Arizona Academic Standards, Grade 5
correlated to
Academic Language Notebooks, The Language of Math
Level E

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.	
PO 1. Determine equivalence by converting between benchmark fractions, decimals, and percents.	Module 2: Compare and Order Whole Numbers and Decimals Module 13: Compare and Order Fractions
PO 2. Differentiate between prime and composite numbers; differentiate between factors and multiples for whole numbers.	Module 9: Factors and Divisibility Module 10: Common Factors and Common Multiples
PO 3. Locate integers on a number line.	
PO 4. Compare and order positive fractions, decimals, and percents.	Module 13: Compare and Order Fractions
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.	
Concept 2: Numerical Operations Understand and apply numerical operations and their relationship to one another.	
PO 1. Add and subtract decimals through thousandths and fractions expressing solutions in simplest form.	Module 5: Estimate Whole Numbers and Decimals
PO 2. Multiply multi-digit whole numbers.	Module 6: Patterns and Estimation in Multiplication Module 7: Properties of Multiplication
PO 3. Divide multi-digit whole numbers by whole number divisors with and without remainders.	Module 8: Patterns and Estimation in Division
PO 4. Apply the associative, commutative, and distributive properties to solve numerical problems.	Module 4: Properties of Addition
PO 5. Simplify numerical expressions (including fractions and decimals) using the order of operations with or without grouping symbols.	
Concept 3: Estimation Use estimation strategies reasonably and fluently while integrating content from each of the other strands.	
PO 1. Make estimates appropriate to a given situation or computation with whole numbers, fractions, and decimals.	Module 5: Estimate Whole Numbers and Decimals Module 6: Patterns and Estimation in Multiplication Module 8: Patterns and Estimation in Division

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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.	
PO 1. Collect, record, organize, and display data using multi-bar graphs or double line graphs.	Module 24: Make and Read Graphs
PO 2. Formulate and answer questions by interpreting and analyzing displays of data, including multi-bar graphs or double line graphs.	Module 24: Make and Read Graphs Module 25: Statistics and Data Analysis
PO 3. Use mean, median, mode, and range to analyze and describe the distribution of a given data set.	Module 25: Statistics and Data Analysis
Concept 2: Probability Understand and apply the basic concepts of probability.	
PO 1. Describe the theoretical probability of events and represent the probability as a fraction, decimal, or percent.	Module 28: Probability
PO 2. Explore probability when performing experiments by • predicting the outcome, • recording the data, • comparing outcomes of the experiment to predictions, and • comparing the results of multiple repetitions of the experiment.	Module 28: Probability
Concept 3: Systematic Listing and Counting Understand and demonstrate the systematic listing and counting of possible outcomes.	
PO 1. Analyze relationships among representations and make connections to the multiplication principle of counting.	
PO 2. Solve a variety of counting problems and explain the multiplication principle of counting.	

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Concept 4: Vertex-Edge Graphs Understand and apply vertex-edge graphs.	
PO 1. Investigate properties of vertex-edge graphs • Euler paths, • Euler circuits, and • degree of a vertex.	
PO 2. Solve problems related to Euler paths and circuits.	
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, create, and analyze a numerical sequence involving fractions and decimals using addition and subtraction.	Module 29: Write and Solve Equations Module 30: Functions and Ordered Pairs
Concept 3: Algebraic Representations Represent and analyze mathematical situations and structures using algebraic representations.	
PO 1. Create and solve two-step equations that can be solved using inverse operations with whole numbers.	Module 29: Write and Solve Equations Module 30: Functions and Ordered Pairs
Concept 4: Analysis of Change Analyze how changing the values of one quantity corresponds to change in the values of another quantity.	
PO 1. Describe patterns of change including constant rate and increasing or decreasing rate.	
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. Draw and label 2-dimensional figures given specific attributes including angle measure and side length.	Module 16: Points Lines, Rays, and angles Module 17: Triangles, Polygons, and Quadilaterals Module 19: Circles
PO 2. Solve problems by understanding and applying the property that the sum of the interior angles of a triangle is 180˚.	
PO 3. Classify quadrilaterals by their properties.	Module 17: Triangles, Polygons, and Quadrilaterals

PO 4. Compare attributes of 2-dimensional figures with 3-dimensional figures by drawing and constructing nets and models.	
Concept 4: Measurement Understand and apply appropriate units of measure, measurement techniques, and formulas to determine measurements.	
PO 1. Solve problems using elapsed time.	
PO 2. State an appropriate measure and degree of accuracy in a given context.	Unit 7: Measurement
PO 3. Measure angles between 0 and 360 degrees.	
PO 4. Solve problems involving the area of 2-dimensional figures by using the properties of parallelograms and triangles.	
PO 5. Solve problems involving area and perimeter of regular and irregular polygons using reallotment of square units.	
Strand 5: Structure and Logic	
Concept 1: Algorithms and Algorithmic Thinking Use reasoning to solve mathematical problems.	
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.	
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.	
PO 9. Identify simple valid arguments using *if…then* statements based on graphic organizers.	
PO 10. Construct *if… then* statements to generalize rules for computation, geometric properties and algebraic functions.	