



4

RELEASED MATHEMATICS ITEMS

This book contains the released Trends in International Mathematics and Science Study (TIMSS) 2011 grade 4 mathematics assessment items. This is not a complete set of all TIMSS 2011 assessment items because some items are kept confidential so that they may be used in subsequent cycles of TIMSS to measure trends.

How Can This Set of Released Items Be Used?

In Teacher-designed Assessments. The items in this book present different ways of measuring students' understanding in various content and cognitive domains. A teacher may use these items to create an assessment according to the needs of the class after reviewing the items and selecting items of interest.

For Feedback on Student Understanding. Student responses can be scored according to the scoring information provided in the book. Items that coincide with concepts taught in class allow the teacher to gain feedback on the students' understanding of assessed concepts. For example, a teacher might decide to examine the incorrect or partially correct responses of the class. The teacher might use the items to identify particular difficulties or misconceptions experienced by individual students, which can serve as the basis for some remedial teaching or focused practice.

To Benchmark Student Performance. The teacher might also compare the percent of students in the class who responded correctly to an item with the percent of students who responded correctly to the same item in other education systems or in the United States.

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USER'S GUIDE

Grade 4

This book contains TIMSS 2011 released items for grade 4. Each item appears on a single page, on which is provided information about the item's classification and about international student performance on the item. The items appear in the content domain order, as shown in the index on the next page.

Information about item classification

Take a look at the first item on page 1. Across the top are three boxes which identify the item's **content domain** (the subject matter in mathematics that the item assesses), its **main topic** (the specific topic assessed within that subject matter), and its **cognitive domain** (the cognitive or thinking process assessed). For this item, the content domain is number, the main topic is whole numbers, and the cognitive domain is applying.

Below the row of boxes and above a boxed-in area of the page is the **item label**. For this item, it is *How many pages needed altogether*. Below the boxed-in area is the item number, which is more commonly used to identify each item than the item label. Within the boxed-in area is the item as it appeared in student test booklets.

Correct answers are shown beneath each item. The correct answer for multiple-choice items is simply a letter code. For example, in the item *M031043* on page 5, the letter code C is the correct answer. The correct answers for write-in or open-ended items are explained in a scoring guide. For example, the *How many pages needed altogether* (page 1) provides an example of a scoring guide, indicating the general nature of correct and

incorrect responses. In some cases, partial credit may be awarded and these items will provide guidelines for fully correct, partially correct, and incorrect responses. Sample student responses are provided for some of the constructed-response items for each scoring category.

Information about international student performance

In the table along the right-hand side of the page are the **percent correct** statistics for the item. These consist of statistics on the percentage of students in each education system who could answer the question correctly. The lists of education systems are ordered in terms of this percentage. The international average is included as well.

To the right of some of the percent correct statistics are **special symbols** that indicate when an education system scored significantly higher or significantly lower than the international average. Thus, on the item *How many pages needed altogether* as an example, an estimated 57 percent of U.S. students could correctly answer this item, a percentage that was measurably higher than the international average, after taking into account the standard of error associated with the percent correct statistic for the United States and for the international average.



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Grade 4

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Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Applying

Item label: How many pages needed altogether

Georgia wants to send letters to 12 of her friends. Half of the letters will need 1 page each and the other half will need 2 pages each. How many pages will be needed altogether?

Answer: _____

Item Number: M031009

SCORING

Correct Response

- 18

Incorrect Response

- 24
- 36
- Other incorrect (including crossed out, erased, stray marks, illegible, or off task)

Overall Percent Correct

Education system	Percent correct
Korea, Rep. of	76 ▲
Japan	68 ▲
Sweden	64 ▲
Portugal	61 ▲
Chinese Taipei-CHN	60 ▲
Finland	58 ▲
England-GBR	55 ▲
Northern Ireland-GBR	54 ▲
Australia	53 ▲
Ireland	52 ▲
Russian Federation	52 ▲
Singapore	49 ▲
United States	47 ▲
Czech Republic	47 ▲
New Zealand	47 ▲
Belgium (Flemish)-BEL	46 ▲
Netherlands	45 ▲
Azerbaijan	41 ▲
Germany	40 ▲
Denmark	39 ▲
Norway	38
Romania	37
Lithuania	36
Georgia	36
Malta	35
Serbia	35
Austria	35
International average	34
Italy	34
Kazakhstan	33
Poland	32
Chile	31
Spain	29 ▼
Hong Kong-CHN	29 ▼
Armenia	26 ▼
Slovenia	25 ▼
Turkey	20 ▼
United Arab Emirates	17 ▼
Croatia	17 ▼
Slovak Republic	16 ▼
Saudi Arabia	14 ▼
Bahrain	12 ▼
Hungary	11 ▼
Qatar	11 ▼
Iran, Islamic Rep. of	8 ▼
Oman	8 ▼
Morocco	8 ▼
Tunisia	6 ▼
Thailand	6 ▼
Kuwait	3 ▼
Yemen	3 ▼

Benchmarking education system

North Carolina-USA	51 ▲
Ontario-CAN	49 ▲
Quebec-CAN	48 ▲
Alberta-CAN	48 ▲
Florida-USA	36
Dubai-UAE	22 ▼
Abu Dhabi-UAE	14 ▼

▲ Percent higher than International average
▼ Percent lower than International average

Item label: How many pages needed altogether (continued)

M031009

Student Responses

Correct Response:

Answer: 18

$$\begin{array}{r} 12 \\ + 2 \\ \hline 18 \end{array}$$

Incorrect Response:

Answer: 36

$$\begin{array}{r} 12 \\ \times 2 \\ \hline 24 \end{array}$$

$$\begin{array}{r} 12 \\ + 24 \\ \hline 36 \end{array}$$

Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Reasoning

Item label: What is the prize winning number

Three thousand tickets for a basketball game are numbered 1 to 3,000.
People with ticket numbers ending with 112 receive a prize.
Write down all the prize-winning numbers.

Prize-winning numbers: _____

Overall Percent Correct

Education system	Percent correct
Korea, Rep. of	59 ▲
Belgium (Flemish)-BEL	47 ▲
Hong Kong-CHN	47 ▲
Russian Federation	46 ▲
Japan	45 ▲
Hungary	42 ▲
Netherlands	42 ▲
Singapore	40 ▲
England-GBR	39 ▲
Northern Ireland-GBR	38 ▲
Slovak Republic	38 ▲
Germany	36 ▲
Finland	36 ▲
Serbia	36 ▲
Portugal	35 ▲
Lithuania	34 ▲
Denmark	34 ▲
Czech Republic	32 ▲
Sweden	32 ▲
Croatia	32 ▲
Spain	32 ▲
United States	31 ▲
Kazakhstan	30
Australia	29
Ireland	28
Italy	28
Romania	28
Austria	27
International average	26
Chinese Taipei-CHN	24
Slovenia	22 ▼
New Zealand	22 ▼
Azerbaijan	22
Armenia	22 ▼
Poland	21 ▼
Norway	20 ▼
Georgia	20 ▼
Chile	18 ▼
Malta	18 ▼
Turkey	16 ▼
United Arab Emirates	10 ▼
Thailand	9 ▼
Qatar	7 ▼
Bahrain	6 ▼
Saudi Arabia	5 ▼
Tunisia	3 ▼
Iran, Islamic Rep. of	3 ▼
Oman	2 ▼
Morocco	2 ▼
Kuwait	1 ▼
Yemen	# ▼

Benchmarking education system

Quebec-CAN	47 ▲
North Carolina-USA	33 ▲
Alberta-CAN	32 ▲
Florida-USA	32 ▲
Ontario-CAN	25
Dubai-UAE	19 ▼
Abu Dhabi-UAE	8 ▼

▲ Percent higher than International average

▼ Percent lower than International average

Rounds to zero

Item Number: M031016

SCORING

Correct Response

- 112, 1112, 2112

Incorrect Response

- 112, 1112, 2112 with additional incorrect
- One or two correct no incorrect
- Other incorrect (including crossed out, erased, stray marks, illegible, or off task)

Item label: What is the prize winning number (continued)

M031016

Student Responses**Correct Response:**Prize-winning numbers: 112, 1,112, 2,112

$$\begin{array}{l} 112 \\ 1,112 \\ 2,112 \end{array}$$
Incorrect Response:Prize-winning numbers: 112 212 312 412 512
612 712 812 912 1,012
2,012

Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Applying

Item label: A train from Redville to Bedford

A train left Redville at 8:45 a.m. It arrived in Bedford 2 hours and 18 minutes later. What time did it arrive in Bedford?

A. 11:15 a.m.
 B. 11:13 a.m.
 C. 11:03 a.m.
 D. 10:53 a.m.

Item Number: M031043

Correct Response:	C
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Overall Percent Correct

Education system	Percent correct
Chinese Taipei-CHN	85 ▲
Korea, Rep. of	82 ▲
Singapore	82 ▲
Hong Kong-CHN	76 ▲
Netherlands	73 ▲
Northern Ireland-GBR	73 ▲
Japan	69 ▲
Czech Republic	69 ▲
Lithuania	67 ▲
Poland	67 ▲
Germany	65 ▲
Russian Federation	65 ▲
Finland	65 ▲
Belgium (Flemish)-BEL	63 ▲
England-GBR	63 ▲
Sweden	62 ▲
Serbia	60 ▲
Denmark	60 ▲
Slovak Republic	58 ▲
Hungary	57 ▲
United States	57 ▲
Norway	55
Ireland	54
Slovenia	54
Azerbaijan	52
Austria	52
International average	52
Australia	51
Croatia	49
New Zealand	49
Romania	48
Portugal	47
Kazakhstan	47
Turkey	46 ▼
Italy	45 ▼
Armenia	43 ▼
Malta	41 ▼
Thailand	41 ▼
Chile	40 ▼
Georgia	37 ▼
Spain	34 ▼
Tunisia	33 ▼
Iran, Islamic Rep. of	33 ▼
United Arab Emirates	32 ▼
Qatar	30 ▼
Yemen	29 ▼
Saudi Arabia	26 ▼
Bahrain	25 ▼
Morocco	24 ▼
Kuwait	23 ▼
Oman	21 ▼

Benchmarking education system

North Carolina-USA	66 ▲
Florida-USA	54
Quebec-CAN	54
Ontario-CAN	53
Alberta-CAN	51
Dubai-UAE	42 ▼
Abu Dhabi-UAE	30 ▼

▲ Percent higher than International average
 ▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
NUMBER	Patterns and Relationships	Applying

Item label: Pattern of circles/figure 5



Figure 1



Figure 2

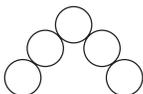


Figure 3

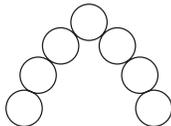


Figure 4

A sequence of four figures is shown above.

A. Complete the table below for Figure 4.

Figure	Number of Circles
1	1
2	3
3	5
4	

B. If there were a Figure 5, how many circles would it have?

Answer: _____

Item Number: M031079B

SCORING

Correct Response

Note: Part A not scored

- 9

Incorrect Response

- 7
- Other incorrect (including crossed out, erased, stray marks, illegible, or off task)

Overall Percent Correct

Education system	Percent correct
Korea, Rep. of	92 ▲
Chinese Taipei-CHN	92 ▲
Japan	92 ▲
Hong Kong-CHN	92 ▲
Singapore	90 ▲
Finland	85 ▲
Belgium (Flemish)-BEL	85 ▲
Netherlands	84 ▲
Germany	84 ▲
Portugal	84 ▲
Northern Ireland-GBR	83 ▲
Lithuania	82 ▲
Serbia	82 ▲
Denmark	81 ▲
Austria	81 ▲
Czech Republic	80 ▲
Italy	80 ▲
England-GBR	80 ▲
Russian Federation	80 ▲
Slovenia	79 ▲
Croatia	78 ▲
Ireland	78 ▲
Sweden	78 ▲
Australia	77 ▲
Slovak Republic	76 ▲
United States	75 ▲
Hungary	74 ▲
Spain	73 ▲
Norway	72
Malta	71
Poland	70
Romania	70
New Zealand	69
International average	68
Kazakhstan	65
Chile	64 ▼
Thailand	60 ▼
Turkey	59 ▼
United Arab Emirates	54 ▼
Armenia	53 ▼
Bahrain	50 ▼
Iran, Islamic Rep. of	47 ▼
Azerbaijan	46 ▼
Georgia	45 ▼
Qatar	45 ▼
Saudi Arabia	42 ▼
Oman	36 ▼
Tunisia	33 ▼
Kuwait	22 ▼
Morocco	21 ▼
Yemen	12 ▼

Benchmarking education system	Percent correct
Quebec-CAN	90 ▲
Alberta-CAN	84 ▲
Ontario-CAN	83 ▲
Florida-USA	82 ▲
North Carolina-USA	80 ▲
Dubai-UAE	66
Abu Dhabi-UAE	47 ▼

▲ Percent higher than International average
 ▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
NUMBER	Patterns and Relationships	Reasoning

Item label: Pattern of circles/figure 10



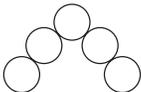
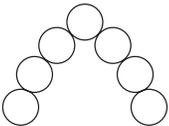



Figure 1 Figure 2 Figure 3 Figure 4

A sequence of four figures is shown above.

C. If the figures were continued, how many circles would there be in Figure 10? (Do not draw the figures.)

Answer: _____

Item Number: M031079C

SCORING

Correct Response

- 19

Incorrect Response

- Incorrect (including crossed out, erased, stray marks, illegible, or off task)

Overall Percent Correct

Education system	Percent correct
Korea, Rep. of	74 ▲
Singapore	70 ▲
Hong Kong-CHN	67 ▲
Chinese Taipei-CHN	65 ▲
Japan	59 ▲
Serbia	52 ▲
Russian Federation	52 ▲
Portugal	51 ▲
Croatia	50 ▲
Denmark	49 ▲
Northern Ireland-GBR	49 ▲
Italy	48 ▲
Czech Republic	48 ▲
Slovenia	47 ▲
Malta	47 ▲
United States	47 ▲
Slovak Republic	47 ▲
Kazakhstan	46 ▲
Lithuania	44 ▲
Hungary	43
England-GBR	42
Ireland	41
Spain	41
Australia	41
Austria	41
Turkey	41
Romania	40
International average	39
Finland	39
Sweden	38
Germany	37
Belgium (Flemish)-BEL	36
Thailand	35
Poland	34 ▼
Chile	33 ▼
United Arab Emirates	33 ▼
New Zealand	33 ▼
Norway	30 ▼
Azerbaijan	30 ▼
Qatar	28 ▼
Armenia	27 ▼
Bahrain	27 ▼
Netherlands	26 ▼
Georgia	21 ▼
Iran, Islamic Rep. of	20 ▼
Saudi Arabia	20 ▼
Oman	20 ▼
Tunisia	11 ▼
Kuwait	10 ▼
Morocco	10 ▼
Yemen	4 ▼

Benchmarking education system	
Quebec-CAN	58 ▲
Florida-USA	55 ▲
North Carolina-USA	53 ▲
Ontario-CAN	50 ▲
Alberta-CAN	43
Dubai-UAE	40
Abu Dhabi-UAE	29 ▼

▲ Percent higher than International average
 ▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Knowing

Item label: 5,631 plus 286

5,631 + 286 =

Answer: _____

Item Number: M031128

SCORING

Correct Response

- 5,917

Incorrect Response

- Incorrect (including crossed out, erased, stray marks, illegible, or off task)

Overall Percent Correct

Education system	Percent correct
Chinese Taipei-CHN	93 ▲
Singapore	93 ▲
Portugal	90 ▲
Korea, Rep. of	90 ▲
Japan	90 ▲
Russian Federation	89 ▲
Hong Kong-CHN	89 ▲
Kazakhstan	87 ▲
Serbia	85 ▲
Croatia	85 ▲
United States	84 ▲
Italy	84 ▲
Spain	83 ▲
Lithuania	82 ▲
Thailand	82 ▲
Armenia	82 ▲
Slovak Republic	81 ▲
Azerbaijan	80 ▲
Malta	80 ▲
Romania	80 ▲
Ireland	78 ▲
Turkey	77 ▲
Austria	77 ▲
Denmark	77 ▲
Hungary	77 ▲
Iran, Islamic Rep. of	75
Northern Ireland-GBR	75
Georgia	74
Tunisia	73
Netherlands	73
Chile	72
Czech Republic	72
International average	72
Germany	71
Bahrain	70
England-GBR	67
Belgium (Flemish)-BEL	66 ▼
Slovenia	64 ▼
Norway	58 ▼
Finland	58 ▼
United Arab Emirates	58 ▼
Australia	57 ▼
Poland	56 ▼
Qatar	56 ▼
Sweden	56 ▼
Oman	55 ▼
Saudi Arabia	48 ▼
Morocco	48 ▼
Kuwait	34 ▼
New Zealand	32 ▼
Yemen	26 ▼

Benchmarking education system

North Carolina-USA	89 ▲
Florida-USA	86 ▲
Quebec-CAN	86 ▲
Dubai-UAE	72
Alberta-CAN	67
Ontario-CAN	61 ▼
Abu Dhabi-UAE	52 ▼

▲ Percent higher than International average
▼ Percent lower than International average

Item label: 5,631 plus 286 (continued)

M031128

Student Responses**Correct Response:**

$$5,631 + 286 =$$

$$\begin{array}{r} 5631 \\ + 286 \\ \hline 5917 \end{array}$$

Answer: 5917

Incorrect Response:

$$5,631 + 286 =$$

$$\begin{array}{r} 5631 \\ + 286 \\ \hline 5325 \end{array}$$

Answer: 5325

Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Applying

Item label: Recipe for 3 people

Ingredients	
Eggs	4
Flour	8 cups
Milk	$\frac{1}{2}$ cup

The above ingredients are used to make a recipe for 6 people. Sam wants to make this recipe for only 3 people.

Complete the table below to show what Sam needs to make the recipe for 3 people. The number of eggs he needs is shown.

Ingredients	
Eggs	2
Flour	___ cups
Milk	___ cup

Item Number: M031183

SCORING

Correct Response

- 4 cups of flour and $\frac{1}{4}$ cup of milk

Partially Correct Response

- Flour correct, milk incorrect
- Flour correct, milk omitted
- Milk correct, flour incorrect or omitted

Incorrect Response

- Incorrect (including crossed out, erased, stray marks, illegible, or off task)

Overall Percent Correct

Education system	Percent correct
Northern Ireland-GBR	63 ▲
England-GBR	55 ▲
Ireland	54 ▲
Singapore	50 ▲
Germany	46 ▲
Netherlands	41 ▲
New Zealand	39 ▲
Belgium (Flemish)-BEL	38 ▲
Denmark	37 ▲
Australia	37 ▲
Hong Kong-CHN	34 ▲
United States	33 ▲
Malta	31 ▲
Finland	31 ▲
Chinese Taipei-CHN	31 ▲
Portugal	28
Korea, Rep. of	28 ▲
Serbia	27
Lithuania	24
International average	23
Japan	23
Austria	23
Kazakhstan	22
Spain	22
Romania	22
Qatar	21
Bahrain	20
Azerbaijan	20
Russian Federation	20
United Arab Emirates	20 ▼
Hungary	18 ▼
Saudi Arabia	18 ▼
Slovenia	17 ▼
Poland	16 ▼
Norway	15 ▼
Sweden	15 ▼
Armenia	15 ▼
Chile	15 ▼
Italy	14 ▼
Georgia	13 ▼
Oman	11 ▼
Czech Republic	10 ▼
Slovak Republic	10 ▼
Kuwait	8 ▼
Turkey	8 ▼
Thailand	5 ▼
Tunisia	5 ▼
Morocco	4 ▼
Croatia	3 ▼
Yemen	3 ▼
Iran, Islamic Rep. of	3 ▼
Benchmarking education system	
North Carolina-USA	32 ▲
Florida-USA	31 ▲
Dubai-UAE	29 ▲
Quebec-CAN	22
Alberta-CAN	22
Ontario-CAN	22
Abu Dhabi-UAE	15 ▼

▲ Percent higher than International average
▼ Percent lower than International average

Item label: Recipe for 3 people (continued)

M031183

Student Responses**Correct Response:**

Ingredients	
Eggs	2
Flour	<u>4</u> cups
Milk	$\frac{1}{4}$ cup

Partially Correct Response:

Ingredients	
Eggs	2
Flour	4 cups
Milk	$\frac{1}{1}$ cup

Incorrect Response:

Ingredients	
Eggs	2
Flour	<u>8</u> cups
Milk	<u>25</u> cup

Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Reasoning

Item label: Distance between towns using map

The scale on a map indicates that 1 centimeter on the map represents 4 kilometers on the land. The distance between two towns on the map is 8 centimeters. How many kilometers apart are the two towns?

- A. 2
- B. 8
- C. 16
- D. 32

Item Number: M031185

Correct Response:

D

Overall Percent Correct

Education system	Percent correct
Korea, Rep. of	84 ▲
Chinese Taipei-CHN	84 ▲
Russian Federation	80 ▲
Lithuania	75 ▲
Japan	74 ▲
Finland	71 ▲
Serbia	71 ▲
Singapore	69 ▲
Netherlands	69 ▲
Kazakhstan	69 ▲
Czech Republic	67 ▲
Azerbaijan	66 ▲
Croatia	64 ▲
Denmark	63 ▲
Slovenia	63 ▲
Northern Ireland-GBR	62 ▲
Slovak Republic	61 ▲
Germany	60 ▲
Hungary	59 ▲
United States	59 ▲
Portugal	57
Romania	57
Sweden	57
Austria	57
Poland	57
Norway	56
Iran, Islamic Rep. of	55
England-GBR	54
International average	54
Italy	54
Belgium (Flemish)-BEL	53
Ireland	50
Turkey	48 ▼
Georgia	47 ▼
Australia	46 ▼
Spain	46 ▼
Armenia	45 ▼
New Zealand	42 ▼
Bahrain	40 ▼
Chile	39 ▼
Thailand	39 ▼
Saudi Arabia	39 ▼
United Arab Emirates	37 ▼
Qatar	32 ▼
Malta	32 ▼
Morocco	31 ▼
Oman	31 ▼
Tunisia	31 ▼
Yemen	29 ▼
Kuwait	23 ▼
Hong Kong-CHN	—

Benchmarking education system

North Carolina-USA	62 ▲
Florida-USA	62 ▲
Quebec-CAN	57
Ontario-CAN	50
Alberta-CAN	43 ▼
Dubai-UAE	42 ▼
Abu Dhabi-UAE	33 ▼

▲ Percent higher than International average

▼ Percent lower than International average

— Not available

Content Domain	Main Topic	Cognitive Domain
NUMBER	Number Sentences with Whole Numbers	Applying

Item label: Kim gave Pete 3 more pencils

E stands for the number of pencils Pete had. Kim gave Pete 3 more pencils. How many pencils does Pete have now?

A. $3 \div E$
 B. $E + 3$
 C. $E - 3$
 D. $3 \times E$

Item Number: M031187

Correct Response:	B
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Overall Percent Correct

Education system	Percent correct
Russian Federation	91 ▲
Netherlands	90 ▲
Portugal	88 ▲
Belgium (Flemish)-BEL	85 ▲
Czech Republic	84 ▲
Italy	84 ▲
Singapore	83 ▲
United States	83 ▲
Serbia	83 ▲
Poland	82 ▲
Austria	82 ▲
Germany	82 ▲
Hungary	82 ▲
Kazakhstan	80 ▲
Finland	79 ▲
Northern Ireland-GBR	79 ▲
Slovenia	79 ▲
Croatia	79 ▲
Lithuania	79 ▲
Australia	79 ▲
Azerbaijan	79 ▲
Slovak Republic	78 ▲
Romania	78
Ireland	77
Hong Kong-CHN	77 ▲
Turkey	75
Chile	75
England-GBR	75
Korea, Rep. of	74
New Zealand	74
Denmark	74
Spain	74
Georgia	73
Sweden	73
Japan	73
International average	73
Chinese Taipei-CHN	72
Norway	70
Armenia	66 ▼
Iran, Islamic Rep. of	63 ▼
Bahrain	63 ▼
Qatar	62 ▼
Thailand	62 ▼
Saudi Arabia	60 ▼
Malta	58 ▼
United Arab Emirates	56 ▼
Oman	51 ▼
Kuwait	47 ▼
Tunisia	42 ▼
Morocco	37 ▼
Yemen	33 ▼

Benchmarking education system

North Carolina-USA	84 ▲
Florida-USA	81 ▲
Quebec-CAN	81 ▲
Ontario-CAN	77 ▲
Alberta-CAN	76
Dubai-UAE	65 ▼
Abu Dhabi-UAE	53 ▼

▲ Percent higher than International average
 ▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
NUMBER	Fractions and Decimals	Knowing

Item label: Select a fraction larger than $\frac{1}{2}$

Which of these fractions is larger than $\frac{1}{2}$?

A. $\frac{3}{5}$

B. $\frac{3}{6}$

C. $\frac{3}{8}$

D. $\frac{3}{10}$

Item Number: M031210

Correct Response:	A
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Overall Percent Correct

Education system	Percent correct
Hong Kong-CHN	74 ▲
Finland	69 ▲
Chinese Taipei-CHN	67 ▲
Singapore	67 ▲
Northern Ireland-GBR	63 ▲
United States	62 ▲
Ireland	62 ▲
Russian Federation	62 ▲
Korea, Rep. of	60 ▲
Japan	60 ▲
Belgium (Flemish)-BEL	58 ▲
Lithuania	56 ▲
Kazakhstan	55 ▲
Australia	54 ▲
New Zealand	53 ▲
Armenia	52 ▲
Serbia	50
England-GBR	50
Georgia	49
Netherlands	49
Denmark	48
Norway	48
Hungary	48
International average	46
Azerbaijan	45
Turkey	44
Saudi Arabia	43
Romania	43
Poland	43
Slovenia	43
Malta	42
Italy	42
Slovak Republic	41 ▼
United Arab Emirates	41 ▼
Oman	39 ▼
Sweden	38 ▼
Qatar	37 ▼
Czech Republic	36 ▼
Chile	36 ▼
Thailand	36 ▼
Austria	35 ▼
Bahrain	34 ▼
Iran, Islamic Rep. of	33 ▼
Germany	33 ▼
Spain	33 ▼
Portugal	32 ▼
Kuwait	30 ▼
Morocco	23 ▼
Yemen	21 ▼
Tunisia	20 ▼
Croatia	—

Benchmarking education system

North Carolina-USA	71 ▲
Florida-USA	56 ▲
Alberta-CAN	52 ▲
Quebec-CAN	49
Ontario-CAN	48
Abu Dhabi-UAE	41
Dubai-UAE	39 ▼

▲ Percent higher than International average

▼ Percent lower than International average

— Not applicable

Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Applying

Item label: 600 books to be packed into boxes

Six hundred books have to be packed into boxes that hold 15 books each. Which of the following could be used to find the number of boxes needed?

A. add 15 to 600

B. subtract 15 from 600

C. multiply 600 by 15

D. divide 600 by 15

Item Number: M031218

Correct Response:	D
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Overall Percent Correct

Education system	Percent correct
Chinese Taipei-CHN	90 ▲
Korea, Rep. of	89 ▲
Hong Kong-CHN	84 ▲
Singapore	80 ▲
Russian Federation	77 ▲
Netherlands	76 ▲
Lithuania	75 ▲
Japan	74 ▲
Portugal	70 ▲
Croatia	69 ▲
Kazakhstan	69 ▲
Finland	67 ▲
Hungary	66 ▲
Austria	64 ▲
Northern Ireland-GBR	64 ▲
Italy	63 ▲
United States	63 ▲
Belgium (Flemish)-BEL	62 ▲
Turkey	61 ▲
Poland	61 ▲
Serbia	61 ▲
Slovak Republic	60 ▲
Slovenia	58
Azerbaijan	57
Spain	57
England-GBR	57
Czech Republic	56
Armenia	56
International average	55
Ireland	54
Germany	54
Romania	52
Georgia	51
Australia	51
Denmark	45 ▼
Malta	44 ▼
Thailand	43 ▼
Iran, Islamic Rep. of	42 ▼
Norway	42 ▼
Chile	39 ▼
Saudi Arabia	37 ▼
New Zealand	37 ▼
Qatar	35 ▼
United Arab Emirates	35 ▼
Bahrain	31 ▼
Sweden	31 ▼
Tunisia	31 ▼
Oman	30 ▼
Yemen	27 ▼
Kuwait	25 ▼
Morocco	22 ▼

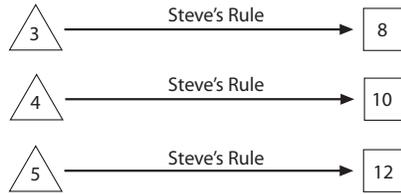
Benchmarking education system

North Carolina-USA	69 ▲
Florida-USA	63 ▲
Quebec-CAN	51
Dubai-UAE	47 ▼
Alberta-CAN	43 ▼
Ontario-CAN	42 ▼
Abu Dhabi-UAE	27 ▼

▲ Percent higher than International average
▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
NUMBER	Patterns and Relationships	Applying

Item label: Steve’s rule to get number in box



Steve used a rule to get the number in the from the number in the .

What was the rule?

- A. Multiply by 1 then add 5.
- B. Multiply by 2 then add 2.
- C. Multiply by 3 then subtract 1.
- D. Multiply by 4 then subtract 4.

Item Number: M031251

Correct Response:	B
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Overall Percent Correct

Education system	Percent correct
Korea, Rep. of	86 ▲
Chinese Taipei-CHN	79 ▲
Hong Kong-CHN	76 ▲
Singapore	73 ▲
Japan	71 ▲
United States	63 ▲
Russian Federation	63 ▲
Hungary	62 ▲
Northern Ireland-GBR	62 ▲
Turkey	55 ▲
Slovak Republic	55 ▲
Portugal	54 ▲
Italy	53 ▲
England-GBR	52 ▲
Belgium (Flemish)-BEL	50
Czech Republic	50
Lithuania	50
Georgia	48
Saudi Arabia	48
Kazakhstan	48
Romania	47
International average	47
Serbia	47
Ireland	45
Australia	45
Spain	45
Croatia	44
Qatar	44
Finland	43
Austria	43
Poland	43
Bahrain	43
United Arab Emirates	42 ▼
Denmark	42 ▼
Netherlands	40 ▼
Slovenia	40 ▼
New Zealand	39 ▼
Azerbaijan	39 ▼
Iran, Islamic Rep. of	39 ▼
Malta	37 ▼
Germany	36 ▼
Chile	36 ▼
Armenia	33 ▼
Sweden	33 ▼
Oman	33 ▼
Norway	31 ▼
Tunisia	30 ▼
Kuwait	30 ▼
Thailand	30 ▼
Yemen	28 ▼
Morocco	26 ▼

Benchmarking education system

North Carolina-USA	70 ▲
Florida-USA	66 ▲
Dubai-UAE	48
Alberta-CAN	43
Quebec-CAN	42 ▼
Ontario-CAN	42 ▼
Abu Dhabi-UAE	40 ▼

▲ Percent higher than International average
 ▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
NUMBER	Patterns and Relationships	Applying

Item label: If the pattern 3,6,9,12 continued

If the pattern 3, 6, 9, 12 was continued, which of these numbers would be one of the numbers in the pattern?

- A. 26
- B. 27
- C. 28
- D. 29

Item Number: M031252

Correct Response:

B

Overall Percent Correct

Education system	Percent correct
Singapore	93 ▲
Korea, Rep. of	89 ▲
Northern Ireland-GBR	84 ▲
United States	83 ▲
Czech Republic	82 ▲
Ireland	81 ▲
Chinese Taipei-CHN	81 ▲
Denmark	80 ▲
Hong Kong-CHN	80 ▲
England-GBR	80 ▲
Finland	80 ▲
Japan	79 ▲
Slovenia	79 ▲
Germany	78 ▲
Portugal	78 ▲
Norway	77 ▲
Italy	75 ▲
Australia	74 ▲
Slovak Republic	72 ▲
Malta	71 ▲
Lithuania	70 ▲
Turkey	68 ▲
New Zealand	68 ▲
Sweden	68 ▲
Serbia	68 ▲
Belgium (Flemish)-BEL	67 ▲
Austria	66
Croatia	65
Russian Federation	64
International average	62
Spain	62
Netherlands	62
Hungary	60
Azerbaijan	57 ▼
Kazakhstan	56 ▼
Chile	55 ▼
Poland	53 ▼
Romania	52 ▼
Georgia	52 ▼
United Arab Emirates	48 ▼
Qatar	46 ▼
Bahrain	42 ▼
Armenia	41 ▼
Iran, Islamic Rep. of	34 ▼
Saudi Arabia	34 ▼
Oman	34 ▼
Kuwait	29 ▼
Thailand	28 ▼
Tunisia	27 ▼
Morocco	24 ▼
Yemen	20 ▼

Benchmarking education system

North Carolina-USA	90 ▲
Florida-USA	89 ▲
Alberta-CAN	76 ▲
Ontario-CAN	74 ▲
Quebec-CAN	73 ▲
Dubai-UAE	59 ▼
Abu Dhabi-UAE	44 ▼

▲ Percent higher than International average
▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Applying

Item label: Total number of people on a ship

There are 218 passengers and 191 crew members on a ship.
How many people are on the ship altogether?

Answer: _____

Item Number: M031313

SCORING

Correct Response

- 409

Incorrect Response

- 309
- Other incorrect (including crossed out, erased, stray marks, illegible, or off task)

Overall Percent Correct

Education system	Percent correct
Singapore	93 ▲
Korea, Rep. of	93 ▲
Japan	91 ▲
Chinese Taipei-CHN	89 ▲
Portugal	89 ▲
Croatia	89 ▲
Serbia	87 ▲
Hong Kong-CHN	86 ▲
Russian Federation	86 ▲
United States	84 ▲
Hungary	84 ▲
Slovak Republic	83 ▲
Italy	83 ▲
Spain	83 ▲
Lithuania	82 ▲
Ireland	82 ▲
Slovenia	81 ▲
Belgium (Flemish)-BEL	81 ▲
Turkey	81 ▲
Netherlands	81 ▲
Malta	81 ▲
Kazakhstan	80 ▲
Northern Ireland-GBR	80 ▲
Czech Republic	79 ▲
Austria	79 ▲
Germany	79 ▲
England-GBR	78 ▲
Romania	77 ▲
Chile	77 ▲
Denmark	77 ▲
Thailand	76
Sweden	75
Georgia	75
Poland	75
International average	73
Iran, Islamic Rep. of	70
Armenia	70
Australia	69
Azerbaijan	68
Finland	68 ▼
Norway	67 ▼
Bahrain	64 ▼
United Arab Emirates	54 ▼
New Zealand	52 ▼
Tunisia	48 ▼
Qatar	48 ▼
Oman	41 ▼
Saudi Arabia	39 ▼
Morocco	35 ▼
Kuwait	24 ▼
Yemen	15 ▼

Benchmarking education system

North Carolina-USA	88 ▲
Quebec-CAN	88 ▲
Florida-USA	87 ▲
Alberta-CAN	76
Ontario-CAN	74
Dubai-UAE	70
Abu Dhabi-UAE	47 ▼

▲ Percent higher than International average
▼ Percent lower than International average

Item label: Total number of people on a ship(continued)

M031313

Student Responses

Correct Response:

Answer: 409 people

$$\begin{array}{r} 1 \\ 218 \\ + 191 \\ \hline 409 \end{array}$$

Incorrect Response:

Answer: ~~309~~

Content Domain	Main Topic	Cognitive Domain
NUMBER	Number Sentences with Whole Numbers	Knowing

Item label: 4 times box equals 28

$4 \times \square = 28$

What number goes in the box to make this number sentence true?

Answer: _____

Item Number: M031316

SCORING

Correct Response

- 7

Incorrect Response

- Incorrect (including crossed out, erased, stray marks, illegible, or off task)

Overall Percent Correct

Education system	Percent correct
Korea, Rep. of	99 ▲
Chinese Taipei-CHN	98 ▲
Japan	98 ▲
Hong Kong-CHN	97 ▲
Croatia	97 ▲
Singapore	96 ▲
Russian Federation	95 ▲
Belgium (Flemish)-BEL	94 ▲
Austria	94 ▲
Kazakhstan	94 ▲
Czech Republic	94 ▲
Serbia	94 ▲
Lithuania	93 ▲
Slovak Republic	93 ▲
Netherlands	93 ▲
Germany	92 ▲
Spain	92 ▲
Slovenia	92 ▲
Italy	92 ▲
Hungary	91 ▲
Azerbaijan	90 ▲
Northern Ireland-GBR	88 ▲
Portugal	87 ▲
Romania	87 ▲
United States	87 ▲
Iran, Islamic Rep. of	87 ▲
Ireland	86
Finland	85
Georgia	85
Poland	85
Armenia	85
International average	83
England-GBR	82
Denmark	80
Malta	79 ▼
Thailand	79
Norway	77 ▼
Australia	77 ▼
Turkey	76 ▼
Sweden	75 ▼
United Arab Emirates	74 ▼
Tunisia	71 ▼
New Zealand	70 ▼
Bahrain	68 ▼
Chile	66 ▼
Qatar	64 ▼
Saudi Arabia	60 ▼
Oman	55 ▼
Morocco	51 ▼
Kuwait	47 ▼
Yemen	39 ▼

Benchmarking education system

Florida-USA	92 ▲
North Carolina-USA	92 ▲
Quebec-CAN	83
Dubai-UAE	80
Ontario-CAN	77 ▼
Alberta-CAN	74 ▼
Abu Dhabi-UAE	70 ▼

▲ Percent higher than International average
 ▼ Percent lower than International average

Item label: 4 times box equals 28(continued)

M031316

Student Responses

Correct Response:

Answer: 7

$$\begin{array}{r} 4 \\ \times \square \\ \hline 28 \end{array}$$

Incorrect Response:

Answer: 6

Content Domain	Main Topic	Cognitive Domain
NUMBER	Number Sentences with Whole Numbers	Knowing

Item label: $3 + 8 = \square + 6$

$3 + 8 = \square + 6$

What number goes in the box to make this number sentence true?

A. 17
 B. 11
 C. 7
 D. 5

Item Number: M031317

Correct Response:	D
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Overall Percent Correct

Education system	Percent correct
Hong Kong-CHN	88 ▲
Singapore	85 ▲
Russian Federation	80 ▲
Kazakhstan	79 ▲
Korea, Rep. of	73 ▲
Japan	68 ▲
Chinese Taipei-CHN	67 ▲
Lithuania	66 ▲
Azerbaijan	65 ▲
Serbia	63 ▲
Romania	56 ▲
Northern Ireland-GBR	55 ▲
Ireland	54 ▲
Sweden	51 ▲
Hungary	50 ▲
Belgium (Flemish)-BEL	49 ▲
Armenia	49 ▲
United States	47 ▲
Georgia	45 ▲
Slovak Republic	44 ▲
Portugal	40
International average	39
Finland	37
Slovenia	36
Norway	35
Croatia	34 ▼
Spain	34 ▼
Australia	33 ▼
Netherlands	32 ▼
Iran, Islamic Rep. of	31 ▼
England-GBR	29 ▼
Poland	28 ▼
Turkey	27 ▼
Denmark	27 ▼
Germany	24 ▼
Tunisia	23 ▼
Malta	21 ▼
Thailand	21 ▼
Saudi Arabia	21 ▼
United Arab Emirates	20 ▼
Czech Republic	20 ▼
Austria	18 ▼
Italy	18 ▼
Qatar	17 ▼
New Zealand	17 ▼
Oman	16 ▼
Morocco	16 ▼
Bahrain	15 ▼
Yemen	12 ▼
Kuwait	11 ▼
Chile	11 ▼

Benchmarking education system

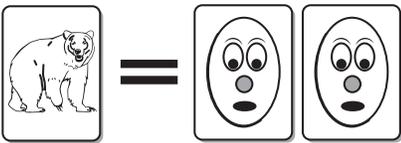
North Carolina-USA	63 ▲
Florida-USA	45 ▲
Quebec-CAN	26 ▼
Ontario-CAN	26 ▼
Dubai-UAE	21 ▼
Abu Dhabi-UAE	20 ▼
Alberta-CAN	18 ▼

▲ Percent higher than International average
 ▼ Percent lower than International average

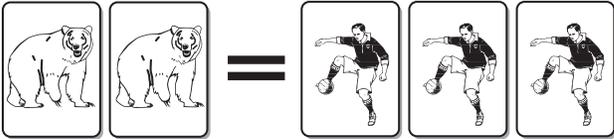
Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Applying

Item label: Trading Cards_Cartoon cards

The town fair had a booth where people could trade cards.



1 animal card is worth 2 cartoon cards.



2 animal cards are worth 3 sports cards.

Some children went to the booth to trade cards.

Trading Animal Cards

A. Becky had 5 animal cards to trade for cartoon cards. How many cartoon cards would she get?

Answer: _____ cartoon cards

Item Number: M031346A

SCORING

Correct Response

- 10

Incorrect Response

- Incorrect (including crossed out, erased, stray marks, illegible, or off task)

Overall Percent Correct

Education system	Percent correct
Hong Kong-CHN	88 ▲
Singapore	86 ▲
Chinese Taipei-CHN	84 ▲
Russian Federation	82 ▲
Denmark	82 ▲
Lithuania	82 ▲
Finland	81 ▲
Japan	79 ▲
Portugal	78 ▲
Sweden	77 ▲
Netherlands	77 ▲
Germany	77 ▲
Korea, Rep. of	75 ▲
Czech Republic	75 ▲
Austria	74 ▲
England-GBR	74 ▲
Ireland	73 ▲
Northern Ireland-GBR	72 ▲
Slovak Republic	72 ▲
Thailand	72 ▲
United States	72 ▲
Poland	71 ▲
Belgium (Flemish)-BEL	69 ▲
Slovenia	68 ▲
Serbia	68 ▲
Australia	66 ▲
Croatia	66 ▲
Norway	66
Hungary	65
Italy	65
Spain	63
Romania	63
New Zealand	62
International average	62
Georgia	59
Malta	56 ▼
Kazakhstan	56 ▼
Chile	53 ▼
Azerbaijan	53 ▼
Armenia	50 ▼
Turkey	42 ▼
United Arab Emirates	41 ▼
Iran, Islamic Rep. of	39 ▼
Bahrain	38 ▼
Qatar	32 ▼
Tunisia	31 ▼
Saudi Arabia	29 ▼
Oman	24 ▼
Morocco	24 ▼
Kuwait	14 ▼
Yemen	11 ▼

Benchmarking education system

Quebec-CAN	77 ▲
North Carolina-USA	72 ▲
Ontario-CAN	72 ▲
Alberta-CAN	68 ▲
Florida-USA	64
Dubai-UAE	52 ▼
Abu Dhabi-UAE	35 ▼

▲ Percent higher than International average
▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Reasoning

Item label: Trading Cards_Sports cards

The town fair had a booth where people could trade cards.

1 animal card is worth 2 cartoon cards.

2 animal cards are worth 3 sports cards.

Some children went to the booth to trade cards.

Trading Animal Cards

B. Jim had 8 animal cards to trade for sports cards. How many sports cards would he get?

Answer: _____ sports cards

Item Number: M031346B

SCORING

Correct Response

- 12

Incorrect Response

- 16
- 24
- Other incorrect (including crossed out, erased, stray marks, illegible, or off task)

Overall Percent Correct

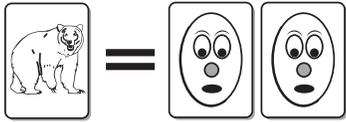
Education system	Percent correct
Singapore	71 ▲
Hong Kong-CHN	66 ▲
Chinese Taipei-CHN	61 ▲
Japan	55 ▲
Korea, Rep. of	54 ▲
Russian Federation	51 ▲
Netherlands	48 ▲
Denmark	46 ▲
Lithuania	45 ▲
Germany	44 ▲
Finland	43 ▲
Belgium (Flemish)-BEL	41 ▲
Portugal	40 ▲
Sweden	40 ▲
Northern Ireland-GBR	40 ▲
England-GBR	38 ▲
Thailand	36
Ireland	35
Serbia	35
Azerbaijan	34
United States	34
Czech Republic	33
Slovak Republic	33
Kazakhstan	32
Australia	32
Romania	31
International average	31
Slovenia	31
Austria	30
Poland	27 ▼
New Zealand	27 ▼
Italy	27 ▼
Chile	27 ▼
Norway	27
Hungary	26 ▼
Turkey	22 ▼
Croatia	21 ▼
Georgia	21 ▼
Spain	20 ▼
Armenia	19 ▼
Malta	18 ▼
Bahrain	18 ▼
United Arab Emirates	15 ▼
Qatar	14 ▼
Tunisia	12 ▼
Morocco	11 ▼
Saudi Arabia	10 ▼
Iran, Islamic Rep. of	10 ▼
Oman	8 ▼
Kuwait	4 ▼
Yemen	2 ▼
Benchmarking education system	
Quebec-CAN	42 ▲
North Carolina-USA	39 ▲
Ontario-CAN	33
Florida-USA	33
Alberta-CAN	31
Dubai-UAE	23 ▼
Abu Dhabi-UAE	10 ▼

▲ Percent higher than International average
▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Reasoning

Item label: Trading Cards_Max number of cards

The town fair had a booth where people could trade cards.



1 animal card is worth 2 cartoon cards.



2 animal cards are worth 3 sports cards.

Some children went to the booth to trade cards.

Trading Animal Cards

C. Katrina had 6 animal cards. She wanted to trade them for as many cards as possible.

How many cartoon cards would she get? _____

How many sports cards would she get? _____

Should she trade for cartoon cards or trade for sport cards?

Answer: _____

Item Number: M031346C

SCORING

Correct Response

- Numbers of cartoon cards (12) AND sports cards (9) correct AND choice (cartoon cards) correct

Partially Correct Response

- Number of cartoon cards only correct
- Number of sports cards only correct
- Numbers of cartoon cards and sports cards correct but choice not shown or incorrect

Incorrect Response

- Choice of cartoon cards or sports cards with no numbers shown
- Other incorrect (including crossed out, erased, stray marks, illegible, or off task)

Overall Percent Correct

Education system	Percent correct
Hong Kong-CHN	66 ▲
Chinese Taipei-CHN	61 ▲
Singapore	55 ▲
Korea, Rep. of	52 ▲
Japan	51 ▲
Finland	41 ▲
Netherlands	40 ▲
Denmark	38 ▲
Germany	35 ▲
Sweden	34 ▲
Russian Federation	33 ▲
Belgium (Flemish)-BEL	30 ▲
England-GBR	30 ▲
Northern Ireland-GBR	30 ▲
Czech Republic	27
Serbia	26
United States	25
Lithuania	24
Poland	24
Ireland	24
International average	24
Azerbaijan	23
Australia	23
Austria	22
Slovenia	22
Norway	22
Slovak Republic	21
Hungary	21
Thailand	21
Portugal	21
Romania	20
Kazakhstan	20
New Zealand	20 ▼
Italy	18 ▼
Chile	18 ▼
Croatia	16 ▼
Georgia	16 ▼
Turkey	15 ▼
Armenia	14 ▼
Spain	13 ▼
United Arab Emirates	11 ▼
Malta	11 ▼
Bahrain	10 ▼
Qatar	9 ▼
Iran, Islamic Rep. of	5 ▼
Saudi Arabia	5 ▼
Tunisia	5 ▼
Oman	3 ▼
Kuwait	3 ▼
Morocco	3 ▼
Yemen	1 ▼
Benchmarking education system	
Quebec-CAN	37 ▲
North Carolina-USA	29
Ontario-CAN	27
Florida-USA	24
Alberta-CAN	22
Dubai-UAE	19 ▼
Abu Dhabi-UAE	9 ▼

▲ Percent higher than International average
▼ Percent lower than International average

Item label: Trading Cards_Max number of cards (continued)

M031346C

Student Responses**Correct Response:**

C. Katrina had 6 animal cards. She wanted to trade them for as many cards as possible.

How many cartoon cards would she get? 12

How many sports cards would she get? 9

Should she trade for cartoon cards or trade for sport cards?

Answer: cartoon card

Partially Correct Response:

C. Katrina had 6 animal cards. She wanted to trade them for as many cards as possible.

How many cartoon cards would she get? 12

How many sports cards would she get? 24

Should she trade for cartoon cards or trade for sport cards?

Answer: sports card.

Incorrect Response:

C. Katrina had 6 animal cards. She wanted to trade them for as many cards as possible.

How many cartoon cards would she get? _____

How many sports cards would she get? _____

Should she trade for cartoon cards or trade for sport cards?

Answer: cartoon cards

Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Reasoning

Item label: Trading Cards_Trading sports cards

Trading Cards (Continued)

Trading Sports Cards

Steve had 15 sports cards to trade for animal cards. How many animal cards would he get?

Answer: _____ animal cards

Item Number: M031379

SCORING**Correct Response**

- 10

Incorrect Response

- 5
- 30
- Other incorrect (including crossed out, erased, stray marks, illegible, or off task)

Overall Percent Correct

Education system	Percent correct
Singapore	61 ▲
Hong Kong-CHN	50 ▲
Chinese Taipei-CHN	44 ▲
Netherlands	41 ▲
Korea, Rep. of	41 ▲
Japan	40 ▲
Denmark	39 ▲
Russian Federation	36 ▲
Finland	34 ▲
Lithuania	34 ▲
Portugal	33 ▲
England-GBR	32 ▲
Belgium (Flemish)-BEL	32 ▲
Serbia	29
Germany	29
Northern Ireland-GBR	28
Ireland	27
Sweden	27
Azerbaijan	27
Slovak Republic	26
Thailand	25
Australia	25
International average	25
Norway	24
Czech Republic	24
Poland	23
Romania	23
United States	23
Italy	22
New Zealand	22
Kazakhstan	22
Georgia	21
Armenia	21
Slovenia	21
Hungary	20 ▼
Turkey	18 ▼
Austria	18 ▼
Chile	17 ▼
Bahrain	17 ▼
Qatar	16 ▼
United Arab Emirates	15 ▼
Malta	15 ▼
Spain	14 ▼
Saudi Arabia	12 ▼
Croatia	12 ▼
Iran, Islamic Rep. of	12 ▼
Morocco	9 ▼
Kuwait	8 ▼
Tunisia	8 ▼
Oman	8 ▼
Yemen	3 ▼

Benchmarking education system

Quebec-CAN	40 ▲
North Carolina-USA	33 ▲
Ontario-CAN	28 ▲
Alberta-CAN	26
Florida-USA	23
Dubai-UAE	19 ▼
Abu Dhabi-UAE	13 ▼

▲ Percent higher than International average
▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Reasoning

Item label: Trading Card_Trading cartoon cards

Trading Cartoon Cards

Brad had 8 cartoon cards to trade for sports cards. How many sports cards would he get?

Answer: _____ sports cards

Item Number: M031380

SCORING

Correct Response

- 6

Incorrect Response

- 4
- 12
- 24
- Other incorrect (including crossed out, erased, stray marks, illegible, or off task)

Overall Percent Correct

Education system	Percent correct
Singapore	48 ▲
Hong Kong-CHN	42 ▲
Chinese Taipei-CHN	40 ▲
Korea, Rep. of	36 ▲
Russian Federation	32 ▲
Japan	32 ▲
Finland	31 ▲
Denmark	30 ▲
Lithuania	27 ▲
Netherlands	25 ▲
Northern Ireland-GBR	23 ▲
Portugal	23 ▲
Czech Republic	21
Germany	20
Belgium (Flemish)-BEL	20
Norway	20
Romania	20
Poland	19
Sweden	19
England-GBR	19
Slovak Republic	19
Austria	19
United States	19
Serbia	19
Kazakhstan	18
International average	18
Slovenia	18
Australia	17
Hungary	17
Ireland	17
Croatia	15 ▼
Thailand	13 ▼
Azerbaijan	13 ▼
New Zealand	13 ▼
Italy	12 ▼
Georgia	11 ▼
Turkey	11 ▼
Chile	10 ▼
Bahrain	9 ▼
Armenia	9 ▼
United Arab Emirates	9 ▼
Spain	9 ▼
Qatar	8 ▼
Saudi Arabia	7 ▼
Malta	6 ▼
Morocco	6 ▼
Iran, Islamic Rep. of	6 ▼
Tunisia	6 ▼
Kuwait	5 ▼
Oman	4 ▼
Yemen	2 ▼

Benchmarking education system

Quebec-CAN	21
North Carolina-USA	19
Ontario-CAN	18
Florida-USA	17
Alberta-CAN	15
Dubai-UAE	13 ▼
Abu Dhabi-UAE	7 ▼

▲ Percent higher than International average
▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Knowing

Item label: Smallest 3 digit number

Anna has these cards with numbers on them.

1

8

6

5

2

What is the smallest three-digit number she can show with the cards?
She may use each card only once.

Answer: _____

Item Number: M041003

SCORING

Correct Response

- 125

Incorrect Response

- Incorrect (including crossed out, erased, stray marks, illegible, or off task)

Overall Percent Correct

Education system	Percent correct
Korea, Rep. of	88 ▲
Hong Kong-CHN	84 ▲
Serbia	73 ▲
Japan	73 ▲
England-GBR	72 ▲
Russian Federation	72 ▲
Northern Ireland-GBR	71 ▲
Singapore	71 ▲
Hungary	71 ▲
Poland	70 ▲
Chinese Taipei-CHN	67 ▲
Croatia	66 ▲
Romania	66 ▲
Portugal	62 ▲
Slovak Republic	60 ▲
United States	60 ▲
Kazakhstan	59 ▲
Finland	58 ▲
Ireland	57 ▲
Austria	56 ▲
Australia	56 ▲
Turkey	55 ▲
Czech Republic	55 ▲
Germany	54 ▲
Georgia	52
New Zealand	51
Lithuania	50
International average	48
Azerbaijan	46
Slovenia	45
Iran, Islamic Rep. of	45
Malta	45
Denmark	42 ▼
Armenia	42 ▼
Belgium (Flemish)-BEL	41 ▼
Sweden	40 ▼
Norway	38 ▼
Italy	34 ▼
United Arab Emirates	33 ▼
Chile	32 ▼
Tunisia	27 ▼
Spain	24 ▼
Netherlands	24 ▼
Bahrain	23 ▼
Qatar	21 ▼
Oman	21 ▼
Saudi Arabia	18 ▼
Morocco	18 ▼
Thailand	14 ▼
Kuwait	5 ▼
Yemen	3 ▼

Benchmarking education system

North Carolina-USA	67 ▲
Alberta-CAN	64 ▲
Ontario-CAN	60 ▲
Quebec-CAN	56 ▲
Florida-USA	55 ▲
Dubai-UAE	48
Abu Dhabi-UAE	25 ▼

▲ Percent higher than International average
▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Knowing

Item label: Place value of 8

In which number does the 8 have the value of 800?

A. 1,468
 B. 2,587
 C. 3,809
 D. 8,634

Item Number: M041010

Correct Response:	C
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Overall Percent Correct

Education system	Percent correct
Korea, Rep. of	96 ▲
Singapore	96 ▲
Chinese Taipei-CHN	90 ▲
Russian Federation	90 ▲
United States	87 ▲
Austria	87 ▲
Sweden	87 ▲
Netherlands	87 ▲
Belgium (Flemish)-BEL	87 ▲
Northern Ireland-GBR	84 ▲
Japan	84 ▲
Chile	82 ▲
Portugal	82 ▲
Thailand	81 ▲
Slovak Republic	80 ▲
Malta	79 ▲
Romania	78 ▲
Poland	77 ▲
Georgia	76 ▲
Australia	75
Ireland	75
Hong Kong-CHN	75
Spain	74
Italy	74
Kazakhstan	72
International average	72
Denmark	71
Lithuania	70
Germany	70
Azerbaijan	70
Finland	69
Serbia	69
New Zealand	69
England-GBR	68
Czech Republic	68
Bahrain	67 ▼
Croatia	66 ▼
Hungary	66 ▼
Saudi Arabia	64 ▼
Oman	63 ▼
Turkey	60 ▼
Armenia	59 ▼
United Arab Emirates	58 ▼
Norway	58 ▼
Tunisia	56 ▼
Iran, Islamic Rep. of	55 ▼
Qatar	55 ▼
Slovenia	54 ▼
Yemen	44 ▼
Kuwait	39 ▼
Morocco	35 ▼

Benchmarking education system

North Carolina-USA	94 ▲
Florida-USA	91 ▲
Quebec-CAN	86 ▲
Alberta-CAN	70
Dubai-UAE	69
Ontario-CAN	66 ▼
Abu Dhabi-UAE	53 ▼

▲ Percent higher than International average
 ▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Knowing

Item label: Number 100 more than 5432

Which number is 100 more than 5,432?

A. 6,432

B. 5,532

C. 5,442

D. 5,433

Item Number: M041011

Correct Response:	B
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Overall Percent Correct

Education system	Percent correct
Korea, Rep. of	97 ▲
Singapore	95 ▲
Chinese Taipei-CHN	94 ▲
Japan	88 ▲
Netherlands	85 ▲
Portugal	84 ▲
Belgium (Flemish)-BEL	84 ▲
Hong Kong-CHN	83 ▲
Russian Federation	82 ▲
United States	80 ▲
Czech Republic	80 ▲
Kazakhstan	78 ▲
Northern Ireland-GBR	78 ▲
Slovak Republic	78 ▲
Sweden	77 ▲
Lithuania	76 ▲
Serbia	76 ▲
Austria	75 ▲
Croatia	74 ▲
Finland	73 ▲
England-GBR	73 ▲
Hungary	73 ▲
Australia	73 ▲
Germany	73 ▲
Slovenia	72 ▲
Romania	67
International average	66
New Zealand	66
Turkey	65
Azerbaijan	64
Armenia	64
Malta	64
Poland	63
Italy	62
Thailand	62
Norway	62
Georgia	59 ▼
Ireland	59 ▼
Denmark	57 ▼
Spain	57 ▼
Chile	50 ▼
Tunisia	47 ▼
United Arab Emirates	47 ▼
Qatar	46 ▼
Oman	45 ▼
Saudi Arabia	45 ▼
Iran, Islamic Rep. of	42 ▼
Bahrain	40 ▼
Kuwait	35 ▼
Morocco	27 ▼
Yemen	27 ▼

Benchmarking education system

North Carolina-USA	86 ▲
Florida-USA	81 ▲
Quebec-CAN	73 ▲
Alberta-CAN	68
Ontario-CAN	64
Dubai-UAE	57 ▼
Abu Dhabi-UAE	43 ▼

▲ Percent higher than International average
▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Knowing

Item label: Number closest to 9 multiply by 22

Which gives an answer closest to 9×22 ?

A. 5×20

B. 5×25

C. 10×20

D. 10×25

Item Number: M041041

Correct Response:	C
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Overall Percent Correct

Education system	Percent correct
Korea, Rep. of	87 ▲
Netherlands	83 ▲
Hong Kong-CHN	82 ▲
Chinese Taipei-CHN	81 ▲
Singapore	81 ▲
Japan	79 ▲
Belgium (Flemish)-BEL	78 ▲
Germany	72 ▲
Serbia	71 ▲
England-GBR	70 ▲
United States	68 ▲
Norway	67 ▲
Northern Ireland-GBR	67 ▲
Sweden	67 ▲
Denmark	65 ▲
Australia	64 ▲
Hungary	64 ▲
Turkey	64 ▲
Finland	63
Portugal	63
Ireland	62
Russian Federation	61
Romania	61
Georgia	61
New Zealand	60
International average	60
Slovak Republic	59
Azerbaijan	59
Kazakhstan	58
Czech Republic	58
Slovenia	57
Lithuania	57
Bahrain	56
Italy	56
Armenia	55
Austria	55
Croatia	55 ▼
Poland	55 ▼
Chile	52 ▼
Malta	51 ▼
United Arab Emirates	50 ▼
Saudi Arabia	49 ▼
Qatar	48 ▼
Spain	48 ▼
Thailand	46 ▼
Oman	39 ▼
Iran, Islamic Rep. of	39 ▼
Kuwait	38 ▼
Morocco	37 ▼
Tunisia	34 ▼
Yemen	31 ▼

Benchmarking education system

Florida-USA	76 ▲
Alberta-CAN	69 ▲
North Carolina-USA	68 ▲
Quebec-CAN	65 ▲
Ontario-CAN	63
Dubai-UAE	54 ▼
Abu Dhabi-UAE	47 ▼

▲ Percent higher than International average
▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
NUMBER	Fractions and Decimals	Applying

Item label: Shade $\frac{1}{2}$ of the larger triangle

Shade $\frac{1}{2}$ of the large triangle.

Item Number: M041064

SCORING

Correct Response

- Any 2 small triangles shaded
- Half of the triangle shaded in some other way

Incorrect Response

- 1 triangle shaded
- Other incorrect (including crossed out, erased, stray marks, illegible, or off task)

Overall Percent Correct

Education system	Percent correct
Northern Ireland-GBR	91 ▲
Hong Kong-CHN	90 ▲
Singapore	87 ▲
Ireland	86 ▲
Netherlands	85 ▲
Belgium (Flemish)-BEL	83 ▲
England-GBR	83 ▲
Slovenia	81 ▲
Lithuania	81 ▲
Finland	80 ▲
New Zealand	79 ▲
Chinese Taipei-CHN	78 ▲
United States	75 ▲
Australia	74 ▲
Denmark	72 ▲
Hungary	72 ▲
Malta	70 ▲
Kazakhstan	69 ▲
Japan	68 ▲
Korea, Rep. of	67 ▲
Serbia	64 ▲
Russian Federation	61
Portugal	60
Slovak Republic	60
International average	59
Romania	59
Austria	58
Germany	56
Czech Republic	54
Norway	53
Italy	53 ▼
Armenia	53 ▼
Bahrain	51 ▼
Sweden	50 ▼
Azerbaijan	50 ▼
Georgia	49 ▼
Qatar	47 ▼
United Arab Emirates	45 ▼
Poland	44 ▼
Spain	43 ▼
Thailand	43 ▼
Turkey	43 ▼
Saudi Arabia	41 ▼
Oman	41 ▼
Chile	39 ▼
Iran, Islamic Rep. of	38 ▼
Kuwait	33 ▼
Yemen	26 ▼
Morocco	25 ▼
Croatia	23 ▼
Tunisia	14 ▼

Benchmarking education system

Quebec-CAN	85 ▲
North Carolina-USA	81 ▲
Florida-USA	77 ▲
Ontario-CAN	69 ▲
Alberta-CAN	58
Dubai-UAE	52 ▼
Abu Dhabi-UAE	41 ▼

▲ Percent higher than International average
▼ Percent lower than International average

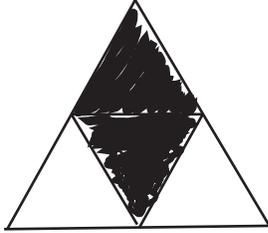
Item label: Shade 1/2 of the larger triangle (continued)

M041064

Student Responses

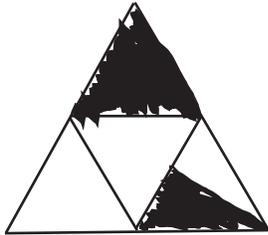
Correct Response:

Shade $\frac{1}{2}$ of the large triangle.



Incorrect Response:

Shade $\frac{1}{2}$ of the large triangle.



Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Applying

Item label: How many cans must Sean buy

Paint comes in 5 liter cans. Sean needs 37 liters of paint. How many cans must he buy?

A. 5
 B. 6
 C. 7
 D. 8

Item Number: M041098

Correct Response:	D
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Overall Percent Correct

Education system	Percent correct
Korea, Rep. of	83 ▲
Chinese Taipei-CHN	77 ▲
Hong Kong-CHN	76 ▲
Netherlands	74 ▲
Japan	69 ▲
Northern Ireland-GBR	69 ▲
Singapore	66 ▲
England-GBR	65 ▲
Denmark	63 ▲
Sweden	59 ▲
Finland	59 ▲
Belgium (Flemish)-BEL	58 ▲
Australia	56 ▲
Germany	56 ▲
Ireland	55 ▲
United States	53 ▲
Lithuania	49 ▲
Czech Republic	48
Portugal	47
Malta	46
International average	44
Romania	44
Serbia	43
New Zealand	42
Slovak Republic	41 ▼
Hungary	40
Chile	40 ▼
Russian Federation	40 ▼
Slovenia	40 ▼
Poland	39 ▼
Austria	37 ▼
Norway	37 ▼
Spain	36 ▼
Italy	35 ▼
Armenia	34 ▼
Bahrain	34 ▼
United Arab Emirates	33 ▼
Georgia	33 ▼
Azerbaijan	32 ▼
Saudi Arabia	31 ▼
Croatia	29 ▼
Kazakhstan	29 ▼
Qatar	28 ▼
Oman	26 ▼
Kuwait	26 ▼
Tunisia	25 ▼
Iran, Islamic Rep. of	25 ▼
Thailand	25 ▼
Morocco	23 ▼
Turkey	21 ▼
Yemen	19 ▼

Benchmarking education system

North Carolina-USA	61 ▲
Ontario-CAN	54 ▲
Alberta-CAN	54 ▲
Quebec-CAN	52 ▲
Dubai-UAE	42
Florida-USA	41
Abu Dhabi-UAE	29 ▼

▲ Percent higher than International average
 ▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
NUMBER	Fractions and Decimals	Knowing

Item label: Number between 5 and 6

Write a number that is larger than 5 and is smaller than 6.

Answer _____

Overall Percent Correct

Education system	Percent correct
Belgium (Flemish)-BEL	90 ▲
Netherlands	88 ▲
England-GBR	83 ▲
Denmark	81 ▲
Northern Ireland-GBR	80 ▲
Singapore	79 ▲
Finland	76 ▲
Hong Kong-CHN	74 ▲
Korea, Rep. of	70 ▲
Portugal	69 ▲
Germany	67 ▲
Japan	66 ▲
Ireland	66 ▲
Sweden	65 ▲
Australia	63 ▲
Chinese Taipei-CHN	59 ▲
United States	57 ▲
Norway	55 ▲
New Zealand	55 ▲
Hungary	52
Lithuania	51
Malta	49
Russian Federation	49
Kazakhstan	49
International average	48
Czech Republic	47
Italy	46
Armenia	45
Slovak Republic	45
Serbia	44
Croatia	44 ▼
Romania	40 ▼
Slovenia	40 ▼
Spain	39 ▼
Austria	37 ▼
Azerbaijan	34 ▼
Georgia	34 ▼
United Arab Emirates	33 ▼
Qatar	30 ▼
Turkey	29 ▼
Bahrain	28 ▼
Tunisia	28 ▼
Poland	27 ▼
Iran, Islamic Rep. of	27 ▼
Chile	27 ▼
Saudi Arabia	22 ▼
Thailand	21 ▼
Morocco	19 ▼
Oman	16 ▼
Kuwait	13 ▼
Yemen	5 ▼

Item Number: M041104

SCORING

Correct Response

- Any decimal number between 5 and 6
- Any number between 5 and 6 given as a fraction, including answers in words

Incorrect Response

- Incorrect (including crossed out, erased, stray marks, illegible, or off task)

Benchmarking education system

Florida-USA	59 ▲
North Carolina-USA	56 ▲
Quebec-CAN	54 ▲
Ontario-CAN	51
Alberta-CAN	50
Dubai-UAE	41 ▼
Abu Dhabi-UAE	32 ▼

- ▲ Percent higher than International average
- ▼ Percent lower than International average

Item label: Number between 5 and 6 (continued)

M041104

Student Responses

Correct Response:

Answer 5.3

Incorrect Response:

Answer 6

Content Domain	Main Topic	Cognitive Domain
NUMBER	Number Sentences with Whole Numbers	Applying

Item label: Number sentence for a situation

Joan had 12 apples. She ate some apples, and there were 9 left. Which number sentence describes what happened?

A. $12 + 9 = \square$

B. $9 = 12 + \square$

C. $12 - \square = 9$

D. $9 - \square = 12$

Item Number: M041107

Correct Response:	C
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Overall Percent Correct

Education system	Percent correct
Korea, Rep. of	98 ▲
Chinese Taipei-CHN	96 ▲
Japan	94 ▲
Russian Federation	92 ▲
Finland	92 ▲
United States	92 ▲
Netherlands	91 ▲
Singapore	91 ▲
Hong Kong-CHN	91 ▲
Portugal	90 ▲
Austria	90 ▲
Belgium (Flemish)-BEL	89 ▲
Slovak Republic	89 ▲
Germany	89 ▲
Slovenia	88 ▲
Lithuania	87 ▲
Serbia	86 ▲
Czech Republic	86 ▲
Hungary	86 ▲
Poland	85 ▲
England-GBR	84 ▲
Croatia	84 ▲
Australia	84 ▲
Norway	84 ▲
Sweden	83 ▲
Azerbaijan	83 ▲
Kazakhstan	82 ▲
Northern Ireland-GBR	82
Italy	81
Romania	80
Spain	79
International average	78
Chile	76
New Zealand	76
Denmark	76
Armenia	76
Turkey	75
Georgia	74
Ireland	74
Bahrain	68 ▼
Iran, Islamic Rep. of	68 ▼
United Arab Emirates	67 ▼
Malta	67 ▼
Thailand	66 ▼
Saudi Arabia	64 ▼
Qatar	55 ▼
Oman	55 ▼
Tunisia	51 ▼
Kuwait	46 ▼
Morocco	40 ▼
Yemen	33 ▼

Benchmarking education system

North Carolina-USA	94 ▲
Florida-USA	93 ▲
Quebec-CAN	86 ▲
Ontario-CAN	85 ▲
Alberta-CAN	85 ▲
Dubai-UAE	72 ▼
Abu Dhabi-UAE	65 ▼

▲ Percent higher than International average
▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
NUMBER	Patterns and Relationships	Applying

Item label: Draw figure 5

Bill is arranging squares in the following way:



Figure 1



Figure 2

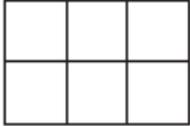


Figure 3

A. Draw Figure 5.

Overall Percent Correct

Education system	Percent correct
Korea, Rep. of	90 ▲
Japan	84 ▲
Singapore	84 ▲
Hong Kong-CHN	79 ▲
Chinese Taipei-CHN	79 ▲
Northern Ireland-GBR	72 ▲
Germany	72 ▲
Russian Federation	71 ▲
Netherlands	71 ▲
Belgium (Flemish)-BEL	71 ▲
Portugal	71 ▲
Italy	68 ▲
Finland	68 ▲
Croatia	68 ▲
Denmark	67 ▲
Sweden	67 ▲
Ireland	67 ▲
Australia	66 ▲
Serbia	66 ▲
Slovak Republic	65 ▲
Spain	65 ▲
Norway	64 ▲
Lithuania	64 ▲
Poland	64 ▲
Czech Republic	64 ▲
United States	63 ▲
Kazakhstan	63
Austria	63 ▼
England-GBR	63
Slovenia	60
New Zealand	59
Chile	58
International average	58
Malta	58
Hungary	57
Romania	57
United Arab Emirates	49 ▼
Thailand	47 ▼
Armenia	46 ▼
Turkey	44 ▼
Georgia	43 ▼
Bahrain	43 ▼
Qatar	42 ▼
Azerbaijan	39 ▼
Iran, Islamic Rep. of	37 ▼
Saudi Arabia	35 ▼
Oman	35 ▼
Tunisia	24 ▼
Kuwait	24 ▼
Morocco	21 ▼
Yemen	12 ▼

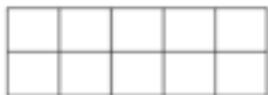
Benchmarking education system	Percent correct
Quebec-CAN	73 ▲
Alberta-CAN	70 ▲
Ontario-CAN	70 ▲
Florida-USA	66 ▲
North Carolina-USA	65 ▲
Dubai-UAE	57
Abu Dhabi-UAE	46 ▼

Item Number: M041115A

SCORING

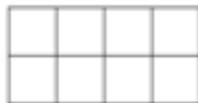
Correct Response

- Draws Figure 5 correctly



Incorrect Response

- Indicates 8, or draws Figure 4



- Other Incorrect (including crossed out, erased, stray marks, illegible, or off task)

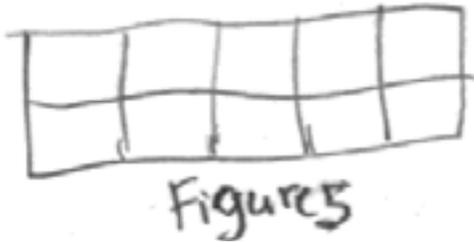
▲ Percent higher than International average
▼ Percent lower than International average

Item label: Draw figure 5 (continued)

M041115A

Student Responses

Correct Response:



Incorrect Response:



Content Domain	Main Topic	Cognitive Domain
NUMBER	Patterns and Relationships	Reasoning

Item label: Number of squares for figure 16

Bill is arranging squares in the following way:



Figure 1

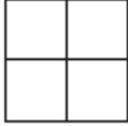


Figure 2

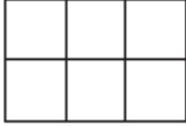


Figure 3

B. How many squares would Bill need to make Figure 16?

Answer: _____

Item Number: M041115B

SCORING

Correct Response

- 32/ twice 16/ or equivalent

Incorrect Response

- Incorrect (including crossed out, erased, stray marks, illegible, or off task)

Overall Percent Correct

Education system	Percent correct
Korea, Rep. of	78 ▲
Singapore	77 ▲
Chinese Taipei-CHN	76 ▲
Hong Kong-CHN	74 ▲
Japan	71 ▲
Russian Federation	60 ▲
United States	59 ▲
Germany	58 ▲
Northern Ireland-GBR	58 ▲
England-GBR	55 ▲
Portugal	55 ▲
Serbia	55 ▲
Belgium (Flemish)-BEL	54 ▲
Netherlands	54 ▲
Sweden	53 ▲
Ireland	52 ▲
Australia	52 ▲
Denmark	52 ▲
Czech Republic	51 ▲
Malta	51 ▲
Italy	51 ▲
Austria	51 ▲
Lithuania	51 ▲
Kazakhstan	50 ▲
Slovak Republic	49
Norway	48
Croatia	48
Spain	47
Slovenia	47
International average	45
Finland	45
Poland	45
Romania	43
New Zealand	43
Hungary	43
Chile	38 ▼
Turkey	38 ▼
Azerbaijan	36 ▼
United Arab Emirates	31 ▼
Georgia	30 ▼
Armenia	30 ▼
Qatar	28 ▼
Thailand	27 ▼
Bahrain	26 ▼
Iran, Islamic Rep. of	25 ▼
Saudi Arabia	23 ▼
Oman	19 ▼
Tunisia	11 ▼
Morocco	11 ▼
Kuwait	10 ▼
Yemen	5 ▼

Benchmarking education system	Percent correct
North Carolina-USA	64 ▲
Florida-USA	62 ▲
Quebec-CAN	60 ▲
Ontario-CAN	55 ▲
Alberta-CAN	50 ▲
Dubai-UAE	41 ▼
Abu Dhabi-UAE	27 ▼

▲ Percent higher than International average
 ▼ Percent lower than International average

Item label: Number of squares for figure 16 (continued)

M041115B

Student Responses

Correct Response:

Answer: 32

Incorrect Response:

Answer: 12

Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Knowing

Item label: Numbers which are factor of 12

Circle each number which is a factor of 12.

1	2	3	4	5	6	7	8	9	10	11	12
---	---	---	---	---	---	---	---	---	----	----	----

Item Number: M041122

SCORING

Correct Response

- 1, 2, 3, 4, 6, 12 marked and no others

Partially Correct Response

- Marks 4 or 5 out of 6 correct numbers and no incorrect numbers.

Incorrect Response

- Incorrect (including crossed out, erased, stray marks, illegible, or off task)

Overall Percent Correct

Education system	Percent correct
Hong Kong-CHN	88 ▲
Singapore	79 ▲
Kazakhstan	61 ▲
Belgium (Flemish)-BEL	55 ▲
Hungary	51 ▲
Northern Ireland-GBR	51 ▲
Serbia	48 ▲
United States	46 ▲
Korea, Rep. of	44 ▲
Russian Federation	44 ▲
England-GBR	42 ▲
Germany	40 ▲
Denmark	37 ▲
Lithuania	36 ▲
Azerbaijan	35 ▲
Poland	35 ▲
Armenia	33 ▲
Slovenia	31
Slovak Republic	29
Australia	29
Croatia	28
Malta	28
International average	27
Netherlands	27
Italy	27
Czech Republic	24
United Arab Emirates	24 ▼
Romania	24
Kuwait	21 ▼
Qatar	19 ▼
Portugal	19 ▼
Finland	18 ▼
Georgia	16 ▼
Oman	16 ▼
Chinese Taipei-CHN	16 ▼
New Zealand	15 ▼
Turkey	15 ▼
Ireland	14 ▼
Bahrain	12 ▼
Austria	12 ▼
Thailand	10 ▼
Saudi Arabia	10 ▼
Japan	8 ▼
Iran, Islamic Rep. of	7 ▼
Sweden	6 ▼
Chile	6 ▼
Spain	6 ▼
Norway	5 ▼
Tunisia	4 ▼
Yemen	2 ▼
Morocco	1 ▼

Benchmarking education system

Florida-USA	66 ▲
North Carolina-USA	47 ▲
Quebec-CAN	30
Dubai-UAE	29
Abu Dhabi-UAE	21 ▼
Alberta-CAN	11 ▼
Ontario-CAN	8 ▼

- ▲ Percent higher than International average
- ▼ Percent lower than International average

Item label: Numbers which are factor of 12 (continued)

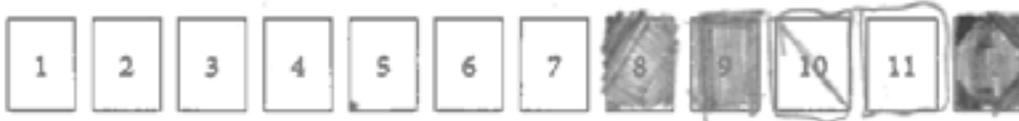
M041122

Student Responses

Correct Response:



Incorrect Response:



Content Domain	Main Topic	Cognitive Domain
NUMBER	Fractions and Decimals	Knowing

Item label: Fraction of the cake eaten

Tom ate $\frac{1}{2}$ of a cake, and Jane ate $\frac{1}{4}$ of the cake. How much of the cake did they eat altogether?

Answer: _____

Item Number: M041299

SCORING

Correct Response

- $\frac{3}{4}$ or equivalent

Incorrect Response

- 2/6
- Other incorrect (including crossed out, erased, stray marks, illegible, or off task)

Overall Percent Correct

Education system	Percent correct
Singapore	84 ▲
Northern Ireland-GBR	68 ▲
Chinese Taipei-CHN	54 ▲
Ireland	53 ▲
Hong Kong-CHN	53 ▲
England-GBR	51 ▲
Finland	46 ▲
Germany	41 ▲
Australia	37 ▲
Korea, Rep. of	36 ▲
United States	35 ▲
New Zealand	33 ▲
Denmark	32 ▲
Belgium (Flemish)-BEL	30 ▲
Netherlands	28 ▲
Japan	28 ▲
Austria	28
Malta	24
International average	23
Serbia	22
Azerbaijan	22
Romania	21
Iran, Islamic Rep. of	20 ▼
Hungary	19 ▼
United Arab Emirates	17 ▼
Czech Republic	16 ▼
Sweden	16 ▼
Kazakhstan	16 ▼
Bahrain	15 ▼
Qatar	15 ▼
Slovak Republic	15 ▼
Spain	14 ▼
Lithuania	14 ▼
Slovenia	14 ▼
Russian Federation	14 ▼
Saudi Arabia	14 ▼
Norway	13 ▼
Oman	12 ▼
Kuwait	11 ▼
Portugal	11 ▼
Italy	11 ▼
Armenia	11 ▼
Turkey	9 ▼
Tunisia	8 ▼
Chile	8 ▼
Georgia	7 ▼
Poland	6 ▼
Thailand	5 ▼
Morocco	5 ▼
Croatia	5 ▼
Yemen	3 ▼

Benchmarking education system

North Carolina-USA	40 ▲
Florida-USA	32 ▲
Ontario-CAN	28 ▲
Quebec-CAN	27
Dubai-UAE	24
Alberta-CAN	19 ▼
Abu Dhabi-UAE	14 ▼

- ▲ Percent higher than International average
- ▼ Percent lower than International average

Item label: Fraction of the cake eaten (continued)

M041299

Student Responses

Correct Response:

$$\frac{3}{4}$$

$$\frac{1}{2} + \frac{1}{4}$$

$$\frac{2}{4} + \frac{1}{4} = \frac{3}{4}$$

Incorrect Response:

$$\frac{2}{6}$$

$$4 + 2 = 6$$

$$\frac{1}{2} + \frac{1}{4} = \frac{2}{6}$$

Content Domain	Main Topic	Cognitive Domain
NUMBER	Fractions and Decimals	Knowing

Item label: Equivalent fractions

Which sentence means Jack ate $\frac{2}{4}$ of a pizza?

A. Jack ate $\frac{1}{5}$ of the pizza

B. Jack ate $\frac{1}{4}$ of the pizza

C. Jack ate $\frac{1}{3}$ of the pizza

D. Jack ate $\frac{1}{2}$ of the pizza

Item Number: M041320

Correct Response:	D
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Overall Percent Correct

Education system	Percent correct
Singapore	89 ▲
Hong Kong-CHN	88 ▲
Chinese Taipei-CHN	82 ▲
Belgium (Flemish)-BEL	77 ▲
Northern Ireland-GBR	77 ▲
United States	74 ▲
Ireland	74 ▲
Netherlands	72 ▲
Finland	71 ▲
Malta	69 ▲
England-GBR	68 ▲
Korea, Rep. of	63 ▲
Australia	62 ▲
Japan	60 ▲
Denmark	58 ▲
New Zealand	57 ▲
Lithuania	54 ▲
Serbia	51
Hungary	47
International average	46
Romania	46
Azerbaijan	45
Norway	44
Russian Federation	43
Italy	42
Slovenia	41 ▼
Kazakhstan	41 ▼
Germany	40 ▼
Portugal	40 ▼
Sweden	39 ▼
United Arab Emirates	38 ▼
Turkey	38 ▼
Austria	38 ▼
Spain	37 ▼
Armenia	37 ▼
Chile	36 ▼
Slovak Republic	32 ▼
Czech Republic	31 ▼
Georgia	31 ▼
Iran, Islamic Rep. of	30 ▼
Qatar	30 ▼
Bahrain	29 ▼
Saudi Arabia	29 ▼
Poland	28 ▼
Oman	26 ▼
Kuwait	25 ▼
Croatia	24 ▼
Thailand	22 ▼
Morocco	19 ▼
Yemen	17 ▼
Tunisia	15 ▼

Benchmarking education system

Florida-USA	82 ▲
North Carolina-USA	82 ▲
Quebec-CAN	66 ▲
Ontario-CAN	53 ▲
Alberta-CAN	52 ▲
Dubai-UAE	48
Abu Dhabi-UAE	35 ▼

▲ Percent higher than International average
▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Reasoning

Item label: Soccer tournament

In a soccer tournament, teams get:

3 points for a win
1 point for a tie
0 points for a loss

Zedland has 11 points.

What is the **smallest** number of games Zedland could have played?

Answer: _____

Item Number: M051001

SCORING**Correct Response**

- 5 OR 3 wins and 2 ties

Incorrect Response

- Incorrect (including crossed out, erased, stray marks, illegible, or off task)

Overall Percent Correct

Education system	Percent correct
Hong Kong-CHN	59 ▲
Japan	56 ▲
Korea, Rep. of	52 ▲
Singapore	52 ▲
Chinese Taipei-CHN	48 ▲
England-GBR	47 ▲
Northern Ireland-GBR	45 ▲
Serbia	45 ▲
Czech Republic	41 ▲
Denmark	40 ▲
Portugal	40 ▲
Ireland	39 ▲
Lithuania	37 ▲
Sweden	36 ▲
Netherlands	36 ▲
Finland	35 ▲
United States	34 ▲
Slovak Republic	34 ▲
Australia	31 ▲
Germany	29
Russian Federation	28
International average	27
Azerbaijan	26
New Zealand	26
Romania	26
Turkey	26
Hungary	26
Belgium (Flemish)-BEL	25
Kazakhstan	25
Croatia	25
Armenia	25
Italy	23
Poland	22 ▼
Spain	21 ▼
Malta	21 ▼
Slovenia	21 ▼
Thailand	20 ▼
Norway	19 ▼
Austria	17 ▼
Chile	16 ▼
Georgia	14 ▼
Saudi Arabia	13 ▼
Morocco	13 ▼
United Arab Emirates	12 ▼
Bahrain	11 ▼
Iran, Islamic Rep. of	9 ▼
Qatar	8 ▼
Oman	5 ▼
Tunisia	4 ▼
Yemen	3 ▼
Kuwait	2 ▼

Benchmarking education system

North Carolina-USA	39 ▲
Ontario-CAN	36 ▲
Florida-USA	35 ▲
Alberta-CAN	35 ▲
Quebec-CAN	26
Dubai-UAE	14 ▼
Abu Dhabi-UAE	11 ▼

- ▲ Percent higher than International average
- ▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Reasoning

Item label: Number of hours to Brandon on bike

Mary left Apton and rode at the same speed for 2 hours.
She reached this sign.



Mary continues to ride at the same speed to Brandon.
How many hours will it take her to ride from the sign to Brandon?

- A. $1\frac{1}{2}$ hours
- B. 2 hours
- C. 3 hours
- D. $3\frac{1}{2}$ hours

Item Number: M051007

Correct Response:	C
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Overall Percent Correct

Education system	Percent correct
Kazakhstan	55 ▲
Russian Federation	54 ▲
Singapore	50 ▲
Romania	50 ▲
Lithuania	47 ▲
Denmark	45 ▲
Portugal	45 ▲
Slovak Republic	45 ▲
Hong Kong-CHN	45 ▲
Serbia	44 ▲
Chinese Taipei-CHN	44 ▲
Czech Republic	43 ▲
Azerbaijan	42
Netherlands	42
Germany	41
Armenia	41
Korea, Rep. of	41
Hungary	41
Georgia	40
Croatia	40
Northern Ireland-GBR	40
Japan	40
Poland	39
England-GBR	39
Slovenia	38
International average	38
Finland	37
Norway	37
Belgium (Flemish)-BEL	37
Iran, Islamic Rep. of	36
Turkey	36
Ireland	35
Italy	35
Australia	34
Sweden	34
Thailand	34
United States	33 ▼
Tunisia	32 ▼
New Zealand	32 ▼
Yemen	32 ▼
Austria	32 ▼
Spain	31 ▼
Bahrain	30 ▼
Qatar	29 ▼
Malta	29 ▼
Saudi Arabia	27 ▼
United Arab Emirates	27 ▼
Chile	27 ▼
Oman	24 ▼
Kuwait	24 ▼
Morocco	22 ▼

Benchmarking education system

Quebec-CAN	39
Ontario-CAN	36
North Carolina-USA	36
Alberta-CAN	34
Florida-USA	31 ▼
Dubai-UAE	26 ▼
Abu Dhabi-UAE	25 ▼

▲ Percent higher than International average
▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
NUMBER	Fractions and Decimals	Knowing

Item label: Find the inequivalent fraction

Which fraction is **not** equal to the others?

A. $\frac{1}{2}$

B. $\frac{4}{8}$

C. $\frac{2}{4}$

D. $\frac{2}{8}$

Item Number: M051091

Correct Response:	D
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Overall Percent Correct

Education system	Percent correct
Hong Kong-CHN	82 ▲
Singapore	81 ▲
Chinese Taipei-CHN	81 ▲
Northern Ireland-GBR	73 ▲
England-GBR	69 ▲
Finland	68 ▲
Korea, Rep. of	68 ▲
Ireland	67 ▲
Belgium (Flemish)-BEL	66 ▲
United States	65 ▲
Malta	65 ▲
Netherlands	64 ▲
Japan	56 ▲
Australia	56 ▲
Denmark	54 ▲
Hungary	51 ▲
Romania	51 ▲
New Zealand	45
Azerbaijan	44
Serbia	44
International average	44
Austria	43
Turkey	42
Croatia	39 ▼
Slovak Republic	38 ▼
Portugal	38 ▼
Italy	36 ▼
United Arab Emirates	36 ▼
Lithuania	36 ▼
Norway	36 ▼
Kazakhstan	35 ▼
Germany	35 ▼
Russian Federation	35 ▼
Qatar	34 ▼
Armenia	32 ▼
Sweden	31 ▼
Bahrain	31 ▼
Georgia	31 ▼
Slovenia	31 ▼
Spain	30 ▼
Czech Republic	30 ▼
Saudi Arabia	28 ▼
Poland	26 ▼
Iran, Islamic Rep. of	26 ▼
Chile	25 ▼
Oman	25 ▼
Tunisia	25 ▼
Thailand	25 ▼
Morocco	23 ▼
Kuwait	16 ▼
Yemen	15 ▼

Benchmarking education system

North Carolina-USA	75 ▲
Florida-USA	69 ▲
Quebec-CAN	62 ▲
Ontario-CAN	50 ▲
Alberta-CAN	47
Dubai-UAE	46
Abu Dhabi-UAE	34 ▼

▲ Percent higher than International average
▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Knowing

Item label: Multiply 23 and 19

$23 \times 19 =$

Answer: _____

Item Number: M051203

SCORING**Correct Response**

- 437

Incorrect Response

- Incorrect (including crossed out, erased, stray marks, illegible, or off task)

Overall Percent Correct

Education system	Percent correct
Chinese Taipei-CHN	90 ▲
Korea, Rep. of	83 ▲
Singapore	79 ▲
Portugal	79 ▲
Japan	78 ▲
Hong Kong-CHN	77 ▲
Russian Federation	74 ▲
Kazakhstan	70 ▲
Armenia	69 ▲
Serbia	68 ▲
Azerbaijan	63 ▲
Lithuania	61 ▲
Turkey	59 ▲
United States	59 ▲
Italy	58 ▲
Austria	58 ▲
Spain	55 ▲
Croatia	54 ▲
Romania	51 ▲
Tunisia	50 ▲
Iran, Islamic Rep. of	45 ▲
Georgia	44
Slovak Republic	43
Northern Ireland-GBR	43
Thailand	42
International average	41
Hungary	40
Ireland	40
England-GBR	37
Germany	32 ▼
Czech Republic	28 ▼
United Arab Emirates	28 ▼
Belgium (Flemish)-BEL	26 ▼
Malta	25 ▼
Netherlands	25 ▼
Morocco	25 ▼
Bahrain	23 ▼
Chile	23 ▼
Denmark	20 ▼
Qatar	19 ▼
Oman	18 ▼
Slovenia	16 ▼
Saudi Arabia	15 ▼
Australia	11 ▼
Norway	9 ▼
New Zealand	8 ▼
Poland	6 ▼
Sweden	5 ▼
Yemen	5 ▼
Finland	5 ▼
Kuwait	3 ▼

Benchmarking education system

Florida-USA	64 ▲
North Carolina-USA	61 ▲
Dubai-UAE	38 ▼
Quebec-CAN	23 ▼
Abu Dhabi-UAE	22 ▼
Ontario-CAN	12 ▼
Alberta-CAN	9 ▼

- ▲ Percent higher than International average
- ▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
NUMBER	Fractions and Decimals	Applying

Item label: How far did Duncan travel

Duncan first traveled 4.8 km in a car and then he traveled 1.5 km in a bus.

How far did Duncan travel?

A. 6.3 km

B. 5.8 km

C. 5.13 km

D. 4.95 km

Item Number: M051305

Correct Response:	A
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Overall Percent Correct

Education system	Percent correct
Korea, Rep. of	97 ▲
Japan	95 ▲
Singapore	92 ▲
Chinese Taipei-CHN	92 ▲
Finland	86 ▲
Belgium (Flemish)-BEL	86 ▲
Portugal	84 ▲
Germany	76 ▲
Ireland	75 ▲
Northern Ireland-GBR	74 ▲
Lithuania	74 ▲
England-GBR	74 ▲
United States	74 ▲
Hong Kong-CHN	74 ▲
Netherlands	73 ▲
Denmark	73 ▲
Austria	72 ▲
Italy	69 ▲
Malta	67 ▲
Russian Federation	67 ▲
Sweden	65 ▲
Chile	64 ▲
Kazakhstan	63
Azerbaijan	62
Australia	62
Hungary	61
International average	60
Slovak Republic	60
Poland	59
Czech Republic	59
Norway	59
Spain	58
Romania	57
Turkey	56 ▼
Slovenia	54 ▼
Serbia	54 ▼
Croatia	54 ▼
New Zealand	48 ▼
Georgia	48 ▼
Bahrain	44 ▼
Thailand	44 ▼
Qatar	42 ▼
Armenia	41 ▼
United Arab Emirates	41 ▼
Saudi Arabia	30 ▼
Morocco	30 ▼
Oman	29 ▼
Iran, Islamic Rep. of	29 ▼
Tunisia	28 ▼
Yemen	19 ▼
Kuwait	19 ▼

Benchmarking education system

North Carolina-USA	80 ▲
Florida-USA	72 ▲
Quebec-CAN	69 ▲
Alberta-CAN	61
Ontario-CAN	57
Dubai-UAE	55 ▼
Abu Dhabi-UAE	34 ▼

▲ Percent higher than International average
▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
NUMBER	Patterns and Relationships	Applying

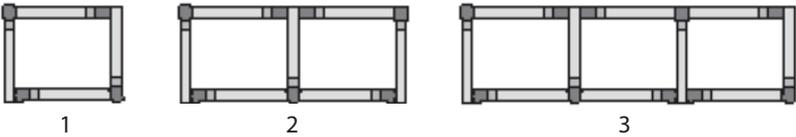
Item label: Number of matches for figure 4

Cooney has to form figures 1 to 4 with matches.

Figures 1, 2, and 3 are shown below.

He needs four matches to form figure 1, seven matches to form figure 2, and ten matches to form figure 3.

He uses the same rule each time to make the next figure in the pattern.



How many matches will he need to form figure 4?

Answer: _____

Item Number: M051601

SCORING

Correct Response

- 13

Incorrect Response



- Other incorrect (including crossed out, erased, stray marks, illegible, or off task)

Overall Percent Correct	
Education system	Percent correct
Korea, Rep. of	93 ▲
Japan	84 ▲
Singapore	82 ▲
Hong Kong-CHN	77 ▲
Chinese Taipei-CHN	73 ▲
Belgium (Flemish)-BEL	72 ▲
Finland	72 ▲
Netherlands	72 ▲
Portugal	71 ▲
Germany	69 ▲
Russian Federation	69 ▲
Denmark	68 ▲
Sweden	67 ▲
Serbia	66 ▲
Northern Ireland-GBR	66 ▲
Slovenia	66 ▲
Slovak Republic	64 ▲
Czech Republic	64 ▲
England-GBR	63 ▲
Kazakhstan	62 ▲
Lithuania	61 ▲
Austria	61 ▲
Norway	58
United States	58 ▲
Italy	58
Australia	58
Ireland	56
Croatia	56
Hungary	55
New Zealand	54
International average	54
Spain	50
Georgia	50
Thailand	50 ▼
Romania	49
Azerbaijan	49
Poland	49 ▼
Chile	47 ▼
Armenia	47 ▼
Malta	43 ▼
Bahrain	39 ▼
Iran, Islamic Rep. of	35 ▼
United Arab Emirates	35 ▼
Qatar	31 ▼
Saudi Arabia	30 ▼
Turkey	29 ▼
Oman	22 ▼
Tunisia	18 ▼
Morocco	17 ▼
Kuwait	15 ▼
Yemen	7 ▼
Benchmarking education system	
Quebec-CAN	66 ▲
Florida-USA	60 ▲
Alberta-CAN	59
North Carolina-USA	58
Ontario-CAN	58
Dubai-UAE	44 ▼
Abu Dhabi-UAE	30 ▼

▲ Percent higher than International average
▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
GEOMETRIC SHAPES AND MEASURES	Points, Lines, and Angles	Applying

Item label: Length of string pulled straight

If the string in the diagram above is pulled straight, which of these is closest to its length?

A. 5 cm
 B. 7 cm
 C. 8 cm
 D. 9 cm

Item Number: M031004

Correct Response:	B
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Overall Percent Correct

Education system	Percent correct
Russian Federation	53 ▲
Japan	52 ▲
Belgium (Flemish)-BEL	48 ▲
Chinese Taipei-CHN	48 ▲
Singapore	44 ▲
Sweden	44 ▲
Netherlands	43 ▲
Kazakhstan	43 ▲
Germany	42 ▲
Korea, Rep. of	41 ▲
Hong Kong-CHN	41 ▲
Azerbaijan	39 ▲
Slovenia	38 ▲
Finland	38 ▲
Denmark	36 ▲
Lithuania	36 ▲
Austria	36 ▲
Portugal	34 ▲
Slovak Republic	33
Serbia	33
Poland	30
Romania	29
Italy	29
International average	29
Czech Republic	29
Hungary	28
Northern Ireland-GBR	26
Croatia	26
Australia	26
Norway	26
Armenia	22 ▼
Thailand	22 ▼
Turkey	21 ▼
Tunisia	20 ▼
Georgia	20 ▼
United States	20 ▼
Spain	20 ▼
England-GBR	19 ▼
Iran, Islamic Rep. of	18 ▼
Malta	18 ▼
Morocco	18 ▼
Yemen	17 ▼
Qatar	16 ▼
New Zealand	16 ▼
Ireland	16 ▼
Chile	15 ▼
Saudi Arabia	15 ▼
United Arab Emirates	14 ▼
Oman	13 ▼
Kuwait	13 ▼
Bahrain	10 ▼
Benchmarking education system	
Quebec-CAN	24 ▼
Florida-USA	23 ▼
Ontario-CAN	21 ▼
North Carolina-USA	20 ▼
Dubai-UAE	18 ▼
Alberta-CAN	17 ▼
Abu Dhabi-UAE	14 ▼

▲ Percent higher than International average
 ▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
GEOMETRIC SHAPES AND MEASURES	Two- and Three-dimensional Shapes	Knowing

Item label: Position of shape after a 1/2 turn



Which of the following shows the position of the shape above after a half turn or 180° rotation?

A. 

B. 

C. 

D. 

Item Number: M031071

Correct Response:	B
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Overall Percent Correct

Education system	Percent correct
Korea, Rep. of	80 ▲
Singapore	70 ▲
Japan	69 ▲
Finland	67 ▲
Hong Kong-CHN	64 ▲
England-GBR	64 ▲
Northern Ireland-GBR	63 ▲
Netherlands	59 ▲
Chinese Taipei-CHN	58 ▲
United States	52 ▲
Russian Federation	51 ▲
Portugal	49 ▲
Slovak Republic	48 ▲
Denmark	48 ▲
Australia	47
Norway	47
New Zealand	46
Italy	46
Sweden	46
Azerbaijan	45
Czech Republic	45
Germany	44
Turkey	44
Serbia	43
International average	43
Spain	42
Kazakhstan	42
Hungary	42
Ireland	42
Belgium (Flemish)-BEL	40
Austria	40
Lithuania	39
Croatia	38 ▼
Chile	38 ▼
Saudi Arabia	36 ▼
Thailand	35 ▼
Qatar	35 ▼
Malta	35 ▼
Romania	34 ▼
Poland	34 ▼
Slovenia	34 ▼
United Arab Emirates	32 ▼
Bahrain	32 ▼
Georgia	29 ▼
Iran, Islamic Rep. of	27 ▼
Kuwait	24 ▼
Morocco	22 ▼
Oman	22 ▼
Armenia	21 ▼
Tunisia	16 ▼
Yemen	12 ▼

Benchmarking education system	
Florida-USA	75 ▲
North Carolina-USA	59 ▲
Ontario-CAN	47 ▲
Quebec-CAN	47
Alberta-CAN	37 ▼
Dubai-UAE	36 ▼
Abu Dhabi-UAE	28 ▼

▲ Percent higher than International average
 ▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
GEOMETRIC SHAPES AND MEASURES	Two- and Three-dimensional Shapes	Knowing

Item label: Pieces of cardboard to make shape

Susan has the 6 pieces of cardboard shown above. Which of the following shapes could Susan make using all 6 of these pieces without cutting them?

A.

B.

C.

D.

Item Number: M031083

Correct Response:	D
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Overall Percent Correct

Education system	Percent correct
Portugal	93 ▲
Hong Kong-CHN	92 ▲
Japan	90 ▲
Singapore	88 ▲
Korea, Rep. of	85 ▲
Finland	84 ▲
Russian Federation	84 ▲
Chinese Taipei-CHN	84 ▲
United States	83 ▲
Ireland	82 ▲
Australia	81 ▲
Chile	81 ▲
Czech Republic	80 ▲
Denmark	79 ▲
Serbia	79 ▲
Slovak Republic	78 ▲
England-GBR	78 ▲
Sweden	78 ▲
Northern Ireland-GBR	78 ▲
Austria	75 ▲
Belgium (Flemish)-BEL	74 ▲
Hungary	74 ▲
Lithuania	73 ▲
Turkey	72
Netherlands	72
Slovenia	71
New Zealand	71
Germany	71
Italy	71
Spain	70
Norway	70
Croatia	69
International average	69
Kazakhstan	67
Malta	64
Romania	63 ▼
Poland	63 ▼
Azerbaijan	61 ▼
Bahrain	60 ▼
Thailand	57 ▼
Georgia	56 ▼
Saudi Arabia	54 ▼
Iran, Islamic Rep. of	53 ▼
Armenia	53 ▼
United Arab Emirates	53 ▼
Qatar	43 ▼
Oman	40 ▼
Morocco	37 ▼
Tunisia	37 ▼
Kuwait	32 ▼
Yemen	26 ▼

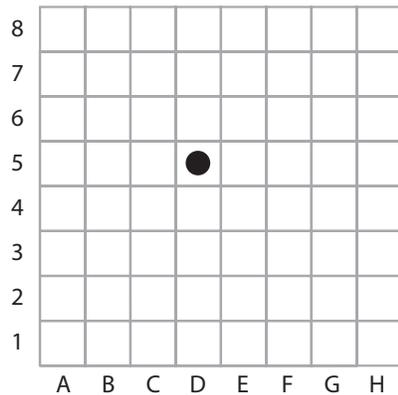
Benchmarking education system

Florida-USA	86 ▲
Quebec-CAN	81 ▲
Ontario-CAN	81 ▲
North Carolina-USA	79 ▲
Alberta-CAN	73 ▲
Dubai-UAE	64 ▼
Abu Dhabi-UAE	46 ▼

▲ Percent higher than International average
▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
GEOMETRIC SHAPES AND MEASURES	Points, Lines, and Angles	Applying

Item label: Jamie is playing a board game



Jamie is playing a board game. His counter is on square D5. Which of these moves would put his counter on square G7?

- A. 2 squares to the right and 3 squares up
- B. 2 squares to the left and 3 squares up
- C. 3 squares to the right and 2 squares up
- D. 3 squares to the left and 2 squares up

Item Number: M031088

Correct Response:	C
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Overall Percent Correct

Education system	Percent correct
Korea, Rep. of	92 ▲
Chinese Taipei-CHN	90 ▲
Japan	86 ▲
Finland	85 ▲
Netherlands	85 ▲
Singapore	85 ▲
Slovenia	83 ▲
Germany	82 ▲
England-GBR	81 ▲
Hong Kong-CHN	81 ▲
Australia	80 ▲
United States	80 ▲
Czech Republic	79 ▲
Northern Ireland-GBR	79 ▲
Belgium (Flemish)-BEL	79 ▲
Portugal	79 ▲
Russian Federation	78 ▲
Denmark	78 ▲
Sweden	77 ▲
Ireland	77 ▲
Lithuania	76 ▲
Hungary	76 ▲
Austria	76 ▲
Italy	75 ▲
Spain	75 ▲
Croatia	75 ▲
Norway	74 ▲
Slovak Republic	73 ▲
New Zealand	73 ▲
Serbia	71
Poland	70
Romania	69
International average	68
Malta	67
Chile	64 ▼
Turkey	61 ▼
Kazakhstan	58 ▼
Thailand	57 ▼
United Arab Emirates	56 ▼
Armenia	56 ▼
Georgia	51 ▼
Bahrain	50 ▼
Azerbaijan	49 ▼
Qatar	48 ▼
Saudi Arabia	47 ▼
Iran, Islamic Rep. of	46 ▼
Oman	39 ▼
Kuwait	36 ▼
Morocco	36 ▼
Yemen	35 ▼
Tunisia	35 ▼

Benchmarking education system

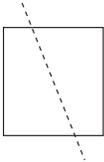
North Carolina-USA	83 ▲
Quebec-CAN	80 ▲
Alberta-CAN	79 ▲
Ontario-CAN	79 ▲
Florida-USA	74 ▲
Dubai-UAE	63 ▼
Abu Dhabi-UAE	54 ▼

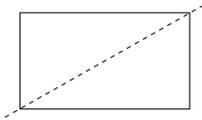
▲ Percent higher than International average
▼ Percent lower than International average

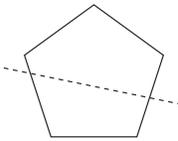
Content Domain	Main Topic	Cognitive Domain
GEOMETRIC SHAPES AND MEASURES	Two- and Three-dimensional Shapes	Knowing

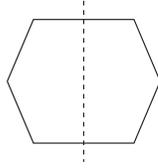
Item label: Which dotted line is of symmetry

In which of the following figures is the dotted line a line of symmetry?

A. 

B. 

C. 

D. 

Item Number: M031093

Correct Response:	D
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Overall Percent Correct

Education system	Percent correct
Singapore	91 ▲
Hong Kong-CHN	81 ▲
United States	80 ▲
Australia	76 ▲
Korea, Rep. of	75 ▲
Northern Ireland-GBR	74 ▲
England-GBR	71 ▲
Malta	70 ▲
Ireland	66 ▲
Turkey	65 ▲
Denmark	65 ▲
Saudi Arabia	65 ▲
Germany	64 ▲
Iran, Islamic Rep. of	64 ▲
Portugal	63 ▲
Italy	63 ▲
Czech Republic	63 ▲
Hungary	61 ▲
Lithuania	61 ▲
Kazakhstan	59
Russian Federation	58
Kuwait	58
Bahrain	57
International average	54
Oman	54
United Arab Emirates	54
Chile	53
New Zealand	53
Thailand	53
Norway	52
Azerbaijan	52
Romania	50
Qatar	50
Slovenia	49 ▼
Austria	49 ▼
Belgium (Flemish)-BEL	49 ▼
Finland	49 ▼
Spain	48 ▼
Georgia	44 ▼
Serbia	43 ▼
Chinese Taipei-CHN	43 ▼
Poland	40 ▼
Slovak Republic	40 ▼
Armenia	39 ▼
Morocco	37 ▼
Sweden	32 ▼
Netherlands	30 ▼
Croatia	30 ▼
Japan	30 ▼
Yemen	27 ▼
Tunisia	22 ▼

Benchmarking education system

Florida-USA	87 ▲
North Carolina-USA	86 ▲
Ontario-CAN	76 ▲
Alberta-CAN	62 ▲
Quebec-CAN	62 ▲
Abu Dhabi-UAE	54
Dubai-UAE	52

▲ Percent higher than International average
▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
GEOMETRIC SHAPES AND MEASURES	Points, Lines, and Angles	Knowing

Item label: The angles ordered by size

In which of the following are the angles ordered by size, from least to greatest?

A. Q, P, R, S
 B. Q, R, P, S
 C. S, P, R, Q
 D. S, R, P, Q

Item Number: M031109

Correct Response:	C
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Overall Percent Correct

Education system	Percent correct
Japan	94 ▲
Singapore	90 ▲
Hong Kong-CHN	84 ▲
Korea, Rep. of	82 ▲
Netherlands	81 ▲
Belgium (Flemish)-BEL	80 ▲
United States	78 ▲
Turkey	74 ▲
Northern Ireland-GBR	73 ▲
Hungary	72 ▲
Russian Federation	71 ▲
Portugal	70 ▲
Chinese Taipei-CHN	70 ▲
Thailand	69 ▲
Ireland	69 ▲
Chile	68 ▲
Spain	68 ▲
Australia	68 ▲
Lithuania	68
Finland	67
Croatia	67
England-GBR	66
Slovenia	66
Germany	66
Malta	65
Bahrain	65
Italy	64
Poland	64
Romania	63
International average	63
Slovak Republic	63
Austria	61
Kazakhstan	60
Czech Republic	60
Georgia	59
Sweden	58 ▼
Serbia	58 ▼
Azerbaijan	57
Saudi Arabia	57 ▼
Denmark	56 ▼
Qatar	54 ▼
New Zealand	54 ▼
Norway	54 ▼
United Arab Emirates	53 ▼
Oman	50 ▼
Armenia	50 ▼
Kuwait	46 ▼
Yemen	37 ▼
Tunisia	35 ▼
Iran, Islamic Rep. of	27 ▼
Morocco	26 ▼

Benchmarking education system

Florida-USA	86 ▲
North Carolina-USA	75 ▲
Quebec-CAN	68 ▲
Ontario-CAN	66
Alberta-CAN	63
Dubai-UAE	61
Abu Dhabi-UAE	52 ▼

▲ Percent higher than International average
 ▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
GEOMETRIC SHAPES AND MEASURES	Two- and Three-dimensional Shapes	Knowing

Item label: Rotate the shape 1/4 clockwise

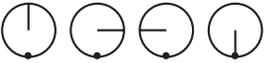
A pattern rule says “Rotate the shape  $\frac{1}{4}$ turn clockwise each time.”

What will the pattern look like?

A. 

B. 

C. 

D. 

Item Number: M031159

Correct Response:	A
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Overall Percent Correct

Education system	Percent correct
Korea, Rep. of	93 ▲
Chinese Taipei-CHN	89 ▲
Hong Kong-CHN	87 ▲
Singapore	86 ▲
Belgium (Flemish)-BEL	84 ▲
Netherlands	81 ▲
Northern Ireland-GBR	80 ▲
Ireland	79 ▲
Japan	78 ▲
United States	78 ▲
England-GBR	76 ▲
Hungary	76 ▲
Australia	76 ▲
Finland	75 ▲
Germany	74 ▲
Czech Republic	74 ▲
Italy	74 ▲
Portugal	74 ▲
Lithuania	72 ▲
Slovak Republic	71 ▲
Austria	71 ▲
Russian Federation	70 ▲
Spain	70 ▲
New Zealand	69 ▲
Denmark	66
Romania	66
Kazakhstan	65
Slovenia	64
Poland	64
Turkey	64
Croatia	64
International average	64
Serbia	63
Malta	61
Sweden	61
Chile	57 ▼
Norway	56 ▼
Bahrain	54 ▼
Saudi Arabia	53 ▼
Qatar	51 ▼
Azerbaijan	51 ▼
Thailand	50 ▼
United Arab Emirates	50 ▼
Armenia	46 ▼
Oman	42 ▼
Iran, Islamic Rep. of	37 ▼
Georgia	37 ▼
Kuwait	36 ▼
Morocco	28 ▼
Tunisia	22 ▼
Yemen	22 ▼

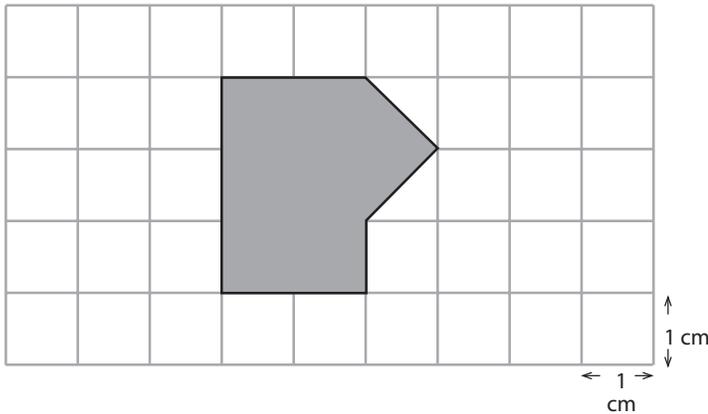
Benchmarking education system

Florida-USA	82 ▲
North Carolina-USA	81 ▲
Alberta-CAN	74 ▲
Ontario-CAN	74 ▲
Quebec-CAN	66
Dubai-UAE	62
Abu Dhabi-UAE	45 ▼

▲ Percent higher than International average
▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
GEOMETRIC SHAPES AND MEASURES	Two- and Three-dimensional Shapes	Applying

Item label: Shaded area in square centimeters



The squares in the grid above are 1 cm by 1 cm.
What is the shaded area in square centimeters?

Answer: _____ square centimeters

Item Number: M031297

SCORING

Correct Response

- 7

Incorrect Response

- 6
- 8
- Other incorrect (including crossed out, erased, stray marks, illegible, or off task)

Overall Percent Correct

Education system	Percent correct
Japan	70 ▲
Hong Kong-CHN	67 ▲
Chinese Taipei-CHN	63 ▲
Northern Ireland-GBR	52 ▲
Korea, Rep. of	48 ▲
Denmark	46 ▲
Russian Federation	44 ▲
Australia	43 ▲
Netherlands	43 ▲
Portugal	40 ▲
Singapore	39 ▲
United States	38 ▲
Belgium (Flemish)-BEL	37 ▲
Thailand	37 ▲
Lithuania	37 ▲
Germany	35 ▲
Azerbaijan	35
Ireland	34
Hungary	33
England-GBR	32
Sweden	31
Austria	30
International average	30
Czech Republic	29
Slovak Republic	29
Serbia	28
Italy	27
Armenia	26
Finland	26
Croatia	26
Kazakhstan	26
Norway	25
Iran, Islamic Rep. of	25 ▼
New Zealand	23 ▼
Malta	23 ▼
Romania	23 ▼
Slovenia	22 ▼
Saudi Arabia	21 ▼
Bahrain	21 ▼
Poland	17 ▼
Turkey	17 ▼
Georgia	17 ▼
United Arab Emirates	17 ▼
Oman	16 ▼
Qatar	15 ▼
Chile	13 ▼
Morocco	11 ▼
Spain	11 ▼
Tunisia	9 ▼
Yemen	7 ▼
Kuwait	5 ▼

Benchmarking education system

Florida-USA	57 ▲
Quebec-CAN	41 ▲
Ontario-CAN	37 ▲
North Carolina-USA	34
Alberta-CAN	31
Dubai-UAE	27
Abu Dhabi-UAE	14 ▼

▲ Percent higher than International average
▼ Percent lower than International average

Item label: Shaded area in square centimeters (continued)

M031297

Student Responses

Correct Response:

Answer: 7 square centimeters

Incorrect Response:

Answer: 6 square centimeters

Content Domain	Main Topic	Cognitive Domain
GEOMETRIC SHAPES AND MEASURES	Points, Lines, and Angles	Applying

Item label: Angle between 90 and 180 degrees

In the space below, draw an angle that is greater than 90 degrees but less than 180 degrees.

Overall Percent Correct

Education system	Percent correct
Korea, Rep. of	88 ▲
Singapore	80 ▲
Chinese Taipei-CHN	74 ▲
Japan	72 ▲
Hong Kong-CHN	62 ▲
Italy	56 ▲
Northern Ireland-GBR	56 ▲
United States	53 ▲
Portugal	53 ▲
England-GBR	50 ▲
Turkey	49 ▲
Spain	44 ▲
Australia	43 ▲
Denmark	42 ▲
Ireland	41 ▲
Kazakhstan	39 ▲
Russian Federation	38 ▲
Oman	32
Belgium (Flemish)-BEL	32
Azerbaijan	32
International average	31
Romania	31
Chile	30
Armenia	29
Iran, Islamic Rep. of	29
Serbia	24 ▼
Hungary	22 ▼
Finland	22 ▼
Norway	22 ▼
Lithuania	21 ▼
Slovak Republic	20 ▼
United Arab Emirates	20 ▼
Croatia	20 ▼
Georgia	18 ▼
Thailand	17 ▼
Saudi Arabia	17 ▼
New Zealand	17 ▼
Bahrain	17 ▼
Malta	17 ▼
Sweden	17 ▼
Qatar	16 ▼
Germany	13 ▼
Austria	12 ▼
Czech Republic	11 ▼
Poland	9 ▼
Yemen	8 ▼
Slovenia	8 ▼
Netherlands	8 ▼
Tunisia	8 ▼
Morocco	6 ▼
Kuwait	5 ▼

Benchmarking education system

Florida-USA	59 ▲
North Carolina-USA	49 ▲
Ontario-CAN	44 ▲
Quebec-CAN	32
Dubai-UAE	24 ▼
Abu Dhabi-UAE	18 ▼
Alberta-CAN	11 ▼

▲ Percent higher than International average
▼ Percent lower than International average

Item Number: M031325

SCORING

Correct Response

- Obtuse angle drawn (labeled or unlabeled)

Incorrect Response

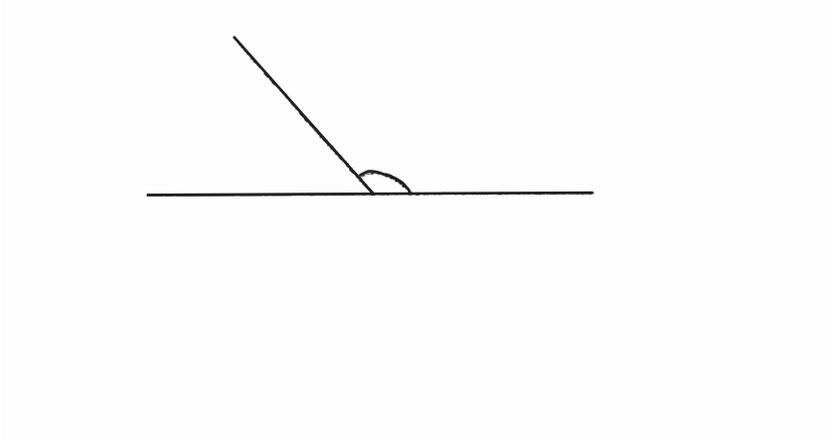
- Angle less than 90 degrees
- Straight line
- Other incorrect (including crossed out, erased, stray marks, illegible, or off task)

Item label: Angle between 90 and 180 degrees (continued)

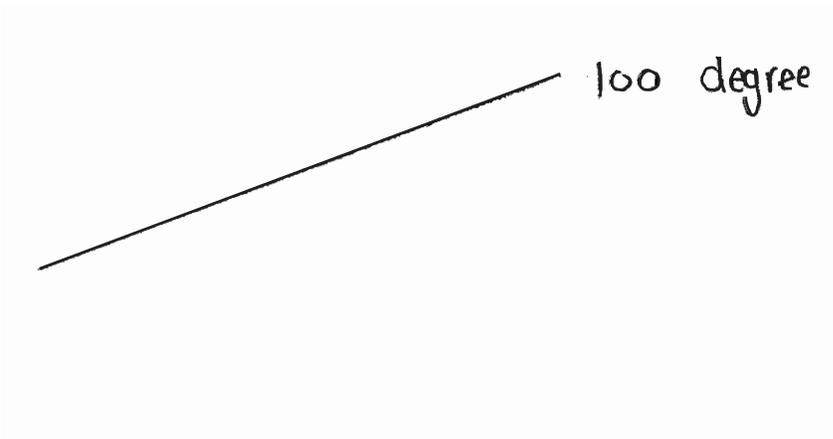
M031325

Student Responses

Correct Response:



Incorrect Response:



Content Domain	Main Topic	Cognitive Domain
GEOMETRIC SHAPES AND MEASURES	Two- and Three-dimensional Shapes	Knowing

Item label: Identify shapes in the picture

Write the names of shapes A, B, and C in the spaces provided.

A. _____

B. _____

C. _____

Item Number: M041143

SCORING

Correct Response

- A: Triangle B: Rectangle or oblong or more general correct terms such as parallelogram, quadrilateral or tetragon C: Circle (allow cylinder for circle)

Partially Correct Response

- 2 shapes correctly named

Incorrect Response

- 1 shape correctly named
- Other incorrect (including crossed out, erased, stray marks, illegible, or off task)

Overall Percent Correct

Education system	Percent correct
Singapore	79 ▲
Russian Federation	76 ▲
Serbia	76 ▲
Ireland	72 ▲
Slovenia	71 ▲
Korea, Rep. of	70 ▲
England-GBR	70 ▲
Poland	70 ▲
Hong Kong-CHN	69 ▲
Northern Ireland-GBR	68 ▲
Japan	66 ▲
Australia	65 ▲
Slovak Republic	64 ▲
Belgium (Flemish)-BEL	64 ▲
United States	63 ▲
Kazakhstan	62 ▲
Thailand	62 ▲
Georgia	61 ▲
Italy	60 ▲
Croatia	60 ▲
Hungary	59 ▲
Romania	57
Portugal	57
Norway	55
Denmark	55
New Zealand	54
Chinese Taipei-CHN	54
Malta	53
Sweden	53
International average	53
Czech Republic	53
Germany	51
Iran, Islamic Rep. of	48 ▼
Bahrain	48
Lithuania	48 ▼
Netherlands	48 ▼
Azerbaijan	47 ▼
United Arab Emirates	46 ▼
Chile	44 ▼
Turkey	44 ▼
Austria	40 ▼
Oman	38 ▼
Tunisia	38 ▼
Qatar	37 ▼
Armenia	32 ▼
Saudi Arabia	32 ▼
Spain	29 ▼
Kuwait	26 ▼
Finland	25 ▼
Morocco	23 ▼
Yemen	6 ▼

Benchmarking education system	Percent correct
Florida-USA	69 ▼
North Carolina-USA	68 ▼
Ontario-CAN	68 ▼
Quebec-CAN	63 ▼
Alberta-CAN	61 ▼
Dubai-UAE	51
Abu Dhabi-UAE	39 ▼

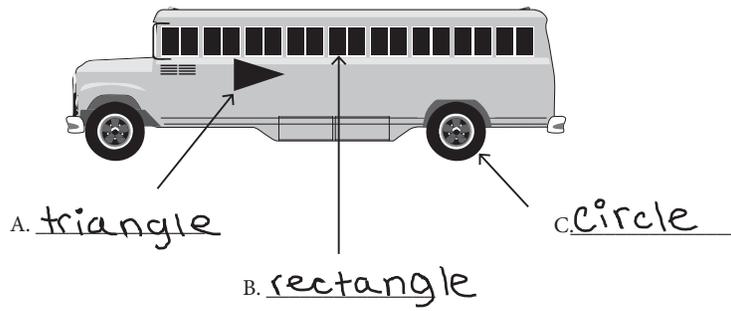
▲ Percent higher than International average
 ▼ Percent lower than International average

Item label: Identify shapes in the picture (continued)

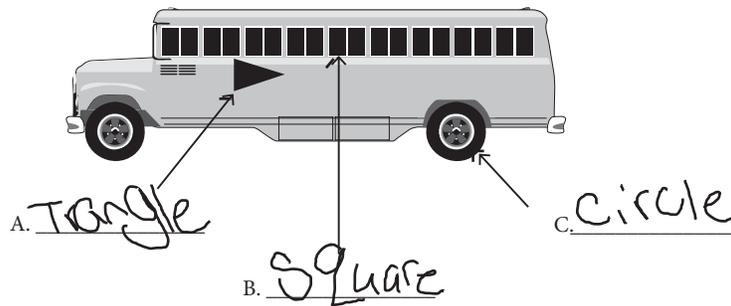
M041143

Student Responses

Correct Response:



Partially Correct Response:

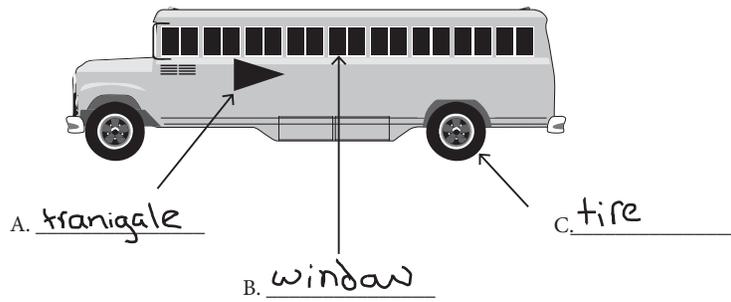


Item label: Identify shapes in the picture (continued)

M041143

Student Responses

Incorrect Response:



Content Domain	Main Topic	Cognitive Domain
GEOMETRIC SHAPES AND MEASURES	Two- and Three-dimensional Shapes	Knowing

Item label: Statement about 3-D figures

Figure A

Figure B

Here are some statements about Figure A and Figure B. Put an X to show whether each statement is true or false.

Statement	True	False
A and B both have a square face.	X	
A and B both have the same number of faces.		
All the angles in A are right angles.		
B has more edges than A.		
Some of the edges in B are curved.		

Item Number: M041148

SCORING

Correct Response

- Puts the X's in the correct column as shown below.

True	False
X	
	X
X	
	X
	X

Partially Correct Response

- Any three correct

Incorrect Response

- Incorrect (including crossed out, erased, stray marks, illegible, or off task)

Overall Percent Correct

Education system	Percent correct
Portugal	70 ▲
Austria	67 ▲
Northern Ireland-GBR	58 ▲
England-GBR	58 ▲
Hong Kong-CHN	57 ▲
Chinese Taipei-CHN	53 ▲
Japan	53 ▲
United States	50 ▲
Denmark	47 ▲
Australia	45 ▲
Ireland	45 ▲
Germany	44 ▲
Korea, Rep. of	44 ▲
Italy	44 ▲
Hungary	42 ▲
Belgium (Flemish)-BEL	42 ▲
Poland	42 ▲
Chile	41 ▲
Singapore	41 ▲
Malta	40 ▲
Slovenia	39 ▲
Croatia	35
Lithuania	34
Finland	33
International average	32
New Zealand	32
Romania	32
Serbia	28 ▼
Qatar	27 ▼
Kazakhstan	27 ▼
Spain	26 ▼
United Arab Emirates	26 ▼
Norway	26 ▼
Oman	26 ▼
Russian Federation	22 ▼
Sweden	20 ▼
Netherlands	20 ▼
Kuwait	20 ▼
Slovak Republic	19 ▼
Czech Republic	18 ▼
Armenia	16 ▼
Iran, Islamic Rep. of	15 ▼
Georgia	15 ▼
Bahrain	13 ▼
Tunisia	11 ▼
Saudi Arabia	11 ▼
Azerbaijan	6 ▼
Thailand	6 ▼
Turkey	4 ▼
Yemen	1 ▼
Morocco	—

Benchmarking education system

Quebec-CAN	57 ▲
Ontario-CAN	46 ▲
North Carolina-USA	46 ▲
Florida-USA	44 ▲
Dubai-UAE	29
Alberta-CAN	29
Abu Dhabi-UAE	22 ▼

- ▲ Percent higher than International average
- ▼ Percent lower than International average
- Not applicable

Item label: Statement about 3-D figures (continued)

M041148

Student Responses**Correct Response:**

Statement	True	False
A and B both have a square face.	X	
A and B both have the same number of faces.		X
All the angles in A are right angles.	X	
B has more edges than A.		X
Some of the edges in B are curved.		X

Incorrect Response:

Statement	True	False
A and B both have a square face.	X	
A and B both have the same number of faces.	X	
All the angles in A are right angles.		X
B has more edges than A.	X	
Some of the edges in B are curved.		X

Content Domain	Main Topic	Cognitive Domain
GEOMETRIC SHAPES AND MEASURES	Two- and Three-dimensional Shapes	Applying

Item label: How far does Ruth walk

The school playground is a square. The playground is 100 meters long. Ruth walks all the way around the edge of the playground. How far does she walk?

- A. 100 meters
- B. 200 meters
- C. 400 meters
- D. 10,000 meters

Item Number: M041155

Correct Response:

C

Overall Percent Correct

Education system	Percent correct
Chinese Taipei-CHN	88 ▲
Hong Kong-CHN	82 ▲
Finland	70 ▲
Korea, Rep. of	70 ▲
Russian Federation	69 ▲
Japan	68 ▲
Turkey	68 ▲
Netherlands	65 ▲
Lithuania	62 ▲
Singapore	61 ▲
Slovak Republic	61 ▲
Czech Republic	60 ▲
Belgium (Flemish)-BEL	58 ▲
Malta	58 ▲
Sweden	57 ▲
Northern Ireland-GBR	57 ▲
Croatia	56 ▲
Austria	56 ▲
Azerbaijan	55
Germany	54 ▲
Thailand	54
Denmark	54 ▲
Kazakhstan	53
Poland	53
England-GBR	53
Australia	52
Romania	51
Portugal	51
Slovenia	50
Hungary	50
International average	50
Ireland	49
Iran, Islamic Rep. of	46
New Zealand	44 ▼
Italy	44 ▼
United States	43 ▼
Georgia	42 ▼
Armenia	41 ▼
Norway	41 ▼
Spain	38 ▼
Tunisia	38 ▼
Serbia	36 ▼
Chile	36 ▼
Saudi Arabia	35 ▼
United Arab Emirates	29 ▼
Bahrain	24 ▼
Oman	23 ▼
Qatar	22 ▼
Kuwait	21 ▼
Yemen	17 ▼
Morocco	15 ▼

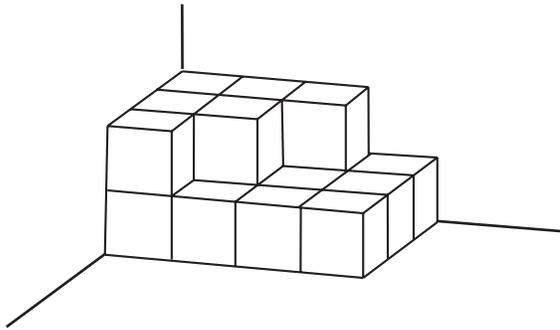
Benchmarking education system

Quebec-CAN	51
Ontario-CAN	49
North Carolina-USA	47
Alberta-CAN	43 ▼
Florida-USA	37 ▼
Dubai-UAE	35 ▼
Abu Dhabi-UAE	28 ▼

▲ Percent higher than International average
▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
GEOMETRIC SHAPES AND MEASURES	Two- and Three-dimensional Shapes	Applying

Item label: Number of boxes in the stack



Ann stacks these boxes in the corner of the room. All the boxes are the same size. How many boxes does she use?

- A. 25
- B. 19
- C. 18
- D. 13

Item Number: M041158

Correct Response:	C
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Overall Percent Correct

Education system	Percent correct
Chinese Taipei-CHN	95 ▲
Belgium (Flemish)-BEL	90 ▲
Netherlands	90 ▲
Korea, Rep. of	85 ▲
Germany	85 ▲
Japan	84 ▲
Portugal	84 ▲
Finland	81 ▲
Hong Kong-CHN	80 ▲
Lithuania	78 ▲
Singapore	78 ▲
Denmark	77 ▲
Czech Republic	74 ▲
Sweden	74 ▲
Norway	74 ▲
Australia	74 ▲
Austria	74 ▲
Northern Ireland-GBR	72 ▲
Slovenia	70 ▲
Hungary	70 ▲
Serbia	70 ▲
United States	69 ▲
Russian Federation	68 ▲
England-GBR	67
Ireland	66
Slovak Republic	66
New Zealand	63
Poland	63
International average	63
Croatia	62
Chile	59
Romania	57 ▼
Kazakhstan	57 ▼
Malta	57 ▼
Spain	55 ▼
Thailand	53 ▼
Italy	52 ▼
Georgia	51 ▼
Bahrain	50 ▼
Armenia	47 ▼
Azerbaijan	46 ▼
Turkey	45 ▼
Iran, Islamic Rep. of	44 ▼
Saudi Arabia	43 ▼
United Arab Emirates	41 ▼
Qatar	38 ▼
Oman	33 ▼
Tunisia	32 ▼
Morocco	31 ▼
Kuwait	31 ▼
Yemen	31 ▼

Benchmarking education system

Quebec-CAN	77 ▲
Alberta-CAN	72 ▲
Ontario-CAN	70 ▲
Florida-USA	68
North Carolina-USA	68
Abu Dhabi-UAE	45 ▼
Dubai-UAE	43 ▼

▲ Percent higher than International average
▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
GEOMETRIC SHAPES AND MEASURES	Points, Lines, and Angles	Knowing

Item label: Position of the shop

This is a map of Lucy's town. The market is at the position C2.

A. What is the position of the shop?

The shop is at _____

Item Number: M041160A

SCORING

Correct Response

- H3 / (H, 3) / 3H / (3, H) or equivalent

Incorrect Response

- Incorrect (including crossed out, erased, stray marks, illegible, or off task)

Overall Percent Correct

Education system	Percent correct
Netherlands	95 ▲
Slovenia	95 ▲
Korea, Rep. of	94 ▲
Hong Kong-CHN	94 ▲
Belgium (Flemish)-BEL	94 ▲
Finland	93 ▲
Lithuania	93 ▲
Portugal	93 ▲
Germany	93 ▲
Japan	92 ▲
Czech Republic	91 ▲
Denmark	90 ▲
Northern Ireland-GBR	90 ▲
Italy	89 ▲
Australia	89 ▲
Austria	89 ▲
England-GBR	88 ▲
Slovak Republic	88 ▲
Russian Federation	88 ▲
Sweden	87 ▲
Norway	87 ▲
Singapore	87 ▲
Croatia	87 ▲
United States	87 ▲
Hungary	86 ▲
Spain	85 ▲
Serbia	83 ▲
Poland	83 ▲
Malta	83 ▲
Ireland	83 ▲
New Zealand	82 ▲
Chinese Taipei-CHN	79
International average	76
Romania	76
Chile	76
Kazakhstan	71 ▼
Bahrain	70 ▼
Turkey	67 ▼
United Arab Emirates	64 ▼
Iran, Islamic Rep. of	61 ▼
Saudi Arabia	58 ▼
Thailand	56 ▼
Armenia	56 ▼
Azerbaijan	55 ▼
Qatar	51 ▼
Georgia	48 ▼
Oman	44 ▼
Kuwait	43 ▼
Tunisia	36 ▼
Morocco	30 ▼
Yemen	10 ▼

Benchmarking education system

Quebec-CAN	93 ▲
Ontario-CAN	89 ▲
Alberta-CAN	88 ▲
Florida-USA	86 ▲
North Carolina-USA	85 ▲
Dubai-UAE	75
Abu Dhabi-UAE	57 ▼

▲ Percent higher than International average
▼ Percent lower than International average

Item label: Position of the shop (continued)

M041160A

Student Responses

Correct Response:

The shop is at # 3

Incorrect Response:

The shop is at market

Content Domain	Main Topic	Cognitive Domain
GEOMETRIC SHAPES AND MEASURES	Points, Lines, and Angles	Applying

Item label: Mark Lucy's house

This is a map of Lucy's town. The market is at the position C2.

B. Lucy's house is at D5. Put an X on the map to show where Lucy's house is.

Item Number: M041160B

SCORING

Correct Response

- Cross or other mark anywhere in square D5

Incorrect Response

- Incorrect (including crossed out, erased, stray marks, illegible, or off task)

Overall Percent Correct

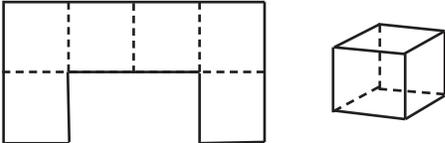
Education system	Percent correct
Korea, Rep. of	97 ▲
Netherlands	97 ▲
Portugal	97 ▲
Japan	96 ▲
Belgium (Flemish)-BEL	96 ▲
Hong Kong-CHN	96 ▲
Finland	96 ▲
Singapore	95 ▲
Germany	95 ▲
Australia	94 ▲
England-GBR	94 ▲
Chinese Taipei-CHN	93 ▲
Slovenia	93 ▲
United States	92 ▲
Northern Ireland-GBR	91 ▲
Croatia	91 ▲
Lithuania	91 ▲
Sweden	91 ▲
Denmark	91 ▲
Italy	91 ▲
Czech Republic	90 ▲
Norway	90 ▲
Ireland	89 ▲
Russian Federation	89 ▲
Slovak Republic	89 ▲
Austria	89 ▲
New Zealand	89 ▲
Hungary	88 ▲
Malta	87 ▲
Spain	86 ▲
Poland	85 ▲
Serbia	85 ▲
International average	78
Chile	78
Romania	75
Turkey	75
Kazakhstan	72 ▼
Bahrain	66 ▼
Iran, Islamic Rep. of	65 ▼
United Arab Emirates	64 ▼
Thailand	58 ▼
Saudi Arabia	58 ▼
Armenia	54 ▼
Qatar	52 ▼
Azerbaijan	50 ▼
Georgia	50 ▼
Oman	46 ▼
Kuwait	39 ▼
Tunisia	35 ▼
Morocco	25 ▼
Yemen	9 ▼
Benchmarking education system	
Quebec-CAN	96 ▲
Alberta-CAN	95 ▲
Ontario-CAN	93 ▲
North Carolina-USA	88 ▲
Florida-USA	88 ▲
Dubai-UAE	76
Abu Dhabi-UAE	58 ▼

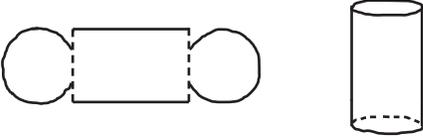
▲ Percent higher than International average
▼ Percent lower than International average

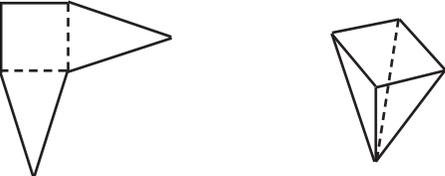
Content Domain	Main Topic	Cognitive Domain
GEOMETRIC SHAPES AND MEASURES	Two- and Three-dimensional Shapes	Reasoning

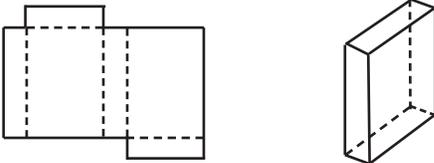
Item label: Relating net with its 3-D figure

Ariana found the following patterns to make containers. Which pattern actually makes the container shown beside it?

A. 

B. 

C. 

D. 

Item Number: M041265

Correct Response:	D
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Overall Percent Correct

Education system	Percent correct
Japan	80 ▲
Korea, Rep. of	75 ▲
Hong Kong-CHN	59 ▲
Chinese Taipei-CHN	56 ▲
Finland	53 ▲
Russian Federation	51 ▲
Czech Republic	50 ▲
Netherlands	50 ▲
Germany	47 ▲
Serbia	47 ▲
Slovenia	47 ▲
Austria	47 ▲
Singapore	47 ▲
Azerbaijan	45 ▲
Hungary	44 ▲
Portugal	44 ▲
England-GBR	44 ▲
Lithuania	42 ▲
New Zealand	41
Kazakhstan	40
Australia	39
Italy	39
Slovak Republic	39
Northern Ireland-GBR	39
Romania	38
Poland	37
International average	37
Norway	36
Croatia	36
Thailand	35
United States	34 ▼
Belgium (Flemish)-BEL	33
Chile	33 ▼
Denmark	31 ▼
Ireland	30
Sweden	30 ▼
Spain	28 ▼
Malta	28 ▼
United Arab Emirates	23 ▼
Armenia	23 ▼
Turkey	23 ▼
Qatar	22 ▼
Saudi Arabia	22 ▼
Iran, Islamic Rep. of	21 ▼
Bahrain	19 ▼
Kuwait	17 ▼
Oman	16 ▼
Morocco	14 ▼
Georgia	14 ▼
Yemen	11 ▼
Tunisia	9 ▼

Benchmarking education system

Ontario-CAN	47 ▲
Alberta-CAN	42 ▲
Quebec-CAN	36
Florida-USA	33
Dubai-UAE	28 ▼
North Carolina-USA	24 ▼
Abu Dhabi-UAE	19 ▼

▲ Percent higher than International average
▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
GEOMETRIC SHAPES AND MEASURES	Two- and Three-dimensional Shapes	Reasoning

Item label: Identify the shapes

Sean used the table to sort these shapes.
Put the letter of each shape in the space where it belongs.
Shape A has been done for you.

	Has 4 Sides	Does Not Have 4 Sides
All sides are the same length	A	
All sides are NOT the same length		

Item Number: M041284

SCORING

Correct Response

- 5 correct

(A) F	D
C E	B

Partially Correct Response

- 3 or 4 correct

Incorrect Response

- Incorrect (including crossed out, erased, stray marks, illegible, or off task)

Overall Percent Correct

Education system	Percent correct
Northern Ireland-GBR	45 ▲
Slovenia	41 ▲
England-GBR	38 ▲
Hungary	34 ▲
Hong Kong-CHN	33 ▲
Japan	32 ▲
Korea, Rep. of	28 ▲
Belgium (Flemish)-BEL	26 ▲
Chinese Taipei-CHN	26 ▲
Italy	22 ▲
Finland	22 ▲
Germany	22 ▲
Portugal	20 ▲
Denmark	20 ▲
Russian Federation	20 ▲
Netherlands	18 ▲
Lithuania	16
Austria	15
Serbia	15
Norway	15
International average	15
Czech Republic	14
Morocco	13
Slovak Republic	13
United States	13
Spain	12
Australia	12 ▼
Singapore	12 ▼
Malta	11 ▼
Croatia	11 ▼
Sweden	10 ▼
Poland	10 ▼
Kazakhstan	10 ▼
Romania	9 ▼
Ireland	9 ▼
New Zealand	8 ▼
United Arab Emirates	7 ▼
Turkey	7 ▼
Qatar	6 ▼
Azerbaijan	6 ▼
Armenia	6 ▼
Saudi Arabia	5 ▼
Chile	5 ▼
Iran, Islamic Rep. of	5 ▼
Bahrain	4 ▼
Georgia	4 ▼
Tunisia	2 ▼
Kuwait	2 ▼
Thailand	1 ▼
Oman	1 ▼
Yemen	# ▼
Benchmarking education system	
Quebec-CAN	27 ▲
Ontario-CAN	23 ▲
Alberta-CAN	21 ▲
North Carolina-USA	16
Dubai-UAE	13
Florida-USA	8 ▼
Abu Dhabi-UAE	6 ▼

▲ Percent higher than International average
▼ Percent lower than International average
Rounds to zero

Item label: Identify the shapes (continued)

M041284

Student Responses**Correct Response:**

	Has 4 Sides	Does Not Have 4 Sides
All sides are the same length	A F	D
All sides are NOT the same length	E C	B

Partially Correct Response:

	Has 4 Sides	Does Not Have 4 Sides
All sides are the same length	A	D
All sides are NOT the same length	E	B

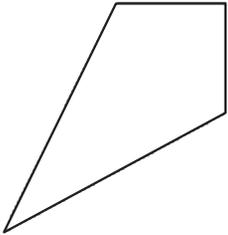
Incorrect Response:

	Has 4 Sides	Does Not Have 4 Sides
All sides are the same length	E A C F	B D
All sides are NOT the same length	B C E	A D F

Content Domain	Main Topic	Cognitive Domain
GEOMETRIC SHAPES AND MEASURES	Two- and Three-dimensional Shapes	Applying

Item label: Draw the line of symmetry

Draw the line of symmetry on this shape.

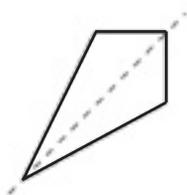


Item Number: M041327

SCORING

Correct Response

- Line drawn correctly as shown



Incorrect Response

- Incorrect (including crossed out, erased, stray marks, illegible, or off task)

Overall Percent Correct

Education system	Percent correct
Hong Kong-CHN	93 ▲
Singapore	92 ▲
Northern Ireland-GBR	86 ▲
England-GBR	82 ▲
Malta	80 ▲
United States	80 ▲
Australia	75 ▲
Ireland	74 ▲
Portugal	67 ▲
Kazakhstan	67 ▲
Russian Federation	61 ▲
Iran, Islamic Rep. of	61 ▲
Lithuania	58 ▲
New Zealand	58 ▲
Korea, Rep. of	57 ▲
Italy	57 ▲
Norway	56 ▲
Bahrain	56 ▲
Germany	55 ▲
Slovenia	53 ▲
Hungary	48
Azerbaijan	47
International average	47
United Arab Emirates	46
Qatar	44
Czech Republic	42
Romania	42
Belgium (Flemish)-BEL	41 ▼
Turkey	41 ▼
Chile	39 ▼
Austria	39 ▼
Oman	38 ▼
Finland	38 ▼
Spain	37 ▼
Slovak Republic	37 ▼
Kuwait	36 ▼
Denmark	36 ▼
Thailand	35 ▼
Georgia	33 ▼
Saudi Arabia	32 ▼
Serbia	32 ▼
Japan	31 ▼
Armenia	28 ▼
Morocco	27 ▼
Sweden	25 ▼
Chinese Taipei-CHN	22 ▼
Netherlands	21 ▼
Poland	16 ▼
Croatia	16 ▼
Tunisia	9 ▼
Yemen	6 ▼

Benchmarking education system

Florida-USA	87 ▲
North Carolina-USA	82 ▲
Ontario-CAN	82 ▲
Alberta-CAN	71 ▲
Dubai-UAE	51 ▲
Quebec-CAN	49
Abu Dhabi-UAE	42

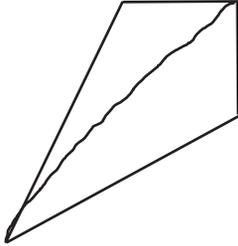
▲ Percent higher than International average
▼ Percent lower than International average

Item label: Draw the line of symmetry (continued)

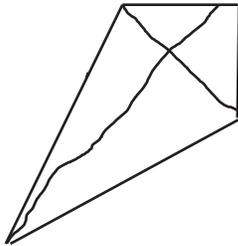
M041327

Student Responses

Correct Response:



Incorrect Response:



Content Domain	Main Topic	Cognitive Domain
GEOMETRIC SHAPES AND MEASURES	Two- and Three-dimensional Shapes	Applying

Item label: Draw reflection of the triangle

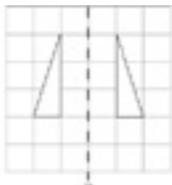
Draw the reflection of the triangle. Line m is the mirror line.

Item Number: M041328

SCORING

Correct Response

- Correct figure drawn (each vertex should be within 2 mm of the correct position)



Incorrect Response

- Incorrect (including crossed out, erased, stray marks, illegible, or off task)

Overall Percent Correct

Education system	Percent correct
Korea, Rep. of	92 ▲
Denmark	90 ▲
Singapore	89 ▲
Japan	87 ▲
Hong Kong-CHN	83 ▲
Germany	83 ▲
Belgium (Flemish)-BEL	80 ▲
Slovenia	78 ▲
Norway	75 ▲
Finland	74 ▲
Netherlands	73 ▲
Portugal	72 ▲
Austria	72 ▲
Hungary	71 ▲
Lithuania	70 ▲
England-GBR	70 ▲
Malta	69 ▲
Italy	69 ▲
Northern Ireland-GBR	68 ▲
Czech Republic	68 ▲
Australia	66 ▲
New Zealand	60 ▲
Ireland	59 ▲
United States	56 ▲
International average	53
Spain	53
Chinese Taipei-CHN	51
Russian Federation	50
Kazakhstan	49
Sweden	48
Chile	45 ▼
Poland	42 ▼
Qatar	41 ▼
Romania	40 ▼
Slovak Republic	40 ▼
Serbia	39 ▼
Bahrain	38 ▼
Croatia	33 ▼
Morocco	32 ▼
United Arab Emirates	32 ▼
Thailand	30 ▼
Turkey	29 ▼
Azerbaijan	29 ▼
Iran, Islamic Rep. of	29 ▼
Saudi Arabia	28 ▼
Armenia	26 ▼
Oman	20 ▼
Georgia	19 ▼
Kuwait	16 ▼
Tunisia	11 ▼
Yemen	2 ▼

Benchmarking education system

Quebec-CAN	76 ▲
Ontario-CAN	70 ▲
Florida-USA	67 ▲
North Carolina-USA	59
Alberta-CAN	54
Dubai-UAE	43 ▼
Abu Dhabi-UAE	28 ▼

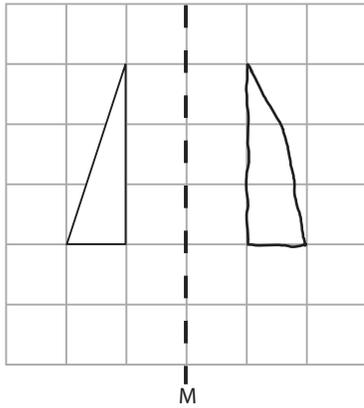
▲ Percent higher than International average
▼ Percent lower than International average

Item label: Draw reflection of the triangle (continued)

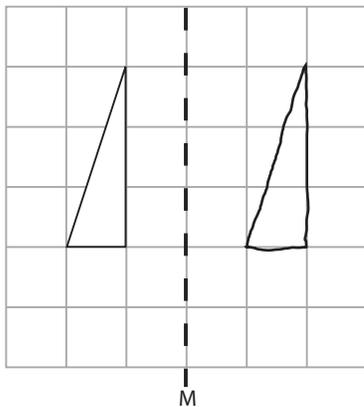
M041328

Student Responses

Correct Response:



Incorrect Response:



Content Domain	Main Topic	Cognitive Domain
GEOMETRIC SHAPES AND MEASURES	Points, Lines, and Angles	Knowing

Item label: Which one is a right angle

One of these angles is a right angle. Which one?

A.



B.



C.



D.



Item Number: M041329

Correct Response:	A
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Overall Percent Correct

Education system	Percent correct
Korea, Rep. of	97 ▲
Hong Kong-CHN	96 ▲
Belgium (Flemish)-BEL	93 ▲
Singapore	91 ▲
Chinese Taipei-CHN	91 ▲
Japan	90 ▲
Croatia	80 ▲
Denmark	76 ▲
Northern Ireland-GBR	76 ▲
Austria	75 ▲
Russian Federation	74 ▲
Portugal	74 ▲
Ireland	72 ▲
Slovenia	72 ▲
Finland	71 ▲
Malta	71 ▲
Spain	71 ▲
Hungary	70 ▲
Serbia	70 ▲
England-GBR	69 ▲
United States	68 ▲
Italy	68 ▲
Thailand	66
Germany	66
Poland	64
International average	64
Azerbaijan	63
Norway	63
Iran, Islamic Rep. of	63
Sweden	62
Romania	61
Kazakhstan	60
Australia	60 ▼
Czech Republic	59 ▼
Slovak Republic	58 ▼
Netherlands	58 ▼
Lithuania	56 ▼
Morocco	55 ▼
Armenia	54 ▼
Chile	53 ▼
Turkey	53 ▼
Qatar	51 ▼
Oman	50 ▼
Tunisia	50 ▼
United Arab Emirates	49 ▼
Georgia	45 ▼
Saudi Arabia	42 ▼
New Zealand	38 ▼
Bahrain	35 ▼
Kuwait	35 ▼
Yemen	28 ▼

Benchmarking education system	Percent correct
Florida-USA	77 ▲
Quebec-CAN	75 ▲
North Carolina-USA	65
Ontario-CAN	65
Dubai-UAE	50 ▼
Abu Dhabi-UAE	47 ▼
Alberta-CAN	44 ▼

▲ Percent higher than International average
 ▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
GEOMETRIC SHAPES AND MEASURES	Two- and Three-dimensional Shapes	Applying

Item label: Complete Jay's shape

Jay has to draw a shape.

It must have 5 sides.

It must have one line of symmetry.

Jay has started to draw the shape.

Complete Jay's shape.

Overall Percent Correct

Education system	Percent correct
Hong Kong-CHN	84 ▲
Korea, Rep. of	67 ▲
England-GBR	61 ▲
Singapore	61 ▲
Russian Federation	61 ▲
Denmark	57 ▲
Kazakhstan	55 ▲
Slovenia	55 ▲
Northern Ireland-GBR	53 ▲
Portugal	53 ▲
Belgium (Flemish)-BEL	52 ▲
Lithuania	52 ▲
United States	51 ▲
Italy	50 ▲
Australia	50 ▲
Slovak Republic	47 ▲
Ireland	47
Georgia	46
Sweden	45
Finland	45
Azerbaijan	45
Chinese Taipei-CHN	44
Germany	44
Malta	44
Czech Republic	43
Romania	42
Hungary	42
International average	42
New Zealand	42
Armenia	41
Spain	41
Iran, Islamic Rep. of	40
Japan	39
Poland	39
Norway	38
Chile	38 ▼
Thailand	37 ▼
Bahrain	31 ▼
Serbia	31 ▼
Oman	31 ▼
Croatia	29 ▼
United Arab Emirates	29 ▼
Netherlands	29 ▼
Saudi Arabia	29 ▼
Austria	26 ▼
Qatar	26 ▼
Turkey	26 ▼
Morocco	23 ▼
Tunisia	19 ▼
Kuwait	17 ▼
Yemen	5 ▼

Item Number: M051015

SCORING

Correct Response

- Correct shape drawn which has 5 sides and 1 line of symmetry. The new vertex must be within ± 2 mm of the line of symmetry (accept the new vertex anywhere on the line of symmetry, provided there are 5 sides).



OR

Incorrect Response



- Other incorrect (including crossed out, erased, stray marks, illegible, or off task)

Benchmarking education system

Quebec-CAN	59 ▲
Ontario-CAN	52 ▲
Florida-USA	50 ▲
North Carolina-USA	50 ▲
Alberta-CAN	37
Dubai-UAE	36 ▼
Abu Dhabi-UAE	26 ▼

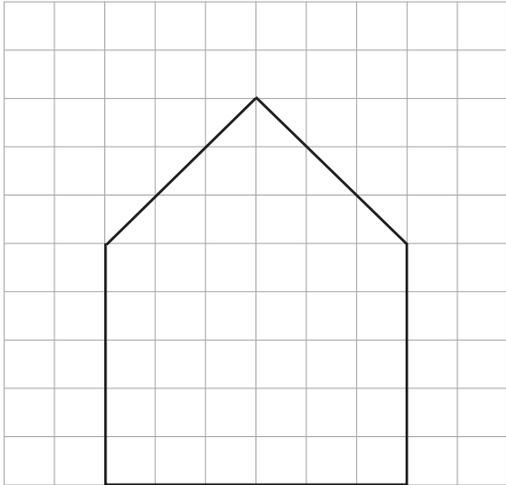
- ▲ Percent higher than International average
- ▼ Percent lower than International average

Item label: Complete Jay's shape (continued)

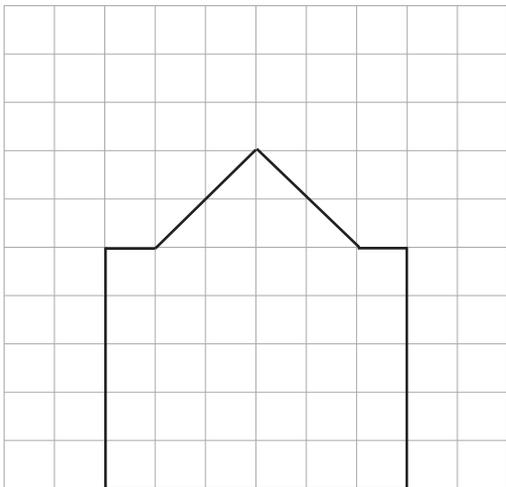
M051015

Student Responses

Correct Response:



Incorrect Response:



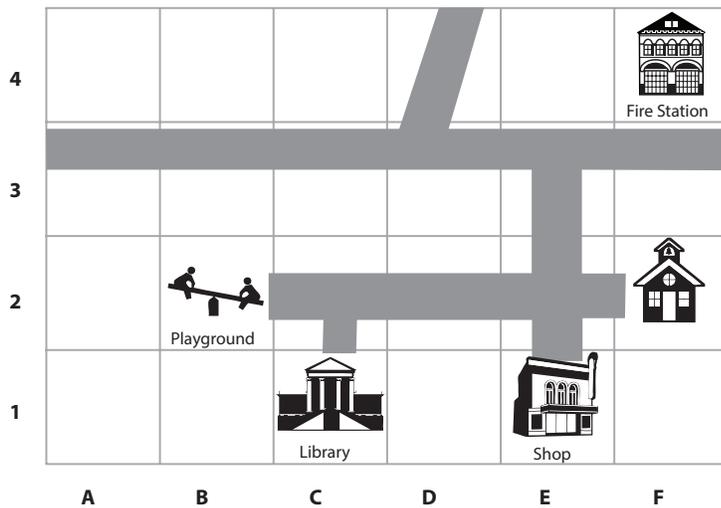
Content Domain	Main Topic	Cognitive Domain
GEOMETRIC SHAPES AND MEASURES	Points, Lines, and Angles	Knowing

Item label: Complete the table

A. Complete the table to show where the places are.

The first one has been done for you.

Places	Grid Square
Playground	B2
School	
Corner of Maple and Oak Streets	



Item Number: M051064A

SCORING

Correct Response

- Both the places are correct: School (F2) AND Maple/Oak Streets (E3). Do not accept 2F or 3E

Incorrect Response

- School correct only (F2)
- Maple/Oak correct only (E3)
- Other incorrect (including crossed out, erased, stray marks, illegible, or off task)

Overall Percent Correct

Education system	Percent correct
Finland	78 ▲
Korea, Rep. of	77 ▲
Belgium (Flemish)-BEL	75 ▲
Denmark	73 ▲
Sweden	68 ▲
Russian Federation	68 ▲
Hong Kong-CHN	68 ▲
Japan	68 ▲
England-GBR	67 ▲
Croatia	65 ▲
Chinese Taipei-CHN	65 ▲
Australia	65 ▲
Northern Ireland-GBR	65 ▲
Slovenia	65 ▲
Norway	64 ▲
Netherlands	63 ▲
United States	63 ▲
Hungary	63 ▲
Portugal	63 ▲
Lithuania	63 ▲
Spain	62 ▲
Singapore	60 ▲
Poland	59 ▲
Czech Republic	59 ▲
Germany	58 ▲
New Zealand	56 ▲
Slovak Republic	55 ▲
Italy	54 ▲
Kazakhstan	50
International average	50
Austria	48
Serbia	47
Malta	44 ▼
Ireland	43 ▼
Romania	43 ▼
Chile	40 ▼
United Arab Emirates	33 ▼
Turkey	32 ▼
Armenia	32 ▼
Bahrain	32 ▼
Azerbaijan	31 ▼
Saudi Arabia	30 ▼
Qatar	28 ▼
Iran, Islamic Rep. of	24 ▼
Oman	23 ▼
Georgia	23 ▼
Thailand	23 ▼
Morocco	20 ▼
Kuwait	16 ▼
Tunisia	14 ▼
Yemen	3 ▼

Benchmarking education system

North Carolina-USA	64 ▲
Ontario-CAN	63 ▲
Florida-USA	62 ▲
Quebec-CAN	59 ▲
Alberta-CAN	56 ▲
Dubai-UAE	33 ▼
Abu Dhabi-UAE	32 ▼

▲ Percent higher than International average
▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
GEOMETRIC SHAPES AND MEASURES	Points, Lines, and Angles	Applying

Item label: Put an X where Troy lives

B. Troy lives in a house in square C4. Put an X in the square to show where Troy lives.

Item Number: M051064B

SCORING

Correct Response

- An "X" in square C4

Incorrect Response

- Incorrect (including crossed out, erased, stray marks, illegible, or off task)

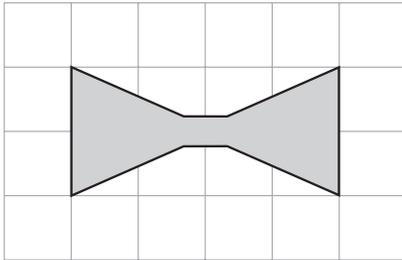
Overall Percent Correct

Education system	Percent correct
Korea, Rep. of	92 ▲
Finland	90 ▲
Netherlands	87 ▲
Hong Kong-CHN	87 ▲
Japan	85 ▲
Belgium (Flemish)-BEL	85 ▲
Portugal	84 ▲
Slovenia	84 ▲
Singapore	84 ▲
Australia	83 ▲
Lithuania	83 ▲
England-GBR	81 ▲
Northern Ireland-GBR	81 ▲
Norway	80 ▲
Sweden	80 ▲
Hungary	80 ▲
Croatia	79 ▲
Germany	79 ▲
Ireland	78 ▲
United States	78 ▲
Denmark	78 ▲
Italy	78 ▲
Czech Republic	77 ▲
Chinese Taipei-CHN	77 ▲
Spain	75 ▲
Slovak Republic	73 ▲
Malta	73 ▲
New Zealand	72 ▲
Serbia	72 ▲
Poland	71 ▲
Russian Federation	70 ▲
Austria	67
Kazakhstan	65
International average	64
Romania	60 ▼
Armenia	57 ▼
Chile	53 ▼
Turkey	52 ▼
Bahrain	45 ▼
United Arab Emirates	43 ▼
Qatar	37 ▼
Azerbaijan	35 ▼
Thailand	34 ▼
Georgia	33 ▼
Iran, Islamic Rep. of	32 ▼
Saudi Arabia	30 ▼
Oman	23 ▼
Tunisia	23 ▼
Kuwait	18 ▼
Morocco	14 ▼
Yemen	3 ▼
Benchmarking education system	
North Carolina-USA	84 ▲
Florida-USA	79 ▲
Quebec-CAN	78 ▲
Ontario-CAN	78 ▲
Alberta-CAN	74 ▲
Dubai-UAE	54 ▼
Abu Dhabi-UAE	40 ▼

▲ Percent higher than International average
▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
GEOMETRIC SHAPES AND MEASURES	Two- and Three-dimensional Shapes	Knowing

Item label: Lines of symmetry complex figure



How many lines of symmetry does this figure have?

- A. 1
- B. 2
- C. 3
- D. 4

Item Number: M051123

Correct Response:	B
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Overall Percent Correct

Education system	Percent correct
Hong Kong-CHN	81 ▲
Singapore	80 ▲
England-GBR	73 ▲
Northern Ireland-GBR	69 ▲
United States	66 ▲
Malta	63 ▲
Slovenia	58 ▲
Ireland	57 ▲
Belgium (Flemish)-BEL	54 ▲
Turkey	54 ▲
Lithuania	51 ▲
Hungary	50 ▲
Australia	50 ▲
Iran, Islamic Rep. of	49 ▲
Japan	48 ▲
Korea, Rep. of	48 ▲
Russian Federation	46
Romania	46
Germany	46
Denmark	45
Portugal	45
Italy	44
Chile	44
International average	43
Czech Republic	43
Chinese Taipei-CHN	42
Saudi Arabia	41
Azerbaijan	41
Bahrain	41
Norway	40
Morocco	40
Thailand	39 ▼
United Arab Emirates	37 ▼
Austria	37 ▼
New Zealand	36 ▼
Kazakhstan	34 ▼
Georgia	34 ▼
Qatar	34 ▼
Finland	33 ▼
Slovak Republic	32 ▼
Oman	32 ▼
Kuwait	31 ▼
Netherlands	30 ▼
Poland	30 ▼
Spain	29 ▼
Armenia	29 ▼
Serbia	27 ▼
Sweden	23 ▼
Croatia	23 ▼
Tunisia	22 ▼
Yemen	17 ▼

Benchmarking education system

Florida-USA	79 ▲
North Carolina-USA	69 ▲
Ontario-CAN	66 ▲
Alberta-CAN	43
Quebec-CAN	40
Dubai-UAE	39
Abu Dhabi-UAE	37 ▼

▲ Percent higher than International average
▼ Percent lower than International average

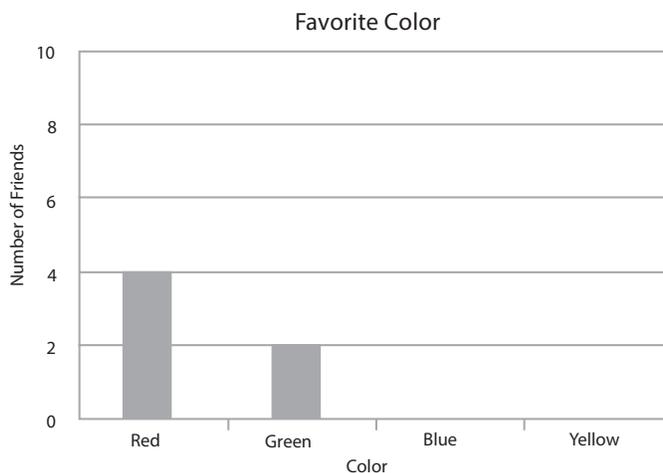
Content Domain	Main Topic	Cognitive Domain
DATA DISPLAY	Organizing and Representing	Applying

Item label: Favorite colors of Darin's friends

Darin asked his friends to name their favorite color. He collected the information in the table shown below.

Favorite Color	Number of Friends
Red	4
Green	2
Blue	6
Yellow	7

Then Darin started to draw a graph to show the information. Complete Darin's graph.



Item Number: M031133

SCORING

Correct Response

- Both bars drawn correctly: blue to 6, yellow to 7 (± 0.5)

Incorrect Response

- One or both bars attempted but not correct
- One bar correct
- Other incorrect (including crossed out, erased, stray marks, illegible, or off task)

Overall Percent Correct

Education system	Percent correct
Korea, Rep. of	97 ▲
Singapore	95 ▲
Hong Kong-CHN	95 ▲
Japan	93 ▲
Northern Ireland-GBR	92 ▲
Netherlands	91 ▲
England-GBR	89 ▲
Finland	88 ▲
Germany	88 ▲
Lithuania	87 ▲
Ireland	87 ▲
Chinese Taipei-CHN	87 ▲
Belgium (Flemish)-BEL	86 ▲
Australia	84 ▲
Portugal	84 ▲
Denmark	84 ▲
Sweden	83 ▲
Malta	83 ▲
Hungary	83 ▲
Russian Federation	81 ▲
New Zealand	81 ▲
Austria	80 ▲
Slovenia	80 ▲
Thailand	78
United States	78 ▲
Spain	78 ▲
Slovak Republic	77 ▲
Czech Republic	77
Italy	77
Bahrain	75
Croatia	74
Norway	74
International average	73
Turkey	73
Kazakhstan	73
Poland	73
Qatar	70
Chile	69 ▼
United Arab Emirates	68 ▼
Serbia	67 ▼
Romania	62 ▼
Saudi Arabia	60 ▼
Oman	57 ▼
Georgia	56 ▼
Kuwait	55 ▼
Iran, Islamic Rep. of	54 ▼
Azerbaijan	47 ▼
Armenia	41 ▼
Tunisia	24 ▼
Morocco	23 ▼
Yemen	13 ▼

Benchmarking education system

Quebec-CAN	89 ▲
Ontario-CAN	87 ▲
North Carolina-USA	82 ▲
Alberta-CAN	81 ▲
Florida-USA	80 ▲
Dubai-UAE	75
Abu Dhabi-UAE	62 ▼

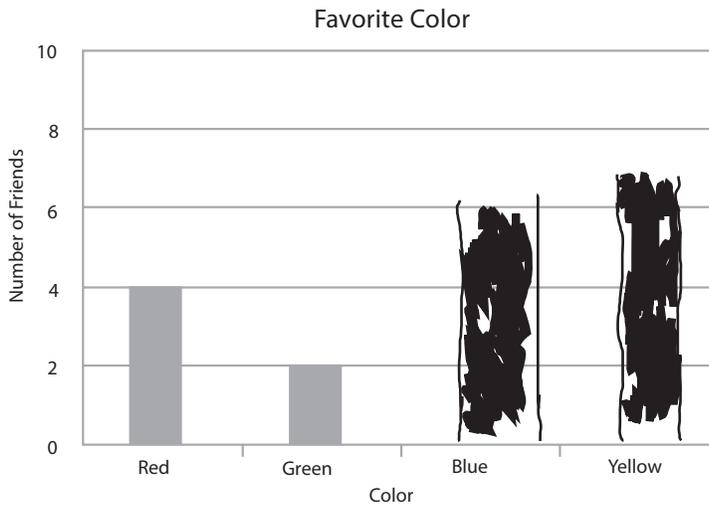
▲ Percent higher than International average
▼ Percent lower than International average

Item label: Favorite colors of Darin's friends (continued)

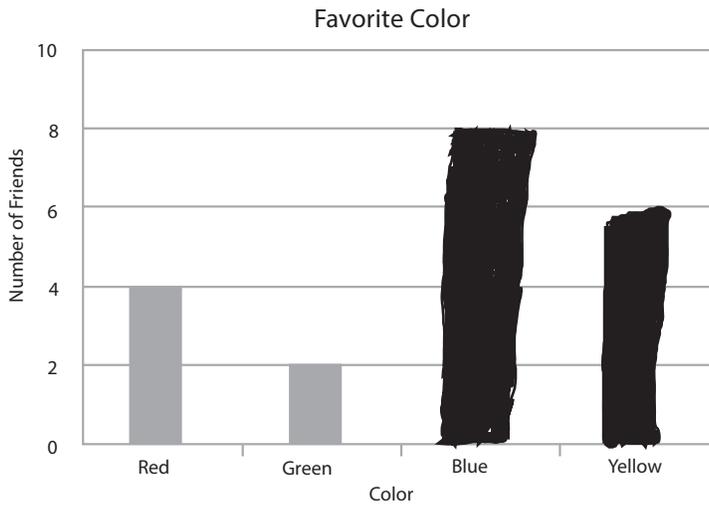
M031133

Student Responses

Correct Response:

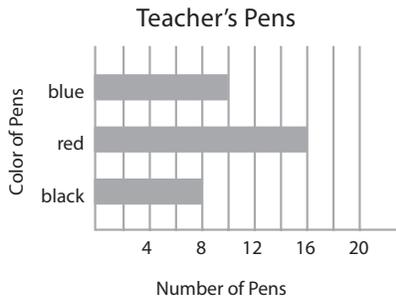


Incorrect Response:



Content Domain	Main Topic	Cognitive Domain
DATA DISPLAY	Reading and Interpreting	Applying

Item label: Teacher’s pens on the graph



The graph shows the number of blue, red, and black pens the teacher has in his desk. How many more red pens are there than black pens?

- A. 2 more
- B. 4 more
- C. 6 more
- D. 8 more

Item Number: M031155

Correct Response:	D
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Overall Percent Correct

Education system	Percent correct
Singapore	87 ▲
Chinese Taipei-CHN	85 ▲
Hong Kong-CHN	83 ▲
Korea, Rep. of	83 ▲
Netherlands	78 ▲
United States	73 ▲
Northern Ireland-GBR	71 ▲
Portugal	71 ▲
Finland	70 ▲
Japan	69 ▲
Germany	69 ▲
England-GBR	68 ▲
Sweden	65 ▲
Belgium (Flemish)-BEL	65 ▲
Hungary	61 ▲
Russian Federation	60 ▲
Spain	60 ▲
Turkey	59 ▲
Denmark	59 ▲
Poland	57
Lithuania	57
Australia	57
Ireland	56
Czech Republic	56
Slovenia	55
International average	55
Serbia	53
Norway	53
Croatia	52
Austria	52
Chile	52
Malta	51
New Zealand	51
Italy	49 ▼
United Arab Emirates	46 ▼
Romania	46 ▼
Kazakhstan	46 ▼
Slovak Republic	45 ▼
Saudi Arabia	45 ▼
Thailand	44 ▼
Georgia	40 ▼
Qatar	40 ▼
Bahrain	38 ▼
Oman	37 ▼
Armenia	37 ▼
Iran, Islamic Rep. of	37 ▼
Azerbaijan	33 ▼
Morocco	31 ▼
Kuwait	31 ▼
Yemen	28 ▼
Tunisia	19 ▼

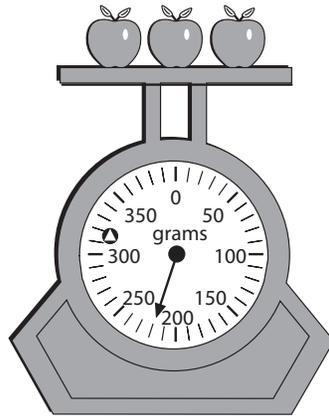
Benchmarking education system

North Carolina-USA	79 ▲
Florida-USA	72 ▲
Ontario-CAN	67 ▲
Alberta-CAN	62 ▲
Quebec-CAN	62 ▲
Dubai-UAE	51
Abu Dhabi-UAE	45 ▼

▲ Percent higher than International average
▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
DATA DISPLAY	Reading and Interpreting	Knowing

Item label: How much the apples weigh in grams



How much do the apples weigh in grams?

- A. 200
- B. 202
- C. 210
- D. 220

Item Number: M031294

Correct Response:	D
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Overall Percent Correct

Education system	Percent correct
Korea, Rep. of	90 ▲
Singapore	90 ▲
Hong Kong-CHN	89 ▲
Japan	88 ▲
Chinese Taipei-CHN	87 ▲
Netherlands	84 ▲
Lithuania	78 ▲
England-GBR	77 ▲
Northern Ireland-GBR	75 ▲
Germany	75 ▲
Belgium (Flemish)-BEL	74 ▲
Hungary	72 ▲
Finland	71 ▲
Austria	68 ▲
Denmark	66 ▲
United States	66 ▲
Czech Republic	66 ▲
Portugal	65 ▲
Slovenia	63 ▲
Australia	63 ▲
Sweden	62 ▲
Serbia	61
Russian Federation	60 ▲
Slovak Republic	60 ▲
Norway	59
Poland	57
International average	56
Croatia	53
Ireland	52
Romania	52
Azerbaijan	51
Kazakhstan	50
Malta	50 ▼
Italy	48 ▼
Spain	47 ▼
Chile	47 ▼
Turkey	44 ▼
Armenia	41 ▼
New Zealand	40 ▼
Georgia	39 ▼
Qatar	37 ▼
Thailand	36 ▼
United Arab Emirates	35 ▼
Bahrain	34 ▼
Iran, Islamic Rep. of	33 ▼
Saudi Arabia	26 ▼
Kuwait	21 ▼
Oman	21 ▼
Morocco	19 ▼
Tunisia	18 ▼
Yemen	18 ▼

Benchmarking education system

North Carolina-USA	68 ▲
Florida-USA	65 ▲
Quebec-CAN	60
Alberta-CAN	50 ▼
Dubai-UAE	48 ▼
Ontario-CAN	45 ▼
Abu Dhabi-UAE	30 ▼

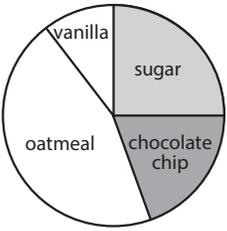
▲ Percent higher than International average
▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
DATA DISPLAY	Reading and Interpreting	Knowing

Item label: Type of cookie bakery sells most

This chart shows the types of cookies sold by the local bakery.

Cookies Sold



Which type of cookie did the bakery sell the most of?

- A. oatmeal
- B. vanilla
- C. chocolate chip
- D. sugar

Item Number: M041175

Correct Response:	A
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Overall Percent Correct

Education system	Percent correct
Korea, Rep. of	98 ▲
Portugal	96 ▲
Hong Kong-CHN	96 ▲
Japan	95 ▲
Chinese Taipei-CHN	95 ▲
Netherlands	93 ▲
Russian Federation	92 ▲
Singapore	91 ▲
Finland	91 ▲
Denmark	90 ▲
Northern Ireland-GBR	90 ▲
United States	89 ▲
Australia	89 ▲
Germany	89 ▲
England-GBR	88 ▲
Ireland	88 ▲
Austria	87 ▲
Italy	87 ▲
Lithuania	86 ▲
Sweden	86 ▲
Norway	85 ▲
Croatia	84 ▲
Czech Republic	84 ▲
Slovenia	84 ▲
Belgium (Flemish)-BEL	82 ▲
Hungary	82 ▲
Poland	81 ▲
Slovak Republic	81 ▲
New Zealand	78
Spain	78
International average	77
Kazakhstan	74
Turkey	73
Chile	72 ▼
Bahrain	70 ▼
Malta	70 ▼
Serbia	70 ▼
Romania	69 ▼
Iran, Islamic Rep. of	67 ▼
Saudi Arabia	66 ▼
Qatar	66 ▼
United Arab Emirates	65 ▼
Georgia	60 ▼
Thailand	59 ▼
Kuwait	58 ▼
Oman	57 ▼
Azerbaijan	56 ▼
Armenia	56 ▼
Tunisia	35 ▼
Yemen	34 ▼
Morocco	28 ▼

Benchmarking education system

Florida-USA	91 ▲
Ontario-CAN	91 ▲
Alberta-CAN	87 ▲
North Carolina-USA	87 ▲
Quebec-CAN	83 ▲
Dubai-UAE	73 ▼
Abu Dhabi-UAE	58 ▼

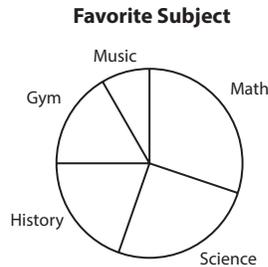
▲ Percent higher than International average
▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
DATA DISPLAY	Organizing and Representing	Reasoning

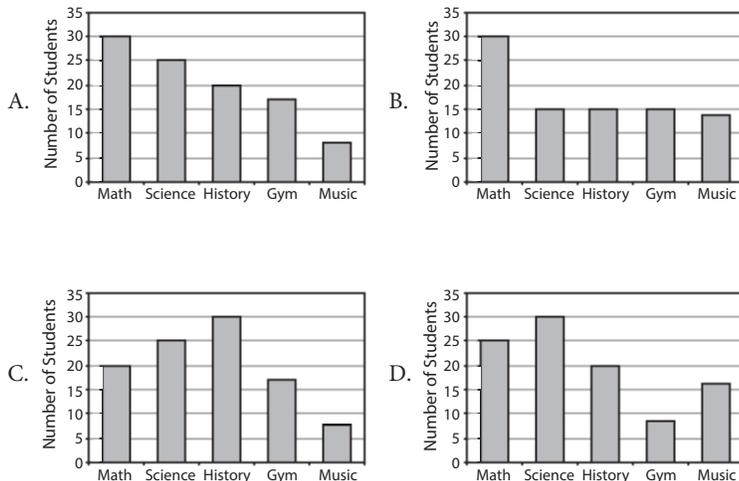
Item label: Comparing pie chart with bar chart

Mr. Johnson asked the students in his school about their favorite subject.

This pie chart shows how many students liked each of 5 subjects.



Which graph shows the same information as the pie chart?



Item Number: M041184

Correct Response:	A
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Overall Percent Correct

Education system	Percent correct
Korea, Rep. of	95 ▲
Japan	92 ▲
Singapore	89 ▲
Hong Kong-CHN	88 ▲
Chinese Taipei-CHN	87 ▲
Russian Federation	86 ▲
Finland	84 ▲
United States	83 ▲
Germany	83 ▲
Portugal	82 ▲
Slovenia	82 ▲
Denmark	81 ▲
Australia	81 ▲
Italy	81 ▲
Netherlands	80 ▲
Austria	79 ▲
Northern Ireland-GBR	78 ▲
Slovak Republic	78 ▲
Lithuania	77 ▲
Belgium (Flemish)-BEL	76 ▲
England-GBR	76 ▲
Hungary	76 ▲
Kazakhstan	76 ▲
Chile	75 ▲
Turkey	75 ▲
Spain	75 ▲
Ireland	75
New Zealand	73
Poland	72
Czech Republic	72
Norway	72
Sweden	71
International average	71
Romania	71
Bahrain	69
Malta	69
Serbia	69
Croatia	66
Thailand	65 ▼
United Arab Emirates	63 ▼
Qatar	61 ▼
Saudi Arabia	61 ▼
Georgia	61 ▼
Iran, Islamic Rep. of	55 ▼
Oman	52 ▼
Azerbaijan	52 ▼
Kuwait	46 ▼
Armenia	39 ▼
Morocco	33 ▼
Tunisia	32 ▼
Yemen	22 ▼

Benchmarking education system

Alberta-CAN	83 ▲
North Carolina-USA	82 ▲
Florida-USA	81 ▲
Ontario-CAN	80 ▲
Quebec-CAN	77 ▲
Dubai-UAE	70
Abu Dhabi-UAE	59 ▼

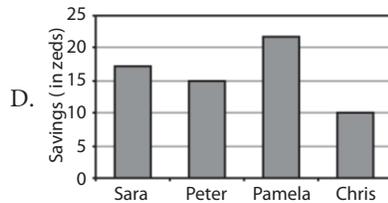
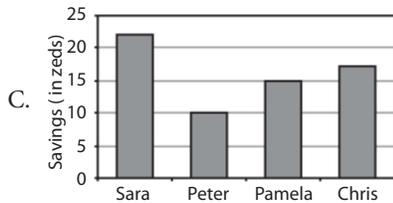
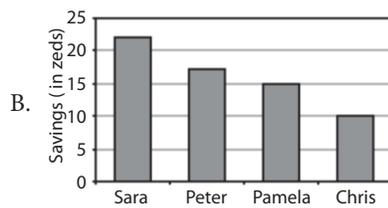
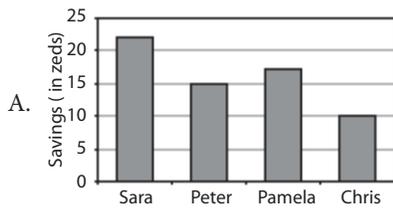
▲ Percent higher than International average
▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
DATA DISPLAY	Organizing and Representing	Reasoning

Item label: Representing data on the bar graph

John was given the following table by his teacher and was asked to identify the graph that correctly displays the data. Which graph below should he choose?

Name	Savings
Sara	22 zeds
Peter	15 zeds
Pamela	17 zeds
Chris	10 zeds



Item Number: M041199

Correct Response:	A
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Overall Percent Correct

Education system	Percent correct
Korea, Rep. of	97 ▲
Hong Kong-CHN	95 ▲
Chinese Taipei-CHN	92 ▲
Singapore	91 ▲
Netherlands	91 ▲
United States	91 ▲
Japan	90 ▲
Russian Federation	89 ▲
Lithuania	86 ▲
Finland	86 ▲
Portugal	86 ▲
Northern Ireland-GBR	83 ▲
Belgium (Flemish)-BEL	83 ▲
Germany	82 ▲
England-GBR	82 ▲
Slovenia	81 ▲
Australia	81 ▲
Italy	80 ▲
Sweden	80 ▲
Slovak Republic	80 ▲
Czech Republic	79 ▲
Hungary	78 ▲
Poland	78 ▲
Turkey	76 ▲
Ireland	76 ▲
Austria	76
Croatia	76
Kazakhstan	76
Chile	75
Spain	75
Norway	74
Malta	73
Serbia	73
New Zealand	73
Denmark	72
International average	72
Bahrain	69
Romania	67 ▼
United Arab Emirates	66 ▼
Thailand	62 ▼
Saudi Arabia	58 ▼
Qatar	58 ▼
Georgia	55 ▼
Oman	52 ▼
Kuwait	52 ▼
Iran, Islamic Rep. of	51 ▼
Azerbaijan	48 ▼
Armenia	46 ▼
Tunisia	25 ▼
Morocco	25 ▼
Yemen	23 ▼

Benchmarking education system

Florida-USA	91 ▲
North Carolina-USA	90 ▲
Quebec-CAN	86 ▲
Alberta-CAN	85 ▲
Ontario-CAN	85 ▲
Dubai-UAE	74
Abu Dhabi-UAE	61 ▼

▲ Percent higher than International average
▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
DATA DISPLAY	Reading and Interpreting	Knowing

Item label: Class with fewest choose blue

Ahmed made a survey of the favorite color of the students in 4 classes.

Class 1

Color	Count
Red	12
Green	10
Blue	8

Class 2

Color	Count
Red	10
Green	15
Blue	5

Class 3

Color	Count
Red	5
Green	10
Blue	15

Class 4

Color	Count
Red	7
Green	10
Blue	13

In which class do the fewest students choose blue?

A. Class 1
 B. Class 2
 C. Class 3
 D. Class 4

Item Number: M041335

Correct Response:	B
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Overall Percent Correct

Education system	Percent correct
Germany	94 ▲
Austria	93 ▲
Portugal	92 ▲
Korea, Rep. of	92 ▲
Japan	91 ▲
Finland	91 ▲
Hong Kong-CHN	91 ▲
Singapore	91 ▲
Lithuania	89 ▲
Sweden	89 ▲
United States	89 ▲
Russian Federation	88 ▲
Slovenia	88 ▲
Chinese Taipei-CHN	88 ▲
Croatia	86 ▲
Slovak Republic	85 ▲
Serbia	85 ▲
Northern Ireland-GBR	85 ▲
Czech Republic	85 ▲
Hungary	84 ▲
Spain	84 ▲
Netherlands	84 ▲
England-GBR	83 ▲
Poland	83 ▲
Ireland	82 ▲
Italy	82 ▲
Belgium (Flemish)-BEL	80 ▲
Turkey	79
Thailand	77
International average	76
Chile	76
Denmark	76
Norway	76
Malta	75
Kazakhstan	75
Romania	73
Iran, Islamic Rep. of	69 ▼
Australia	69 ▼
Bahrain	69 ▼
United Arab Emirates	67 ▼
Saudi Arabia	65 ▼
New Zealand	62 ▼
Georgia	62 ▼
Azerbaijan	57 ▼
Qatar	55 ▼
Oman	52 ▼
Armenia	51 ▼
Kuwait	49 ▼
Tunisia	49 ▼
Morocco	39 ▼
Yemen	24 ▼

Benchmarking education system

North Carolina-USA	91 ▲
Florida-USA	89 ▲
Quebec-CAN	87 ▲
Ontario-CAN	84 ▲
Alberta-CAN	84 ▲
Dubai-UAE	73 ▼
Abu Dhabi-UAE	63 ▼

▲ Percent higher than International average
 ▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
DATA DISPLAY	Reading and Interpreting	Knowing

Item label: Vanilla as favorite ice cream

Favorite Ice Cream Flavors

Flavor	Number of Children
Vanilla	
Chocolate	
Strawberry	
Lemon	

 stands for 4 children

How many children chose vanilla as their favorite flavor?

Answer: _____

Overall Percent Correct

Education system	Percent correct
Singapore	93 ▲
Netherlands	89 ▲
Portugal	87 ▲
United States	86 ▲
Hong Kong-CHN	84 ▲
Korea, Rep. of	84 ▲
Chinese Taipei-CHN	79 ▲
England-GBR	78 ▲
Japan	78 ▲
Northern Ireland-GBR	75 ▲
Czech Republic	74 ▲
Finland	71 ▲
Belgium (Flemish)-BEL	70 ▲
Russian Federation	69 ▲
Germany	68 ▲
Slovenia	64 ▲
Austria	63 ▲
Australia	61 ▲
Ireland	60 ▲
Denmark	60 ▲
Thailand	59 ▲
Malta	58 ▲
Lithuania	57
Slovak Republic	55
Poland	54
New Zealand	54
International average	54
Italy	53
Sweden	52
Norway	47 ▼
Azerbaijan	47 ▼
Serbia	47 ▼
Turkey	47 ▼
Hungary	46 ▼
United Arab Emirates	44 ▼
Georgia	43 ▼
Spain	41 ▼
Romania	41 ▼
Bahrain	39 ▼
Kuwait	35 ▼
Croatia	35 ▼
Qatar	34 ▼
Saudi Arabia	34 ▼
Chile	34 ▼
Armenia	30 ▼
Kazakhstan	29 ▼
Oman	20 ▼
Iran, Islamic Rep. of	19 ▼
Tunisia	16 ▼
Morocco	10 ▼
Yemen	5 ▼

Item Number: M051109

SCORING

Correct Response

- 12

Incorrect Response

- 3
- Other incorrect (including crossed out, erased, stray marks, illegible, or off task)

Benchmarking education system

North Carolina-USA	93 ▲
Florida-USA	88 ▲
Ontario-CAN	81 ▲
Alberta-CAN	70 ▲
Quebec-CAN	67 ▲
Dubai-UAE	54
Abu Dhabi-UAE	39 ▼

▲ Percent higher than International average
▼ Percent lower than International average

Content Domain	Main Topic	Cognitive Domain
DATA DISPLAY	Reading and Interpreting	Reasoning

Item label: More students in the Pine School

The graph shows the number of students at each grade in the Pine School.

Pine School

Grade	Number of Students
1	20
2	25
3	20
4	25
5	30
6	25

In the Pine School there is room in each grade for 30 students. How many more students could be in the school?

A. 20
 B. 25
 C. 30
 D. 35

Item Number: M051117

Correct Response:	D
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Overall Percent Correct

Education system	Percent correct
Chinese Taipei-CHN	79 ▲
Hong Kong-CHN	78 ▲
Korea, Rep. of	75 ▲
Netherlands	74 ▲
Singapore	73 ▲
Japan	71 ▲
Portugal	70 ▲
Norway	67 ▲
Germany	67 ▲
Denmark	66 ▲
England-GBR	65 ▲
Sweden	64 ▲
Lithuania	64 ▲
Ireland	64 ▲
Slovenia	64 ▲
Finland	63 ▲
United States	63 ▲
Belgium (Flemish)-BEL	62 ▲
New Zealand	60 ▲
Northern Ireland-GBR	59
Serbia	59 ▼
Australia	58
Austria	57
Georgia	55
International average	54
Russian Federation	53
Malta	52
Croatia	51
Poland	51
Slovak Republic	50
Spain	50
Turkey	50 ▼
Chile	50 ▼
Italy	49 ▼
Romania	48 ▼
Kazakhstan	47 ▼
Hungary	47 ▼
Thailand	46 ▼
Czech Republic	45 ▼
Iran, Islamic Rep. of	44 ▼
United Arab Emirates	41 ▼
Qatar	41 ▼
Bahrain	39 ▼
Saudi Arabia	38 ▼
Oman	33 ▼
Armenia	29 ▼
Morocco	29 ▼
Yemen	29 ▼
Kuwait	26 ▼
Tunisia	26 ▼
Azerbaijan	—
Benchmarking education system	
North Carolina-USA	61 ▲
Alberta-CAN	60 ▲
Ontario-CAN	58
Florida-USA	56
Dubai-UAE	48 ▼
Quebec-CAN	46 ▼
Abu Dhabi-UAE	37 ▼

▲ Percent higher than International average
 ▼ Percent lower than International average
 — Not applicable