

Exhibit 2.19: Average Achievement in Science Cognitive Domains by Gender

Country	Knowing (69 Items)		Applying (64 Items)		Reasoning (36 Items)	
	Girls	Boys	Girls	Boys	Girls	Boys
Albania	496 (5.0)	491 (4.7)	493 (4.8) ▲	477 (4.4)	492 (3.9) ▲	482 (4.5)
Armenia	469 (3.4) ▲	458 (4.5)	458 (3.8) ▲	449 (3.9)	492 (4.9) ▲	480 (3.7)
Australia	535 (3.0)	540 (3.7)	526 (4.0)	521 (3.5)	541 (3.2) ▲	534 (3.3)
Austria	517 (3.1)	528 (4.1) ▲	520 (3.4)	526 (2.9)	520 (4.3)	517 (3.1)
Azerbaijan	426 (4.5)	424 (4.4)	422 (4.3)	416 (6.5)	434 (5.4)	426 (3.9)
Bahrain	515 (4.5) ▲	479 (5.3)	513 (4.0) ▲	477 (5.0)	498 (4.0) ▲	465 (5.2)
† Belgium (Flemish)	490 (2.9)	497 (3.4) ▲	500 (2.4)	502 (2.6)	511 (2.3)	511 (4.1)
Bosnia and Herzegovina	450 (4.1)	453 (3.2)	463 (3.0) ▲	454 (4.0)	474 (3.5) ▲	464 (3.8)
Bulgaria	529 (5.8)	524 (6.0)	529 (6.5) ▲	517 (5.7)	512 (6.8)	503 (5.9)
^{1,2} Canada	519 (2.4)	529 (2.0) ▲	517 (2.3)	522 (2.2) ▲	527 (2.2)	524 (2.4)
Chile	468 (4.4)	477 (3.9) ▲	458 (4.1)	463 (3.5)	473 (3.1)	471 (3.8)
Chinese Taipei	556 (2.3)	565 (2.6) ▲	559 (2.5)	562 (2.4)	556 (4.1)	548 (3.0)
Croatia	525 (3.5)	528 (2.3)	521 (2.5)	521 (3.0)	524 (2.8)	519 (3.1)
Cyprus	498 (3.6)	508 (4.0) ▲	519 (3.3)	520 (3.6)	509 (3.9)	512 (4.7)
Czech Republic	532 (4.0)	545 (3.0) ▲	524 (3.0)	529 (3.4)	536 (3.9)	541 (3.2)
† Denmark	518 (2.8)	523 (2.9)	520 (3.0)	518 (2.9)	532 (4.0)	523 (3.1)
² England	542 (3.9)	545 (4.0)	526 (4.1)	525 (3.4)	548 (3.9) ▲	539 (4.5)
Finland	553 (3.1)	553 (2.7)	554 (3.3)	548 (2.7)	568 (3.1) ▲	557 (3.2)
France	485 (4.0)	486 (4.2)	497 (3.6)	492 (4.0)	478 (4.8)	471 (5.3)
¹ Georgia	448 (4.1)	455 (4.6)	445 (4.0)	446 (4.3)	463 (4.6)	467 (5.1)
Germany	517 (3.0)	522 (3.2)	515 (3.2)	517 (2.8)	519 (3.8)	518 (3.5)
† Hong Kong SAR	531 (3.7)	542 (4.1) ▲	528 (3.4)	525 (4.0)	534 (4.0)	528 (4.5)
Hungary	528 (3.5)	538 (3.1) ▲	522 (3.6)	529 (3.7)	531 (3.8)	532 (3.2)
Iran, Islamic Rep. of	441 (7.2)	447 (6.2)	441 (6.7)	440 (5.4)	434 (6.9)	431 (5.9)
Ireland	528 (4.8)	535 (3.5)	524 (4.0)	527 (3.1)	527 (4.7)	524 (4.1)
Italy	507 (3.6)	522 (3.7) ▲	501 (3.2)	506 (3.1)	507 (3.0)	508 (4.2)
Japan	533 (2.5)	537 (3.3)	581 (2.3) ▲	572 (2.9)	585 (3.1)	574 (4.3)
² Kazakhstan	488 (3.8)	489 (3.4)	499 (3.9) ▲	489 (3.5)	509 (3.5) ▲	495 (4.4)
Korea, Rep. of	573 (2.3)	595 (3.2) ▲	594 (2.9)	598 (2.8)	580 (2.9)	583 (3.7)
² Kosovo	426 (5.0) ▲	413 (4.8)	415 (4.6) ▲	398 (3.9)	407 (5.6)	398 (5.8)
Kuwait	--	--	--	--	--	--
² Latvia	538 (3.7)	541 (3.6)	543 (2.8) ▲	537 (3.0)	553 (3.5) ▲	540 (3.4)
² Lithuania	539 (4.2)	540 (3.8)	534 (2.7)	528 (3.2)	551 (3.6)	545 (3.5)
Malta	491 (2.1)	501 (2.8) ▲	493 (2.8)	499 (3.9)	491 (3.4)	489 (4.7)
Montenegro	451 (3.9)	451 (3.5)	459 (3.3) ▲	449 (2.9)	453 (3.8)	449 (4.0)
⚭ Morocco	365 (6.9)	359 (6.1)	386 (7.0) ▲	370 (6.2)	372 (6.1) ▲	359 (6.1)
≡ Netherlands	512 (3.1)	517 (3.3)	519 (3.6)	515 (3.6)	526 (4.3)	520 (4.1)
² New Zealand	504 (3.8)	505 (3.6)	500 (3.6)	495 (3.5)	512 (3.5) ▲	498 (3.3)
North Macedonia	--	--	--	--	--	--
† Northern Ireland	521 (3.7)	525 (3.7)	514 (3.6)	514 (3.3)	525 (3.9) ▲	514 (4.0)
† Norway (5)	539 (2.5)	542 (3.6)	538 (2.8)	536 (3.2)	546 (3.5) ▲	535 (3.6)
Oman	--	--	--	--	--	--
² ✱ Pakistan	--	--	--	--	--	--
² ✱ Philippines	--	--	--	--	--	--
Poland	522 (3.3)	526 (3.0)	540 (2.9)	536 (2.9)	531 (3.4) ▲	520 (3.6)
² Portugal	499 (3.5)	505 (3.2)	500 (3.9)	504 (3.2)	502 (2.9)	505 (2.5)
Qatar	459 (6.6)	450 (4.2)	457 (6.1)	444 (4.5)	442 (6.8) ▲	425 (4.2)
² Russian Federation	559 (3.9)	566 (3.5) ▲	570 (4.4)	573 (3.2)	571 (4.8)	567 (3.6)
² Saudi Arabia	--	--	--	--	--	--
² Serbia	507 (3.7)	506 (4.3)	533 (4.4) ▲	518 (4.8)	522 (3.9)	514 (5.2)
³ Singapore	580 (3.9)	595 (4.2) ▲	591 (4.1)	599 (3.9) ▲	605 (4.0)	603 (3.8)
² Slovak Republic	522 (3.9)	532 (4.7) ▲	511 (4.1)	519 (5.3) ▲	517 (5.5)	516 (4.8)
✱ South Africa (5)	--	--	--	--	--	--
Spain	511 (2.9)	517 (2.5)	511 (2.4)	511 (2.6)	506 (2.8)	507 (2.5)
Sweden	538 (3.6)	543 (4.3)	534 (3.2)	530 (4.5)	547 (3.2) ▲	535 (4.4)
² Turkey (5)	527 (5.0)	536 (5.6)	526 (4.4)	530 (5.3)	519 (4.0)	523 (5.3)
United Arab Emirates	482 (3.3)	482 (3.0)	473 (3.2)	467 (2.6)	465 (3.2)	458 (2.3)
² † United States	537 (3.4)	547 (3.1) ▲	534 (3.1)	536 (3.7)	538 (3.1)	539 (3.2)
International Average	507 (0.6)	510 (0.5) ▲	509 (0.5) ▲	506 (0.5)	512 (0.6) ▲	506 (0.6)
Benchmarking Participants						
² Ontario, Canada	521 (4.1)	528 (3.2)	519 (3.9)	521 (3.2)	530 (3.9)	526 (3.5)
Quebec, Canada	517 (3.1)	529 (3.4) ▲	516 (4.1)	523 (3.7) ▲	526 (3.6)	524 (3.3)
Moscow City, Russian Fed.	588 (2.8)	595 (2.8)	601 (3.6)	604 (3.4)	593 (2.6)	590 (3.8)
Madrid, Spain	520 (4.5)	527 (3.4) ▲	520 (4.2)	522 (4.0)	519 (3.4)	520 (5.1)
Abu Dhabi, UAE	424 (4.1)	419 (4.3)	420 (4.2)	410 (3.8)	417 (4.1) ▲	405 (3.4)
² Dubai, UAE	559 (4.2)	560 (3.1)	542 (3.9)	540 (2.7)	534 (4.0)	529 (2.5)

▲ 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%.

✱ Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 25%.

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.