

Appendix E

Average Percent Correct in the Science Content and Cognitive Domains

Appendix E.1: Average Percent Correct in the Science Content and Cognitive Domains

Country	Overall Science	Science Content Domains			Science Cognitive Domains		
		Life Science	Physical Science	Earth Science	Knowing	Applying	Reasoning
Armenia	34 (0.6)	36 (0.6)	34 (0.6)	32 (0.7)	40 (0.6)	33 (0.6)	25 (0.6)
Australia	52 (0.5)	52 (0.6)	52 (0.6)	51 (0.7)	57 (0.5)	49 (0.5)	45 (0.6)
Austria	55 (0.6)	53 (0.5)	56 (0.6)	55 (0.7)	60 (0.6)	53 (0.6)	47 (0.7)
Azerbaijan	40 (0.9)	40 (0.8)	41 (1.0)	36 (1.1)	46 (1.0)	38 (0.9)	26 (0.9)
Bahrain	41 (0.5)	41 (0.5)	43 (0.6)	39 (0.6)	47 (0.6)	39 (0.5)	32 (0.6)
Belgium (Flemish)	49 (0.4)	50 (0.4)	50 (0.4)	47 (0.5)	54 (0.5)	48 (0.4)	43 (0.5)
Chile	45 (0.4)	47 (0.4)	44 (0.4)	42 (0.5)	50 (0.4)	43 (0.4)	37 (0.5)
Chinese Taipei	59 (0.4)	56 (0.4)	64 (0.4)	58 (0.5)	62 (0.4)	58 (0.4)	57 (0.5)
Croatia	51 (0.4)	53 (0.4)	49 (0.4)	51 (0.6)	58 (0.4)	49 (0.4)	43 (0.6)
Czech Republic	56 (0.5)	58 (0.5)	53 (0.6)	55 (0.8)	63 (0.5)	53 (0.5)	45 (0.7)
Denmark	54 (0.5)	54 (0.5)	55 (0.5)	52 (0.6)	58 (0.5)	53 (0.5)	47 (0.6)
England	54 (0.6)	54 (0.6)	57 (0.6)	51 (0.8)	59 (0.6)	53 (0.6)	47 (0.8)
Finland	63 (0.4)	63 (0.5)	63 (0.4)	61 (0.6)	68 (0.5)	60 (0.4)	55 (0.6)
Georgia	41 (0.6)	42 (0.6)	40 (0.6)	40 (0.7)	48 (0.6)	39 (0.7)	28 (0.6)
Germany	54 (0.5)	53 (0.5)	57 (0.6)	52 (0.7)	58 (0.5)	53 (0.5)	47 (0.7)
Hong Kong SAR	56 (0.7)	53 (0.7)	58 (0.7)	57 (0.7)	61 (0.6)	53 (0.7)	51 (0.8)
Hungary	56 (0.7)	59 (0.6)	54 (0.7)	53 (0.8)	62 (0.7)	53 (0.7)	47 (0.8)
Iran, Islamic Rep. of	42 (0.6)	41 (0.7)	42 (0.6)	40 (0.7)	47 (0.7)	39 (0.6)	34 (0.7)
Ireland	52 (0.6)	51 (0.6)	53 (0.6)	51 (0.7)	57 (0.6)	50 (0.6)	43 (0.7)
Italy	53 (0.5)	56 (0.5)	51 (0.6)	51 (0.6)	60 (0.6)	51 (0.5)	45 (0.6)
Japan	60 (0.3)	55 (0.3)	68 (0.4)	58 (0.4)	60 (0.4)	59 (0.3)	63 (0.5)
Kazakhstan	48 (1.0)	49 (1.0)	47 (1.0)	46 (1.1)	51 (1.0)	47 (1.0)	41 (1.1)
Korea, Rep. of	65 (0.3)	61 (0.3)	69 (0.3)	68 (0.4)	67 (0.4)	64 (0.3)	66 (0.5)
Ψ Kuwait	28 (0.5)	26 (0.5)	31 (0.5)	27 (0.5)	34 (0.5)	26 (0.5)	20 (0.5)
Lithuania	52 (0.5)	52 (0.5)	53 (0.5)	48 (0.7)	55 (0.6)	51 (0.5)	44 (0.6)
Malta	40 (0.3)	39 (0.3)	42 (0.3)	38 (0.3)	43 (0.3)	39 (0.3)	34 (0.3)
* Morocco	21 (0.4)	21 (0.4)	24 (0.5)	18 (0.5)	24 (0.5)	21 (0.4)	15 (0.4)
Netherlands	54 (0.4)	55 (0.4)	54 (0.5)	52 (0.6)	58 (0.4)	52 (0.4)	48 (0.7)
New Zealand	48 (0.5)	48 (0.5)	49 (0.5)	47 (0.6)	53 (0.5)	46 (0.4)	42 (0.6)
Northern Ireland	52 (0.5)	52 (0.6)	53 (0.6)	48 (0.7)	56 (0.6)	51 (0.6)	43 (0.6)
Norway	47 (0.4)	47 (0.5)	46 (0.5)	48 (0.6)	53 (0.5)	44 (0.5)	39 (0.6)
Oman	32 (0.5)	31 (0.5)	34 (0.6)	30 (0.6)	38 (0.6)	30 (0.5)	23 (0.5)
Poland	49 (0.5)	51 (0.5)	49 (0.5)	46 (0.6)	53 (0.5)	49 (0.5)	39 (0.6)
Portugal	53 (0.8)	53 (0.8)	53 (0.9)	54 (1.0)	59 (0.9)	50 (0.8)	47 (0.9)
Qatar	34 (0.6)	33 (0.6)	37 (0.6)	34 (0.7)	39 (0.7)	33 (0.6)	27 (0.7)
Romania	51 (1.0)	51 (1.1)	52 (1.1)	49 (1.1)	57 (1.0)	49 (1.1)	42 (1.2)
Russian Federation	59 (0.7)	60 (0.7)	59 (0.8)	58 (0.9)	63 (0.7)	58 (0.8)	50 (0.9)
Saudi Arabia	38 (0.8)	37 (0.9)	40 (0.9)	37 (0.8)	44 (0.9)	36 (0.8)	27 (0.8)
Serbia	52 (0.6)	52 (0.6)	54 (0.6)	47 (0.7)	58 (0.5)	48 (0.6)	46 (0.8)
Singapore	66 (0.7)	68 (0.7)	69 (0.6)	56 (0.7)	67 (0.6)	65 (0.7)	64 (0.8)
Slovak Republic	55 (0.7)	55 (0.8)	56 (0.7)	55 (0.7)	62 (0.7)	53 (0.7)	45 (0.8)
Slovenia	53 (0.4)	54 (0.5)	54 (0.5)	48 (0.6)	57 (0.5)	51 (0.4)	48 (0.6)
Spain	50 (0.5)	52 (0.5)	49 (0.6)	47 (0.6)	57 (0.6)	47 (0.6)	41 (0.7)
Sweden	55 (0.5)	55 (0.5)	55 (0.5)	56 (0.7)	60 (0.5)	53 (0.5)	49 (0.6)
Thailand	44 (0.9)	46 (1.0)	43 (0.9)	41 (1.0)	50 (1.0)	42 (0.9)	36 (1.0)
Ψ Tunisia	26 (0.6)	26 (0.5)	28 (0.7)	23 (0.6)	30 (0.6)	25 (0.6)	19 (0.6)
Turkey	43 (0.7)	43 (0.7)	45 (0.7)	40 (0.8)	47 (0.7)	41 (0.7)	37 (0.8)
United Arab Emirates	38 (0.3)	37 (0.3)	40 (0.4)	37 (0.4)	44 (0.4)	35 (0.3)	29 (0.4)
United States	57 (0.4)	58 (0.4)	58 (0.4)	55 (0.4)	62 (0.4)	56 (0.4)	50 (0.4)
* Yemen	17 (0.4)	15 (0.4)	20 (0.5)	16 (0.5)	20 (0.6)	16 (0.4)	11 (0.4)
International Avg.	48 (0.1)	48 (0.1)	49 (0.1)	46 (0.1)	53 (0.1)	46 (0.1)	41 (0.1)

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

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

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

**Appendix E.1: Average Percent Correct in the Science Content and Cognitive Domains
(Continued)**

Country	Overall Science	Science Content Domains			Science Cognitive Domains		
		Life Science	Physical Science	Earth Science	Knowing	Applying	Reasoning
Sixth Grade Participants							
Botswana	31 (0.7)	29 (0.8)	35 (0.7)	30 (0.7)	34 (0.8)	31 (0.7)	26 (0.8)
Honduras	37 (0.9)	39 (0.8)	35 (0.9)	34 (1.1)	44 (1.0)	34 (0.8)	25 (1.0)
Yemen	28 (0.7)	25 (0.7)	31 (0.7)	27 (0.8)	32 (0.8)	26 (0.7)	20 (0.6)
Benchmarking Participants							
Alberta, Canada	57 (0.5)	57 (0.5)	57 (0.5)	54 (0.7)	61 (0.5)	55 (0.5)	50 (0.6)
Ontario, Canada	54 (0.6)	56 (0.6)	54 (0.6)	50 (0.7)	59 (0.6)	52 (0.7)	48 (0.8)
Quebec, Canada	52 (0.5)	53 (0.5)	51 (0.5)	50 (0.6)	57 (0.5)	49 (0.5)	45 (0.6)
Abu Dhabi, UAE	36 (0.7)	35 (0.8)	38 (0.8)	34 (0.8)	41 (0.8)	33 (0.7)	28 (0.8)
Dubai, UAE	44 (0.3)	43 (0.4)	45 (0.3)	43 (0.5)	50 (0.4)	41 (0.4)	35 (0.3)
Florida, US	58 (0.7)	58 (0.8)	58 (0.7)	55 (0.9)	63 (0.7)	56 (0.7)	50 (0.9)
North Carolina, US	56 (0.9)	57 (1.0)	58 (0.9)	53 (1.1)	61 (0.9)	55 (1.0)	49 (1.1)

SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2011

Appendix E.2: Average Percent Correct in the Science Content and Cognitive Domains

Country	Overall Science	Science Content Domains				Science Cognitive Domains		
		Biology	Chemistry	Physics	Earth Science	Knowing	Applying	Reasoning
Armenia	35 (0.5)	34 (0.6)	39 (0.6)	33 (0.7)	36 (0.6)	46 (0.6)	33 (0.6)	23 (0.5)
Australia	49 (1.0)	51 (1.0)	46 (1.1)	43 (1.0)	56 (1.1)	54 (0.9)	48 (1.0)	43 (1.2)
Bahrain	38 (0.3)	38 (0.3)	39 (0.4)	34 (0.4)	40 (0.4)	46 (0.4)	36 (0.3)	29 (0.3)
Chile	37 (0.4)	38 (0.5)	35 (0.4)	33 (0.4)	44 (0.5)	46 (0.4)	36 (0.4)	28 (0.5)
Chinese Taipei	59 (0.5)	57 (0.5)	64 (0.7)	53 (0.6)	63 (0.6)	64 (0.5)	60 (0.6)	49 (0.6)
England	52 (1.0)	52 (1.0)	53 (1.1)	48 (1.1)	57 (1.0)	58 (0.9)	51 (1.0)	45 (1.2)
Finland	56 (0.5)	56 (0.6)	57 (0.6)	49 (0.6)	65 (0.6)	63 (0.5)	55 (0.6)	48 (0.6)
Georgia	32 (0.4)	36 (0.5)	29 (0.5)	26 (0.4)	34 (0.6)	41 (0.5)	30 (0.4)	22 (0.5)
^ψ Ghana	21 (0.4)	21 (0.4)	24 (0.6)	19 (0.4)	19 (0.5)	30 (0.5)	19 (0.5)	12 (0.4)
Hong Kong SAR	52 (0.7)	52 (0.7)	51 (0.7)	50 (0.7)	58 (0.8)	59 (0.6)	50 (0.7)	46 (0.9)
Hungary	50 (0.6)	50 (0.6)	53 (0.7)	47 (0.7)	52 (0.7)	53 (0.5)	52 (0.7)	42 (0.7)
Indonesia	28 (0.5)	30 (0.6)	25 (0.5)	26 (0.5)	33 (0.8)	36 (0.6)	27 (0.5)	20 (0.6)
Iran, Islamic Rep. of	41 (0.7)	40 (0.7)	41 (0.8)	39 (0.8)	44 (0.8)	48 (0.7)	40 (0.7)	32 (0.8)
Israel	49 (0.8)	51 (0.8)	50 (0.9)	45 (0.8)	50 (0.9)	56 (0.7)	48 (0.8)	42 (0.9)
Italy	45 (0.4)	47 (0.5)	44 (0.5)	40 (0.4)	52 (0.6)	54 (0.4)	45 (0.5)	34 (0.5)
Japan	57 (0.5)	57 (0.5)	58 (0.6)	55 (0.6)	59 (0.5)	59 (0.5)	58 (0.5)	52 (0.6)
Jordan	37 (0.6)	37 (0.6)	41 (0.7)	33 (0.6)	38 (0.7)	46 (0.7)	36 (0.6)	27 (0.6)
Kazakhstan	43 (0.9)	42 (0.9)	47 (1.0)	39 (0.9)	43 (0.9)	49 (0.9)	43 (0.9)	34 (1.0)
Korea, Rep. of	58 (0.4)	58 (0.5)	56 (0.4)	58 (0.5)	59 (0.5)	62 (0.4)	58 (0.5)	51 (0.5)
Lebanon	29 (0.7)	29 (0.7)	35 (0.9)	28 (0.7)	27 (0.7)	36 (0.7)	29 (0.7)	21 (0.8)
Lithuania	48 (0.5)	49 (0.6)	49 (0.6)	42 (0.5)	52 (0.6)	54 (0.5)	47 (0.5)	40 (0.7)
Macedonia, Rep. of	32 (0.8)	33 (0.8)	34 (0.9)	28 (0.8)	34 (0.8)	42 (0.9)	31 (0.8)	21 (0.7)
Malaysia	33 (0.9)	34 (1.0)	34 (0.9)	33 (0.9)	33 (1.0)	39 (0.9)	33 (1.0)	26 (1.0)
Morocco	25 (0.2)	26 (0.3)	26 (0.3)	20 (0.2)	28 (0.3)	32 (0.2)	24 (0.3)	16 (0.3)
New Zealand	48 (0.9)	48 (0.9)	47 (1.0)	43 (0.9)	54 (0.9)	54 (0.9)	47 (0.9)	41 (1.1)
Norway	43 (0.5)	43 (0.5)	43 (0.6)	37 (0.6)	52 (0.7)	49 (0.5)	43 (0.5)	35 (0.6)
Oman	33 (0.4)	33 (0.4)	33 (0.4)	31 (0.3)	37 (0.4)	41 (0.3)	32 (0.4)	24 (0.4)
Palestinian Nat'l Auth.	33 (0.5)	32 (0.5)	37 (0.5)	33 (0.6)	33 (0.6)	43 (0.5)	32 (0.6)	22 (0.4)
Qatar	34 (0.5)	33 (0.7)	35 (0.6)	32 (0.5)	36 (0.5)	42 (0.6)	33 (0.5)	24 (0.7)
Romania	38 (0.7)	38 (0.6)	41 (0.9)	34 (0.7)	43 (0.7)	44 (0.7)	39 (0.7)	29 (0.7)
Russian Federation	54 (0.7)	53 (0.7)	57 (0.8)	51 (0.8)	56 (0.7)	62 (0.8)	54 (0.8)	44 (0.8)
Saudi Arabia	34 (0.6)	33 (0.6)	34 (0.7)	31 (0.6)	37 (0.7)	44 (0.6)	32 (0.7)	23 (0.6)
Singapore	64 (0.9)	64 (0.9)	65 (1.0)	63 (0.9)	64 (0.9)	68 (0.9)	63 (0.9)	59 (1.0)
Slovenia	54 (0.5)	52 (0.5)	58 (0.6)	48 (0.6)	62 (0.7)	60 (0.5)	54 (0.6)	46 (0.7)
Sweden	47 (0.5)	48 (0.6)	46 (0.6)	42 (0.6)	53 (0.6)	53 (0.5)	47 (0.5)	39 (0.6)
Syrian Arab Republic	32 (0.6)	34 (0.6)	33 (0.6)	28 (0.7)	33 (0.7)	42 (0.6)	32 (0.6)	20 (0.7)
Thailand	36 (0.7)	38 (0.8)	34 (0.8)	29 (0.7)	42 (0.8)	42 (0.7)	35 (0.7)	27 (0.8)
Tunisia	33 (0.4)	36 (0.4)	32 (0.5)	29 (0.5)	32 (0.4)	38 (0.4)	32 (0.4)	26 (0.5)
Turkey	43 (0.7)	44 (0.7)	43 (0.7)	41 (0.7)	43 (0.6)	51 (0.6)	41 (0.7)	34 (0.7)
Ukraine	45 (0.7)	44 (0.6)	48 (0.8)	43 (0.9)	48 (0.8)	53 (0.7)	44 (0.7)	37 (0.8)
United Arab Emirates	39 (0.4)	40 (0.4)	41 (0.5)	35 (0.4)	43 (0.5)	48 (0.4)	38 (0.4)	29 (0.5)
United States	50 (0.5)	52 (0.5)	51 (0.6)	44 (0.5)	56 (0.5)	57 (0.5)	50 (0.5)	42 (0.6)
International Avg.	42 (0.1)	42 (0.1)	43 (0.1)	38 (0.1)	45 (0.1)	49 (0.1)	41 (0.1)	33 (0.1)

SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2011

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

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

**Appendix E.2: Average Percent Correct in the Science Content and Cognitive Domains
(Continued)**

SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2011

Country	Overall Science	Science Content Domains				Science Cognitive Domains		
		Biology	Chemistry	Physics	Earth Science	Knowing	Applying	Reasoning
Ninth Grade Participants								
Botswana	30 (0.4)	31 (0.5)	32 (0.4)	29 (0.4)	29 (0.5)	39 (0.4)	29 (0.4)	21 (0.5)
Honduras	24 (0.5)	25 (0.5)	24 (0.5)	21 (0.4)	29 (0.7)	34 (0.5)	23 (0.5)	14 (0.5)
^ψ South Africa	22 (0.3)	22 (0.4)	23 (0.4)	22 (0.3)	22 (0.4)	30 (0.4)	21 (0.4)	14 (0.4)
Benchmarking Participants								
Alberta, Canada	54 (0.5)	56 (0.5)	50 (0.6)	49 (0.5)	62 (0.6)	59 (0.5)	53 (0.5)	50 (0.7)
Ontario, Canada	49 (0.5)	51 (0.5)	44 (0.6)	44 (0.5)	55 (0.7)	53 (0.5)	48 (0.6)	44 (0.7)
Quebec, Canada	48 (0.6)	49 (0.6)	49 (0.7)	41 (0.6)	57 (0.7)	54 (0.6)	48 (0.6)	42 (0.7)
Abu Dhabi, UAE	38 (0.7)	39 (0.7)	40 (0.7)	34 (0.7)	42 (0.9)	47 (0.7)	38 (0.7)	29 (0.8)
Dubai, UAE	43 (0.4)	44 (0.5)	45 (0.5)	39 (0.4)	47 (0.6)	51 (0.4)	42 (0.5)	34 (0.4)
Alabama, US	43 (1.2)	44 (1.1)	43 (1.3)	37 (1.0)	47 (1.6)	50 (1.2)	42 (1.1)	33 (1.2)
California, US	45 (0.9)	45 (1.0)	48 (1.2)	38 (0.8)	49 (0.9)	51 (0.9)	44 (0.9)	37 (1.1)
Colorado, US	53 (1.0)	55 (1.0)	52 (1.1)	47 (1.1)	60 (1.2)	59 (0.9)	53 (1.0)	47 (1.2)
Connecticut, US	52 (1.0)	54 (1.0)	51 (1.1)	45 (1.1)	58 (1.1)	59 (1.0)	51 (1.0)	45 (1.2)
Florida, US	51 (1.5)	51 (1.4)	51 (1.5)	47 (1.6)	57 (1.8)	59 (1.5)	50 (1.5)	43 (1.7)
Indiana, US	52 (1.1)	53 (1.0)	51 (1.1)	45 (1.2)	58 (1.2)	58 (1.1)	51 (1.0)	44 (1.3)
Massachusetts, US	59 (1.1)	61 (1.1)	60 (1.3)	52 (1.3)	65 (1.1)	66 (1.2)	58 (1.0)	53 (1.4)
Minnesota, US	56 (1.1)	58 (1.1)	54 (1.0)	49 (1.1)	65 (1.3)	61 (1.0)	56 (1.1)	50 (1.3)
North Carolina, US	51 (1.3)	54 (1.3)	53 (1.4)	43 (1.4)	57 (1.2)	58 (1.2)	51 (1.2)	44 (1.5)

