

Exhibit 1.17: Average Achievement in Mathematics Cognitive Domains

Country	Overall Mathematics Average Scale Score	Knowing (59 Items)		Applying (74 Items)		Reasoning (38 Items)	
		Average Scale Score	Difference from Overall Mathematics Score	Average Scale Score	Difference from Overall Mathematics Score	Average Scale Score	Difference from Overall Mathematics Score
<sup>3</sup> Singapore	625 (3.9)	640 (3.9)	15 (1.7) ▲	626 (3.9)	0 (1.2)	614 (4.0)	-11 (1.5) ▼
† Hong Kong SAR	602 (3.3)	600 (3.0)	-2 (1.8)	606 (3.3)	5 (2.0) ▲	596 (4.2)	-6 (3.1)
Korea, Rep. of	600 (2.2)	612 (3.6)	13 (2.4) ▲	594 (2.5)	-5 (1.2) ▼	596 (2.9)	-3 (2.0)
Chinese Taipei	599 (1.9)	622 (1.9)	22 (1.3) ▲	600 (1.5)	1 (1.5)	576 (1.8)	-23 (1.5) ▼
Japan	593 (1.8)	597 (2.0)	4 (0.9) ▲	593 (2.0)	0 (1.5)	589 (2.2)	-4 (1.5) ▼
<sup>2</sup> Russian Federation	567 (3.3)	555 (3.0)	-12 (1.3) ▼	571 (3.6)	4 (0.9) ▲	573 (3.6)	6 (1.1) ▲
† Northern Ireland	566 (2.7)	574 (3.3)	9 (1.5) ▲	565 (2.8)	-1 (1.4)	558 (2.9)	-7 (1.7) ▼
<sup>2</sup> England	556 (3.0)	563 (3.3)	7 (1.2) ▲	553 (3.3)	-3 (1.5)	554 (3.4)	-2 (2.0)
Ireland	548 (2.5)	550 (3.0)	2 (1.7)	551 (2.7)	3 (1.4) ▲	542 (2.5)	-7 (1.4) ▼
<sup>2</sup> Latvia	546 (2.6)	537 (2.6)	-9 (1.0) ▼	547 (2.7)	0 (0.8)	554 (3.0)	8 (1.3) ▲
† Norway (5)	543 (2.2)	541 (2.3)	-2 (1.2)	540 (2.3)	-3 (0.8) ▼	551 (2.9)	8 (2.6) ▲
<sup>2</sup> Lithuania	542 (2.8)	535 (2.8)	-7 (1.9) ▼	547 (2.7)	5 (1.0) ▲	534 (3.3)	-9 (2.4) ▼
Austria	539 (2.0)	540 (2.0)	1 (1.4)	538 (2.1)	-2 (0.7) ▼	537 (2.4)	-2 (1.6)
≡ Netherlands	538 (2.2)	534 (2.1)	-3 (1.0) ▼	536 (2.2)	-2 (1.3)	546 (2.9)	8 (2.5) ▲
<sup>2</sup> † United States	535 (2.5)	536 (2.6)	2 (0.8) ▲	537 (2.6)	3 (0.8) ▲	524 (2.5)	-11 (0.7) ▼
Czech Republic	533 (2.5)	528 (3.0)	-5 (1.7) ▼	531 (2.6)	-1 (1.0)	541 (2.8)	8 (1.1) ▲
† Belgium (Flemish)	532 (1.9)	546 (2.4)	14 (1.1) ▲	526 (2.0)	-6 (0.9) ▼	530 (2.0)	-2 (0.8) ▼
Cyprus	532 (2.9)	530 (3.3)	-2 (1.8)	536 (3.0)	4 (1.1) ▲	526 (2.9)	-6 (1.0) ▼
Finland	532 (2.3)	531 (2.4)	-1 (1.1)	531 (2.4)	-1 (0.9)	535 (2.5)	3 (0.9) ▲
<sup>2</sup> Portugal	525 (2.6)	523 (2.8)	-2 (1.6)	528 (2.6)	3 (0.7) ▲	519 (2.9)	-6 (1.9) ▼
† Denmark	525 (1.9)	524 (2.2)	-1 (1.7)	520 (2.3)	-5 (1.8) ▼	535 (2.2)	10 (1.6) ▲
Hungary	523 (2.6)	525 (2.6)	1 (1.5)	521 (2.8)	-2 (1.5)	522 (3.0)	-1 (1.2)
<sup>2</sup> Turkey (5)	523 (4.4)	514 (4.4)	-8 (1.3) ▼	531 (4.4)	8 (0.9) ▲	509 (5.1)	-14 (2.2) ▼
Sweden	521 (2.8)	515 (3.1)	-6 (1.7) ▼	518 (2.8)	-3 (1.1) ▼	536 (2.9)	15 (1.4) ▲
Germany	521 (2.3)	523 (2.3)	2 (1.3)	514 (2.5)	-7 (1.2) ▼	531 (2.8)	10 (1.3) ▲
Poland	520 (2.7)	509 (2.7)	-11 (1.1) ▼	521 (2.8)	1 (1.0)	527 (2.8)	7 (1.0) ▲
Australia	516 (2.8)	509 (3.3)	-7 (1.5) ▼	516 (2.9)	0 (1.1)	522 (3.0)	6 (1.6) ▲
Azerbaijan	515 (2.7)	513 (2.3)	-2 (1.1) ▼	519 (3.1)	4 (1.1) ▲	506 (3.1)	-9 (1.2) ▼
Bulgaria	515 (4.3)	511 (4.1)	-4 (1.0) ▼	518 (4.5)	3 (1.0) ▲	509 (5.0)	-6 (1.4) ▼
Italy	515 (2.4)	515 (3.0)	0 (2.0)	517 (2.6)	2 (1.2) ▲	504 (2.9)	-11 (2.0) ▼
<sup>2</sup> Kazakhstan	512 (2.5)	510 (2.3)	-2 (0.9) ▼	514 (2.7)	2 (0.9) ▲	507 (2.7)	-5 (1.2) ▼
<sup>1,2</sup> Canada	512 (1.9)	506 (2.1)	-5 (0.7) ▼	513 (1.9)	1 (0.7) ▲	513 (2.0)	2 (1.1)
<sup>2</sup> Slovak Republic	510 (3.5)	502 (3.3)	-8 (1.2) ▼	508 (3.4)	-2 (1.9)	522 (3.5)	12 (1.3) ▲
Croatia	509 (2.2)	508 (2.2)	-2 (1.1)	509 (2.3)	0 (1.6)	510 (2.8)	0 (1.5)
Malta	509 (1.4)	510 (1.4)	0 (1.5)	508 (1.2)	-2 (1.4)	508 (1.4)	-1 (1.6)
<sup>2</sup> Serbia	508 (3.2)	504 (3.3)	-4 (2.1)	509 (3.5)	1 (1.3)	503 (3.7)	-5 (1.6) ▼
Spain	502 (2.1)	499 (2.4)	-3 (0.8) ▼	506 (1.9)	3 (1.4) ▲	497 (2.0)	-6 (1.5) ▼
Armenia	498 (2.5)	497 (2.7)	-1 (1.4)	501 (2.9)	3 (1.2) ▲	483 (2.9)	-15 (1.7) ▼
Albania	494 (3.4)	492 (3.7)	-2 (1.9)	498 (3.3)	4 (1.0) ▲	490 (3.7)	-4 (2.0) ▼
<sup>2</sup> New Zealand	487 (2.6)	476 (2.7)	-11 (1.7) ▼	487 (2.4)	0 (1.0)	501 (2.7)	14 (1.7) ▲
France	485 (3.0)	488 (3.3)	3 (1.6)	482 (3.1)	-3 (0.9) ▼	480 (3.3)	-5 (1.6) ▼
<sup>1</sup> Georgia	482 (3.7)	473 (3.9)	-8 (2.1) ▼	490 (3.6)	8 (1.2) ▲	469 (4.5)	-13 (2.2) ▼
United Arab Emirates	481 (1.7)	479 (1.6)	-2 (0.7) ▼	484 (1.7)	3 (0.5) ▲	474 (1.7)	-7 (0.7) ▼
Bahrain	480 (2.6)	478 (2.7)	-2 (0.9) ▼	479 (2.6)	0 (1.0)	479 (2.5)	-1 (1.4)
North Macedonia	472 (5.3)	470 (5.6)	-2 (2.1)	477 (5.2)	5 (1.9) ▲	470 (5.7)	-2 (3.6)
Montenegro	453 (2.0)	445 (2.1)	-8 (1.1) ▼	454 (2.1)	1 (1.1)	463 (2.7)	10 (1.9) ▲
Bosnia and Herzegovina	452 (2.4)	444 (2.7)	-8 (1.7) ▼	452 (2.9)	0 (1.9)	461 (3.0)	10 (1.9) ▲
Qatar	449 (3.4)	447 (3.6)	-2 (1.2)	453 (3.4)	4 (1.2) ▲	440 (3.5)	-10 (1.5) ▼
<sup>2</sup> Kosovo	444 (3.0)	445 (3.2)	0 (1.0)	445 (3.0)	1 (1.3)	441 (3.2)	-3 (1.5) ▼
Iran, Islamic Rep. of	443 (3.9)	436 (3.9)	-7 (1.1) ▼	450 (4.0)	7 (1.0) ▲	426 (4.3)	-17 (2.0) ▼
Chile	441 (2.7)	427 (2.6)	-14 (1.0) ▼	446 (3.0)	5 (1.9) ▲	448 (4.0)	7 (2.6) ▲
Oman	431 (3.7)	424 (4.4)	-7 (1.7) ▼	434 (3.5)	3 (1.1) ▲	424 (3.7)	-6 (1.0) ▼
<sup>2</sup> Saudi Arabia	398 (3.6)	-	-	-	-	-	-
Morocco	383 (4.3)	379 (4.4)	-4 (1.0) ▼	387 (4.5)	4 (1.5) ▲	380 (5.2)	-4 (2.1)
Kuwait	383 (4.7)	-	-	-	-	-	-
South Africa (5)	374 (3.6)	372 (3.7)	-1 (0.8)	375 (3.6)	2 (1.0)	370 (3.8)	-3 (1.0) ▼
<sup>2</sup> ψ Pakistan	328 (12.0)	327 (12.6)	-1 (2.4)	306 (13.1)	-21 (2.6) ▼	354 (9.3)	27 (3.9) ▲
<sup>2</sup> ψ Philippines	297 (6.4)	302 (6.3)	5 (1.5) ▲	286 (6.9)	-10 (1.7) ▼	272 (6.6)	-25 (2.9) ▼
<b>Benchmarking Participants</b>							
Moscow City, Russian Fed.	593 (2.2)	577 (2.1)	-16 (1.2) ▼	599 (2.5)	6 (1.4) ▲	602 (2.8)	9 (1.3) ▲
<sup>2</sup> Dubai, UAE	544 (1.6)	542 (1.8)	-2 (1.2)	547 (1.6)	3 (0.7) ▲	538 (1.8)	-6 (0.8) ▼
Quebec, Canada	532 (2.3)	535 (2.7)	3 (1.3) ▲	533 (2.3)	1 (1.2)	524 (2.8)	-8 (2.2) ▼
Madrid, Spain	518 (2.2)	515 (4.0)	-4 (3.3)	520 (2.4)	2 (1.2)	514 (2.7)	-4 (2.1)
<sup>2</sup> Ontario, Canada	512 (3.3)	504 (3.7)	-8 (1.6) ▼	514 (3.4)	2 (1.1)	516 (3.5)	4 (1.8) ▲
Abu Dhabi, UAE	441 (2.2)	439 (2.0)	-1 (1.2)	442 (2.0)	1 (0.9)	435 (2.4)	-6 (0.8) ▼

▲ Subscale score significantly higher than overall mathematics score  
 ▼ Subscale score significantly lower than overall mathematics score

Numbers of items are based on the TIMSS 2019 fourth grade mathematics 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.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.