CCC Mathematics | Symbolic Expression

CCSS: 3.NF.3 Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.		
CCC:	3.SE.1g1	Use =, <, or > to compare 2 fractions with the same numerator or denominator
Strand: Symbolic Expression	**Family**: Determine Equivalency (Number Operations-Fractions/ratios/Proportions)	
Progress Indicator: *E.SE.1g using symbols (=, >, <) to compare whole numbers, fractions, or decimals; write equations; and express inverse or related operations*		
Essential Understandings	**Concrete Understandings:** • Understand the concept of a fraction (a fration is less than a whole) • Understand the concept of comparison (greater than, less than, equal) • Identify a concrete representation of a fractional part of a whole as greater than, less than, equal to another (divide a rectangle into fourths and compare ¼ to ¾) (e.g., Can do by showing with parts of the whole (so relates to fractions; e.g., break into 4 equal parts…which is more the 3 parts or the 1 part?)	**Representation:** • Undestand the symbols of <, >, and = • Label pictorial representations of fractions
Suggested Instructional Strategies: • Multiple exemplars for equal, greater than, less than. • Explicit teaching of the rules of denominator and numerator • Explicit teaching of comparisons (more of the same size parts, same number of parts but different sizes, more and less than ½ or 1 whole, distance from ½ or 1 whole) • Choose your answer, explain why you chose the answer, test your answer		
Supports and Scaffolds: • Number line with fractions • Illustrations • Interactive whiteboard • Computer software • Examples of illustrations to show greater than less than, or equal		

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CCSS: 4.NF.2 Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model		
CCC:	4.SE.1g2	Use =, <, or > to compare 2 fractions (fractions with a denominator of 10 or less)
Strand: Symbolic Expression	**Family:** Determine Equivalency (Number Operations-Fractions/ratios/Proportions)	
Progress Indicator: *E.SE.1g using symbols (=, >, <) to compare whole numbers, fractions, or decimals; write equations; and express inverse or related operations*		
Essential Understandings	**Concrete Understandings:** • Understand the concept of a fraction (a fraction is less than a whole) • Unsterstand the concept of comparison (greater than, less than, equal) • Identify concrete representation of a fractional part of a whole as greater than, less than, equal to another (divide a rectangle into fourths and compare ¼ to ¾) (e.g., Can do by showing with parts of the whole (so relates to fractions; e.g., break into 4 equal parts…which is more the 3 parts or the 1 part?)	**Representation:** • Understand the symbols of <, >, and = • Label pictorial represetations of fractions
Suggested Instructional Strategies: • Multiple exemplars for equal, greater than, less than. • Explicit teaching of the rules of denominator and numerator • Explicit teaching of comparisons (more of the same size parts, same numner of parts but different sizes, more and less than ½ or 1 whole, distance from ½ or 1 whole) • Choose your answer, explain why you chose the answer, test your answer		
Supports and Scaffolds: • Number line with fractions • Illustrations • Interactive whiteboard • Computer software • Examples of illustrations to show greater than less than, or equal		

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CCSS: 6.EE.4 Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). *For example, the expressions y + y + y and 3y are equivalent because they name the same number regardless of which number y stands for*			
CCC:	5.SE.1b1	Evaluate whether or not both sides of an equation are equal	
Strand: Symbolic Expression		**Family:** Model/Symbolize Operations (Problem Solving) with Whole Numbers (Number Operations-Real Numbers)	
Progress Indicator: *M.SE.1b writing, interpreting, and using expressions, equations, and inequalities (including using brackets, parentheses, or braces)*			
Essential Understandings	**Concrete Understandings:** • Determine if sets are equal/ not equal • Model an equation with objects		**Representation:** • Understand symbols for =, ≠, +, -, ÷, ×
Suggested Instructional Strategies: • Task analysis (solve each side of the equation, compare answers, determine if = or not ≠) • Use manipulatives and a scale to give concrete examples of equal and not equal			
Supports and Scaffolds: • Calculator • Numberline • Written task analysis for independence • Assistive technology or voice output device			

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