

Exhibit 4.19: Average Achievement in Science Cognitive Domains by Gender

Country	Knowing (75 Items)		Applying (80 Items)		Reasoning (56 Items)	
	Girls	Boys	Girls	Boys	Girls	Boys
Australia	511 (3.3)	518 (5.3)	534 (3.2)	530 (4.9)	538 (3.1)	533 (4.7)
Bahrain	520 (2.8) ▲	466 (3.7)	508 (2.6) ▲	454 (3.9)	508 (3.6) ▲	457 (2.6)
Chile	457 (4.1)	469 (4.6) ▲	458 (3.7)	466 (3.9)	450 (4.0)	465 (3.8) ▲
Chinese Taipei	592 (2.9)	608 (2.9) ▲	567 (2.5)	567 (2.9)	560 (2.7)	558 (2.6)
Cyprus	487 (4.1) ▲	478 (3.1)	486 (2.5) ▲	469 (2.9)	497 (3.2) ▲	479 (2.9)
² Egypt	406 (6.3) ▲	384 (9.2)	397 (6.3) ▲	367 (8.7)	392 (6.4) ▲	361 (8.4)
England	519 (6.1)	521 (6.9)	517 (6.0)	512 (6.8)	516 (5.7)	510 (6.8)
Finland	553 (3.2) ▲	537 (4.2)	547 (3.4) ▲	527 (4.0)	559 (3.9) ▲	537 (4.1)
France	473 (2.9)	487 (4.7) ▲	480 (3.1)	484 (3.8)	504 (3.2)	501 (3.7)
¹ Georgia	460 (4.6)	457 (5.4)	441 (4.1)	439 (4.9)	434 (4.5)	438 (5.8)
† Hong Kong SAR	493 (6.2)	508 (6.9) ▲	505 (5.7)	499 (6.7)	510 (6.0)	498 (6.4)
Hungary	526 (3.1)	549 (4.3) ▲	516 (3.1)	540 (3.8) ▲	517 (3.4)	532 (3.9) ▲
Iran, Islamic Rep. of	457 (5.0)	442 (6.3)	462 (4.6) ▲	443 (5.3)	454 (4.9) ▲	435 (6.9)
Ireland	512 (3.6)	514 (4.1)	525 (4.1)	518 (4.2)	538 (3.6)	531 (4.6)
³ Israel	513 (5.2)	514 (5.5)	507 (4.8)	511 (5.0)	516 (4.7)	520 (5.9)
Italy	502 (3.1)	512 (4.2)	495 (3.7)	503 (3.8) ▲	494 (4.5)	496 (4.6)
Japan	555 (3.3)	572 (2.7) ▲	571 (2.5)	581 (2.7) ▲	569 (2.5)	571 (3.0)
Jordan	484 (5.0) ▲	429 (7.4)	481 (4.6) ▲	428 (6.5)	470 (4.0) ▲	417 (6.7)
² Kazakhstan	468 (4.6) ▲	459 (4.2)	486 (4.0) ▲	476 (4.1)	486 (3.9) ▲	478 (4.1)
Korea, Rep. of	549 (3.8)	567 (3.0) ▲	554 (3.2)	566 (2.8) ▲	562 (3.4)	566 (2.5)
Kuwait	- -	- -	- -	- -	- -	- -
Lebanon	392 (5.9)	385 (4.4)	377 (6.2)	374 (5.4)	351 (6.1)	341 (6.0)
Lithuania	526 (3.1)	528 (4.0)	532 (3.0)	529 (3.6)	542 (3.2)	539 (3.8)
Malaysia	447 (4.4)	437 (5.0)	475 (3.6)	471 (4.2)	460 (3.9)	457 (4.3)
Morocco	379 (3.5)	381 (3.6)	393 (3.2)	393 (3.3)	401 (3.3)	394 (3.5)
† New Zealand	475 (3.7)	484 (5.3)	500 (4.2)	505 (5.2)	510 (3.6)	509 (5.0)
† Norway (9)	495 (2.7)	500 (3.4)	493 (3.8)	493 (4.3)	494 (4.3)	495 (4.1)
Oman	488 (3.5) ▲	436 (5.1)	485 (4.0) ▲	429 (4.8)	478 (3.4) ▲	424 (4.7)
Portugal	515 (3.5)	526 (3.6) ▲	512 (3.8)	516 (4.0)	517 (3.9)	522 (4.1)
Qatar	499 (4.9) ▲	474 (5.9)	485 (5.7) ▲	454 (6.2)	477 (5.8) ▲	451 (6.3)
Romania	477 (4.7)	473 (5.0)	471 (4.9)	462 (4.9)	469 (4.6) ▲	458 (5.5)
² Russian Federation	539 (5.3)	547 (5.0)	539 (4.9)	546 (4.9)	541 (5.2)	545 (4.6)
² Saudi Arabia	- -	- -	- -	- -	- -	- -
² Singapore	617 (4.9)	624 (4.9)	604 (4.6)	613 (5.0)	591 (4.8)	598 (4.5)
ψ South Africa (9)	369 (3.2) ▲	352 (3.9)	383 (3.0) ▲	371 (3.5)	365 (3.3) ▲	358 (3.5)
² Sweden	522 (4.3)	521 (4.2)	526 (4.0) ▲	510 (4.3)	530 (4.6) ▲	517 (4.7)
Turkey	510 (4.7)	502 (5.6)	521 (4.3) ▲	508 (5.3)	529 (4.1)	519 (5.5)
United Arab Emirates	495 (4.4) ▲	470 (4.7)	486 (3.6) ▲	460 (4.1)	473 (4.0) ▲	450 (3.8)
† United States	515 (4.1)	514 (5.9)	525 (4.2)	521 (6.3)	530 (3.8)	526 (6.2)
International Average	495 (0.7) ▲	490 (0.8)	496 (0.7) ▲	487 (0.8)	496 (0.7) ▲	486 (0.8)
Benchmarking Participants						
Ontario, Canada	499 (3.4)	511 (4.1) ▲	522 (4.1)	524 (3.7)	534 (4.4)	531 (4.1)
‡ Quebec, Canada	527 (4.1)	531 (4.1)	537 (4.4)	538 (4.8)	543 (4.7)	538 (4.7)
Moscow City, Russian Fed.	564 (3.5)	576 (3.5) ▲	556 (4.2)	567 (4.0) ▲	563 (3.6)	573 (3.6) ▲
Gauteng, RSA (9)	421 (5.0) ▲	404 (5.4)	433 (3.9) ▲	423 (4.5)	419 (4.2)	414 (4.4)
Western Cape, RSA (9)	424 (6.9)	431 (7.1)	441 (5.8)	452 (6.4)	430 (6.8)	448 (7.0) ▲
Abu Dhabi, UAE	437 (7.6) ▲	408 (6.4)	437 (6.7) ▲	405 (5.7)	427 (6.6) ▲	398 (5.6)
² Dubai, UAE	564 (6.1)	557 (7.5)	549 (5.3)	541 (6.8)	541 (5.7)	535 (6.6)

▲ Average significantly higher than other gender

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

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

See Appendix B.7 for target population coverage notes 1, 2, and 3. See Appendix B.10 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.

