

Exhibit 5.3.11: Frequency Students Conduct Experiments in Science Lessons

About the Item

In <science / biology / chemistry / physics / earth science> lessons, how often does your teacher ask you to conduct <science / biology / chemistry / physics / earth science> experiments?

- At least once a week ----
- Once or twice a month ----
- A few times a year ----
- Never ----

Exhibit 5.3.12: Frequency Students Conduct Experiments in Science Lessons

Country	At Least Once a Week		Once or Twice a Month		A Few Times a Year		Never	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Albania	51 (1.8)	486 (5.1)	26 (1.6)	507 (6.5)	17 (1.3)	501 (6.9)	6 (0.7)	497 (12.1)
Armenia	38 (1.3)	453 (3.2)	29 (0.9)	465 (2.5)	18 (1.0)	465 (4.5)	15 (1.0)	453 (5.2)
Australia	27 (1.3)	534 (4.2)	30 (1.1)	562 (2.9)	32 (1.2)	563 (3.6)	10 (0.9)	541 (5.9)
Azerbaijan	57 (1.0)	426 (3.1)	24 (1.0)	418 (5.8)	9 (0.5)	411 (5.5)	10 (0.6)	427 (5.9)
Bahrain	39 (1.2)	474 (4.9)	30 (1.0)	483 (5.1)	20 (0.9)	482 (5.9)	11 (0.6)	461 (7.2)
Belgium (Flemish)	21 (1.0)	472 (4.2)	35 (1.2)	494 (2.6)	27 (1.1)	500 (3.7)	18 (1.1)	491 (4.7)
Belgium (French)	19 (1.0)	455 (4.8)	31 (1.3)	484 (3.4)	33 (1.2)	498 (3.2)	17 (1.1)	477 (4.7)
Bosnia & Herzegovina	28 (1.1)	423 (6.1)	22 (1.3)	456 (5.0)	27 (1.4)	469 (4.9)	23 (1.0)	456 (4.0)
Brazil	33 (0.8)	396 (2.9)	21 (0.8)	424 (5.6)	23 (0.8)	468 (6.2)	23 (0.7)	438 (3.6)
Bulgaria	23 (1.3)	508 (6.8)	29 (1.5)	530 (7.1)	31 (1.7)	549 (8.4)	17 (1.1)	538 (7.2)
Canada	21 (0.7)	495 (2.9)	30 (0.7)	528 (2.6)	35 (0.8)	537 (2.4)	14 (0.6)	526 (4.3)
Chile	23 (0.9)	445 (3.5)	22 (1.0)	475 (4.4)	35 (1.2)	509 (3.0)	20 (1.2)	483 (4.2)
Chinese Taipei	52 (1.6)	575 (2.0)	38 (1.5)	580 (2.2)	6 (0.5)	549 (6.2)	4 (0.4)	526 (6.8)
Cyprus	43 (1.7)	487 (4.0)	33 (1.2)	502 (3.6)	15 (1.0)	493 (4.6)	9 (1.2)	470 (5.9)
Czech Republic	13 (0.6)	487 (3.5)	21 (0.9)	522 (3.8)	23 (1.0)	542 (3.9)	43 (1.3)	533 (2.5)
Denmark	27 (1.6)	503 (4.2)	38 (1.2)	534 (2.8)	25 (1.3)	536 (3.3)	10 (1.1)	513 (5.1)
England	28 (1.3)	544 (4.0)	43 (1.2)	571 (3.2)	24 (1.2)	564 (5.0)	4 (0.4)	520 (6.6)
Finland	10 (0.6)	481 (5.5)	32 (0.8)	541 (3.7)	40 (0.8)	562 (3.0)	18 (0.8)	548 (4.0)
France	22 (1.1)	466 (4.0)	17 (1.0)	487 (5.5)	35 (1.3)	504 (4.3)	26 (1.5)	494 (4.4)
Georgia	37 (1.0)	458 (3.9)	32 (1.2)	479 (5.0)	16 (0.9)	474 (4.5)	15 (0.9)	453 (4.7)
Germany	31 (1.0)	495 (4.2)	32 (0.9)	515 (3.5)	28 (0.9)	550 (3.6)	9 (0.7)	518 (6.5)
Hong Kong SAR	13 (2.2)	542 (22.1)	25 (1.5)	544 (4.4)	37 (1.7)	554 (4.1)	25 (1.5)	536 (4.5)
Hungary	16 (1.1)	478 (7.1)	16 (0.9)	518 (6.3)	26 (1.0)	555 (3.9)	42 (1.5)	530 (3.9)
Iran, Islamic Rep. of	54 (1.4)	430 (4.8)	25 (1.3)	455 (6.2)	12 (0.6)	440 (7.2)	8 (0.8)	415 (8.4)
Ireland	8 (0.7)	483 (7.3)	31 (1.2)	536 (3.9)	50 (1.3)	543 (3.6)	11 (0.9)	511 (7.1)
Italy	24 (0.9)	484 (4.2)	26 (1.2)	520 (3.3)	34 (1.1)	524 (3.1)	17 (1.1)	515 (4.2)
Japan	60 (2.0)	557 (3.2)	37 (1.7)	562 (2.7)	3 (0.4)	517 (9.1)	1 ~	~
Jordan	49 (1.4)	427 (5.5)	26 (1.1)	417 (6.5)	13 (0.9)	408 (7.2)	11 (1.0)	394 (7.5)
Kazakhstan	42 (0.9)	458 (3.5)	28 (1.0)	469 (6.2)	15 (0.7)	487 (5.3)	15 (0.7)	474 (4.5)
Korea, Rep. of	76 (1.4)	585 (2.5)	21 (1.2)	583 (3.7)	2 ~	--	1 ~	--
Kosovo	46 (1.4)	396 (4.1)	28 (1.2)	416 (5.1)	15 (1.0)	411 (6.1)	10 (0.6)	389 (7.0)
Kuwait	51 (1.3)	374 (5.7)	21 (1.0)	396 (8.0)	14 (1.0)	420 (9.4)	14 (0.8)	382 (8.4)
Latvia	20 (1.4)	501 (4.7)	39 (1.3)	536 (3.2)	31 (1.3)	540 (3.9)	10 (0.8)	501 (5.7)
Lithuania	17 (0.8)	503 (4.7)	28 (1.0)	540 (3.7)	35 (0.9)	553 (3.2)	19 (1.2)	540 (3.7)
Macao SAR	14 (0.4)	515 (3.7)	36 (0.5)	542 (2.0)	41 (0.5)	545 (2.1)	10 (0.3)	504 (4.2)
Montenegro	34 (0.9)	448 (2.5)	22 (0.8)	462 (4.4)	19 (0.9)	478 (3.6)	25 (0.9)	470 (3.5)
Morocco	40 (1.6)	391 (6.5)	32 (1.6)	410 (8.5)	17 (0.9)	389 (6.2)	11 (1.0)	370 (9.4)
Netherlands	13 (0.9)	509 (6.2)	24 (1.1)	522 (3.9)	37 (1.1)	525 (3.0)	26 (1.3)	509 (3.9)
New Zealand	16 (1.0)	479 (5.8)	21 (0.8)	522 (3.6)	35 (1.2)	538 (3.2)	28 (1.3)	519 (4.2)
North Macedonia	45 (1.3)	430 (4.1)	30 (1.2)	453 (4.4)	18 (1.0)	454 (6.0)	7 (0.6)	426 (8.6)
Norway (5)	27 (1.2)	506 (3.8)	34 (1.3)	542 (3.2)	33 (1.3)	545 (3.5)	7 (0.7)	531 (6.4)
Oman	42 (1.0)	438 (5.1)	28 (0.8)	430 (5.3)	20 (0.7)	444 (5.4)	9 (0.5)	410 (6.0)
Poland	11 (0.6)	505 (4.7)	20 (0.9)	544 (3.6)	39 (0.9)	564 (2.4)	30 (1.1)	552 (2.9)
Portugal	30 (1.5)	497 (3.3)	24 (0.9)	516 (4.0)	32 (1.2)	525 (2.6)	15 (0.8)	504 (4.4)
Qatar	41 (0.9)	458 (4.2)	28 (1.0)	489 (5.6)	20 (0.8)	499 (5.1)	11 (0.7)	449 (7.1)
Romania	33 (1.5)	506 (7.8)	29 (1.1)	534 (6.2)	26 (1.2)	550 (5.3)	12 (1.1)	535 (6.7)
Saudi Arabia	48 (1.0)	432 (5.0)	24 (0.8)	429 (4.6)	13 (0.5)	440 (5.9)	16 (0.7)	424 (6.3)
Serbia	18 (1.0)	472 (5.3)	20 (1.2)	512 (5.1)	31 (1.7)	523 (4.5)	31 (1.2)	518 (3.0)
Singapore	32 (0.9)	600 (3.3)	44 (0.9)	620 (3.1)	20 (0.6)	602 (3.6)	4 (0.3)	560 (6.0)
Slovak Republic	17 (0.8)	492 (5.5)	24 (1.3)	521 (6.9)	39 (1.7)	531 (6.0)	20 (1.1)	531 (4.5)
Slovenia	22 (0.7)	489 (3.7)	30 (0.9)	531 (2.7)	31 (0.9)	553 (2.6)	16 (0.7)	524 (4.2)
South Africa (5)	30 (0.9)	300 (6.4)	23 (0.8)	308 (8.0)	24 (0.9)	345 (8.4)	22 (1.1)	271 (8.1)
Spain	16 (0.6)	470 (3.7)	18 (0.7)	493 (3.3)	34 (1.0)	521 (2.4)	32 (1.3)	513 (2.6)
Sweden	21 (1.6)	517 (6.0)	35 (1.5)	543 (3.7)	28 (1.3)	542 (4.1)	16 (1.3)	527 (4.7)
Türkiye (5)	25 (1.4)	545 (5.5)	48 (1.4)	581 (3.3)	16 (0.9)	586 (4.9)	11 (1.0)	556 (5.8)
United Arab Emirates	39 (0.5)	484 (2.3)	34 (0.4)	513 (2.2)	20 (0.3)	515 (2.2)	7 (0.2)	464 (4.0)
United States	25 (0.8)	507 (4.0)	27 (0.9)	543 (3.7)	30 (0.8)	553 (3.6)	18 (0.8)	533 (4.2)
Uzbekistan	66 (1.2)	416 (3.4)	16 (0.8)	407 (5.7)	9 (0.5)	401 (6.3)	9 (0.6)	403 (6.6)
International Average	31 (0.2)	477 (0.7)	28 (0.1)	500 (0.6)	25 (0.1)	506 (0.7)	15 (0.1)	485 (0.8)
Benchmarking Participants								
Ontario, Canada	18 (1.0)	491 (4.5)	29 (1.1)	532 (3.9)	36 (1.1)	543 (3.8)	17 (1.2)	533 (5.8)
Quebec, Canada	22 (1.2)	490 (4.3)	30 (1.2)	509 (3.5)	38 (1.5)	521 (3.6)	10 (0.9)	510 (5.3)
Abu Dhabi, UAE	38 (0.8)	433 (3.4)	33 (0.7)	458 (3.8)	21 (0.5)	471 (4.6)	8 (0.3)	440 (6.3)
Dubai, UAE	33 (1.1)	547 (2.8)	42 (0.9)	578 (2.0)	21 (0.6)	575 (2.3)	4 (0.3)	519 (6.5)
Sharjah, UAE	43 (1.1)	496 (4.1)	31 (0.8)	515 (5.1)	19 (0.7)	522 (3.9)	7 (0.4)	480 (9.3)

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.
 A tilde (~) indicates insufficient data to report result.

Exhibit 5.3.13: Frequency Students Conduct Experiments in Science Lessons

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.

Exhibit 5.3.13a: Frequency Students Conduct Experiments in General/Integrated Science Lessons

General/Integrated Science	At Least Once a Week		Once or Twice a Month		A Few Times a Year		Never	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Australia	37 (1.5)	526 (4.4)	47 (1.2)	531 (3.8)	13 (0.8)	522 (4.9)	3 (0.3)	439 (9.2)
Bahrain	24 (0.7)	432 (4.9)	33 (0.9)	469 (3.7)	29 (0.8)	479 (3.5)	15 (0.8)	430 (5.3)
Brazil	20 (0.6)	361 (3.8)	20 (0.9)	429 (5.0)	27 (0.9)	451 (3.4)	33 (1.1)	431 (3.5)
Chile	13 (0.8)	416 (5.3)	30 (1.4)	457 (3.6)	44 (1.3)	472 (3.4)	13 (1.1)	455 (5.5)
Chinese Taipei	10 (1.1)	555 (6.9)	55 (2.3)	577 (3.0)	25 (1.9)	585 (4.2)	10 (1.4)	538 (6.5)
England	22 (1.8)	528 (8.7)	52 (1.6)	545 (4.7)	19 (1.5)	529 (5.3)	7 (1.1)	488 (14.8)
Hong Kong SAR	48 (2.2)	536 (5.6)	42 (1.8)	533 (5.3)	7 (0.9)	503 (10.4)	2 ~	~ ~
Iran, Islamic Rep. of	37 (1.4)	404 (4.7)	35 (1.1)	433 (3.9)	15 (0.7)	439 (5.4)	13 (1.0)	406 (4.7)
Ireland	22 (1.6)	518 (3.4)	49 (1.8)	541 (5.1)	26 (1.8)	537 (3.9)	4 (0.7)	512 (8.1)
Israel	17 (1.0)	453 (7.9)	34 (1.4)	494 (5.0)	32 (1.3)	497 (4.6)	17 (1.4)	467 (6.5)
Italy	6 (0.4)	458 (8.3)	18 (1.1)	488 (4.1)	43 (1.4)	514 (3.1)	32 (1.7)	501 (4.4)
Japan	34 (2.8)	561 (3.3)	56 (2.6)	559 (4.3)	9 (1.4)	551 (7.4)	1 ~	~ ~
Jordan	44 (1.2)	403 (4.6)	31 (0.9)	430 (4.1)	15 (0.7)	430 (6.8)	10 (0.7)	398 (6.0)
Korea, Rep. of	10 (1.4)	530 (7.5)	53 (2.0)	548 (2.6)	30 (1.8)	553 (3.3)	7 (1.2)	517 (7.4)
Kuwait	36 (1.5)	411 (6.1)	34 (1.1)	435 (6.4)	18 (1.2)	456 (10.0)	12 (0.8)	398 (10.7)
Malaysia	33 (1.2)	414 (4.6)	48 (1.0)	438 (3.4)	14 (0.9)	432 (6.2)	5 (0.6)	385 (11.5)
Norway (9)	9 (1.2)	472 (7.4)	29 (1.5)	503 (3.5)	51 (1.7)	497 (2.7)	11 (1.0)	467 (6.5)
Oman	44 (1.0)	453 (3.5)	31 (0.8)	470 (3.0)	15 (0.7)	472 (5.1)	10 (0.6)	446 (6.0)
Palestinian Nat'l Auth.	45 (0.9)	395 (3.0)	26 (0.7)	403 (3.4)	14 (0.5)	408 (4.8)	15 (0.8)	373 (4.2)
Qatar	31 (1.4)	453 (5.3)	36 (1.3)	502 (5.4)	23 (1.3)	512 (6.9)	10 (0.8)	464 (10.3)
Saudi Arabia	37 (1.0)	396 (4.1)	31 (0.9)	441 (3.9)	18 (0.7)	453 (4.8)	14 (0.7)	416 (6.3)
Singapore	9 (0.7)	589 (13.3)	52 (1.4)	617 (5.9)	37 (1.6)	603 (5.8)	2 ~	~ ~
South Africa (9)	35 (0.8)	328 (3.3)	27 (0.7)	369 (6.2)	26 (0.8)	387 (6.3)	12 (0.7)	389 (6.6)
Türkiye	9 (0.8)	493 (8.1)	39 (1.7)	524 (4.4)	33 (1.1)	550 (4.6)	19 (1.4)	523 (5.8)
United Arab Emirates	29 (0.6)	453 (3.1)	38 (0.4)	506 (2.1)	24 (0.5)	525 (2.8)	9 (0.4)	467 (4.4)
United States	18 (1.2)	496 (6.4)	44 (1.0)	522 (4.0)	29 (1.2)	530 (4.9)	9 (0.7)	490 (8.6)
International Average	26 (0.3)	463 (1.2)	38 (0.3)	491 (0.9)	24 (0.2)	496 (1.1)	11 (0.2)	452 (1.6)
Benchmarking Participants								
Abu Dhabi, UAE	29 (0.8)	406 (5.2)	37 (0.7)	469 (4.0)	23 (0.8)	490 (4.5)	10 (0.6)	434 (5.2)
Dubai, UAE	21 (1.1)	523 (5.2)	41 (0.8)	557 (3.1)	31 (1.3)	565 (4.0)	7 (0.6)	523 (7.5)
Sharjah, UAE	33 (1.6)	472 (6.2)	37 (0.9)	511 (6.3)	21 (1.0)	533 (6.5)	9 (0.9)	489 (8.9)

Separate Science Results

Exhibit 5.3.13b: Frequency Students Conduct Experiments in Biology Lessons

Biology	At Least Once a Week		Once or Twice a Month		A Few Times a Year		Never	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Austria	6 (0.5)	463 (7.7)	14 (0.9)	503 (5.9)	30 (1.2)	527 (3.8)	51 (1.7)	513 (2.9)
Azerbaijan	52 (1.3)	395 (3.4)	22 (0.8)	434 (3.7)	12 (0.7)	441 (5.3)	14 (0.9)	429 (5.3)
Cote d'Ivoire	36 (1.4)	170 (5.5)	18 (0.7)	169 (7.8)	18 (1.0)	194 (14.6)	28 (1.6)	175 (7.0)
Cyprus	8 (0.5)	433 (9.1)	27 (1.4)	478 (8.1)	39 (1.4)	477 (3.3)	26 (1.1)	458 (3.5)
Czech Republic	3 (0.4)	495 (8.9)	18 (1.1)	520 (3.7)	36 (1.1)	541 (2.1)	43 (1.7)	527 (2.7)
Finland	6 (0.4)	475 (8.0)	37 (1.1)	527 (4.2)	45 (1.2)	554 (3.0)	12 (0.7)	546 (5.3)
France	16 (1.1)	460 (5.6)	35 (1.6)	496 (3.3)	36 (1.5)	504 (3.5)	13 (1.4)	471 (6.5)
Georgia	20 (1.3)	428 (6.9)	36 (1.2)	458 (3.2)	25 (1.0)	466 (3.8)	19 (1.2)	453 (3.7)
Hungary	6 (0.7)	443 (13.6)	12 (0.9)	518 (7.8)	28 (1.2)	540 (3.6)	54 (1.6)	523 (3.0)
Kazakhstan	37 (1.3)	417 (3.5)	37 (1.1)	460 (3.9)	15 (0.8)	476 (5.2)	12 (0.9)	456 (6.1)
Lithuania	5 (0.4)	448 (7.4)	23 (1.2)	500 (4.2)	47 (1.2)	534 (3.5)	26 (1.4)	528 (4.3)
Morocco	37 (1.0)	316 (4.2)	24 (0.7)	332 (4.0)	21 (0.7)	343 (4.7)	18 (1.0)	331 (4.9)
Portugal	15 (1.0)	476 (4.9)	41 (1.4)	508 (3.0)	35 (1.3)	520 (3.2)	9 (1.1)	507 (8.5)
Romania	17 (1.2)	424 (7.1)	19 (0.9)	464 (5.7)	34 (1.6)	488 (4.9)	30 (1.8)	483 (4.8)
Sweden	30 (2.3)	517 (4.7)	41 (1.9)	536 (4.2)	21 (1.5)	544 (4.7)	8 (1.2)	523 (9.2)
Uzbekistan	62 (1.2)	386 (4.3)	20 (0.8)	415 (4.6)	10 (0.6)	419 (6.0)	7 (0.7)	407 (7.3)
International Average	22 (0.3)	422 (1.8)	26 (0.3)	457 (1.3)	28 (0.3)	473 (1.4)	23 (0.3)	458 (1.4)
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() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

An "r" indicates data are available for at least 70% but less than 85% of the students.

A "y" indicates data are available for less than 40% of the students.

A dash (-) indicates comparable data not available.

Exhibit 5.3.13: Frequency Students Conduct Experiments in Science Lessons

Separate Science Results

(Continued)

Exhibit 5.3.13c: Frequency Students Conduct Experiments in Chemistry Lessons

Chemistry		At Least Once a Week		Once or Twice a Month		A Few Times a Year		Never	
Country		Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Austria		31 (1.7)	511 (3.8)	43 (1.3)	521 (2.8)	19 (1.2)	519 (4.2)	8 (0.8)	483 (9.4)
Azerbaijan		51 (1.3)	395 (3.3)	23 (0.9)	426 (4.2)	12 (0.7)	439 (6.2)	15 (0.9)	440 (5.1)
Cote d'Ivoire		43 (1.4)	181 (5.8)	17 (0.5)	179 (8.6)	16 (0.9)	188 (15.4)	24 (1.3)	191 (12.9)
Cyprus		22 (0.8)	448 (5.3)	44 (1.2)	477 (5.1)	26 (1.2)	484 (3.9)	7 (0.7)	451 (7.6)
Czech Republic		11 (0.9)	511 (5.4)	39 (1.6)	534 (2.1)	35 (1.3)	537 (2.6)	15 (1.4)	513 (5.0)
Finland	r	40 (1.5)	559 (4.0)	42 (1.2)	534 (3.3)	16 (0.8)	519 (4.3)	2 ~	~ ~
France		31 (1.7)	480 (4.7)	41 (1.5)	505 (3.8)	20 (1.3)	496 (4.1)	8 (0.9)	455 (8.8)
Georgia		28 (1.4)	435 (4.6)	38 (1.2)	460 (3.3)	19 (0.9)	466 (4.7)	15 (1.2)	452 (5.3)
Hungary		18 (1.4)	508 (7.7)	33 (1.5)	534 (3.7)	26 (1.2)	535 (4.2)	22 (1.4)	502 (4.8)
Kazakhstan		40 (1.3)	426 (3.5)	37 (1.1)	463 (4.0)	13 (0.8)	476 (4.8)	10 (0.9)	456 (7.9)
Lithuania		8 (0.5)	476 (7.9)	38 (1.5)	517 (3.6)	39 (1.3)	537 (3.3)	14 (1.4)	512 (6.6)
Morocco	r	44 (0.9)	321 (3.8)	24 (0.6)	330 (4.0)	18 (0.8)	343 (5.6)	14 (0.8)	327 (4.3)
Portugal		24 (1.6)	488 (4.6)	47 (1.3)	514 (2.6)	25 (1.4)	519 (3.8)	4 (0.6)	475 (8.9)
Romania		24 (1.4)	445 (5.3)	29 (1.5)	480 (5.1)	29 (1.6)	486 (5.6)	19 (1.7)	473 (5.9)
Sweden	r	39 (2.5)	529 (4.4)	42 (2.1)	538 (4.5)	15 (1.0)	536 (6.3)	5 (0.8)	510 (12.6)
Uzbekistan		65 (1.3)	389 (4.2)	20 (0.9)	413 (3.9)	8 (0.6)	415 (7.4)	6 (0.6)	406 (8.0)
International Average		32 (0.4)	444 (1.3)	35 (0.3)	464 (1.1)	21 (0.3)	468 (1.5)	12 (0.3)	443 (2.1)
Malta	y	--	--	--	--	--	--	--	--

Exhibit 5.3.13d: Frequency Students Conduct Experiments in Physics Lessons

Physics		At Least Once a Week		Once or Twice a Month		A Few Times a Year		Never	
Country		Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Austria		22 (1.3)	501 (4.3)	39 (1.4)	522 (3.3)	25 (1.2)	523 (3.5)	15 (1.2)	500 (7.2)
Azerbaijan		54 (1.2)	399 (3.4)	23 (0.9)	429 (3.7)	12 (0.7)	434 (5.4)	11 (0.7)	434 (5.7)
Cote d'Ivoire		44 (1.4)	183 (6.0)	18 (0.6)	178 (7.8)	16 (0.9)	188 (13.8)	22 (1.4)	192 (15.1)
Cyprus		28 (0.9)	451 (4.5)	38 (1.3)	479 (4.7)	25 (1.1)	484 (4.2)	10 (0.8)	459 (5.7)
Czech Republic		11 (0.9)	522 (5.7)	31 (1.1)	533 (2.8)	37 (1.1)	538 (2.3)	20 (1.4)	514 (4.7)
Finland	r	31 (1.3)	556 (4.4)	44 (1.0)	543 (3.2)	21 (1.0)	529 (4.4)	4 (0.5)	514 (11.2)
France		31 (1.7)	480 (4.7)	41 (1.5)	505 (3.8)	20 (1.3)	496 (4.1)	8 (0.9)	455 (8.8)
Georgia		18 (1.2)	432 (5.7)	19 (0.9)	455 (4.3)	47 (1.3)	462 (2.9)	16 (1.2)	448 (4.0)
Hungary		19 (1.3)	508 (7.7)	33 (1.3)	537 (3.7)	25 (1.1)	533 (3.4)	23 (1.3)	503 (4.6)
Kazakhstan		44 (1.3)	430 (3.4)	38 (0.9)	464 (3.8)	11 (0.7)	476 (5.0)	7 (0.8)	451 (7.8)
Lithuania		10 (0.6)	479 (6.3)	42 (1.4)	523 (3.1)	36 (1.4)	536 (3.7)	13 (1.0)	503 (6.0)
Malta	r	21 (0.7)	465 (4.0)	61 (0.8)	524 (2.4)	15 (0.7)	531 (4.5)	3 (0.3)	434 (10.8)
Morocco		45 (1.0)	321 (4.0)	22 (0.7)	333 (3.4)	18 (0.8)	341 (5.2)	14 (0.8)	327 (4.0)
Portugal		24 (1.6)	488 (4.6)	47 (1.3)	514 (2.6)	25 (1.4)	519 (3.8)	4 (0.6)	475 (8.9)
Romania	r	23 (1.3)	445 (5.7)	28 (1.4)	482 (4.6)	30 (1.4)	487 (5.3)	19 (1.7)	469 (5.5)
Sweden	r	29 (2.2)	523 (4.2)	41 (1.7)	540 (4.7)	21 (1.3)	542 (4.9)	9 (1.1)	515 (8.8)
Uzbekistan		66 (1.3)	389 (4.0)	20 (0.8)	414 (4.6)	9 (0.6)	423 (7.4)	6 (0.6)	399 (6.2)
International Average		31 (0.3)	445 (1.2)	34 (0.3)	469 (1.0)	23 (0.3)	473 (1.3)	12 (0.2)	447 (1.9)

Exhibit 5.3.13e: Frequency Students Conduct Experiments in Earth Science Lessons

Earth Science		At Least Once a Week		Once or Twice a Month		A Few Times a Year		Never	
Country		Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Austria		9 (0.6)	455 (5.9)	10 (0.7)	482 (4.9)	15 (0.8)	521 (3.8)	66 (1.3)	525 (2.4)
Azerbaijan		54 (1.2)	396 (3.3)	21 (0.8)	424 (3.5)	11 (0.5)	440 (6.1)	14 (0.9)	442 (5.1)
Cote d'Ivoire		40 (1.4)	178 (5.3)	19 (0.7)	181 (8.1)	17 (0.9)	198 (16.4)	24 (1.5)	199 (13.8)
Cyprus	r	10 (0.5)	420 (5.4)	9 (0.6)	441 (8.7)	18 (0.7)	475 (6.7)	63 (1.0)	473 (3.0)
Czech Republic		4 (0.3)	486 (5.8)	7 (0.5)	499 (5.5)	17 (0.7)	536 (2.8)	72 (1.1)	534 (2.1)
Finland		5 (0.4)	471 (8.1)	32 (0.9)	525 (3.7)	40 (1.0)	550 (3.1)	22 (0.8)	558 (4.1)
France		16 (1.1)	460 (5.6)	35 (1.6)	496 (3.3)	36 (1.5)	504 (3.5)	13 (1.4)	471 (6.5)
Georgia		17 (0.9)	420 (6.7)	21 (0.9)	448 (4.3)	20 (0.8)	470 (4.3)	42 (1.4)	459 (2.2)
Hungary		10 (0.7)	471 (10.2)	13 (0.6)	508 (5.1)	20 (0.9)	536 (4.3)	57 (1.2)	530 (2.9)
Kazakhstan		33 (1.1)	418 (3.7)	30 (0.9)	453 (3.3)	16 (0.6)	472 (4.3)	21 (1.0)	470 (5.5)
Lithuania		6 (0.4)	457 (7.5)	15 (0.8)	496 (5.6)	27 (0.9)	527 (3.9)	51 (1.2)	533 (3.3)
Morocco		39 (1.0)	319 (3.9)	23 (0.6)	325 (4.7)	20 (0.7)	346 (4.7)	18 (0.9)	332 (5.3)
Portugal		15 (1.0)	476 (4.9)	41 (1.4)	508 (3.0)	35 (1.3)	520 (3.2)	9 (1.1)	507 (8.5)
Uzbekistan		61 (1.2)	385 (4.2)	20 (0.8)	409 (4.7)	10 (0.6)	425 (5.6)	10 (0.7)	413 (5.7)
International Average		23 (0.2)	415 (1.6)	21 (0.2)	443 (1.4)	22 (0.2)	466 (1.6)	34 (0.3)	460 (1.6)
Malta	x	13 (0.9)	426 (6.5)	18 (0.9)	454 (6.2)	20 (0.9)	509 (5.9)	49 (1.0)	536 (3.4)
Romania	y	--	--	--	--	--	--	--	--
Sweden		--	--	--	--	--	--	--	--

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.
 An "r" indicates data are available for at least 70% but less than 85% of the students.
 An "x" indicates data are available for at least 40% but less than 50% of the students—interpret with caution.
 A "y" indicates data are available for less than 40% of the students.
 A dash (-) indicates comparable data not available. A tilde (~) indicates insufficient data to report result.