

**Exhibit 3.2: Achievement in Mathematics Content Domains**

Country	Overall Mathematics Average Scale Score	Number (64 items)		Algebra (61 items)	
		Average Scale Score	Difference from Overall Mathematics Score	Average Scale Score	Difference from Overall Mathematics Score
<sup>2</sup> Singapore	621 (3.2)	629 (3.2)	8 (1.3) ▲	623 (3.4)	2 (1.2)
Korea, Rep. of	606 (2.6)	601 (2.4)	-5 (1.1) ▼	612 (2.9)	6 (1.2) ▲
Chinese Taipei	599 (2.4)	590 (2.4)	-9 (1.0) ▼	613 (2.8)	14 (1.0) ▲
Hong Kong SAR	594 (4.6)	594 (4.9)	0 (1.9)	593 (4.7)	-1 (1.3)
Japan	586 (2.3)	572 (2.4)	-14 (1.3) ▼	596 (2.8)	9 (1.5) ▲
Russian Federation	538 (4.7)	533 (4.5)	-5 (1.1) ▼	558 (5.2)	20 (1.3) ▲
Kazakhstan	528 (5.3)	516 (5.1)	-11 (1.5) ▼	555 (5.6)	27 (1.4) ▲
<sup>1</sup> † Canada	527 (2.2)	537 (2.4)	10 (0.7) ▲	513 (2.2)	-14 (0.6) ▼
Ireland	523 (2.7)	544 (3.3)	21 (1.7) ▲	501 (2.8)	-22 (1.1) ▼
† United States	518 (3.1)	520 (3.1)	1 (0.7) ▲	525 (3.1)	7 (0.9) ▲
England	518 (4.2)	528 (4.5)	9 (1.4) ▲	492 (4.7)	-26 (1.6) ▼
Slovenia	516 (2.1)	524 (2.4)	7 (1.3) ▲	498 (2.5)	-18 (1.5) ▼
Hungary	514 (3.8)	518 (4.0)	3 (1.1) ▲	503 (4.1)	-12 (1.6) ▼
Norway (9)	512 (2.3)	529 (2.6)	17 (1.1) ▲	471 (2.7)	-40 (1.3) ▼
<sup>2</sup> Lithuania	511 (2.8)	511 (2.8)	0 (1.4)	497 (3.3)	-14 (1.2) ▼
<sup>3</sup> Israel	511 (4.1)	518 (4.0)	7 (1.6) ▲	517 (4.7)	6 (1.7) ▲
Australia	505 (3.1)	511 (3.2)	6 (0.7) ▲	491 (3.4)	-14 (1.3) ▼
Sweden	501 (2.8)	513 (2.9)	12 (1.6) ▲	482 (3.2)	-19 (1.2) ▼
<sup>2</sup> Italy	494 (2.5)	494 (2.7)	0 (1.3)	481 (3.0)	-13 (1.8) ▼
Malta	494 (1.0)	501 (1.6)	7 (1.7) ▲	492 (1.8)	-1 (1.4)
† New Zealand	493 (3.4)	500 (3.5)	7 (1.5) ▲	475 (3.5)	-18 (1.3) ▼
Armenia	471 (3.2)	478 (3.0)	7 (1.4) ▲	506 (3.6)	35 (1.3) ▲
Malaysia	465 (3.6)	472 (3.6)	6 (0.7) ▲	467 (3.4)	2 (1.2)
United Arab Emirates	465 (2.0)	464 (1.9)	-1 (0.9)	485 (2.0)	20 (0.7) ▲
Turkey	458 (4.7)	447 (4.6)	-10 (1.5) ▼	459 (4.6)	1 (1.5)
Bahrain	454 (1.4)	436 (2.0)	-18 (1.5) ▼	483 (2.1)	29 (2.0) ▲
<sup>1</sup> <sup>2</sup> Georgia	453 (3.4)	457 (3.4)	4 (1.3) ▲	469 (3.8)	16 (1.4) ▲
Lebanon	442 (3.6)	440 (4.1)	-2 (2.2)	466 (4.0)	23 (2.0) ▲
ψ Qatar	437 (3.0)	435 (2.9)	-2 (1.6)	452 (2.6)	15 (2.0) ▲
ψ Iran, Islamic Rep. of	436 (4.6)	432 (4.7)	-5 (1.7) ▼	437 (5.1)	1 (2.8)
Thailand	431 (4.8)	430 (5.0)	-1 (1.6)	429 (5.1)	-2 (1.5)
ψ Chile	427 (3.2)	427 (3.3)	0 (1.1)	413 (3.4)	-14 (1.3) ▼
ψ Oman	403 (2.4)	389 (2.6)	-14 (2.1) ▼	426 (2.7)	23 (1.3) ▲
ψ Kuwait	392 (4.6)	395 (4.8)	2 (1.9)	384 (4.8)	-8 (2.4) ▼
ψ Egypt	392 (4.1)	393 (3.7)	1 (1.8)	420 (4.3)	27 (1.0) ▲
ψ Botswana (9)	391 (2.0)	393 (3.2)	3 (2.0)	400 (2.3)	9 (1.2) ▲
⌘ Jordan	386 (3.2)	380 (3.2)	-5 (1.3) ▼	418 (3.5)	32 (1.3) ▲
⌘ Morocco	384 (2.3)	382 (2.1)	-2 (1.1)	372 (2.3)	-12 (1.0) ▼
⌘ South Africa (9)	372 (4.5)	368 (4.7)	-4 (0.9) ▼	394 (4.3)	21 (1.1) ▲
⌘ Saudi Arabia	368 (4.6)	352 (4.5)	-16 (2.1) ▼	391 (4.4)	23 (1.7) ▲

SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2015

**Benchmarking Participants**

‡ Quebec, Canada	543 (3.9)	557 (4.3)	14 (1.4) ▲	530 (4.4)	-13 (2.6) ▼
Ontario, Canada	522 (2.9)	530 (3.0)	7 (0.8) ▲	507 (3.0)	-15 (1.4) ▼
Dubai, UAE	512 (2.1)	509 (2.5)	-3 (1.5) ▼	528 (2.7)	17 (1.8) ▲
<sup>1</sup> Florida, US	493 (6.4)	498 (6.6)	5 (1.6) ▲	502 (6.8)	9 (1.4) ▲
Norway (8)	487 (2.0)	504 (2.2)	17 (1.2) ▲	423 (2.7)	-63 (1.6) ▼
Abu Dhabi, UAE	442 (4.7)	443 (4.4)	1 (1.7) ▲	462 (4.5)	20 (1.5) ▲
† ⌘ Buenos Aires, Argentina	396 (4.2)	415 (4.2)	19 (1.9) ▲	371 (5.1)	-25 (2.0) ▼

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

Numbers of items are based on the TIMSS 2015 eighth grade mathematics assessment items included in scaling.

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

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

See Appendix C.2 for target population coverage notes 1, 2, and 3. See Appendix C.8 for sampling guidelines and sampling participation notes †, ‡, and ‡.

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

**Exhibit 3.2: Achievement in Mathematics Content Domains (Continued)**

Country	Geometry (43 items)			Data and Chance (41 items)		
	Average Scale Score	Difference from Overall Mathematics Score		Average Scale Score	Difference from Overall Mathematics Score	
<sup>2</sup> Singapore	617 (3.5)	-4 (1.4)	▼	617 (3.4)	-4 (0.8)	▼
Korea, Rep. of	612 (3.4)	6 (2.0)	▲	600 (2.4)	-6 (1.4)	▼
Chinese Taipei	607 (2.6)	8 (1.6)	▲	588 (2.5)	-11 (1.0)	▼
Hong Kong SAR	602 (5.1)	8 (1.6)	▲	597 (5.9)	3 (2.9)	
Japan	598 (2.6)	11 (1.1)	▲	589 (2.3)	3 (1.2)	▲
Russian Federation	536 (5.6)	-2 (1.8)		507 (5.0)	-31 (2.2)	▼
Kazakhstan	529 (6.4)	1 (1.7)		492 (5.5)	-36 (1.9)	▼
<sup>1</sup> † Canada	527 (2.5)	-1 (1.0)		534 (2.9)	7 (1.6)	▲
Ireland	503 (3.1)	-20 (1.4)	▼	534 (3.8)	10 (2.3)	▲
† United States	500 (3.2)	-18 (1.0)	▼	522 (3.5)	4 (0.8)	▲
England	514 (4.1)	-4 (1.4)	▼	541 (4.7)	23 (2.3)	▲
Slovenia	522 (2.8)	6 (1.9)	▲	525 (2.7)	8 (1.4)	▲
Hungary	518 (4.2)	4 (1.4)	▲	519 (3.9)	4 (1.2)	▲
Norway (9)	498 (2.5)	-14 (1.2)	▼	542 (3.2)	31 (2.1)	▲
<sup>2</sup> Lithuania	515 (3.1)	3 (1.2)	▲	521 (2.7)	10 (1.4)	▲
<sup>3</sup> Israel	487 (4.6)	-24 (1.5)	▼	503 (4.9)	-8 (2.5)	▼
Australia	500 (3.1)	-5 (1.1)	▼	519 (3.1)	14 (1.2)	▲
Sweden	478 (3.4)	-23 (2.3)	▼	512 (3.7)	11 (2.1)	▲
<sup>2</sup> Italy	504 (3.5)	10 (2.2)	▲	496 (2.7)	2 (1.3)	
Malta	484 (1.7)	-10 (1.4)	▼	487 (2.6)	-7 (2.3)	▼
† New Zealand	488 (3.2)	-5 (1.5)	▼	509 (3.7)	16 (1.8)	▲
Armenia	444 (4.2)	-27 (2.1)	▼	391 (4.2)	-81 (2.4)	▼
Malaysia	455 (3.9)	-10 (1.0)	▼	451 (3.8)	-14 (1.0)	▼
United Arab Emirates	447 (2.4)	-17 (1.0)	▼	449 (2.5)	-16 (1.1)	▼
Turkey	463 (4.9)	5 (2.0)	▲	467 (5.2)	9 (2.0)	▲
Bahrain	449 (2.5)	-5 (2.1)	▼	453 (2.2)	-1 (1.8)	
<sup>1</sup> <sup>2</sup> Georgia	441 (3.9)	-13 (1.7)	▼	421 (3.7)	-32 (1.5)	▼
Lebanon	444 (4.0)	1 (2.3)		395 (4.6)	-47 (2.6)	▼
ψ Qatar	433 (3.0)	-4 (2.3)		417 (3.9)	-20 (1.7)	▼
ψ Iran, Islamic Rep. of	448 (4.7)	11 (2.4)	▲	417 (5.0)	-19 (1.7)	▼
Thailand	429 (4.9)	-2 (1.5)		425 (4.6)	-7 (1.5)	▼
ψ Chile	428 (3.4)	0 (2.8)		429 (3.8)	2 (1.7)	
ψ Oman	415 (2.8)	11 (1.7)	▲	376 (3.0)	-27 (1.7)	▼
ψ Kuwait	382 (5.3)	-11 (2.9)	▼	377 (5.0)	-15 (3.3)	▼
ψ Egypt	393 (4.1)	1 (1.2)		338 (4.4)	-54 (1.4)	▼
ψ Botswana (9)	377 (2.5)	-14 (1.8)	▼	374 (3.1)	-17 (2.3)	▼
⌘ Jordan	381 (3.4)	-5 (2.0)	▼	346 (4.0)	-39 (2.3)	▼
⌘ Morocco	410 (3.0)	26 (2.0)	▲	353 (2.9)	-31 (2.0)	▼
⌘ South Africa (9)	364 (4.5)	-9 (1.1)	▼	357 (4.9)	-15 (1.8)	▼
⌘ Saudi Arabia	342 (5.3)	-25 (2.9)	▼	361 (4.9)	-6 (2.9)	▼
<b>Benchmarking Participants</b>						
‡ Quebec, Canada	540 (4.3)	-3 (1.1)	▼	546 (5.0)	3 (2.0)	
Ontario, Canada	524 (3.5)	2 (1.6)		531 (3.9)	9 (2.5)	▲
Dubai, UAE	496 (2.6)	-16 (1.8)	▼	504 (3.0)	-8 (2.1)	▼
<sup>1</sup> Florida, US	470 (6.5)	-24 (2.6)	▼	489 (8.1)	-4 (4.0)	
Norway (8)	477 (2.4)	-9 (1.2)	▼	519 (3.0)	33 (2.0)	▲
Abu Dhabi, UAE	425 (5.4)	-16 (1.7)	▼	426 (5.5)	-16 (2.6)	▼
† ⌘ Buenos Aires, Argentina	358 (5.0)	-38 (2.2)	▼	373 (5.3)	-23 (2.2)	▼

SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2015

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