

**Figure 2: 8th Grade Core Mathematics Topics.** Common topics for 8th grade mathematics are shown here just as they were in Figure 1 for 4th grade. Additionally, US algebra curricula and books are separated from those not wholly on algebra. Again the US contains most of the common topics in other TIMSS countries but many others as well. This is true even in books supposedly dedicated wholly to algebra. US teachers report spending time on an even wider range of topics than those in official curricula and textbooks. US 8th grade mathematics is "a mile wide and an inch deep" in an even more pronounced way than 4th grade. It also suggests less "fit" to a test designed mainly to assess achievement in the "world core".

| World Core                             | US Non-Algebra Core  | US Algebra Core  | US Teacher Core <sup>1</sup>   |
|--|--|--|--|
|  | Whole Numbers: Operations<br>Common Fractions  | Whole Numbers: Operations<br>Common Fractions                              | Whole Numbers: Meaning<br>Whole Numbers: Operations & Properties<br>Common Fractions<br>Decimal Fractions      |
|  | Relationship of Comm. & Dec. Frac.<br>Percentages                                      | Relationship of Comm. & Dec. Frac.<br>Percentages                          | Relationship of Comm. & Dec. Frac.<br>Percentages<br>Properties of Fractions                                   |
| Integers & Their Properties            | Integers & Their Properties  | Integers & Their Properties  | Number Sets and Concepts*  |
| Rational Numbers & Their Properties    |  |  | Number Sets and Concepts*  |
| Exponents, Roots & Radicals            |  |  | Number Sets and Concepts*<br>Number Theory   |
|  | Estimating Quantity & Size<br>Rounding<br>Estimating Computations<br>Measurement Units |  | Estimation and Number Sense<br>Estimation and Number Sense<br>Estimation and Number Sense<br>Measurement Units |
| Perimeter, Area, and Volume            | Perimeter, Area, and Volume<br>Meas. Estimation & Error                                | Perimeter, Area, and Volume  | Perimeter, Area, and Volume  |
| 2-D Geometry: Coordinate Geo.          | 2-D Geometry: Coordinate Geo.  | 2-D Geometry: Coordinate Geo.*   | One- and Two-Dimensional Geometry  |
| 2-D Geometry: Basics                   | 2-D Geometry: Basics   | 2-D Geometry: Basics   | Geometry   |
| 2-D Geometry: Polygons & Circles       | 2-D Geometry: Polygons & Circles   | 2-D Geometry: Polygons & Circles   | One- and Two-Dimensional Geometry  |
| 3-D Geometry                           | 3-D Geometry   |  |  |
|  | Geometric Congruence and Similarity  | Geometric Congruence and Similarity  | Geometric Congruence and Similarity  |
| Geometric Transformations and Symmetry | Geometric Transformations and Symmetry   | Geometric Transformations and Symmetry                                     |  |
|  | Proportionality Concepts   | Proportionality Concepts   | Proportionality Concepts<br>Proportionality Problems   |
| Proportionality Problems               |  |  |  |
| Patterns                               | Patterns   | Patterns   |  |
| Equations and Formulas                 | Equations and Formulas*<br>Data Representation and Analysis<br>Probability             | Equations and Formulas*<br>Data Representation and Analysis<br>Probability | Equations and Formulas<br>Data Representation and Analysis   |

<sup>1</sup> Some of the framework topics were aggregated together when presented to teachers and were at a different level of specificity than presented here in the world core; therefore, the numbers in this column may represent teaching of the larger category which includes the specific topic listed here.