expectations for all grades up to and including <grade 4>. If there are not any specifications to this detail, please indicate national expectations to the best of your ability.

If part of a topic does not apply (e.g., location on a number line in topic (f) below), please cross out that part and answer for the major part of the topic.

		Proportion of <grade 4> students expected to be taught topic *Fill in **one** circle for each row* Not included in the curriculum through <grade 4> | Only the more able students | All or almost all students	Grade(s) topic is expected to be taught K-12
A. Number			
a)	Whole numbers including place value and ordering	○ ○ ○	_____
b)	Represent whole numbers using words, diagrams, or symbols	○ ○ ○	_____
c)	Properties of whole numbers such as odd and even, multiples, or factors	○ ○ ○	_____
d)	Computations with whole numbers	○ ○ ○	_____
e)	Estimation with whole numbers	○ ○ ○	_____
f)	Fractions (parts of a whole or a collection, location on a number line)	○ ○ ○	_____
g)	Equivalent fractions	○ ○ ○	_____
h)	Compare and order fractions	○ ○ ○	_____
i)	Fractions or decimals represented by words, numbers, or models	○ ○ ○	_____
j)	Adding and subtracting fractions with the same denominator	○ ○ ○	_____
k)	Adding and subtracting with decimals (tenths and/or hundredths)	○ ○ ○	_____
l)	Simple proportional reasoning	○ ○ ○	_____
B. Patterns, Equations, and Relationships			
a)	Number patterns including extending sequences and finding missing terms of numeric and geometric patterns	○ ○ ○	_____
b)	Equality using equations, areas, volumes, masses/weights	○ ○ ○	_____
c)	Missing number in an equation (e.g., if 17 + __ = 29, what number would go in the blank to make the equation true?)	○ ○ ○	_____
d)	Modeling simple situations involving unknowns with an equation	○ ○ ○	_____
e)	Pairs of numbers following a given rule (e.g., multiply the first number by 3 and add 2 to get the second number)	○ ○ ○	_____
f)	Finding a rule for a relationship given some pairs of numbers	○ ○ ○	_____

12 continued

		Proportion of <grade 4> students expected to be taught topic *Fill in **one** circle for each row* Not included in the curriculum through <grade 4> Only the more able students All or almost all students	Grade(s) topic is expected to be taught K-12
C. Measurement			
a)	Non-standard units to measure length, area, volume, and time (e.g., paper clips for length, tiles for area, sugar cubes for volume)	○ ○ ○	_____
b)	Standard units to measure length, area, mass/weight, angle, and time (e.g., kilometers for car trips, centimeters for human height)	○ ○ ○	_____
c)	Conversion factors between standard units (e.g., hours to minutes, grams to kilograms)	○ ○ ○	_____
d)	Instruments to measure length, weight, time, and temperature in problem situations (e.g., rulers and scales)	○ ○ ○	_____
e)	Calculating areas and perimeters of squares	○ ○ ○	_____
f)	Estimating length, area, volume, weight, and time	○ ○ ○	_____
D. Geometry			
a)	Angles greater than, equal to, or less than a right angle (or 90°)	○ ○ ○	_____
b)	Parallel and perpendicular lines	○ ○ ○	_____
c)	Familiar two- and three-dimensional shapes and their properties	○ ○ ○	_____
d)	Congruent triangles	○ ○ ○	_____
e)	Similar triangles	○ ○ ○	_____
f)	Points in a plane	○ ○ ○	_____
g)	Relationships between two-dimensional and three-dimensional shapes (nets)	○ ○ ○	_____
h)	Informal coordinate systems	○ ○ ○	_____
i)	Symmetry about a line	○ ○ ○	_____
j)	Two-dimensional symmetrical figures	○ ○ ○	_____
k)	Translation, reflection, and rotation	○ ○ ○	_____

12 continued

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>?

Across grades K-12, at what grade(s) are the topics primarily intended to be taught?

Be sure to include curriculum expectations for all grades up to and including <grade 4>. If there are not any specifications to this detail, please indicate national expectations to the best of your ability.

If part of a topic does not apply, please cross out that part and answer for the major part of the topic.

	Proportion of <grade 4> students expected to be taught topic *Fill in **one** circle for each row* Not included in the curriculum through <grade 4> | Only the more able students | All or almost all students	Grade(s) topic is expected to be taught K-12
E. Data		
a) Recognizing what various numbers, symbols, and points mean in data displays	○ ○ ○	_____
b) Organizing a set of data by one characteristic (e.g., height, color, age, shape)	○ ○ ○	_____
c) Reading data directly from tables, pictographs, bar graphs, and pie charts	○ ○ ○	_____
d) Displaying data using tables, pictographs, and bar graphs	○ ○ ○	_____
e) Comparing and matching different representations of the same data	○ ○ ○	_____
f) Characteristics of related data sets (e.g., given data or representations of data on student heights in two classes, identify the class with the shortest/tallest person)	○ ○ ○	_____
g) Drawing conclusions from data displays	○ ○ ○	_____

Thank You

for completing this questionnaire

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