

Exhibit 2.1: Average Science Achievement and Scale Score Distributions

Country	Average Scale Score		Science Achievement Distribution					
			5th Percentile	25th Percentile	95% Confidence Interval ($\pm 2SE$)		75th Percentile	95th Percentile
³ Singapore	595 (3.4)	p	454	548	588	601	649	708
Korea, Rep. of	588 (2.1)	p	474	545	583	592	633	693
² Russian Federation	567 (3.0)	p	457	526	561	573	611	666
Japan	562 (1.8)	p	442	519	558	565	609	668
Chinese Taipei	558 (1.8)	p	444	516	555	561	604	659
Finland	555 (2.6)	p	429	513	550	560	602	662
² Latvia	542 (2.4)	p	432	501	537	547	585	639
¹ Norway (5)	539 (2.2)	p	422	497	535	544	586	643
^{2†} United States	539 (2.7)	p	387	486	533	544	598	664
² Lithuania	538 (2.5)	p	414	492	533	543	588	651
Sweden	537 (3.3)	p	409	490	531	544	588	652
² England	537 (2.7)	p	413	491	532	542	587	648
Czech Republic	534 (2.6)	p	414	490	529	539	582	640
Australia	533 (2.4)	p	389	484	528	537	587	653
[†] Hong Kong SAR	531 (3.3)	p	408	486	525	538	580	643
Poland	531 (2.6)	p	401	484	526	536	582	643
Hungary	529 (2.7)	p	395	479	524	535	584	647
Ireland	528 (3.2)	p	393	481	522	534	580	643
² Turkey (5)	526 (4.2)	p	350	475	518	535	591	653
Croatia	524 (2.2)	p	424	485	520	528	565	618
¹² Canada	523 (1.9)	p	401	476	519	527	573	637
[†] Denmark	522 (2.4)	p	405	478	518	527	569	629
Austria	522 (2.6)	p	394	474	517	527	575	636
Bulgaria	521 (4.9)	p	326	460	512	531	595	666
² Slovak Republic	521 (3.7)	p	367	479	513	528	575	634
[†] Northern Ireland	518 (2.3)	p	392	473	514	523	568	627
[≠] Netherlands	518 (2.9)	p	407	476	513	524	564	619
Germany	518 (2.2)	p	383	468	514	523	573	634
² Serbia	517 (3.5)	p	368	471	510	524	571	637
Cyprus	511 (3.0)	p	381	463	505	517	563	630
Spain	511 (2.0)	p	394	467	507	515	559	614
Italy	510 (3.0)	p	400	467	504	516	555	615
² Portugal	504 (2.6)	p	391	459	499	509	551	608
² New Zealand	503 (2.3)	p	360	448	498	507	561	629
[†] Belgium (Flemish)	501 (2.1)	p	384	458	497	505	548	605
TIMSS Scale Centerpoint	500							
Malta	496 (1.3)	s	344	443	493	498	555	623
² Kazakhstan	494 (3.1)	p	373	441	488	500	544	625
Bahrain	493 (3.4)	s	329	432	486	499	557	635
Albania	489 (3.5)	s	341	437	483	496	549	619
France	488 (3.0)	s	351	435	482	494	544	608
United Arab Emirates	473 (2.1)	s	273	395	469	477	557	641
Chile	469 (2.6)	s	343	419	464	474	522	589
Armenia	466 (3.4)	s	336	415	460	473	520	590
Bosnia and Herzegovina	459 (2.9)	s	321	408	453	464	514	580
[†] Georgia	454 (3.9)	s	307	400	447	462	512	582
Montenegro	453 (2.5)	s	292	401	448	458	516	582
Qatar	449 (3.9)	s	271	376	442	457	526	611
Iran, Islamic Rep. of	441 (4.1)	s	265	377	433	449	511	587
Oman	435 (4.1)	s	234	355	427	443	518	619
Azerbaijan	427 (3.3)	s	260	371	420	433	492	569
North Macedonia	426 (6.2)	s	244	359	414	438	501	583
² Kosovo	413 (3.7)	s	260	358	406	420	474	545
² Saudi Arabia	402 (4.1)	s	205	327	394	410	484	571
Kuwait	392 (6.1)	s	181	307	380	404	482	582
^ψ Morocco	374 (5.8)	s	172	291	363	385	458	571
^κ South Africa (5)	324 (4.9)	s	129	225	315	334	414	563
^{2 κ} Pakistan	290 (13.4)	s	83	197	264	316	385	496
^{2 κ} Philippines	249 (7.5)	s	59	158	234	264	333	470
Benchmarking Participants								
Moscow City, Russian Fed.	595 (2.2)	p	484	556	590	599	638	689
² Dubai, UAE	545 (1.7)	p	389	492	541	548	605	671
² Ontario, Canada	524 (3.2)	p	397	474	518	530	577	641
Madrid, Spain	523 (2.0)	p	417	484	519	527	565	618
Quebec, Canada	522 (2.5)	p	413	479	517	527	566	627
Abu Dhabi, UAE	418 (2.8)	s	230	329	412	423	507	604

p Average significantly higher than the centerpoint of the TIMSS scale

s Average significantly lower than the centerpoint of the TIMSS scale

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 distribution.

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

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

See Appendix B.2 for 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.

