



than those from less advantaged backgrounds. For the 2003 data presented in this report, TIMSS has focused on just a few central variables: level of parental education, students' educational aspirations, speaking the language of the test at home, having a range of study aids in the home, and computer use at home and at school.

Because for most children, parents are their first and probably most important educators, the level of education of the parents may be the most important educational resource in the home. Exhibit 4.1 summarizes eighth-grade students' reports of the highest level of education attained by their parents. Ordered alphabetically by country, this two-page display shows the percentages of students in each of five categories of parents' educational level, together with their average mathematics achievement. Standard errors for percentages and averages also are shown. The education level of the parent with most education was used in assigning students to categories.

Although response rates to questions in the TIMSS questionnaires generally were high, students in some countries had difficulty in answering specific questions, particularly those about their parents' level of education. The exhibits in this chapter have special notations on this point. For a country where responses are available for at least 70 but less than 85 percent of the students, an "r" is included next to its data. Where responses are available for at least 50 but less than 70

Israel, Japan, Latvia, Norway, the Russian Federation, Sweden, and the United States. Among benchmarking participants, Indiana and Ontario were included. In contrast, countries reporting the highest percentages (40% or more) of parents with no more than primary education included Botswana, Iran, Morocco, Saudi Arabia, and Tunisia.

The different educational approaches, structures, and organizations across the TIMSS countries make comparisons of educational levels difficult, and this is exacerbated by high levels of 'do not know' and missing responses in some countries. Nonetheless, Exhibit 4.1 makes it clear that higher levels of parents' education are associated with higher eighth-grade student achievement in mathematics in almost all countries. At 503 score points, the average mathematics achievement of students with university-educated parents was more than 90 points greater than the average of students whose parents had no more than primary education.

As shown in Exhibit 4.2, students generally had high expectations for university education, particularly those who had a parent with a university education. More than half the eighth-grade students (54% on average across countries) reported that they expect to finish university, 30 percent do not expect to complete a university education, and a further 15 percent do not know. Students expecting to finish university had substantially greater average mathematics achievement than those without university expectations. Among those expecting to finish university, the average achievement of those students with a parent who finished university (21% of students) was 30 points greater than those without a university-educated parent (33%).

Although speaking more than one language has advantages, TIMSS 1999 showed that, with some exceptions, countries with large proportions of students from homes where the language of the test



|                   |   |          |           |          |           |          |           |
|-------------------|---|----------|-----------|----------|-----------|----------|-----------|
| Armenia           |   | 51 (1.5) | 492 (3.6) | 22 (0.9) | 473 (4.4) | 24 (1.1) | 467 (4.0) |
| Australia         | r | 29 (1.3) | 543 (5.6) | 27 (1.0) | 517 (5.8) | 25 (1.1) | 493 (6.1) |
| Bahrain           |   | 33 (0.7) | 427 (2.5) | 7 (0.5)  | 410 (5.7) | 23 (0.6) | 409 (2.9) |
| Belgium (Flemish) | s | 25 (1.4) | 568 (3.9) | 26 (1.0) | 565 (3.0) | 31 (1.1) | 535 (3.5) |
| Botswana          |   | 10 (0.7) | 411 (7.1) | 14 (0.6) | 378 (4.0) | 16 (0.8) | 361 (3.5) |
| Bulgaria          |   | 28 (1.3) | 516 (6.2) | 36 (1.4) | 475 (4.7) | 29 (1.4) | 457 (5.3) |
| Chile             |   | 16 (1.0) | 465 (4.7) | 10 (0.5) | 418 (5.5) | 32 (1.1) | 391 (3.7) |
| Chinese Taipei    |   | 17 (1.4) | 643 (5.1) | 11 (0.6) | 618 (5.3) | 46 (1.0) | 583 (4.3) |
| Cyprus            |   | 28 (0.8) | 486 (2.6) | 14 (0.7) | 475 (3.0) | 36 (0.9) | 459 (2.8) |
| Egypt             |   | 24 (1.1) | 464 (4.5) | 0 (0.0)  | - -       | 11 (0.6) | 433 (5.7) |
| Estonia           |   | 40 (1.4) | 555 (3.4) | 39 (1.1) | 525 (3.3) | 19 (0.7) | 512 (3.8) |
| Ghana             |   | 10 (0.7) | 320 (8.1) | 17 (0.9) | 296 (6.7) | 22 (1.0) | 292 (5.8) |
| Hong Kong, SAR    |   | 12 (1.0) | 612 (7.0) | 12 (0.5) | 598 (5.2) | 36 (0.9) | 587 (3.0) |
| Hungary           | r | 37 (1.6) | 573 (3.4) | 0 (0.0)  | - -       | 49 (1.6) | 515 (3.0) |
| Indonesia         |   | 9 (0.9)  | 457 (8.4) | 6 (0.5)  | 433 (7.7) | 24 (1.1) | 42 (6.7)  |

SOURCE: IEA's Trends in International Mathematics and Science Study (TIMSS) 2003







in relation to their average mathematics achievement, shows that this remains true for the TIMSS 2003 countries, and holds also for mathematics achievement at the fourth grade. At both eighth and fourth grades, students from homes where the language of the test is always or almost always spoken had higher average achievement than those who spoke it less frequently.

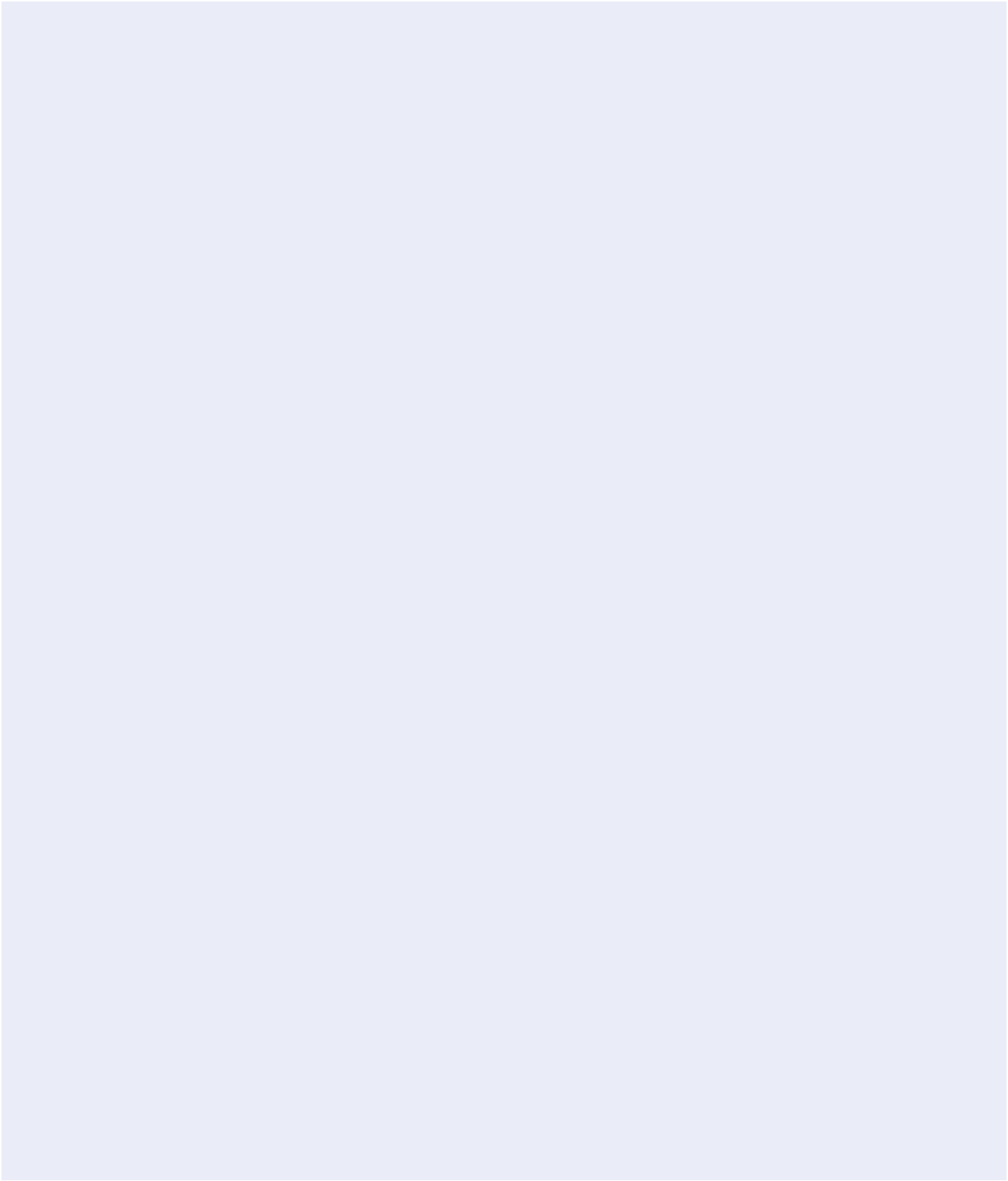
Whereas in most countries a large majority of students at each





|                       |          |            |          |            |          |            |          |            |
|-----------------------|----------|------------|----------|------------|----------|------------|----------|------------|
| Armenia               | 84 (1.0) | 459 (3.6)  | 11 (0.7) | 470 (5.7)  | 4 (0.4)  | 427 (11.3) | 1 (0.2)  | ~ ~        |
| Australia             | 80 (1.7) | 500 (4.3)  | 11 (0.9) | 510 (6.1)  | 8 (1.0)  | 488 (7.2)  | 1 (0.2)  | ~ ~        |
| Belgium (Flemish)     | 68 (1.4) | 558 (1.7)  | 16 (0.9) | 550 (2.9)  | 12 (1.2) | 517 (5.2)  | 4 (0.5)  | 533 (6.7)  |
| Chinese Taipei        | 31 (1.2) | 581 (2.3)  | 41 (0.8) | 563 (1.7)  | 26 (1.1) | 548 (2.7)  | 1 (0.1)  | ~ ~        |
| Cyprus                | 72 (1.1) | 510 (2.4)  | 14 (0.7) | 526 (4.4)  | 11 (0.6) | 497 (5.8)  | 3 (0.3)  | 488 (9.6)  |
| England               | 82 (1.3) | 534 (3.9)  | 12 (0.8) | 540 (5.9)  | 5 (0.7)  | 476 (7.9)  | 1 (0.2)  | ~ ~        |
| Hong Kong, SAR        | 51 (1.3) | 592 (3.4)  | 24 (0.8) | 568 (3.3)  | 21 (1.0) | 554 (3.8)  | 4 (0.4)  | 521 (5.1)  |
| Hungary               | 91 (0.6) | 530 (3.0)  | 8 (0.6)  | 536 (6.2)  | 1 (0.2)  | ~ ~        | 0 (0.1)  | ~ ~        |
| Iran, Islamic Rep. of | 53 (3.4) | 407 (4.6)  | 6 (0.5)  | 405 (9.9)  | 21 (1.9) | 379 (6.0)  | 20 (2.5) | 354 (6.8)  |
| Italy                 | 88 (0.7) | 508 (3.7)  | 3 (0.3)  | 487 (9.5)  | 6 (0.5)  | 470 (7.1)  | 2 (0.3)  | ~ ~        |
| Japan                 | 91 (0.5) | 568 (1.6)  | 8 (0.5)  | 546 (5.2)  | 1 (0.2)  | ~ ~        | 0 (0.1)  | ~ ~        |
| Latvia                | 78 (1.5) | 537 (2.8)  | 15 (0.8) | 546 (4.6)  | 6 (0.8)  | 511 (7.9)  | 2 (0.4)  | ~ ~        |
| Lithuania             | 83 (1.0) | 534 (3.1)  | 13 (0.8) | 556 (5.2)  | 3 (0.6)  | 494 (10.7) | 0 (0.1)  | ~ ~        |
| Moldova, Rep. of      | 76 (1.8) | 508 (5.4)  | 14 (1.0) | 501 (7.8)  | 9 (1.1)  | 502 (8.2)  | 1 (0.3)  | ~ ~        |
| Morocco               | 35 (2.3) | 344 (5.9)  | 11 (0.8) | 344 (7.1)  | 28 (1.6) | 362 (6.2)  | 27 (2.5) | 350 (8.9)  |
| Netherlands           | 75 (1.2) | 547 (1.9)  | 17 (0.9) | 532 (3.7)  | 7 (0.8)  | 503 (7.1)  | 1 (0.3)  | ~ ~        |
| New Zealand           | 76 (1.0) | 500 (2.2)  | 13 (0.6) | 509 (4.8)  | 11 (0.8) | 443 (7.1)  | 1 (0.2)  | ~ ~        |
| Norway                | 78 (1.0) | 455 (2.4)  | 15 (0.8) | 458 (3.8)  | 5 (0.5)  | 410 (8.3)  | 1 (0.2)  | ~ ~        |
| Philippines           | 6 (0.6)  | 321 (10.9) | 8 (0.9)  | 336 (21.1) | 59 (1.8) | 382 (8.5)  | 27 (2.1) | 325 (6.8)  |
| Russian Federation    | 81 (2.3) | 531 (4.7)  | 8 (0.7)  | 546 (7.1)  | 8 (1.7)  | 532 (15.2) | 2 (0.5)  | ~ ~        |
| Scotland              | 78 (1.3) | 495 (3.2)  | 10 (0.6) | 501 (6.2)  | 9 (0.8)  | 466 (6.0)  | 3 (0.4)  | 439 (12.7) |
| Singapore             | 24 (1.2) | 610 (6.2)  | 22 (1.0) | 625 (4.9)  | 47 (1.5) | 580 (5.7)  | 7 (0.6)  | 551 (8.6)  |
| Slovenia              | 72 (1.3) | 480 (2.8)  | 18 (1.1) | 496 (3.9)  | 8 (1.0)  | 459 (5.5)  | 2 (0.3)  | ~ ~        |
| Tunisia               | 43 (2.5) | 342 (6.9)  | 9 (0.8)  | 341 (9.4)  | 36 (2.2) | 347 (5.3)  | 12 (1.5) | 353 (9.9)  |
| United States         | 73 (1.1) | 526 (2.4)  | 13 (0.5) | 525 (4.0)  | 12 (0.8) | 477 (4.8)  | 2 (0.1)  | ~ ~        |
| International average | 72 (1.1) | 500 (3.0)  | 12 (0.8) | 500 (4.0)  | 5 (0.5)  | 477 (4.8)  | 2 (0.1)  | ~ ~        |

SOURCE: IEA's Trends in International Mathematics and Science Study (TIMSS) 2003



home was associated with higher student achievement. Exhibit 4.5 shows the percentage of eighth- and fourth-grade students in each country that had a computer or study desk or table, together with their average mathematics achievement. About 60 percent of eighth-grade students, on average, reported having a computer at home, and a slightly greater percentage of fourth-grade students (65%). However,



















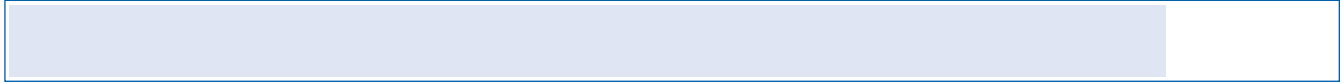


|                       |          |            |          |           |
|-----------------------|----------|------------|----------|-----------|
|                       |          |            |          |           |
| Chinese Taipei        | 0 (0.1)  | ~ ~        | 1 (0.1)  | ~ ~       |
| Australia             | 1 (0.2)  | ~ ~        | 1 (0.1)  | ~ ~       |
| England               | 1 (0.2)  | ~ ~        | 1 (0.2)  | ~ ~       |
| Netherlands           | 1 (0.2)  | ~ ~        | 5 (0.5)  | 530 (7.0) |
| Scotland              | 1 (0.2)  | ~ ~        | 1 (0.2)  | ~ ~       |
| Hong Kong, SAR        | 1 (0.2)  | ~ ~        | 2 (0.3)  | ~ ~       |
| United States         | 2 (0.2)  | ~ ~        | 2 (0.1)  | ~ ~       |
| Singapore             | 2 (0.2)  | ~ ~        | 2 (0.2)  | ~ ~       |
| New Zealand           | 3 (0.3)  | 443 (8.1)  | 2 (0.3)  | ~ ~       |
| Belgium (Flemish)     | 1 (0.2)  | ~ ~        | 5 (0.4)  | 541 (4.5) |
| Norway                | 2 (0.3)  | ~ ~        | 5 (0.6)  | 422 (7.9) |
| Japan                 | 2 (0.3)  | ~ ~        | 3 (0.4)  | 542 (5.5) |
| Cyprus                | 8 (0.6)  | 481 (5.4)  | 14 (0.7) | 504 (4.2) |
| Slovenia              | 5 (0.6)  | 448 (9.0)  | 12 (0.9) | 464 (5.5) |
| Italy                 | 8 (0.6)  | 490 (9.3)  | 12 (0.7) | 497 (7.1) |
| Hungary               | 12 (0.8) | 495 (5.7)  | 12 (0.8) | 526 (4.8) |
| Morocco               | 15 (1.2) | 353 (6.5)  | 37 (3.2) | 353 (7.3) |
| Philippines           | 9 (0.8)  | 374 (10.6) | 56 (2.5) | 341 (5.7) |
| Lithuania             | 24 (1.1) | 532 (3.7)  | 13 (1.0) | 527 (5.1) |
| Latvia                | 25 (1.5) | 532 (4.0)  | 22 (1.6) | 530 (4.0) |
| Moldova, Rep. of      | 25 (1.6) | 517 (6.7)  | 43 (2.5) | 512 (6.5) |
| Tunisia               | 15 (1.1) | 376 (6.3)  | 46 (2.1) | 323 (6.3) |
| Armenia               | 24 (1.0) | 456 (4.8)  | 32 (1.5) | 468 (5.0) |
| Russian Federation    | 30 (1.4) | 531 (5.9)  | 35 (1.6) | 534 (4.8) |
| Iran, Islamic Rep. of |          |            |          | (Phu      |

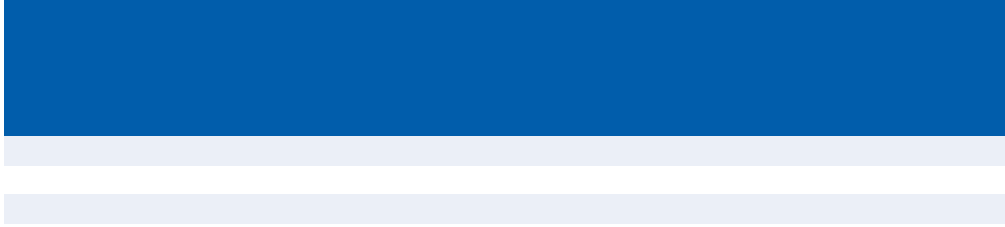
SOURCE: IEA's Trends in International Mathematics and Science Study (TIMSS) 2003

but not at school, 19 percent using one at school but not at home, and 10 percent at some other place. Fourteen percent of eighth-grade students reported that they do not use a computer at all. At fourth grade, the results were similar to the eighth grade. Forty-three percent of the fourth-grade students reported using a computer both at home and at school, 20 percent at home but not at school, 11 percent at school but not at home, and 9 percent some other place. Eighteen percent reported that they did not use a computer at all.









SOURCE: IEA's Trends in International Mathematics and Science Study (TIMSS) 2003



|                       |   |            |   |            |   |            |   |            |   |            |   |            |   |            |
|-----------------------|---|------------|---|------------|---|------------|---|------------|---|------------|---|------------|---|------------|
| Armenia               | r | 1.6 (0.04) | r | 1.0 (0.04) | r | 1.3 (0.03) | s | 0.5 (0.05) | r | 1.4 (0.03) | r | 1.9 (0.04) | s | 0.5 (0.04) |
| Australia             |   | 1.9 (0.04) |   | 1.1 (0.03) |   | 1.8 (0.04) |   | 1.3 (0.03) |   | 1.8 (0.04) |   | 1.2 (0.03) |   | 0.9 (0.04) |
| Belgium (Flemish)     |   | 1.8 (0.03) |   | 1.0 (0.02) |   | 2.0 (0.03) |   | 1.2 (0.02) |   | 1.6 (0.03) |   | 0.9 (0.02) |   | 0.8 (0.02) |
| Chinese Taipei        |   | 1.3 (0.03) |   | 1.0 (0.03) |   | 1.0 (0.02) |   | 0.9 (0.02) |   | 1.3 (0.02) |   | 1.1 (0.02) |   | 1.0 (0.03) |
| Cyprus                |   | 1.9 (0.03) |   | 1.1 (0.03) |   | 2.1 (0.03) |   | 1.3 (0.03) |   | 1.7 (0.03) |   | 1.2 (0.02) |   | 0.6 (0.02) |
| England               |   | 2.0 (0.04) |   | 1.5 (0.04) |   | 2.1 (0.04) |   | 1.0 (0.03) |   | 1.9 (0.03) |   | 1.0 (0.03) |   | 1.0 (0.03) |
| Hong Kong, SAR        |   | 1.9 (0.03) |   | 1.2 (0.03) |   | 1.2 (0.03) |   | 0.9 (0.02) |   | 1.1 (0.02) |   | 1.0 (0.02) |   | 0.9 (0.03) |
| Hungary               |   | 1.9 (0.03) |   | 1.2 (0.03) |   | 2.2 (0.03) |   | 1.3 (0.03) |   | 1.7 (0.03) |   | 1.0 (0.02) |   | 0.4 (0.02) |
| Iran, Islamic Rep. of |   | 1.1 (0.04) |   | 0.3 (0.03) |   | 1.2 (0.05) |   | 1.6 (0.05) |   | 1.4 (0.04) |   | 1.3 (0.04) |   | 0.2 (0.02) |
| Italy                 |   | 1.4 (0.03) |   | 0.8 (0.02) |   | 1.9 (0.03) |   | 1.3 (0.03) |   | 1.6 (0.02) |   | 0.9 (0.02) |   | 0.4 (0.02) |
| Japan                 |   | 2.0 (0.03) |   | 0.9 (0.02) |   | 1.9 (0.03) |   | 0.8 (0.02) |   | 1.3 (0.02) |   | 0.8 (0.02) |   | 0.4 (0.01) |
| Latvia                |   | 2.0 (0.04) |   | 0.9 (0.03) |   | 2.6 (0.04) |   | 1.7 (0.04) |   | 1.5 (0.03) |   | 1.1 (0.03) |   | 0.5 (0.03) |
| Lithuania             |   | 1.7 (0.04) |   | 1.1 (0.03) |   | 2.7 (0.03) |   | 1.8 (0.04) |   | 1.2 (0.03) |   | 1.1 (0.02) |   | 0.5 (0.02) |
| Moldova, Rep. of      |   | 1.6 (0.04) | r | 0.6 (0.03) |   | 1.8 (0.05) |   | 1.9 (0.05) |   | 1.2 (0.03) |   | 1.2 (0.03) | r | 0.4 (0.03) |
| Morocco               | B | 1.0 (0.05) | r | 0.8 (0.05) | r | 1.2 (0.05) | r | 1.3 (0.04) | r | 1.2 (0.04) | r | 1.1 (0.05) | r | 0.8 (0.04) |
| Netherlands           |   | 1.6 (0.04) |   | 1.2 (0.03) |   | 2.4 (0.05) |   | 0.9 (0.03) |   | 1.7 (0.04) |   | 0.8 (0.03) |   | 0.8 (0.04) |
| New Zealand           |   | 1.9 (0.03) |   | 1.1 (0.03) |   | 1.8 (0.03) |   | 1.3 (0.03) |   | 1.6 (0.03) |   | 1.3 (0.03) |   | 1.0 (0.02) |
| Norway                |   | 3 (0.0)    |   | Wq a q °   |   |            |   |            |   |            |   |            |   |            |

SOURCE: IEA's Trends in International Mathematics and Science Study (TIMSS) 2003

and England, where less than ten percent of students were at the high level of the index.

In general, fourth-grade students reported being given less mathematics homework than did students at the eighth grade. Eighteen percent of fourth-grade students, on average, were at the high level of the index, 56 percent at the middle level, and 26 percent at the low level. Singapore was the country with the highest percentage of students in the high category—40 percent. Despite this, across countries, fourth-grade students in the medium category had the highest average mathematics achievement. This pattern suggests that, compared with their higher-achieving counterparts, the lower-performing students may be assigned more homework as a remedial strategy in an effort to keep up academically.

To provide a fuller picture of how students spend their out-of-school time on a school day, Exhibit 4.8 gives students' reports on how they spend their daily leisure time. The two most popular activities were watching television or videos and playing or talking with friends. For total hours spent on these activities, the data show that students spent more time watching television or videos than playing or talking with friends.

- Mathematics is not one of my strengths;
- I learn things quickly in mathematics.

Students who agreed a little or agreed a lot with all four statements, on average, were assigned to the high level of the index, while students who disagreed a little or disagreed a lot with all four, on average, were assigned to the low level. The medium level includes all other possible combinations of responses. The percentages of students at each level of this index, and their average mathematics achievement, are presented in Exhibit 4.9 for both eighth and fourth grades.

On average, internationally, 40 percent of the eighth-grade students had high self-confidence in learning mathematics. The percentages ranged from a high of 59 percent in Israel to a low of 17 percent in Japan. Although there was a clear positive association between self-confidence in learning mathematics and mathematics achievement, internationally and in every country, at the country level the relationship was more complex. It is noteworthy that the four countries with lowest percentages of students in the high self-confidence category – Chinese Taipei, Hong Kong SAR, Japan, and Korea – all had high average mathematics achievement. Since all of these are Asian Pacific countries, they may share cultural traditions that encourage modest self-confidence.

At fourth grade, on average, internationally, 55 percent of students were at the high level of the self-confidence in learning mathematics index, compared with 33 percent at the medium and just 11 percent at the low. The countries with the greatest percentages included Slovenia, and Cyprus, each with 70 percent or more. Countries with relatively lower percentages included Japan and the Philippines, each with less than 40 percent at the high level. Again, there was a positive relationship, on average, between self-confidence in learning mathematics and mathematics achievement.

\* The response categories for this statement were reversed in constructing the index.





### What Value Do Students Place on Mathematics?

Students' motivation to learn mathematics can be affected by whether they find the subject enjoyable, place value on the subject, and think it is important for success in school and for future career aspirations. In addition, developing such positive attitudes towards mathematics among students is an important goal of mathematics education in many countries. To gain some understanding me







|                       |          |            |            |          |            |            |          |            |            |
|-----------------------|----------|------------|------------|----------|------------|------------|----------|------------|------------|
| Armenia               | 45 (1.2) | '          | '          | 28 (0.8) | '          | '          | 28 (1.1) | '          | '          |
| Australia             | 18 (1.2) | --         | 13 (0.7) ▲ | 39 (1.0) | --         | 52 (0.6) ▼ | 42 (1.4) | --         | 35 (0.9) ▲ |
| Bahrain               | 40 (0.9) | '          | '          | 33 (0.9) | '          | '          | 26 (1.0) | '          | '          |
| Belgium (Flemish)     | 20 (0.9) | 14 (0.6) ▲ | 14 (1.0) ▲ | 37 (0.9) | 37 (0.8)   | 41 (1.2) ▼ | 43 (1.3) | 49 (1.0) ▼ | 45 (1.3)   |
| Belgium (Dutch)       | 65 (1.0) | '          | '          | 22 (0.8) | '          | '          | 14 (0.7) | '          | '          |
| Canada                | 22 (1.1) | 21 (1.4)   | --         | 39 (1.1) | 35 (1.2) ▲ | --         | 38 (1.5) | 44 (2.1) ▼ | --         |
| Chile                 | 34 (1.1) | 30 (1.1) ▲ | '          | 37 (0.7) | 45 (0.7) ▼ | '          | 30 (1.2) | 26 (1.0) ▲ | '          |
| China                 | 13 (0.6) | 16 (0.7) ▼ | '          | 29 (1.0) | 42 (0.7) ▼ | '          | 58 (1.4) | 42 (1.0) ▲ | '          |
| Czechia               | 36 (0.8) | 38 (1.2)   | 38 (1.1)   | 34 (0.9) | 46 (1.0) ▼ | 45 (0.8) ▼ | 30 (0.7) | 17 (1.0) ▲ | 17 (0.9) ▲ |
| Denmark               | 61 (1.0) | '          | '          | 27 (0.8) | '          | '          | 12 (0.6) | '          | '          |
| Egypt                 | 14 (0.7) | '          | '          | 39 (0.8) | '          | '          | 48 (1.0) | '          | '          |
| Finland               | 53 (1.2) | '          | '          | 30 (0.8) | '          | '          | 16 (0.9) | '          | '          |
| France                | 15 (0.7) | 19 (0.7) ▼ | 15 (0.8)   | 45 (1.0) | 50 (0.8) ▼ | 50 (1.1) ▼ | 41 (1.1) | 31 (1.1) ▲ | 35 (1.3) ▲ |
| Germany               | 17 (0.9) | 8 (0.5) ▲  | 8 (0.7) ▲  | 36 (0.9) | 30 (1.1) ▲ | 31 (1.2) ▲ | 47 (1.2) | 62 (1.2) ▼ | 61 (1.3) ▼ |
| Greece                | 21 (0.9) | 25 (1.4) ▼ | '          | 62 (0.9) | 67 (1.2) ▼ | '          | 17 (0.9) | 7 (0.6) ▲  | '          |
| Iran, Islamic Rep. of | 58 (1.0) | 50 (0.9) ▲ | 39 (1.2) ▲ | 26 (0.8) | 40 (0.9) ▼ | 43 (1.2) ▼ | 16 (0.7) | 11 (0.6) ▲ | 18 (1.1)   |
| Israel                | 27 (1.1) | 31 (1.4) ▼ | --         | 34 (0.8) | 42 (0.9) ▼ | --         | 39 (1.1) | 28 (1.4) ▲ | --         |
| Italy                 | 16 (0.8) | 21 (0.9) ▼ | --         | 43 (1.2) | 45 (1.1)   | --         | 41 (1.2) | 34 (1.3) ▲ | --         |
| Japan                 | 9 (0.6)  | 6 (0.4) ▲  | 5 (0.3) ▲  | 30 (0.8) | 33 (1.0) ▼ | 41 (1.3) ▼ | 61 (1.1) | 61 (1.1)   | 54 (1.5) ▲ |
| Jordan                | 50 (1.3) | 46 (1.2) ▲ | '          | 31 (1.0) | 37 (0.8) ▼ | '          | 19 (1.0) | 18 (0.9)   | '          |
| Korea                 | --       | --         | --         | --       | --         | --         | --       | --         | --         |
| Lithuania             | --       | --         | --         | --       | --         | --         | --       | --         | --         |
| Malaysia              | --       | --         | --         | --       | --         | --         | --       | --         | --         |
| Mexico                | --       | --         | --         | --       | --         | --         | --       | --         | --         |
| Netherlands           | --       | --         | --         | --       | --         | --         | --       | --         | --         |
| New Zealand           | --       | --         | --         | --       | --         | --         | --       | --         | --         |
| Norway                | --       | --         | --         | --       | --         | --         | --       | --         | --         |
| Poland                | --       | --         | --         | --       | --         | --         | --       | --         | --         |
| Portugal              | --       | --         | --         | --       | --         | --         | --       | --         | --         |
| Romania               | --       | --         | --         | --       | --         | --         | --       | --         | --         |
| Russia                | --       | --         | --         | --       | --         | --         | --       | --         | --         |
| Saudi Arabia          | --       | --         | --         | --       | --         | --         | --       | --         | --         |
| South Africa          | --       | --         | --         | --       | --         | --         | --       | --         | --         |
| Spain                 | --       | --         | --         | --       | --         | --         | --       | --         | --         |
| Sweden                | --       | --         | --         | --       | --         | --         | --       | --         | --         |
| Switzerland           | --       | --         | --         | --       | --         | --         | --       | --         | --         |
| Taiwan                | --       | --         | --         | --       | --         | --         | --       | --         | --         |
| Turkey                | --       | --         | --         | --       | --         | --         | --       | --         | --         |
| Ukraine               | --       | --         | --         | --       | --         | --         | --       | --         | --         |
| United Kingdom        | --       | --         | --         | --       | --         | --         | --       | --         | --         |
| United States         | --       | --         | --         | --       | --         | --         | --       | --         | --         |
| Uzbekistan            | --       | --         | --         | --       | --         | --         | --       | --         | --         |
| Vietnam               | --       | --         | --         | --       | --         | --         | --       | --         | --         |
| Yemen                 | --       | --         | --         | --       | --         | --         | --       | --         | --         |

SOURCE: IEA's Trends in International Mathematics and Science Study (TIMSS) 2003



