General Directions

This questionnaire is addressed to National Research Coordinators, who are asked to supply information about their nation’s intended curriculum in science. 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 science 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.

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1

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

<table>
<thead>
<tr>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
</table>

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

**Note**: If No, please complete the remainder of the questionnaire based on your best informed judgment of the intended science 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> science?

______________________________
______________________________
______________________________

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

______________________________
______________________________
______________________________

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

<table>
<thead>
<tr>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
</table>

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

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2

A. 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 university, and/or exiting or graduating from high school?

<table>
<thead>
<tr>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
</table>

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

If No, please go to question 3

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

*If examinations in separate science subjects such as life science, physical science, and earth science are given at different grades, please indicate this.*

______________________________
______________________________
______________________________

Page 3

<Grade 4> Science Curriculum Questionnaire
### 3. Are any of the following methods used to help implement the national science curriculum at <grade 4>?

<table>
<thead>
<tr>
<th>Method</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Mandated or recommended textbook(s)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) Instructional or pedagogical guide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) Ministry notes and directives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d) Curriculum evaluation during or after implementation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e) Specifically developed or recommended instructional activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f) National assessments based on student samples</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g) A system of school inspection or audit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>h) Other (Please specify: _________________________________________)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comments: _______________________________________________________

_________________________________________________________________

_________________________________________________________________

_________________________________________________________________

### 4. Does the national curriculum specify the amount of instructional time that should be devoted to science?

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) at &lt;grade 2&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) at &lt;grade 4&gt;</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If Yes, what percentage of total instructional time is supposed to be devoted to science?  

Comments: _______________________________________________________

_________________________________________________________________

_________________________________________________________________

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

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 science curriculum at <grade 4> place on the following?

Fill in one circle for each row

A lot | Some | Very little | None

a) Knowing basic science facts
b) Understanding science concepts
c) Writing explanations about what was observed and why it happened
d) Designing and planning experiments or investigations
e) Conducting experiments or investigations
f) Integrating science with other subjects
g) Learning about technology and its impact on society
h) Understanding human impact on the environment
i) Incorporating the experiences of different ethnic/cultural groups

Comments: ______________________________________
____________________________________
____________________________________
A. Does the national curriculum contain statements/policies about the emphasis that should be placed on scientific inquiry in <grade 4> science?

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> science?

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> science teachers receive specific preparation in how to teach the intended science curriculum at <grade 4>**

*Fill in one circle for each row*

<table>
<thead>
<tr>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
</table>

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 science teacher at <grade 4>?**

*Fill in one circle for each row*

<table>
<thead>
<tr>
<th>No</th>
<th>Yes</th>
</tr>
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</table>

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?

If No, please go to question 12

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

*Fill in one circle for each row*

<table>
<thead>
<tr>
<th>No</th>
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</tr>
</thead>
</table>

a) Minister/Ministry of Education

b) National/state licensing board

c) Universities/colleges

d) Teacher organization/union

e) Other

(Please specify:_________________________)

Comments: __________________________________________

________________________________________

________________________________________

________________________________________
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., methods of preventing and treating illness in topic (i) below), please cross out that part and answer for the major part of the topic.

<table>
<thead>
<tr>
<th>Proportion of &lt;grade 4&gt; students expected to be taught topic</th>
<th>Grade(s) topic is expected to be taught K-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fill in one circle for each row</td>
<td></td>
</tr>
<tr>
<td>Not included in the curriculum through &lt;grade 4&gt;</td>
<td></td>
</tr>
<tr>
<td>Only the more able students</td>
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A. Life Science

a) Types, characteristics, and classification of living things (common features of living things; characteristics of humans and other major groups of organisms) ----------------------------------------------- o --- o --- o

b) Major body structures and their function in humans and other organisms (plants and animals) ----------------------------------------------- o --- o --- o

c) Bodily actions in response to outside conditions (e.g., heat, cold, danger) and activities (e.g., exercise) ----------------------------------------------- o --- o --- o

d) The general steps in the life cycle of familiar organisms (e.g., humans, insects, frogs, plants) ----------------------------------------------- o --- o --- o

e) Plant and animal reproduction (passing on of general characteristics) ----------------------------------------------- o --- o --- o

f) Physical features, patterns of behavior and survival of plants and animals in different environments ----------------------------------------------- o --- o --- o

g) Relationships in a living community (e.g., simple food chains using common plants and animals and predator/prey relationships) ----------------------------------------------- o --- o --- o

h) Changes in environments (effects of human activity, pollution and its prevention) ----------------------------------------------- o --- o --- o

i) Ways that common communicable diseases (e.g., colds, influenza) are transmitted; signs of health/illness and some methods of preventing and treating illness ----------------------------------------------- o --- o --- o

j) Ways of maintaining good health, including diet and exercise ----------------------------------------------- o --- o --- o
### B. Physical Science

a) Classification of objects and materials on the basis of observable physical properties

b) Properties and uses of metals

c) Forming and separating mixtures

d) Properties and uses of water

e) Chemical and physical changes (e.g., decaying of animal/plant matter, burning, rusting)

f) States of matter (solids, liquids, and gases) and differences in their physical properties in terms of shape and volume

g) Changes in state of water by heating and cooling (melting, freezing, boiling)

h) Common energy sources/form(s) and their practical uses (e.g., wind, sun, electricity, burning fuel, water wheel, food)

i) Heat flow and temperature

j) Common sources of light (e.g., bulb, flame, sun) and familiar physical phenomena related to light (e.g., formation of rainbows and shadows, visibility of objects, mirrors, colors)

k) Common uses of electricity and electrical circuits

l) Magnets (north and south poles, magnetic attraction and repulsion)

m) Forces that cause objects to move (e.g., gravity, push/pull forces)

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**Proportion of Grade(s) topic is expected to be taught**

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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?

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**C. Earth Science**

a) Rocks, minerals, sand, and soil (physical properties, locations, and uses of these materials) ........................................... ○ --- ○ --- ○  

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) ...................................... ○ --- ○ --- ○  

Fill in one circle for each row
Thank You
for completing
this questionnaire