

**Exhibit 11. Common U.S. and international topics for Population 1 mathematics.** The U.S. composite mathematics curriculum as represented in state curriculum guides includes far more topics at this grade level than does the international composite. The same is true for the U.S. textbook composite. U.S. textbooks include several topics not commonly included in state curriculum guides for the U.S. [This exhibit lists topics from the TIMSS' mathematics framework intended by at least 70 percent of the countries (international) or at least 70 percent of sampled state guides (U.S.) for the upper grade of Population 1 (U.S. grade 4). Bold-face labels are more general categories which subsume more specific (non-bold-face) topics. We arranged both lists (U.S. and international) in three categories — topics listed only in 70 percent of curriculum guides, topics 1 percent of both curriculum guides and textbooks, and topics listed only in 70 percent of the textbooks. Asterisks mark topics receiving more extensive textbook attention.]

<b>International</b>	<b>U.S.</b>
<b>CURRICULUM GUIDES (Not In Textbooks)</b>	
<p><b>Numbers</b>  Fractions and Decimals  Decimal Fractions</p> <p><b>Geometry: Position, Visualization &amp; Shape</b>  2-D Geometry: Coordinate Geometry</p> <p><b>Geometry: Symmetry, Congruence &amp; Similarity</b>  Transformations</p>	
<b>CURRICULUM GUIDES (Included in Textbooks)</b>	
<p><b>Numbers</b>  Whole Numbers  Meaning*  Operations*  Properties of Operations  Fractions and Decimals  Common Fractions</p> <p><b>Measurement</b>  Units*  Perimeter, Area &amp; Volume</p> <p><b>Geometry: Position, Visualization &amp; Shape</b>  2-D Geometry: Basics  2-D Geometry: Polygons &amp; Circles</p>	<p><b>Numbers</b>  Whole Numbers  Meaning*  Operations*</p> <p>Fractions and Decimals  Common Fractions  Decimal Fractions  Estimation &amp; Number Sense Concepts  Estimating Computations</p> <p><b>Measurement</b>  Units*  Perimeter, Area &amp; Volume  Estimation &amp; Errors</p> <p><b>Geometry: Position, Visualization &amp; Shape</b>  2-D Geometry: Coordinate Geometry  2-D Geometry: Basics  2-D Geometry: Polygons &amp; Circles  3-D Geometry</p> <p><b>Geometry: Symmetry, Congruence &amp; Similarity</b>  Transformations  Congruence &amp; Similarity</p> <p><b>Functions, Relations, &amp; Equations</b>  Patterns, Relations &amp; Functions  Equations &amp; Formulas</p> <p><b>Data Representation, Probability, &amp; Statistics</b>  Data Representation &amp; Analysis  Uncertainty &amp; Probability</p>
<b>EXCLUSIVELY IN TEXTBOOKS</b>	
<p><b>Data Representation, Probability, &amp; Statistics</b>  Data Representation &amp; Analysis</p>	<p><b>Numbers</b>  Whole Numbers  Properties of Operations  Fractions and Decimals  Relation of Common &amp; Decimal Fractions  Integer, Rational &amp; Real Numbers  Negative Numbers, Integers &amp; Their Properties  Other Numbers &amp; Number Concepts  Number Theory  Counting  Estimation &amp; Number Sense  Estimating Quantity &amp; Size  Rounding &amp; Significant Figures</p> <p><b>Proportionality</b>  Proportionality Concepts</p> <p><b>Validation &amp; Structure</b>  Validation and Justification  Structuring and Abstracting</p> <p><b>Other Content</b></p>