

Kyrene School District Mathematics Standards
Strand 1: Number and Operations

Concept 1: Number Sense					
Understand and apply numbers, ways of representing numbers, and the relationships among numbers and different number systems.					
Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
PO 1. Express whole numbers 0 to 20 using and connecting multiple representations.	PO 1. Express whole numbers 0 to 100, in groups of tens and ones using and connecting multiple representations.	PO 1. Express whole numbers 0 to 1000, in groups of hundreds, tens and ones using and connecting multiple representations.	PO 1. Express whole numbers through six digits using and connecting multiple representations.	PO 1. Express whole numbers, fractions, decimals, and percents using and connecting multiple representations.	PO 1. Determine equivalence by converting between benchmark fractions, decimals, and percents.
PO 2. Count forward to 20 and backward from 10 with or without objects using different starting points.	PO 2. Count forward to 100 and backward from 100 by 1s and 10s using different starting points, and count forward to 100 by 2s and 5s.	PO 2. Count forward to 1000 and backward from 1000 by 1s, 10s, and 100s using different starting points.			
PO 3. Identify numbers which are one more or less than a given number to 20.	PO 3. Identify numbers which are 10 more or less than a given number to 90.	PO 3. Identify numbers which are 100 more or less than a given number to 900.			
PO 4. Compare and order whole numbers through 20.	PO 4. Compare and order whole numbers through 100 by applying the concepts of place value.	PO 4. Compare and order whole numbers through 1000 by applying the concept of place value.	PO 2. Compare and order whole numbers through six digits by applying the concept of place value.		

Italics denote repetition of an objective.

Bold denotes a KSD objective.

Kyrene School District Mathematics Standards
Strand 1: Number and Operations

Concept 1: Number Sense					
Understand and apply numbers, ways of representing numbers, and the relationships among numbers and different number systems.					
Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
PO 5. Recognize and compare the ordinal position of at least five objects.	PO 5. Recognize and compare ordinal numbers, first through tenth.				
	PO 6. Identify the name and value of penny, nickel, dime and quarter.				
PO 6. Explore coins (penny, nickel, dime, quarter).	PO 7. Count pennies by ones, nickels by fives and dimes by tens to 100. (\$1.00)	PO 5. Count and represent money using coins to \$1.00.	PO 3. Count and represent money using coins and bills to \$100.00.		
PO 7. Count pennies to 20 and backward from 10.					
	PO 8. Explore odd-even numbers to 20.				

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Concept 1: Number Sense					
Understand and apply numbers, ways of representing numbers, and the relationships among numbers and different number systems.					
Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
		PO 6. Sort whole numbers through 1000 into odd and even and justify the sort.	PO 4. Sort whole numbers into sets and justify the sort.	PO 2. Compose and decompose whole numbers using factors and multiples.	PO 2. Differentiate between prime and composite numbers; differentiate between factors and multiples for whole numbers.
			PO 5. Express benchmark fractions as fair sharing, parts of a whole, or parts of a set.	PO 3. Express fractions as fair sharing, parts of a whole, parts of a set, and locations on a number line.	PO 3. Locate positive and negative integers on a number line.
			PO 6. Compare and order benchmark fractions.	PO 4. Compare and order decimals to hundredths.	PO 4. Compare and order positive fractions, decimals, and percents.
				PO 5. Use simple ratios to describe problems in context.	PO 5. Use ratios and unit rates to model, describe and extend problems in context.
					PO 6. Express or interpret positive and negative numbers in context.

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Kyrene School District Mathematics Standards
Strand 1: Number and Operations

Concept 2: Numerical Operations					
Understand and apply numerical operations and their relationship to one another.					
Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
PO 1. Solve contextual problems by developing, applying, and recording strategies with sums and minuends to 10 using objects, pictures, and symbols.	PO 1. Solve contextual problems using multiple representations for addition and subtraction facts.	PO 1. Solve contextual problems using multiple representations involving <ul style="list-style-type: none"> • addition and subtraction with one- and/or two-digit numbers, • multiplication for 1s, 2s, 5s, and 10s, and • adding and subtracting money to \$1.00. 			
	PO 2. Demonstrate addition and subtraction of numbers that total less than 100 using various representations that connect to place value concepts.	PO 2. Demonstrate the ability to add and subtract whole numbers (to two digits) and decimals (in the context of money) <ul style="list-style-type: none"> • with up to three addends and • to \$1.00. 	PO 1. Use multiple strategies to add and subtract whole numbers to four digits and decimals in the context of money. <ul style="list-style-type: none"> • to \$1.00. 	PO 1. Use multiple strategies to add and subtract decimals through hundredths including money to \$1000.00 and fractions with like denominators.	PO 1. Use multiple strategies to add and subtract decimals through thousandths and fractions expressing solutions in simplest form.
	PO 3. Develop and use multiple strategies for addition facts to 10+10 and their related subtraction facts.	PO 3. Demonstrate computational fluency of addition and subtraction facts.			

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e.g. - means for example. This list is not exclusive.

Other examples may apply.

Kyrene School District Mathematics Standards
Strand 1: Number and Operations

Concept 2: Numerical Operations					
Understand and apply numerical operations and their relationship to one another.					
Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
		PO 4. Apply and interpret the concept of addition and subtraction as inverse operations to solve problems.			
PO 3. Create word problems based on sums to 10 and differences with minuends to 10.	PO 4. Create word problems based on addition and subtraction facts.	PO 5. Create and solve word problems based on addition and subtraction of two-digit numbers.	PO 2. Create and solve word problems based on addition, subtraction, multiplication, and division.	PO 7. Create and solve word problems.	PO 6. <i>Create and solve word problems.</i>
		PO 6. Demonstrate the concept of multiplication for 1s, 2s, 5s, and 10s.	PO 3. Demonstrate the concept of multiplication and division using multiple models.	PO 2. Use multiple strategies to multiply whole numbers • two-digit by two-digit and • multi-digit by one-digit.	PO 2. Use multiple strategies to multiply multi-digit whole numbers.
			PO 4. Demonstrate computational fluency of multiplication and division facts through 10.	PO 3. Demonstrate computational fluency of multiplication and division facts through 12.	
			PO 5. Apply and interpret the concept of multiplication and division as inverse operations to solve problems.	PO 4. Use multiple strategies to divide whole numbers.	PO 3. Use multiple strategies to divide multi-digit whole numbers by whole number divisors with and without remainders.

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Kyrene School District Mathematics Standards
Strand 1: Number and Operations

Concept 2: Numerical Operations					
Understand and apply numerical operations and their relationship to one another.					
Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
		PO 7. Describe the effect of operations (addition and subtraction) on the size of whole numbers.	PO 6. Describe the effect of operations (multiplication and division) on the size of whole numbers.		
	PO 5. Apply properties to solve addition/subtraction problems • identity property of addition/subtraction and • commutative property of addition.	PO 8. Apply properties to solve addition/subtraction problems • identity property of addition/ subtraction, • commutative property of addition, and • associative property of addition.	PO 7. Apply commutative, identity, and zero properties to multiplication and apply the identity property to division.	PO 5. Apply associative and distributive properties to solve multiplication and division problems.	PO 4. Apply the associative, commutative, and distributive properties to solve numerical problems.
				PO 6. Apply order of operations with whole numbers.	PO 5. Simplify numerical expressions (including fractions and decimals) using the order of operations with or without grouping symbols.

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Kyrene School District Mathematics Standards
Strand 1: Number and Operations

Concept 3: Estimation					
Use estimation strategies reasonably and fluently while integrating content from each of the other strands.					
Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
PO 1. Identify quantities to 20 as more or less than 5 or as more or less than 10.	PO 1. Use estimation to determine if sums are more or less than 5, more or less than 10, or more or less than 20.	PO 1. Use estimation to determine if sums of two 2-digit numbers are more or less than 20, more or less than 50, or more or less than 100.		PO 1. Use benchmarks as meaningful points of comparison for whole numbers, decimals, and fractions.	
			PO 1. Make estimates appropriate to a given situation or computation with whole numbers.	PO 2. Make estimates appropriate to a given situation or computation with whole numbers and benchmark fractions.	PO 1. Make estimates appropriate to a given situation or computation with whole numbers, fractions, and decimals.

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Kyrene School District Mathematics Standards
Strand 2: Data Analysis, Probability, and Discrete Mathematics

Concept 1: Data Analysis (Statistics)					
Understand and apply data collection, organization, and representation to analyze and sort data.					
Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
PO 1. Construct simple displays of data using objects or pictures.	PO 1. Collect, record, organize, and display data using tally charts or pictographs.	PO 1. Collect, record, organize, and display data using pictographs, frequency tables, or single bar graphs.	PO 1. Collect, record, organize, and display data using frequency tables, single bar graphs, or single line graphs.	PO 1. Collect, record, organize, and display data using double bar graphs, single line graphs, or circle graphs.	PO 1. Collect, record, organize, and display data using multi-bar graphs or double line graphs.
PO 2. Ask and answer questions by counting, comparing quantities, and interpreting simple displays of data including pictograph.	PO 2. Ask and answer questions by interpreting simple displays of data, including tally charts or pictographs.	PO 2. Formulate and answer questions by interpreting displays of data, including pictographs, frequency tables, or single bar graphs.	PO 2. Formulate and answer questions by interpreting and analyzing displays of data, including frequency tables, single bar graphs, or single line graphs.	PO 2. Formulate and answer questions by interpreting and analyzing displays of data, including double bar graphs, single line graphs, or circle graphs.	PO 2. Formulate and answer questions by interpreting and analyzing displays of data, including multi-bar graphs or double line graphs.
				PO 3. Use median, mode, and range to describe the distribution of a given data set.	PO 3. Use mean, median, mode, and range to analyze and describe the distribution of a given data set.
				PO 4. Compare two sets of related data.	

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Kyrene School District Mathematics Standards
Strand 2: Data Analysis, Probability, and Discrete Mathematics

Concept 2: Probability					
Understand and apply the basic concepts of probability.					
Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
				PO 1. Describe elements of theoretical probability by listing or drawing all possible outcomes of a given event and predicting the outcome using word and number benchmarks.	PO 1. Describe the theoretical probability of events and represent the probability as a fraction, decimal, or percent.
					PO 2. Explore probability when performing experiments by <ul style="list-style-type: none"> • predicting the outcome, • recording the data, • comparing outcomes of the experiment to predictions, and • comparing the results of multiple repetitions of the experiment.

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Kyrene School District Mathematics Standards
Strand 2: Data Analysis, Probability, and Discrete Mathematics

Concept 3: Systematic Listing and Counting					
Understand and demonstrate the systematic listing and counting of possible outcomes.					
Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
PO 1. Sort, classify, count, and represent up to 20 objects and justify the sorting rule.	PO 1. Use Venn diagrams to sort, classify, and count objects and justify the sorting rule.	PO 1. List all possibilities in counting situations.	PO 1. Represent all possibilities for a variety of counting problems using arrays, charts, and systematic lists; draw conclusions from these representations.	PO 1. Construct tree diagrams to solve problems in context by <ul style="list-style-type: none"> • representing all possibilities for a variety of counting problems, • explaining how its properties relate to the problem, • representing the same counting problem in multiple ways, and • drawing conclusions. 	PO 1. Analyze relationships among representations and make connections to the multiplication principle of counting.
		PO 2. Solve a variety of problems based on the addition principle of counting.	PO 2. Solve a variety of problems based on the multiplication principle of counting.	PO 2. Justify that all possibilities have been enumerated without duplication.	PO 2. Solve a variety of counting problems and explain the multiplication principle of counting.

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Kyrene School District Mathematics Standards
Strand 2: Data Analysis, Probability, and Discrete Mathematics

Concept 4: Vertex-Edge Graphs Understand and apply vertex-edge graphs.					
Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
	PO 1. Explore coloring simple pictures or maps using the least amount of colors.	PO 1. Color simple pictures or maps using the least number of colors and justify the coloring.	PO 1. Color complex maps using the least number of colors and justify the coloring.	PO 1. Demonstrate the connection between map coloring and vertex coloring.	
		PO 2. Build vertex-edge graphs using concrete materials and explore properties of vertex-edge graphs <ul style="list-style-type: none"> • number of vertices and edges, • neighboring vertices, and • paths in a graph. 	PO 2. Investigate properties of vertex-edge graphs <ul style="list-style-type: none"> • circuits in a graph, • weights on edges, and • shortest path between two vertices. 	PO 2. Construct vertex-edge graphs to represent concrete situations and identify paths and circuits.	PO 1. Investigate properties of vertex-edge graphs <ul style="list-style-type: none"> • Euler paths, • Euler circuits, and • degree of a vertex.
		PO 3. Construct simple vertex-edge graphs from simple pictures	PO 3. Solve problems using vertex-edge graphs.	PO 3. Solve conflict problems by constructing and coloring vertex-edge graphs.	PO 2. Solve problems related to Euler paths and circuits.

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Kyrene School District Mathematics Standards
Strand 3: Patterns, Algebra, and Functions

Concept 1: Patterns					
Identify patterns and apply pattern recognition to reason mathematically while integrating content from each of the other strands.					
Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
PO 1. Recognize, describe, extend, create, and record simple repeating patterns.	PO 1. Recognize, describe, extend, create, and record repeating patterns.	PO 1. Recognize, describe, extend, create, and find missing terms in a numerical, symbolic or growing pattern.	PO 1. Recognize, describe, extend, create, and find missing terms in a numerical sequence.	PO 1. Recognize, describe, create, extend, and find missing terms in a numerical sequence involving whole numbers using all four basic operations.	PO 1. Recognize, describe, create, and analyze a numerical sequence involving fractions and decimals using addition and subtraction.
PO 2. Recognize, describe, extend, and record simple growing patterns.	PO 2. Recognize, describe, extend, create, and record growing patterns.				
		PO 2. Explain the rule for a given numerical or symbolic pattern and verify that the rule works.	PO 2. Explain the rule for a given numerical sequence and verify that the rule works.	PO 2. Explain the rule for a given numerical sequence, verify that the rule works, and use the rule to make predictions.	

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Kyrene School District Mathematics Standards
Strand 3: Patterns, Algebra, and Functions

Concept 2: Functions and Relationships Describe and model functions and their relationships.					
Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
		PO 1. Describe a rule that represents a given relationship between two quantities using words or pictures.	PO 1. Recognize and describe a relationship between two quantities, given by a chart, table, or graph, in which the quantities change proportionally, using words, pictures, or expressions.		
			PO 2. Translate between the different representations of whole number relationships, including symbolic, numerical, verbal, or pictorial.		

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Kyrene School District Mathematics Standards
Strand 3: Patterns, Algebra, and Functions

Concept 3: Algebraic Representations					
Represent and analyze mathematical situations and structures using algebraic representations.					
Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
PO 1. Record equivalent forms of whole numbers to 10 by constructing models and using numbers.	PO 1. Record equivalent forms of whole numbers to 100 by constructing models and using numbers.	PO 1. Record equivalent forms of whole numbers to 1000 by constructing models and using numbers.	PO 1. Record equivalent forms of whole numbers to six digits by constructing models and using numbers.		
PO 2. Compare expressions using spoken words and the symbol =.	PO 2. Compare expressions using spoken words and the symbols = and \neq .	PO 2. Compare expressions using spoken words and the symbols =, \neq , $<$, and $>$.			
	PO 3. Represent a word problem requiring addition or subtraction facts using an equation.	PO 3. Represent a word problem requiring addition or subtraction through 100 using an equation.			
		PO 4. Identify the value of an unknown number in an equation involving an addition or subtraction fact.	PO 2. Use a symbol to represent an unknown quantity in a given context.	PO 1. Use a symbol to represent an unknown quantity in a simple algebraic expression involving all operations.	
			PO 3. Create and solve simple one-step equations that can be solved using addition and multiplication facts.	PO 2. Create and solve one-step equations that can be solved using addition, subtraction, multiplication, and division of whole numbers.	PO 1. Create and solve two-step equations that can be solved using inverse operations with whole numbers.

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Kyrene School District Mathematics Standards
Strand 3: Patterns, Algebra, and Functions

Concept 4: Analysis of Change					
Analyze how changing the values of one quantity corresponds to change in the values of another quantity.					
Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
				PO 1. Identify the change in a quantity over time and make simple predictions.	PO 1. Describe patterns of change including constant rate and increasing or decreasing rate.

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**Kyrene School District Mathematics Standards
Strand 4: Geometry and Measurement**

Concept 1: Geometric Properties					
Analyze the attributes and properties of 2- and 3- dimensional figures and develop mathematical arguments about their relationships.					
Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
PO 1. Identify, analyze, and describe circles, triangles, and rectangles (including squares) in different orientations and environments.	PO 1. Identify and draw 2-dimensional geometric figures based on given attributes regardless of size or orientation.			PO 1. Draw and describe the relationships between points, lines, line segments, rays, and angles including parallelism and perpendicularity.	PO 1. Draw and label 2-dimensional figures given specific attributes including angle measure and side length.
PO 2. Build, draw, compare, describe, and sort 2-dimensional figures (including irregular figures) using attributes.	PO 2. Compare and sort basic 2-dimensional figures (including irregular figures) using attributes and explain the reasoning for the sorting.	PO 1. Describe and compare the attributes of polygons up to six sides using the terms side, vertex, point, and length.	PO 1. Describe sequences of 2-dimensional figures created by increasing the number of sides, changing size, or changing orientation.	PO 2. Justify which objects in a collection match a given geometric description.	PO 2. Solve problems by understanding and applying the property that the sum of the interior angles of a triangle is 180° .
		PO 2. Describe the results of composing and decomposing 2-dimensional figures.		PO 3. Describe and classify triangles by angles and sides.	PO 3. Classify quadrilaterals by their properties.
				PO 4. Recognize which attributes (such as shape or area) change and which do not change when 2-dimensional figures are cut up or rearranged.	

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Kyrene School District Mathematics Standards
Strand 4: Geometry and Measurement

Concept 1: Geometric Properties					
Analyze the attributes and properties of 2- and 3- dimensional figures and develop mathematical arguments about their relationships.					
Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
			PO 2. Recognize similar figures.	PO 5. Recognize and draw congruent figures, and match them in a given collection.	
				PO 6. Draw right, acute, obtuse, and straight angles and identify these angles in other geometric figures.	
			PO 3. Identify and describe 3-dimensional figures including their relationship to real world objects: sphere, cube, cone, cylinder, pyramids, and rectangular prisms.	PO 7. Recognize the relationship between a 3-dimensional figure and its corresponding net(s).	
			PO 4. Describe and compare attributes of two- and three-dimensional figures.		PO 4. Compare attributes of 2-dimensional figures with 3-dimensional figures by drawing and constructing nets and models.

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Kyrene School District Mathematics Standards
Strand 4: Geometry and Measurement

Concept 2: Transformation of Shapes					
Apply spatial reasoning to create transformations and use symmetry to analyze mathematical situations.					
Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
			PO 1. Identify a translation, reflection, or rotation and model its effect on a 2-dimensional figure.		
		PO 1. Identify, with justification, whether a 2-dimensional figure has lines of symmetry.	PO 2. Identify, with justification, all lines of symmetry in a 2-dimensional figure.		

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Kyrene School District Mathematics Standards
Strand 4: Geometry and Measurement

Concept 3: Coordinate Geometry					
Specify and describe spatial relationships using rectangular and other coordinate systems while integrating content from each of the other strands.					
Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
				PO 1. Name, locate, and graph points in the first quadrant of the coordinate plane using ordered pairs.	
				PO 2. Plot line segments in the first quadrant of the coordinate plane using a set of ordered pairs in a table.	
				PO 3. Construct geometric figures with vertices at points on the coordinate plane.	

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Kyrene School District Mathematics Standards
Strand 4: Geometry and Measurement

Concept 4: Measurement					
Understand and apply appropriate units of measure, measurement techniques, and formulas to determine measurements.					
Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
PO 1. Compare and order objects according to observable and measureable attributes.	PO 1. Compare and order objects according to length, capacity, and weight.				
PO 2. Use the attribute of length to describe and compare objects using non-standard units.	PO 2. Measure and compare the length of objects using the benchmark of one inch.				
	PO 3. Sequence the days of the week and the months of the year.				
PO 3. Explore vocabulary used to describe the time of day (morning, noon, night).	PO 4. Tell time to the hour.	PO 1. Tell time to the nearest minute using analog and digital clocks.	PO 1. Determine elapsed time • across months using a calendar • by hours and half hours using a clock.	PO 1. Compute elapsed time to the minute.	PO 1. Solve problems using elapsed time.
		PO 2. Apply measurement skills to measure the attributes of an object (length, capacity, weight).	PO 2. Apply measurement skills to measure length, weight, and capacity using US Customary units.	PO 2. Apply measurement skills to measure length, mass, and capacity using metric units.	PO 2. State an appropriate measure and degree of accuracy in a given context.
		PO 3. Read temperatures on a thermometer using Fahrenheit and Celsius.			
					PO 3. Measure angles between 0 and 360 degrees.

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Kyrene School District Mathematics Standards
Strand 4: Geometry and Measurement

Concept 4: Measurement					
Understand and apply appropriate units of measure, measurement techniques, and formulas to determine measurements.					
Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
		PO 4. Demonstrate unit conversions <ul style="list-style-type: none"> • 1 foot = 12 inches, • 1 quart = 4 cups, • 1 pound = 16 ounces, • 1 hour = 60 minutes, • 1 day = 24 hours, • 1 week = 7 days, and • 1 year = 12 months. 	PO 3. Convert units of length, weight, and capacity <ul style="list-style-type: none"> • inches or feet to yards, • ounces to pounds, and • cups to pints, pints to quarts, quarts to gallons. 	PO 3. Solve problems involving conversions within the same measurement system.	
			PO 4. Determine the area of a rectangular figure using an array model.		PO 4. Solve problems involving the area of 2-dimensional figures by using the properties of parallelograms and triangles.
			PO 5. Measure and calculate perimeter of 2-dimensional figures.	PO 4. Solve problems involving perimeter of 2-dimensional figures and area of rectangles.	PO 5. Solve problems involving area and perimeter of regular and irregular polygons using reallotment of square units.
				PO 5. Describe the change in perimeter or area when one attribute (length or width) of a rectangle changes.	

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Kyrene School District Mathematics Standards
Strand 5: Structure and Logic

Concept 1: Algorithms and Algorithmic Thinking Use reasoning to solve mathematical problems.					
Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
				PO 1. Analyze common algorithms for computing (adding, subtracting, multiplying, and dividing) with whole numbers using the associative, commutative, and distributive properties.	PO 1. Analyze common algorithms for adding and subtracting fractions and decimals using the associative, commutative, and distributive properties.
					PO 2. Develop an algorithm or formula to calculate areas and perimeters of simple polygons.

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Kyrene School District Mathematics Standards
Strand 5: Structure and Logic

Concept 2: Logic, Reasoning, Problem Solving, and Proof					
Evaluate situations, select problem-solving strategies, draw logical conclusions, develop and describe solutions, and recognize their applications.					
Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
PO 1. Identify the question(s) asked and any other questions that need to be answered in order to find a solution.	PO 1. Identify the question(s) asked and any other questions that need to be answered in order to find a solution.	PO 1. Identify the question(s) asked and any other questions that need to be answered in order to find a solution.	PO 1. Analyze a problem situation to determine the question(s) to be answered.	PO 1. Analyze a problem situation to determine the question(s) to be answered.	PO 1. Analyze a problem situation to determine the question(s) to be answered.
PO 2. Identify the given information that can be used to find a solution.	PO 2. Identify the given information that can be used to find a solution.	PO 2. Identify the given information that can be used to find a solution.	PO 2. Identify relevant, missing, and extraneous information related to the solution to a problem.	PO 2. Identify relevant, missing, and extraneous information related to the solution to a problem.	PO 2. Identify relevant, missing, and extraneous information related to the solution to a problem.
PO 3. Select from a variety of problem-solving strategies and use one or more strategies to arrive at a solution.	PO 3. Select from a variety of problem-solving strategies and use one or more strategies to arrive at a solution.	PO 3. Select from a variety of problem-solving strategies and use one or more strategies to arrive at a solution.	PO 3. Select and use one or more strategies to efficiently solve the problem and justify the selection.	PO 3. Select and use one or more strategies to efficiently solve the problem and justify the selection.	PO 3. Select and use one or more strategies to efficiently solve the problem and justify the selection.
			PO 4. Determine whether a problem to be solved is similar to previously solved problems, and identify possible strategies for solving the problem.	PO 4. Determine whether a problem to be solved is similar to previously solved problems, and identify possible strategies for solving the problem.	PO 4. Determine whether a problem to be solved is similar to previously solved problems, and identify possible strategies for solving the problem.
PO 4. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols.	PO 4. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols.	PO 4. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols.	PO 5. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols.	PO 5. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols.	PO 5. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols.

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Kyrene School District Mathematics Standards
Strand 5: Structure and Logic

Concept 2: Logic, Reasoning, Problem Solving, and Proof					
Evaluate situations, select problem-solving strategies, draw logical conclusions, develop and describe solutions, and recognize their applications.					
Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
PO 5. Explain and clarify mathematical thinking.	PO 5. Explain and clarify mathematical thinking.	PO 5. Explain and clarify mathematical thinking.	PO 6. Summarize mathematical information, explain reasoning, and draw conclusions.	PO 6. Summarize mathematical information, explain reasoning, and draw conclusions.	PO 6. Summarize mathematical information, explain reasoning, and draw conclusions.
PO 6. Determine whether a solution is reasonable.	PO 6. Determine whether a solution is reasonable.	PO 6. Determine whether a solution is reasonable.	PO 7. Analyze and evaluate whether a solution is reasonable, is mathematically correct, and answers the question.	PO 7. Analyze and evaluate whether a solution is reasonable, is mathematically correct, and answers the question.	PO 7. Analyze and evaluate whether a solution is reasonable, is mathematically correct, and answers the question.
			PO 8. Make and test conjectures based on data (or information) collected from explorations and experiments.	PO 8. Make and test conjectures based on data (or information) collected from explorations and experiments.	PO 8. Make and test conjectures based on data or information collected from explorations and experiments.
					PO 9. Identify simple valid arguments using <i>if...then</i> statements based on graphic organizers.
					PO 10. Construct <i>if... then</i> statements to generalize rules for computation, geometric properties and algebraic functions.

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