# REFERENCE 2

## The Science C rric l m

R 2

| | Achie eme S a da d |
|---|---|
| Australia | Achie ement t andard are t a ed a learning o t come . |
| Belgium (Flemish) | Achie ement t andard are t a ed int erm of final learning objec i e for A S ream and de elopmen al objec i e for B S ream. S den no mee ing: he t andard ma need: o repea t he grade, recei e red ced ho r of in t r c ion, or be mo ed: o an ea ier cla . |
| Bulgaria | The c rric l m doe no incorpora e achie ement t andard . |
| Canada | Achie ement t andard are pre cribed learning o t come i h: he t em "L e.pec ed: ha t den ill " or con ained in pplemen ar re o rce book . |
| Chile | There are no performance t andard b t t here are objec i e de cribing ha t den ho ld learn. The re i ed c rric l m ill incl de performance t andard t a ed a e.pec ed learning o t come . |
| Chinese Taipei | The c rric l m doe no incorpora e achie ement t andard . |
| Cyprus | The c rric l m doe no incorpora e achie ement t andard . |
| Czech Republic | The c rric l m pro ide a de crip ion of: he kill and kno ledge t den m t ha e. Teacher decide if: he t den ha me: he c rric l m t andard and con ider: hi in promo ion. If a t den fail a ingle bjec , : he t den m t repea t he grade. |
| England | Achie ement t andard are e: abli hed a a t em of le el , each le el i h i o n de crip ion of performance. On a erage, a age 7 t den are e.pec ed: o be a le el 2; a age 11 le el 4; and a age 13 le el 5/6. One le el i regarded a t o ear progre . |
| Finland | The c rric l m doe no incorpora e achie ement t andard . |
| Hong Kong, SAR | The c rric l m doe no incorpora e achie ement t andard . |
| Hungary | S andard are t a ed a learning objec i e . |
| Indonesia | There are in t r c ional objec i e in: he c rric l m b t no performance t andard . |
| Iran, Islamic Rep. | The c rric l m doe no incorpora e achie ement t andard . |
| Israel | The c rric l m doe no incorpora e achie ement t andard . |
| Italy | The c rric l m doe no incorpora e achie ement t andard . |
| Japan | Achie ement t andard are t a ed in: he na ional c rric l m a learning objec i e , ch a "To help t den " or "To enable t den to ". |
| Jordan | Objec i e are defined in: he c rric l m and: he minim m percen of a: ainmen for each objec i e i pecified. |
| Korea, Rep. of | Achie ement t andard ill be incl ded in: he re ied c rric l m ( o be implemen ed a t he 8 h grade in 2001). |
| Latvia (LSS) | The c rric l m incorpora e achie ement t andard . |
| Lithuania | Achie ement t andard are no a par of c rric la, b t are prepared a epara e doc men . The dra f of: he Na ional Ed ca ional S andard a relea ed in 1997. A of 1999, t he doc men had no been officiall appro ed. |
| Macedonia, Rep. of | In ph ic and geograph achie ement t andard are t a ed a t he comp l or kno ledge and kill hich ho ld be a: ained b all t den . In biolog and chemi: r achie ement t andard are t a ed a learning objec i e . |
| Malaysia | Achie ement t andard are t a ed a cien ific kill int he c rric l m con en pecifica ion doc men . |
| Moldova | The c rric l m incorpora e achie ement t andard . |
| Morocco | The c rric l m doe no incorpora e achie ement t andard . |
| Netherlands | Achie ement t andard are t a ed a learning objec i e , ch a "S den de elop a compe ence ." or "S den learn: o re earch " |
| New Zealand | Achie ement t andard are t a ed a learning o t come e.pre ed a eigh le el of learning independen of age and grade. |
| Philippines | Achie ement t andard are t a ed a learning compe encie . |
| Romania | The achie ement t andard are t a ed a learning objec i e , ch a "The t den ho ld be able: o arri e a a concl ion ba ed on |
| Russian Federation | Achie ement t andard are t a ed a kno ledge and kill hich ho ld be a: ained b t den b t he end of ba ic chool. |
| Singapore | |
| Slovak Republic | Learning objec i e are incl ded in: he c rric l m. Performance t andard are in de elopmen . |
| Slovenia | |
| South Africa | The t andard are no pecific. A li: of con en: o be co ered i pro ided. |
| Thailand | Achie ement t andard are t a ed a learning objec i e . |
| Tunisia | Achie ement t andard are t a ed a learning objec i e . |
| Turkey | Achie ement t andard are t a ed a objec i e , ch a "Abili: o nder: and/kno " |
| United States | For t a e: ha ha e cience t andard , indica or or benchmark are incl ded. |

Background data provided by National Research Coordinators.

| | | | | | |
|---|---|---|---|---|---|
| Australia | 45 (4.5) | 34 (3.6) | 50 (4.5) | 42 (4.3) | 18 (3.0) |
| Belgium (Flemish) | 57 (4.4) | 11 (2.1) | 19 (3.1) | 37 (4.4) | 58 (3.9) |
| Bulgaria | 56 (5.1) | 58 (5.6) | 22 (3.8) | 15 (2.9) | 11 (2.6) |
| Canada | . . | . . | . . | . . | . . |
| Chile | 73 (3.5) | 29 (3.2) | 25 (3.2) | 47 (4.0) | 15 (3.0) |
| Chinese Taipei | 49 (4.0) | 23 (3.6) | 83 (3.2) | 78 (3.7) | 16 (3.2) |
| Cyprus | 53 (0.2) | 37 (0.2) | 6 (0.2) | 28 (0.2) | 4 (0.1) |
| Czech Republic | 69 (4.6) | 27 (4.4) | 32 (4.3) | 37 (5.2) | 6 (2.9) |
| England | 66 (4.6) | 48 (4.5) | 38 (5.0) | 45 (4.9) | 0 (0.0) |
| Finland | 96 (2.0) | 1 (0.8) | 35 (3.4) | 77 (4.0) | 5 (2.1) |
| Hong Kong, SAR | 47 (4.9) | 10 (2.9) | 49 (4.2) | 21 (3.2) | 2 (1.2) |
| Hungary | 88 (2.6) | 23 (3.5) | 56 (4.1) | 37 (4.3) | 4 (1.7) |
| Indonesia | 49 (5.0) | 16 (3.4) | 97 (1.3) | 93 (2.3) | 14 (3.0) |
| Iran, Islamic Rep. | 0 (0.0) | 41 (4.8) | 26 (4.5) | 62 (5.4) | 0 (0.0) |
| Israel | 32 (5.4) | 34 (5.3) | 83 (4.9) | 33 (4.9) | 23 (4.7) |
| Italy | 0 (0.0) | 0 (0.0) | 38 (4.0) | 45 (4.1) | 0 (0.0) |
| Japan | 23 (3.7) | 7 (2.4) | 28 (3.2) | 58 (4.5) | 4 (1.8) |
| Jordan | 68 (4.2) | 34 (4.7) | 73 (4.0) | 85 (3.2) | 1 (0.0) |
| Korea, Rep. of | 247) | 7 28.6((4.9)) T /F5 1 Tf6.4286 0 | | 37 28.6((4.9)) T /F5 1 Tf6.4286 0 11624/F5 | |

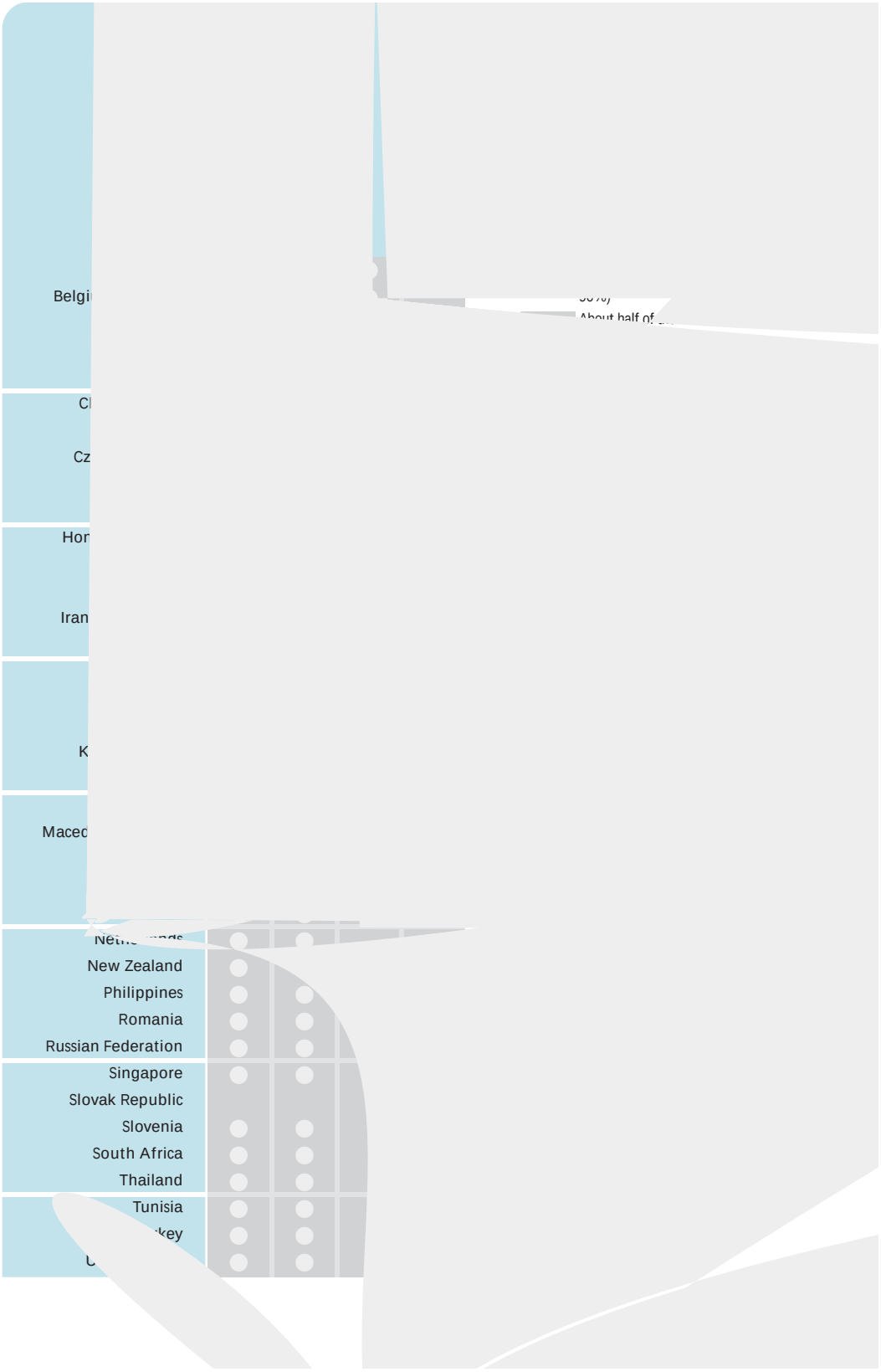
Background data provided by schools.

‡ Lithuania tested the same cohort of students as other countries, but later in 1999, at the beginning of the next school year.

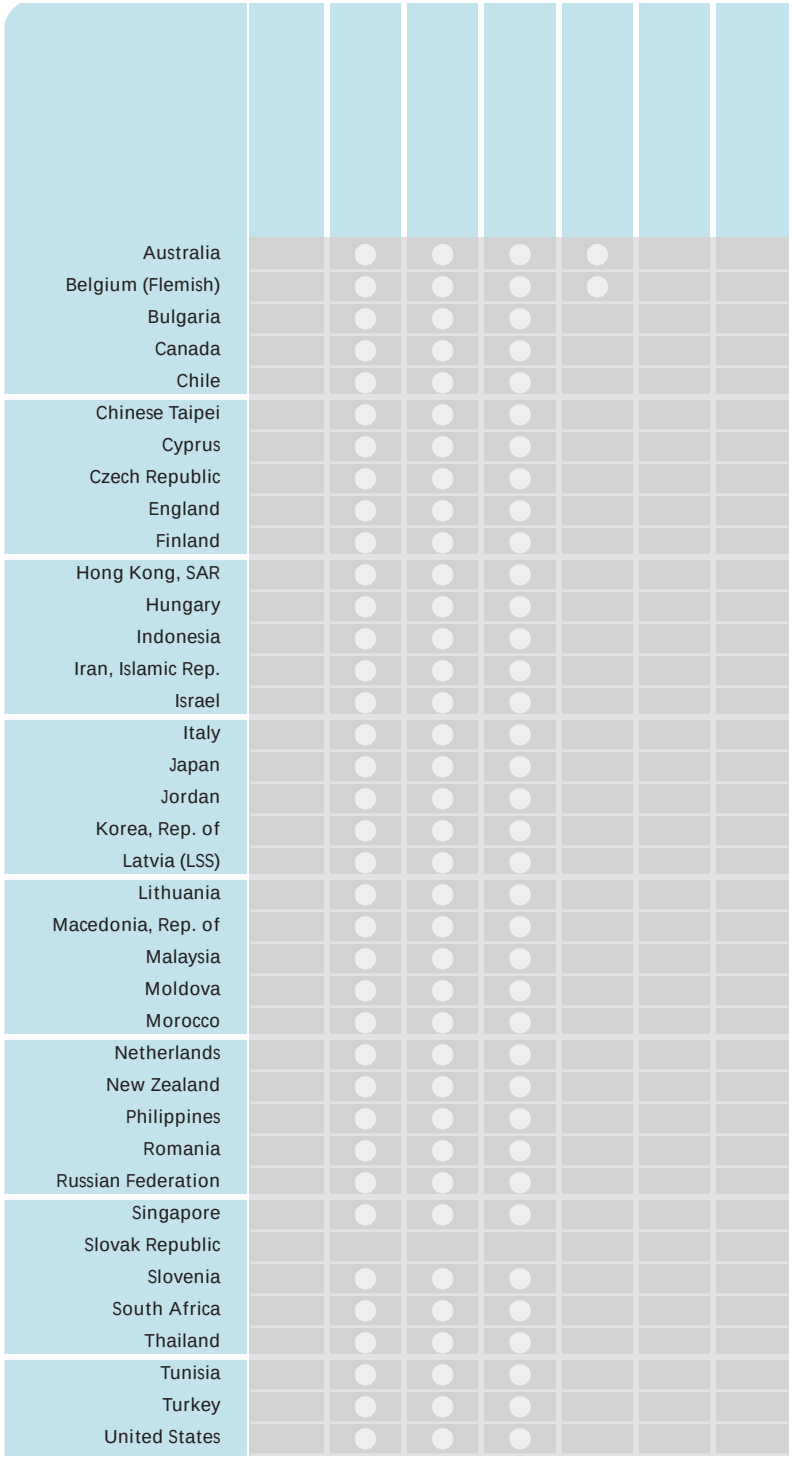
( ) Standard errors appear in parentheses. Because results are rounded to the nearest whole number, some totals may appear inconsistent.

A dash (–) indicates data are not available.

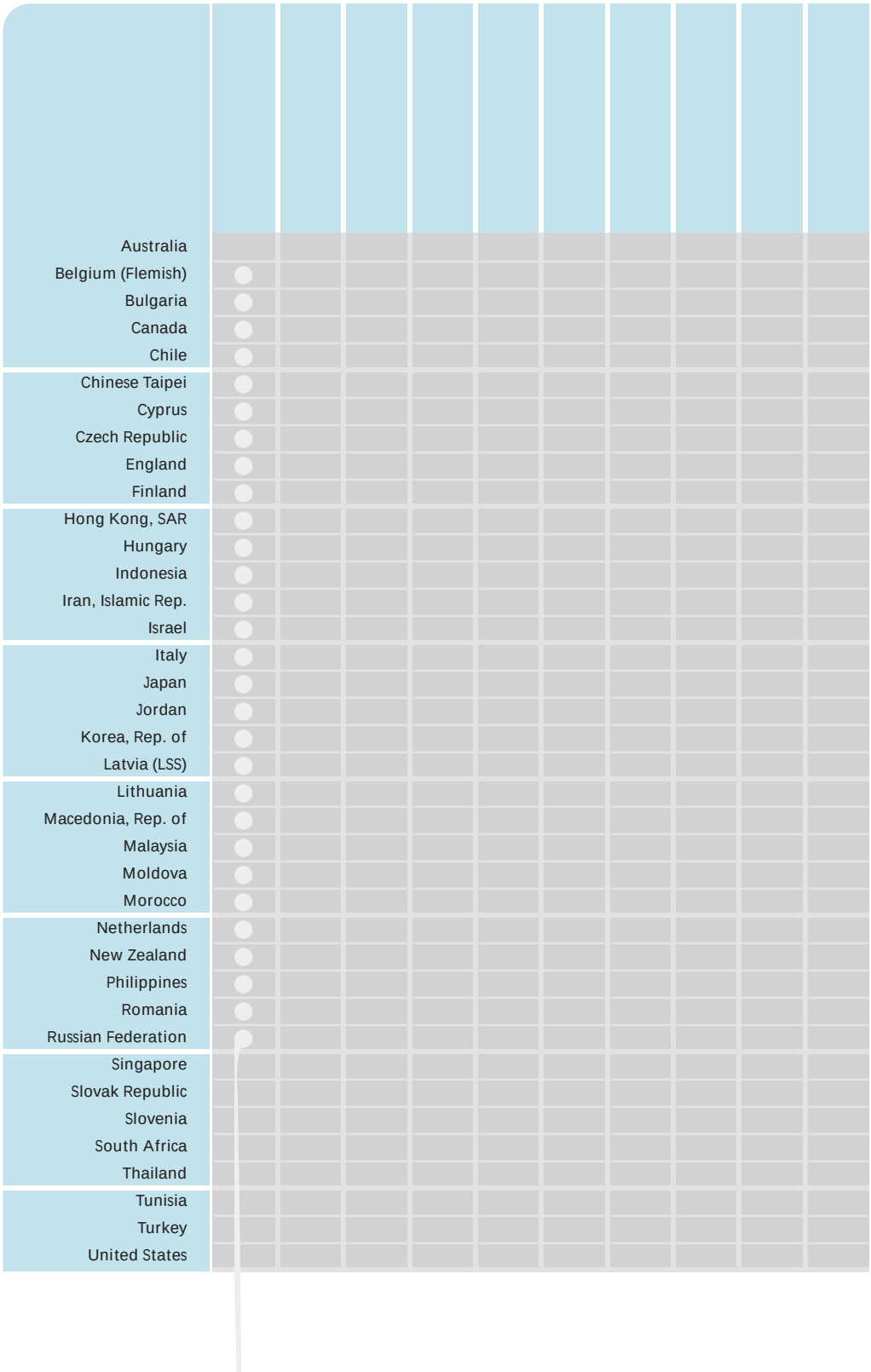
An "r" indicates school response data available for 70-84% of students. An "s" indicates school response data available for 50-69% of students. An "x" indicates school response data available for <50% of students.



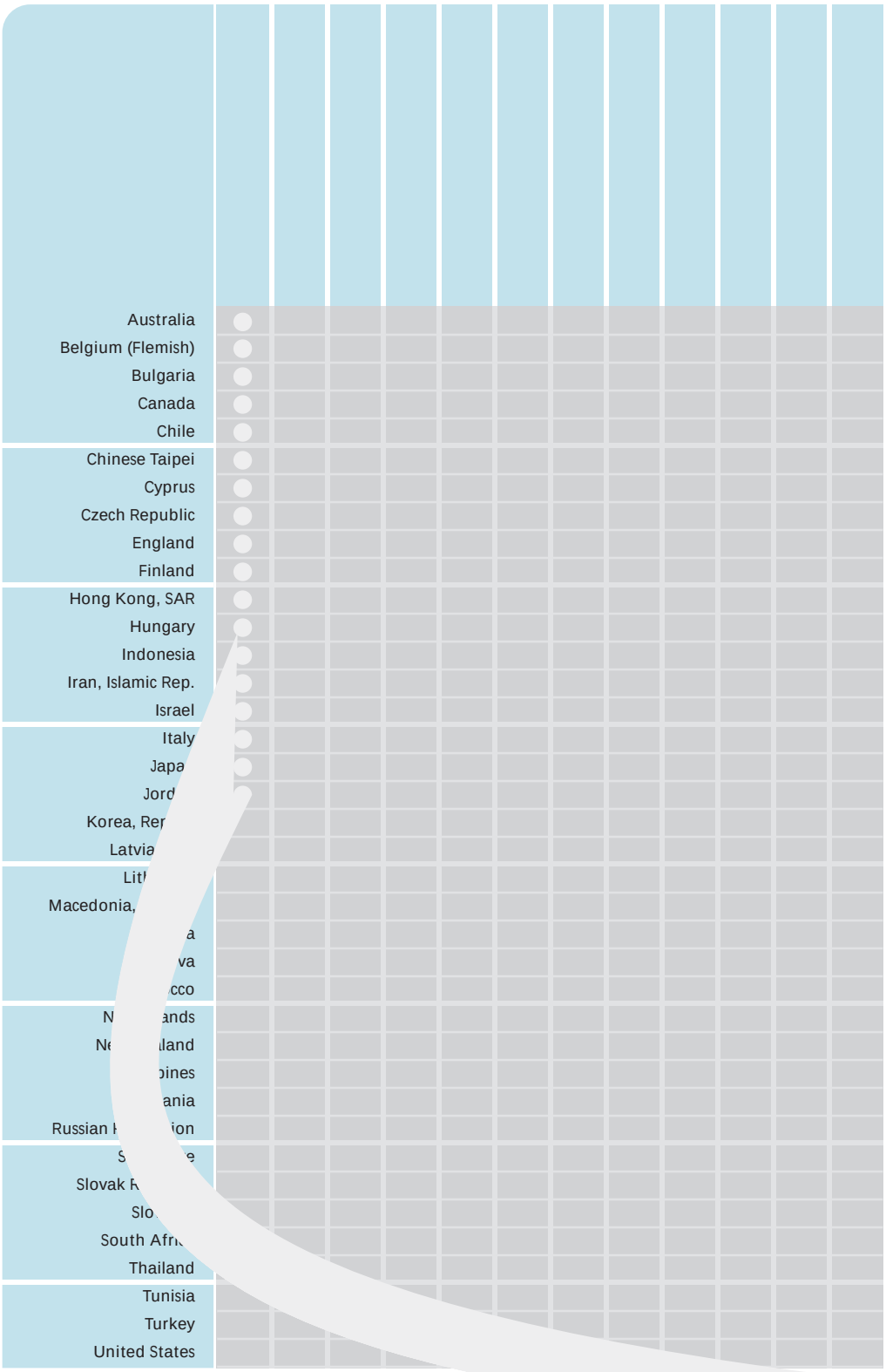

Background data provided by National Research Coordinators.




Background data provided by National Research Coordinators.



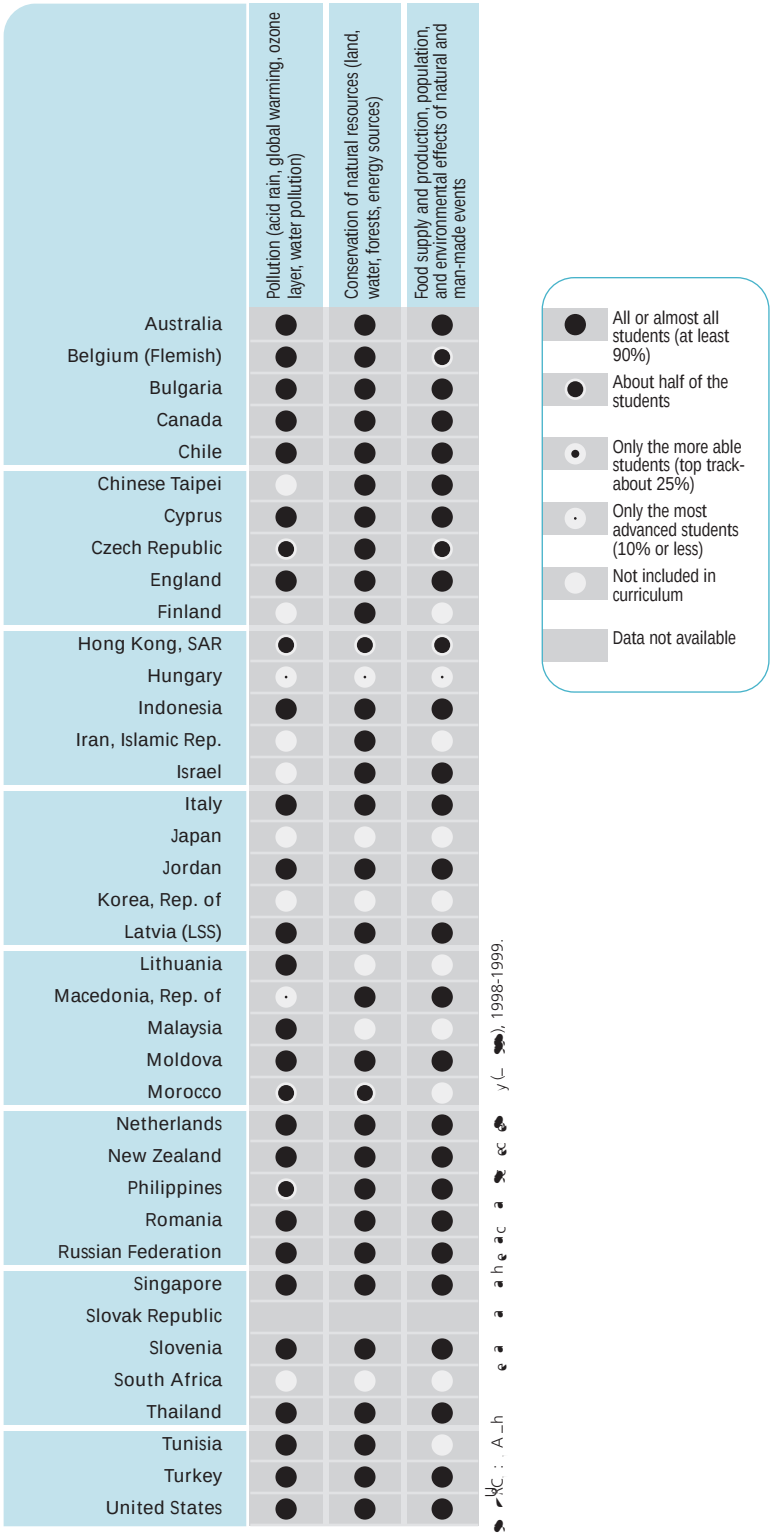

Background data provided by National Research Coordinators.



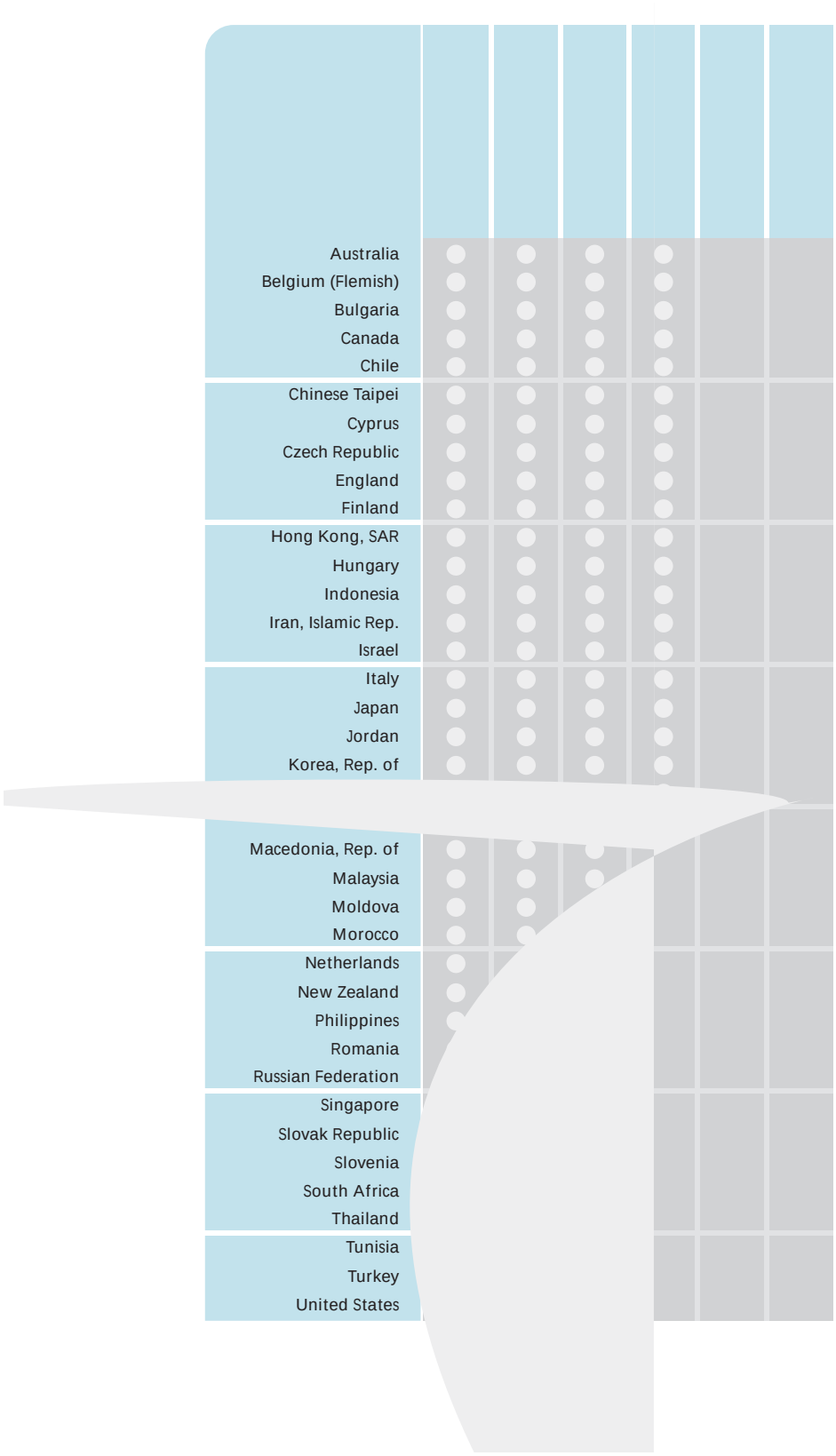

Background data provided by National Research Coordinators.

# Exhibit R2.7 Detailed Information About Topics in the Intended Curriculum, Up to and Including Eighth Grade - Environmental and Resource Issues






Background data provided by National Research Coordinators.




Background data provided by National Research Coordinators.

# Exhibit R2.9 When Earth Science Topics Are Taught*



| | Percentage of Students | | | | | |
|---|---|---|---|---|---|---|
| | Taught Topic Before This Year or Not Yet | | Taught Topic During This Year[1] | | | Not Yet Taught More Than 50% of Topic |
| | More Than 80% of Topics | More Than 50% Up To and Including 80% of Topics | More Than 50% of Topics Each Taught More Than 5 Periods | More Than 50% of Topics Each Taught at Least1-5 Periods | 50% or Less of Topics Taught | |
| Australia | 6 (1.7) | 11 (2.2) | 10 (1.8) | 18 (2.5) | 21 (3.1) | 34 (2.9) |
| Belgium (Flemish) | 4 (1.8) | 12 (2.4) | 2 (1.3) | 10 (2.7) | 12 (2.8) | 60 (4.1) |
| Bulgaria | 1 (0.6) | 1 (0.0) | 45 (5.6) | 52 (5.9) | 1 (0.1) | 1 (0.6) |
| Canada | 17 (2.6) | 12 (2.5) | 21 (2.8) | 22 (2.8) | 14 (2.8) | 16 (2.6) |
| Chile | 29 (3.4) | 22 (3.5) | 15 (2.9) | 17 (2.9) | 11 (2.4) | 7 (2.0) |
| Chinese Taipei[2] | | | | | | |
| Cyprus | 10 (2.8) | 12 (3.9) | 1 (0.1) | 6 (3.3) | 8 (3.1) | 62 (5.6) |
| Czech Republic | 45 (6.3) | 11 (3.4) | 6 (1.9) | 23 (4.2) | 13 (3.7) | 2 (1.2) |
| England | 22 (4.2) | 13 (3.6) | 0 (0.0) | 24 (4.2) | 14 (4.0) | 27 (3.5) |
| Finland | 3 (1.5) | 3 (1.8) | 6 (2.0) | 27 (3.7) | 5 (1.7) | 56 (4.1) |
| Hong Kong, SAR | 1 (0.1) | 0 (0.0) | 2 (1.6) | 7 (2.9) | 1 (0.1) | 88 (3.6) |
| Hungary | 1 (1.0) | 25 (3.4) | 17 (3.3) | 19 (3.4) | 15 (3.0) | 23 (3.7) |
| Indonesia | 4 (1.9) | 4 (1.6) | 12 (3.3) | 67 (4.6) | 10 (2.7) | 2 (1.2) |
| Iran, Islamic Rep. | 26 (4.2) | 25 (3.7) | 0 (0.5) | 14 (2.9) | 6 (1.8) | 29 (4.0) |
| Israel | . . | . . | . . | . . | . . | . . |
| Italy | 5 (1.7) | 8 (2.1) | 18 (3.2) | 28 (3.4) | 22 (3.1) | 19 (2.8) |
| Japan | 0 (0.0) | 3 (1.6) | 3 (1.8) | 6 (1.9) | 28 (3.7) | 61 (4.0) |
| Jordan | 9 (2.4) | 29 (4.1) | 4 (1.8) | 18 (3.8) | 28 (4.2) | 13 (3.0) |
| Korea, Rep. of | 4 (1.6) | 13 (3.0) | 12 (2.8) | 22 (3.4) | 41 (4.0) | 8 (2.1) |
| Latvia (LSS) | 23 (4.6) | 16 (3.8) | 3 (1.7) | 26 (4.7) | 14 (3.0) | 17 (4.1) |
| Lithuania | | | | | | |
| Macedonia, Rep. of | 53 (4.9) | 14 (3.5) | 4 (1.8) | 9 (2.7) | 6 (2.1) | 15 (2.4) |
| Malaysia | 3 (1.5) | 5 (2.0) | 2 (1.2) | 3 (1.4) | 4 (1.6) | 84 (3.3) |
| Moldova | | | | | | |
| Morocco | | | | | | |
| Netherlands | 0 (0.0) | 1 (0.8) | 10 (3.5) | 59 (6.0) | 14 (3.8) | 17 (4.7) |
| New Zealand | 3 (1.4) | 4 (2.0) | 7 (2.1) | 21 (3.5) | 4 (1.5) | 61 (3.6) |
| Philippines | 4 (1.7) | 9 (2.3) | 29 (4.1) | 47 (4.5) | 8 (2.3) | 3 (1.5) |
| Romania | 60 (4.1) | 12 (2.9) | 7 (3.2) | 15 (3.3) | 5 (1.6) | 0 (0.0) |
| Russian Federation | | | | | | |
| Singapore | . . | . . | . . | . . | . . | . . |
| South Africa | . . | . . | . . | . . | . . | . . |
| Thailand | 5 (1.8) | 2 (1.2) | 19 (3.0) | 62 (4.3) | 4 (1.8) | 9 (2.3) |
| Tunisia | 2 (1.2) | 2 (1.1) | 2 (1.2) | 1 (1.0) | 2 (1.4) | 92 (2.6) |
| Turkey | 15 (2.6) | 13 (2.5) | 3 (1.2) | 10 (2.3) | 4 (1.5) | 55 (4.3) |
| United States | 20 (3.1) | 12 (2.6) | 26 (3.4) | 20 (2.1) | 11 (2.3) | 11 (2.4) |
| International Avg. | 13 (0.5) | 10 (0.5) | 10 (0.5) | 23 (0.7) | 12 (0.5) | 31 (0.6) |

Exhibit R2.9: Amount of Science Instruction Received by Eighth-Grade Students, 1998-1999.

Background data provided by teachers.

* Categories of topic coverage for earth science are based on combined responses to questions about the individual science subtopics in the content area described in exhibit 5.12.

1 For each topic in exhibit 5.12, teachers were asked if the topic was taught before this year, taught 1-5 periods this year, taught more than 5 periods this year, or not yet taught. Topics taught during this year, regardless if taught before this year, are included in this category.

2 Data for grade 9 earth science teachers not available.

‡ Lithuania tested the same cohort of students as other countries, but later in 1999, at the beginning of the next school year.

Science teacher background data for Slovak Republic and Slovenia are unavailable.

( ) Standard errors appear in parentheses. Because results are rounded to the nearest whole number, some totals may appear inconsistent.

A dash (–) indicates data are not available.

An "r" indicates teacher response data available for 70-84% of students. An "s" indicates teacher response data available for 50-69% of students. An "x" indicates teacher response data available for <50% of students.

Background data provided by teachers.

| | | | | | | |
|---|---|---|---|---|---|---|
| Australia | | | | | | |
| Belgium (Flemish) | | | | | | |
| Bulgaria | | | | | | |
| Canada | | | | | | |
| Chile | | | | | | |
| Chinese Taipei | | | | | | |
| Cyprus | | | | | | |
| Czech Republic | | | | | | |
| England | | | | | | |
| Finland | | | | | | |
| Hong Kong, SAR | | | | | | |
| Hungary | | | | | | |
| Indonesia | | | | | | |
| Iran, Islamic Rep. | | | | | | |
| Israel | | | | | | |
| Italy | | | | | | |
| Japan | | | | | | |
| Jordan | | | | | | |
| Korea, Rep. of | | | | | | |
| Latvia (LSS) | | | | | | |
| Lithuania | | | | | | |
| Macedonia, Rep. of | | | | | | |
| Malayt74 TD(Mala19w014 Ta5714 TD(1.5714luded 0 1 k/n)arul72Latvia (LSSM6)Tj-4.c[(Mai4 TD(alaonts as other countries): | | | | | | |

Background data provided by teachers.

* Categories of topic coverage for chemistry are based on combined responses to questions about the individual science subtopics in the content area described in exhibit 5.15.

1 For each topic in exhibit 5.15, teachers were asked if the topic was taught before this year, taught 1-5 periods this year, taught more than 5 periods this year, or not yet taught. Topics taught during this year, regardless if taught before this year, are included in this category.

‡ Lithuania tested the same cohort of students as other countries, but later in 1999, at the beginning of the next school year.

Science teacher background data for Slovak Republic and Slovenia are unavailable.

( ) Standard errors appear in parentheses. Because results are rounded to the nearest whole number, some totals may appear inconsistent.

A dash (–) indicates data are not available.

An "r" indicates teacher response data available for 70-84% of students. An "s" indicates teacher response data available for 50-69% of students.

| | | | | | | |
|---|---|---|---|---|---|---|
| Australia | | | | | | |

Background data provided by teachers.

* Categories of topic coverage for environmental and resource issues are based on combined responses to questions about the individual science subtopics in the content area described in exhibit 5.16.

1 For each topic in exhibit 5.16, teachers were asked if the topic was taught before this year, taught 1-5 periods this year, taught more than 5 periods this year, or not yet taught. Topics taught during this year, regardless if taught before this year, are included in this category.

‡ Lithuania tested the same cohort of students as other countries, but later in 1999, at the beginning of the next school year.

Science teacher background data for Slovak Republic and Slovenia are unavailable.

( ) Standard errors appear in parentheses. Because results are rounded to the nearest whole number, some totals may appear inconsistent.

A dash (–) indicates data are not available.

An "r" indicates teacher response data available for 70-84% of students. An "s" indicates teacher response data available for 50-69% of students.

Background data provided by teachers.

* Categories of topic coverage for scientific inquiry and the nature of science are based on combined responses to questions about the individual science subtopics in the content area described in exhibit 5.17.