

Exhibit 4.9: Percentages of Students Reaching International Benchmarks of Science Achievement Across Assessment Years

Country	Advanced International Benchmark (625)							High International Benchmark (550)						
	Percent of Students							Percent of Students						
	2019	2015	2011	2007	2003	1999	1995	2019	2015	2011	2007	2003	1999	1995
Singapore	48	42 ▲	40 ▲	32 ▲	33 ▲	29 ▲	29 ▲	77	74	69 ▲	61 ▲	66 ▲	60 ▲	64 ▲
Chinese Taipei	29	27	24 ▲	25 ▲	26	27		64	63	60 ▲	60 ▲	63	61	
Japan	22	24	18 ▲	17 ▲	15 ▲	16 ▲	18 ▲	63	63	57 ▲	55 ▲	53 ▲	52 ▲	54 ▲
Korea, Rep. of	22	19 ▲	20	17 ▲	17 ▲	19 ▲	17 ▲	56	54	57	54	57	50 ▲	50 ▲
Finland	16		13 ▲					50		53				
United States	15	12 ▲	10 ▲	10 ▲	11 ▲	12	11 ▲	43	43	40	38 ▲	41	37 ▲	38
Russian Federation	13	14	14	11	6 ▲	15	11	48	49	48	41 ▲	32 ▲	41	38 ▲
Sweden	13	10 ▲	6 ▲	6 ▲	8 ▲		19 ▼	41	40	33 ▲	32 ▲	38		52 ▼
Turkey	13	8 ▲	8 ▲					38	29 ▲	26 ▲				
Australia	13	7 ▲	11	8 ▲	9 ▲		10	43	34 ▲	35 ▲	33 ▲	40		36 ▲
Israel	12	12	11					38	37	39				
Hungary	12	12	9 ▲	13	14	19 ▼	12	42	42	39	46	46	53 ▼	44
Lithuania	11	8 ▲	6 ▲	8 ▲	6 ▲	5 ▲	2 ▲	43	36 ▲	33 ▲	36 ▲	34 ▲	22 ▲	14 ▲
England	11	14	14	17 ▼	15	17 ▼	15 ▼	38	45 ▼	44	48 ▼	48 ▼	45 ▼	43 ▼
United Arab Emirates	10	7 ▲	4 ▲					30	26 ▲	19 ▲				
Ireland	10	10					11	40	43					38
Hong Kong SAR	9	12	9	10	13 ▼	7	7	33	51 ▼	47 ▼	45 ▼	58 ▼	40 ▼	33
Bahrain	8	6 ▲	3 ▲	2 ▲	0 ▲			29	22 ▲	17 ▲	17 ▲	6 ▲		
New Zealand	8	10 ▼	9		7	10	9	30	36 ▼	34		35	35	34
Portugal	7						2 ▲	34						15 ▲
Qatar	7	6	3 ▲					25	21	14 ▲				
Norway (9)	6	6						28	31					
Kazakhstan	4		4					20		23				
Italy	4	4	4	4	4	6		26	26	27	24	23	26	
Romania	4		3 ▲	2 ▲	4	5	5	19		16	16	20	21	22
Oman	4	3 ▲	2 ▲	1 ▲				19	17 ▲	11 ▲	8 ▲			
Cyprus	3			1 ▲	0 ▲	2 ▲	2 ▲	22			12 ▲	8 ▲	14 ▲	15 ▲
Malaysia	3	3	1 ▲	3	4	5 ▼		18	21 ▼	11 ▲	18	28 ▼	24 ▼	
France	3						2	22						19
Kuwait	2	2						15	10 ▲					
Iran, Islamic Rep. of	2	3	5 ▼	2	1 ▲	1	1	13	15	21 ▼	14	9 ▲	11	11
Jordan	2	1	2	5 ▼	3 ▼	4 ▼		15	9 ▲	15	26 ▼	21 ▼	17	
Chile	1	1	1		1 ▲	1		13	12	12		5 ▲	7 ▲	
South Africa (9)	1	1	1					5	5	4				
Saudi Arabia	1	1	1					9	6 ▲	8				
Georgia	1	1	0	0 ▲				10	10	6 ▲	5 ▲			
Lebanon	1	1	1	1	0			5	7	7	8 ▼	4		
Egypt	1	0		1	1 ▼			6	5		7	10 ▼		
Morocco	0	0	0					3	3	2 ▲				
Benchmarking Participants														
Dubai, UAE	23	14 ▲	7 ▲	6 ▲				54	43 ▲	28 ▲	27 ▲			
Quebec, Canada	10	7	5 ▲	4 ▲	6 ▲	10	7	44	39	34 ▲	27 ▲	39	43	30 ▲
Ontario, Canada	9	7	6 ▲	7	7	7	5 ▲	36	37	35	37	41	34	26 ▲
Abu Dhabi, UAE	6	5	4 ▲					19	20	17				

▲ 2019 percent significantly higher
 ▼ 2019 percent significantly lower

An empty cell indicates a country did not participate in that year's assessment or did not have comparable data. See Appendix A for country participation in previous TIMSS assessments. Results for Lithuania before 2015 do not include students taught in Polish or Russian.

SOURCE: IEA's Trends in International Mathematics and Science Study - TIMSS 2019
 Downloaded from <http://timss2019.org/download>



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Exhibit 4.9: Percentages of Students Reaching International Benchmarks of Science Achievement Across Assessment Years

(Continued)

Country	Intermediate International Benchmark (475)							Low International Benchmark (400)						
	Percent of Students							Percent of Students						
	2019	2015	2011	2007	2003	1999	1995	2019	2015	2011	2007	2003	1999	1995
Singapore	91	90	87 ▲	80 ▲	85 ▲	84 ▲	91	98	97	96 ▲	93 ▲	95 ▲	95 ▲	99 ▼
Chinese Taipei	88	86	85 ▲	83 ▲	88	86		97	96	96	95 ▲	98	96	
Japan	90	89	86 ▲	85 ▲	86 ▲	84 ▲	85 ▲	99	98	97 ▲	96 ▲	98 ▲	97 ▲	97 ▲
Korea, Rep. of	86	85	86	85	88 ▼	81 ▲	81 ▲	96	97	97	97	98 ▼	96	95
Finland	80		88 ▼					94		99 ▼				
United States	70	75 ▼	73	71	75	67	68	88	93 ▼	93 ▼	92 ▼	93 ▼	87	87
Russian Federation	82	81	81	76 ▲	70 ▲	73 ▲	71 ▲	97	96	96	95 ▲	93 ▲	92 ▲	92 ▲
Sweden	71	73	68	69	75 ▼		83 ▼	89	92 ▼	91	91	95 ▼		97 ▼
Turkey	66	59 ▲	54 ▲					88	83 ▲	79 ▲				
Australia	74	69 ▲	70	70 ▲	76		69 ▲	92	91	92	92	95 ▼		89
Israel	67	64	69					87	84	88				
Hungary	75	74	75	80 ▼	82 ▼	83 ▼	80 ▼	93	92	92	96 ▼	97 ▼	96 ▼	95 ▼
Lithuania	78	72 ▲	71 ▲	72 ▲	74 ▲	57 ▲	45 ▲	95	93 ▲	92 ▲	93 ▲	95	86 ▲	79 ▲
England	69	77 ▼	76 ▼	79 ▼	81 ▼	76 ▼	75 ▼	89	95 ▼	93 ▼	94 ▼	96 ▼	94 ▼	93 ▼
United Arab Emirates	53	53	47 ▲					72	76 ▼	75				
Ireland	73	77 ▼					70	92	94					90
Hong Kong SAR	64	85 ▼	80 ▼	77 ▼	89 ▼	80 ▼	70	85	96 ▼	95 ▼	92 ▼	98 ▼	96 ▼	90
Bahrain	57	49 ▲	44 ▲	49 ▲	33 ▲			79	73 ▲	70 ▲	78	70 ▲		
New Zealand	63	67 ▼	67		73 ▼	66	67	85	88 ▼	90 ▼		94 ▼	88	89 ▼
Portugal	73						49 ▲	95						84 ▲
Qatar	51	46 ▲	34 ▲					76	70 ▲	58 ▲				
Norway (9)	61	68 ▼						86	91 ▼					
Kazakhstan	51		58 ▼					82		86 ▼				
Italy	65	64	65	62	59 ▲	59 ▲		91	89	90	88	87 ▲	86 ▲	
Romania	49		47	46	49	50	51	78		78	77	78	78	77
Oman	46	45	34 ▲	32 ▲				72	72	59 ▲	61 ▲			
Cyprus	57			42 ▲	35 ▲	45 ▲	43 ▲	83			74 ▲	71 ▲	77 ▲	72 ▲
Malaysia	47	52 ▼	34 ▲	50	71 ▼	59 ▼		74	77	62 ▲	80 ▼	95 ▼	87 ▼	
France	59						58	87						89
Kuwait	39	29 ▲						68	55 ▲					
Iran, Islamic Rep. of	39	42	50 ▼	41	38	38	43	72	73	79 ▼	76 ▼	77 ▼	72	81 ▼
Jordan	45	34 ▲	45	56 ▼	53 ▼	42		72	63 ▲	72	79 ▼	80 ▼	69	
Chile	45	40 ▲	43		24 ▲	27 ▲		78	75	79		56 ▲	60 ▲	
South Africa (9)	15	14	11 ▲					36	32	25 ▲				
Saudi Arabia	33	22 ▲	33					64	49 ▲	68				
Georgia	38	38	28 ▲	27 ▲				72	70	62 ▲	61 ▲			
Lebanon	19	24 ▼	25 ▼	28 ▼	20			41	50 ▼	54 ▼	55 ▼	48 ▼		
Egypt	24	20 ▲		27	33 ▼			49	42 ▲		55 ▼	59 ▼		
Morocco	17	17	13 ▲					48	47	39 ▲				
Benchmarking Participants														
Dubai, UAE	78	72 ▲	57 ▲	58 ▲				91	89 ▲	79 ▲	82 ▲			
Quebec, Canada	82	79	76 ▲	68 ▲	82	83	69 ▲	97	97	96	94 ▲	98	98	92
Ontario, Canada	73	77	76	77	81 ▼	72	61 ▲	93	95	96 ▼	96 ▼	97 ▼	95	88 ▲
Abu Dhabi, UAE	38	44 ▼	45 ▼					56	69 ▼	74 ▼				

▲ 2019 percent significantly higher

▼ 2019 percent significantly lower