

Exhibit 16. Common U.S. and international Population 2 mathematics performance expectations. U.S. and international curriculum guides and textbooks have comparable numbers of common performance expectations. State curriculum guides include performance expectations from all major categories. There are even more in textbooks. [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 2 (U.S. grade 8). Bold-face labels are more general categories that subsume more specific (non-bold-face) performance expectations. Both lists (U.S. and international) are arranged in listed in 70 percent of both curriculum guides and textbooks, and those listed only in 70 percent of the textbooks. Asterisks mark performance expectations receiving more extensive textbook attention.]

Intentions in TIMSS Countries	U.S.-non-Algebra Textbooks	U.S.-Algebra Textbook
CURRICULUM GUIDES (Not in Textbooks)		
Mathematical Reasoning Developing notation and vocabulary		Mathematical Reasoning Developing notation and vocabulary
CURRICULUM GUIDES (Included in Textbooks)		
Knowing Representing Recognizing equivalents Recalling mathematical objects and properties*	Knowing Representing	Knowing Representing
Using Routines Procedures Using equipment Performing routine procedures* Using more complex procedures	Using Routines Procedures Using equipment Performing routine procedures* Using more complex procedures*	Using Routines Procedures Using equipment Performing routine procedures* Using more complex procedures*
Investigating and Problem Solving Formulating and clarifying problems and situations Developing strategy Solving Predicting Verifying	Investigating and Problem Solving Formulating and clarifying problems and situations Developing strategy Solving* Predicting Verifying	Investigating and Problem Solving Formulating and clarifying problems and situations Developing strategy Solving* Predicting Verifying
Mathematical Reasoning Generalizing Conjecturing Justifying and proving	Mathematical Reasoning Developing notation and vocabulary Generalizing Conjecturing Justifying and proving	Mathematical Reasoning Generalizing Conjecturing Justifying and proving
Communicating Using vocabulary and notation Relating representations Describing/discussing	Communicating Using vocabulary and notation Relating representations Describing/discussing*	Communicating Using vocabulary and notation Relating representations Describing/discussing*
EXCLUSIVELY IN TEXTBOOKS		
Mathematical Reasoning Generalizing Communicating Relating representations	Knowing Recognizing equivalents Recalling mathematical objects and properties* Mathematical Reasoning Developing algorithms Communicating Critiquing	Knowing Recognizing equivalents Recalling mathematical objects and properties* Mathematical Reasoning Developing algorithms Communicating Critiquing