TIMSS 2007 Science Curriculum Questionnaire

Science Curriculum and Instruction in Primary/Elementary Schools

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

   *Check **one** circle only.*

   Yes--- ○

   No--- ○

   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 schooling?

   If Yes…
   Comments:

2. What is the grade-to-grade structure of the primary/elementary school curriculum that covers science instruction (e.g., grades 1-5; grades 1-3, 4-5; grade 1, 2-4)?

Comments:

3. In what year was the current science curriculum introduced?

Refers to the national curriculum that covers science instruction at the fourth grade of primary/elementary schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

Comments:

4. Is the science curriculum currently being revised?

*Check **one** circle only.*

Yes--- ○

No--- ○

Refers to the national curriculum that covers science instruction at the fourth grade of primary/elementary schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

If Yes…
Please explain:

If No…
Comments:

5. What does the science curriculum prescribe?

*Check **one** circle for each line.*

	Yes	No
a) Goals and objectives---------	○	○
b) Processes or methods--------	○	○
c) Materials----------	○	○
d) Percentage of students reaching defined goals----------	○	○
e) Other---------- Please specify: _____	○	○

Refers to the national curriculum that covers science instruction at the fourth grade of primary/elementary schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

Comments:

6. Does the national curriculum contain statements/policies about the use of computers in grade 4 science?

*Check **one** circle only.*

Yes--- ○

No--- ○

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If Yes…
What are the statements/policies?

If No…
Comments:

7. How much emphasis does the national science curriculum place on the following?

*Check **one** circle for each line.*

	None	Very Little	Some	A lot
a) Knowing basic science facts and principles----------	○	○	○	○
b) Observing natural phenomena and describing what is seen----------	○	○	○	○
c) Providing explanations about what is being studied----------	○	○	○	○
d) Designing and planning experiments or investigations----------	○	○	○	○
e) Conducting experiments or investigations----------	○	○	○	○
f) Integrating science with other subjects----------	○	○	○	○
g) Relating what students are learning to their daily lives----------	○	○	○	○
h) Incorporating the experiences of different ethnic/cultural groups-------	○	○	○	○

Refers to the national curriculum that covers science instruction at the fourth grade of primary/elementary schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

Comments:

8. 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?

   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., frogs in part A topic (c)), please explain in the comment field.

	Proportion of grade 4 students expected to be taught topic *Check **one** circle for each line.*			**Grade(s) topic is expected to be taught K-12**
	All or almost all students	**Only the more able students**	**Not included in the curriculum through grade 4**	
A. Life Science				
a) Types, characteristics, and classification of living things-	○	○	○	_____
b) Major body structures and their function in humans and other organisms (plants and animals)----------	○	○	○	_____
c) General steps in the life cycle of familiar organisms (e.g., humans, butterflies, frogs, plants)----------	○	○	○	_____
d) Plant and animal reproduction (passing on of general characteristics)----------	○	○	○	_____

e) Physical features, behavior and survival of plants and animals in different environments----------		_____
f) Bodily actions in response to outside conditions (e.g., heat, cold, danger) and activities (e.g., exercise)----------		_____
g) Energy requirements of plants and animals (energy from the sun to make food and to provide energy for growth and repair)----------		_____
h) Relationships in a living community (e.g., simple food chains using common plants and animals and predator-prey relationships)----------		_____
i) Changes in environments (effects of human activity, pollution and its prevention)--		_____
j) Ways that common communicable diseases (e.g., colds, influenza) are transmitted; signs, prevention, and treatment of illness--------		_____
k) Ways of maintaining good health, including diet and exercise----------		_____

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Comments:

	Proportion of grade 4 students expected to be taught topic *Check **one** circle for each line.*			Grade(s) topic is expected to be taught K-12
	All or almost all students	**Only the more able students**	**Not included in the curriculum through grade 4**	
B. Physical Science				
a) Classification of objects and materials based on physical properties----------	○	○	○	_____
b) Properties and uses of metals-	○	○	○	_____
c) Forming and separating mixtures----------	○	○	○	_____
d) Properties and uses of water--	○	○	○	_____
e) States of matter (solids, liquids, and gases) and differences in their physical properties in terms of shape and volume----------	○	○	○	_____
f) Changes in state of matter by heating and cooling (melting, freezing, boiling, evaporation, condensation)----------	○	○	○	_____
g) Familiar changes in materials (e.g., decaying of animal/plant matter, burning, rusting, cooking)----------	○	○	○	_____
h) Common energy sources/forms and their practical uses (e.g., wind, sun, electricity, burning fuel, water wheel, food)----------	○	○	○	_____
i) Heat flow and temperature----	○	○	○	_____

j) Common sources of light and related phenomena (e.g., formation of rainbows and shadows, visibility of objects, mirrors, colors)----------		_____
k) Production of sound by vibrations----------		_____
l) Electrical circuits----------		_____
m) Magnets (north and south poles, magnetic attraction, and repulsion)----------		_____
n) Forces that cause objects to move (e.g., gravity, push/pull forces)----------		_____

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Comments:

	Proportion of grade 4 students expected to be taught topic *Check **one** circle for each line.*			Grade(s) topic is expected to be taught K-12
	All or almost all students	**Only the more able students**	**Not included in the curriculum through grade 4**	
C. Earth Science				
a) Rocks, minerals, sand, and soil----------	○	○	○	_____
b) Water on Earth (location, types, and movement)----------	○	○	○	_____
c) Air (composition, proof of its existence, uses, and importance for supporting life)----------	○	○	○	_____
d) Common features of the Earth's landscape (e.g., mountains, plains, rivers, deserts) and relationship to human use (e.g., farming, irrigation, land development)	○	○	○	_____
e) Use and conservation of Earth's natural resources------	○	○	○	_____
f) Earth's water cycle (water flowing in rivers from mountains to sea, cloud formation and precipitation)--	○	○	○	_____
g) Weather conditions from day to day or over the seasons-----	○	○	○	_____
h) Fossils of animals and plants (age, formation)----------	○	○	○	_____
i) Earth's solar system (planets, sun, moon)----------	○	○	○	_____
j) Earth's rotation on its axis (e.g., day and night, appearance of shadows)-------	○	○	○	_____

Refers to the national curriculum that covers science instruction at the fourth grade of primary/elementary schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

Comments:

9. Which best describes how the science curriculum addresses the issue of students with different levels of ability?

Please answer for students in regular classes, and explain provisions for special needs students in the comment box.

*Check **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--	○

Refers to the national curriculum that covers science instruction at the fourth grade of primary/elementary schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

Comments:

10. In what form is the science curriculum made available?

*Check **one** circle for each line.*

	Yes	No
a) Official publication containing the curriculum----------	○	○
b) Ministry notes and directives----------	○	○
c) Mandated or recommended textbooks----------	○	○
d) Instructional or pedagogical guide----------	○	○
e) Specifically developed or recommended instructional activities----	○	○
f) Other----------	○	○

Please specify:

_____

Refers to the national curriculum that covers science instruction at the fourth grade of primary/elementary schooling. If you do not have a national curriculum, please summarize for your state or provincial curricula.

Comments:

11. a) In a typical week, what is the total amount of instructional time prescribed by the curriculum at the fourth grade of primary/elementary school?

hours and minutes

b) What percentage of total instructional time is supposed to be devoted to **science** instruction at the fourth grade of primary/elementary school?

% of total
Write in a number

Comments:

c) Is there a policy to assign science homework at the fourth grade of primary/elementary school?

*Check **one** circle only.*

Yes---

No---

If Yes…
What is the policy?

If No…
Comments:

12. Is there an official policy to provide remedial science instruction at the fourth grade of primary/elementary school?

*Check **one** circle only.*

Yes--- ○

No--- ○

If Yes…
What is the policy?

If No…
Comments:

13. Which are the current requirements for being a primary/elementary grade teacher?

*Check **one** circle for each line.*

	Yes	No
a) A degree from a teacher education program----------	○	○
b) Pre-practicum during teacher education program----------	○	○
c) Supervised practicum in the field----------	○	○
d) Passing a certification examination----------	○	○
e) Completion of a probationary teaching period---------- *If Yes…* How long is this period? _____	○	○
f) Completion of a mentoring or induction program----------	○	○
g) Other---------- Please specify: _____	○	○

Refers to the requirements encompassing fourth grade.

Comments:

14. Is there a process to license or certify primary/elementary grade teachers?

*Check **one** circle only.*

Yes--- ○

No--- ○

Refers to the requirements encompassing fourth grade.

If Yes…
Who certifies/licenses primary/elementary grade teachers?

*Check **one** circle for each line.*

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

Comments:

If No…
Comments:

15. As part of pre-service education, do prospective teachers receive specific preparation in how to teach the science curriculum?

*Check **one** circle only.*

Yes--- ○

No--- ○

Comments:

16. How do practicing teachers get help to implement the science curriculum?

*Check **one** circle for each line.*

	Yes	**No**
a) In-service training----------	○	○
b) Expert teacher/mentor----------	○	○
c) Reduced teaching load for new teachers----	○	○
d) Other----------	○	○

Please specify:

_____

Comments:

17. If changes were made to the science curriculum, how would a teacher learn about them?

*Check **one** circle for each line.*

	Yes	No
a) Special conferences/seminars on curriculum----------	○	○
b) Ministry (Department of Education, Government, Board of Education) Website----------	○	○
c) Printed copies of curriculum distributed to schools----------	○	○
d) Teachers receive own printed copy----------	○	○
e) Professional development/in-service education----------	○	○
f) Ministry Notes----------	○	○
g) Professional association newsletter----------	○	○
h) Education journals----------	○	○
i) Other educational authorities----------	○	○
j) Other----------	○	○

Please specify:

_____

Comments:

18. How are parents informed about the science curriculum?

*Check **one** circle for each line.*

	Yes	No
a) From teachers----------	○	○
b) From the school administration----------	○	○
c) From public awareness campaigns----------	○	○
d) From Ministry Website----------	○	○
e) From Ministry brochures and documents--------	○	○
f) Through parents' associations/organizations----	○	○
g) Other----------	○	○

Please specify:

_____

Comments:

19. Is there a policy to encourage parental involvement in the schools attended by fourth-grade students?

*Check **one** circle only.*

Yes--- ○

No--- ○

If Yes…
What is the policy?

If No…
Comments:

20. How is the science curriculum implementation evaluated?

*Check **one** circle for each line.*

	Yes	No
a) Visits by inspectors----------	○	○
b) Research programs----------	○	○
c) School self-evaluation----------	○	○
d) National or regional assessments----------	○	○
e) Other----------	○	○

Please specify:

_____

Comments:

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

*Check **one** circle only.*

Yes--- ○

No--- ○

If Yes…
Please describe the authority which administers examinations in science, and list the grades at which they are given:

If No…
Comments: