



**Arizona Math Standards /Excel Math Correlation**  
**5th Grade**

<b>ARIZONA MATH STANDARDS</b>	<b>Excel Math Lesson Numbers</b>	<b>Stretch Lesson Numbers Activity Numbers</b>
<b>Strand 1: Number Sense and Operations</b>		
Every student should understand and use all concepts and skills from the previous grade levels. The standards are designed so that new learning builds on preceding skills and are needed to learn new skills. Communication, Problem-solving, Reasoning & Proof, Connections, and Representation are the process standards that are embedded throughout the teaching and learning of mathematical strands.		
<b>Concept 1: Number Sense</b>		
Understand and apply numbers, ways of representing numbers, the relationships among numbers and different number systems.		
PO 1. Make models that represent improper fractions.	68, 77, 78, 99, 127	
PO 2. Identify symbols, words, or models that represent improper fractions.	68, 77, 127	
PO 3. Use improper fractions in contextual situations.	55, 145	
PO 4. Compare two proper fractions or improper fractions with like denominators.	15, 31, 43, 68, 77, 99, 105, 127	
PO 5. Order three or more unit fractions, proper or improper fractions with like denominators, or mixed numbers with like denominators.	43, 78, 148	
PO 6. Compare two whole numbers, fractions, and decimals (e.g., $\frac{1}{2}$ to 0.6).	31, 39, 65, 83, 85, 105, 109, 112, 113, 116, 117, 120, 125, 136, 148	82, 91, 97, 144
PO 7. Order whole numbers, fractions, and decimals.	78, 98, 148	
PO 8. Determine the equivalency between and among fractions, decimals, and percents in contextual situations.	31, 39, 50, 59, 65, 83, 109, 112, 113, 116, 117, 125, 130, 136, 142, 149	128 Activity 14
PO 9. Identify all whole number factors and pairs of factors for a number.	1, 11, 28, 29, 38, 49, 61, 73, 88, 91, 138	
PO 10. Recognize that 1 is neither a prime nor a composite number.	62, 93, 96	
PO 11. Sort whole numbers (through 50) into sets containing only prime numbers or only composite numbers.	*9, 62, 93	
<b>Concept 2: Numerical Operations</b>		
Understand and apply numerical operations and their relationship to one another.		



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PO 1. Select the grade-level appropriate operation to solve word problems.	2, 5, 7, 9, 10, 13, 16, 25, 29, 44, 55, 58, 63, 69, 70, 73, 74, 79, 82, 89, 97, 99, 102, 103, 109, 114, 117, 130, 133, 135, 142, 149	6, 7, 10, 11, 14, 16, 17, 19, 23, 24, 26, 27, 29, 30, 33, 35, 36, 37, 38, 39, 42, 44, 46, 51, 53, 54, 55, 56, 58, 61, 62, 64, 67, 68, 70, 72, 75, 79, 80, 83, 89, 90, 95, 98, 99, 102, 111, 114, 115, 117, 118, 120, 121, 122, 124, 125, 126, 127, 128, 129, 130, 133, 137, 138
PO 2. Solve word problems using grade-level appropriate operations and numbers.	2, 5, 9, 10, 13, 16, 25, 29, 44, 55, 57, 58, 63, 69, 70, 73, 74, 79, 82, 89, 92, 97, 99, 102, 103, 109, 114, 117, 130, 133, 135, 142, 149	6, 7, 10, 11, 14, 16, 17, 19, 23, 24, 26, 27, 29, 30, 33, 35, 36, 37, 38, 39, 42, 44, 46, 51, 53, 54, 55, 56, 58, 61, 62, 64, 67, 68, 70, 72, 75, 79, 80, 89, 95, 98, 99, 102, 111, 114, 115, 117, 118, 120, 121, 122, 124, 125, 126, 127, 128, 129, 130, 133, 137, 138
PO 3. Multiply whole numbers.	2, 11, 16, 18, 19, 22, 24, 27, 32, 33, 34, 36, 37, 38, 46, 47, 48, 49, 55, 56, 61, 73, 74, 79, 80, 84, 94, 100, 102, 103, 107, 114, 119, 128, 138, 139, 141	10, 11, 17, 19, 21, 29, 32, 41, 52, 55, 61, 70, 74, 80, 87, 89, 95, 99, 102, 110, 113, 122, 125, 128, 129, 130, 133, 137, 138, 143, 147
PO 4. Divide with whole numbers.	11, 21, 24, 26, 27, 29, 33, 34, 36, 38, 44, 46, 47, 49, 51, 58, 63, 71, 73, 74, 79, 86, 94, 100, 101, 102, 103, 111, 119, 121, 128, 131, 132, 135, 141, 146	11, 17, 19, 21, 29, 44, 55, 80, 87, 89, 95, 98, 99, 110, 125, 127, 128, 130, 133, 137
PO 5. Demonstrate the distributive property of multiplication over addition.	2, 16, 19, 32, 96	
PO 6. Demonstrate the addition and multiplication properties of equality.	2, 16, 32, 96, 124	
PO 7. Apply grade-level appropriate properties to assist in computation.	2, 3, 4, 11, 16, 18, 19, 21, 22, 26, 27, 29, 32, 33, 34, 37, 44, 49, 50, 73, 74, 79, 92, 94, 97, 99, 101, 102, 103, 119, 124, 128, 131, 132, 138, 141, 146, 147	2, 3, 8, 14, 17, 19, 22, 27, 29, 33, 36, 44, 54, 55, 58, 61, 64, 66, 67, 70, 72, 74, 79, 80, 81, 84, 89, 95, 98, 99, 103, 111, 113, 114, 117, 118, 121, 122, 124, 125, 127, 128, 130, 132, 133, 137, 138 Activity 5
PO 8. Apply the symbol “[ ]” to represent grouping.	18, 19, 96	*70, 110, 120
PO 9. Use grade-level appropriate mathematical terminology.	2, 3, 4, 6, 9, 10, 11, 13, 15, 16, 18, 19, 21, 22, 25, 26, 27, 31, 32, 33, 34, 37, 39, 44, 49, 50, 58, 65, 79, 92, 96, 102, 103, 119, 124	8, 27, 29, 44, 66, 67, 69, 70, 72, 74, 79, 81, 89, 95, 99, 103, 117, 118, 121, 122, 132, 133, 138
PO 10. Simplify fractions to lowest terms.	31, 39, 59, 76, 117, 142	



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PO 11. Add or subtract proper fractions and mixed numbers with like denominators with regrouping.	15, 23, 50, 69, 122 Multiplication: 110, 118, 126, 133, 135, 153 Division: 129, 153	106, 132, 133
PO 12. Add or subtract decimals.	3, 5, 66, 82, 92	18, 20, 79, 80, 89, 118, 129
PO 13. Multiply decimals.	3, 41, 79, 81, 94, 97, 99, 107, 116, 120, 131, 132, 139, 145, 147, 149	80, 89, 121, 129
PO 14. Divide decimals.	41, 79, 94, 97, 99, 120, 136, 147	80, 89, 121
PO 15. Simplify numerical expressions using the order of operations with grade-appropriate operations on number sets.	14, 18, 19, 37, 96	44, 81, 120, 122, 129
<b>Concept 3: Estimation</b> Use estimation strategies reasonably and fluently.		
PO 1. Solve grade-level appropriate problems using estimation.	12, 17, 25, 41, 70, 82, 92, 121, 142, 147	2, 3, 12, 66, 67, 69, 70, 72, 74, 80, 103, 116, 118, 124, 139 Activity 7
PO 2. Use estimation to verify the reasonableness of a calculation (e.g., Is $4.1 \times 2.7$ about 12?).	25, 41, 70, 82, 92, 142, 147	66, 67, 69, 70, 72, 74, 80, 103, 116, 118, 124, 139 Activity 7
PO 3. Round to estimate quantities.	25, 41, 70, 82, 92, 121	Activity 7
PO 4. Estimate and measure for area and perimeter.	54, *56, *63, 95, 134, 137, 144, 145, 152	122, 138, 139 Weight: 114, 115, 124 Activity 8
PO 5. Compare estimated measurements between U.S. customary and metric systems (e.g., A yard is about a meter.).	*12, *17, 48, 67	
<b>Strand 2: Data Analysis, Probability, and Discrete Mathematics</b>		
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<b>Concept 1: Data Analysis (Statistics)</b> Understand and apply data collection, organization and representation to analyze and sort data.		
PO 1. Formulate questions to collect data in contextual situations.	5, 40, 115	11
PO 2. Construct a double-bar graph, line plot, frequency table, or three-set Venn diagram with appropriate labels and title from organized data.	5, 20, 40, 53, 55, 115	11, 117, 123, 126, 135 Activity 2, 3, 4



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PO 3. Interpret graphical representations and data displays including bar graphs (including double-bar), circle graphs, frequency tables, three-set Venn diagrams, and line graphs that display continuous data.	5, 13, 20, 40, 55, 60, 115, 116, 143	11, 117, 126, 135 Activity 2, 3, 4
PO 4. Answer questions based on graphical representations, and data displays including bar graphs (including double-bar), circle graphs, frequency tables, three-set Venn diagrams, and line graphs that display continuous data.	5, 20, 40, 55, 60, 115, 116, 143	11, 117, 126, 135 Activity 2, 3, 4
PO 5. Identify the mode(s) and mean (average) of given data.	40, 102, 103, 115, 135 Ratios: 55	130 Ratios: 137
PO 6. Formulate reasonable predictions from a given set of data.	5, 13, 40, 55, 60, 115, 143	11, 65, 117, 126, 135 Activity 2, 3, 4
PO 7. Compare two sets of data related to the same investigation.	40, 55	
PO 8. Solve contextual problems using graphs, charts, and tables.	5, 13, 40, 55, 60, 115, 116	11, 65, 67, 72, 117, 123, 124, 126, 135 Activity 1, 2, 3, 4
<b>Concept 2: Probability</b> Understand and apply the basic concepts of probability.		
PO 1. Name the possible outcomes for a probability experiment.	5, 58, 60, 142	65 Activity 4, 6
PO 2. Describe the probability of events as being: <ul style="list-style-type: none"> <li>• certain (represented by “1”),</li> <li>• impossible, (represented by “0”),</li> <li>• neither certain nor impossible (represented by a fraction less than 1).</li> </ul>	60	65 Activity 6
PO 3. Predict the outcome of a grade-level appropriate probability experiment.	5, 60, *117, *142	65
PO 4. Record the data from performing a grade-level appropriate probability experiment.	5, *60, *117, *142	65
PO 5. Compare the outcome of an experiment to predictions made prior to performing the experiment.	60	65
PO 6. Make predictions from the results of student-generated experiments using objects (e.g., coins, spinners, number cubes).	60	65



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PO 7. Compare the results of two repetitions of the same grade-level appropriate probability experiment.	60	65
<b>Concept 3: Discrete Mathematics – Systematic Listing and Counting</b> Understand and demonstrate the systematic listing and counting of possible outcomes.		
PO 1. Find all possible combinations when one item is selected from each of two sets of different items, using a systematic approach. (e.g., shirts: tee shirt, tank top, sweatshirt; pants: shorts, jeans).	*4, 58	2, 3, 4, 12, 15, 65, 66, 118, 123, 132 Activity 4
<b>Concept 4: Vertex-Edge Graphs</b> Understand and apply vertex-edge graphs.		
PO 1. Color maps with the least number of colors so that no common edges share the same color (increased complexity throughout grade levels).	*53	*15
<b>Strand 3: Patterns, Algebra, and Functions</b> Every student should understand and use all concepts and skills from the previous grade levels. The standards are designed so that new learning builds on preceding skills and are needed to learn new skills. Communication, Problem-solving, Reasoning & Proof, Connections, and Representation are the process standards that are embedded throughout the teaching and learning of mathematical strands.		
<b>Concept 1: Patterns</b> Identify patterns and apply pattern recognition to reason mathematically.		
PO 1. Communicate a grade-level appropriate iterative pattern, using symbols or numbers.	6, 9, 13, 42, 55, 86, 87, 104, 108, 111, 143	1, 5, 7, 9, 24, 31, 36, 45, 47, 59, 66, 69, 84, 92, 96, 103, 105, 111, 116, 131, 134, 141, 142, 148
PO 2. Extend a grade-level appropriate iterative pattern.	6, 13, 42, 55, 86, 87, 104, 108, 111	7, 9, 24, 36, 45, 47, 59, 66, 69, 84, 92, 96, 103, 105, 111, 116, 131
PO 3. Solve grade-level appropriate iterative pattern problems.	6, 13, 55, 87, 104, 108, 111, 143	1, 5, 7, 9, 24, 31, 36, 45, 47, 59, 66, 69, 84, 92, 96, 103, 105, 111, 131, 134, 141, 142, 148
<b>Concept 2: Functions and Relationships</b> Describe and model functions and their relationships.		
PO 1. Describe the rule used in a simple grade-level appropriate function (e.g., T-chart, input/output model).	13, 55, 143	36, 69, 84
<b>Concept 3: Algebraic Representations</b> Represent and analyze mathematical situations and structures using algebraic representations.		
PO 1. Evaluate expressions involving the four basic operations by substituting given decimals for the variable.	82, 124, 143	Decimals: 119, 129, 130 No Decimals: 4, 32, 41, 52, 80, 89, 107
PO 2. Use variables in contextual situations.	55	13, 18, 55, 74, 95, 120



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PO 3. Solve one-step equations with one variable represented by a letter or symbol (e.g., $15 = 45 \div n$ ).	14, 18, 19, 37, 55, 77, 82, 124, 143	1, 4, 13, 18, 21, 32, 41, 52, 59, 74, 81, 87, 94, 95, 109
<b>Concept 4: Analysis of Change</b> Analyze change in a variable over time and in various contexts.		
PO 1. Describe patterns of change: <ul style="list-style-type: none"> <li>constant rate (speed of movement of the hands on a clock), and increasing or decreasing rate (rate of plant growth).</li> </ul>	13	
<b>Strand 4: Geometry and Measurement</b> Every student should understand and use all concepts and skills from the previous grade levels. The standards are designed so that new learning builds on preceding skills and are needed to learn new skills. Communication, Problem-solving, Reasoning & Proof, Connections, and Representation are the process standards that are embedded throughout the teaching and learning of mathematical strands.		
<b>Concept 1: Geometric Properties</b> Analyze the attributes and properties of two and three-dimensional shapes and develop mathematical arguments about their relationships.		
PO 1. Recognize regular polygons.	30, 35, 42, 45, 53, 63, 71	15, 22, 34, 40, 43, 49, 50, 60, 63, 71, 73, 78, 85, 88, 100, 104, 106, 112, 136
PO 2. Draw 2-dimensional figures by applying significant properties of each (e.g., Draw a quadrilateral with two sets of parallel sides and four right angles.).	*20, 63	15, 22, 25, 34, 40, 43, 50, 60, 63, 73, 93, 104 Activity 12
PO 3. Sketch prisms, pyramids, cones, and cylinders.	*20, *137	Activity 10
PO 4. Identify the properties of 2- and 3-dimensional geometric figures using appropriate terminology and vocabulary.	20, 30, 35, 42, 45, 71, 137	22, 25, 34, 40, 43, 49, 50, 60, 63, 71, 73, 76, 93, 100, 103, 112, 134, 141, 142, 148 Activity 9, 10, 11, 12
PO 5. Draw points, lines, line segments, rays, and angles with appropriate labels.	17, 30, 35	82, 91, 97
PO 6. Recognize that all pairs of vertical angles are congruent.	30, 75	
PO 7. Classify triangles as scalene, isosceles, or equilateral.	30	*71, *112, *136
PO 8. Recognize that a circle is a 360° rotation about a point.	75, 145	
PO 9. Identify the diameter, radius, and circumference of a circle.	75, 145	138
PO 10. Understand that the sum of the angles of a triangle is 180°.	30, 75	*136
PO 11. Draw two congruent geometric figures.	30, *45	40, 73, 112



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PO 12. Draw two similar geometric figures.	*30, *35, *45	25, 34
PO 13. Identify the lines of symmetry in a 2-dimensional shape.	45	145
<b>Concept 2: Transformation of Shapes</b> Apply spatial reasoning to create transformations and use symmetry to analyze mathematical situations.		
PO 1. Demonstrate reflections using geometric figures.	45	25, 40, 145
PO 2. Describe the transformations that created a tessellation.		22, 25, 34, 40, 43, 49, 60, 63, 73, 78, 112, 136
<b>Concept 3: Coordinate Geometry</b> Specify and describe spatial relationships using coordinate geometry and other representational systems.		
PO 1. Graph points in the first quadrant on a grid using ordered pairs.	52, 64, 90, 123, 140	
<b>Concept 4: Measurement - Units of Measure Geometric Objects</b> Understand and apply appropriate units of measure, measurement techniques, and formulas to determine measurements.		
PO 1. State an appropriate measure of accuracy for a contextual situation (e.g., What unit of measurement would you use to measure the top of your desk?).	8, 12, 48, 56, 63, 103	67, 99, 122, 138
PO 2. Draw 2-dimensional figures to specifications using the appropriate tools (e.g., Draw a circle with a 2-inch radius.).	64	122
PO 3. Determine relationships including volume (e.g., pints and quarts, milliliters and liters).	72, 84	14, 143 Activity 9, 13
PO 4. Convert measurement units to equivalent units within a given system (U.S. customary and metric) (e.g., 12 inches = 1 foot; 10 decimeters = 1 meter).	48, 58, 67, 114	99, 122
PO 5. Solve problems involving the perimeter of convex polygons	95, *152	122 Activity *8
PO 6. Determine the area of figures composed of two or more rectangles on a grid.	95	
PO 7. Solve problems involving the area of simple polygons.	54, 56, 63, 134, 137, 144	106, 122, 138, 140 Activity 8
PO 8. Describe the change in perimeter or area when one attribute (length, width) of a rectangle is altered.	134, *137	*106, *122, *138 Activity 8



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<b>Strand 5: Structure and Logic</b> Every student should understand and use all concepts and skills from the previous grade levels. The standards are designed so that new learning builds on preceding skills and are needed to learn new skills. Communication, Problem-solving, Reasoning & Proof, Connections, and Representation are the process standards that are embedded throughout the teaching and learning of mathematical strands.		
<b>Concept 1: Algorithms and Algorithmic Thinking</b> Use reasoning to solve mathematical problems in contextual situations.		
PO 1. Discriminate necessary information from unnecessary information in a given grade-level appropriate word problem.	10, 70, *105, *117, *142	28, 48, 57, 77, 86, 101, 108, 122 True/False: 146
PO 2. Design simple algorithms using whole numbers.	7, 8, 10, 25, 44, 48, 54, 55, 64, 70, 74, 84, 97, 103, 144, 152	2, 3, 5, 8, 12, 17, 19, 24, 29, 31, 32, 33, 36, 44, 47, 52, 55, 58, 59, 61, 64, 69, 70, 74, 79, 80, 81, 84, 87, 89, 92, 95, 96, 98, 99, 103, 107, 109, 110, 111, 120, 122, 124, 125, 127, 129, 130, 137, 138
PO 3. Develop an algorithm or formula to calculate areas of simple polygons.	55, 63, 134, 144, 152 Perimeter: 54	106, 116, 140, 147 Volume: 143
<b>Concept 2: Logic, Reasoning, Arguments, and Mathematical Proof</b> Evaluate situations, select problem-solving strategies, draw logical conclusions, develop and describe solutions and recognize their applications.		
PO 1. Construct <i>if... then</i> statements.	7, *13, *14, *19, *51, 53, *57, *70, *105	*5, 6, 16, 17, 23, 27, 30, 31, 35, 36, 37, 38, 39, 42, 46, 51, 53, 55, 58, 67, *70, 72, 74, 79, 85, 99, 103, 109, 114, 115, 120, 122
PO 2. Identify simple valid arguments using <i>if ... then</i> statements based on graphic organizers (e.g., 3-set Venn diagrams and pictures).	7, *13, 53, *57, *70	*5, 6, 16, 17, 23, 27, 30, 31, 35, 36, 37, 38, 39, 42, 46, 51, 53, 55, 58, 67, *70, 72, 74, 79, 85, 99, 103, 109, 114, 115, 120, 122

\*Gives Opportunity