Domain: Number and Operations-Fractions Grade: Fifth

Core Content

Cluster Title: Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

Standard 3: Interpret a fraction as division of the numerator by the denominator (a/b = a ÷ b). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. (For example, interpret 3/4 as the result of dividing 3 by 4, noting that 3/4 multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size 3/4. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?)

MASTERY Patterns of Reasoning:

Conceptual:

Students will understand that the fraction a/b = a ÷ b.
Students will understand problem-solving strategies involving fractions.
Students will understand that a quotient may be a whole number, mixed number, or a fraction.
Students will understand that a remainder can be written as a fraction.

Procedural:

Students can rewrite division expressions as fractions.
Students can solve story problems with remainders written as a fraction.
Students can determine between which two whole numbers a fraction lies.

Representational:

Students can use concrete and pictorial models to show fractions represented by whole number division.

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Supports for Teachers

Critical Background Knowledge
Conceptual: Students will know that division is fair sharing. Students will understand long division. Students will understand fractions can be less than 1 or more than 1. Students will understand the relative sizes of fractions and mixed numbers and their places on a number line. Students will know that multiplication and division are inverse operations. **Procedural:** Students can divide whole numbers where quotients have a remainder. **Representational:** Students can draw pictorial representations showing fair sharing.
Academic Vocabulary and Notation
numerator, denominator, proper fraction, improper fraction, mixed number, quotient, divisor, dividend, remainder, fair sharing

Instructional Strategies Used	**Resources Used**
Divide 12 equal-sized pizzas among 4 students (12/4 = 12 ÷ 4). Ask: How many pizzas does each student get? Have students suggest how to divide 2 pizzas equally among 3 students (2/3 = 2 ÷ 3). Explain how to divide the pizzas in smaller pieces using fraction circles. Show that each pizza is divided equally into the number of parts which represent the number of students. So each pizza is divided into 3 smaller pieces. Show that dividing 6 smaller pieces of pizza among 3 students means each student gets 2 pieces each. Because a pizza comprises 3 equal pieces, each student gets 2/3 of a pizza.	

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Assessment Tasks Used	
Skill-Based Task: Write a word problem to show that 3/4 is a division problem. Draw a model to illustrate the story problem. Write a word problem with a fraction less than 1 used as a division problem. Draw a model to illustrate the story problem. Write a word problem with a fraction greater than 1 used as a division problem. Draw a model to illustrate the story problem.	**Problem Task:** Draw a picture and write an equation to solve the following problem: Six teachers need to equally share 27 boxes of pencils. How many boxes of pencils will each teacher receive?

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