

**Exhibit 10.6: Students Confident in Science**

Reported by Students

The general/integrated science panel summarizes responses for countries where students are enrolled in science as a single subject. The following panels for biology, chemistry, physics, and earth science summarize responses for countries where students are taught science as separate subjects.

For general/integrated science, students were scored according to their degree of agreement with eight statements on the *Students Confident in Science* scale. Students **Very Confident in Science** had a score on the scale of at least 11.5, which corresponds to their “agreeing a lot” with four of the eight statements and “agreeing a little” with the other four, on average. Students who were **Not Confident in Science** had a score no higher than 9.2, eight which corresponds to their “disagreeing a little” with four of the eight statements and “agreeing a little” with the other four, on average. All other students were **Confident in Science**. For biology, chemistry, physics, and earth science, a comparable procedure was used.

*Students Confident in General/Integrated Science*

General/Integrated Science	Very Confident in Science		Confident in Science		Not Confident in Science		Average Scale Score	Difference in Average Scale Score from 2011
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement		
Kuwait	34 (1.4)	461 (6.3)	44 (1.2)	402 (6.1)	23 (1.1)	359 (5.8)	10.8 (0.06)	◇ ◇
Turkey	32 (1.0)	545 (4.2)	38 (0.8)	486 (4.3)	30 (1.0)	450 (4.7)	10.7 (0.05)	0.4 (0.07) ▲
Israel	32 (1.0)	565 (3.7)	35 (0.6)	508 (4.3)	34 (1.0)	458 (4.7)	10.5 (0.06)	-0.1 (0.09)
Iran, Islamic Rep. of	31 (1.0)	495 (4.9)	41 (0.8)	450 (4.1)	28 (1.1)	424 (4.5)	10.7 (0.05)	-0.1 (0.07)
Oman	31 (0.9)	495 (3.1)	45 (0.8)	451 (2.7)	25 (0.8)	419 (3.7)	10.7 (0.04)	0.0 (0.05)
United States	30 (0.9)	568 (3.0)	39 (0.5)	533 (3.0)	30 (0.9)	495 (3.3)	10.5 (0.05)	0.2 (0.06) ▲
Jordan	29 (1.1)	484 (4.0)	42 (0.7)	426 (3.4)	29 (1.1)	384 (4.5)	10.7 (0.05)	-0.1 (0.07)
Norway (9)	29 (1.1)	556 (3.6)	43 (0.9)	508 (3.4)	28 (1.1)	465 (3.6)	10.5 (0.06)	◇ ◇
Bahrain	28 (0.7)	527 (2.9)	42 (0.8)	467 (3.4)	31 (0.7)	418 (3.8)	10.6 (0.04)	0.3 (0.06) ▲
United Arab Emirates	27 (0.7)	536 (2.7)	44 (0.6)	476 (2.3)	30 (0.8)	429 (3.3)	10.5 (0.03)	-0.1 (0.05)
Egypt	26 (1.3)	445 (4.0)	44 (0.8)	366 (4.3)	30 (1.1)	328 (4.6)	10.6 (0.06)	◇ ◇
Saudi Arabia	26 (1.3)	452 (5.8)	42 (1.0)	399 (4.3)	31 (1.3)	356 (6.5)	10.5 (0.06)	-0.1 (0.08)
Ireland	26 (1.0)	585 (3.2)	36 (0.9)	543 (2.3)	38 (1.3)	492 (3.4)	10.0 (0.07)	◇ ◇
Qatar	26 (0.9)	524 (3.2)	41 (0.8)	464 (3.8)	33 (0.9)	405 (4.2)	10.4 (0.04)	0.0 (0.08)
Italy	24 (1.2)	533 (3.3)	49 (0.9)	500 (2.9)	27 (1.1)	467 (3.7)	10.3 (0.06)	0.4 (0.07) ▲
Canada	24 (0.7)	563 (2.8)	43 (0.8)	531 (2.4)	32 (0.9)	498 (2.5)	10.2 (0.04)	◇ ◇
England	21 (0.9)	585 (4.7)	41 (0.9)	547 (3.5)	38 (1.2)	503 (4.3)	9.9 (0.06)	-0.3 (0.09) ▼
South Africa (9)	21 (0.9)	406 (6.3)	45 (0.8)	355 (5.4)	35 (1.0)	342 (7.1)	10.1 (0.05)	0.1 (0.06)
Australia	17 (0.8)	571 (3.1)	37 (0.8)	526 (3.2)	45 (1.2)	482 (3.0)	9.7 (0.05)	-0.1 (0.08)
Singapore	17 (0.6)	633 (4.7)	40 (0.6)	608 (3.5)	44 (0.9)	572 (3.5)	9.7 (0.04)	0.0 (0.05)
New Zealand	16 (0.7)	572 (4.3)	39 (0.9)	528 (3.7)	45 (1.1)	482 (3.1)	9.7 (0.04)	0.1 (0.07)
Chile	16 (0.7)	499 (4.4)	42 (1.0)	459 (3.5)	42 (1.3)	434 (3.7)	9.8 (0.05)	-0.2 (0.07) ▼
Botswana (9)	14 (0.7)	470 (4.0)	43 (0.9)	392 (3.1)	42 (1.1)	376 (3.5)	9.8 (0.04)	-0.1 (0.06)
Hong Kong SAR	13 (0.6)	592 (4.4)	38 (1.1)	560 (3.8)	49 (1.2)	523 (4.8)	9.4 (0.06)	0.2 (0.07) ▲
Chinese Taipei	9 (0.4)	646 (3.4)	25 (0.7)	606 (2.9)	66 (0.9)	545 (2.1)	8.6 (0.04)	0.3 (0.06) ▲
Korea, Rep. of	7 (0.5)	642 (4.5)	23 (0.7)	599 (3.0)	70 (0.9)	532 (1.9)	8.7 (0.04)	-0.1 (0.05)
Thailand	7 (0.5)	513 (6.3)	37 (0.9)	467 (4.6)	57 (1.1)	442 (4.2)	9.3 (0.03)	0.0 (0.05)
Malaysia	6 (0.3)	512 (5.3)	25 (0.6)	455 (4.8)	69 (0.7)	477 (4.2)	8.7 (0.03)	-0.4 (0.05) ▼
Japan	5 (0.4)	637 (4.8)	26 (0.8)	606 (2.4)	68 (0.9)	553 (2.1)	8.6 (0.04)	0.1 (0.06)
International Avg.	22 (0.2)	538 (0.8)	39 (0.2)	490 (0.7)	40 (0.2)	452 (0.8)		

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

**Benchmarking Participants Teaching General/Integrated Science**

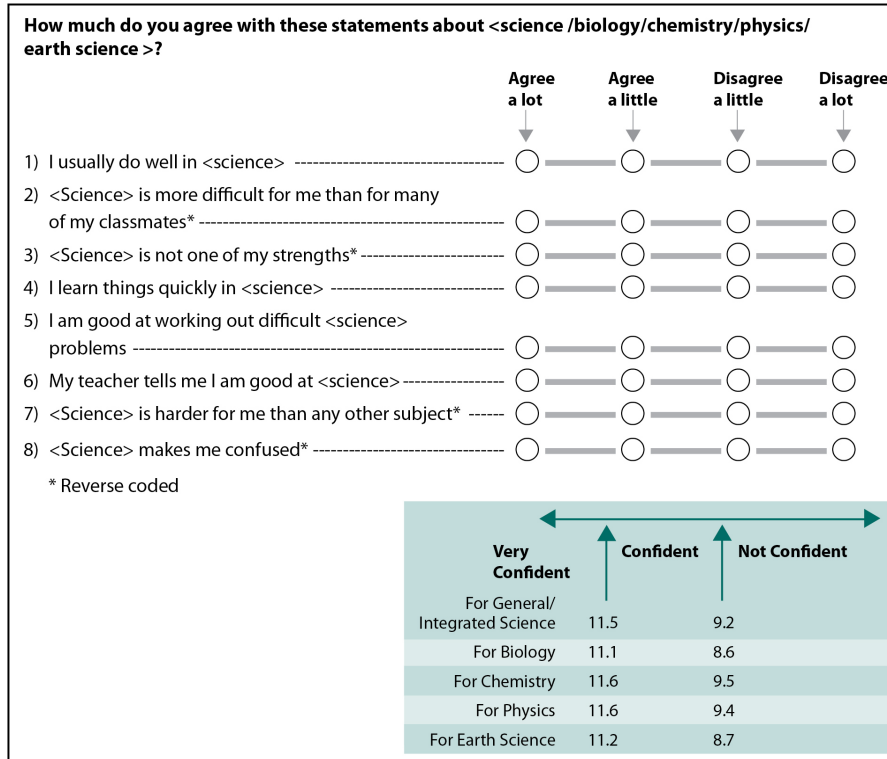
Dubai, UAE	33 (0.8)	567 (2.7)	41 (0.8)	521 (2.6)	26 (0.8)	481 (3.2)	10.7 (0.04)	-0.1 (0.07)
Norway (8)	33 (1.1)	523 (3.0)	44 (0.9)	487 (2.7)	24 (0.9)	450 (4.3)	10.6 (0.05)	0.3 (0.07) ▲
Florida, US	27 (1.4)	552 (6.3)	38 (1.2)	517 (6.2)	34 (1.3)	471 (6.8)	10.4 (0.07)	0.2 (0.13)
Ontario, Canada	25 (1.1)	561 (3.6)	41 (1.1)	528 (2.8)	34 (1.2)	497 (3.1)	10.2 (0.06)	0.1 (0.07)
Quebec, Canada	24 (1.2)	563 (4.2)	48 (1.0)	536 (3.8)	28 (1.3)	503 (3.9)	10.3 (0.06)	0.1 (0.08)
Abu Dhabi, UAE	24 (1.6)	518 (6.8)	45 (1.1)	458 (5.4)	32 (1.9)	407 (6.7)	10.4 (0.08)	-0.1 (0.10)
Buenos Aires, Argentina	17 (0.8)	430 (6.5)	42 (1.1)	399 (5.4)	41 (1.3)	366 (5.7)	9.8 (0.06)	◇ ◇

This TIMSS questionnaire scale was established in 2011 based on the combined response distribution of all countries that participated in TIMSS 2011. To provide a point of reference for country comparisons, the scale centerpoint of 10 was located at the mean of the combined distribution. The units of the scale were chosen so that 2 scale score points corresponded to the standard deviation of the distribution.

Significantly higher than 2011 ▲  
Significantly lower than 2011 ▼

( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.  
A diamond (◇) indicates the country did not participate in the 2011 assessment.  
A dash (-) indicates comparable data are not available.  
An “r” indicates data are available for at least 70% but less than 85% of the students.

Exhibit 10.6: Students Confident in Science (Continued)



Separate Science Panels

Students Confident in Biology

Biology	Very Confident in Biology		Confident in Biology		Not Confident in Biology		Average Scale Score	Difference in Average Scale Score from 2011
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement		
Malta	34 (1.3)	585 (3.2)	36 (1.2)	527 (3.7)	30 (1.2)	481 (4.5)	10.2 (0.07)	0 0
Hungary	32 (1.2)	560 (3.7)	45 (1.0)	522 (4.0)	23 (1.2)	496 (5.8)	10.2 (0.06)	0.2 (0.09) ▲
Kazakhstan	31 (1.4)	558 (5.0)	55 (1.0)	528 (4.9)	14 (0.9)	503 (6.7)	10.6 (0.07)	0.0 (0.10)
Georgia	29 (1.1)	486 (3.3)	45 (0.9)	448 (4.0)	26 (1.2)	402 (4.7)	10.2 (0.05)	-0.4 (0.08) ▼
Russian Federation	28 (1.1)	561 (4.7)	50 (0.8)	542 (4.6)	22 (1.0)	529 (5.2)	10.2 (0.06)	0.0 (0.08)
Lebanon	27 (1.5)	463 (6.3)	40 (1.0)	399 (5.8)	33 (1.5)	366 (6.7)	10.1 (0.08)	0.1 (0.10)
Lithuania	25 (1.2)	551 (4.0)	47 (1.1)	513 (3.4)	27 (1.3)	501 (3.8)	10.0 (0.07)	0.1 (0.09)
Morocco	19 (0.7)	445 (2.9)	47 (0.7)	392 (2.7)	33 (1.1)	373 (3.8)	9.7 (0.04)	-0.4 (0.05) ▼
Slovenia	19 (1.2)	585 (3.9)	51 (1.1)	554 (2.8)	30 (1.3)	527 (3.7)	9.6 (0.06)	-0.1 (0.08)
Sweden	18 (0.9)	563 (4.9)	51 (1.0)	534 (3.6)	31 (1.3)	491 (3.6)	9.6 (0.05)	-0.1 (0.07)
International Avg.	26 (0.4)	536 (1.4)	47 (0.3)	496 (1.3)	27 (0.4)	467 (1.6)		

Significantly higher than 2011 ▲  
Significantly lower than 2011 ▼

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

**Exhibit 10.6: Students Confident in Science (Continued)**

*Students Confident in Chemistry*

Chemistry	Very Confident in Chemistry		Confident in Chemistry		Not Confident in Chemistry		Average Scale Score	Difference in Average Scale Score from 2011
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement		
Malta	35 (1.4)	599 (3.6)	33 (1.4)	575 (4.4)	32 (1.5)	522 (6.8)	10.8 (0.08)	0 (0)
Lebanon	26 (1.3)	454 (6.1)	40 (0.9)	395 (5.6)	34 (1.2)	373 (7.0)	10.6 (0.06)	0.0 (0.09)
Kazakhstan	24 (1.1)	560 (5.7)	49 (1.0)	534 (4.8)	27 (1.2)	512 (5.1)	10.7 (0.05)	0.0 (0.08)
Georgia	23 (0.8)	494 (3.9)	39 (1.1)	454 (3.6)	39 (1.4)	413 (3.7)	10.3 (0.05)	--
Slovenia	20 (0.9)	602 (3.4)	42 (1.1)	559 (2.9)	39 (1.2)	519 (3.6)	10.1 (0.05)	0.0 (0.07)
Lithuania	19 (1.2)	557 (4.1)	40 (1.0)	523 (3.4)	41 (1.5)	498 (3.6)	10.1 (0.07)	0.3 (0.09) ▲
Russian Federation	18 (1.2)	576 (6.0)	34 (1.0)	549 (4.4)	48 (1.5)	530 (4.9)	9.9 (0.07)	0.0 (0.09)
Morocco	17 (0.6)	452 (3.8)	46 (0.7)	392 (3.0)	38 (1.0)	377 (3.1)	10.3 (0.03)	-0.2 (0.05) ▼
Sweden	16 (0.8)	574 (5.0)	44 (1.0)	536 (4.1)	40 (1.2)	498 (3.5)	10.0 (0.05)	-0.1 (0.06)
Hungary	16 (0.9)	579 (5.2)	36 (1.1)	531 (4.9)	48 (1.5)	510 (4.3)	9.8 (0.06)	0.1 (0.09)
International Avg.	21 (0.3)	545 (1.5)	40 (0.3)	505 (1.3)	39 (0.4)	475 (1.5)		

*Students Confident in Physics*

Physics	Very Confident in Physics		Confident in Physics		Not Confident in Physics		Average Scale Score	Difference in Average Scale Score from 2011
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement		
Malta	23 (0.7)	565 (3.2)	35 (0.8)	505 (3.0)	42 (0.8)	447 (2.7)	10.2 (0.04)	0 (0)
Hungary	23 (0.9)	580 (4.2)	38 (1.0)	530 (4.1)	39 (1.4)	496 (4.2)	10.2 (0.06)	0.1 (0.08)
Lebanon	22 (1.4)	468 (6.1)	41 (1.2)	401 (5.6)	37 (1.3)	373 (6.2)	10.5 (0.06)	0.1 (0.09)
Kazakhstan	22 (1.2)	560 (5.9)	51 (0.9)	534 (5.0)	27 (1.1)	516 (5.1)	10.6 (0.06)	0.1 (0.09)
Morocco	18 (0.6)	450 (3.2)	47 (0.7)	391 (2.7)	35 (1.0)	377 (3.2)	10.3 (0.03)	-0.2 (0.05) ▼
Russian Federation	16 (0.8)	579 (5.1)	41 (0.9)	551 (4.6)	42 (1.2)	525 (4.7)	10.0 (0.05)	-0.3 (0.07) ▼
Georgia	16 (0.9)	498 (4.5)	35 (1.3)	454 (3.9)	48 (1.3)	426 (4.2)	9.9 (0.05)	-0.4 (0.07) ▼
Sweden	16 (0.9)	578 (4.8)	44 (0.9)	538 (3.4)	40 (1.4)	495 (3.8)	10.0 (0.06)	-0.1 (0.07)
Lithuania	13 (1.1)	576 (4.7)	36 (1.2)	526 (3.6)	51 (1.6)	500 (3.2)	9.6 (0.07)	0.3 (0.09) ▲
Slovenia	13 (0.6)	609 (4.2)	41 (1.2)	565 (3.2)	47 (1.3)	525 (2.9)	9.6 (0.05)	0.3 (0.07) ▲
International Avg.	18 (0.3)	546 (1.5)	41 (0.3)	499 (1.3)	41 (0.4)	468 (1.3)		

*Students Confident in Earth Science*

Earth Science	Very Confident in Earth Science		Confident in Earth Science		Not Confident in Earth Science		Average Scale Score	Difference in Average Scale Score from 2011
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement		
Kazakhstan	31 (1.3)	558 (4.7)	53 (0.9)	528 (5.2)	16 (0.9)	511 (6.2)	10.6 (0.07)	-0.1 (0.10)
Lithuania	26 (1.1)	552 (3.8)	46 (1.1)	518 (3.6)	28 (1.1)	490 (3.8)	10.1 (0.06)	0.1 (0.08)
Hungary	25 (1.3)	561 (4.0)	42 (1.0)	527 (4.4)	32 (1.5)	504 (4.2)	9.9 (0.07)	0.1 (0.10)
Georgia	25 (0.9)	493 (3.8)	42 (1.0)	450 (3.9)	33 (1.1)	406 (4.7)	10.0 (0.05)	-0.2 (0.08) ▼
Russian Federation	25 (1.3)	563 (4.9)	50 (0.8)	547 (4.4)	25 (1.3)	522 (4.7)	10.1 (0.06)	0.0 (0.08)
Malta	21 (0.8)	534 (4.2)	37 (1.0)	492 (4.0)	42 (1.0)	442 (3.2)	9.5 (0.05)	0 (0)
Slovenia	20 (1.0)	584 (3.3)	49 (0.9)	557 (3.1)	30 (1.2)	522 (3.4)	9.8 (0.06)	0.0 (0.08)
Morocco	17 (0.6)	446 (3.3)	47 (0.7)	394 (2.6)	36 (1.0)	374 (3.5)	9.7 (0.04)	-0.4 (0.05) ▼
Lebanon	--	--	--	--	--	--	--	--
Sweden	--	--	--	--	--	--	--	--
International Avg.	24 (0.4)	536 (1.4)	46 (0.3)	502 (1.4)	30 (0.4)	471 (1.5)		

Significantly higher than 2011 ▲  
Significantly lower than 2011 ▼

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