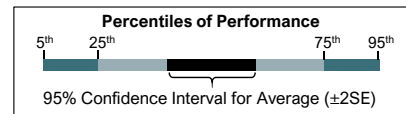


Exhibit 2.2.1: Average Science Achievement and Scale Score Distributions

Country	Average Scale Score	95% Confidence Interval for Average	Standard Deviation	Science Achievement Distribution
<sup>3</sup> Singapore	606 (5.7)	595 - 617	99 (3.4)	
Chinese Taipei	572 (2.4)	567 - 577	90 (1.2)	
<sup>†</sup> Japan	557 (3.1)	551 - 563	79 (1.6)	
Korea, Rep. of	545 (2.2)	541 - 550	87 (1.5)	
<sup>2</sup> England	531 (4.3)	523 - 540	98 (2.4)	
Finland	531 (3.2)	524 - 537	94 (1.6)	
<sup>3†</sup> Türkiye	530 (3.6)	523 - 537	97 (1.8)	
<sup>†</sup> Hong Kong SAR	528 (4.7)	518 - 537	95 (3.4)	
<sup>2</sup> Czech Republic	527 (2.0)	523 - 531	77 (1.2)	
Ireland	525 (3.5)	518 - 532	88 (2.0)	
Hungary	522 (3.3)	515 - 528	84 (2.2)	
<sup>2</sup> Sweden	521 (2.9)	516 - 527	98 (1.6)	
Australia	520 (3.2)	514 - 526	94 (2.0)	
<sup>2</sup> Lithuania	519 (3.0)	513 - 525	85 (1.4)	
<sup>≡</sup> United States	513 (3.9)	506 - 521	95 (1.8)	
<sup>2</sup> Austria	512 (2.4)	507 - 516	84 (1.8)	
Portugal	506 (2.4)	501 - 510	82 (1.2)	
Malta	501 (1.6)	498 - 504	105 (1.3)	
Italy	501 (3.2)	494 - 507	82 (1.5)	
<sup>2</sup> Norway (9)	488 (2.6)	483 - 494	91 (1.2)	
United Arab Emirates	486 (2.0)	482 - 490	117 (1.6)	
France	486 (3.2)	480 - 492	81 (1.6)	
Qatar	481 (4.3)	473 - 489	103 (2.3)	
<sup>3</sup> Israel	481 (3.6)	473 - 488	100 (2.3)	
<sup>≡</sup> Romania	466 (4.1)	458 - 474	85 (2.5)	
Cyprus	464 (3.0)	458 - 470	92 (2.0)	
Oman	456 (2.6)	451 - 461	99 (1.4)	
<sup>†</sup> Chile	455 (2.7)	450 - 460	82 (1.4)	
Bahrain	452 (2.6)	447 - 457	106 (1.9)	
<sup>1</sup> Georgia	448 (2.9)	442 - 454	79 (1.6)	
Kazakhstan	443 (3.0)	437 - 449	83 (1.9)	
Malaysia	426 (3.7)	419 - 434	93 (1.8)	
Brazil	420 (2.5)	415 - 425	88 (2.0)	
Kuwait	420 (5.8)	408 - 431	103 (3.8)	
<sup>2</sup> Saudi Arabia	419 (3.4)	412 - 426	95 (1.5)	
Iran, Islamic Rep. of	419 (3.6)	412 - 426	93 (2.0)	
Jordan	413 (3.6)	406 - 420	98 (1.9)	
Azerbaijan	411 (3.0)	406 - 417	80 (1.5)	
Uzbekistan	396 (3.7)	388 - 403	74 (1.7)	
Palestinian Nat'l Auth.	393 (2.9)	387 - 399	97 (1.6)	
<sup>ψ</sup> South Africa (9)	362 (4.0)	355 - 370	104 (2.7)	
<sup>ψ</sup> Morocco	327 (3.4)	320 - 334	81 (1.5)	
<b>TIMSS 2023 International Average</b>	<b>478 (0.5)</b>	<b>477 - 479</b>		
<sup>≡</sup> New Zealand	502 (4.0)	494 - 510	96 (2.0)	
<sup>✱</sup> Cote d'Ivoire	183 (8.2)	167 - 199	123 (7.1)	
<b>Benchmarking Participants</b>				
Dubai, UAE	547 (3.2)	541 - 553	104 (2.4)	
Sharjah, UAE	499 (4.9)	489 - 508	102 (3.3)	
Abu Dhabi, UAE	443 (3.8)	436 - 451	122 (1.9)	



The TIMSS achievement scale was established in 1995 based on the combined achievement distribution of all countries that participated in TIMSS 1995. To provide a point of reference for country comparisons, the scale centerpoint of 500 was located at the mean of the combined achievement distribution. The units of the scale were chosen so that 100 scale score points corresponded to the standard deviation of the combined achievement distribution.

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

See Appendix B.7 for population coverage notes 1, 2, and 3. See Appendix B.10 for sampling guidelines and sampling participation notes †, ‡, and ≡.

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

✱ Average achievement not reliably measured because the percentage of students with achievement too low for estimation exceeds 25%.

New Zealand did not satisfy guidelines for minimum school participation rates. Achievement could not be reliably estimated for Cote d'Ivoire.