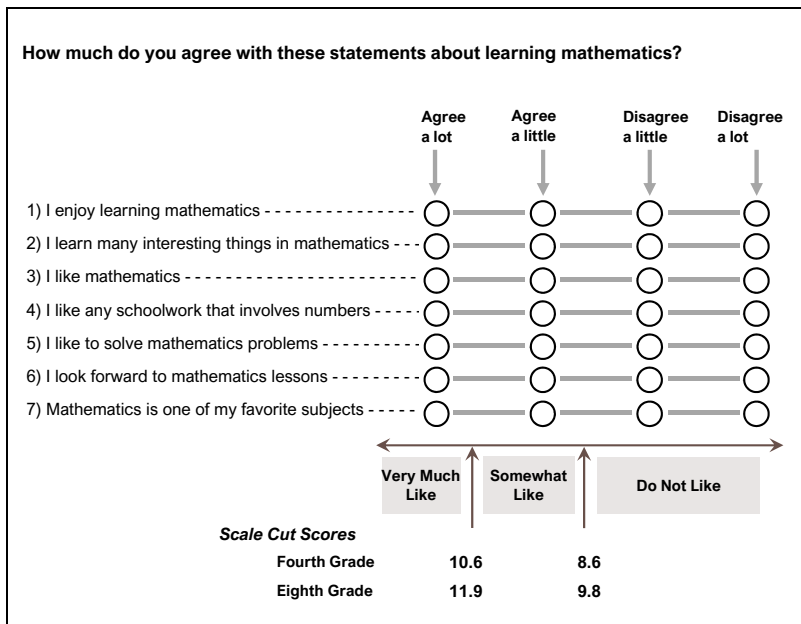


Exhibit 6.2.1: Students Like Learning Mathematics

About the Scale

Students were scored according to their responses to seven statements on the *Students Like Learning Mathematics* scale. Cut scores divide the scale into three categories. Students who **Very Much Like Learning Mathematics** had a score at or above the cut score corresponding to “agreeing a lot” with four of the seven statements and “agreeing a little” with the other three, on average. Students who **Do Not Like Learning Mathematics** had a score at or below the cut score corresponding to “disagreeing a little” with four of the seven statements and “agreeing a little” with the other three, on average. All other students **Somewhat Like Learning Mathematics**.



SOURCE: IEA's Trends in International Mathematics and Science Study - TIMSS 2023
 Downloaded from <https://timss2023.org/results>

Exhibit 6.2.2: Students Like Learning Mathematics

Country	Very Much Like Learning Mathematics		Somewhat Like Learning Mathematics		Do Not Like Learning Mathematics		Average Scale Score
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Albania	77 (1.4)	519 (5.1)	17 (1.2)	507 (6.9)	6 (0.6)	483 (9.1)	11.4 (0.05)
Armenia	73 (1.1)	525 (2.6)	20 (0.9)	502 (4.6)	7 (0.5)	491 (6.8)	11.3 (0.04)
Australia	35 (1.0)	548 (3.8)	33 (0.9)	531 (3.5)	32 (1.2)	507 (3.2)	9.7 (0.05)
Azerbaijan	69 (1.0)	517 (3.3)	22 (0.9)	476 (4.6)	9 (0.5)	460 (6.0)	11.2 (0.04)
Bahrain	60 (1.3)	475 (4.5)	26 (0.9)	457 (4.9)	14 (0.9)	442 (7.0)	10.8 (0.06)
Belgium (Flemish)	31 (1.1)	537 (2.7)	37 (1.0)	526 (2.8)	31 (1.0)	507 (3.2)	9.6 (0.04)
Belgium (French)	42 (0.8)	502 (2.7)	36 (0.6)	487 (3.1)	22 (0.7)	475 (3.4)	10.1 (0.03)
Bosnia & Herzegovina	41 (1.2)	457 (4.8)	32 (1.4)	455 (3.9)	27 (1.3)	448 (4.8)	9.9 (0.05)
Brazil	51 (0.9)	419 (3.8)	30 (0.8)	409 (4.6)	19 (0.9)	399 (5.6)	10.3 (0.04)
Bulgaria	50 (1.6)	534 (4.4)	32 (1.1)	530 (4.4)	18 (1.0)	524 (6.8)	10.4 (0.06)
Canada	39 (0.7)	524 (2.4)	36 (0.6)	505 (2.4)	25 (0.6)	484 (2.7)	9.9 (0.03)
Chile	44 (1.1)	451 (3.3)	34 (0.8)	447 (3.4)	22 (0.9)	436 (3.7)	10.1 (0.04)
Chinese Taipei	22 (0.8)	621 (2.4)	32 (0.7)	616 (2.7)	46 (1.0)	596 (2.1)	8.9 (0.05)
Cyprus	47 (1.3)	532 (2.8)	32 (0.9)	512 (3.1)	20 (1.0)	493 (3.9)	10.2 (0.05)
Czech Republic	27 (0.8)	547 (3.0)	35 (0.8)	537 (2.9)	37 (1.2)	515 (2.4)	9.3 (0.04)
Denmark	23 (1.1)	540 (3.9)	38 (0.9)	527 (2.6)	39 (1.3)	513 (2.6)	9.1 (0.05)
England	36 (1.1)	578 (3.9)	31 (0.8)	557 (4.0)	34 (1.1)	528 (3.7)	9.6 (0.05)
Finland	26 (0.8)	545 (3.5)	37 (0.9)	535 (3.0)	37 (1.0)	518 (2.7)	9.3 (0.04)
France	46 (1.0)	501 (3.0)	36 (0.9)	477 (3.6)	19 (0.9)	465 (4.3)	10.2 (0.04)
Georgia	68 (1.2)	509 (3.0)	26 (1.0)	491 (4.0)	6 (0.4)	480 (7.9)	11.2 (0.04)
Germany	31 (0.9)	542 (3.3)	33 (0.8)	526 (2.8)	35 (1.0)	511 (2.7)	9.5 (0.04)
Hong Kong SAR	37 (1.3)	611 (4.3)	35 (1.0)	593 (4.7)	28 (1.0)	576 (4.6)	9.8 (0.06)
Hungary	37 (1.2)	535 (4.6)	33 (0.8)	522 (4.1)	30 (1.2)	510 (4.1)	9.7 (0.06)
Iran, Islamic Rep. of	70 (1.1)	431 (4.0)	21 (0.8)	404 (5.9)	9 (0.9)	398 (12.5)	11.1 (0.05)
Ireland	28 (1.2)	558 (4.3)	35 (1.0)	550 (3.4)	37 (1.4)	534 (4.0)	9.4 (0.06)
Italy	39 (1.2)	527 (3.4)	35 (0.9)	510 (3.7)	26 (1.3)	502 (4.0)	9.9 (0.06)
Japan	22 (0.8)	620 (3.2)	36 (0.8)	596 (2.6)	42 (1.1)	574 (2.7)	9.1 (0.04)
Jordan	62 (1.7)	443 (5.7)	24 (1.0)	412 (6.7)	14 (1.1)	403 (9.0)	10.9 (0.07)
Kazakhstan	53 (1.0)	498 (3.5)	37 (0.9)	486 (4.4)	10 (0.6)	472 (5.8)	10.6 (0.03)
Korea, Rep. of	22 (0.9)	624 (3.8)	30 (0.8)	604 (3.5)	48 (1.1)	576 (2.7)	8.9 (0.04)
Kosovo	74 (1.0)	462 (3.5)	20 (0.8)	437 (4.2)	5 (0.5)	417 (8.3)	11.3 (0.03)
Kuwait	56 (1.4)	397 (4.3)	28 (1.0)	385 (6.3)	16 (0.9)	374 (7.7)	10.6 (0.05)
Latvia	23 (0.8)	546 (3.9)	39 (0.9)	537 (3.5)	38 (1.2)	528 (3.4)	9.2 (0.05)
Lithuania	30 (1.0)	579 (3.8)	41 (1.0)	560 (3.5)	29 (1.1)	549 (4.0)	9.6 (0.04)
Macao SAR	36 (0.5)	608 (1.9)	35 (0.6)	577 (1.8)	30 (0.6)	556 (2.0)	9.7 (0.02)
Montenegro	53 (0.9)	490 (2.5)	30 (0.8)	470 (3.5)	17 (0.7)	471 (3.4)	10.5 (0.04)
Morocco	71 (1.3)	407 (4.7)	23 (1.1)	369 (6.9)	6 (0.5)	353 (7.3)	11.2 (0.05)
Netherlands	31 (1.1)	552 (2.7)	37 (0.8)	538 (2.9)	32 (1.2)	524 (2.5)	9.5 (0.05)
New Zealand	36 (1.0)	506 (3.9)	34 (0.9)	494 (3.7)	31 (1.0)	479 (3.2)	9.7 (0.05)
North Macedonia	67 (1.2)	488 (3.8)	24 (1.0)	469 (4.3)	9 (0.6)	467 (7.3)	11.1 (0.04)
Norway (5)	24 (0.9)	547 (3.2)	34 (0.8)	535 (2.6)	42 (1.0)	522 (2.4)	9.1 (0.04)
Oman	61 (0.9)	439 (4.6)	28 (0.8)	409 (4.8)	11 (0.5)	389 (5.3)	10.9 (0.03)
Poland	21 (0.9)	561 (3.9)	39 (0.8)	554 (2.6)	39 (1.1)	533 (2.3)	9.1 (0.05)
Portugal	46 (0.9)	534 (3.2)	35 (0.7)	510 (3.3)	20 (0.7)	496 (3.9)	10.2 (0.03)
Qatar	52 (1.1)	474 (3.7)	30 (0.8)	463 (4.4)	18 (0.8)	453 (5.1)	10.4 (0.04)
Romania	49 (1.7)	558 (4.4)	33 (1.2)	542 (5.9)	18 (1.1)	537 (7.3)	10.4 (0.07)
Saudi Arabia	62 (1.0)	438 (4.4)	25 (0.8)	417 (5.7)	13 (0.6)	399 (5.3)	10.9 (0.04)
Serbia	35 (1.3)	536 (4.8)	36 (1.3)	523 (3.0)	29 (1.1)	515 (3.8)	9.7 (0.05)
Singapore	33 (0.8)	641 (3.1)	35 (0.6)	616 (3.2)	31 (0.8)	587 (3.4)	9.6 (0.04)
Slovak Republic	35 (1.2)	522 (4.6)	36 (0.8)	517 (3.9)	29 (1.1)	510 (3.5)	9.7 (0.06)
Slovenia	31 (0.9)	529 (3.0)	38 (0.8)	517 (2.3)	31 (1.0)	502 (2.7)	9.5 (0.04)
South Africa (5)	53 (1.2)	380 (4.1)	35 (0.8)	341 (4.4)	12 (0.6)	345 (8.0)	10.6 (0.04)
Spain	38 (0.9)	512 (2.8)	37 (0.7)	497 (2.7)	25 (0.8)	485 (2.7)	9.9 (0.04)
Sweden	24 (1.0)	539 (4.5)	37 (1.0)	537 (3.4)	39 (1.2)	522 (2.9)	9.2 (0.05)
Türkiye (5)	51 (1.2)	566 (4.6)	32 (0.7)	540 (4.3)	17 (0.9)	544 (6.0)	10.4 (0.05)
United Arab Emirates	53 (0.5)	518 (1.5)	31 (0.3)	490 (1.9)	16 (0.3)	476 (2.0)	10.5 (0.02)
United States	39 (0.8)	540 (3.5)	33 (0.6)	519 (3.5)	28 (0.8)	497 (3.9)	9.8 (0.04)
Uzbekistan	80 (1.1)	456 (3.2)	15 (0.8)	414 (4.7)	5 (0.4)	400 (7.4)	11.6 (0.04)
International Average	44 (0.1)	519 (0.5)	32 (0.1)	501 (0.5)	24 (0.1)	487 (0.7)	
Benchmarking Participants							
Ontario, Canada	37 (1.0)	527 (4.0)	36 (0.9)	503 (4.2)	28 (1.0)	485 (4.4)	9.8 (0.04)
Quebec, Canada	44 (1.2)	528 (3.2)	37 (0.9)	515 (3.4)	19 (0.9)	494 (4.3)	10.2 (0.05)
Abu Dhabi, UAE	48 (0.9)	484 (2.5)	33 (0.6)	446 (2.8)	19 (0.6)	445 (3.6)	10.3 (0.04)
Dubai, UAE	51 (0.8)	573 (1.7)	32 (0.6)	551 (2.6)	17 (0.6)	530 (3.1)	10.4 (0.03)
Sharjah, UAE	58 (1.1)	520 (3.5)	28 (0.7)	497 (4.3)	13 (0.7)	474 (4.5)	10.8 (0.04)

This TIMSS context questionnaire scale was established in 2023 based on the combined response distribution of countries that participated in TIMSS 2023. 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.

() 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.

Exhibit 6.2.3: Students Like Learning Mathematics

Country	Very Much Like Learning Mathematics		Somewhat Like Learning Mathematics		Do Not Like Learning Mathematics		Average Scale Score
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Australia	10 (0.6)	575 (5.7)	31 (0.9)	535 (4.2)	58 (1.0)	489 (3.8)	9.5 (0.05)
Austria	10 (0.6)	537 (4.7)	28 (0.9)	527 (3.7)	61 (0.9)	503 (2.4)	9.4 (0.04)
Azerbaijan	42 (1.2)	509 (4.7)	32 (0.8)	478 (4.8)	27 (1.0)	461 (4.4)	11.1 (0.05)
Bahrain	27 (0.9)	453 (4.2)	32 (0.9)	439 (3.4)	41 (1.1)	411 (3.1)	10.4 (0.05)
Brazil	18 (0.6)	393 (4.2)	33 (0.7)	391 (3.5)	49 (1.1)	377 (3.2)	10.0 (0.04)
Chile	17 (1.0)	449 (4.5)	35 (1.1)	423 (4.1)	48 (1.3)	405 (3.1)	10.1 (0.05)
Chinese Taipei	12 (0.6)	656 (5.0)	27 (0.8)	633 (3.6)	61 (1.0)	580 (3.4)	9.5 (0.04)
Cote d'Ivoire	50 (1.5)	265 (3.3)	39 (1.0)	260 (5.7)	11 (0.8)	267 (13.8)	11.7 (0.05)
Cyprus	16 (0.7)	539 (4.9)	29 (0.7)	516 (3.6)	55 (0.9)	477 (2.9)	9.6 (0.04)
Czech Republic	8 (0.5)	552 (5.5)	26 (0.7)	547 (3.0)	67 (1.0)	505 (2.3)	9.2 (0.04)
England	11 (0.9)	574 (8.0)	30 (0.9)	549 (5.4)	59 (1.5)	508 (4.7)	9.5 (0.06)
Finland	7 (0.4)	554 (7.1)	25 (0.7)	537 (3.9)	69 (0.9)	493 (2.2)	9.1 (0.04)
France	10 (0.6)	521 (5.0)	34 (1.0)	503 (4.2)	57 (1.2)	463 (3.3)	9.6 (0.05)
Georgia	25 (1.3)	501 (4.8)	38 (0.9)	475 (3.8)	37 (1.2)	446 (3.4)	10.5 (0.06)
Hong Kong SAR	18 (1.0)	614 (6.1)	38 (1.0)	586 (5.3)	44 (1.2)	554 (5.4)	10.1 (0.06)
Hungary	11 (0.5)	549 (7.2)	27 (0.9)	528 (4.8)	62 (1.2)	491 (3.5)	9.5 (0.04)
Iran, Islamic Rep. of	33 (1.0)	441 (5.3)	35 (0.6)	425 (4.0)	31 (1.0)	405 (3.3)	10.8 (0.05)
Ireland	11 (0.9)	566 (8.5)	30 (0.8)	544 (3.6)	59 (1.4)	505 (2.6)	9.5 (0.06)
Israel	16 (0.8)	504 (7.6)	31 (0.8)	501 (5.1)	53 (1.1)	480 (3.3)	9.7 (0.05)
Italy	11 (0.6)	559 (4.5)	28 (0.9)	527 (4.7)	61 (1.2)	479 (2.8)	9.4 (0.04)
Japan	10 (0.7)	656 (5.0)	31 (1.2)	619 (4.0)	59 (1.3)	571 (2.8)	9.7 (0.05)
Jordan	37 (1.1)	404 (4.3)	33 (0.7)	389 (3.6)	30 (1.0)	384 (3.5)	10.9 (0.06)
Kazakhstan	19 (0.8)	487 (5.7)	44 (0.8)	463 (3.9)	37 (1.0)	432 (3.6)	10.4 (0.04)
Korea, Rep. of	12 (0.6)	658 (5.4)	28 (0.7)	627 (4.2)	60 (0.8)	569 (3.1)	9.5 (0.04)
Kuwait	22 (0.8)	425 (8.2)	29 (0.9)	411 (7.1)	49 (1.1)	385 (4.1)	10.0 (0.05)
Lithuania	10 (0.5)	555 (5.7)	31 (0.9)	534 (4.2)	58 (1.1)	498 (3.1)	9.6 (0.04)
Malaysia	19 (0.6)	441 (5.2)	49 (0.7)	410 (3.4)	32 (0.8)	395 (3.5)	10.6 (0.03)
Malta	15 (0.6)	534 (4.0)	31 (0.7)	518 (2.7)	54 (0.7)	486 (1.7)	9.7 (0.03)
Morocco	42 (1.0)	390 (3.2)	35 (0.6)	375 (3.6)	23 (0.8)	366 (4.1)	11.2 (0.04)
Norway (9)	9 (0.4)	549 (5.4)	25 (0.7)	531 (2.6)	66 (0.9)	489 (2.4)	9.2 (0.04)
Oman	32 (1.0)	436 (3.1)	36 (0.7)	411 (3.3)	32 (1.0)	401 (3.6)	10.7 (0.05)
Palestinian Nat'l Auth.	37 (0.9)	406 (3.4)	30 (0.7)	381 (4.0)	33 (1.0)	376 (3.3)	10.8 (0.05)
Portugal	13 (0.6)	524 (4.0)	29 (0.9)	500 (2.9)	58 (1.1)	454 (3.1)	9.6 (0.04)
Qatar	25 (1.3)	479 (7.9)	31 (1.0)	472 (5.2)	43 (1.5)	429 (4.1)	10.2 (0.08)
Romania	20 (1.0)	523 (6.2)	33 (0.9)	506 (5.8)	47 (1.4)	490 (5.2)	10.1 (0.06)
Saudi Arabia	34 (1.0)	415 (4.1)	33 (0.7)	404 (3.7)	34 (1.1)	391 (3.5)	10.8 (0.05)
Singapore	24 (1.0)	650 (5.6)	37 (0.8)	619 (6.0)	39 (1.2)	566 (6.4)	10.4 (0.05)
South Africa (9)	38 (0.8)	402 (3.8)	41 (0.6)	388 (3.6)	21 (0.7)	400 (4.0)	11.2 (0.03)
Sweden	9 (0.5)	559 (6.9)	26 (1.1)	551 (3.8)	65 (1.3)	506 (2.1)	9.3 (0.05)
Türkiye	23 (0.9)	562 (6.5)	34 (1.0)	518 (5.5)	43 (1.2)	475 (4.2)	10.2 (0.05)
United Arab Emirates	30 (0.6)	511 (2.6)	34 (0.4)	501 (1.9)	36 (0.5)	472 (1.9)	10.6 (0.03)
United States	15 (0.7)	527 (6.3)	34 (0.9)	502 (4.5)	51 (1.2)	475 (3.9)	9.8 (0.04)
Uzbekistan	56 (1.2)	436 (5.0)	32 (0.9)	411 (4.7)	12 (0.8)	401 (5.1)	11.9 (0.04)
International Average	21 (0.1)	508 (0.8)	32 (0.1)	488 (0.7)	46 (0.2)	458 (0.6)	
Benchmarking Participants							
Abu Dhabi, UAE	27 (0.6)	477 (3.5)	34 (0.6)	465 (3.0)	39 (0.8)	449 (2.9)	10.4 (0.04)
Dubai, UAE	28 (1.1)	583 (4.1)	36 (0.7)	555 (2.9)	36 (0.9)	516 (3.1)	10.6 (0.04)
Sharjah, UAE	34 (1.7)	511 (6.4)	34 (1.3)	506 (6.1)	32 (1.5)	474 (4.2)	10.8 (0.08)

This TIMSS context questionnaire scale was established in 2023 based on the combined response distribution of countries that participated in TIMSS 2023. 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.

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