

Coherencia en la enseñanza de matemáticas

MICHIGAN STATE
UNIVERSITY

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Pregunta de investigación

**¿Cuál es la relación entre
currículo y logro? ó
¿Cuál es el rol de la
coherencia?**

Descripción del enfoque metodológico; análisis documental

Modelo Curricular tripartita de la IEA

*Currículo logrado:
conocimientos,
competencias y actitudes
obtenidos por los
estudiantes*

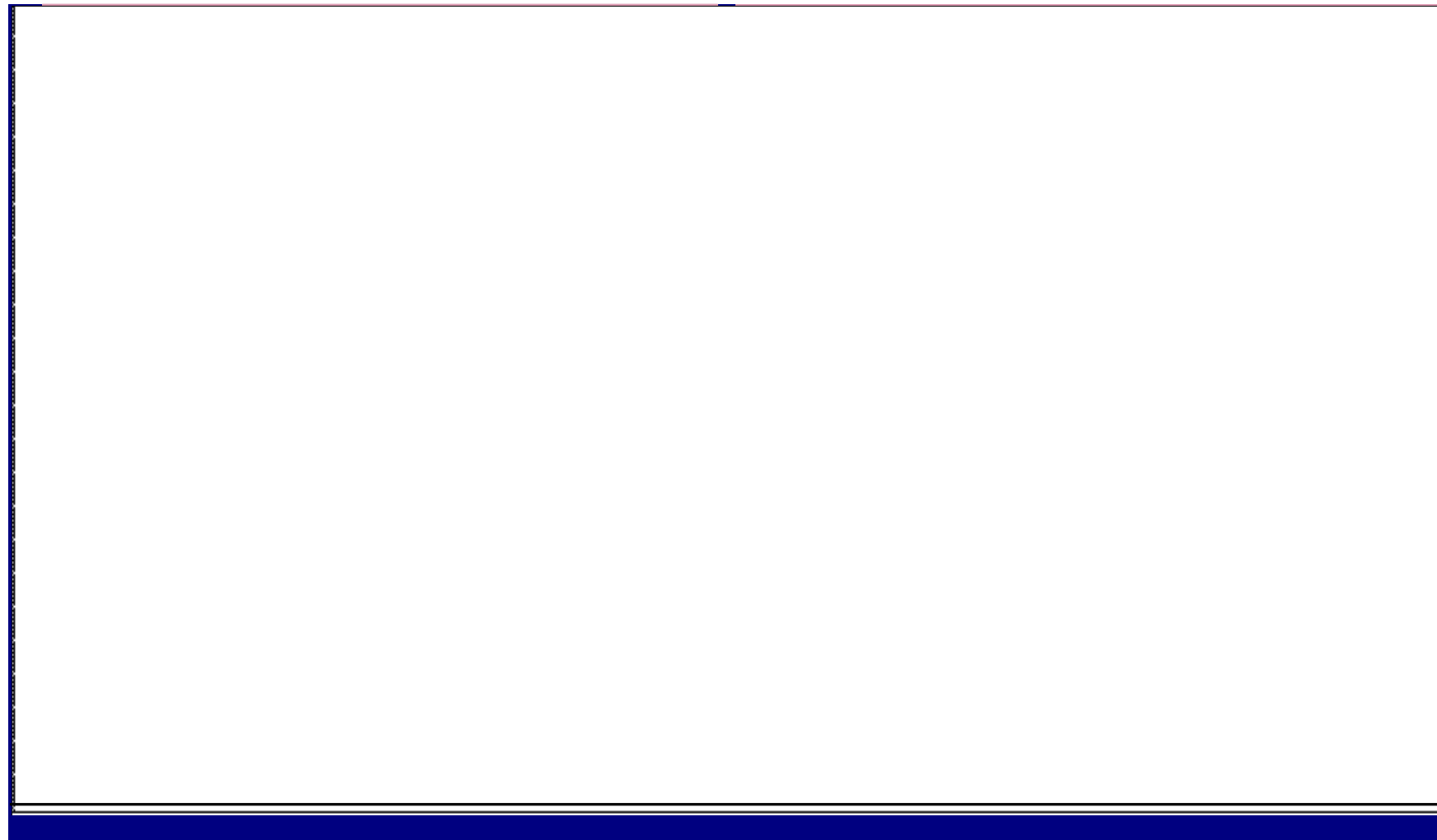
*Currículo aplicado: objetivos, estrategias y prácticas
implementadas en el salón de clase.*

*Currículo prescrito: políticas, programas y objetivos generales
del sistema educativo*

Marco TIMSS de Matemáticas – Un ejemplo



Dos “mapas de seguimiento de tópicos”



Ejemplos del Índice IGP

Código	Descripción	Índice IGP
1111	Números enteros: significado	1,8
1122	Fracciones decimales	4,6
1141	Aritmética binaria &/o base de otros números	6,6
1143	Números complejos y sus propiedades	10,7
141	Transformaciones geométricas	7,1
151	Conceptos de proporcionalidad	6,4
161	Patrones, relaciones & funciones	9,0
162	Ecuaciones & fórmulas	7,0
171	Representación de datos & análisis	7,4
172	Incertidumbre y probabilidad	9,7
181	Elementary Analysis: Procesos infinitos	11,5

Constructos de contenido instruccional

❖ **Coherencia curricular**

- **Estructura curricular**

❖ **Foco curricular**

- **Tiempo de exposición (OTL)**

❖ **Rigor curricular**

- **Nivel de complejidad cognitiva**

Definición de coherencia

Los contenidos estándar, en el agregado, son **coherentes** si están **articulados en el tiempo**, como una secuencia de tópicos y desempeños **consistentes con la lógica de contenido de la disciplina de la cual se deriva el tema** de estudio, y de su naturaleza jerárquica. Esto **no implica una única secuencia coherente**; sólo que la secuencia refleje la estructura inherente de la disciplina.

Definición de coherencia

En otras palabras, hay coherencia si la secuencia de tópicos a través de los grados escolares es consistente con la estructura lógica de las matemáticas. Si los pre-requisitos se cubren antes de los tópicos avanzados.

Matemáticas son acumulativas

- Bien hechos, los tópicos en cada año dependen de los tópicos cubiertos en años anteriores.
- Cuando no se tiene en cuenta su naturaleza acumulativa, el estudio de las matemáticas degenera en una lista de cosas por hacer, sin significado, y de memorización de hechos desconectados entre sí, lo que afecta especialmente a los estudiantes más débiles.

*James Milgram, Professor of Mathematics, Stanford University
MSU Education Policy Forum, Washington, DC, June, 2003*

Currículo de matemáticas de países con mayor logro

Topic	Grade											
	1	2	3	4	5	6	7	8	9	10	11	12
Whole Number: Meaning	●	●	●	●	●							
Whole Number: Operations	●	●	●	●	●							
Measurement Units	●	●	●	●	●	●	●					
Common Fractions			●	●	●	●						
Equations & Formulas			●	●	●	●	●	●	●	●	●	●
Data Representation & Analysis			●	●	●	●	●	●	●	●	●	●
2-D Geometry: Basics			●	●	●	●	●	●	●	●		
2-D Geometry: Polygons & Circles				●	●	●	●	●	●	●		
Measurement: Perimeter, Area & Volume				●	●	●	●	●	●			
Rounding & Significant Figures				●	●	●						
Estimating Computations				●	●	●						
Whole Numbers: Properties of Operations				●	●	●						
Estimating Quantity & Size				●	●	●						
Decimal Fractions				●	●	●						
Relation of Common & Decimal Fractions				●	●	●						
Properties of Common & Decimal Fractions				●	●	●						
Percentages					●	●						
Proportionality Concepts					●	●	●	●				
Proportionality Problems					●	●	●	●	●	●		
2-D Geometry: Coordinate Geometry					●	●	●	●	●	●	●	
Geometry: Transformations						●	●	●	●	●		●
Negative Numbers, Integers, & Their Properties						●	●	●	●	●		
Number Theory							●	●	●	●		
Exponents, Roots & Radicals							●	●	●	●		
Exponents & Orders of Magnitude							●	●	●	●		
Measurement: Estimation & Errors							●	●	●	●		
Constructions Using Straightedge & Compass							●	●	●	●	●	●
3-D Geometry							●	●	●	●	●	●
Geometry: Congruence & Similarity								●	●	●		
Rational Numbers & Their Properties								●	●	●	●	●
Patterns, Relations & Functions								●	●	●	●	●
Proportionality: Slope & Trigonometry								●	●	●		
Real Numbers, Their Subsets & Properties									●	●	●	●
Validation & Justification									●	●	●	●
Structuring & Abstracting										●	●	●
Uncertainty & Probability											●	●
Complex Numbers & Their Properties										●	●	●
Infinite Processes											●	●
Change											●	●
Vectors											●	●
Systematic Counting											●	●

● Intended by 4, 5, or 6 of the top achieving countries

Matemáticas programadas para cada grado, en países de mayor logro

Topic	Grade							
	1	2	3	4	5	6	7	8
Whole Number: Meaning	•	•	•	•	•			
Whole Number: Operations	•	•	•	•	•			
Measurement Units	•	•	•	•	•	•	•	
Common Fractions			•	•	•	•		
Equations & Formulas			•	•	•	•	•	•
Data Representation & Analysis			•	•	•	•	•	•
2-D Geometry: Basics			•	•	•	•	•	•
2-D Geometry: Polygons & Circles			•	•	•	•	•	•
Measurement: Perimeter, Area & Volume			•	•	•	•	•	•
Rounding & Significant Figures			•	•	•	•		
Estimating Computations			•	•	•	•		
Whole Numbers: Properties of Operations			•	•	•	•		
Estimating Quantity & Size			•	•	•	•		
Decimal Fractions			•	•	•	•		
Relation of Common & Decimal Fractions			•	•	•	•		
Properties of Common & Decimal Fractions			•	•	•	•		
Percentages					•	•		
Proportionality Concepts					•	•	•	•
Proportionality Problems					•	•	•	•
2-D Geometry: Coordinate Geometry					•	•	•	•
Geometry: Transformations					•	•	•	•
Negative Numbers, Integers, & Their Properties					•	•	•	•
Number Theory							•	•
Exponents, Roots & Radicals							•	•
Exponents & Orders of Magnitude							•	•
Measurement: Estimation & Errors							•	•
Constructions Using Straightedge & Compass							•	•
3-D Geometry							•	•
Geometry: Congruence & Similarity							•	•
Rational Numbers & Their Properties							•	•
Patterns, Relations & Functions							•	•
Proportionality: Slope & Trigonometry							•	•

Intended by at least two-thirds of the top-achieving countries



2000 NCTM Estándares de Matemáticas

Topic	Grade							
	1	2	3	4	5	6	7	8
Whole Number Meaning	●	●	●	●	●			
Whole Number Operations	●	●	●	●	●			
Measurement Units	●	●	●	●	●	●	●	●
Common Fractions	●	●	●	●	●	●	●	●
Equations & Formulas			●	●	●	●	●	●
Data Representation & Analysis	●	●	●	●	●	●	●	●
2-D Geometry: Basics	●	●	●	●	●	●	●	●
Polygons & Circles	●	●	●	●	●	●	●	●
Perimeter, Area & Volume	●	●	●	●	●	●	●	●
Rounding & Significant Figures			●	●	●	●	●	●
Estimating Computations	●	●	●	●	●	●	●	●
Properties of Whole Number Operations	●	●	●	●	●			
Estimating Quantity & Size			●	●	●	●	●	●
Decimal Fractions			●	●	●	●	●	●
Relationship of Common & Decimal Fractions			●	●	●	●	●	●
Properties of Common & Decimal Fractions			●	●	●	●	●	●
Percentages			●	●	●	●	●	●
Proportionality Concepts			●	●	●	●	●	●
Proportionality Problems			●	●	●	●	●	●
2-D Coordinate Geometry	●	●	●	●	●	●	●	●
Geometry: Transformations	●	●	●	●	●	●	●	●
Negative Numbers, Integers & Their Properties			●	●	●	●	●	●
Number Theory					●	●	●	●
Exponents, Roots & Radicals					●	●	●	●
Exponents & Orders of Magnitude					●	●	●	●
Measurement Estimation & Errors	●	●	●	●	●	●	●	●
Constructions w/ Straightedge & Compass	●	●	●	●	●	●	●	●
3-D Geometry	●	●	●	●	●	●	●	●
Congruence & Similarity	●	●	●	●	●	●	●	●
Rational Numbers & Their Properties					●	●	●	●
Patterns, Relations & Functions	●	●	●	●	●	●	●	●
Slope & Trigonometry						●	●	●

Top Achieving Countries' Profile

Topic Intended



Matemáticas programadas para cada grado, en 6 países

Topic	Bulgaria								Germany								Mexico							
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Whole Number: Meaning																								
Whole Number: Operations																								
Measurement Units																								
Common Fractions																								
Equations & Formulas																								
Data Representation & Analysis																								
2-D Geometry: Basics																								
2-D Geometry: Polygons & Circles																								
Measurement: Perimeter, Area & Volume																								
Rounding & Significant Figures																								
Estimating Computations																								
Whole Numbers: Properties of Operations																								
Estimating Quantity & Size																								
Decimal Fractions																								
Relation of Common & Decimal Fractions																								
Properties of Common & Decimal Fractions																								
Percentages																								
Proportionality Concepts																								
Proportionality Problems																								
1-D and 2-D Geometry: Coordinate Geometry																								
Geometry: Transformations																								
Negative Numbers, Integers, & Their Properties																								
Number Theory																								
Exponents, Roots & Radicals																								
Exponents & Orders of Magnitude																								
Measurement: Estimation & Errors																								
Constructions using Straightedge & Compass																								
3-D Geometry																								
Geometry: Congruence & Similarity																								
Rational Numbers & Their Properties																								
Patterns, Relations & Functions																								
Proportionality: Slope & Trigonometry																								

Topic	South Korea								Taiwan								United States							
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Whole Number: Meaning																								
Whole Number: Operations																								
Measurement Units																								
Common Fractions																								
Equations & Formulas																								
Data Representation & Analysis																								
2-D Geometry: Basics																								
2-D Geometry: Polygons & Circles																								
Measurement: Perimeter, Area & Volume																								
Rounding & Significant Figures																								
Estimating Computations																								
Whole Numbers: Properties of Operations																								
Estimating Quantity & Size																								
Decimal Fractions																								
Relation of Common & Decimal Fractions																								
Properties of Common & Decimal Fractions																								
Percentages																								
Proportionality Concepts																								
Proportionality Problems																								
1-D and 2-D Geometry: Coordinate Geometry																								
Geometry: Transformations																								
Negative Numbers, Integers, & Their Properties																								
Number Theory																								
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Measurement: Estimation & Errors																								
Constructions using Straightedge & Compass																								
3-D Geometry																								
Geometry: Congruence & Similarity																								
Rational Numbers & Their Properties																								
Patterns, Relations & Functions																								
Proportionality: Slope & Trigonometry																								

Topic Intended
More than Half of Top-Achieving Countries

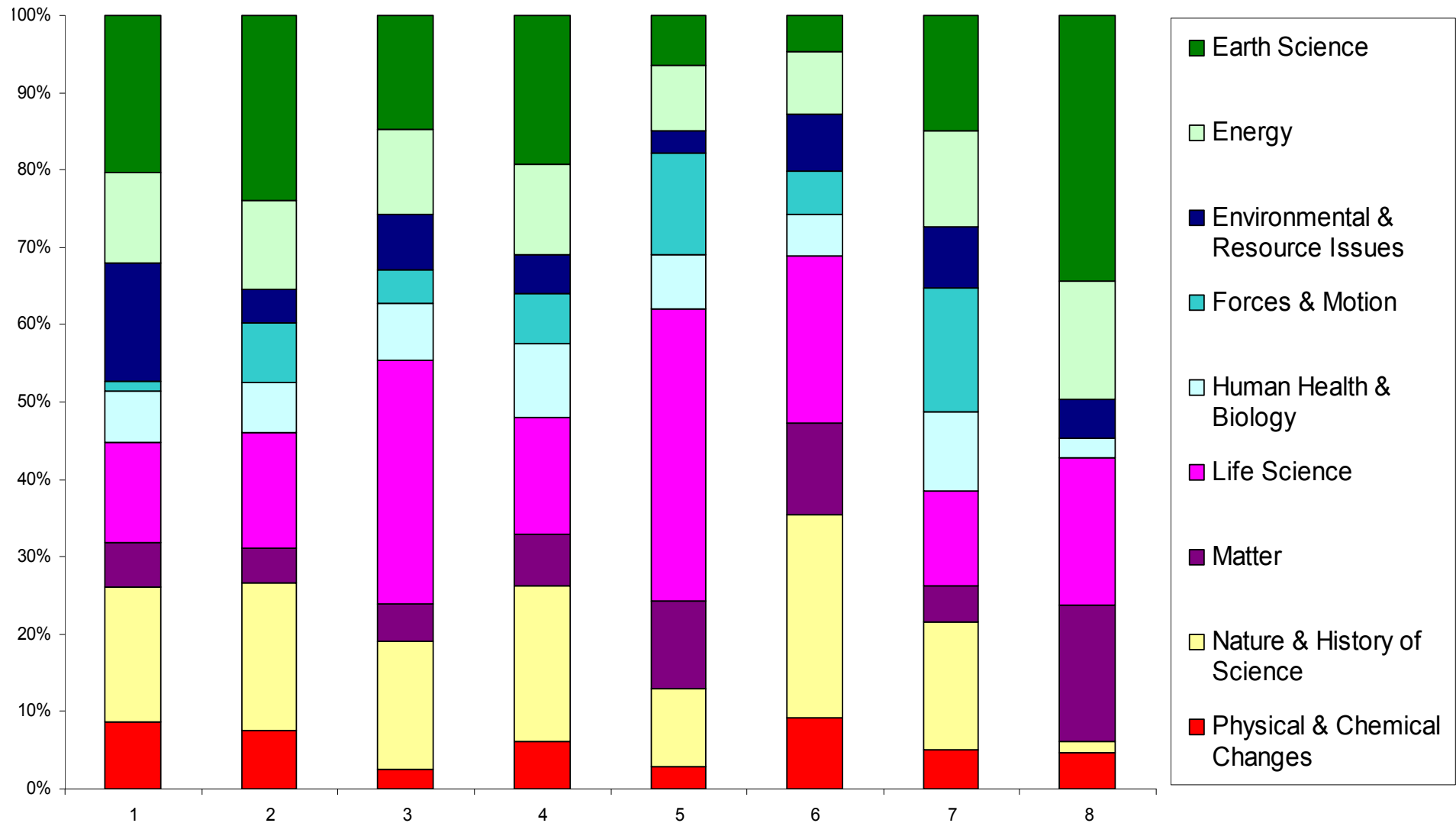
Evaluación sensible al currículo

Midiendo el currículo aplicado

- **Temas cubiertos en clase**
- **Los maestros indican el número de clases en las que cubren un tema**
- **Lista de temas proviene de un marco general**
- **El nivel de cubrimiento de un tema por parte del maestro puede ser evaluado en relación con el desempeño de los estudiantes y con los temas del marco general**
- **La relación puede ser examinada a nivel del salón ó del colegio**

Ejemplo de Currículo Aplicado

Tiempo promedio de enseñanza de 9 áreas de ciencias



Diseño de evaluaciones sensibles al currículo

- **Sirven para descubrir lo que los estudiantes saben en cada grado (3° - 12°) en múltiples áreas;**
- **Evaluaciones apropiadas para 3 grados;**
- **Cada evaluación tiene diferentes formatos creados utilizando un muestreo matricial de items;**
- **Diseñado para brindar un amplio cubrimiento de las áreas;**
- **Los formatos se distribuyen al azar al interior de cada salón de clase.**

***Por qué es importante la
evaluación sensible al
currículo***

Desempeño en tópicos específicos en matemáticas 1995 TIMSS

Whole Numbers		Common Fractions		Decimal Fractions & Percentages		Relationships of Fractions		Estimations of Quantity/Size		Rounding		Estimating Computations		Measurement Units		Perimeter, Area, Volume		Measurement Estimations & Errors	
Singapore	80.4	Singapore	82.4	Singapore	77.9	Singapore	85.1	Japan	77.9	Czech Republic	86.9	Singapore	75.8	Singapore	77.9	Singapore	84.5	Czech Republic	82.9
Japan	72.0	Japan	72.2	Czech Republic	72.5	Korea	77.6	Singapore	77.3	Singapore	86.6	Czech Republic	69.8	Japan	74.8	Japan	72.6	Singapore	81.0
Switzerland	70.2	Korea	69.9	Hong Kong	71.1	Japan	75.3	Canada	72.2	Canada	84.7	Japan	69.0	Czech Republic	73.2	Hong Kong	63.9	Sweden	80.8
Belgium (Fl)	68.6	Hong Kong	69.4	Japan	69.8	Hong Kong	74.1	Hong Kong	71.8	Korea	83.8	Korea	66.7	Slovenia	72.0	Korea	60.4	Korea	79.5
Austria	68.4	Belgium (Fl)	68.7	Slovak Republic	69.1	Belgium (Fl)	71.3	Switzerland	71.8	Iceland	83.1	Belgium (Fl)	64.1	Slovak Republic	71.9	Austria	51.8	Belgium (Fl)	78.9
Korea	67.6	Switzerland	62.4	Hungary	68.7	Switzerland	70.0	Czech Republic	71.7	Slovak Republic	82.4	Switzerland	62.5	Belgium (Fl)	71.8	Czech Republic	48.9	Hungary	78.2
Czech Republic	67.4	Ireland	61.7	Korea	68.4	France	67.2	Netherlands	71.2	Belgium (Fl)	81.0	Switzerland	71.6	Slovak Republic	47.9	Slovak Republic	47.9	Switzerland	78.2
Hong Kong	65.4	Austria	60.4	Austria	66.6	Austria	66.8	Belgium (Fl)	70.7	Hungary	79.8	Slovak Republic	61.1	Sweden	69.5	Switzerland	46.6	Austria	77.7
Slovak Republic	64.6	Belgium (Fr)	59.8	Russian Federation	65.9	Belgium (Fr)	65.8	Korea	70.7	Japan	79.6	Ireland	60.5	France	69.0	Slovenia	45.8	Netherlands	76.1
France	64.5	Slovenia	59.7	France	64.9	Canada	65.1	Austria	69.9	USA	79.2	Sweden	60.0	Austria	68.1	Austria	45.6	France	75.2
Slovenia	63.4	Czech Republic	59.6	Belgium (Fl)	64.6	Czech Republic	64.9	Australia	69.3	Netherlands	78.5	Australia	59.1	Belgium (Fr)	68.1	Bulgaria	45.2	Slovak Republic	75.2
Russian Federation	62.7	Netherlands	58.9	Slovenia	62.9	Ireland	64.3	Hungary	69.3	Sweden	78.5	Austria	58.9	Ireland	68.1	Russian Federation	44.6	Australia	74.5
Bulgaria	62.5	Slovak Republic	58.6	Switzerland	61.9	Slovak Republic	63.0	Sweden	69.3	Australia	77.5	Netherlands	58.7	Bulgaria	68.0	France	44.1	Norway	74.5
Ireland	62.2	France	57.8	Canada	61.0	Germany	62.6	Slovak Republic	69.1	Switzerland	77.4	Hong Kong	57.8	Korea	67.9	Netherlands	44.0	Denmark	73.0
Spain	60.8	Hungary	57.7	Netherlands	59.2	Netherlands	62.5	France	69.0	Switzerland	76.5	New Zealand	57.6	Hungary	67.5	Belgium (Fr)	43.0	Germany	72.9
Hungary	60.6	Israel	57.4	Belgium (Fr)	58.6	Slovenia	62.4	Germany	69.0	Austria	75.9	Hungary	57.3	Netherlands	66.8	Hungary	42.9	Hong Kong	72.7
Sweden	58.9	Canada	56.2	Thailand	58.0	Sweden	62.2	Canada	67.8	Thailand	75.4	Norway	57.0	Norway	66.4	Australia	42.1	Japan	72.5
Canada	57.9	Russian Federation	55.8	Netherlands	57.8	Australia	61.0	Scotland	68.8	France	74.7	USA	55.7	USA	65.9	Canada	40.4	Slovenia	72.5
Israel	59.0	Australia	55.4	Bulgaria	57.8	Hungary	60.7	Norway	66.6	Slovenia	74.7	Iceland	54.7	Denmark	65.4	Thailand	40.0	England	71.8
Thailand	56.0	Thailand	54.2	Ireland	57.3	Bulgaria	59.9	Belgium (Fr)	65.8	New Zealand	74.4	England	54.4	Hong Kong	65.2	Ireland	39.4	New Zealand	70.6
International	55.7	Bulgaria	54.2	Germany	57.2	Thailand	59.6	Slovenia	65.5	Hong Kong	74.2	Slovenia	52.6	Australia	65.0	Sweden	39.3	Scotland	69.9
Germany	55.4	Sweden	53.1	Israel	56.3	Norway	59.6	New Zealand	65.3	Russian Federation	73.5	Germany	52.0	Germany	63.5	International	39.0	Canada	69.7
Latvia	55.4	International	52.3	USA	55.8	Russian Federation	59.2	Ireland	64.4	England	74.2	Israel	51.9	Iceland	63.0	Romania	38.2	Ireland	69.6
Belgium (Fr)	55.4	Cyprus	51.9	International	55.5	Iceland	59.2	Denmark	64.3	Scotland	73.4	Scotland	51.6	Canada	63.0	England	37.1	Russian Federation	69.6
Australia	55.0	Germany	51.7	Lithuania	55.4	USA	58.5	Russian Federation	63.5	Norway	72.3	France	50.8	Israel	63.0	Cyprus	36.9	Latvia	66.9
Lithuania	53.8	New Zealand	51.5	Norway	54.1	Israel	57.6	USA	62.7	Denmark	71.2	Belgium (Fr)	50.6	Spain	62.4	Israel	36.9	Thailand	66.1
Netherlands	53.5	Norway	51.2	Australia	53.5	International	57.0	Bulgaria	62.4	International	70.9	Russian Federation	50.0	Thailand	62.3	Norway	36.4	International	64.8
Norway	53.4	USA	49.3	New Zealand	56.8	Belgium (Fr)	70.2	Iceland	61.6	Belgium (Fr)	70.2	Thailand	49.5	International	61.6	Scotland	35.7	Belgium (Fr)	64.6
Greece	52.7	Scotland	49.3	Iceland	52.6	England	53.8	International	61.1	Germany	69.9	International	50.9	New Zealand	61.3	Denmark	35.5	Israel	63.3
USA	52.3	England	49.2	Greece	52.6	Denmark	51.9	Latvia	59.5	Lithuania	69.2	Greece	46.3	England	60.5	New Zealand	35.0	USA	62.5
Romania	52.3	Spain	49.2	Spain	50.6	Scotland	51.5	Israel	58.4	Israel	68.8	Denmark	46.0	Latvia	60.3	Latvia	33.6	Iceland	61.6
Denmark	51.0	Denmark	49.0	Portugal	49.9	Greece	51.3	Thailand	57.1	Bulgaria	68.1	Bulgaria	44.9	Romania	59.3	Iceland	33.1	Greece	59.4
Portugal	49.0	Latvia	47.3	New Zealand	49.3	Cyprus	50.9	Spain	54.8	Portugal	65.0	Spain	44.1	Greece	58.4	Germany	32.9	Spain	55.3
New Zealand	48.6	Greece	47.3	Denmark	48.8	Lithuania	49.0	Greece	54.5	Cyprus	64.4	Lithuania	42.3	Scotland	58.5	Lithuania	32.2	Lithuania	55.1
Iceland	48.4	Romania	47.0	Scotland	47.3	Spain	48.2	Lithuania	53.0	Greece	64.1	Cyprus	39.7	Cyprus	55.0	Spain	29.9	Portugal	54.9
Scotland	47.9	Iceland	44.4	Romania	46.9	Latvia	47.2	Portugal	50.7	Latvia	63.3	Latvia	38.9	Portugal	55.0	Greece	29.8	Bulgaria	52.8
England	46.8	Lithuania	39.1	England	45.9	Romania	45.8	Romania	46.4	Spain	62.2	Portugal	38.2	Lithuania	54.6	USA	27.8	Romania	50.0
Cyprus	45.8	Cyprus	37.9	Cyprus	43.5	Portugal	43.2	Cyprus	43.9	Romania	57.5	Romania	38.0	USA	53.0	Portugal	22.8	Cyprus	45.7
Iran	43.4	Portugal	34.8	Philippines	42.2	Philippines	35.7	Philippines	36.9	Philippines	49.2	Philippines	30.9	Iran	44.2	Iran	21.1	Philippines	36.0
Philippines	38.0	Philippines	30.0	Colombia	33.7	Iran	35.3	Colombia	34.7	Colombia	47.6	Colombia	28.7	Colombia	40.8	Kuwait	14.7	Iran	35.5
Colombia	34.2	Colombia	27.3	Colombia	31.9	Colombia	27.3	Colombia	33.8	Iran	46.3	Iran	27.0	Kuwait	35.7	Philippines	14.4	Kuwait	35.1
Kuwait	26.4	Kuwait	25.2	South Africa	28.3	South Africa	27.2	Iran	33.4	Kuwait	44.5	South Africa	20.3	Philippines	32.1	Colombia	11.9	Colombia	32.4
South Africa	26.0	South Africa	20.2	Kuwait	27.5	Kuwait	25.0	South Africa	28.6	South Africa	36.8	Kuwait	20.2	South Africa	27.3	South Africa	8.3	South Africa	28.1

Promedio Internacional

Promedio Bélgica (Fr)

Desempeño en tópicos específicos en matemáticas 1995 TIMSS

Whole Numbers	Common Fractions		Decimal Fractions & Percentages		Relationships of Fractions		Estimations of Quantity/Size		Rounding		Estimating Computations		Measurement Units		Perimeter, Area, Volume		Measurement Estimations & Errors		
Singapore	80.4	Singapore	82.4	Singapore	77.9	Singapore	85.1	Japan	77.9	Czech Republic	86.9	Singapore	75.8	Singapore	77.9	Singapore	84.5	Czech Republic	82.9
Japan	72.0	Japan	72.2	Czech Republic	72.5	Korea	77.6	Singapore	77.3	Singapore	86.6	Czech Republic	69.8	Japan	74.8	Japan	72.6	Singapore	81.0
Switzerland	70.2	Korea	69.9	Hong Kong	71.1	Japan	75.3	England	72.2	Canada	84.7	Japan	69.0	Czech Republic	73.2	Hong Kong	63.9	Sweden	80.8
Belgium (Fl)	68.6	Hong Kong	69.4	Japan	69.8	Hong Kong	74.1	Hong Kong	71.8	Korea	83.8	Korea	66.7	Slovenia	72.0	Korea	61.8	Korea	79.5
Austria	68.4	Belgium (Fl)	68.7	Slovak Republic	69.1	Belgium (Fl)	71.3	Switzerland	71.8	Iceland	83.1	Belgium (Fl)	64.1	Slovak Republic	71.9	Austria	50.4	Belgium (Fl)	78.9
Korea	67.6	Switzerland	62.4	Hungary	68.7	Switzerland	70.0	Czech Republic	71.7	Slovak Republic	82.4	Switzerland	62.5	Belgium (Fl)	71.8	Czech Republic	48.9	Hungary	78.2
Czech Republic	67.4	Ireland	61.7	Korea	68.4	France	67.2	Netherlands	71.2	Belgium (Fl)	81.0	Canada	61.3	Switzerland	71.6	Slovak Republic	47.9	Switzerland	78.2
Hong Kong	65.4	Austria	60.4	Austria	66.6	Austria	66.8	Belgium (Fl)	70.7	Hungary	79.8	Slovak Republic	61.1	Sweden	69.5	Switzerland	46.6	Austria	77.7
Slovak Republic	64.6	Belgium (Fr)	59.8	Russian Federation	65.9	Belgium (Fr)	65.8	Korea	70.7	Japan	79.6	Ireland	60.5	France	69.0	Slovenia	45.8	Netherlands	76.1
France	64.5	Slovenia	59.7	France	64.9	Canada	65.1	Austria	69.9	USA	79.2	Sweden	60.0	Austria	68.1	Belgium (Fl)	45.6	France	75.2
Slovenia	63.4	Czech Republic	59.6	Belgium (Fl)	64.6	Czech Republic	64.9	Australia	69.3	Netherlands	78.5	Australia	59.1	Belgium (Fr)	68.1	Bulgaria	45.2	Slovak Republic	75.2
Russian Federation	62.7	Netherlands	58.9	Slovenia	62.9	Ireland	64.3	Hungary	69.3	Sweden	78.5	Austria	58.9	Ireland	68.1	Russian Federation	44.6	Australia	74.5
Bulgaria	62.5	Slovak Republic	58.6	Switzerland	61.9	Slovak Republic	63.0	Sweden	69.3	Australia	77.5	Netherlands	58.7	Bulgaria	68.0	France	44.1	Norway	74.5
Ireland	62.2	France	57.8	Canada	61.0	Germany	62.6	Slovak Republic	69.1	Switzerland	77.4	Hong Kong	57.8	Korea	67.9	Netherlands	44.0	Denmark	73.0
Spain	60.8	Hungary	57.7	Sweden	59.2	Netherlands	62.5	France	69.0	Ireland	76.5	New Zealand	57.6	Hungary	67.5	Belgium (Fr)	43.0	Germany	72.9
Hungary	60.6	Israel	57.4	Belgium (Fr)	58.6	Germany	69.0	Germany	69.0	Austria	75.9	Hungary	57.3	Netherlands	66.8	Hungary	42.9	Hong Kong	72.7
Sweden	58.9	Canada	56.2	Thailand	58.0	Sweden	62.2	Canada	67.8	Thailand	75.4	Norway	57.0	Norway	66.4	Australia	42.1	Japan	72.5
Canada	57.9	Russian Federation	55.8	Netherlands	57.8	Australia	61.0	Scotland	68.8	France	74.7	USA	55.7	Russian Federation	65.9	Canada	40.4	Slovenia	72.5
Israel	59.0	Australia	55.4	Bulgaria	57.8	Hungary	60.7	Norway	66.6	Slovenia	74.7	Iceland	54.7	Denmark	65.4	Thailand	40.0	England	71.8
Thailand	56.0	Thailand	54.2	Ireland	57.3	Bulgaria	59.9	Belgium (Fr)	65.8	New Zealand	74.4	England	54.4	Hong Kong	65.2	Ireland	39.4	New Zealand	70.6
International	55.7	Bulgaria	54.1	Germany	57.2	Thailand	59.6	Slovenia	65.5	Hong Kong	74.2	Slovenia	52.6	Australia	65.0	Sweden	39.3	Scotland	69.9
Germany	55.4	Sweden	53.1	Israel	56.3	Norway	59.6	New Zealand	65.3	Russian Federation	73.5	Germany	52.0	Germany	63.5	International	39.0	Canada	69.7
Latvia	55.4	International	52.3	USA	55.8	Russian Federation	59.2	Ireland	64.4	England	74.2	Israel	51.9	Iceland	63.0	Romania	38.2	Ireland	69.6
Belgium (Fr)	55.4	Cyprus	51.9	International	55.5	Iceland	59.2	Denmark	64.3	Scotland	73.4	Scotland	51.6	Canada	63.0	England	37.1	Russian Federation	69.6
Australia	55.0	Germany	51.7	Lithuania	55.4	USA	58.5	Russian Federation	63.5	Norway	72.3	France	50.8	Israel	63.0	Cyprus	36.9	Latvia	66.9
Lithuania	53.8	New Zealand	51.5	Norway	54.1	Israel	57.6	USA	62.7	Denmark	71.2	Belgium (Fr)	50.6	Spain	62.4	Israel	36.9	Thailand	66.1
Netherlands	53.5	Norway	51.2	Australia	53.5	International	57.0	Bulgaria	62.4	International	70.9	Russian Federation	50.0	Thailand	62.3	Norway	36.4	International	64.8
Norway	53.4	USA	49.3	Latvia	52.9	New Zealand	56.8	Iceland	61.6	Belgium (Fr)	70.2	Thailand	49.5	International	61.6	Scotland	35.7	Belgium (Fr)	64.6
Greece	52.7	Scotland	49.3	Iceland	52.6	England	53.8	International	61.1	Germany	69.9	International	50.9	New Zealand	61.3	Denmark	35.5	Israel	63.3
USA	52.3	England	49.2	Greece	52.6	Denmark	51.9	Latvia	59.5	Lithuania	69.2	Greece	46.3	England	60.5	New Zealand	35.0	USA	62.5
Romania	52.3	Spain	49.2	Spain	50.6	Scotland	51.5	Israel	58.4	Israel	68.8	Denmark	46.0	Latvia	60.3	Iceland	33.6	Iceland	61.6
Denmark	51.0	Denmark	49.0	Portugal	49.9	Greece	51.3	Thailand	57.1	Bulgaria	68.1	Bulgaria	44.9	Romania	59.3	Iceland	33.1	Greece	59.4
Portugal	49.0	Latvia	47.3	New Zealand	49.3	Cyprus	50.9	Spain	54.8	Portugal	65.0	Spain	44.1	Greece	58.4	Germany	32.9	Spain	55.3
New Zealand	48.6	Greece	47.3	Denmark	48.8	Lithuania	49.0	Greece	54.5	Cyprus	64.4	Lithuania	42.3	Scotland	58.5	Lithuania	32.2	Lithuania	55.1
Iceland	48.4	Romania	47.0	Scotland	47.3	Spain	48.2	Lithuania	53.0	Greece	64.1	Cyprus	39.7	Cyprus	55.0	Spain	29.9	Portugal	54.9
Scotland	47.9	Iceland	44.4	Romania	46.9	Latvia	47.2	Portugal	50.7	Latvia	63.3	Portugal	38.9	Portugal	55.0	Greece	29.8	Bulgaria	52.8
England	46.8	Lithuania	39.1	England	45.9	Romania	45.8	Romania	46.4	Spain	62.2	Portugal	38.2	Lithuania	54.6	USA	27.8	Romania	50.0
Cyprus	45.8	Iran	37.9	Cyprus	43.5	Portugal	43.2	Cyprus	43.9	Romania	57.5	Romania	38.0	USA	53.0	Portugal	22.8	Cyprus	45.7
Iran	43.4	Portugal	34.8	Philippines	42.2	Philippines	35.7	Philippines	36.9	Philippines	49.2	Philippines	30.9	Iran	44.2	Iran	21.1	Philippines	36.0
Philippines	38.0	Philippines	30.0	Iran	33.7	Iran	35.3	Kuwait	34.7	Colombia	47.6	Colombia	28.7	Colombia	40.8	Kuwait	14.7	Iran	35.5
Colombia	34.2	Colombia	27.3	Colombia	31.9	Colombia	33.8	Colombia	33.8	Iran	46.3	Iran	27.0	Kuwait	35.7	Philippines	14.4	Kuwait	35.1
Kuwait	26.4	Kuwait	25.2	South Africa	28.3	South Africa	27.2	Iran	33.4	Kuwait	44.5	South Africa	20.3	Philippines	32.1	Colombia	11.9	Colombia	32.4
South Africa	26.0	South Africa	20.2	Kuwait	27.5	Kuwait	25.0	South Africa	28.6	South Africa	36.8	Kuwait	20.2	South Africa	27.3	South Africa	8.3	South Africa	28.1

Promedio Internacional

Promedio EEUU

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Earth Features	Earth Processes	Earth in the Universe	Plants & Animals	Organs & Tissues	Life Processes & Functions	Life Cycles & Genetics	Interactions of Living Things
Korea 71	Korea 67	Czech Republic 75	Korea 81	Singapore 67	Korea 75	Netherlands 77	Netherlands 84
Japan 63	Japan 62	Hong Kong 75	Japan 78	Australia 66	Japan 75	Korea 75	USA 83
USA 60	USA 61	Hungary 75	Australia 72	Czech Republic 65	Netherlands 74	Czech Republic 73	Australia 82
England 59	Netherlands 58	Norway 75	Czech Republic 72	USA 65	Australia 70	Australia 71	Korea 82
Canada 58	Australia 56	Korea 74	Singapore 70	Hong Kong 65	Czech Republic 69	Japan 71	Japan 79
Czech Republic 58	England 55	Australia 72	USA 70	Korea 63	England 69	USA 70	Canada 77
Hungary 58	Canada 55	Canada 71	Netherlands 67	Japan 63	Singapore 69	Canada 69	Norway 76
Netherlands 57	Singapore 54	England 71	Canada 67	England 62	USA 68	Norway 68	England 76
Norway 56	Czech Republic 54	USA 70	England 67	New Zealand 61	Norway 67	England 68	Czech Republic 75
Australia 56	Hungary 53	Netherlands 69	New Zealand 67	Canada 61	Israel 67	Hong Kong 68	Israel 75
New Zealand 54	New Zealand 53	Japan 69	Hungary 66	Hungary 61	Canada 66	Hungary 67	Singapore 75
Hong Kong 54	International 50	Singapore 69	Hong Kong 65	Netherlands 61	Hong Kong 66	Singapore 67	New Zealand 74
International 53	Hong Kong 51	International 67	International 64	Norway 61	Hungary 64	New Zealand 66	Hong Kong 74
Singapore 53	Israel 48	New Zealand 66	Norway 60	International 59	International 64	International 64	International 72
Israel 48	Thailand 45	Thailand 61	Thailand 56	Israel 57	New Zealand 63	Israel 62	Hungary 66
Thailand 42	Norway 42	Israel 58	Israel 55	Thailand 55	Thailand 48	Thailand 53	Thailand 53

Human Biology & Health	Matter	Energy & Physical	Physical & Chemical	Forces & Motion	Environmental & Resource	Scientific Processes
Netherlands 72	Korea 77	Korea 73	Netherlands 74	Korea 68	Korea 74	Korea 66
Korea 70	Japan 75	Japan 70	Korea 72	Japan 62	Japan 72	USA 63
Australia 70	Netherlands 68	Australia 63	Japan 72	Czech Republic 62	Australia 69	Australia 59
USA 69	Singapore 67	Netherlands 62	Hong Kong 68	Netherlands 61	USA 68	Singapore 54
Norway 68	Australia 63	England 62	Czech Republic 67	Singapore 60	Netherlands 65	England 54
Singapore 68	USA 61	Canada 61	USA 65	Norway 58	Czech Republic 63	Japan 53
England 67	Canada 61	Czech Republic 61	Singapore 65	Canada 56	Hungary 62	Netherlands 52
Hong Kong 67	Czech Republic 61	USA 61	Australia 63	Australia 55	Canada 61	New Zealand 52
Canada 66	Hong Kong 60	Singapore 61	Canada 62	Hungary 55	England 60	Hong Kong 51
Czech Republic 66	Hungary 59	Hong Kong 59	England 61	Hong Kong 54	New Zealand 59	Czech Republic 51
Japan 66	England 58	Israel 58	Hungary 60	USA 53	International 58	Canada 51
Hungary 65	International 58	Hungary 57	International 59	New Zealand 52	Norway 58	Israel 50
New Zealand 64	New Zealand 58	International 56	Norway 58	International 51	Israel 58	Norway 48
International 63	Norway 56	New Zealand 56	Israel 57	England 49	Singapore 57	International 46
Israel 62	Israel 53	Norway 53	New Zealand 57	Thailand 47	Hong Kong 54	Hungary 40
Thailand 52	Thailand 46	Thailand 44	Thailand 46	Israel 46	Thailand 53	Thailand 40

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Earth Features	Earth Processes	Earth in the Universe	Diversity & Structure of Living Things	Life Processes & Functions	Life Cycles & Genetics	Interactions of Living Things	Human Biology & Health	Properties & Classification of Matter
Czech Republic 67	England 67	Sweden 71	Japan 76	Singapore 72	Czech Republic 82	Korea 69	Singapore 74	Japan 67
Hungary 67	Singapore 67	Norway 70	Singapore 74	Japan 70	USA 81	Singapore 66	Czech Republic 72	Singapore 67
Korea 65	Belgium (Fl) 65	Netherlands 67	Hong Kong 73	Korea 68	England 80	Japan 65	Netherlands 71	Korea 65
Singapore 65	Netherlands 62	Czech Republic 67	Korea 72	Czech Republic 64	Netherlands 79	Thailand 64	Japan 69	Czech Republic 60
Belgium (Fl) 61	Norway 62	Japan 67	Czech Republic 72	Thailand 63	Israel 79	Hungary 63	Belgium (Fl) 69	Netherlands 58
Sweden 61	USA 61	Thailand 66	Netherlands 72	Belgium (Fl) 63	Belgium (Fl) 79	Australia 62	Hungary 69	Belgium (Fl) 58
Thailand 60	Russian Federation 61	Singapore 65	Thailand 69	Netherlands 61	Canada 78	England 62	England 68	Hungary 57
Russian Federation 59	Canada 61	Switzerland 65	Sweden 68	Hungary 60	Sweden 78	Norway 60	Israel 68	Sweden 57
Norway 59	Sweden 60	Korea 64	Hungary 67	Russian Federation 59	Norway 78	Canada 58	Germany 68	Hong Kong 56
Japan 59	Korea 59	USA 63	Australia 67	England 59	Korea 76	Czech Republic 58	USA 67	Canada 56
England 59	Japan 58	Germany 63	Germany 66	Germany 58	France 76	New Zealand 56	Thailand 67	Norway 55
Switzerland 58	New Zealand 57	Spain 63	Russian Federation 66	USA 58	Russian Federation 76	Netherlands 56	Australia 66	Australia 55
Netherlands 58	Czech Republic 57	Australia 63	England 64	Australia 57	Germany 75	USA 54	Korea 66	England 55
Australia 57	Australia 57	Belgium (Fl) 62	USA 64	Canada 57	Switzerland 75	Germany 53	Canada 65	Germany 55
Germany 57	Thailand 56	New Zealand 62	Canada 63	Israel 57	Japan 75	Belgium (Fl) 53	Sweden 64	Russian Federation 54
USA 57	Switzerland 56	Canada 61	Belgium (Fl) 63	Hong Kong 56	New Zealand 74	Spain 53	New Zealand 64	New Zealand 54
Canada 57	Spain 55	England 59	New Zealand 62	New Zealand 56	Hungary 74	Russian Federation 52	Spain 63	Israel 53
Israel 56	France 55	Hungary 59	Spain 61	Spain 56	Australia 73	Sweden 52	Russian Federation 63	France 52
Spain 56	Israel 55	International 58	International 61	Sweden 55	Spain 71	International 51	Norway 63	International 52
New Zealand 56	Germany 54	Hong Kong 58	Switzerland 61	International 55	International 70	Israel 50	Switzerland 61	Switzerland 51
International 55	International 54	Israel 56	Israel 60	Switzerland 54	Singapore 69	Switzerland 50	International 61	USA 50
France 55	Hong Kong 52	Russian Federation 57	Norway 59	Norway 54	Thailand 67	Hong Kong 47	Hong Kong 60	Spain 50
Hong Kong 54	Hungary 51	France 53	France 58	France 54	Hong Kong 65	France 45	France 56	Thailand 47

Structure of Matter	Energy & Physical Processes	Physical Changes	Chemical Changes	Forces & Motion	Science, Technology, & Society	Environmental & Resource Issues	Scientific Processes
Russian Federation 56	Singapore 71	Japan 67	Singapore 74	Czech Republic 78	Korea 74	Singapore 73	Singapore 75
Hungary 54	Japan 69	Singapore 63	Korea 66	Japan 74	Hungary 73	Thailand 70	Korea 64
Czech Republic 54	Korea 67	Czech Republic 63	Hungary 65	Singapore 73	Netherlands 67	England 67	Netherlands 65
Singapore 53	England 64	France 62	Czech Republic 64	Netherlands 71	Sweden 67	Australia 65	France 62
Spain 51	Netherlands 64	Israel 61	England 64	Korea 70	Singapore 66	Netherlands 65	Czech Republic 61
USA 48	Czech Republic 62	Sweden 61	Japan 64	Hong Kong 69	Belgium (Fl) 65	Korea 63	Australia 61
Israel 45	Belgium (Fl) 62	Netherlands 61	Australia 62	Switzerland 69	New Zealand 60	Japan 62	Japan 60
Sweden 43	Australia 61	Hungary 61	Russian Federation 62	Hungary 69	Japan 60	Canada 61	England 60
Korea 42	Hungary 60	Norway 60	USA 61	England 68	Thailand 59	New Zealand 61	Canada 59
Japan 41	New Zealand 60	England 59	Germany 61	Sweden 68	England 57	USA 60	USA 59
Hong Kong 40	Canada 60	Belgium (Fl) 59	Israel 61	Australia 67	Hong Kong 55	Belgium (Fl) 60	Hungary 57
International 40	Hong Kong 60	Canada 59	Canada 60	Norway 67	Canada 53	Czech Republic 59	Hong Kong 57
Australia 39	Israel 59	Korea 57	New Zealand 59	Canada 66	Switzerland 53	Spain 59	Belgium (Fl) 57
England 38	Germany 59	Australia 57	Hong Kong 58	Germany 67	Norway 52	Norway 58	New Zealand 57
Canada 37	Switzerland 59	Russian Federation 57	Spain 58	New Zealand 66	Czech Republic 52	Hong Kong 53	Thailand 55
Germany 35	Russian Federation 58	Switzerland 54	Netherlands 58	Belgium (Fl) 65	Australia 52	International 53	Germany 53
New Zealand 35	USA 57	Germany 54	Sweden 57	France 64	Israel 51	Sweden 52	Israel 52
Norway 32	Norway 57	Thailand 53	International 56	Spain 63	International 48	Israel 52	Switzerland 53
Thailand 31	Sweden 57	Spain 53	Belgium (Fl) 56	Russian Federation 62	USA 48	Switzerland 50	International 53
Netherlands 30	International 56	International 53	Switzerland 55	USA 61	Germany 47	Germany 50	Sweden 52
France 29	Thailand 55	New Zealand 53	Norway 53	International 61	Spain 44	Hungary 49	Norway 52
Switzerland 29	Spain 55	USA 49	France 53	Israel 55	France 43	France 49	Russian Federation 51
Belgium (Fl) 27	France 55	Hong Kong 49	Thailand 51	Thailand 56	Russian Federation 40	Russian Federation 47	Spain 50

Desempeño en tópicos específicos en matemáticas 1995 TIMSS

Whole Numbers		Common Fractions		Decimal Fractions & Percentages		Relationships of Fractions		Estimations of Quantity/Size		Rounding		Estimating Computations		Measurement Units		Perimeter, Area, Volume		Measurement Estimations & Errors	
Singapore	80.4	Singapore	82.4	Singapore	77.9	Singapore	85.1	Japan	77.9	Czech Republic	86.9	Singapore	75.8	Singapore	77.9	Singapore	84.5	Czech Republic	82.9
Japan	72.0	Japan	72.2	Czech Republic	72.5	Korea	77.6	Singapore	77.3	Singapore	86.6	Czech Republic	69.8	Japan	74.8	Japan	72.6	Singapore	81.0
Switzerland	70.2	Korea	69.9	Hong Kong	71.1	Hong Kong	71.1	Canada	72.2	Canada	84.7	Japan	69.0	Czech Republic	73.2	Hong Kong	63.9	Sweden	80.8
Belgium (Fl)	68.6	Hong Kong	69.4	Japan	69.8	Hong Kong	74.1	Hong Kong	71.8	Korea	83.8	Korea	66.7	Slovenia	72.0	Korea	61.8	Korea	79.5
Austria	68.4	Belgium (Fl)	68.7	Slovak Republic	69.1	Belgium (Fl)	71.3	Switzerland	71.8	Iceland	83.1	Belgium (Fl)	64.1	Slovak Republic	71.9	Austria	50.4	Belgium (Fl)	78.9
Korea	67.6	Switzerland	62.4	Hungary	68.7	Switzerland	70.0	Czech Republic	71.7	Slovak Republic	82.4	Belgium (Fl)	62.5	Belgium (Fl)	71.8	Czech Republic	48.9	Hungary	78.2
Czech Republic	67.4	Ireland	61.7	Korea	68.4	France	67.2	Netherlands	71.2	Belgium (Fl)	81.0	Canada	61.3	Switzerland	71.6	Slovak Republic	47.9	Switzerland	78.2
Hong Kong	65.4	Austria	60.4	Austria	66.6	Austria	66.8	Belgium (Fl)	70.7	Hungary	79.8	Slovak Republic	61.1	Sweden	69.5	Switzerland	46.6	Austria	77.7
Slovak Republic	64.6	Belgium (Fr)	59.8	Russian Federation	65.9	Belgium (Fr)	65.8	Korea	70.7	Japan	79.6	Ireland	60.5	France	69.0	Slovenia	45.8	Netherlands	76.1
France	64.5	Slovenia	59.7	France	64.9	Canada	65.1	Austria	69.9	USA	79.2	Sweden	60.0	Austria	68.1	Belgium (Fl)	45.6	France	75.2
Slovenia	63.4	Czech Republic	59.6	Belgium (Fl)	64.6	Czech Republic	64.9	Australia	69.3	Netherlands	78.5	Australia	59.1	Belgium (Fr)	68.1	Bulgaria	45.2	Slovak Republic	75.2
Russian Federation	62.7	Netherlands	58.9	Slovenia	62.9	Ireland	64.3	Hungary	69.3	Sweden	78.5	Austria	58.9	Ireland	68.1	Russian Federation	44.6	Australia	74.5
Bulgaria	62.5	Slovak Republic	58.6	Switzerland	61.9	Slovak Republic	63.0	Sweden	69.3	Australia	77.5	Netherlands	58.7	Bulgaria	68.0	France	44.1	Norway	74.5
Ireland	62.2	France	57.8	Canada	61.0	Germany	62.6	Slovak Republic	69.1	Switzerland	77.4	Hong Kong	57.8	Korea	67.9	Netherlands	44.0	Denmark	73.0
Spain	60.8	Hungary	57.7	Sweden	59.2	Netherlands	62.5	France	69.0	Ireland	76.5	New Zealand	57.6	Hungary	67.5	Belgium (Fr)	43.0	Germany	72.9
Hungary	60.6	Israel	57.4	Belgium (Fr)	58.6	Slovenia	62.4	Germany	69.0	Austria	75.9	Hungary	57.3	Netherlands	66.8	Hungary	42.9	Hong Kong	72.7
Sweden	58.9	Canada	56.2	Thailand	58.0	Sweden	62.2	Canada	67.8	Thailand	75.4	Norway	57.0	Norway	66.4	Australia	42.1	Japan	72.5
Canada	57.9	Russian Federation	55.8	Netherlands	57.8	Australia	61.0	Scotland	68.8	France	74.7	USA	55.7	Russian Federation	65.9	Canada	40.4	Slovenia	72.5
Israel	59.0	Australia	55.4	Hungary	57.8	Hungary	60.7	Norway	66.6	Slovenia	74.7	Iceland	54.7	Denmark	65.4	Thailand	40.0	England	71.8
Thailand	56.0	Thailand	54.2	Ireland	57.3	Bulgaria	59.9	Belgium (Fr)	65.8	New Zealand	74.4	England	54.4	Hong Kong	65.2	Ireland	39.4	New Zealand	70.6
International	55.7	Bulgaria	54.2	Germany	57.2	Thailand	59.6	Slovenia	65.5	Hong Kong	74.2	Slovenia	52.6	Australia	65.0	Sweden	39.3	Scotland	69.9
Germany	55.4	Sweden	53.1	Israel	56.3	Norway	59.6	New Zealand	65.3	Russian Federation	73.5	Germany	52.0	Germany	63.5	International	39.0	Canada	69.7
Latvia	55.4	International	52.3	USA	55.8	Russian Federation	59.2	Ireland	64.4	England	74.2	Israel	51.9	Iceland	63.0	Romania	38.2	Ireland	69.6
Belgium (Fr)	55.4	Cyprus	51.9	International	55.5	Iceland	59.2	Denmark	64.3	Scotland	73.4	Scotland	51.6	Canada	63.0	England	37.1	Russian Federation	69.6
Australia	55.0	Germany	51.7	Lithuania	55.4	USA	58.5	Russian Federation	63.5	Norway	72.3	France	50.8	Israel	63.0	Cyprus	36.9	Latvia	66.9
Lithuania	53.8	New Zealand	51.5	Norway	54.1	Israel	57.6	USA	62.7	Denmark	71.2	Belgium (Fr)	50.6	Spain	62.4	Israel	36.9	Thailand	66.1
Netherlands	53.5	Norway	51.2	Australia	53.5	International	57.0	Bulgaria	62.4	International	70.9	Russian Federation	50.0	Thailand	62.3	Norway	36.4	International	64.8
Norway	53.4	USA	49.3	Latvia	52.9	New Zealand	56.8	Iceland	61.6	Belgium (Fr)	70.2	Thailand	49.5	International	61.6	Scotland	35.7	Belgium (Fr)	64.6
Greece	52.7	Scotland	49.3	Iceland	52.6	England	53.8	International	61.1	Germany	69.9	International	50.9	New Zealand	61.3	Denmark	35.5	Israel	63.3
USA	52.3	England	49.2	Greece	52.6	Denmark	51.9	Latvia	59.5	Lithuania	69.2	Greece	46.3	England	60.5	New Zealand	35.0	USA	62.5
Romania	52.3	Spain	49.2	Spain	50.6	Scotland	51.5	Israel	58.4	Israel	68.8	Denmark	46.0	Latvia	60.3	Latvia	33.6	Iceland	61.6
Denmark	51.0	Denmark	49.0	Portugal	49.9	Greece	51.3	Thailand	57.1	Bulgaria	68.1	Bulgaria	44.9	Romania	59.3	Iceland	33.1	Greece	59.4
Portugal	49.0	Latvia	47.3	New Zealand	49.3	Cyprus	50.9	Spain	54.8	Portugal	65.0	Spain	44.1	Greece	58.4	Germany	32.9	Spain	55.3
New Zealand	48.6	Greece	47.3	Denmark	48.8	Lithuania	49.0	Greece	54.5	Cyprus	64.4	Lithuania	42.3	Scotland	58.5	Lithuania	32.2	Lithuania	55.1
Iceland	48.4	Romania	47.0	Spain	48.2	Spain	48.2	Lithuania	53.0	Cyprus	64.1	Cyprus	39.7	Spain	55.0	Spain	29.9	Portugal	54.9
Scotland	47.9	Iceland	44.4	Romania	46.9	Latvia	47.2	Portugal	50.7	Latvia	63.3	Latvia	38.9	Portugal	55.0	Greece	29.8	Bulgaria	52.8
England	46.8	Lithuania	39.1	England	45.9	Romania	45.8	Romania	46.4	Spain	62.2	Portugal	38.2	Lithuania	54.6	USA	27.8	Romania	50.0
Cyprus	45.8	Cyprus	37.9	Cyprus	43.5	Portugal	43.2	Cyprus	43.9	Romania	57.5	Romania	38.0	USA	53.0	Portugal	22.8	Cyprus	45.7
Iran	43.4	Portugal	34.8	Philippines	42.2	Philippines	35.7	Philippines	36.9	Philippines	49.2	Philippines	30.9	Iran	44.2	Iran	21.1	Philippines	36.0
Philippines	38.0	Philippines	30.0	Iran	33.7	Iran	35.3	Kuwait	34.7	Colombia	47.6	Colombia	28.7	Colombia	40.8	Kuwait	14.7	Iran	35.5
Colombia	34.2	Colombia	27.3	Colombia	31.9	Colombia	27.3	Colombia	33.8	Iran	46.3	Iran	27.0	Kuwait	35.7	Philippines	14.4	Kuwait	35.1
Kuwait	26.4	Kuwait	25.2	South Africa	28.3	South Africa	27.2	Iran	33.4	Kuwait	44.5	South Africa	20.3	Philippines	32.1	Colombia	11.9	Colombia	32.4
South Africa	26.0	South Africa	20.2	Kuwait	27.5	Kuwait	25.0	South Africa	28.6	South Africa	36.8	Kuwait	20.2	South Africa	27.3	South Africa	8.3	South Africa	28.1

Promedio Internacional

Promedio COLOMBIA

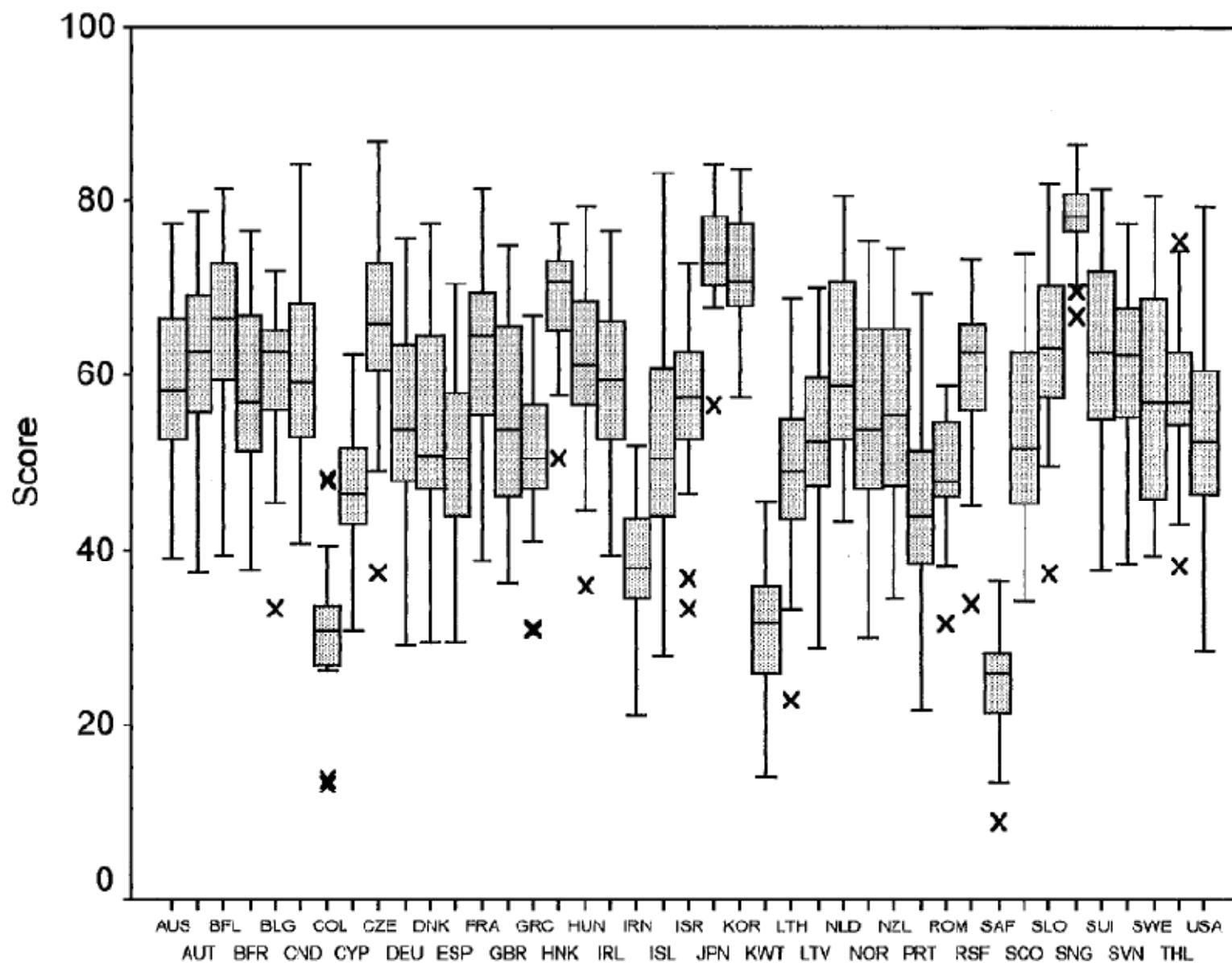
Desempeño en tópicos específicos en matemáticas 1995 TIMSS

2D Geo. Basics	Polygons & Circles	3D Geo. & Transformations	Congruence & Similarity	Proportionality Concepts	Proportionality Problems	Patterns, Relations & Functions	Equations & Formulas	Data Representation & Analysis	Statistics & Probability
Japan 78.9	Korea 73.0	Japan 84.3	Japan 79.7	Singapore 70.1	Singapore 76.7	Japan 70.0	Singapore 79.8	Japan 84.3	Singapore 78.5
Singapore 78.3	Japan 70.8	Singapore 78.6	Korea 76.9	Korea 57.0	Japan 67.8	Korea 68.4	Japan 72.3	Korea 81.9	Korea 77.8
Korea 75.5	Singapore 70.6	Czech Republic 77.7	Singapore 76.7	Japan 56.9	Korea 65.1	Singapore 67.2	Hong Kong 70.5	France 81.4	Belgium (Fl) 77.7
Hong Kong 73.5	Hong Kong 65.4	France 77.7	Hong Kong 71.0	Hong Kong 50.1	Hong Kong 64.0	Hong Kong 60.8	Korea 70.0	Switzerland 81.3	Japan 75.0
Russian Federation 63.4	Belgium (Fl) 64.1	Hong Kong 77.6	France 69.7	Netherlands 41.9	Czech Republic 61.3	Czech Republic 60.2	Czech Republic 64.3	Singapore 81.0	Hong Kong 73.0
Netherlands 62.9	Bulgaria 63.4	Switzerland 75.9	Czech Republic 66.1	Ireland 41.2	Belgium (Fl) 59.4	England 60.1	Belgium (Fl) 62.1	Netherlands 80.6	Netherlands 72.4
Thailand 62.4	France 61.9	Slovak Republic 75.2	Bulgaria 66.0	Canada 40.3	Slovak Republic 58.7	Switzerland 59.5	Russian Federation 61.4	Czech Republic 79.6	Switzerland 72.4
Czech Republic 62.1	Israel 59.7	Belgium (Fr) 74.5	Slovak Republic 63.2	Sweden 39.2	Bulgaria 58.3	Belgium (Fl) 59.2	Hungary 60.9	Sweden 79.5	Ireland 70.3
Bulgaria 61.7	Czech Republic 57.4	Belgium (Fl) 73.7	Thailand 62.7	Belgium (Fl) 39.0	Switzerland 57.3	Hungary 59.1	Slovak Republic 60.6	Belgium (Fl) 79.5	Canada 70.0
Hungary 61.6	Romania 57.3	Korea 73.3	Russian Federation 62.3	Slovenia 38.1	Russian Federation 56.3	Canada 58.2	Slovenia 60.1	Austria 78.7	Sweden 68.7
Slovak Republic 59.8	Russian Federation 57.2	Bulgaria 72.6	Belgium (Fl) 57.5	Australia 37.8	Thailand 56.0	Australia 57.6	Bulgaria 59.4	Denmark 77.6	Belgium (Fr) 68.5
Australia 58.8	Belgium (Fr) 54.2	Hungary 71.0	Latvia 56.9	France 37.3	Hungary 55.9	Austria 56.3	Israel 58.3	Slovenia 77.5	Australia 67.5
Belgium (Fl) 58.8	Thailand 53.5	Netherlands 70.6	Slovenia 56.6	Switzerland 36.8	Netherlands 55.9	Netherlands 56.9	Austria 58.2	Belgium (Fr) 76.8	France 66.5
Slovenia 58.3	Slovak Republic 53.2	Slovenia 70.2	Romania 56.1	Czech Republic 37.3	Belgium (Fr) 55.9	Scotland 56.5	Thailand 54.0	Hong Kong 76.4	Hungary 66.2
Austria 58.1	Slovenia 53.2	Russian Federation 70.2	Israel 54.8	Austria 36.5	France 55.7	New Zealand 55.7	France 53.6	Ireland 76.2	New Zealand 65.9
Switzerland 57.9	Hungary 51.6	Canada 70.1	Lithuania 53.8	Thailand 36.5	Slovenia 55.3	Ireland 55.5	Belgium (Fr) 52.8	Germany 76.0	England 65.3
France 56.1	Canada 50.5	Austria 69.5	Hungary 53.4	Belgium (Fr) 36.1	Austria 55.2	Slovenia 55.4	Australia 52.8	Norway 75.5	Norway 64.7
New Zealand 55.8	Australia 50.4	New Zealand 67.3	Canada 52.8	Slovak Republic 35.9	Ireland 52.4	France 55.0	Ireland 52.7	Slovak Republic 75.2	Austria 64.6
England 54.9	Greece 49.6	Latvia 66.6	England 34.8	England 34.8	Australia 52.2	Slovak Republic 54.3	Canada 52.4	Australia 75.2	Slovenia 63.7
Canada 54.7	Latvia 49.1	England 66.3	Belgium (Fr) 51.9	Hungary 34.6	Canada 51.6	Bulgaria 53.7	Spain 52.2	Canada 75.0	Czech Republic 63.4
International 53.7	International 48.9	Australia 65.5	Switzerland 51.2	International 33.6	International 50.2	Thailand 53.4	Switzerland 51.9	England 74.8	USA 63.1
Denmark 53.9	Austria 48.7	Denmark 65.4	Cyprus 51.1	Russian Federation 33.5	Sweden 49.2	Russian Federation 53.2	Netherlands 51.7	Thailand 74.5	Scotland 62.4
Latvia 53.3	Switzerland 48.6	International 63.4	Australia 50.9	New Zealand 33.4	Germany 49.0	Israel 53.2	International 50.7	Scotland 74.2	Germany 62.4
Scotland 52.6	Ireland 48.0	Israel 64.8	Denmark 50.3	Scotland 32.4	Latvia 48.2	International 51.5	Romania 50.5	New Zealand 74.1	Israel 62.3
Israel 52.5	England 47.0	Thailand 64.5	Netherlands 51.0	USA 31.5	Denmark 47.7	USA 51.1	USA 49.4	Hungary 73.7	Iceland 62.0
Ireland 52.4	Cyprus 46.7	Germany 63.7	Austria 48.9	Israel 31.4	England 47.2	Spain 50.3	Latvia 49.1	Israel 73.2	Denmark 61.9
Norway 52.1	Lithuania 44.6	Lithuania 63.7	Iceland 48.5	Romania 31.3	New Zealand 47.1	Belgium (Fr) 49.9	Cyprus 46.7	Iceland 72.6	Bulgaria 61.1
Belgium (Fr) 51.4	Iceland 44.3	Scotland 63.2	Greece 48.2	Norway 30.9	Norway 47.1	Norway 48.7	New Zealand 46.6	USA 72.6	International 59.9
Spain 49.5	Germany 44.3	Iceland 60.4	Norway 46.9	Bulgaria 30.6	Romania 46.7	Denmark 48.6	Germany 46.4	Russian Federation 72.0	Spain 58.0
Germany 49.3	Netherlands 44.0	Greece 58.8	Ireland 46.7	Greece 29.6	Israel 46.5	Germany 47.6	Greece 45.6	International 71.0	Russian Federation 56.9
Lithuania 48.9	New Zealand 43.2	Norway 58.6	New Zealand 45.9	Cyprus 29.5	Lithuania 45.6	Sweden 47.2	Lithuania 45.3	Bulgaria 70.8	Cyprus 57.2
Iceland 48.7	Scotland 42.8	USA 58.4	Iceland 45.9	Iceland 29.4	Scotland 45.4	Latvia 47.2	Spain 44.9	Spain 70.4	Slovak Republic 57.0
Greece 48.6	Sweden 42.8	Spain 58.2	Scotland 45.6	Denmark 28.8	USA 45.2	Greece 46.9	England 44.1	Latvia 70.0	Thailand 56.5
USA 47.9	Norway 42.4	Ireland 57.8	England 45.6	Spain 27.4	Iceland 44.6	Iceland 44.7	Denmark 44.0	Portugal 69.7	Greece 52.6
Romania 47.5	Denmark 40.1	Sweden 55.9	Germany 45.1	Latvia 27.3	Spain 43.6	Romania 45.4	Sweden 43.7	Lithuania 67.0	Latvia 51.6
Sweden 46.1	Spain 39.3	Portugal 51.9	Iran 44.1	Germany 26.5	Cyprus 43.3	Portugal 45.3	Scotland 42.5	Greece 66.6	Romania 46.7
Cyprus 43.8	USA 39.1	Romania 50.7	USA 44.1	Iran 22.9	Greece 41.1	Lithuania 45.2	Iceland 39.5	Cyprus 59.6	Portugal 44.5
Portugal 42.8	Iran 37.9	Cyprus 49.9	Spain 43.6	Lithuania 21.8	Portugal 41.0	Cyprus 42.3	Portugal 36.6	Romania 58.0	Lithuania 43.6
Iran 41.8	Portugal 35.5	Iran 47.3	Portugal 43.2	Portugal 20.3	Iran 38.0	Iran 41.7	Iran 35.6	Iran 52.0	Iran 36.4
Kuwait 35.4	Kuwait 31.3	Kuwait 44.2	Kuwait 38.2	Philippines 17.1	Philippines 32.8	Colombia 33.2	Kuwait 29.5	Colombia 47.7	Kuwait 34.8
Philippines 32.1	Colombia 27.8	Philippines 36.5	Philippines 31.4	Kuwait 13.7	Colombia 29.8	Philippines 33.1	Philippines 29.4	Philippines 45.9	Philippines 32.6
Colombia 27.0	Philippines 27.3	Colombia 36.4	Colombia 26.5	Colombia 13.0	Colombia 29.5	Kuwait 32.6	Colombia 24.5	Kuwait 45.8	Colombia 31.3
South Africa 25.7	South Africa 21.7	South Africa 26.1	South Africa 23.2	South Africa 11.9	South Africa 27.0	South Africa 20.4	South Africa 22.9	South Africa 29.4	South Africa 28.1

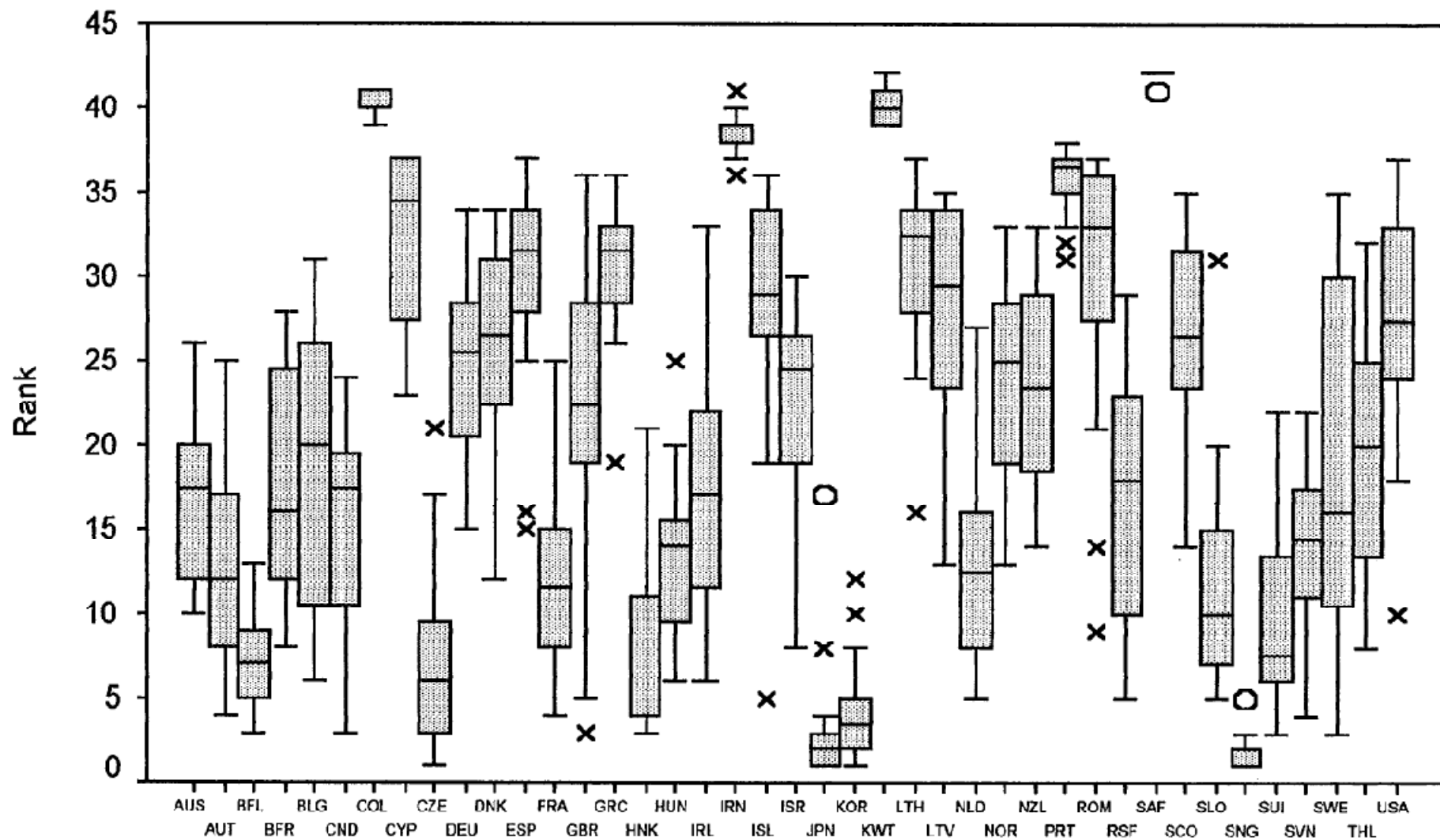
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Distribución de los resultados en matemáticas 8º grado por país



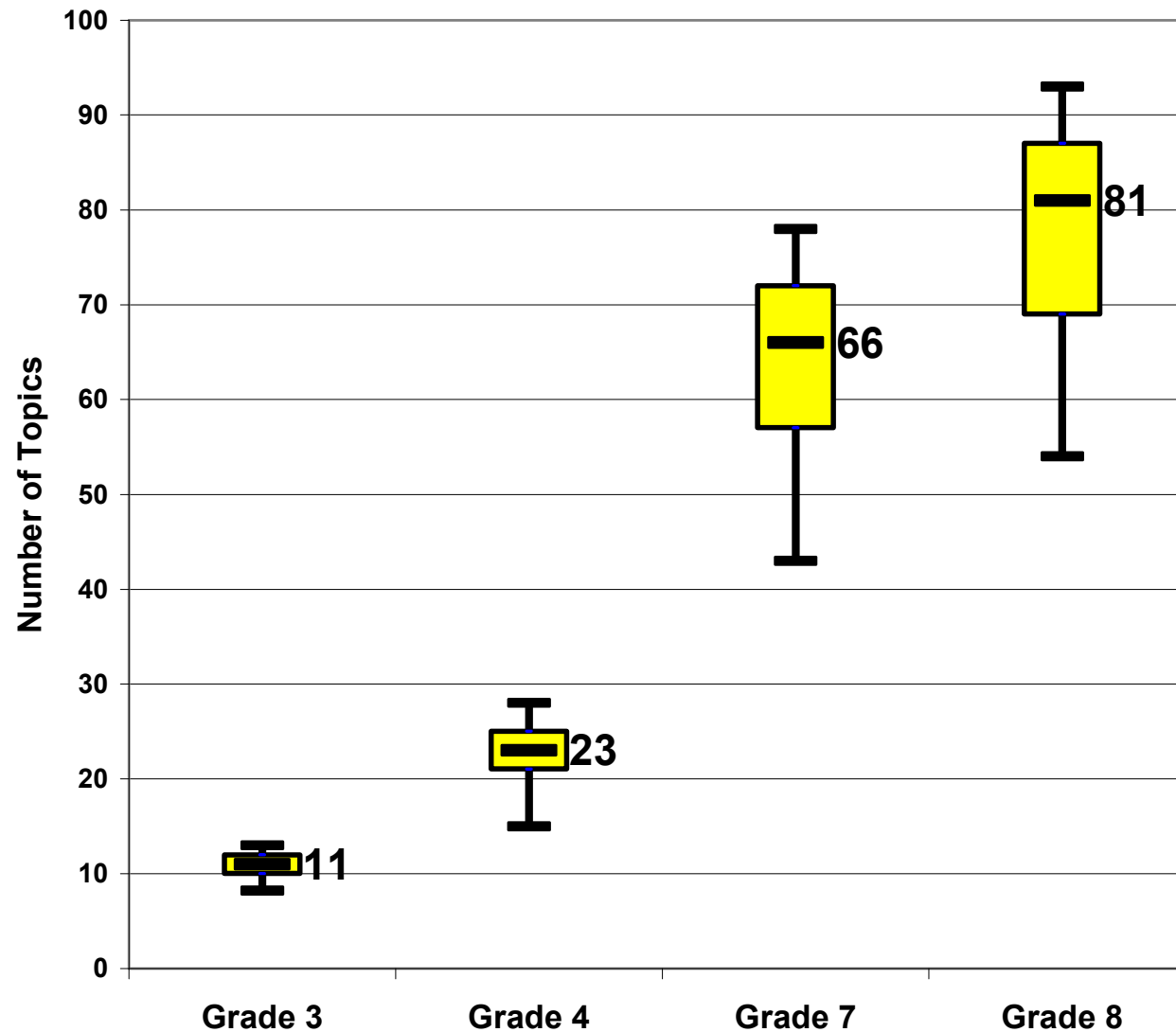
Distribución de los ranks de los países en matemáticas 8º grado



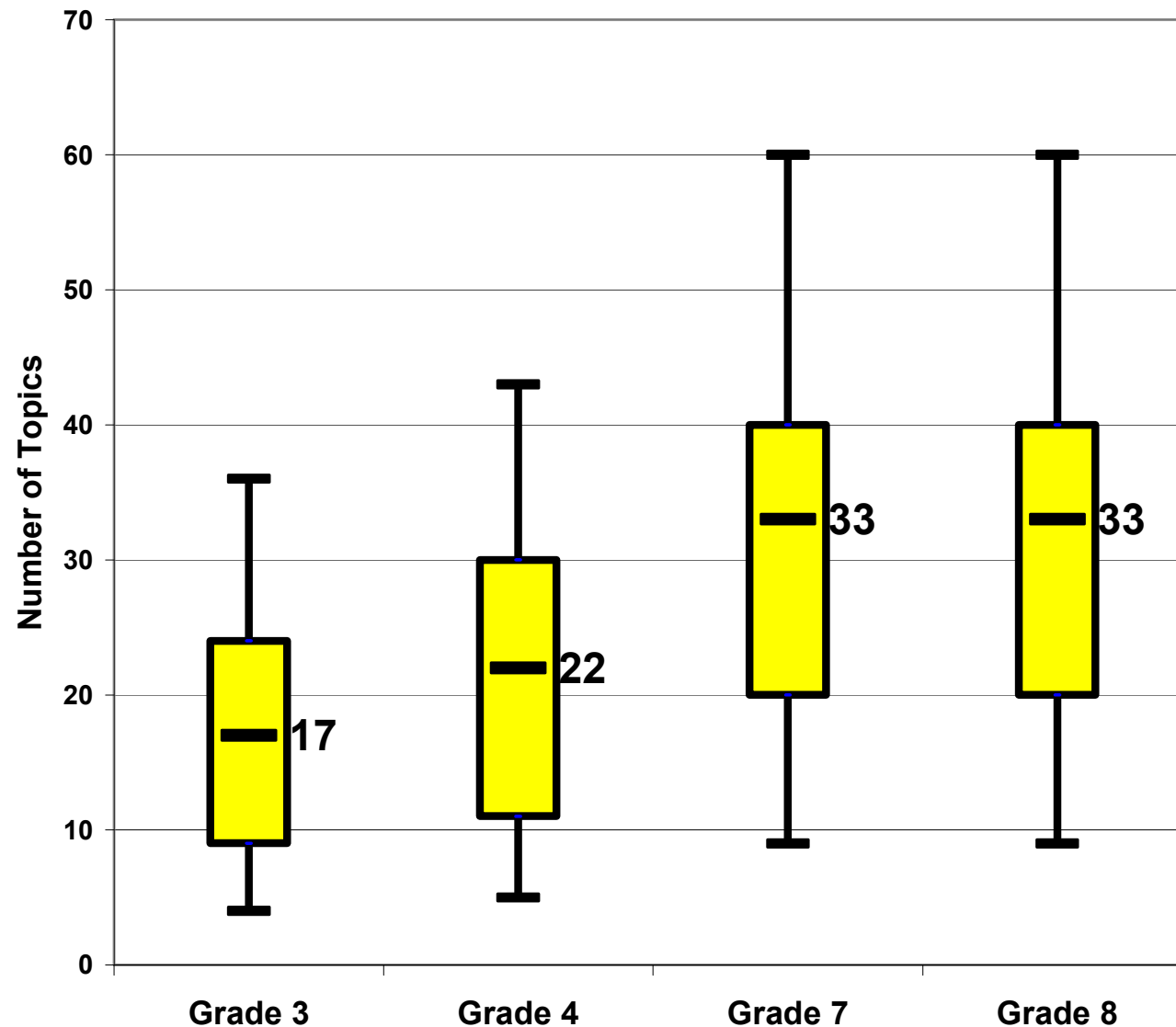
Alineación con escenario ideal

Países	Número de tópicos en currículo	Número de tópicos desalineados	Número de tópicos alineados	Número de tópicos desalineados 2
Argentina	81	3	54	24
Australia	136	32	75	29
Belgium (Fl)	155	37	87	31
Canada	181	58	92	31
Cyprus	162	49	87	26
Czech Republic	119	32	83	4
France	156	40	85	31
Germany	117	33	74	10
Hong Kong	79	9	62	8
Hungary	158	49	93	16
Iceland	137	32	81	24
Japan	128	39	86	3
Korea	125	27	90	8
Netherlands	97	14	54	29
Norway	159	33	96	30
Portugal	144	48	84	12
Singapore	115	11	84	21
Spain	109	23	69	17
USA	186	63	98	25

Número de tópicos alineados con escenario ideal



Número de tópicos no alineados (Introducidos antes del escenario ideal)



Análisis de regresión de logro contra coherencia y medida de foco

<i>Model</i>	<i>Grade 3</i>	<i>Grade 4</i>	<i>Grade 7</i>	<i>Grade 8</i>
<i>Predictor</i>	Estimate (StdError, p)	Estimate (StdError, p)	Estimate (StdError, p)	Estimate (StdError, p)
<i>Number of Topics Aligned with Ideal Scenario</i>	9.94 (7.38 , 0.196)	7.48 (4.04 , 0.081)	3.57 (1.48 , 0.023)	2.83 (1.12 , 0.017)
<i>Total Number of Topics in Curriculum</i>	-2.42 (1.13 , 0.047)	-2.58 (1.05 , 0.025)	-1.64 (0.57 , 0.008)	-1.39 (0.45 , 0.004)
<i>Model Fit</i>				
<i>R-Square</i>	0.2191	0.2574	0.2205	0.2490
<i>Residual Mean Sq.</i>	1652.9	1489.0	1476.0	1331.4
<i>p<</i>	0.1222	0.0687	0.0270	0.0136
<i>No. of Countries</i>	20	21	32	33
<i>Standardized Coefficient</i>				
<i>Number of Topics Aligned with Ideal Scenario</i>	0.4374	0.7331	0.8481	0.8240
<i>Total Number of Topics in Curriculum</i>	-0.6969	-0.9703	-1.0044	-1.0204

Puntaje grado 8 en matemáticas vs. Tasa de número de tópicos alineados / total de tópicos en el currículo

