Arizona Academic Standards, Grade 3
correlated to
Academic Language Notebooks, The Language of Math
Level C

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.	Unit 1: Place Value and Number Sense
PO 1. Express whole numbers through six digits using and connecting multiple representations.	Module 2: Compare and Order Whole Numbers
PO 2. Compare and order whole numbers through six digits by applying the concept of place value.	Module 1: Place Value Module 2: Compare and Order Whole Numbers
PO 3. Count and represent money using coins and bills to $100.00.	Module 4: Count Money and Make Change
PO 4. Sort whole numbers into sets and justify the sort.	
PO 5. Express benchmark fractions as fair sharing, parts of a whole, or parts of a set.	
PO 6. Compare and order benchmark fractions.	
Concept 2: Numerical Operations Understand and apply numerical operations and their relationship to one another.	Unit 2: Add and Subtract Whole Numbers Unit 3: Multiplication and Division Concepts and Facts
PO 1. Add and subtract whole numbers to four digits.	Module 5: Addition and Subtraction Basic Concepts
PO 2. Create and solve word problems based on addition, subtraction, multiplication, and division.	Module 5: Addition and Subtraction Basic Concepts Module 8: Multiplication Concepts Module 9: Multiplication Facts Module 10: Division Concepts Module 11: Relation of Multiplication and Division Module 12: Division Facts
PO 3. Demonstrate the concept of multiplication and division using multiple models.	Module 8: Multiplication Concepts Module 9: Multiplication Facts Module 10: Division Concepts Module 11: Relation of Multiplication and Division Module 12: Division Facts
PO 4. Demonstrate fluency of multiplication and division facts through 10.	Module 9: Multiplication Facts Module 12: Division Facts
PO 5. Apply and interpret the concept of multiplication and division as inverse operations to solve problems.	Module 11: Relation of Multiplication and Division
PO 6. Describe the effect of operations (multiplication and division) on the size of whole numbers.	Unit 8: Multiplication and Division of Whole Numbers
PO 7. Apply commutative, identity, and zero properties to multiplication and apply the identity property to division.	

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Concept 3: Estimation Use estimation strategies reasonably and fluently while integrating content from each of the other strands.	
PO 1. Collect, record, organize, and display data using frequency tables, single bar graphs, or single line graphs.	Module 18: Collect and Organize Data Module 19: Data and Graphs
PO 2. Formulate and answer questions by interpreting and analyzing displays of data, including frequency tables, single bar graphs, or single line graphs.	Module 18: Collect and Organize Data Module 19: Data and Graphs
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.	Module 18: Collect and Organize Data Module 19: Data and Graphs
PO 1. Collect, record, organize, and display data using frequency tables, single bar graphs, or single line graphs.	Module 18: Collect and Organize Data Module 19: Data and Graphs
PO 2. Formulate and answer questions by interpreting and analyzing displays of data, including frequency tables, single bar graphs, or single line graphs.	Module 18: Collect and Organize Data Module 19: Data and Graphs
Concept 3: Systematic Listing and Counting Understand and demonstrate the systematic listing and counting of possible outcomes.	
PO 1. Represent all possibilities for a variety of counting problems using arrays, charts, and systematic lists; draw conclusions from these representations.	
PO 2. Solve a variety of problems based on the multiplication principle of counting.	
Concept 4: Vertex-Edge Graphs Understand and apply vertex-edge graphs.	
PO 1. Color complex maps using the least number of colors and justify the coloring.	
PO 2. Investigate properties of vertex-edge graphs • circuits in a graph, • weights on edges, and • shortest path between two vertices.	
PO 3. Solve problems using vertex-edge graphs.	

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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.	
PO 1. Recognize, describe, extend, create, and find missing terms in a numerical sequence.	
PO 2. Explain the rule for a given numerical sequence and verify that the rule works.	
Concept 2: Functions and Relationships Describe and model functions and their relationships.	
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.	
Concept 3: Algebraic Representations Represent and analyze mathematical situations and structures using algebraic representations.	
PO 1. Record equivalent forms of whole numbers to six digits by constructing models and using numbers.	
PO 2. Use a symbol to represent an unknown quantity in a given context.	
PO 3. Create and solve simple one-step equations that can be solved using addition and multiplication facts.	
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.	
PO 1. Describe sequences of 2-dimensional figures created by increasing the number of sides, changing size, or changing orientation.	Module 20: Lines, Line Segments, Rays, and Angles Module 21: Plane Figures
PO 2. Recognize similar figures.	Unit 6: Geometry

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PO 3. Identify and describe 3-dimensional figures including their relationship to real world objects: sphere, cube, cone, cylinder, pyramids, and rectangular prisms.	Module 23: Solid Figures
PO 4. Describe and compare attributes of two- and three-dimensional figures.	Unit 6: Geometry
Concept 2: Transformation of Shapes Apply spatial reasoning to create transformations and use symmetry to analyze mathematical situations.	
PO 1. Identify a translation, reflection, or rotation and model its effect on a 2-dimensional figure.	
PO 2. Identify, with justification, all lines of symmetry in a 2-dimensional figure.	
Concept 4: Measurement Understand and apply appropriate units of measure, measurement techniques, and formulas to determine measurements.	Unit 4: Measurement
PO 1. Determine elapsed time • across months using a calendar • by hours and half hours using a clock.	Module 15: Clock Time Module 16: Calendar Time
PO 2. Apply measurement skills to measure length, weight, and capacity using US Customary units.	Module 13: Linear Measurement Module 14: Measurement of Capacity and Weight or Mass
PO 4. Determine the area of a rectangular figure using an array model.	Module 24: Perimeter, Area, and Volume
PO 5. Measure and calculate perimeter of 2-dimensional figures.	Module 24: Perimeter, Area, and Volume
PO 3. Convert units of length, weight, and capacity • inches or feet to yards, • ounces to pounds, and • cups to pints, pints to quarts, quarts to gallons.	Unit 4: Measurement
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.	
PO 1. Analyze a problem situation to determine the question(s) to be answered.	
PO 2. Identify relevant, missing, and extraneous information related to the solution to a problem.	
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 5. Represent a problem situation using any	

combination of words, numbers, pictures, physical objects, or symbols.	
PO 6. Summarize mathematical information, explain reasoning, and draw conclusions.	
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.	