Domains of Mathematical Knowledge for Teaching

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1. Common Content Knowledge. "[T]he mathematical knowledge and skill used in settings other than teaching." Example: Knowing the algorithm to multiply together two numbers.

2. Specialized Content Knowledge. "[T]he mathematical knowledge and skill unique to teaching." Example: Knowing how the algorithm to multiply together two numbers connects to place value and the distributive property.

3. Horizon Content Knowledge. "[A]n awareness of how mathematical topics are related over the span of mathematics included in the curriculum." Example: Knowing how the algorithm to multiply together two numbers is related to multiplying together two polynomials.

4. Knowledge of Content and Students. "[K]nowledge that combines knowing about students and knowing about mathematics. Teachers must anticipate what students are likely to think and what they will find confusing." Example: Knowing that when multiplying together two numbers students may make the error of not appropriately "shifting" the terms to be added.

5. Knowledge of Content and Teaching. "[C]ombines knowing about teaching and knowing about mathematics. Many of the mathematical tasks of teaching require a mathematical knowledge of the design of instruction." Example: Knowing what teaching strategies to employ so that students, when multiplying two numbers, learn how and why to appropriately "shift" the terms to be added.

6. Knowledge of Content and Curriculum. "[R]epresented by the full range of programs designed for the teaching of particular subjects and topics at a given level, the variety of instructional materials available in relation to these programs, and the set of characteristics that serve as both the indications and contraindications for the use of particular curriculum or program materials in particular circumstances." Example: Knowing what instructional materials are available for teaching and learning multiplication of two numbers, what approach these materials take, and how effective they are.