<p align="center">**REVISED**   Correlation of Saxon *Math-1*   **REVISED**
to the 2008 Arizona Grade 1 Mathematics Standard</p>

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.
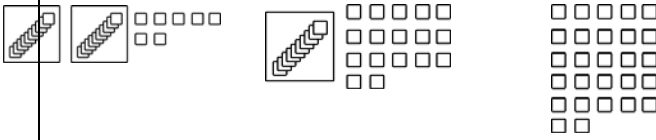
Concept 1: Number Sense

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

In Grade 1, students continue to work with whole numbers to quantify objects. They consider how numbers relate to one another. As they expand the set of numbers they work with, students start to develop critical concepts of ones and tens that introduce them to place value in our base ten system. An understanding of how ones and tens relate to each other allows students to begin adding and subtracting two-digit numbers.

Performance Objectives	_Process Integration & Connections_	_Explanations and Examples_
Students are expected to:		
PO 1. Express whole numbers 0 to 100, in groups of tens and ones using and connecting multiple representations. Lesson 2 (making towers for the numbers1-5) Daily in "The Meeting" beginning in Lesson 3 Lesson 4 (making towers for the numbers1-9) Lesson 8 (writing numbers) Lesson 9 (match number to set) Lesson 10-1 (match number to set)	M01-S5C2-04. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols. Connections: M01-S1C1-02, M01-S1C1-04, M01-S1C2-02, M01-S1C3-01, M01-S2C1-01,	There is a strong connection between this performance objective and recording equivalent forms of whole numbers (M01-S3C3-01).Teaching these ideas concurrently is critical. Use models, pictures, number lines, spoken and written words, and expanded form. Continued on next page

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

Performance Objectives	Process Integration & Connections	Explanations and Examples
Students are expected to:		
Lesson 15 (using pennies) Lesson 16, 43 & 52 (100 number chart) Lesson 17 (number between 2 numbers) Lesson 19 (sets of objects) Lesson 21 (# sentences) Lesson 27 (doubles facts) Lesson 32, 36 (adding 1 to a number) Lesson 40 (2 dice) Lesson 44 (subtracting 1) Lesson 47 (counting by 2's) Lesson 53 & 66 (dimes & pennies) Lesson 63 (write numbers 0-10 using words) Lesson 65-2 (identify ordinal position to 26th) Lesson 73-75 (adding without regrouping) Lesson 84 (counting large collections) Lesson 85-1 (modeling 2-digit numbers) Lesson 86 (trading pennies for dimes) Lesson 91 (adding 10 to a number) Lesson 92 (ordering numbers to 100) Lesson 94 (commutative property) Lesson 95 (sums of 10) Lesson 103 (identify one dozen and a half dozen) Lesson 114 (associative property) Lesson 127 (subtracting dimes & pennies without regrouping) Lesson 131 (counting hundreds, tens, ones) Lesson 133 (representing numbers to 500)	M01-S2C1-02, M01-S2C3-01, M01-S3C1-02, M01-S3C3-01, M01-S4C4-01, M01-S4C4-02	Example: • Twenty-seven objects can be grouped as 2 tens and 7 ones, regrouped as 1 ten and 17 ones, and regrouped again as 27 ones. The total (27) remains constant. This type of grouping lays a foundation for future work with addition and subtraction of two-digit numbers, where renaming 27 as 10 + 17 may be necessary. $27 = 10 + 10 + 7 \qquad 27 = 10 + 17 \qquad 27$ Students should apply their number sense when graphing, patterning, sorting, and measuring.

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Performance Objectives	_Process Integration & Connections_	_Explanations and Examples_
Students are expected to:		
PO 2. Count forward to 100 and backward from 100 by 1s and 10s using different starting points, and count forward to 100 by 2s and 5s. Math Meeting "Counting" in Lessons 1-135 Lesson 4 (1-9) Lesson 16 (1-50) Lesson 20 (counting from 0-23) Lesson 34 (backward from 10) Lesson 43 (count by 10's to 100) Lesson 47 (count by 2's) Lessons 51& 58 (even numbers) Lesson 70-1 (count by 5's) Lesson 85 (trading pennies for dimes) Lesson 89 (adding 10 to a number) Lesson 90-1 (count by 10's from a single digit number) Lesson 92 (ordering numbers to 100) Lesson 93 (counting by 100's) Lessons 98, 99 (count by 5's) Lesson 131 (count by 100's, 10's, and 1's)	M01-S5C2-04. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols. Connections: M01-S1C1-01, M01-S1C2-02, M01-S1C3-01, M01-S2C1-01, M01-S2C1-02, M01-S3C1-02, M01-S4C4-01	Objects, number lines, and hundred charts are examples of models which can be used to illustrate skip counting. Examples: •"Start at 93. Count backward. I'll tell you when to stop." [Stop when the student has counted backward ten numbers.] •"Start at 24. Count up by 10s. I'll tell you when to stop." [Stop when the student has counted to 94 by 10s.]
PO 3. Identify numbers which are 10 more or less than a given number to 90. Lesson 43 (count by 10's to 100) Lesson 89 (adding 10 to a number) Lesson 90-1 (count by 10's from a single digit number)	M01-S5C2-05. Explain and clarify mathematical thinking. Connections: M01-S1C2-02, M01-S3C1-02	Examples: • 10 more than 43 is 53 (one more 10) • 10 less than 43 is 33 (one less 10)

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Performance Objectives	*Process Integration & Connections*	*Explanations and Examples*
Students are expected to:		
PO 4. Compare and order whole numbers through 100 by applying the concepts of place value. Daily in "The Meeting" starting in Lesson 3 Lesson 9 (ordering numbers from least to greatest) Lesson 11 (identify first, last, between) Lesson 17 (numbers between) Lesson 19 (compare numbers) Lesson 20 (counting 0-23) Lesson 32 (compare & order numbers to 20) Lesson 53 (dimes & pennies) Lesson 55-2 (order 2-digit numbers) Lesson 66 (dimes & pennies) Lesson 73-75 (adding without regrouping) Lesson 84 (group by 10's) Lesson 85-1 (compare 2-digit numbers) Lesson 85-2 (trading pennies for dimes) Lesson 86 (adding with regrouping) Lesson 91 (adding 10) Lesson 92 (compare numbers to 100) Lesson 100-1 (order events by time) Lesson 108 (comparison symbols) Lesson 127 (subtracting dimes & pennies without regrouping) Lesson 131 (counting hundreds, tens, ones) Lesson 133 (using pictures to 500)	M01-S5C2-05. Explain and clarify mathematical thinking. Connections: M01-S1C1-01, M01-S1C3-01, M01-S2C1-02, M01-S3C3-02	There is a strong connection between this performance objective and representing numbers (M01-S3C3-02). Teaching these ideas concurrently is critical. Comparative language includes but is not limited to more than, less than, greater than, most, greatest, least, same as, equal to. The symbols include = and ≠. To compare two-digit numbers, students first attend to the number of tens, then, if necessary, to the number of ones. Students use models, pictures, number lines, and spoken or written words to compare or order numbers.
PO 5. Recognize and compare ordinal numbers, first through tenth. Lesson 11 (1st, 2nd, 3rd) Lesson 12 (1st-3rd) Lesson 22 (4th, 5th, 6th) Lesson 32 (to the 20th) Lesson 65-2 (ordinal numbers through the 26th) Lesson 100 (ordering events)	M01-S5C2-04. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols. Connections: M01-S4C4-03	

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Approved 6.24.08   Grade 1

Strand 1: Number and Operations
Concept 2: Numerical Operations

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

In Grade 1, students learn how to add and subtract using multiple strategies. They learn when to add and subtract and how addition and subtraction relate to each other. Understanding the relationship between addition and subtraction is an important part of learning these operations efficiently and accurately.

Performance Objectives	*Process Integration & Connections*	*Explanations and Examples*
Students are expected to:		
PO 1. Solve contextual problems using multiple representations for addition and subtraction facts. Lesson 19 (adding apple seeds) Lesson 21 (writing number sentences) Lesson 23 (doubles) Lesson 25 (writing number sentences) Lessons 27, 28, 30 (doubles) Lessons 32, 34, 36, 37 (adding 1) Lesson 33 (writing subtraction number sentences) Lesson 40-1 (finding a sum by counting on) Lesson 41 (adding 0) Lessons 44, 45 (subtract 1 facts) Lesson 49 (subtract 0, subtract a number from itself) Lessons 58, 59 (adding 2) Lessons 68, 69 (subtract 2) Lessons 73 - 75 (add w/o regrouping using dimes & pennies) Lessons 76, 77, 78, 79 (doubles +1) Lesson 81 (2 digit w/o regrouping) Lesson 86 (adding with regrouping using dimes & pennies) Lessons 89, 91 (adding 10 to a number) Lessons 101, 102 (subtract number from 10) Lessons 105, 106 (adding 9)	M01-S5C2-01. Identify the question(s) asked and any other questions that need to be answered in order to find a solution. M01-S5C2-02. Identify the given information that can be used to find a solution. M01-S5C2-03. Select from a variety of problem-solving strategies and use one or more strategies to arrive at a solution. M01-S5C2-05. Explain and clarify mathematical thinking. M01-S5C2-06. Determine whether a solution is reasonable. Connections: M01-S1C2-02, M01-S1C2-03, M01-S1C2-04,	There is a strong connection between this performance objective and representing word problems requiring addition or subtraction facts in an equation (M01-S3C3-03). Teaching these ideas concurrently is critical. Contextual problems that are closely connected to students' lives should be used often to develop fluency with addition facts through 10 + 10 and the related subtraction facts. Examples: Note that in contextual problems subtraction as "take-away" is less complex for students than subtraction as "comparison." • Take-away example: Abel has 9 balls. He gave 3 to Susan. How many balls does Abel have now? • Comparison example: Abel has 9 balls. Susan has 3 balls. How many more balls does Abel have than Susan?

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Approved 6.24.08   Grade 1

Performance Objectives	*Process Integration & Connections*	*Explanations and Examples*
Students are expected to:		
Lesson 114 (adding three 1-digit numbers) Lesson 121 (difference of 1 facts) Lesson 123 (subtracting 10 from a number) Lesson 127 (2-digit w/out regrouping) Lesson 129 (subtract half of a double) Lesson 134 (subtraction facts) Lesson A (minuends greater than 10)	M01-S1C2-05, M01-S2C1-02, M01-S3C1-02, M01-S3C3-03	

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Performance Objectives	*Process Integration & Connections*	*Explanations and Examples*
Students are expected to:		
PO 2. Demonstrate addition and subtraction of numbers that total less than 100 by using various representations that connect to place value concepts. Lesson 12 (act out some, some more) Lesson 15-1 (some, some more & some, some went away) Lesson 19 (picture and combine sets) Lesson 21 (writing addition number sentences) Lesson 23 (doubles facts) Lesson 25-1 (some, some more) Lesson 27 (doubles facts) Lesson 32, 34, 36 (adding 1 to a number) Lesson 40 (count on) Lesson 41 (adding 0) Math Meeting "Mystery Bag" in Lessons 41-135 Lessons 58, 59 (adding 2 to odd and even numbers) Lessons 76, 77 (doubles +1 facts) Lessons 94, 95 (making 10's facts) Lesson 105 (+9 facts) Lessons 111, 115 (oddball facts) Lesson 12 (act out some, some went away) Lesson 15 (acting out and drawing stories) Lesson 33 (writing subtraction number sentences) Lesson 44 (subtract 1 facts) Lesson 49 (subtract 0, subtract number from itself) Lesson 68 (subtract two) Lesson 101 (subtract number from ten) Lesson 121 (difference of 1 facts) Lesson 123 (subtract10) Lesson 125 (subtract 2) Lesson 129 (½ of a double) Lesson 132 (9-4, 9-5, 9-3, 9-6) Lesson 134 (7-3, 7-4, 8-3, 8-5)	M01-S5C2-04. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols. Connections: M01-S1C1-01, M01-S1C1-02, M01-S1C1-03, M01-S1C2-01, M01-S1C2-05, M01-S2C1-02, M01-S3C3-01, M01-S3C3-02, M01-S3C3-03	To develop grouping concepts, students need many opportunities to add groups of 10s to any 2 digit number, add numbers that make groups of 10, and subtract groups of 10 from a 2 digit number. Examples: • 23 + 40, count up by 10s, to get 33, 43, 53, 63 • 24 + 6, 4 + 6 =10 so now there are 3 tens or 30 • 57 – 30, 5 tens take-away 3 tens leaves 2 tens so the answer is 2 tens and 7 or 27 Students use objects, pictures and explore several strategies to solve problems such as 32 + 45 and 23 + 38. Note: The intent of this performance objective is not to introduce traditional algorithms or rules.

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Grade 1

Performance Objectives	*Process Integration & Connections*	*Explanations and Examples*
Students are expected to:		
PO 3. Develop and use multiple strategies for addition facts to 10+10 and their related subtraction facts. Lesson 21 (represent equivalent forms of the same number) Lesson 23 (doubles with sums to 10) Lessons 27, 28, 30 (doubles with sums to 18) Facts tested daily in "Facts Practice" beginning w/ Lesson 31 Lessons 32, 34, 36, 37 (adding 1 to a number) Lesson 33 (some, some more & some, some went away) Lesson 40 (sum by counting on) Lesson 41 (adding 0) Lessons 44, 45 (subtracting 1) Lesson 49 (subtracting 0, subtracting a number from itself) Lessons 58, 61 (adding 2 to an even number) Lessons 59, 61 (adding 2 to an odd number) Lessons 68, 69 (subtracting 2) Lessons 76, 77, 78, 79, 80-1 (doubles +1) Lessons 94, 95 (sums of 10) Lessons 101, 102 (subtracting number from 10) Lessons 105-1, 106 (plus 9) Lessons 111, 115-1 ("oddball" facts) Lesson 121 (differences of 1) Lesson 125-1 (difference of 2 facts) Lesson 129 (subtract half of a double) Lesson 132 (addition and subtraction fact families) Lesson 134 ("oddball" subtraction facts, fact families)	M01-S5C2-03. Select from a variety of problem-solving strategies and use one or more strategies to arrive at a solution. Connections: M01-S1C2-01, M01-S1C2-04, M01-S1C2-05, M01-S2C1-02, M01-S3C1-02, M01-S3C3-01, M01-S3C3-02, M01-S3C3-03	Students use the following strategies to understand addition and subtraction facts: • Acting out the problem • Using objects • Drawing pictures • Using 5 and 10 frames • Using number lines • Using 100 charts Continued on next page The following Grade 1 strategies will prepare students to develop quick recall of addition and subtraction facts in Grade 2: • 0, 1 or 2 more/less than • Counting on • Counting back • Making tens • Adding nine using "plus 10, minus 1" • Using doubles • Using near doubles (Ex: 5 + 6 is 5 + 5 plus 1 more) • Subtracting by counting up (Ex: 8 – 3. count up from 3, that is, 4, 5, 6, 7, 8)

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Performance Objectives	*Process Integration & Connections*	*Explanations and Examples*
Students are expected to:		
PO 4. Create word problems based on addition and subtraction facts. Lesson 15 (act out and draw + and – number sentences) Lesson 19 (seeds of apple) Lesson 21 (writing addition number sentences) Lesson 25-1 (creating addition problem story situations) Lesson 37 (adding 1) Lesson 81 (student store) Lesson 86 (student store) Lesson 94 (sums of 10) Lesson 95-1 (sums of 10) Lesson 101 (number from 10)	M01-S5C2-01. Identify the question(s) asked and any other questions that need to be answered in order to find a solution. M01-S5C2-02. Identify the given information that can be used to find a solution. Connections: M01-S1C2-01, M01-S1C2-03, M01-S1C3-01, M01-S2C1-02, M01-S3C3-03	There is a strong connection between this performance objective and representing word problems requiring addition or subtraction facts in an equation (M01-S3C3-03).Teaching these ideas concurrently is critical. Students use addition facts up to 10 + 10 and the related subtraction facts to create their word problems. Example: • For the equation 7 + ? = 10, a possible story is: Jeff had 7 marbles in his pocket and some marbles in his drawer. He had 10 marbles altogether. How many marbles did he have in his drawer? Show your answer in pictures or words or using objects.
PO 5. Apply properties to solve addition/subtraction problems • identity property of addition/subtraction and • commutative property of addition. Lesson 21 (writing addition number sentences) Lesson 36 (+1 facts) Lesson 41 (+0 facts) Lesson 76 (doubles +1 facts) Lesson 78 (doubles +1 facts) Lesson 94 (commutative property) Lesson 114 (associative property)	M01-S5C2-05. Explain and clarify mathematical thinking. Connections: M01-S1C2-01, M01-S1C2-02, M01-S1C2-03, M01-S3C3-01, M01-S3C3-03	Students should understand the important ideas of these properties. 12 = 12 + 0 16 – 0 = 16 3 + 4 = 4 + 3 Understanding the meaning of the equal sign as "the same quantity as" is foundational to these concepts

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Approved 6.24.08   Grade 1

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 1, students use five, ten, and twenty as benchmark numbers to develop their sense of quantity as well as to compare numbers.

<u>*Performance Objectives*</u>	<u>*Process Integration & Connections*</u>	<u>*Explanations and Examples*</u>
Students are expected to:		
PO 1. Use estimation to determine if sums are more or less than 5, more or less than 10, or more or less than 20. Lesson 18 (dividing a solid in half) Lesson 29 (identifying lighter and heavier with balance) Lesson 39 (weighing objects) Math Meeting "Mystery Bag" in Lessons 41-135 Lesson 46 (counting dimes) Lesson 50 (estimating capacity) Lesson 52 (number on 100's chart) Lesson 62 (measuring length) Lesson 64 (pairs) Lesson 68 (subtracting 2 strategy) Lessons 76, 77 (doubles +1 strategy) Lessons 78, 79 (doubles +1) Lesson 89 (+10 to number strategy) Lesson 90 (+10) Lessons 94, 95 (sums of 10 facts) Lesson 100 (ordering events by time) Lesson 104 (estimate distance in feet) Lesson 105, 106 (+9 facts strategy) Lesson 110 (estimating capacity) Lesson 115-2 (rounding and estimating to the nearest 10) Lesson 121 (difference of 1 facts) Lesson 123 (-10 from number)	M01-S5C2-03. Select from a variety of problem-solving strategies and use one or more strategies to arrive at a solution. M01-S5C2-06. Determine whether a solution is reasonable. Connections: M01-S1C1-01, M01-S1C1-02, M01-S1C1-04, M01-S1C2-04	Estimating quantities helps students further develop their sense of number as well as their ability to compare and order numbers. Experiences of estimating sums without computing are important because it requires students to examine the relationships between the numbers. Examples: • 6 + 6 is more than 10 because 5 + 5 is 10 • 13 + 16 is more than 20 because there are more than 2 tens (extension: there are almost 3 tens)

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Lesson 125 (difference of 2 facts) Lesson 129 (half of a double) Lesson 134 (subtraction facts)		

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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 1, students are introduced to basic ideas of data analysis by collecting and visually representing data. These ideas reinforce their understanding of whole numbers and addition and subtraction as students ask and answer questions about the data. As they move through the grades, students continue to apply what they learn about data, making mathematics relevant and connecting numbers to applied situations.

Performance Objectives	*Process Integration & Connections*	*Explanations and Examples*
Students are expected to:		
PO 1. Collect, record, organize, and display data using tally charts or pictographs.

Math Meetings "Weather Graph" from Lesson 1 on
Lesson 5 (placing objects on a graph)
Math Meetings "Lunch/Attendance Graph" from Lesson 6 on
Lesson 7 (graphing a picture on a pictograph)
Lesson 10-1 (collect & use data to construct a bar-type graph)
Lesson 19 (sort and collect data)
Lesson 38 (sort objects & graph)
Lesson 40-1 (bar)
Lesson 50 (volume)
Lesson 60-1 (graph a collection of pattern blocks)
Lesson 65-1 (graph pieces in a design) | M01-S5C2-04. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols.

Connections: M01-S1C1-01, M01-S1C1-02, M01-S2C1-02, SC01-S1C2-04, SC01-S1C4-01 | Students work with pictographs that have pictures representing a quantity of one. |

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Approved 6.24.08   Grade 1

Lesson 70-1 (tallying) Lesson 72 (name of store vote) Lesson 110 (estimating and measuring in cups) Lesson 118 (bar)		
PO 2. Ask and answer questions by interpreting simple displays of data, including tally charts or pictographs. Lesson 7 (identify most and fewest on a pictograph) Lesson 10 (dice bar graph) Lesson 19 (apple seed graph) Lesson 38 (bar graph of pattern blocks) Lesson 40-1 (from bar graph) Lesson 50 (regarding cups, volume) Lesson 65-1 (from bar graph) Lesson 70 (tallying) Lesson 72 (regarding sorting common objects) Lesson 82 (how many more than?) Lesson 118 (write observations about a graph) Lesson 130 (certain, likely, impossible)	M01-S5C2-01. Identify the question(s) asked and any other questions that need to be answered in order to find a solution. M01-S5C2-02. Identify the given information that can be used to find a solution. Connections: M01-S1C1-01, M01-S1C1-02, M01-S1C1-04, M01-S1C2-01, M01-S1C2-02, M01-S1C2-03, M01-S1C2-04, M01-S2C1-01, SC01-S1C4-01	The graphical representations include those listed in M01-S2C1-01 and all other applicable representations taught in previous grade levels. The data chosen or questions asked give students opportunities to reinforce many performance objectives such as addition and subtraction facts, counting by fives and tens, identifying ten more and ten less, and using comparative language. Students answer questions as well as compose their own questions based on the data, charts, or graphs.

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

Understand and apply the basic concepts of probability.

In Grade 1, there are no performance objectives in this concept. Performance objectives begin in Grade 3

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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 1, students sort objects using a Venn diagram and describe how they sorted them.

Performance Objectives	*Process Integration & Connections*	*Explanations and Examples*
Students are expected to:		
PO 1. Use Venn diagrams to sort, classify, and count objects and justify the sorting rule. Lessons 20-2, 100-2 (make an organized list) Lesson 130-1 (certain, likely, impossible)	M01-S5C2-05. Explain and clarify mathematical thinking. Connections: M01-S1C1-01, M01-S4C1-02, SC01-S1C3-01, SC01-S5C1-01, SC01-S5C1-02	Initially, first graders are introduced to Venn diagrams through sorting objects into disjoint sets (i.e., non-intersecting Venn diagrams). After completing their sort, they explain their sorting rule, draw a circle around each group, and label each group with a word that describes what the objects have in common. They also talk about what attributes are "different" and if any objects possess both attributes (in the disjoint case, no objects will have possess both attributes). Children should also be given a Venn diagram of two non-intersecting groups that are labeled (for example, BIG and YELLOW) where they need to draw examples of objects that can go inside the circles and outside the circles. Perhaps they might draw a house inside the circle labeled BIG, a banana inside the circle labeled YELLOW, and a cucumber outside of the circles because it is both NOT BIG and NOT YELLOW. Continued on next page By the end of the school year, students are introduced to the idea that some objects may share both attributes and explore sorting situations in

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Performance Objectives	*Process Integration & Connections*	*Explanations and Examples*
Students are expected to:		
		Venn diagrams with one intersecting region.
		Extending the BIG and YELLOW example, students might draw a school bus inside the region to represent an object that is both BIG and YELLOW. They should use words to describe the objects found in all four regions: 1) BIG, 2) YELLOW, 3) BIG and YELLOW, and 4) NOT BIG and NOT YELLOW.

Big   **Yellow**

Dinosaur   Banana

Bus

Building   Pencil

Lemon

Ladybug   Dime

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

In Grade 1, 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 1, students will continue to develop their understanding of repeating and growing patterns. Repeating patterns will be more sophisticated than in kindergarten. Students will notice that growing patterns involve addition and subtraction, and they will work with other types of patterns as they learn to make generalizations about what they observe.

Performance Objectives	*Process Integration & Connections*	*Explanations and Examples*
Students are expected to:		
PO 1. Recognize, describe, extend, create, and record repeating patterns. Math Meetings 2-135 ("Calendar") Lesson 26 (create and read a repeating pattern) Lessons 30-2, 60-2 (look for a pattern to solve a problem) Math Meetings 31-135 ("Today's Pattern")	M01-S5C2-04. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols. Connections: M01-S4C1-01	Repeating patterns repeat the same series over and over again. Oral or physical patterns as well as patterns produced with objects or symbols can be used. Example: • The following pattern repeats ABCB over and over again: ABCB, ABCB, ABCB, ABCB, ABCB, …
PO 2. Recognize, describe, extend, create, and record growing patterns. Math Meetings "Today's Pattern" in Lessons 31-135 Lesson 52 (locating numbers on a hundreds number chart) Lesson 56 (identifying odd and even) Lesson 58 (adding 2 to a number) Lesson 59 (adding 2 to an odd number)	M01-S5C2-03. Select from a variety of problem-solving strategies and use one or more strategies to arrive at a solution. M01-S5C2-04. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or	Growing patterns repeat the same process over and over again. Students use objects, pictures or numbers. Students look for growing patterns in a hundreds chart. Growing patterns can be used to reinforce addition and subtraction facts. Example: • Adding 5 over and over again results in a number pattern of 5, 10, 15, 20, 25, 30, 35, 40, … Adding 5 over and over

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Performance Objectives	Process Integration & Connections	Explanations and Examples
Students are expected to:		
Lesson 89 (adding 10 to a number) Lesson 90 (counting by 10's from a single digit) Lesson 123 (subtracting 10 from a number)	symbols. Connections: M01-S1C1-01, M01-S1C1-02, M01-S1C1-03, M01-S1C2-01, M01-S1C2-03	can also be seen when counting the points on multiple stars or fingers on multiple hands. Continued on next page Students recognize when patterns are the same even though the terms in the sequences may be different. Example: • Red, blue; red, blue, blue; red, blue, blue, blue; … and AB, ABB, ABBB, … have the same pattern even though the terms are different.

Strand 3: Patterns, Algebra, and Functions
Concept 2: Functions and Relationships

Describe and model functions and their relationships.

In Grade 1, there are no performance objectives in this concept. Performance objectives begin in Grade 2.

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

Represent and analyze mathematical situations and structures using algebraic representations.

In Grade 1, students work with and create number sentences in contextual situations as they construct equivalent forms of whole numbers and explore equations in their many forms.

Performance Objectives	_Process Integration & Connections_	_Explanations and Examples_
Students are expected to:		

PO 1. Record equivalent forms of whole numbers to 100 by constructing models and using numbers.
 	
Lesson 21 (represent equivalent forms of the same number)
Lesson 85-1 (modeling 2-digit numbers)
Lesson 94 (commutative property)
Lesson 95 (sums of 10)
Lesson 114 (adding 3 single digits/associative property)
Lesson 131 (counting hundreds, tens, ones)
	M01-S5C2-04. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols.
	
	Connections: M01-S1C1-01, M01-S1C2-02, M01-S1C2-03, M01-S1C2-05, M01-S3C3-02
		There is a strong connection to representing numbers (M01-S1C1-01). Teaching these ideas concurrently is critical.
		
		Example:
		• Students can be asked to make 45 in as many ways as possible. Some possibilities are:
		  ○ 4 tens and a 5, recording the expression, 10 + 10 + 10 + 10 + 5
		  ○ 2 groups of 20 and a 5, recording the expression, 20 + 20 + 5
		  ○ Counting by 5s

PO 2. Compare expressions using spoken words and the symbols = and ≠. Lesson 9 (small/large, most/fewest, least/greatest) Lesson 17 (numbers between) Lesson 19 (compare numbers) Lesson 32 (compare numbers to 20) Lesson 85-1 (compare 2-digit numbers) Lesson 92 (compare numbers to 100) Lesson 108 (comparison symbols)	M01-S5C2-05. Explain and clarify mathematical thinking. Connections: M01-S1C1-04, M01-S1C2-02, M01-S1C2-03, M01-S3C3-01	There is a strong connection to comparing and ordering numbers (M01-S1C1-04). Teaching these ideas concurrently is critical. Interchanging the language of "equal to" and "the same as" as well as "not equal to" and "not the same as" will help students grasp the meaning of these symbols. Students need to understand that _equality_ means _the same quantity as._ This idea is critical if students are to avoid common pitfalls in later work with numbers and operations, where they may otherwise fall into habits of thinking that

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		the answer follows the equal sign.
		Examples:
		• 7 = 8 – 1; 5 + 3 is the same amount as 10 – 2.
		• Two expressions, 3 + 4 and 5 – 2 can be compared resulting in "3 + 4 is not equal to 5 – 2".

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Performance Objectives	Process Integration & Connections	Explanations and Examples
Students are expected to:		
PO 3. Represent a word problem requiring addition or subtraction facts using an equation. Lesson 15 (act out and draw story problems) Math Meeting "Mystery Bag" in Lessons 41-135 Lesson 21 (write addition number sentences) Lesson 25-1 (write number sentences for a "some, some more" stories) Lesson 33 (some, some more & some, some went away) Lesson 40 (using 2 dice to create equations) Lesson 94 (missing addends) Lesson 95 (missing addends)	M01-S5C2-04. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols. Connections: M01-S1C2-01, M01-S1C2-02, M01-S1C2-03, M01-S1C2-04, M01-S1C2-05	There is a strong connection to solving and creating contextual problems (M01-S1C2-01 and M01-S1C2-05). Teaching these ideas concurrently is critical. Equation forms include: • $a + b =$ • $c - a =$ • $c = a +$ • $c - = b$ Example: • Write a word problem that matches the equation: $8 + = 10$ ($a + = c$). Sample answer: Tom has 8 cars. His brother gave him some more. He now has 10 cars. How many cars did his brother give him?

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

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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.
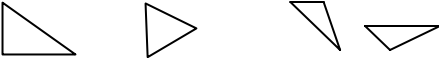
Concept 1: Geometric Properties

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

In Grade 1, students expand their knowledge of two-dimensional geometric figures by sorting, comparing, and contrasting them according to their characteristics. They learn important mathematical vocabulary used to name the figures. Students work with composite shapes made out of basic two-dimensional figures as they continue to develop their spatial sense of shapes, objects, and the world around them.

Performance Objectives	*Process Integration & Connections*	*Explanations and Examples*
Students are expected to:		
PO 1. Identify and draw 2-dimensional geometric figures based on given attributes regardless of size or orientation. Lesson 6 (identify the sides and angles of a square; circles) Lesson 13 (identify the sides and angles of triangles) Lesson 14 (making shapes on geoboards) Lesson 24 (identify the sides and angles of rectangles) Lesson 25-2 (attributes of pattern blocks)Lesson 60 (covering triangles with pattern blocks) Lesson 31 (covering designs with pattern blocks) Lesson 60 (covering triangles with pattern blocks) Lesson 67 (square and triangle in half) Lesson 71 (triangle) Lesson 75-2 (combining geometric shapes to make other	M01-S5C2-02. Identify the given information that can be used to find a solution. Connections: M01-S3C1-01	Students identify, describe, and draw figures based on given attributes such as number of sides, number of vertices, etc. Figures include circles, triangles, and rectangles (including squares). Figures should also include other quadrilaterals, but students do not necessarily need to name them. By definition, a square is a special kind of rectangle. Although most first graders 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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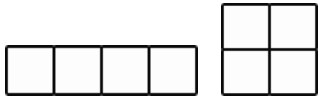
geometric shapes) Lesson 83 (identify and make congruent shapes) Lesson 96 (drawing congruent shapes) Lesson 112 (identify cones and spheres) Lesson 124 (identify and draw polygons)		Triangles should appear in many positions and orientations and should not all be equilateral or isosceles.

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Performance Objectives	Process Integration & Connections	Explanations and Examples
Students are expected to:		
PO 2. Compare and sort basic 2-dimensional figures (including irregular figures) using attributes and explain the reasoning for the sorting. Lesson 13 (sorting shapes & objects) Lesson 15 (sorting) Lesson 25-2 (attributes of pattern blocks) Lesson 31 (covering designs with pattern blocks) Lesson 60 (covering triangles with pattern blocks) Lesson 67 (square and triangle in half) Lesson 71 (triangle)	M01-S5C2-05. Explain and clarify mathematical thinking. Connections: M01-S2C3-01	Students may sort a collection of two-dimensional figures into those that have straight sides and those that do not. This type of sorting differs from the color, size, and texture sorting commonly done in kindergarten.
PO 3. Describe the results of composing and decomposing 2-dimensional figures. Lesson 42 (covering a design with pattern blocks) Lesson 75-2 (combining geometric shapes to make other geometric shapes)	M01-S5C2-05. Explain and clarify mathematical thinking.	Students use pattern blocks or plastic shapes to make new shapes. The teacher can give students cutouts of shapes and ask students to combine them to make a particular shape. Example: • What shapes can be made from four squares? • Students may also be asked to trace objects or use a drawing program to show different ways that a figure can be divided into different shapes.

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

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

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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 1, students begin to understand what it means to measure, and they develop their measuring skills using everyday objects. As they practice using measurement tools to measure objects, they reinforce their sense of number and continue to develop their sense of space and shapes.

Performance Objectives	Process Integration & Connections	Explanations and Examples
Students are expected to:		
PO 1. Compare and order objects according to length, capacity, and weight. Lesson 9 (size) Lesson 13 (sorting shapes & objects) Lesson 15 (sorting) Lesson 29 (light/heavy) Lesson 35-2 (length/width) Lesson 39 (weight) Lesson 50-1 (capacity) Lesson 62 (lengths) Lesson 75-2 (estimate & measure area w/ non-standard units) Lesson 95-2 (estimate/measure length w/ non-standard units) Lesson 100 (ordering events by time) Lesson 104 (create a measuring tool) Lesson 110 (quart, gallon, liter) Lesson 128 (temperatures of room and water fountain) Lesson 135.1 (weight)	M01-S5C2-05. Explain and clarify mathematical thinking. Connections: M01-S1C1-01, M01-S1C1-02, SC01-S1C1-01, SC01-S1C3-01, SC01-S5C1-01	Students can make direct comparison or measure using non-standard units (using multiple units or using one unit multiple times). Suitable non-standard measuring units for young children include marbles or cubes for weight; paper clips, craft sticks, toothpicks, coffee stirrers, etc. for length; and filled paper cups to measure capacity. Students describe the relationship between the size of the measurement unit and the number of units needed to measure something. For example, it takes more toothpicks than craft sticks to measure the width of my desk. The longer the unit the fewer I need. The idea of transitivity should also be included. For example, if Jon is taller than Jacob, and Jacob is taller than Luisa, then Jon is taller than Luisa.

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Performance Objectives	Process Integration & Connections	Explanations and Examples
Students are expected to:		
PO 2. Measure and compare the length of objects using the benchmark of one inch. Lesson 71 (use a ruler to draw a line segment) Lesson 97 (line segments to nearest inch) Lesson 104 (measuring in feet) Lesson 119 (measuring in cm.)	M01-S5C2-06. Determine whether a solution is reasonable. Connections: M01-S1C1-01, SC01-S1C2-03	Students use "one-inch rulers", such as one-inch paper strips or one-inch cubes, to measure the length of objects. Then they use rulers marked in one-inch increments.
PO 3. Sequence the days of the week and the months of the year. Math Meetings in Lessons 1 – 135 *Lesson 35.1 (morning, afternoon, evening, night)*	Connections: M01-S1C1-05	

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

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 1, students further develop the concept that doing mathematics involves solving problems and discussing what they did to solve them. Students continue to develop their mathematical communication skills as they participate in mathematical discussions involving questions like "How did you get that?"; "Why did you do that?"; and "How do you know that?" Students begin to build their mathematical vocabulary as they use correct mathematical language appropriate to grade 1.

Performance Objectives	*Process Integration & Connections*	*Explanations and Examples*
Students are expected to:	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	

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	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. Lesson 15 (act out and draw story problems) Lesson 21 (addition number sentences) Lesson 25-1 (write a number sentence for a "some, some more" story) Lesson 33 (write number sentences for "some, some went away" story) Math Meeting "Mystery Bag" in Lessons 41-135		
PO 2. Identify the given information that can be used to find a solution. Lesson 1 (identify what Mathematicians do) Lesson 10-2 (identify the steps in the problem solving process) Lesson 15 (acting out some, some more) Lesson 18 (dividing solid in half) Lesson 19 (seeds in an apple) Lesson 20-2 (organizing information) Lesson 21 (writing addition number sentences) Lesson 25-1 (writing number sentences) Lesson 30-2 (looking for patterns) Lesson 33 (writing – number sentences) Lesson 40-2 (using logical reasoning) Lessons 50-2, 70-2, 90-2, 110-2 (drawing pictures to understand problems) Lessons 80-2, 120-2 (guess and check) Lesson 86 (adding 2-digit number in store) Lesson 94 (sums of 10)		

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

PO 3. Select from a variety of problem-solving strategies and use one or more strategies to arrive at a solution. Lesson 1 (identify what Mathematicians do) Lesson 10-2 (identify the steps in the problem solving process) Lesson 20-2 (organizing information) Lesson 25-1 (writing number sentences) Lesson 30-2 (looking for patterns) Lesson 40-2 (using logical reasoning) Lessons 50-2, 70-2, 90-2, 110-2 (drawing pictures to understand problems) Lessons 80-2, 120-2 (guess and check)		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. Lesson 1 (identify what Mathematicians do) Lesson 10-2 (identify the steps in the problem solving process) Lesson 15 (acting out some, some more) Lesson 18 (dividing solid in half) Lesson 19 (seeds in an apple) Lesson 20-2 (organizing information) Lesson 21 (writing addition number sentences) Lesson 25-1 (writing number sentences) Lesson 30-2 (looking for patterns) Lesson 33 (writing – number sentences) Lesson 40-2 (using logical reasoning) Lessons 50-2, 70-2, 90-2, 110-2 (drawing pictures to understand problems) Lessons 80-2, 120-2 (guess and check) Lesson 86 (adding 2-digit number in store) Lesson 94 (sums of 10)		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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REVISED   Correlation of Saxon *Math-1*   REVISED
to the 2008 Arizona Grade 1 Mathematics Standard

Performance Objectives	*Process Integration & Connections*	*Explanations and Examples*
Students are expected to:	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. *This is a daily expectation throughout <u>Saxon Math-1</u>.*		Students will often need to use objects and pictures to explain their thinking. Modeling different explanations to guide students is helpful.
PO 6. Determine whether a solution is reasonable. *This is a daily expectation throughout <u>Saxon Math-1</u>.*		

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