



**Grade 4**

**Mathematical Practices**  
 Students will be able to demonstrate the following practices at the cognitive level of this grade:

- 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.

**Operations and Algebraic Thinking**

Content	District Code	Essential Skill	Instructional Mastery			
			1	2	3	4
<b>Four Operations with Whole Numbers</b> Multiplication ILS10 4.OA.1	4.OA.1	Recall multiplication strategies.	M			
	4.OA.2	Interpret multiplication equation as a comparison (e.g. $18 = 3$ times as many as 6).	M			
	4.OA.3	Represent verbal statements of multiplicative comparison as multiplication equations.	M			
<b>Four Operations with Whole Numbers</b> Multiplicative Comparison ILS10 4.OA.2	4.OA.4	Multiply or divide to solve word problems.	M			
	4.OA.5	Describe multiplicative comparison.	M			
	4.OA.6	Describe additive comparison.	M			
	4.OA.7	Determine appropriate operation and solve word problems involving multiplicative comparison.	M			
	4.OA.8	Determine and use a variety of representations to model a problem involving multiplicative comparison.	M			
	4.OA.9	Distinguish between multiplicative comparison and additive comparison (repeated addition).	M			
<b>Four Operations with Whole Numbers</b> Division ILS10 4.OA.3	4.OA.10	Divide whole numbers including division with remainders.		M		
	4.OA.11	Represent multi-step word problems using equations with a letter standing for the unknown quantity.		M		
	4.OA.12	Interpret multi-step word problems (including problems in which remainders must be interpreted) and determine appropriate operation(s) to solve.		M		
	4.OA.13	Assess the reasonableness of an answer in solving a multi-step word problem using mental math and estimation strategies (including rounding).		M		
<b>Factors and Multiples</b> ILS10 4.OA.4	4.OA.14	Define prime and composite numbers.	M			
	4.OA.15	Explain strategies to determine if a whole number is prime or composite.	M			
	4.OA.16	Identify all factor pairs for any given number 1-100.	M			
	4.OA.17	Recognize that a whole number is a multiple of each of its factors.	M			
	4.OA.18	Determine if a given whole number (1-100) is a multiple of a given one-digit number.	M			
<b>Patterns</b> ILS10 4.OA.5	4.OA.19	Identify a number or shape pattern.	M			
	4.OA.20	Generate a number or shape pattern that follows a given rule.	M			
	4.OA.21	Analyze a pattern to determine features not apparent in the rule (always odd or even, alternates between odd and even, etc.).	M			
<b>Place Value for Multi-Digit Whole Numbers</b> Recognize Value ILS10 4.NBT.1	4.NBT.1	Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right.	M			
	4.NBT.2	Read and write multi-digit whole numbers using base ten numerals, number names, and expanded form.	M			
<b>Place Value for Multi-Digit Whole Numbers</b> Write and Compare ILS10 4.NBT.2	4.NBT.3	Compare two-digit numbers based on meanings of the digits in each place, using a $>$ , $=$ , and $<$ symbols to record the results of comparisons.	M			
	4.NBT.4	Round multi-digit whole numbers to any place using place value.	M			

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**Creve Coeur School District 76 Mathematics**

Content	District Code	Essential Skill	Instructional Mastery			
			1	2	3	4
<b>Place Value and Operations to Perform Arithmetic</b> Addition and Subtraction <i>ILS10 4.NBT.4</i>	4.NBT.5	Fluently add and subtract multi-digit whole numbers less than or equal to 1,000,000 using the standard algorithm.	I	M		
<b>Place Value and Operations to Perform Arithmetic</b> Multiplication <i>ILS10 4.NBT.5</i>	4.NBT.6	Multiply a whole number of up to four digits by a one-digit whole number.		M		
	4.NBT.7	Multiply two two-digit numbers.		M		
	4.NBT.8	Use strategies based on place value and the properties of operation to multiply whole numbers.		M		
	4.NBT.9	Illustrate and explain calculations by using written equations, rectangular arrays, and/or area models.		M		
<b>Place Value and Operations to Perform Arithmetic</b> Division <i>ILS10 4.NBT.6</i>	4.NBT.10	Find whole number quotients and remainders with up to four-digit dividends and one-digit divisors.		I	M	
	4.NBT.11	Use the strategies based on place value, the properties of operations, and/or the relationship between multiplication and division.		I	M	
	4.NBT.12	Illustrate and explain calculations by using written equations, rectangular arrays, and/or area models.		I	M	
<b>Fraction Equivalence and Ordering</b> Equivalence <i>ILS10 4.NF.1</i>	4.NF.1	Recognize and identify equivalent fractions with unlike denominators.		I	M	
	4.NF.2	Explain why $a/b$ is equal to $(n \times a)/(n \times b)$ by using fraction models with attention to how the number and the size of the parts differ even though the two fractions themselves are the same size. (e.g., use fraction strips to show why $1/2 = 2/4 = 3/6 = 4/8$ ).		I	M	
	4.NF.3	Use visual fraction models to show why fractions are equivalent. (e.g., $3/4 = 6/8$ ).		I	M	
	4.NF.4	Generate equivalent fractions using visual fraction models and explain why they can be called "equivalent."		I	M	
<b>Fraction Equivalence and Ordering</b> Comparison <i>ILS10 4.NF.2</i>	4.NF.5	Recognize fractions as being greater than, less than, or equal to other fractions.		I	M	
	4.NF.6	Record comparison results with symbols: $<$ , $>$ , $=$ .		I	M	
	4.NF.7	Use benchmark fractions such as $1/2$ for comparison purposes.		I	M	
	4.NF.8	Make comparisons based on parts of the same whole.		I	M	
	4.NF.9	Compare two fractions with different numerators, (e.g. by comparing to a benchmark fraction such as $1/2$ ).		I	M	
	4.NF.10	Compare two fractions with different denominators, (e.g. by creating common denominators, or by comparing to a benchmark fractions such as $1/2$ ).		I	M	
	4.NF.11	Justify the results of a comparison of two fractions, (e.g. by using a visual fraction model).		I	M	
	4.NF.12	Explain that accumulating unit fractions ( $1/b$ ) results in a fraction ( $a/b$ ), where $a$ is greater than one.		I	M	
<b>Build Fractions from Unit Fractions</b> Reasoning <i>ILS10 4.NF.3</i>	4.NF.13	Extend previous understandings about how fractions are built from unit fractions, composing (joining) fractions from unit fractions, and decomposing (separating) fractions into unit fractions.		I	M	
	4.NF.14	Using fraction models, reason that addition of fractions is joining parts that are referring to the same whole.		I	M	
	4.NF.15	Using fraction models, reason that subtraction of fractions is separating parts that are referring to the same whole.		I	M	
<b>Build Fractions from Unit Fractions</b> Fractions with Like Denominators <i>ILS10 4.NF.3</i>	4.NF.16	Add and subtract fractions with like denominators.		I	M	
	4.NF.17	Recognize multiple representations of one whole using fractions with the same denominator.		I	M	
	4.NF.18	Using visual fraction models, decompose a fraction into the sum of fractions with the same denominator in more than one way.		I	M	
	4.NF.19	Record decompositions of fractions as an equation and explain the equation using visual fraction models.		I	M	
<b>Build Fractions from Unit Fractions</b> Mixed Numerals with Like Denominators <i>ILS10 4.NF.3</i>	4.NF.20	Add and subtract mixed numbers with like denominators by using properties of operations and the relationship between addition and subtraction.		I	M	
	4.NF.21	Replace mixed numbers with equivalent fractions, using visual fraction models.		I	M	
	4.NF.22	Replace improper fractions with a mixed number, using visual fraction models.		I	M	
	4.NF.23	Add and subtract mixed numbers by replacing each mixed number with an equivalent fraction.		I	M	
<b>Build Fractions from Unit Fractions</b> Word Problems with Like Denominators <i>ILS10 4.NF.3</i>	4.NF.24	Add and subtract fractions with like denominators.		I	M	
	4.NF.25	Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, by using visual fraction models and equations to represent the problem.		I	M	

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**Creve Coeur School District 76 Mathematics**

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<b>Build Fractions from Unit Fractions</b> Multiplication with a Numerator of One <i>ILS10 4.NF.4</i>	4.NF.26	Represent a fraction $a/b$ as a multiple of $1/b$ (unit fractions). For example, represent $5/4$ as an accumulation of five $1/4$ s.		I	M	
	4.NF.27	Extend previous understanding about how fractions are built from unit fractions, using the meaning of fractions and the meaning of multiplication to multiply a fraction by a whole number.		I	M	
	4.NF.28	Apply multiplication of whole numbers to multiplication of a fraction by a whole number using visual fraction models. (For example, just as students know that four 3s can be represented by $4 \times 3$ , students know that five $1/4$ s is $5 \times 1/4$ which is $5/4$ .)		I	M	
<b>Build Fractions from Unit Fractions</b> Multiplication with Any Numerator <i>ILS10 4.NF.4</i>	4.NF.29	Extend previous understanding about how fractions are built from unit fractions, composing fractions from unit fractions, decomposing fraction into unit fractions, and using the meaning of fractions and the meaning of multiplication to multiply by a whole number.		I	M	
	4.NF.30	Explain that a multiple of $a/b$ is a multiple of $1/b$ (unit fraction) using a visual fraction model.		I	M	
	4.NF.31	Multiply a fraction by a whole number using the idea that $a/b$ is a multiple of $1/b$ . For example, use a visual fraction model to express $3 \times (2/5)$ as $6 \times (1/5)$ recognizing this product as $(6/5)$ .		I	M	
<b>Build Fractions from Unit Fractions</b> Applying and Extending Operations <i>ILS10 4.NF.4</i>	4.NF.32	Multiply a fraction by a whole number.		I	M	
	4.NF.33	Use fraction models and equations to represent the problem.		I	M	
	4.NF.34	Solve word problems involving multiplication of a fraction by a whole number.		I	M	
<b>Understanding Decimal Notation for Fractions Equivalent Fractions</b> <i>ILS10 4.NF.5</i>	4.NF.35	Rename and recognize a fraction with a denominator of ten as a fraction with a denominator of 100.			I	M
	4.NF.36	Recognize that two fractions (in decimal form) with unlike denominators can be equivalent.			I	M
	4.NF.37	Use knowledge of renaming tenths to hundredths to add two fractions with denominators ten and 100.			I	M
<b>Understanding Decimal Notation for Fractions Decimal Notation</b> <i>ILS10 4.NF.6</i>	4.NF.38	Explain the values of digits in the decimal places.			I	M
	4.NF.39	Read and write decimals through hundredths.			I	M
	4.NF.40	Rename fractions with ten and 100 in the denominator as decimals.			I	M
	4.NF.41	Recognize multiple representations of fractions with denominators ten or 100.			I	M
	4.NF.42	Represent fractions with denominators ten or 100 with multiple representations and decimal notation.			I	M
	4.NF.43	Explain how decimals and fractions relate.			I	M
<b>Understanding Decimal Notation for Fractions Comparing</b> <i>ILS10 4.NF.7</i>	4.NF.44	Recognize that comparisons are valid only when the two decimals refer to the same whole.			I	M
	4.NF.45	Compare two decimals to hundredths by reasoning about their size.			I	M
	4.NF.46	Record the results of comparisons with the symbols $>$ , $=$ , or $<$ .			I	M
	4.NF.47	Justify the conclusions using visual models and other methods.			I	M
<b>Relative Sizes of Measurement Units</b> <i>ILS10 4.MD.1</i>	4.MD.1	Describe the relative size of measurement units (km, m; kg, g; lb, oz; L, mL; hrs, min, sec).			I	M
	4.MD.2	Compare the different units within the same system of measurement (e.g. 1ft=12 in; 1 lb= 16 oz).			I	M
	4.MD.3	Convert larger units of measurement within the same system to smaller units and record conversions in a two-column table.			I	M
<b>Measurement and Conversion Problems</b> <i>ILS10 4.MD.2</i>	4.MD.4	Add, subtract, multiply, and divide fractions and decimals.				M
	4.MD.5	Express measurements given in a larger unit in terms of a smaller unit.				M
	4.MD.6	Solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money.				M
	4.MD.7	Solve word problems involving measurement that include simple fractions or decimals.				M
	4.MD.8	Solve word problems that require expressing measurements given in a larger unit in terms of a smaller unit.				M
	4.MD.9	Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.				M
<b>Perimeter and Area Problems</b> <i>ILS10 4.MD.3</i>	4.MD.10	State that the formula for perimeter of a rectangle is $2L+2W$ or $L+L+W+W$ .	I	M		
	4.MD.11	State that the formula for the area of a rectangle is $L \times W$ .	I	M		
	4.MD.12	Apply the formula for perimeter of a rectangle to solve real world and mathematical problems.	I	M		
	4.MD.13	Apply the formula for area of a rectangle to solve real world and mathematical problems.	I	M		
	4.MD.14	Solve area and perimeter problems in which there is an unknown factor (n).	I	M		

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<b>Data Set of Measurement in Fractions</b> <i>ILS10 4.MD.4</i>	4.MD.15	Add and subtract fractions.				M
	4.MD.16	Analyze and interpret a line plot to solve problems involving addition and subtraction of fraction.				M
	4.MD.17	Create a line plot to display a data set of measurements given in fractions of a unit.				M
<b>Angles</b> <i>ILS10 4.MD.5</i>	4.MD.18	Define angle.				M
	4.MD.19	Recognize a circle as a geometric figure that has 360 degrees.				M
	4.MD.20	Recognize and identify an angle as a geometric shape formed from two rays with a common endpoint.				M
	4.MD.21	Recognize that an angle is a fraction of a 360 degree circle.				M
	4.MD.22	Explain the angle measurement in terms of degrees.				M
	4.MD.23	Compare angles to circles with the angles point at the center of the circle to determine the measure of the angle.				M
	4.MD.24	Calculate angle measurement using the 360 degrees of a circle.				M
<b>Angle Concepts and Measurement</b> <i>ILS10 4.MD.6</i>	4.MD.25	Recognize that angles are measured in degrees (°).				M
	4.MD.26	Read a protractor.				M
	4.MD.27	Determine which scale on the protractor to use, based on the direction the angle is open.				M
	4.MD.28	Determine the kind of angle based on the specified measure to decide reasonableness of the sketch.				M
	4.MD.29	Measure angles in whole number degrees using a protractor.				M
<b>Decomposing Angles</b> <i>ILS10 4.MD.7</i>	4.MD.30	Sketch angles of specified measure.				M
	4.MD.31	Recognize that an angle can be divided into smaller angles.				M
	4.MD.32	Solve addition and subtraction equations to find unknown angle measurements on a diagram.				M
	4.MD.33	Find an angle measure by adding the measurements of the smaller angles that make up the larger angle.				M
	4.MD.34	Find an angle measure by adding the measurements of the smaller angles that make up the larger angle.				M
<b>Drawing Lines and Angles</b> <i>ILS10 4.G.1</i>	4.MD.35	Find an angle measure by subtracting the measurements of the smaller angle from the larger angle.				M
	4.G.1	Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines.				M
<b>Classifying Lines and Angles</b> <i>ILS10 4.G.2</i>	4.G.2	Analyze two-dimensional figures to identify points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines.				M
	4.G.3	Identify parallel or perpendicular lines in two dimensional figures.				M
	4.G.4	Recognize acute, obtuse, and right angles.				M
	4.G.5	Identify right triangles.				M
	4.G.6	Classify two-dimensional figures based on parallel or perpendicular lines and size of angles.				M
<b>Lines of Symmetry</b> <i>ILS10 4.G.3</i>	4.G.7	Classify triangles as right triangles or not right.				M
	4.G.8	Recognize lines of symmetry for a two-dimensional figure.				M
	4.G.9	Recognize a line of symmetry as a line across a figure that when folded along creates matching parts.				M
	4.G.10	Draw lines of symmetry for two-dimensional figures.				M
	4.G.11	Identify line-symmetric figures.				M

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