

Exhibit 2.16: Average Achievement in Science Content Domains by Gender

| Country | Life Science (73 Items) | | Physical Science (61 Items) | | Earth Science (35 Items) | |
|----------------------------------|----------------------------|------------------|--------------------------------|--------------------|-----------------------------|--------------------|
| | Girls | Boys | Girls | Boys | Girls | Boys |
| Albania | 495 (4.2) ▲ | 482 (4.1) | 497 (4.6) | 490 (5.3) | 476 (5.0) | 473 (4.5) |
| Armenia | 482 (3.7) ▲ | 471 (3.5) | 459 (4.0) ▲ | 449 (3.9) | 458 (4.3) ▲ | 445 (4.9) |
| Australia | 543 (2.9) ▲ | 535 (3.4) | 524 (3.4) | 528 (3.3) | 524 (3.0) | 530 (3.5) |
| Austria | 523 (3.2) | 523 (3.5) | 514 (3.3) | 524 (3.0) ▲ | 518 (3.8) | 529 (4.0) ▲ |
| Azerbaijan | 427 (4.1) | 420 (3.9) | 429 (4.0) | 425 (3.9) | 425 (6.1) | 422 (4.8) |
| Bahrain | 512 (4.5) ▲ | 473 (5.0) | 515 (4.3) ▲ | 479 (5.7) | 494 (4.2) ▲ | 462 (5.9) |
| † Belgium (Flemish) | 500 (2.4) | 500 (3.4) | 500 (2.7) | 504 (2.5) | 489 (2.9) | 504 (3.3) ▲ |
| Bosnia and Herzegovina | 478 (3.6) ▲ | 465 (3.7) | 452 (4.0) | 449 (3.5) | 434 (3.6) | 439 (4.0) |
| Bulgaria | 533 (5.6) ▲ | 518 (5.9) | 518 (6.7) | 518 (7.4) | 518 (5.5) | 510 (5.8) |
| ^{1,2} Canada | 533 (2.4) | 531 (2.0) | 508 (2.2) | 518 (2.2) ▲ | 513 (2.5) | 524 (2.9) ▲ |
| Chile | 477 (2.9) | 478 (3.0) | 452 (4.7) | 463 (4.0) ▲ | 454 (5.1) | 466 (5.0) ▲ |
| Chinese Taipei | 542 (3.6) | 539 (2.3) | 570 (1.9) | 576 (2.8) | 565 (2.7) | 571 (2.0) ▲ |
| Croatia | 524 (2.8) ▲ | 517 (2.5) | 526 (3.8) | 529 (2.6) | 520 (3.7) | 527 (3.6) |
| Cyprus | 515 (3.6) | 514 (4.0) | 507 (3.3) | 515 (4.1) ▲ | 495 (3.1) | 505 (3.7) ▲ |
| Czech Republic | 536 (2.5) | 535 (2.8) | 520 (3.2) | 536 (2.9) ▲ | 529 (4.4) | 542 (3.5) ▲ |
| † Denmark | 533 (2.7) ▲ | 520 (2.9) | 504 (3.4) | 510 (3.6) | 531 (4.0) | 539 (2.8) |
| ² England | 540 (3.7) | 535 (3.7) | 534 (4.2) | 540 (3.6) | 532 (3.3) | 534 (3.8) |
| Finland | 565 (3.7) ▲ | 552 (3.3) | 544 (3.8) | 544 (4.3) | 564 (3.7) | 562 (5.1) |
| France | 499 (3.5) ▲ | 489 (3.8) | 475 (3.3) | 480 (3.9) | 488 (4.2) | 489 (3.7) |
| ¹ Georgia | 459 (4.5) | 455 (4.6) | 446 (5.5) | 458 (4.8) ▲ | 432 (4.9) | 438 (6.0) |
| Germany | 525 (3.0) ▲ | 518 (2.7) | 513 (4.4) | 524 (4.1) | 502 (4.9) | 515 (4.3) ▲ |
| † Hong Kong SAR | 529 (3.7) ▲ | 518 (4.4) | 525 (3.7) | 532 (4.4) | 544 (3.9) | 554 (5.8) ▲ |
| Hungary | 532 (3.7) | 534 (4.0) | 517 (3.2) | 530 (3.6) ▲ | 527 (4.3) | 535 (4.0) |
| Iran, Islamic Rep. of | 432 (6.7) | 428 (6.0) | 449 (7.6) | 457 (6.1) | 435 (6.4) | 441 (6.0) |
| Ireland | 530 (4.3) | 526 (3.6) | 520 (4.1) | 526 (3.3) | 529 (4.8) | 543 (3.9) ▲ |
| Italy | 514 (4.1) | 514 (3.3) | 495 (3.5) | 508 (4.3) ▲ | 501 (4.5) | 513 (3.7) ▲ |
| Japan | 554 (2.4) ▲ | 547 (2.4) | 580 (2.2) | 577 (2.2) | 558 (2.9) | 560 (3.2) |
| ² Kazakhstan | 492 (3.7) ▲ | 481 (3.7) | 509 (3.7) | 504 (3.9) | 490 (4.8) | 485 (4.2) |
| Korea, Rep. of | 572 (3.2) | 576 (2.5) | 600 (3.3) | 613 (2.8) ▲ | 579 (3.5) | 594 (3.7) ▲ |
| ² Kosovo | 416 (4.8) ▲ | 400 (4.8) | 423 (4.7) ▲ | 408 (4.8) | 414 (4.3) | 406 (5.6) |
| Kuwait | - - | - - | - - | - - | - - | - - |
| ² Latvia | 540 (2.9) ▲ | 529 (3.2) | 551 (4.0) | 556 (4.8) | 537 (4.3) | 534 (3.9) |
| ² Lithuania | 543 (3.1) ▲ | 530 (3.7) | 545 (3.8) | 549 (4.2) | 524 (3.7) | 526 (3.8) |
| Malta | 501 (3.8) | 498 (2.3) | 486 (4.8) | 497 (3.1) | 482 (2.8) | 500 (2.8) ▲ |
| Montenegro | 469 (3.0) ▲ | 460 (2.8) | 447 (3.1) | 445 (3.6) | 434 (4.2) | 433 (3.8) |
| ⊕ Morocco | 371 (6.5) ▲ | 356 (6.0) | 383 (7.0) | 374 (6.4) | 353 (7.2) | 346 (7.7) |
| ≡ Netherlands | 520 (3.3) | 516 (3.9) | 515 (2.8) | 516 (4.2) | 518 (4.3) | 524 (4.6) |
| ² New Zealand | 516 (3.9) ▲ | 504 (2.8) | 493 (2.9) | 492 (2.9) | 501 (5.4) | 505 (3.6) |
| North Macedonia | 431 (7.0) ▲ | 414 (6.0) | 435 (7.5) | 429 (7.9) | 418 (8.0) ▲ | 401 (7.7) |
| † Northern Ireland | 523 (3.9) | 517 (4.2) | 510 (2.7) | 512 (2.9) | 521 (3.2) | 528 (3.9) |
| † Norway (5) | 550 (3.7) | 544 (3.6) | 525 (3.4) | 526 (4.1) | 546 (4.5) | 548 (3.0) |
| Oman | 447 (5.1) ▲ | 422 (4.9) | 450 (4.6) ▲ | 424 (5.8) | 426 (4.7) ▲ | 406 (5.8) |
| ² ✕ Pakistan | - - | - - | - - | - - | - - | - - |
| ² ✕ Philippines | - - | - - | - - | - - | - - | - - |
| Poland | 539 (3.2) ▲ | 529 (3.6) | 525 (3.2) | 527 (3.5) | 524 (3.7) | 534 (3.7) ▲ |
| ² Portugal | 508 (2.5) | 509 (2.9) | 493 (3.3) | 499 (2.4) ▲ | 497 (3.4) | 504 (4.1) |
| Qatar | 456 (6.0) ▲ | 440 (5.2) | 456 (6.5) | 446 (3.9) | 444 (8.0) | 440 (5.1) |
| ² Russian Federation | 572 (3.6) | 569 (3.3) | 570 (3.1) | 574 (3.3) | 552 (4.9) | 557 (4.6) |
| ² Saudi Arabia | - - | - - | - - | - - | - - | - - |
| ² Serbia | 526 (4.4) ▲ | 515 (4.4) | 526 (4.4) | 522 (4.9) | 494 (5.6) | 494 (4.9) |
| ³ Singapore | 601 (3.9) | 605 (4.2) | 607 (3.9) | 619 (4.0) ▲ | 548 (3.9) | 565 (4.5) ▲ |
| ² Slovak Republic | 520 (4.0) | 520 (4.6) | 520 (4.2) | 530 (4.7) ▲ | 507 (5.0) | 519 (5.2) ▲ |
| ✕ South Africa (5) | - - | - - | - - | - - | - - | - - |
| Spain | 515 (2.5) | 513 (2.9) | 499 (3.2) | 507 (2.4) ▲ | 517 (3.0) | 519 (3.3) |
| Sweden | 546 (3.6) ▲ | 537 (4.0) | 523 (4.0) | 527 (3.7) | 546 (3.6) | 547 (4.9) |
| ² Turkey (5) | 518 (4.8) | 520 (5.7) | 534 (4.9) | 543 (5.9) | 521 (5.0) | 528 (5.0) |
| United Arab Emirates | 471 (3.0) | 463 (2.6) | 479 (3.3) | 476 (2.9) | 475 (2.7) | 474 (2.3) |
| ² † United States | 547 (2.6) | 546 (3.4) | 523 (3.7) | 531 (3.1) | 533 (3.7) | 543 (3.4) ▲ |
| International Average | 510 (0.5) ▲ | 503 (0.5) | 504 (0.6) | 506 (0.6) ▲ | 499 (0.6) | 503 (0.6) ▲ |
| Benchmarking Participants | | | | | | |
| ² Ontario, Canada | 537 (4.0) | 533 (3.0) | 508 (4.0) | 516 (3.0) ▲ | 514 (4.6) | 522 (3.6) ▲ |
| Quebec, Canada | 530 (2.9) | 529 (2.9) | 508 (3.0) | 519 (3.5) ▲ | 513 (3.3) | 524 (3.9) ▲ |
| Moscow City, Russian Fed. | 599 (2.7) ▲ | 592 (3.3) | 594 (3.0) | 603 (2.9) ▲ | 586 (4.1) | 593 (4.1) |
| Madrid, Spain | 525 (3.1) | 524 (4.4) | 510 (3.4) | 518 (2.4) ▲ | 531 (2.9) | 535 (2.8) |
| Abu Dhabi, UAE | 418 (3.5) ▲ | 408 (3.6) | 422 (3.9) | 414 (3.9) | 424 (3.0) | 419 (3.4) |
| ² Dubai, UAE | 540 (3.6) | 535 (2.8) | 556 (4.1) | 555 (3.0) | 541 (3.6) | 542 (3.7) |

▲ Average significantly higher than other gender

Numbers of items are based on the TIMSS 2019 fourth grade science eAssessment items included in scaling.

⊕ Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 15% but does not exceed 25%.

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See Appendix B.2 for target population coverage notes 1, 2, and 3. See Appendix B.5 for sampling guidelines and sampling participation notes †, ‡, and ≡.

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

A dash (-) indicates comparable data not available because average achievement could not be accurately estimated.