

Arizona Mathematics Standard Articulated by Grade Level

Kindergarten

Every student should understand and use all concepts and skills from the previous grade levels. The standard is designed so that new learning builds on preceding skills. Communication, Problem-solving, Reasoning & Proof, Connections, and Representation are the process standards that are embedded throughout the teaching and learning of all mathematical strands.

Strand 1: Number and Operations

Number sense is the understanding of numbers and how they relate to each other and how they are used in specific context or real-world application. It includes an awareness of the different ways in which numbers are used, such as counting, measuring, labeling, and locating. It includes an awareness of the different types of numbers such as, whole numbers, integers, fractions, and decimals and the relationships between them and when each is most useful. Number sense includes an understanding of the size of numbers, so that students should be able to recognize that the volume of their room is closer to 1,000 than 10,000 cubic feet. Students develop a sense of what numbers are, i.e., to use numbers and number relationships to acquire basic facts, to solve a wide variety of real-world problems, and to estimate to determine the reasonableness of results.

Concept 1: Number Sense

Understand and apply numbers, ways of representing numbers, and the relationships among numbers and different number systems.

In Grade K, students develop basic ideas of number and use numbers to think about objects and the world around them. They practice counting objects in sets, and they think about how numbers are ordered.

<u>Performance Objectives</u>	<u>Process Integration</u>	<u>Explanations and Examples</u>
<i>Students are expected to:</i>		
PO 1. Express whole numbers 0 to 20 using and connecting multiple representations. Connections: M00-S1C1-02, M00-S1C1-04, M00-S1C3-01, M00-S2C1-01, M00-S2C1-02, M00-S2C3-01, M00-S4C4-02	M00-S5C2-04. Represent a problem situation using words, numbers, pictures, physical objects, or symbols.	Students should be given multiple opportunities to count objects and recognize that a number represents a specific quantity. Once this is established, students can begin to read and write numerals (numerals are the symbols for the quantities). Continued on next page

The bulleted items within a performance objective indicate the specific content to be taught.

Explanations and Examples Updated 1.19.09

Grade K

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<u>Performance Objectives</u>	<u>Process Integration</u>	<u>Explanations and Examples</u>
<i>Students are expected to:</i>		
		<p>Although kindergarten students are not yet working on place value, teaching the teen numbers as one group of ten and extra ones is foundational to understanding both the concept and the symbol that represents each teen number. For example, when focusing on the number “14,” students should count out fourteen objects using one-to-one correspondence and THEN use those objects to make one group of ten and four extra ones. Students should connect the representation to the symbol “14.”</p> <p>Students apply their number sense when graphing, patterning, sorting, and measuring.</p>
<p>PO 2. Count forward to 20 and backward from 10 with or without objects using different starting points.</p> <p>Connections: M00-S1C1-01, M00-S1C3-01, M00-S2C1-02, M00-S2C3-01, M00-S4C4-02</p>	<p>M00-S5C2-04. Represent a problem situation using words, numbers, pictures, physical objects, or symbols.</p>	<p>This objective includes counting aloud and using one-to-one correspondence.</p> <p>Counting should be reinforced throughout the day, not in isolation.</p> <p>Examples:</p> <ul style="list-style-type: none"> • Count the number of chairs of the students who are absent. • Count the number of stairs, shoes, etc. <p>Counting up to 20 objects should also be reinforced when collecting data to create charts and graphs, sorting objects, and measuring.</p>
<p>PO 3. Identify numbers which are one more or less than a given number to 20.</p> <p>Connections: M00-S1C2-02</p>	<p>M00-S5C2-04. Represent a problem situation using words, numbers, pictures, physical objects, or symbols.</p>	<p>Emphasize the language of “before” and “after” when talking about one more and one less. This is not intended to introduce addition and subtraction but lays a foundation for comparing, ordering, adding, and subtracting.</p>

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Explanations and Examples Updated 1.19.09

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<u>Performance Objectives</u>	<u>Process Integration</u>	<u>Explanations and Examples</u>
<i>Students are expected to:</i>		
<p>PO 4. Compare and order whole numbers through 20.</p> <p>Connections: M00-S1C1-01, M00-S2C1-02</p>	<p>M00-S5C2-04. Represent a problem situation using words, numbers, pictures, physical objects, or symbols.</p>	<p>Students should develop a strong sense of the relationship between quantities and numerals (M00-S1C1-01) before they begin comparing and ordering numbers.</p> <p>Students use sets of objects, pictures, numerals, number lines and comparative language to compare and order whole numbers. For example, using shuffled numeral or domino-like cards, students put them in correct ascending order.</p>
<p>PO 5. Recognize and compare the ordinal position of at least five objects.</p> <p>Connections: M00-S2C1-02, M00-S4C4-01</p>	<p>M00-S5C2-04. Represent a problem situation using words, numbers, pictures, physical objects, or symbols.</p>	<p>Using ordinal numbers should be reinforced throughout the day, not in isolation.</p> <p>Examples:</p> <ul style="list-style-type: none"> • Position when students are standing in line. • Position of chairs in a row.

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Explanations and Examples Updated 1.19.09

Grade K

Arizona Mathematics Standard Articulated by Grade Level

Strand 1: Number and Operations Concept 2: Numerical Operations

Understand and apply numerical operations and their relationship to one another.

In Grade K, students build a foundation for learning how to add and subtract by putting together and taking apart numbers through ten. They apply strategies to solve contextual and numerical problems.

<u>Performance Objectives</u>	<u>Process Integration</u>	<u>Explanations and Examples</u>
<i>Students are expected to:</i>		
<p>PO 1. Solve contextual problems by developing, applying, and recording strategies with sums and minuends to 10 using objects, pictures, and symbols.</p> <p>Connections: M00-S1C2-02, M00-S1C2-03, M00-S2C1-02, M00-S3C1-02, M00-S3C3-02</p>	<p>M00-S5C2-01. Identify the question(s) asked and any other questions that need to be answered in order to find a solution.</p> <p>M00-S5C2-02. Identify the given information that can be used to find a solution.</p> <p>M00-S5C2-03. Select from a variety of problem-solving strategies and use one or more strategies to arrive at a solution.</p> <p>M00-S5C2-04. Represent a problem situation using words, numbers, pictures, physical objects, or symbols.</p>	<p>In kindergarten, these contextual problems are word problems that apply the addition and subtraction strategies that are developed in M00-S1C2-02. Strategies may include counting on, using doubles, making a ten, etc.</p> <p>Students use the symbols +, -, and = to record number sentences.</p>
<p>PO 2. Develop and use multiple strategies to determine</p> <ul style="list-style-type: none"> • sums to 10 and • differences with minuends to 10. <p>Connections: M00-S1C1-03, M00-S1C2-01, M00-S1C2-03, M00-S2C1-02, M00-S3C1-02, M00-S3C3-01, M00-S3C3-02</p>	<p>M00-S5C2-04. Represent a problem situation using words, numbers, pictures, physical objects, or symbols.</p> <p>M00-S5C2-05. Explain and clarify mathematical thinking.</p> <p>M00-S5C2-06. Determine whether a solution is reasonable.</p>	<p>Use objects and pictures to develop addition and subtraction strategies. Strategies may include counting on, using doubles, making a ten, etc.</p> <p>Students record equivalent forms of numbers. For example, when finding sums of 5, students may list all of the sums: (2 + 3, 4 + 1, 0 + 5; etc.) and then they may write several types of equations (2 + 3 = 4 + 1; 5 = 2 + 3; 4 + 1 = 5; etc.).</p>

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<u>Performance Objectives</u>	<u>Process Integration</u>	<u>Explanations and Examples</u>
<i>Students are expected to:</i>		
PO 3. Create word problems based on sums to 10 and differences with minuends to 10. Connections: M00-S1C2-01, M00-S1C2-02	M00-S5C2-04. Represent a problem situation using words, numbers, pictures, physical objects, or symbols.	Students tell an addition story or a subtraction story which applies the addition and subtraction facts covered in M00-S1C2-02. They use objects, pictures, or symbols to represent their word problems or act them out.

Strand 1: Number and Operations **Concept 3: Estimation**

Use estimation strategies reasonably and fluently while integrating content from each of the other strands.

In Grade K, students use five and ten as benchmark numbers to develop their sense of quantity as well as to compare numbers.

<u>Performance Objectives</u>	<u>Process Integration</u>	<u>Explanations and Examples</u>
<i>Students are expected to:</i>		
PO 1. Identify quantities to 20 as more or less than 5 or as more or less than 10. Connections: M00-S1C1-01, M00-S1C1-02, M00-S2C3-01	M00-S5C2-05. Explain and clarify mathematical thinking.	Using 5 and 10 as benchmark numbers helps students further develop their sense of quantity as well as their ability to compare numbers. Students state whether a given number of items or a given number is closer to 0, 5, 10, or more than 10. Students also make observations such as “7” is two more than five or “4” is one less than five. This is helpful for mental math and lays the groundwork for using 10 as a benchmark number.

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Explanations and Examples Updated 1.19.09

Grade K

Arizona Mathematics Standard Articulated by Grade Level

Strand 2: Data Analysis, Probability, and Discrete Mathematics

This strand requires students to use data collection, data analysis, statistics, probability, systematic listing and counting, and the study of graphs. This prepares students for the study of discrete functions as well as to make valid inferences, decisions, and arguments. Discrete mathematics is a branch of mathematics that is widely used in business and industry. Combinatorics is the mathematics of systematic counting. Vertex-edge graphs are used to model and solve problems involving paths, networks, and relationships among a finite number of objects.

Concept 1: Data Analysis (Statistics)

Understand and apply data collection, organization, and representation to analyze and sort data.

In Grade K, students collect data to create object graphs and pictographs and apply number concepts to describe and interpret the graphs.

<u>Performance Objectives</u>	<u>Process Integration</u>	<u>Explanations and Examples</u>
<i>Students are expected to:</i>		
PO 1. Construct simple displays of data using objects or pictures. Connections: M00-S1C1-01, M00-S2C1-02, M00-S2C3-01, SC00-S1C4-01	M00-S5C2-05. Explain and clarify mathematical thinking.	Students create object graphs and pictographs using data relevant to their lives (e.g., favorite ice cream, eye color, pets, etc.). Graphs may be constructed by groups of students as well as by individual students. Counting up to 20 objects should be reinforced when collecting data to create charts and graphs.
PO 2. Ask and answer questions by counting, comparing quantities, and interpreting simple displays of data. Connections: M00-S1C1-01, M00-S1C1-02, M00-S1C1-04, M00-S1C1-05, M00-S1C2-01, M00-S1C2-02, M00-S2C1-01	M00-S5C2-05. Explain and clarify mathematical thinking.	Students describe the object graphs and pictographs they created in M00-S2C1-01. They should also ask and answer questions based on these graphs that reinforce other mathematics concepts such as counting, comparing, adding, subtracting, etc.

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Explanations and Examples Updated 1.19.09

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Strand 2: Data Analysis, Probability, and Discrete Mathematics Concept 2: Probability

Understand and apply data collection, organization, and representation to analyze and sort data.

In Grade K, there are no performance objectives in this concept. Performance objectives begin in Grade 4.

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.

In Grade K, students sort objects and describe how they sorted them.

<u>Performance Objectives</u>	<u>Process Integration</u>	<u>Explanations and Examples</u>
<i>Students are expected to:</i>		
PO 1. Sort, classify, count, and represent up to 20 objects and justify the sorting rule. Connections: M00-S1C1-01, M00-S1C1-02, M00-S1C3-01, M00-S2C1-01	M00-S5C2-05. Explain and clarify mathematical thinking.	Possible objects to sort include buttons, shells, shapes, beans, etc. After sorting and counting, it is important for students to explain how they sorted the objects, to answer a variety of counting questions that ask, "How many ...", and to compare sorted groups using words such as, "alike" and "different." After sorting objects, students may create an object graph or a pictograph to represent their sort.

Strand 2: Data Analysis, Probability, and Discrete Mathematics Concept 4: Vertex-Edge Graphs

Understand and apply vertex-edge graphs.

In Grade K, there are no performance objectives in this concept. Performance objectives begin in Grade 2.

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Strand 3: Patterns, Algebra, and Functions

Patterns occur everywhere in nature. Algebraic methods are used to explore, model and describe patterns, relationships, and functions involving numbers, shapes, iteration, recursion, and graphs within a variety of real-world problem solving situations. Iteration and recursion are used to model sequential, step-by-step change. Algebra emphasizes relationships among quantities, including functions, ways of representing mathematical relationships, and the analysis of change.

Concept 1: Patterns

Identify patterns and apply pattern recognition to reason mathematically while integrating content from each of the other strands.

In Grade K, students study simple repeating and growing patterns in preparation for increasingly sophisticated patterns that can be represented with algebraic expressions in later grades.

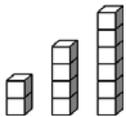
<u>Performance Objectives</u>	<u>Process Integration</u>	<u>Explanations and Examples</u>
<i>Students are expected to:</i>		
PO 1. Recognize, describe, extend, create, and record simple repeating patterns.	<p>M00-S5C2-04. Represent a problem situation using words, numbers, pictures, physical objects, or symbols.</p> <p>M00-S5C2-05. Explain and clarify mathematical thinking.</p>	<p>Repeating patterns repeat the same series over and over again. Verbal and movement patterns as well as patterns produced with physical objects such as blocks can be used.</p> <p>Students recognize when patterns are the same even though the terms in the sequences may be different. For example, <i>red, red, yellow, red, red, yellow, ...</i> and <i>clap, clap, snap, clap, clap, snap, ...</i> have the same pattern while the terms are different.</p> <p>Examples:</p> <ul style="list-style-type: none"> • Snap, clap, snap, clap, snap, clap, ... • □□, △△, □□, △△, ...

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<u>Performance Objectives</u>	<u>Process Integration</u>	<u>Explanations and Examples</u>
<i>Students are expected to:</i>		
<p>PO 2. Recognize, describe, extend, and record simple growing patterns.</p> <p>Connections: M00-S1C2-01, M00-S1C2-02</p>	<p>M00-S5C2-04. Represent a problem situation using words, numbers, pictures, physical objects, or symbols.</p> <p>M00-S5C2-05. Explain and clarify mathematical thinking.</p>	<p>Growing patterns repeat the same process over and over again.</p> <p>Example:</p> <ul style="list-style-type: none"> • students can build snap cube towers that have 2 cubes, then 4 cubes, then 6 cubes, etc. which demonstrates the process of adding two over and over. <ul style="list-style-type: none"> ○ 2, 4, 6, ... <div style="text-align: center;">  </div>

Strand 3: Patterns, Algebra, and Functions

Concept 2: Functions and Relationships

Describe and model functions and their relationships.

In Grade K, there are no performance objectives in this concept. Performance objectives begin in Grade 2.

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Explanations and Examples Updated 1.19.09

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Arizona Mathematics Standard Articulated by Grade Level

Strand 3: Patterns, Algebra, and Functions Concept 3: Algebraic Representations

Represent and analyze mathematical situations and structures using algebraic representations.

In Grade K, students learn what it means to add and subtract by joining and separating sets of objects. This lays the foundation for algebraic thinking.

<u>Performance Objectives</u>	<u>Process Integration</u>	<u>Explanations and Examples</u>
<i>Students are expected to:</i>		
<p>PO 1. Record equivalent forms of whole numbers to 10 by constructing models and using numbers.</p> <p>Connections: M00-S1C2-02</p>	<p>M00-S5C2-04. Represent a problem situation using words, numbers, pictures, physical objects, or symbols.</p> <p>M00-S5C2-05. Explain and clarify mathematical thinking.</p>	<p>When students are working on sums and differences to 10, they build models and list equivalent forms.</p> <p>Example:</p> <ul style="list-style-type: none"> • equivalent forms or expressions for “5” include <ul style="list-style-type: none"> ○ $0 + 5$, ○ $1 + 4$, ○ $2 + 3$, ○ $3 + 2$, ○ $4 + 1$, ○ $5 + 0$, ○ $10 - 5$, ○ $9 - 4$, ○ $8 - 3$, ○ $7 - 2$, ○ $6 - 1$, and ○ $5 - 0$.
<p>PO 2. Compare expressions using spoken words and the symbol =.</p> <p>Connections: M00-S1C2-01, M00-S1C2-02</p>	<p>M00-S5C2-04. Represent a problem situation using words, numbers, pictures, physical objects, or symbols.</p> <p>M00-S5C2-05. Explain and clarify mathematical thinking.</p>	<p>Students understand that the equal sign means “the same quantity as,” and they should use that language accordingly.</p> <p>Continued on next page</p>

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<u>Performance Objectives</u>	<u>Process Integration</u>	<u>Explanations and Examples</u>
<i>Students are expected to:</i>		
		<p>In order to compare expressions students must first build and write equivalent forms of a number and determine that several expressions can be written to represent that number. Since the quantities of the expressions are the same, an “=” can be used to represent that equivalence. Students can then be exposed to a string of equations and explain how they are related.</p> <p>Example:</p> <ul style="list-style-type: none"> • $6 = 3 + 3$ $3 + 3 = 4 + 2$ $4 + 2 = 5 + 1$ $5 + 1 = 6$

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.

In Grade K, there are no performance objectives in this concept. Performance objectives begin in Grade 4.

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Explanations and Examples Updated 1.19.09

Grade K

Arizona Mathematics Standard Articulated by Grade Level

Strand 4: Geometry and Measurement

Geometry is a natural place for the development of students' reasoning, higher thinking, and justification skills culminating in work with proofs. Geometric modeling and spatial reasoning offer ways to interpret and describe physical environments and can be important tools in problem solving. Students use geometric methods, properties and relationships, transformations, and coordinate geometry as a means to recognize, draw, describe, connect, analyze, and measure shapes and representations in the physical world. Measurement is the assignment of a numerical value to an attribute of an object, such as the length of a pencil. At more sophisticated levels, measurement involves assigning a number to a characteristic of a situation, as is done by the consumer price index. A major emphasis in this strand is becoming familiar with the units and processes that are used in measuring attributes.

Concept 1: Geometric Properties

Analyze the attributes and properties of 2- and 3- dimensional figures and develop mathematical arguments about their relationships.

In Grade K, students develop basic ideas related to geometry as they name, draw, describe, and compare simple two- and three-dimensional figures and find these shapes around them.

<u>Performance Objectives</u>	<u>Process Integration</u>	<u>Explanations and Examples</u>
<i>Students are expected to:</i>		
PO 1. Identify, analyze, and describe circles, triangles, and rectangles (including squares) in different orientations and environments. Connections: M00-S4C1-02	M00-S5C2-05. Explain and clarify mathematical thinking.	Examples of environments in which students would be encouraged to identify shapes would include nature, buildings, and the classroom. Students should be exposed to many types of triangles in many different orientations in order to eliminate the misconception that a triangle is always “right-side-up” and equilateral.  By definition, a square is a special kind of rectangle. Although most kindergarteners do not yet understand the hierarchy of shapes, it is good to teach with this idea in mind. In addition, a square turned on a vertex is still a square (not a diamond).

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Explanations and Examples Updated 1.19.09

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<u>Performance Objectives</u>	<u>Process Integration</u>	<u>Explanations and Examples</u>
<i>Students are expected to:</i>		
PO 2. Build, draw, compare, describe, and sort 2-dimensional figures (including irregular figures) using attributes. Connections: M00-S4C1-01	M00-S5C2-05. Explain and clarify mathematical thinking.	Students interact with many types of shapes beyond the basic circles, triangles, and rectangles (including squares). <div style="text-align: center;">  </div> Students describe the number of sides, number of vertices, curved/straight sides, size, etc.

Strand 4: Geometry and Measurement **Concept 2: Transformation of Shapes**

Apply spatial reasoning to create transformations and use symmetry to analyze mathematical situations.

In Grade K, there are no performance objectives in this concept. Performance objectives begin in Grade 1.

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.

In Grade K, there are no performance objectives in this concept. Performance objectives begin in Grade 4.

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Explanations and Examples Updated 1.19.09

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Strand 4: Geometry and Measurement

Concept 4: Measurement

Understand and apply appropriate units of measure, measurement techniques, and formulas to determine measurements.

In Grade K, students informally develop early measurement concepts. This is an important precursor to measurement in later grades when students measure objects with tools.

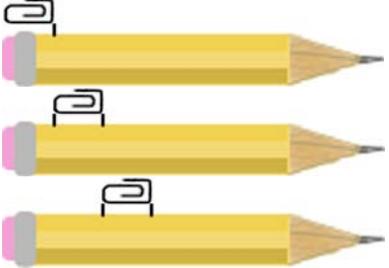
<u>Performance Objectives</u>	<u>Process Integration</u>	<u>Explanations and Examples</u>
<i>Students are expected to:</i>		
PO 1. Compare and order objects according to observable and measureable attributes. Connections: M00-S1C1-05, SC00-S1C1-05, SC00-S1C3-02, SC00-S5C1-02	M00-S5C2-05. Explain and clarify mathematical thinking. M00-S5C2-06. Determine whether a solution is reasonable.	Students use ordinal number language to describe the position of the ordered objects. They also use language such as <i>longer than or wider than</i> , etc. Students order objects by length (first-graders will order according to weight and capacity). For this performance objective, students order by directly comparing objects without using measurement tools.

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<u>Performance Objectives</u>	<u>Process Integration</u>	<u>Explanations and Examples</u>
<p><i>Students are expected to:</i></p>		
<p>PO 2. Use the attribute of length to describe and compare objects using non-standard units.</p> <p>Connections: M00-S1C1-01, M00-S1C1-02, SC00-S1C2-03</p>	<p>M00-S5C2-05. Explain and clarify mathematical thinking.</p> <p>M00-S5C2-06. Determine whether a solution is reasonable.</p>	<p>Processes to compare objects using non-standard units include:</p> <ul style="list-style-type: none"> • demonstrating the process of iteration using multiple constant units,  • demonstrating the process of iteration using one unit multiple times,  • estimating a measured length to the nearest whole unit, and • using the same non-standard unit to compare the lengths of two objects. <p>Students use their counting skills while measuring with non-standard units. In a natural environment, not all objects will measure to an exact whole unit. Students determine whether the “extra” is closer to the previous whole unit or the next whole unit and use the word “about” to describe the measurement.</p>

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Explanations and Examples Updated 1.19.09

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Strand 5: Structure and Logic

This strand emphasizes the core processes of problem solving. Students draw from the content of the other four strands to devise algorithms and analyze algorithmic thinking. Strand One and Strand Three provide the conceptual and computational basis for these algorithms. Logical reasoning and proof draws its substance from the study of geometry, patterns, and analysis to connect remaining strands. Students use algorithms, algorithmic thinking, and logical reasoning (both inductive and deductive) as they make conjectures and test the validity of arguments and proofs. Concept two develops the core processes as students evaluate situations, select problem solving strategies, draw logical conclusions, develop and describe solutions, and recognize their applications.

Concept 1: Algorithms and Algorithmic Thinking

Use reasoning to solve mathematical problems.

In Grade K, there are no performance objectives in this concept. Performance objectives begin in Grade 4.

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Explanations and Examples Updated 1.19.09

Grade K

Arizona Mathematics Standard Articulated by Grade Level

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.

In Grade K, students begin to build the understanding that doing mathematics involves solving problems and discussing how they solved them. Students also begin to develop their mathematical communication skills as they participate in mathematical discussions involving questions like “How did you get that?” and “Why is that true?”

<u>Performance Objectives</u>	<u>Process Integration</u>	<u>Explanations and Examples</u>
<i>Students are expected to:</i>	Some of the Strand 5 Concept 2 performance objectives are listed throughout the grade level document in the Process Integration Column (2nd column). Since these performance objectives are connected to the other content strands, the process integration column is not used in this section next to those performance objectives.	
PO 1. Identify the question(s) asked and any other questions that need to be answered in order to find a solution.		
PO 2. Identify the given information that can be used to find a solution.		
PO 3. Select from a variety of problem-solving strategies and use one or more strategies to arrive at a solution.		Problem solving strategies may include drawing pictures, using objects, acting out, making a chart or list, etc.
PO 4. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols.		Students need opportunities to connect the different representations and explain the connections. Representations should include numbers, words (including mathematical language), pictures, and/or physical objects. Students should be able to use all of these representations as needed.

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<u>Performance Objectives</u>	<u>Process Integration</u>	<u>Explanations and Examples</u>
<i>Students are expected to:</i>	Some of the Strand 5 Concept 2 performance objectives are listed throughout the grade level document in the Process Integration Column (2nd column). Since these performance objectives are connected to the other content strands, the process integration column is not used in this section next to those performance objectives.	
PO 5. Explain and clarify mathematical thinking.		Students will often use objects and pictures to explain their thinking. Modeling different explanations to guide students is helpful.
PO 6. Determine whether a solution is reasonable.		

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Explanations and Examples Updated 1.19.09

Grade K