Core Content

Cluster Title: Understand decimal notations for fractions, and compare decimal fractions.

Standard 5: Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.

MASTERY Patterns of Reasoning:

Note: Expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100. Students who can generate equivalent fractions can develop strategies for adding fractions with unlike denominators in general. However, addition and subtraction with unlike denominators is general is not a requirement at this grade level.

Conceptual:

Students will understand why a common denominator must be used in order to add fractions.
Students will understand that when fractions are added they must refer to the same whole.

Procedural:

Students can add fractions with denominators of 10 and 100.

Representational:

Students can model addition of fractions with base-ten denominators (10, 100)

Supports for Teachers

Critical Background Knowledge

Conceptual:

Students will understand that a fraction refers to equal parts of a whole.
Students will understand equivalent fractions.
Students will understand that 100 is 10 times larger than 10 (e.g., 4 x 1 = 4; 4 x 10 = 40; 4 x 100 = 400).
Students will understand a unit whole.

Code: 4.NF.5

Procedural:

Students can add fractions with like denominators.

Representational:

Students can use a variety of models to represent addition of fractions with like denominators.

Academic Vocabulary and Notation

base-ten fractions, common denominator, equivalent fraction

Instructional Strategies Used	**Resources Used**
Model tenths and hundredths using dimes (1/10) and pennies (1/100), 10 x 10 grid, meter stick, etc. to illustrate the use of common denominators. Use a 10 x 10 grid to demonstrate addition of 7/10 + 6/100. Explain why the fractions can be added as they are when using the grid, but when writing out the equation they must have a common denominator.	*Elementary and Middle School Mathematics: Teaching Developmentally* by John A. Van de Walle, pp. 315-317

Assessment Tasks Used

Skill-Based Task:	**Problem Task:**
5/10 = *a*/100 70/100 = *b*/10 2/10 + 40/100 = *c*	Develop a model to describe the addition of 7/10 + 3/100.