



**Arizona Math Standards /Excel Math Correlation**  
**2<sup>nd</sup> Grade**

<b>ARIZONA MATH STANDARDS</b>	<b>Excel Math Lesson Numbers</b>	<b>Stretch Lesson # Activity Numbers</b>
<p><b>Strand 1: Number Sense and Operations</b></p> <p>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 &amp; Proof, Connections, and Representation are the process standards that are embedded throughout the teaching and learning of mathematical strands.</p>		
<p><b>Concept 1: Number Sense</b> - Understand and apply numbers, ways of representing numbers, the relationships among numbers and different number systems.</p>		
PO 1. Make a model to represent a given whole number 0 through 999.	1, 2, 4, 6, 7, 9, 13, 16, 22, 23, 24, 27, 31, 32, 33, 36, 38, 39, 42, 46, 47, 48, 49, 51, 54, 56, 59, 64, 67, 70, 71, 72, 73, 74, 82, 87, 88, 91, 94, 106, 116, 118, 122, 123, 129, 147	
PO 2. Identify a whole number represented by a model with a word name and symbol 0 through 999.	7, 17, 24, 28, 31, 32, 33, 38, 41, 76, 92, 97, 123, 148	
PO 3. Count aloud, forward or backward, in consecutive order (0 through 999).	1, 2, 4, 9, 11, 13, 16, 22, 26, 28, 31, 32, 37, 39, 42, 47, 48, 49, 51, 54, 56, 59, 61, 64, 67, 70, 71, 72, 73, 74, 82, 87, 88, 91, 93, 99, 105, 106, 113, 114, 116, 118, 122, 123, 147	
PO 4. Identify whole numbers through 999 in or out of order.	1, 2, 4, 6, 9, 10, 11, 13, 14, 16, 18, 20, 22, 23, 24, 26, 28, 31, 32, 33, 37, 38, 41, 42, 46, 47, 48, 49, 51, 54, 56, 59, 61, 64, 67, 70, 71, 72, 73, 74, 76, 82, 87, 88, 91, 93, 94, 97, 99, 106, 112, 116, 118, 122, 123, 129, 147, 148	
PO 5. Write whole numbers through 999 in or out of order.	1, 2, 6, 9, 11, 13, 14, 16, 17, 18, 20, 22, 23, 24, 26, 27, 28, 31, 32, 33, 39, 41, 42, 46, 47, 48, 49, 51, 54, 56, 59, 61, 64, 67, 70, 71, 72, 73, 74, 76, 77, 82, 87, 88, 91, 92, 93, 94, 97, 106, 112, 116, 118, 121, 123, 129, 147, 148	
PO 6. State equivalent forms of whole numbers using multiples of 10 through 1,000. (430 + 200 = 600 + 30)	13, 24, 71, 72, 73, 74, 82, 93, 123, 129	
PO 7. State verbally whole numbers, through 999, using correct place value. (e.g., a student will read <u>528</u> as five hundreds, two tens and eight ones)	9, 16, 22, 23, 24, 31, 32, 39, 42, 46, 49, 51, 54, 56, 59, 64, 67, 68, 71, 72, 73, 74, 82, 88, 91, 92, 94, 106, 116, 118, 121, 123, 129, 139, 140, 145, 147, 148	
PO 8. Construct models to represent place value concepts for the one's, ten's, and hundred's places.	9, 16, 23, 24, 31, 32, 39, 42, 46, 49, 51, 54, 56, 59, 64, 67, 71, 72, 73, 74, 79, 82, 88, 91, 94, 106, 116, 118, 121, 123, 129, 145, 147	



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PO 9. Apply expanded notation to model place value through 999.  (e.g., $378 = 3 \text{ hundreds} + 7 \text{ tens} + 8 \text{ ones}$ )	24, 31, 32, 71, 72, 73, 74, 82, 88, 91, 94, 116, 118, 123, 129, 145	
PO 10. Identify odd and even (including 0) whole numbers through 999.	37, 99, 111	115, 128
PO 11. Compare two whole numbers through 999.	12, 14, 20, 38, 74, 112, 124, 142	
PO 12. Use ordinal numbers.	7, 14, 73, 76, 120	59, 120
PO 13. Order three or more whole numbers through 999 (least to greatest or greatest to least).	3, 14, 18, 61, 73, 142	64
PO 14. Make models that represent given fractions (halves and fourths).	63, 77, 80, 111, 113, 114, 115, 120, 126, 136, 150, 155	
PO 15. Identify in symbols and words a model that is divided into equal fractional parts. (Halves and fourths)	63, 77, 80, 111, 113, 114, 115, 120, 126, 136, 150, 155	
PO 16. Count money through \$5.00 using manipulatives and pictures of bills and coins.	43, 79, 83, 109, 119, 149	
PO 17. Identify the value of a collection of money using the symbols ¢ and \$ through \$5.00.	43, 83, 109, 119, 149	
PO 18. Use decimals through hundredths in contextual situations with money.	79, 109, 138	
PO 19. Compare two decimals using money, through hundredths, using models, illustrations, or symbols.	79, 109	
PO 20. Distinguish the equivalency among decimals, fractions and percents. (e.g., Half-dollar = $50¢ = 50\%$ )	79, 109, 138	
<b>Concept 2: Numerical Operations - Understand and apply numerical operations and their relationship to one another.</b>		
PO 1. Demonstrate the process of addition through two three-digit whole numbers, using manipulatives.	28, 79, 86, 92, 106, 122, 133, 146	
PO 2. Demonstrate the process of subtraction using manipulatives with two-digit whole numbers.	11, 13, 14, 23, 24, 46, 49, 56, 66, 67, 71, 72, 73, 81, 82, 88, 92, 94, 97, 99, 106, 116, 118, 129, 138, 142	



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PO 3. State addition and subtraction facts.	1, 2, 3, 4, 6, 7, 8, 9, 11, 12, 13, 14, 16, 17, 18, 19, 20, 21, 23, 24, 26, 28, 31, 32, 34, 36, 41, 42, 43, 44, 46, 48, 49, 51, 52, 53, 54, 56, 58, 59, 61, 62, 64, 66, 67, 68, 69, 70, 76, 77, 79, 82, 83, 84, 87, 90, 92, 98, 99, 102, 103, 106, 108, 109, 111, 112, 114, 116, 119, 126, 131, 140, 146	
PO 4. Add one- and two- digit whole numbers with regrouping.	22, 23, 24, 31, 32, 39, 43, 49, 51, 54, 59, 68, 76, 106, 118, 121, 122, 133, 146	133, 136
PO 5. Subtract one- and two- digit whole numbers with regrouping.	18, 19, 21, 23, 26, 42, 44, 56, 66, 67, 71, 72, 73, 82, 88, 92, 94, 99, 116, 118, 121, 129, 139, 140, 145	61, 134
PO 6. Add 3 one- or two-digit addends.	4, 16, 21, 34, 46, 48, 49, 51, 54, 95, 102, 108, 118, 121, 147	33, 49, 90, 114, 115, 121, 125, 128, 130, 134
PO 7. Select the grade level appropriate operation to solve word problems.	27, 30, 33, 57, 66, 77, 81, 95, 99, 104, 113, 114, 125, 127, 130, 153, 154	Activity 5
PO 8. Solve word problems using addition and subtraction of two 2-digit numbers, with regrouping AND two 3-digit numbers without regrouping.	27, 66, 81, 95, 104, 117 Multiplication 125 Division 153, 154	87, 99, 108, 150, 153 Activity 5
PO 9. Count by multiples of three.	108, 131	
PO 10. State multiplication facts: 2s, 5s and 10s.	95, 105, 108, 121, 124, 125, 127, 128, 131, 132, 133, 134, 137, 138, 139, 140, 141, 142, 144, 146, 147, 148, 149, 151, 152, 154 Division 113, 114, 115, 127, 128, 136	72, 95, 101, 109, 119, 137, 143, 147
PO 11. Demonstrate the associative property of addition. (e.g., $(3 + 5) + 4 = 3 + (5 + 4)$ )	1, 9, 13, 20, 36, 42, 56, 67, 88, 117 Mult/Div 137	
PO 12. Apply grade level appropriate properties to assist in computation.	1, 4, 9, 11, 20, 22, 23, 24, 27, 31, 32, 36, 38, 39, 42, 51, 54, 57, 67, 71, 72, 94, 95, 102, 108, 116, 121, 125, 129, 131, 141	
PO 13. Apply the symbols: +, -, x, ÷, =, ≠, <, >, %.	6, 9, 12, 14, 27, 38, 42, 48, 52, 56, 57, 58, 66, 67, 95, 97, 102, 103, 108, 116, 121, 124, 125, 131, 141	



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PO 14. Use grade level appropriate mathematical terminology.	3, 6, 9, 10, 11, 12, 16, 20, 23, 24, 27, 30, 36, 38, 39, 42, 49, 51, 52, 54, 56, 57, 58, 66, 67, 70, 71, 72, 73, 81, 82, 88, 90, 92, 94, 95, 97, 103, 106, 108, 116, 121, 124, 129, 131, 146,	
PO 15. Demonstrate addition of fractions with like denominators (halves and fourths) using models.	150	
PO 16. Demonstrate subtraction of fractions with like denominators (halves and fourths) using models.	150	
PO 17. Add and subtract money without regrouping using manipulatives and paper and pencil, through \$5.00	43, 66, 79, 86, 109, 138, 140, 149	71, 108, 117, 123, 126, 132, 140, 146
<b>Concept 3: Estimation</b> - Use estimation strategies reasonably and fluently.		
PO 1. Solve problems using a variety of mental computations and reasonable estimation.,	14, 16, 27, 30, 36, 40, 68, 70, 91, 95, 119, 138	29, 30, 35, 37, 43, 44, 59, 69, 72, 93, 117 Activity 2, 7, 12, 13
PO 2. Estimate the measurement of an object using U.S. customary standard and non-standard units of measurement.		All Measurement Activities Activity 2, 7, 12
PO 3. Compare an estimate to the actual measure.		All Measurement Activities Activity 7, 12
PO 4. Evaluate the reasonableness of an estimate.		All Measurement Activities Activity 2, 7, 12, 13
<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	Activity 4, 5, 6, 7, 10, 12
PO 2. Make a simple pictograph or tally chart with appropriate labels from organized data.	5, 35	Activity 5, 6



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PO 3. Interpret pictographs using terms such as most, least, equal, more than, less than, and greatest.	3, 6, 11, 12, 16, 35, 50, 105	Activity 5, 6
PO 4. Answer questions about a pictograph using terms such as most, least, equal, more than, less than, and greatest.	15, 35, 50, 105	55
PO 5. Formulate questions based on graphs, charts, and tables.	5, 35, 50	Activity 5, 6
PO 6. Solve problems using graphs, charts and tables.	5, 15, 35, 50, 105	Activity 5, 6
<b>Concept 2: Probability</b> - Understand and apply the basic concepts of probability.		
PO 1. Name the possible outcomes for a probability experiment	25, 35, 100 Deductive Reasoning 130	Activity 1 Deductive Reasoning - Activity 3
PO 2. Predict the most likely or least likely outcome in probability experiments. (e.g., Predict the chance of spinning one of the 2 colors on a 2-colored spinner.)	25, 35, 100	
PO 3. Predict the outcome of a grade level appropriate probability experiment.	5, 25, 35, 100	50, 81 Activity 1, 3
PO 4. Record the data from performing a grade level appropriate probability experiment.	5, 25, 35, 100	50, 81 Activity 1, 3
PO 5. Compare the outcome of an experiment to predictions made prior to performing the experiment.	25, 35, 100	Activity 1, 3
PO 6. Compare the results of two repetitions of the same grade level appropriate probability experiment.	35, 100	Activity 1, 3
<b>Concept 3: Discrete Mathematics – Systematic Listing and Counting</b> Understand and demonstrate the systematic listing and counting of possible outcomes.		
PO 1. Make arrangements that represent the number of combinations that can be formed by pairing items taken from 2 sets, using manipulatives.	35	99, 110
<b>Concept 4: Vertex-Edge Graphs</b> - Understand and apply vertex-edge graphs.		
PO 1. Color pictures with the least number of colors so that no common edges share the same color.	10	36, 85



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<p><b>Strand 3: Patterns, Algebra, and Functions</b></p> <p>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 &amp; Proof, Connections, and Representation are the process standards that are embedded throughout the teaching and learning of mathematical strands.</p>		
<p><b>Concept 1: Patterns</b> - Identify patterns and apply pattern recognition to reason mathematically.</p>		
PO 1. Communicate a grade level appropriate pattern, using symbols or numbers. (e.g., ▽, O, Δ, ▽, O, Δ, ▽, __, __, __)	2, 18, 26, 37, 47, 70, 87, 93, 96, 101, 111, 121	21, 32, 90, 91, 96, 113, 136, 149, 150, 152, 153
PO 2. Extend a grade level appropriate repetitive pattern.  (e.g., 12, 22, 32, __, __, __)	2, 18, 26, 47, 70, 87, 93, 96, 101, 111	90, 136, 150, 153
PO 3. Create grade level appropriate patterns.	37, 40, 47, 61, 70, 87, 93, 101, 111, 121	32, 90, 91, 113, 136, 149, 150, 153
<p><b>Concept 2: Functions and Relationships</b> - Describe and model functions and their relationships.</p>		
PO 1. Describe the rule used in a simple grade level appropriate function. (e.g., T-chart, input/output model, and frames and arrows)	26, 37, 47	42, 47, 97, 124, 151 Activity 14
<p><b>Concept 3: Algebraic Representations</b></p> <p>Represent and analyze mathematical situations and structures using algebraic representations.</p>		
PO 1. Use variables in contextual situations.	27, 52, 57, 58, 102, 103, 117	33, 49, 96, 115, 121, 150 Activity 4, 5
PO 2. Find the missing element (addend, subtrahend, minuend, sum, and difference) in addition and subtraction number sentences for sums through 18 and minuends through 9	1, 2, 12, 21, 38, 52, 58, 103, 117	41, 45, 52, 57, 61, 65, 70, 75, 80, 82, 87, 95, 101, 109, 114, 119, 125, 130, 134, 137, 143, 147, 155 Activity 5
<p><b>Concept 4: Analysis of Change</b> - Analyze change in a variable over time and in various contexts.</p>		
PO 1. Identify the change in a variable over time. (e.g., an object gets taller, colder, heavier, etc.)	19, 29, 40	
PO 2. Make simple predictions based on a variable (e.g., a child's height from year to year).	19, 29, 40	
<p><b>Strand 4: Geometry and Measurement</b></p> <p>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 &amp; Proof, Connections, and Representation are the process standards that are embedded throughout the teaching and learning of mathematical strands.</p>		



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<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. Compare attributes of two-dimensional shapes (square, rectangle, triangle, and circle).	8, 10, 78, 110	36, 85, 94, 105, 129, 139, 142 Activity 2, 7, 12, 13
PO 2. Recognize congruent shapes.	144	Activity 13
PO 3. Recognize line(s) of symmetry for a two-dimensional shape.	75	Activity 11
<b>Concept 2: Transformation of Shapes</b> Apply spatial reasoning to create transformations and use symmetry to analyze mathematical situations.		
PO 1. Recognize same shape in different positions (flip/reflection).	135	77, 127, 138 Activity 7, 12
<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. Identify the type of measure (e.g., weight, height, and time) for each attribute of an object.	19, 29, 45, 53, 55, 60, 65, 89	All Measurement Activities Activity 9
PO 2. Select the appropriate U.S. customary measure of accuracy - <ul style="list-style-type: none"> <li>● length – inches , feet, yards, miles</li> <li>● capacity/volume – pints, quarts</li> <li>● mass/weight – ounces.</li> </ul>	53, 55, 60, 65, 84, 132 Square Units 90	28, 100, 118, 131 All Measurement Activities Activity 13
PO 3. Tell time to the quarter hour using analog and digital clocks.	19, 29, 45, 62, 69, 89, 98, 143	
PO 4. Determine the passage of time using units of days and weeks within a month using a calendar.	44, 134, 151	40, 49, 104, 145
PO 5. Select the appropriate tool to measure the given characteristic of an object.	40, 53, 55, 60, 64, 84, 85, 132	
PO 6. Measure a given object using the appropriate unit of measure- <ul style="list-style-type: none"> <li>● length – inches, miles</li> <li>● capacity/volume – pints, quarts</li> <li>● mass/weight – ounces.</li> </ul>	53, 55, 58, 60, 64, 84, 85, 132	All Measurement Activities Activity 2, 13



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PO 7. State equivalent relationships: <ul style="list-style-type: none"> <li>• 12 inches = 1 foot</li> <li>• 60 minutes = 1 hour</li> <li>• 24 hours = 1 day</li> <li>• 7 days = 1 week</li> <li>• 12 months = 1 year</li> <li>• 100 pennies = 1 dollar</li> <li>• 10 dimes = 1 dollar, 4 quarters = 1 dollar.</li> </ul>	19, 29, 44, 62, 149, 151	
<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. Create problems based on contextual situations (addition facts up to 18 and subtraction from 9).	27, 66, 97, 104, 117	30, 37, 43, 53, 55, 58, 63, 67, 71, 72, 76, 79, 83, 86, 108, 110, 117, 121, 123, 132, 140  Activity 14
<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. Identify the concepts <i>some</i> , <i>every</i> and <i>many</i> within the context of logical reasoning.	27, 104, 127, 128	30, 37, 43, 55, 58, 63, 67, 69, 71, 72, 76, 79, 81, 83, 86, 93, 99, 110, 117, 132, 140, 146, 154  Activity 3, 5, 8, 14
PO 2. Identify the concepts <i>all</i> and <i>none</i> within the context of logical reasoning.		88, 106, 122, 135, 141  Activity 4