Seeing Structure in the Standards

William McCallum

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Domain

Number and Operations in Base Ten 3.NBT

Use place value understanding and properties of operations to perform multi-digit arithmetic.

Standard

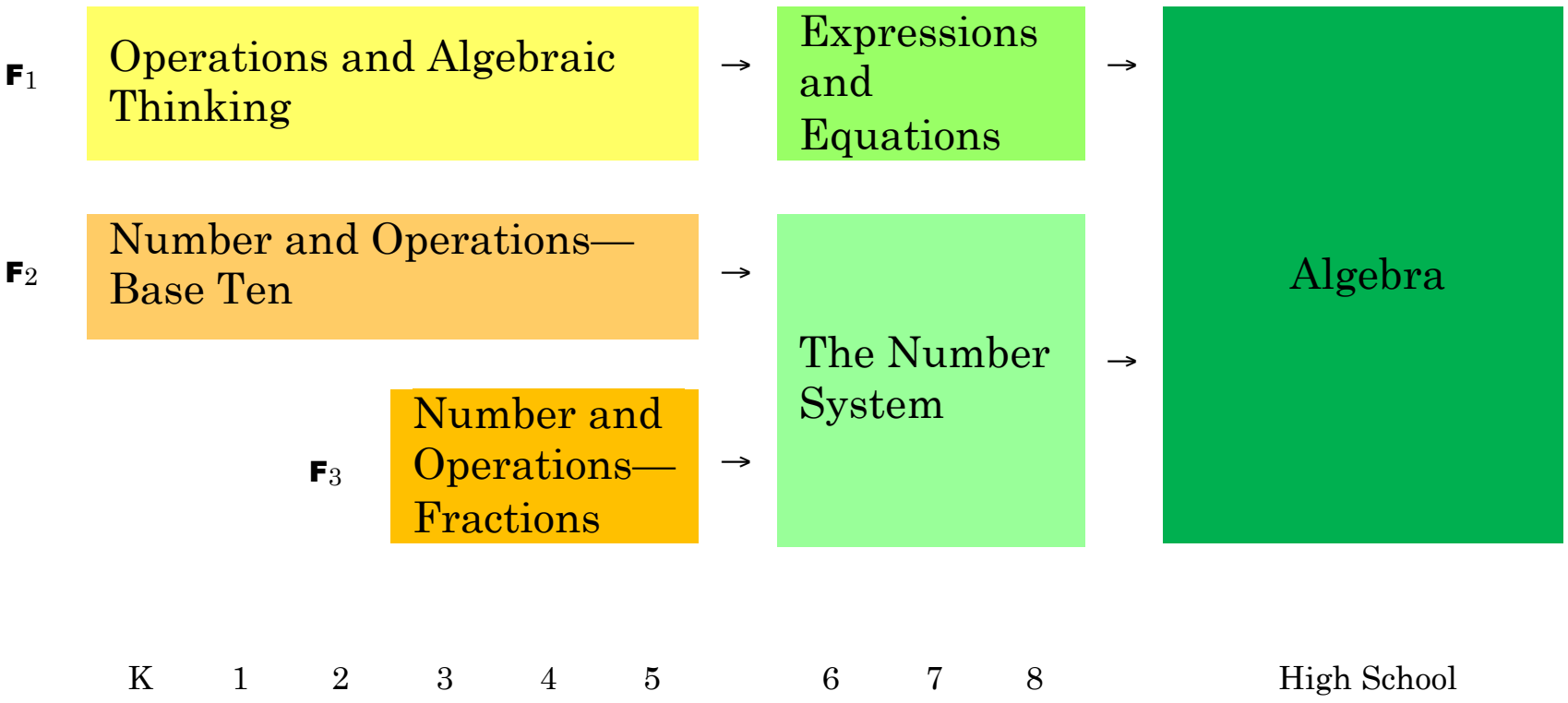
1. Use place value understanding to round whole numbers to the nearest 10 or 100.
2. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
3. Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations.

Cluster

Standards for Mathematical Content

- Counting and Cardinality (K)
- Operations and Algebraic Thinking (K–5)
- Number and Operations in Base Ten (K–5)
- Measurement and Data (K–5)
- Geometry (K–HS)
- Number and Operations—Fractions (3–5)
- Ratios and Proportional Relationships (6–7)
- The Number System (6–8)
- Expressions and Equations (6–8)
- Statistics and Probability (6–HS)
- Functions (8-HS)
- Number and Quantity (HS)
- Algebra (HS)
- Modeling (HS)

Flows between domains



Counterpoint of clusters across domains

	Operations and Algebraic Thinking	Number and Operations in Base Ten	Fractions
1	Understand and apply properties of operations and the relationship between addition and subtraction.	Use place value understanding and properties of operations to add and subtract.	
2		Use place value understanding and properties of operations to add and subtract.	
3	Understand properties of multiplication and the relationship between multiplication and division.	Use place value understanding and properties of operations to perform multi-digit arithmetic.	
4		Use place value understanding and properties of operations to perform multi-digit arithmetic.	Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.
5			Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

Detailed guidance within standards

4. Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.

   a. Understand a fraction a/b as a multiple of $1/b$. *For example, use a visual fraction model to represent 5/4 as the product 5 × (1/4), recording the conclusion by the equation 5/4 = 5 × (1/4).*

   b. Understand a multiple of a/b as a multiple of $1/b$, and use this understanding to multiply a fraction by a whole number. *For example, use a visual fraction model to express 3 × (2/5) as 6 × (1/5), recognizing this product as 6/5. (In general, n × (a/b) = (n × a)/b.)*

   c. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. *For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?*

Standards for Mathematical Practice

- Make sense of problems and persevere in solving them
- Reason abstractly and quantitatively
- Construct viable arguments and critique the reasoning of others
- Model with mathematics
- Use appropriate tools strategically
- Attend to precision
- Look for and make use of structure
- Look for and express regularity in repeated reasoning