

Exhibit D.1: Percentiles of Achievement in Knowing Cognitive Domain

MATHEMATICS
Grade 4

Countries					
Armenia	296 (7.6)	387 (5.9)	447 (5.4)	507 (5.0)	597 (4.6)
Australia	363 (8.0)	449 (5.7)	505 (4.6)	554 (3.3)	631 (5.7)
Belgium (Flemish)	450 (3.4)	512 (2.3)	558 (2.3)	604 (3.7)	665 (2.9)
Chinese Taipei	443 (4.5)	518 (2.6)	566 (2.2)	614 (3.1)	681 (4.1)
Cyprus	351 (3.9)	443 (4.6)	503 (4.3)	560 (2.4)	641 (5.6)
England	378 (7.7)	472 (4.4)	536 (5.1)	599 (5.0)	687 (4.5)
Hong Kong, SAR	458 (4.5)	528 (3.6)	576 (3.6)	620 (4.0)	683 (3.7)
Hungary	382 (4.2)	464 (3.2)	520 (3.5)	572 (4.8)	644 (5.7)
Iran, Islamic Rep. of	275 (8.3)	351 (3.2)	403 (3.3)	457 (5.0)	533 (3.1)
Italy	365 (5.4)	456 (3.0)	514 (3.8)	573 (4.2)	660 (6.5)
Japan	424 (4.2)	512 (3.7)	566 (3.0)	620 (2.7)	696 (4.5)
Latvia	403 (6.6)	473 (4.0)	519 (2.8)	562 (2.9)	623 (5.2)
Lithuania	392 (5.0)	469 (3.6)	522 (2.9)	571 (3.1)	642 (4.7)
Moldova, Rep. of	337 (11.3)	437 (5.0)	504 (5.5)	566 (6.0)	654 (9.3)
Morocco	217 (5.2)	299 (6.2)	360 (4.6)	420 (5.0)	500 (7.4)
Netherlands	440 (3.5)	494 (2.9)	531 (2.4)	566 (1.9)	617 (3.1)
New Zealand	349 (5.1)	437 (3.5)	494 (3.0)	551 (2.7)	629 (4.3)
Norway	315 (4.6)	398 (2.8)	451 (2.6)	501 (3.2)	568 (4.2)
Philippines	231 (6.6)	315 (4.5)	378 (3.9)	449 (8.9)	559 (14.3)
Russian Federation	381 (5.9)	455 (5.8)	511 (6.7)	5	617

SOURCE: IEA's Trends in International Mathematics and Science Study (TIMSS) 2003

Exhibit D.2 Percentiles of Achievement in Applying Cognitive Domain

Countries					
Armenia	326 (5.5)	407 (5.0)	461 (2.9)	516 (4.7)	598 (6.9)
Australia	350 (6.9)	434 (4.9)	491 (5.3)	545 (6.4)	626 (6.7)
Belgium (Flemish)	447 (4.6)	505 (1.7)			
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SOURCE: IEA's Trends in International Mathematics and Science Study (TIMSS) 2003

Exhibit D.3: Percentiles of Achievement in Reasoning Cognitive Domain

Countries	95th Percentile				
Armenia	293 (5.9)	402 (4.7)	472 (5.2)	541 (3.1)	622 (2.6)
Australia	375 (5.5)	461 (5.0)	520 (5.6)	572 (5.5)	642 (6.3)
Bahrain	297 (2.8)	374 (3.5)	426 (2.7)	477 (2.9)	545 (5.9)
Belgium (Flemish)	395 (5.5)	487 (3.7)	539 (2.3)	586 (3.3)	648 (3.3)
Botswana	204 (3.6)	292 (4.0)	353 (4.0)	415 (4.4)	502 (3.9)
Bulgaria	325 (6.8)	412 (4.4)	472 (5.2)	533 (4.7)	610 (5.4)
Chile	261 (5.5)	346 (5.0)	408 (4.0)	472 (4.3)	561 (4.2)
Chinese Taipei	414 (6.7)	514 (5.0)	581 (4.0)	642 (3.2)	721 (4.2)
Cyprus	308 (3.2)	399 (3.7)	458 (2.6)	516 (2.5)	593 (6.3)
Egypt	247 (6.8)	335 (3.4)	401 (3.4)	464 (5.2)	554 (5.6)
England	373 (5.9)	451 (6.6)	509 (6.5)	567 (6.5)	643 (7.4)
Estonia	399 (7.9)	472 (3.6)	524 (2.8)	574 (3.6)	643 (4.8)
Ghana	149 (4.7)	248 (4.0)	314 (5.5)	380 (5.9)	471 (5.4)
Hong Kong, SAR	436 (9.1)	522 (4.0)	574 (4.2)	621 (2.6)	684 (3.5)
Hungary	402 (6.0)	477 (3.6)	530 (3.0)	582 (4.7)	655 (6.9)
Indonesia	253 (7.5)	344 (5.5)	406 (6.1)	468 (4.7)	556 (7.6)
Iran, Islamic Rep. of	295 (5.0)	365 (3.2)	417 (2.9)	468 (2.7)	540 (2.4)
Israel	328 (4.1)	419 (4.1)	485 (5.4)	547 (3.8)	632 (5.4)
Italy	360 (8.1)	438 (4.1)	491 (3.2)	542 (3.3)	610 (5.4)
Japan	446 (7.1)	528 (3.1)	577 (1.5)	625 (3.3)	698 (5.1)
Jordan	295 (6.1)	377 (5.4)	435 (4.1)	490 (4.5)	566 (6.6)
Korea, Rep. of	441 (3.6)	530 (2.3)	585 (1.6)	638 (2.3)	712 (3.7)
Latvia	367 (6.4)	447 (4.2)	501 (3.4)	553 (3.7)	629 (5.7)
Lebanon	278 (6.9)	355 (3.1)	410 (3.4)	464 (3.7)	540 (4.4)
Lithuania	354 (5.1)	435 (4.3)	490 (2.6)	545 (2.7)	618 (3.2)
Macedonia, Rep. of	278 (8.3)	376 (4.5)	442 (4.9)	504 (5.6)	584 (4.6)
Malaysia	386 (2.9)	453 (2.8)	504 (4.9)	554 (4.1)	618 (3.9)
Moldova, Rep. of	309 (8.7)	395 (6.2)	456 (3.6)	513 (3.6)	590 (3.3)
Morocco	259 (7.4)	338 (4.2)	392 (3.2)	446 (4.5)	520 (8.2)
Netherlands	416 (6.2)	490 (4.8)	543 (4.0)	594 (5.3)	660 (8.3)
New Zealand	374 (5.2)	455 (5.5)	513 (6.8)	565 (8.1)	639 (7.0)
Norway	343 (6.0)	427 (3.6)	483 (3.0)	534 (2.7)	604 (3.3)
Palestinian Nat'l Auth.	259 (6.1)	346 (3.3)	405 (3.9)	465 (2.7)	545 (5.6)
Philippines	177 (6.1)	282 (5.4)	355 (7.4)	433 (6.2)	542 (8.0)
Romania	297 (8.7)	395 (4.6)	461 (5.1)	523 (5.5)	611 (4.8)
Russian Federation	365 (8.9)	443 (4.7)	497 (3.8)	551 (4.4)	623 (3.4)
Saudi Arabia	205 (7.9)	289 (6.1)	349 (3.9)	407 (3.7)	489 (6.5)
Scotland	375 (7.9)	459 (4.0)	518 (3.9)	570 (4.1)	638 (8.5)
Serbia	323 (6.0)	411 (3.4)	471 (3.5)	527 (2.7)	604 (5.5)
Singapore	424 (5.6)	528 (4.8)	591 (3.2)	645 (2.9)	717 (3.7)
Slovak Republic	360 (5.5)	450 (7.2)	506 (4.9)	560 (3.9)	636 (4.4)
Slovenia	372 (4.7)	445 (2.8)	495 (3.3)	543 (1.9)	610 (3.8)
South Africa	111 (8.0)	207 (3.6)	277 (3.4)	354 (7.1)	505 (13.7)
Sweden	364 (9.3)	453 (4.0)	510 (2.9)	567 (3.3)	642 (5.9)
Tunisia	282 (4.9)	351 (3.0)	400 (3.3)	447 (2.4)	516 (7.7)
United States	366 (5.0)	448 (4.1)	507 (4.8)	564 (2.9)	638 (4.5)
Benchmarking Participants					
Basque Country, Spain	371 (7.9)	446 (3.1)	496 (2.3)	545 (1.9)	610 (2.1)
Indiana State, US	376 (10.4)	451 (5.0)	502 (4.7)	555 (5.9)	627 (8.7)
Ontario Province, Can.	403 (9.6)	479 (3.6)	531 (3.8)	577 (3.5)	641 (4.8)
Quebec Province, Can.	429 (6.3)	494 (3.5)	540 (2.8)	583 (2.9)	646 (11.0)

SOURCE: IEA's Trends in International Mathematics and Science Study (TIMSS) 2003

Exhibit D.3: Percentiles of Achievement in Reasoning Cognitive Domain

MATHEMATICS
Grade 4

Countries	Score	SD	Score	SD	Score	SD	Score	SD
Armenia	305	(4.4)	387	(3.9)	445	(2.8)	503	(3.9)
Australia	373	(5.5)	455	(5.4)	510	(4.9)	561	(3.4)
Belgium (Flemish)	421	(4.3)	494	(3.3)	542	(3.0)	591	(3.5)
Chinese Taipei	422	(7.8)	513	(3.4)	558	(2.9)	618	(2.0)
Cyprus	359	(4.5)	460	(3.2)	519	(2.6)	574	(3.3)
England	390	(8.1)	479	(4.9)	528	(3.3)	588	(4.0)
Hong Kong, SAR	427	(6.4)	514	(4.4)	558	(4.4)	618	(3.0)
Hungary	379	(5.6)	467	(4.7)	528	(2.9)	584	(4.0)
	84	(5.5)	5		542513	(4.0)	E B B)(3 EC A	

SOURCE: IEA's Trends in International Mathematics and Science Study (TIMSS) 2003

Exhibit D.4: Standard Deviations of Achievement in Knowing Cognitive Domain

Countries	Overall		Girls		Boys	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Armenia	447 (3.7)	91 (2.2)	455 (3.7)	88 (2.1)	439 (4.3)	93 (2.7)
Australia	501 (3.8)	81 (2.2)	501 (4.1)	79 (2.3)	502 (4.6)	83 (3.0)
Belgium (Flemish)	558 (2.1)	66 (1.1)	556 (2.6)	65 (1.3)	560 (2.9)	68 (1.5)
Chinese Taipei	565 (2.2)	72 (1.4)	564 (2.4)	68 (1.8)	566 (2.6)	76 (1.6)
Cyprus	500 (2.8)	88 (1.3)	496 (3.1)	86 (1.8)	504 (3.6)	89 (1.5)
England	534 (4.5)	93 (2.1)	534 (4.4)	90 (2.4)	534 (5.3)	96 (2.5)
Hong Kong, SAR	574 (3.3)	69 (1.3)	574 (3.9)	65 (1.3)	573 (3.6)	72 (2.0)
Hungary	517 (3.3)	80 (2.0)	516 (4.1)	78 (2.6)	518 (3.6)	81 (2.1)
Iran, Islamic Rep. of	404 (4.0)	78 (2.0)	411 (6.6)	78 (3.3)	399 (4.5)	78 (1.9)
Italy	514 (3.9)	89 (2.1)	510 (4.3)	88 (2.8)	518 (4.1)	90 (2.0)
Japan	564 (2.1)	82 (1.1)	565 (2.6)	78 (1.4)	564 (3.0)	86 (1.4)
Latvia	517 (2.9)	67 (1.5)	518 (3.1)	64 (1.5)	515 (3.5)	70 (2.3)
Lithuania	519 (2.7)	75 (1.3)	522 (3.3)	74 (1.9)	520 (3.6)	77 (1.4)
Moldova, Rep. of	500 (5.2)	97 (3.2)	507 (5.9)	96 (3.9)	495 (5.3)	97 (3.2)
Morocco	360 (4.4)	87 (1.5)	356 (5.6)	88 (1.9)	363 (4.3)	86 (2.2)
Netherlands	530 (2.2)	54 (1.4)	527 (3.0)	54 (1.7)	533 (2.6)	54 (1.8)
New Zealand	493 (2.2)	84 (2.2)	494 (2.9)	83 (2.6)	492 (2.5)	85 (2.4)
Norway	448 (2.1)	77 (1.2)	447 (2.5)	75 (1.6)	449 (3.1)	80 (1.6)
Philippines	385 (6.9)	99 (5.3)	389 (8.0)	100 (6.1)	380 (6.3)	98 (4.6)
Russian Federation	513 (5.3)	83 (2.1)	513 (5.8)	83 (2.5)	514 (5.8)	84 (2.4)
Scotland	484 (3.0)	76 (1.8)	478 (3.1)	72 (2.2)	489 (4.2)	79 (1.9)
Singapore	626 (6.5)	104 (3.2)	632 (6.4)	98 (2.9)	620 (7.2)	108 (3.7)
Slovenia	470 (2.6)	70 (1.4)	469 (3.1)	67 (1.7)	471 (3.3)	72 (1.8)
Tunisia	338 (4.2)	91 (2.2)	337 (4.8)	90 (2.4)	338 (4.6)	91 (2.5)
United States	528 (2.5)	79 (1.3)	525 (2.4)	77 (1.4)	532 (3.0)	81 (1.6)
Benchmarking Participants						
Indiana State, US	544 (3.7)	72 (1.9)	541 (4.4)	69 (2.2)	546 (4.3)	75 (2.3)
Ontario Province, Can.	514 (4.4)	73 (2.8)	508 (4.4)	70 (2.7)	519 (5.7)	76 (3.6)
Quebec Province, Can.	504 (2.8)	67 (1.5)	501 (3.2)	67 (1.9)	508 (2.9)	68 (1.6)

SOURCE: IEA's Trends in International Mathematics and Science Study (TIMSS) 2003

() Standard errors appear in parentheses.

Exhibit D.5: Standard Deviations of Achievement in Applying Cognitive Domain

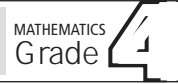


Armenia	462 (3.2)	82 (1.9)	465 (3.2)	80 (2.0)	459 (3.7)	84 (2.2)
Australia	490 (3.8)	83 (2.0)	487 (4.3)	81 (2.2)	492 (4.4)	86 (2.5)
Belgium (Flemish)	546 (2.1)	60 (1.1)	544 (2.5)	59 (1.3)	548 (2.7)	62 (1.4)
Chinese Taipei	561 (1.9)	60 (465	4	59 (2.

SOURCE: IEA's Trends in International Mathematics and Science Study (TIMSS) 2003



Exhibit D.6 Standard Deviations of Achievement in Reasoning Cognitive Domain



	40th	50th	60th	70th	80th	90th
Armenia	445 (3.1)	86 (2.0)	449 (3.4)	84 (2.3)	442 (3.4)	87 (2.4)
Australia	507 (3.6)	79 (1.8)	507 (3.9)	77 (2.1)	507 (4.2)	80 (2.3)
Belgium (Flemish)	541 (2.2)	72 (1.5)	541 (2.6)	71 (2.0)	541 (2.8)	74 (1.7)
Chinese Taipei	563 (2.2)	81 (1.3)	565 (2.6)	76 (1.6)	562 (2.7)	85 (1.7)
Cyprus	516 (2.4)	86 (1.4)	515 (2.7)	83 (1.6)	517 (3.0)	88 (1.8)
England	537 (3.5)	87 (1.5)	539 (4.0)	85 (2.0)	536 (4.2)	90 (2.1)
Hong Kong, SAR	564 (3.7)	79 (1.4)	565 (4.0)	75 (1.7)	563 (3.8)	82 (2.0)
Hungary	524 (3.2)	86 (2.0)	525 (4.0)	85 (2.4)	524 (3.8)	87 (2.3)
Iran, Islamic Rep. of	400 (3.4)	80 (1.9)	406 (6.0)	79 (2.9)	396 (4.3)	81 (2.2)

SOURCE: IEA's Trends in International Mathematics and Science Study (TIMSS) 2003