





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



Exhibit 2: Average Environmental Awareness Achievement by Gender

	Girls	Boys	Difference	Gender Di	fference
Country	Average	Average	(Absolute	Girls	Boys
	Scale Score	Scale Score	Value)	Scored Higher	Scored Higher
Bahrain	508 (4.1)	476 (5.6)	31 (6.1)		
Oman	438 (4.5)	414 (5.5)	24 (5.0)		
North Macedonia	422 (7.0)	406 (6.5)	16 (5.2)		
Albania	486 (4.5)	470 (4.3)	16 (4.0)		
Morocco	378 (6.9)	363 (6.9)	15 (6.8)		
Kosovo	399 (4.6)	384 (6.0)	15 (6.1)		
Azerbaijan	415 (5.9)	402 (4.8)	13 (5.4)		
Armenia	477 (4.0)	465 (4.7)	12 (4.8)		
Latvia	530 (4.0)	518 (3.9)	12 (3.6)		
Bulgaria	532 (5.7)	522 (6.2)	10 (6.2)		
Kazakhstan	480 (4.6)	471 (4.1)	9 (5.8)		
Serbia	517 (5.4)	509 (5.2)	8 (5.6)		
Bosnia and Herzegovina	462 (3.3)	454 (3.9)	8 (4.0)		
Qatar	449 (7.1)	441 (4.8)	8 (6.1)		
Montenegro	451 (4.2)	444 (3.7)	7 (4.6)		
Denmark	539 (3.7)	533 (2.9)	6 (3.8)		
Norway (5)	552 (4.3)	546 (3.0)	6 (4.7)		
Sweden	550 (3.3)	545 (4.3)	5 (3.4)		
Lithuania	526 (3.4)	521 (3.6)	5 (4.4)		
Australia	539 (3.0)	535 (3.3)	5 (3.2)		
United Arab Emirates	467 (2.5)	463 (2.2)	4 (3.6)		
New Zealand	512 (4.9)	508 (3.6)	4 (6.2)		
England	546 (3.6)	542 (3.4)	4 (3.9)		
Hong Kong SAR	535 (3.9)	532 (5.8)	3 (4.6)		
Iran, Islamic Rep. of	426 (6.8)	423 (6.6)	3 (10.0)		
Russian Federation	560 (4.3)	558 (4.1)	2 (3.2)		
Poland	532 (3.6)	530 (3.6)	2 (3.5)		
Cyprus	509 (2.7)	508 (3.4)	1 (3.7)		
Finland	560 (3.3)	559 (4.6)	1 (5.2)		
Canada	534 (2.5)	534 (2.7)	1 (3.0)		
Chinese Taipei	564 (2.7)	564 (2.1)	0 (3.3)		
United States	545 (3.3)	544 (3.1)	0 (2.5)		
France	493 (4.2)	493 (3.6)	0 (4.5)		
Japan	543 (2.8)	543 (3.0)	1 (4.5)		
Czech Republic	534 (4.2)	535 (3.3)	1 (4.8)		
Croatia	512 (3.6)	513 (3.4)	1 (3.8)		
Northern Ireland	526 (3.1)	527 (3.6)	1 (4.5)		
Slovak Republic	509 (4.8)	511 (5.2)	1 (5.1)		
Austria	519 (3.6)	520 (3.7)	2 (3.5)		ı
Spain	518 (2.9)	520 (3.1)	2 (3.7)		
Malta	503 (2.7)	506 (2.7)	3 (3.6)		
Ireland	529 (4.7)	531 (3.9)	3 (4.3)		
Portugal	508 (3.0)	511 (3.6)	3 (4.1)		
Chile	478 (4.3)	482 (4.5)	4 (4.5)		_
Netherlands	520 (3.8)	525 (4.1)	5 (5.0)		
Turkey (5)	510 (5.3)	516 (5.2)	6 (6.2)		
Korea, Rep. of	580 (3.7)	587 (3.6)	7 (4.4)		
Georgia	442 (4.7)	449 (5.3)	7 (6.1)		_
Hungary	527 (3.9)	534 (3.8)	8 (5.0)		
Belgium (Flemish)	498 (2.7)	506 (2.9)	8 (4.0)		
Germany	521 (4.5)	529 (4.0)	9 (4.3)		
Italy	512 (4.4)	521 (3.7)	9 (3.6)		
Singapore	568 (3.7)	578 (4.4)	10 (2.8)		
International Average	505 (0.6)	502 (0.6)	80	40 0	40

[■] Difference statistically significant



Difference not statistically significant

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

Exhibit 3: Effects of Plastic Pollution in Oceans - Example Item 1

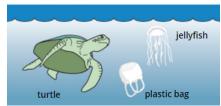


Country	Percent Full Credit
Sweden	86 (1.8)
Finland	85 (1.4)
Norway (5)	85 (1.9)
Australia	84 (1.6)
Japan	83 (1.6)
Netherlands	83 (1.8)
Singapore	83 (1.2)
Cyprus	83 (1.7)
England	81 (2.1)
Ireland	81 (1.9)
United States	79 (1.2)
Denmark	78 (2.2)
Belgium (Flemish)	78 (2.1)
Northern Ireland	76 (2.5) ▲
Malta	76 (1.8) A
Chinese Taipei	75 (2.2) A
Canada	75 (1.6) A
Russian Federation	74 (2.3) A
Czech Republic	73 (1.9)
Germany Koron Bon of	
Korea, Rep. of	
Lithuania	()
Spain	70 (2.0)
New Zealand	70 (1.7)
Portugal	70 (2.2)
Austria	70 (2.2)
Hungary	68 (2.0)
Poland	67 (1.9)
Italy	65 (2.1)
Slovak Republic	63 (2.4)
France	62 (2.6)
Hong Kong SAR	62 (3.0)
International Average	61 (0.3)
Chile	61 (2.1)
Latvia	60 (2.2)
Turkey (5)	58 (2.4)
Serbia	54 (2.7) ▽
Croatia	51 (2.3) ▽
Bahrain	48 (2.2) ▽
Armenia	45 (2.4) ▽
Qatar	45 (2.6) ▽
United Arab Emirates	44 (1.0) ▽
Bulgaria	42 (3.1) ▽
Albania	40 (2.9) ▽
Bosnia and Herzegovina	39 (2.5) ▽
Georgia	36 (2.8) ▽
Montenegro	35 (2.1) ▽
Oman	34 (2.1) ▽
Kazakhstan	33 (2.0) ▽
Iran, Islamic Rep. of	21 (1.8)
Morocco	21 (1.9)
Azerbaijan	20 (1.9)
North Macedonia	19 (2.3) ▽
Kosovo	17 (1.9) ∇
1.03070	17 (1.9)

Content Domain: Life Science Cognitive Domain: Knowing

Description: States one reason why plastic objects in the ocean are dangerous for sea animals

The picture shows a turtle and jellyfish swimming in the ocean. A plastic bag is floating nearby.



Write down one reason why plastic objects in the ocean are dangerous for animals such as turtles.

The turtle's flippers could get tangled up in the bag and make it hard for it to swim.



[▲] Percent significantly higher than international average

^{abla} Percent significantly lower than international average

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



Country	Percent Full Credit	
Korea, Rep. of	75 (1.9)	L
Turkey (5)	67 (2.1)	\
Singapore	67 (1.9)	L
Finland	64 (2.1)	\
Serbia	60 (3.1)	L
Canada	58 (1.5)	A
Russian Federation	56 (2.3)	A
Ireland	54 (2.7)	A
Latvia	54 (2.9)	A
New Zealand	54 (2.1)	L
Hungary	54 (2.2)	L
Bahrain	53 (2.1)	L
Japan	51 (2.0)	_
Montenegro	51 (1.9)	A
Bulgaria	50 (2.9)	A
Sweden	50 (2.8)	\
Spain	49 (2.1)	\
France	49 (2.4)	<u> </u>
Germany	48 (2.4)	
Northern Ireland	47 (2.4)	
England	46 (2.5)	
Australia	46 (2.5)	
United States	45 (1.8)	
Malta	45 (2.1)	
Chinese Taipei	45 (2.4)	
Portugal	44 (2.1)	
Italy	43 (2.6)	
International Average	43 (0.3)	
Bosnia and Herzegovina	42 (2.1)	
Norway (5)	42 (2.4)	
Poland	42 (2.3)	
Kazakhstan	41 (2.2)	
Qatar		
	40 (2.7)	
Czech Republic	40 (2.7)	
Czech Republic	40 (2.0)	
Slovak Republic	40 (2.0) 39 (2.6)	7
•	40 (2.0) 39 (2.6) 38 (2.1)	7
Slovak Republic Albania Lithuania	40 (2.0) 39 (2.6) 38 (2.1) 38 (2.6)	
Slovak Republic Albania	40 (2.0) 39 (2.6) 38 (2.1) 38 (2.6) 38 (2.5)	7
Slovak Republic Albania Lithuania Armenia Austria	40 (2.0) 39 (2.6) 38 (2.1) 38 (2.6) 38 (2.5) 37 (2.1)	7
Slovak Republic Albania Lithuania Armenia Austria Netherlands	40 (2.0) 39 (2.6) 38 (2.1) 38 (2.6) 38 (2.5) 37 (2.1) 35 (2.3)	7
Slovak Republic Albania Lithuania Armenia Austria Netherlands United Arab Emirates	40 (2.0) 39 (2.6) 38 (2.1) 38 (2.6) 38 (2.5) 37 (2.1) 35 (2.3) 35 (0.9)	7 7 7
Slovak Republic Albania Lithuania Armenia Austria Netherlands United Arab Emirates Croatia	40 (2.0) 39 (2.6) 38 (2.1) 38 (2.6) 38 (2.5) 37 (2.1) 35 (2.3) 35 (0.9) 35 (2.5) 7	7 7 7 7
Slovak Republic Albania Lithuania Armenia Austria Netherlands United Arab Emirates Croatia Iran, Islamic Rep. of	40 (2.0) 39 (2.6) 38 (2.1) 38 (2.6) 38 (2.5) 37 (2.1) 35 (2.3) 35 (0.9) 35 (2.5) 34 (2.3)	7 7 7 7
Slovak Republic Albania Lithuania Armenia Austria Netherlands United Arab Emirates Croatia Iran, Islamic Rep. of Hong Kong SAR	40 (2.0) 39 (2.6) 38 (2.1) 38 (2.6) 38 (2.5) 37 (2.1) 35 (2.3) 35 (0.9) 35 (2.5) 34 (2.3) 34 (2.4)	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7
Slovak Republic Albania Lithuania Armenia Austria Netherlands United Arab Emirates Croatia Iran, Islamic Rep. of Hong Kong SAR Azerbaijan	40 (2.0) 39 (2.6) 38 (2.1) 38 (2.6) 38 (2.5) 37 (2.1) 35 (2.3) 35 (0.9) 35 (2.5) 34 (2.3) 34 (2.4) 32 (2.1)	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7
Slovak Republic Albania Lithuania Armenia Austria Netherlands United Arab Emirates Croatia Iran, Islamic Rep. of Hong Kong SAR Azerbaijan Denmark	40 (2.0) 39 (2.6) 38 (2.1) 38 (2.6) 38 (2.5) 37 (2.1) 35 (2.3) 35 (0.9) 35 (2.5) 34 (2.3) 34 (2.4) 32 (2.1) 32 (2.3)	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7
Slovak Republic Albania Lithuania Armenia Austria Netherlands United Arab Emirates Croatia Iran, Islamic Rep. of Hong Kong SAR Azerbaijan Denmark Belgium (Flemish)	40 (2.0) 39 (2.6) 38 (2.1) 38 (2.6) 38 (2.5) 37 (2.1) 35 (2.3) 35 (0.9) 35 (2.5) 34 (2.3) 34 (2.4) 32 (2.1) 32 (2.3) 31 (2.1)	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7
Slovak Republic Albania Lithuania Armenia Austria Netherlands United Arab Emirates Croatia Iran, Islamic Rep. of Hong Kong SAR Azerbaijan Denmark Belgium (Flemish) Cyprus	40 (2.0) 39 (2.6) 38 (2.1) 38 (2.5) 37 (2.1) 35 (2.3) 35 (2.5) 34 (2.3) 34 (2.4) 32 (2.1) 32 (2.3) 31 (2.1) 30 (2.1)	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7
Slovak Republic Albania Lithuania Armenia Austria Netherlands United Arab Emirates Croatia Iran, Islamic Rep. of Hong Kong SAR Azerbaijan Denmark Belgium (Flemish) Cyprus Oman	40 (2.0) 39 (2.6) 38 (2.1) 38 (2.6) 38 (2.5) 37 (2.1) 35 (2.3) 35 (0.9) 35 (2.5) 34 (2.4) 32 (2.1) 32 (2.3) 31 (2.1) 32 (2.3) 31 (2.1) 32 (2.3) 31 (2.1) 32 (2.1) 32 (2.3)	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7
Slovak Republic Albania Lithuania Armenia Austria Netherlands United Arab Emirates Croatia Iran, Islamic Rep. of Hong Kong SAR Azerbaijan Denmark Belgium (Flemish) Cyprus Oman Georgia	40 (2.0) 39 (2.6) 38 (2.1) 38 (2.6) 38 (2.5) 37 (2.1) 35 (2.3) 35 (0.9) 35 (2.5) 34 (2.3) 34 (2.4) 32 (2.1) 32 (2.3) 31 (2.1) 32 (2.3) 31 (2.1) 32 (2.1) 32 (2.1) 32 (2.1) 32 (2.1) 32 (2.1) 33 (2.1) 34 (2.1) 35 (2.2)	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7
Slovak Republic Albania Lithuania Armenia Austria Netherlands United Arab Emirates Croatia Iran, Islamic Rep. of Hong Kong SAR Azerbaijan Denmark Belgium (Flemish) Cyprus Oman Georgia Chile	40 (2.0) 39 (2.6) 38 (2.1) 38 (2.6) 38 (2.5) 37 (2.1) 35 (2.3) 35 (0.9) 35 (2.5) 34 (2.3) 34 (2.4) 32 (2.1) 32 (2.3) 31 (2.1) 30 (2.1) 29 (2.1) 28 (2.1) 20 (1.6)	
Slovak Republic Albania Lithuania Armenia Austria Netherlands United Arab Emirates Croatia Iran, Islamic Rep. of Hong Kong SAR Azerbaijan Denmark Belgium (Flemish) Cyprus Oman Georgia	40 (2.0) 39 (2.6) 38 (2.1) 38 (2.6) 38 (2.5) 37 (2.1) 35 (2.3) 35 (0.9) 35 (2.5) 34 (2.3) 34 (2.4) 32 (2.1) 32 (2.3) 31 (2.1) 32 (2.3) 31 (2.1) 32 (2.1) 32 (2.1) 32 (2.1) 32 (2.1) 32 (2.1) 33 (2.1) 34 (2.1) 35 (2.2)	

Content Domain: Life Science
Cognitive Domain: Applying
Description: Provides a possible effect of releasing factory pollution into farm fields

A factory is located near farm fields. The factory releases pollution into the farm fields.

What effect can this have on the farm fields?

Pollution can make the soil in the fields a bad place for new crops to grow.



[▲] Percent significantly higher than international average

^{abla} Percent significantly lower than international average

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

Exhibit 5: Evaluating Resources Used to Produce Electricity – Example Item 3



Country	Percent Full Credit
Chinese Taipei	58 (2.5) ▲
Bulgaria	50 (2.1)
Korea, Rep. of	46 (2.2) ▲
Albania	42 (3.0) ▲
Italy	41 (2.3)
Finland	36 (2.2) ▲
Germany	35 (2.3) ▲
Portugal	35 (2.3) ▲
Serbia	34 (2.7)
Lithuania	34 (2.4)
Denmark	32 (2.4)
Norway (5)	31 (2.5)
Australia	30 (1.8)
Croatia	29 (2.8)
Austria	29 (1.6)
Cyprus	28 (2.0)
Turkey (5)	28 (2.2)
Ireland	27 (2.3)
Montenegro	26 (1.8)
Canada	26 (1.4)
Spain	26 (1.8)
Netherlands	24 (2.2)
Hong Kong SAR	23 (2.3)
United States	23 (1.3)
International Average	23 (0.3)
Armenia	23 (2.2)
France	22 (2.1)
Singapore	22 (1.4)
Hungary	22 (1.9)
Japan	22 (1.8)
Northern Ireland	20 (2.0)
Bahrain	20 (1.4)
Oman	19 (1.6) ▽
Iran, Islamic Rep. of	18 (1.6) ▽
Belgium (Flemish)	18 (1.8) ▽
Latvia	17 (1.9) ▽
Kazakhstan	17 (2.0) ▽
United Arab Emirates	17 (0.6) ▽
Russian Federation	15 (1.5) ▽
Morocco	15 (2.1) ▽
Malta	14 (1.5)
Kosovo	14 (1.6) ▽
New Zealand	14 (1.3)
Sweden	13 (1.8) ▽
Czech Republic	12 (1.4) ▽
Qatar	12 (1.8) ▽
Chile	11 (1.5)
Georgia	9 (1.7) ▽
Bosnia and Herzegovina	9 (1.5)
England	9 (1.1) ▽
Poland	8 (1.3) ▽
Azerbaijan	8 (1.3) ▽
Slovak Republic	6 (1.1) ▽
North Macedonia	5 (1.3) ▽

Content Domain: Earth Science
Cognitive Domain: Knowing
Description: Describes one benefit of using sunlight or wind to produce electricity

All of these resources can be used to produce electricity:

- sunlight
- wind
- oil
- natural gas

What is one way that using sunlight or wind to produce electricity is **better** for the environment than using oil or natural gas?

Sunlight and wind do not burn and give off fumes.



[▲] Percent significantly higher than international average

^{abla} Percent significantly lower than international average

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



Exhibit 6: Number of Mice Increase After Trees Are Cut Down - Example Item 4

Chinese Taipei	Country	Percent Full Credit
Finland 37 (2.1)	Chinese Taipei	46 (1.9)
Bulgaria 36 (2.2) ▲ Australia 36 (2.3) ▲ United States 36 (1.8) ▲ Serbia 36 (2.8) ▲ Russian Federation 36 (2.5) ▲ Turkey (5) 35 (2.2) ▲ Singapore 35 (1.9) ▲ Japan 35 (2.3) ▲ Korea, Rep. of 32 (2.1) ▲ Canada 31 (1.7) ▲ Hungary 30 (2.0) ▲ Ireland 29 (2.3) ▲ Sweden 28 (2.7) Northern Ireland 29 (2.3) ▲ Latvia 27 (2.1) Cyprus 27 (2.0) Poland 27 (1.9) Bosnia and Herzegovina 26 (1.9) Kazakhstan 26 (1.9) New Zealand 25 (1.7) England 24 (2.3) International Average 23 (2.4) Spain 23 (1.7) Slovak Republic 23 (2.4) Spain 23 (1.7) Slovak Republic 23 (2.4) Lativan 20 (1.9) Portugal 22 (1.5) Denmark 21 (2.3) Iran, Islamic Rep. of 21 (1.9) Lithuania 20 (2.3) Norway (5) Latvia 20 (2.9) Albania 20 (2.9) Albania 20 (2.9) Albania 19 (2.0) ♥ Georgia 18 (2.0) ♥ Georgia 18 (2.0) ♥ Georgia 19 (2.0) ♥ Geo	Finland	
Australia United States Serbia Serbia Russian Federation 36 (2.5) ▲ Turkey (5) 35 (2.2) ▲ Singapore 35 (1.9) ▲ Armenia 32 (2.4) ▲ Korea, Rep. of Canada 31 (1.7) ▲ Hungary Czech Republic Ireland 29 (2.3) ▲ Sweden Northern Ireland 28 (2.3) Latvia C7 (2.1) Cyprus Poland Bosnia and Herzegovina Kazakhstan 26 (1.9) Kazakhstan 26 (1.9) Kazakhstan Chile Spain Slovak Republic 23 (2.4) Spain Chile	Bulgaria	
United States Serbia 36 (2.8) ▲ Russian Federation 36 (2.5) ▲ Singapore 35 (2.2) ▲ Singapore 35 (1.9) ▲ Japan 35 (2.3) ▲ Armenia 32 (2.4) ▲ Korea, Rep. of 32 (2.1) ▲ Canada 31 (1.7) ▲ Hungary 30 (2.0) ▲ Czech Republic 10 (2.3) ▲ Sweden 28 (2.7) Northern Ireland 29 (2.3) ▲ Latvia Cyprus 27 (2.0) Poland Bosnia and Herzegovina Kazakhstan New Zealand 25 (1.9) Kazakhstan New Zealand 25 (1.7) England 26 (1.9) Kazakhstan New Zealand 27 (2.1) Slovak Republic 28 (2.3) Latvia 29 (2.3) Latvia 20 (1.9) Copprus 21 (2.3) Latvia 21 (2.3) Latvia 22 (1.5) Denmark Lithuania 25 (1.7) Lithuania 26 (1.9) Lithuania 27 (2.0) Denmark Lithuania 29 (2.3) Latvia Copprus 20 (2.5) Latvia Copprus 21 (2.3) Latvia 22 (1.5) Denmark Lithuania Latvia Lat		
Russian Federation Turkey (5) 35 (2.2) ▲ Singapore 35 (1.9) ▲ Japan 35 (2.3) ▲ Korea, Rep. of Canada 31 (1.7) ▲ Hungary 30 (2.0) ▲ Ireland 29 (2.3) ▲ Sweden 28 (2.7) Northem Ireland 29 (2.3) ▲ Latvia 27 (2.1) Cyprus Poland 27 (1.9) Bosnia and Herzegovina Kazakhstan 26 (1.9) Kazakhstan 26 (1.9) Kazakhstan 26 (1.9) Spain Slovak Republic 23 (2.4) Spain Slovak Republic 23 (2.4) Spain Chile 23 (2.4) Spain Slovak Republic 23 (1.7) Slovak Republic 23 (1.7) Slovak Republic 23 (1.9) Portugal Denmark 21 (2.3) Iran, Islamic Rep. of Lithuania 20 (2.5) Albania 20 (2.5) Albania 20 (2.5) Albania 20 (2.2) Austria 20 (2.0) Haly Germany Denmary Spain Slovak Republic Spain Spain Slovak Republic Spain Slovak Repub	United States	
Russian Federation Turkey (5) 35 (2.2) ▲ Singapore 35 (1.9) ▲ Japan 35 (2.3) ▲ Korea, Rep. of Canada 31 (1.7) ▲ Hungary 30 (2.0) ▲ Ireland 29 (2.3) ▲ Sweden 28 (2.7) Northern Ireland 29 (2.3) Latvia 27 (2.1) Cyprus Poland 27 (1.9) Bosnia and Herzegovina Kazakhstan 26 (1.9) Kazakhstan 26 (1.9) Kazakhstan 26 (1.9) Royaland Spain Spain Spain Slovak Republic 23 (2.4) Spain Slovak Republic 23 (2.5) Sundand Sweden 26 (1.9) Royaland Sundand Sundan	Serbia	36 (2.8)
Turkey (5)	Russian Federation	
Japan	Turkey (5)	
Japan	Singapore	35 (1.9)
Korea, Rep. of Canada 32 (2.1)		35 (2.3) ▲
Canada 31 (1.7) ▲ Hungary 30 (2.0) ▲ Czech Republic 30 (2.4) ▲ Ireland 29 (2.3) ▲ Sweden 28 (2.7) Northern Ireland 28 (2.3) Latvia 27 (2.1) Cyprus 27 (2.0) Poland 27 (1.9) Bosnia and Herzegovina 26 (1.9) Kazakhstan 26 (1.9) Kazakhstan 26 (1.9) New Zealand 25 (1.7) England 24 (2.3) International Average 23 (0.3) Chile 23 (2.4) Spain 23 (1.7) Slovak Republic 23 (1.9) Portugal 22 (1.5) Denmark 21 (2.3) Iran, Islamic Rep. of 21 (1.9) Lithuania 20 (2.5) Albania 20 (2.5) Albania 20 (2.5) Albania 20 (2.5) Albania 20 (2.5) Norway (5) 20 (2.0) Italy Italy 20 (2.2) Austria 19 (2.0) ∇ Georgia 18 (2.0) ∇ Malta 16 (1.4) ∇ <	Armenia	32 (2.4)
Hungary 30 (2.0)	Korea, Rep. of	32 (2.1)
Czech Republic 30 (2.4) ▲ Ireland 29 (2.3) ▲ Sweden 28 (2.7) Northern Ireland Latvia 27 (2.1) Cyprus Cyprus 27 (2.0) Poland Bosnia and Herzegovina 26 (1.9) Kazakhstan 26 (1.9) New Zealand 25 (1.7) England 24 (2.3) International Average 23 (0.3) Chile 23 (2.4) Spain 23 (1.7) Slovak Republic 23 (1.7) Portugal 22 (1.5) Denmark 21 (2.3) Iran, Islamic Rep. of 21 (1.9) Lithuania 20 (2.5) Albania 20 (2.5) Albania 20 (2.3) Norway (5) 20 (2.0) Italy 20 (2.2) Austria 19 (2.0) ∇ Georgia 18 (2.0) ∇ Malta 16 (1.4) ∇ Germany 16 (1.9) ∇ Oman	Canada	31 (1.7)
Czech Republic 30 (2.4) ▲ Ireland 29 (2.3) ▲ Sweden 28 (2.7) Northern Ireland Latvia 27 (2.1) Cyprus Cyprus 27 (2.0) Poland Bosnia and Herzegovina 26 (1.9) Kazakhstan 26 (1.9) New Zealand 25 (1.7) England 24 (2.3) International Average 23 (0.3) Chile 23 (2.4) Spain 23 (1.7) Slovak Republic 23 (1.7) Portugal 22 (1.5) Denmark 21 (2.3) Iran, Islamic Rep. of 21 (1.9) Lithuania 20 (2.5) Albania 20 (2.5) Albania 20 (2.3) Norway (5) 20 (2.0) Italy 20 (2.2) Austria 19 (2.0) ∇ Georgia 18 (2.0) ∇ Malta 16 (1.4) ∇ Germany 16 (1.9) ∇ Oman	Hungary	30 (2.0)
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	Kosovo	8 (1.3)
	Qatar	6 (1.2) ▽
United Arab Emirates 3 (0.3)	United Arab Emirates	3 (0.3) ▽

Content Domain: Life Science Cognitive Domain: Reasoning

Description: Explains why mice increase after trees are cut down

People in a town cut down trees to build more homes. Hawks left the area because they had nowhere to build nests. A few months later, the number of mice in the area increased.

Why did the number of mice increase after the trees were cut down?

Hawks eat mice. When the hawks went away, fewer mice were eaten and they made many more mice.



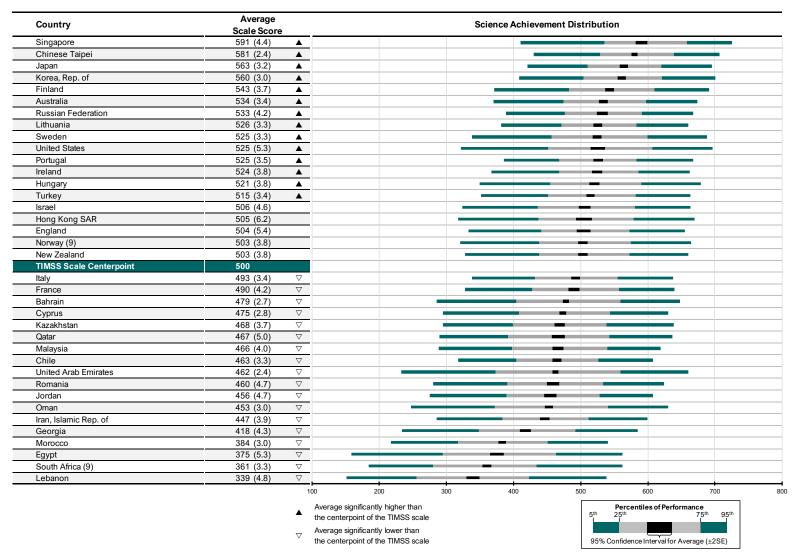
[▲] Percent significantly higher than international average

^{abla} Percent significantly lower than international average

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

Exhibit 7: Average Environmental Awareness Achievement and Scale Score Distributions

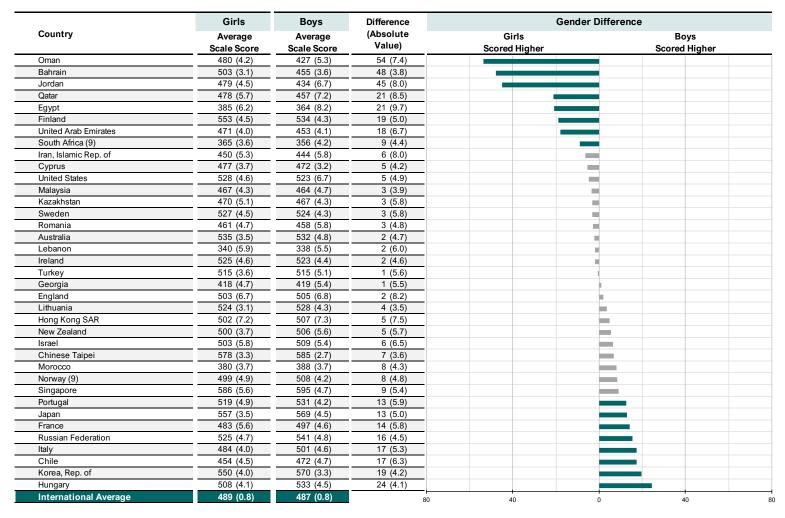




() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

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Difference statistically significant

Difference not statistically significant



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

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

Country	Percent Full Credit
Singapore	85 (1.5)
Chinese Taipei	69 (2.0)
Kazakhstan	68 (2.3)
Turkey	67 (2.4)
Russian Federation	65 (2.5)
Sweden	63 (2.6)
Hong Kong SAR	60 (2.9)
Korea, Rep. of	58 (2.5)
Australia	57 (2.0)
Qatar	57 (2.0)
Israel	57 (2.2)
Ireland	56 (2.3)
Lithuania	53 (2.7)
Cyprus	52 (2.3)
United States	51 (2.5)
Bahrain	50 (2.1)
Romania	49 (2.5)
United Arab Emirates	49 (1.2)
Finland	49 (1.8)
International Average	48 (0.4)
Jordan	48 (2.6)
Portugal	47 (3.0)
Italy	44 (2.4)
England	44 (2.7)
Hungary	43 (3.0)
Oman	42 (2.2)
Japan	42 (1.9)
Iran, Islamic Rep. of	40 (2.1)
France	39 (2.2)
Egypt	37 (1.9)
Norway (9)	37 (2.3)
Georgia	36 (2.7)
Morocco	34 (1.6)
Malaysia	33 (1.7)
New Zealand	30 (1.9)
Lebanon	29 (2.0)
Chile	24 (1.8)
South Africa (9)	20 (1.1)

Content Domain: Biology
Cognitive Domain: Reasoning

Description: Explains how roof gardens in cities help reduce the amount of carbon dioxide in the air

In some large cities, owners of large buildings and houses have installed gardens on the roofs. Having more gardens helps reduce the amount of carbon dioxide in the air.

How does increasing the number of gardens help reduce the amount of carbon dioxide in the air?

There are more trees and plants taking carbon dioxide out of the air during photosynthesis.



[▲] Percent significantly higher than international average

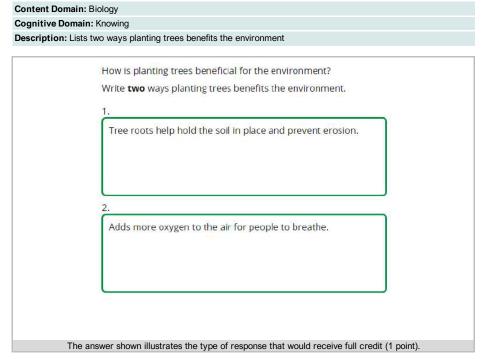
^{abla} Percent significantly lower than international average

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

Exhibit 10: Planting Trees Benefits the Environment - Example Item 6



Country	Percent Full Credit
Singapore	74 (1.9)
Korea, Rep. of	72 (1.9)
Turkey	63 (2.3)
Ireland	53 (2.5)
Australia	52 (1.9)
United States	51 (1.8)
Japan	49 (2.1)
Qatar	48 (1.6)
Jordan	48 (2.2)
England	47 (2.9)
Sweden	45 (2.4)
Egypt	41 (2.4)
New Zealand	41 (1.9)
Romania	39 (2.5)
Portugal	39 (2.6)
International Average	38 (0.3)
Chinese Taipei	37 (1.7)
Morocco	36 (1.5)
Kazakhstan	36 (2.4)
Hungary	36 (2.3)
Finland	35 (2.0)
Russian Federation	35 (2.5)
United Arab Emirates	35 (0.9)
Hong Kong SAR	34 (2.6)
Italy	31 (2.2)
Oman	31 (2.1)
Cyprus	31 (2.1)
Bahrain	31 (1.8)
Israel	31 (2.4)
Lithuania	30 (2.4)
Norway (9)	28 (2.3)
France	28 (2.0)
Malaysia	24 (1.6)
Georgia	23 (3.1)
Chile	18 (1.6)
Iran, Islamic Rep. of	18 (1.6)
South Africa (9)	16 (1.0)
Lebanon	16 (2.0)





[▲] Percent significantly higher than international average

 $^{\, \}bigtriangledown \,$ Percent significantly lower than international average

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

Exhibit 11: Algal Bloom in a Pond Caused by Human Activity - Example Item 7

Country	Percent Full Credit
Singapore	73 (1.6)
Chinese Taipei	70 (1.9)
Finland	67 (2.2)
Russian Federation	66 (1.7)
Portugal	65 (2.9)
Italy	63 (2.4)
Hungary	62 (2.3)
Japan	62 (1.9)
Korea, Rep. of	59 (2.0)
Hong Kong SAR	59 (2.8)
New Zealand	59 (2.0)
Ireland	58 (2.5)
United States	57 (1.8)
Lithuania	56 (2.4)
Malaysia	54 (1.9)
Israel	53 (1.9)
Sweden	53 (2.5)
France	53 (2.3)
Kazakhstan	52 (2.4)
International Average	52 (0.4)
Turkey	51 (2.3)
Australia	51 (1.8)
United Arab Emirates	51 (1.2)
Qatar	50 (2.4)
Norway (9)	50 (2.5)
Chile	50 (2.5)
Georgia	47 (2.6) ▽
England	46 (3.1)
Oman	44 (2.0) ▽
Romania	44 (2.1) ▽
Iran, Islamic Rep. of	44 (1.8) ▽
Morocco	42 (2.0) ▽
Jordan	38 (1.9) ▽
Bahrain	38 (1.9) ▽
Cyprus	37 (2.1) ▽
Egypt	36 (1.9) ▽
Lebanon	31 (2.3) ▽
South Africa (9)	25 (0.8) ▽



The answer shown illustrates the type of response that would receive full credit (1 point).

▲ Percent significantly higher than international average

Content Domain: Biology

abla Percent significantly lower than international average



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



Country	Percent Full Credit
Singapore	81 (1.7)
Chinese Taipei	77 (1.7)
Japan	76 (1.9)
Korea, Rep. of	72 (1.8)
Ireland	71 (1.9)
Finland	70 (2.0)
Australia	67 (1.7)
Lithuania	67 (2.2)
New Zealand	66 (2.0)
United States	66 (1.6)
England	65 (2.6)
Norway (9)	64 (2.2)
Sweden	63 (2.6)
Hong Kong SAR	63 (2.3)
Turkey	62 (2.2)
Portugal	61 (2.7)
France	61 (2.3)
Russian Federation	56 (2.2)
International Average	54 (0.3)
Hungary	54 (2.2)
Malaysia	53 (2.0)
Italy	52 (2.2)
Oman	51 (1.6)
Israel	50 (2.6)
Qatar	50 (2.0)
Romania	50 (2.5)
United Arab Emirates	50 (1.1)
Chile	46 (2.9)
Cyprus	46 (2.7)
Bahrain	45 (1.6)
Kazakhstan	41 (2.5)
Georgia	39 (2.6)
Jordan	38 (1.9)
Egypt	33 (1.7)
South Africa (9)	29 (1.1)
Morocco	27 (1.6)
Iran, Islamic Rep. of	22 (1.6)
Lebanon	20 (1.4)

Content Domain: Earth Science
Cognitive Domain: Applying

Description: Recognizes how the melting of permafrost affects the Earth's climate

In the Arctic, we can find frozen soil called permafrost, which contains ice, rocks, and methane (a greenhouse gas).

How can the melting of permafrost affect the Earth's climate?



Increased methane in the atmosphere can contribute to global warming.



Increased water in the atmosphere can cause more rain in the Arctic.



Areas of melted permafrost can be now used as farmland.



Methane can react with oxygen in the air to produce smog.



[▲] Percent significantly higher than international average

[∇] Percent significantly lower than international average

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



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