

**Exhibit 46. Who are our closer peers in grade 8 mathematics?** Differences among country groups are created by a variety of topics (look for those in double digits). The cluster containing the U.S. appears to do something of everything and not too much of any one thing—the only double digit topic is algebraic equations. [The data in this exhibit are the percentages of textbook blocks devoted to framework topics in grade 8 mathematics textbooks across countries. We used them to cluster the TIMSS countries into six groups of "near peers" in terms of composite grade 8 mathematics textbook content. For each cluster, we report the average percentages of textbook blocks devoted to the specific mathematics framework topics.]

	Country Groups					
	Australia Belgium (Fr)* Canada Hong Kong Iceland Ireland Italy New Zealand Norway Thailand U.S.	Austria Cyprus Greece Hungary Romania	Belgium (Fl)* France Switzerland	Scotland Sweden Tunisia	Colombia Iran Mexico Philippines Russian Federation South Africa Spain	Bulgaria China, People's Republic of Czech Republic Slovak Republic Israel Japan Korea Netherlands** Portugal Singapore
<b>Mathematics Topics</b>						
<b>Numbers</b>						
<b>Whole Number</b>						
Meaning	2	0	1	8	1	0
Operations	5	1	6	24	2	1
<b>Fractions and Decimals</b>						
Common Fractions	6	1	4	5	5	1
Decimal Fractions	5	0	4	5	3	1
Relationships of Common and Decimal Fractions	2	1	5	1	3	1
Percentages	6	2	3	5	1	1
Properties of Common and Decimal Fractions	1	0	4	0	1	0
<b>Integer, Rational and Real Numbers</b>						
Integers and Their Properties	5	2	2	2	9	1
Rational Numbers and Their Properties	1	4	2	1	8	1
Real Numbers, Their Subsets and Their Properties	1	6	1	0	2	1
<b>Other Numbers and Number Concepts</b>						
Exponents, Roots and Radicals	3	6	4	0	5	6
<b>Measurement</b>						
Units	5	2	8	22	1	2
Perimeter, Area and Volume	7	13	6	7	3	8
<b>Geometry: Position, Visualization and Shape</b>						
2-D Geometry: Coordinate Geometry	4	5	2	5	5	4
2-D Geometry: Basics	6	2	10	7	6	8
2-D Geometry: Polygons and Circles	7	12	11	4	11	21
3-D Geometry	2	24	5	3	1	3
Vectors	0	1	1	0	4	1
<b>Geometry: Symmetry, Congruence and Similarity</b>						
Transformations	5	5	7	1	5	3
Congruence and Similarity	1	6	3	0	2	7
Constructions using Straight-edge and Compass	1	1	3	0	2	2
<b>Proportionality</b>						
Proportionality Problems	2	4	4	5	2	4
Slope and Trigonometry	1	2	1	0	1	3
<b>Functions, Relations, and Equations</b>						
Patterns, Relations, and Functions	3	9	2	2	8	11
Equations & Formulas	14	16	8	3	17	32
<b>Data Representation, Probability, and Statistics</b>						
Data Representation and Analysis	6	3	3	6	1	3
<b>Validation and Structure</b>						
Validation and Justification	1	6	0	0	1	2
Structure and Abstracting	2	2	2	0	0	1

\* The national Research Coordinators of Belgium have only collected data from curriculum guides . Due to the great level of detail of the guides, and their extensive use, data from these are compared in this display with the textbook data supplied from all other countries.

\*\* Netherlands' sample did not meet the 50% market coverage criterion for populations 1 and 2.

Note: Countries not included in table - Argentina, Dominican Republic, Germany, Hong Kong, Slovenia