Correlation of Saxon *Intermediate-5* to the 2008 Arizona Grade 5 Mathematics Standard

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.

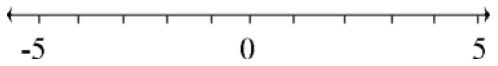
Concept 1: Number Sense

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

In Grade 5, students extend their work with equivalency among fractions, decimals, and percents to include ordering and comparing. In preparation for number concepts in Grades 6 and 7, they will work with factors, multiples, prime and composite numbers, and integers.

Performance Objectives	***Process Integration & Connections***	***Explanations and Examples***
Students are expected to:		
PO 1. Determine equivalence by converting between benchmark fractions, decimals, and percents. *Equivalency **between** fractions, decimals & percents:* Lesson 30 (interpret pictures of fractions/decimals/percents) Lesson 67 (writing tenths & hundredths as decimal numbers) Lesson 71 (fractions, decimals & percents) Lesson 107 (using percents to name parts of a group)	M05-S5C2-05. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols. M05-S5C2-07. Analyze and evaluate whether a solution is reasonable, is mathematically correct, and answers the question.	Students use models, pictures, symbols and spoken and written words. Benchmark fractions include common fractions between 0 and 1 such as halves, thirds, fourths, fifths, sixths, eighths, and tenths. 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:		
*Equivalency **among** fractions & **among** decimals:* Investigation 2 (halves, fourths, tenths) Investigation 3 (thirds, fifths, eighths) Lesson 59 (fractions equal to 1) Lesson 79 (finding equivalent fractions by multiplying by 1) Lesson 106 (removing unnecessary zeros in decimals) Lesson 113 (mixed numbers as improper fractions)	Connections: M05-S1C1-04, M05-S1C1-05, M05-S1C2-01, M05-S1C3-01, M05-S2C2-01, M05-S5C1-01	Examples: • Write $\frac{3}{8}$ as a decimal and as a percent. • Write $0.\overline{6}$ as a fraction and a percent. • Write 20% as a fraction in simplest form and a decimal.
PO 2. Differentiate between prime and composite numbers; differentiate between factors and multiples for whole numbers. Lesson 2 (even, odd) Lesson 25 (listing the factors of whole numbers) Lesson 78 (square roots) Lesson 80 (prime & composite numbers) Lesson 82 (greatest common factor) Lesson 112 (least common multiples, primes)	M05-S5C2-06. Summarize mathematical information, explain reasoning, and draw conclusions. Connections: M05-S1C2-01, M05-S1C2-02, M05-S1C2-03, M05-S5C1-01, M05-S5C2-09	Divisibility rules can help determine whether a number has particular factors. Examples: • Factors of 12 are 1, 2, 3, 4, 6, 12 • The multiples of 12 are 12, 24, 36, 48…
PO 3. Locate integers on a number line. Lesson 12 (integers on a number line) Lesson 38 (fractions & mixed numbers on a number line) Lesson 66 (reading a centimeter scale using decimals)	Connections: M05-S1C1-06, SS05-S1C1-02, SS05-S2C1-02	Example: • On the number line below, describe the location of -4.  -4 is located 4 units to the left of zero

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Performance Objectives	***Process Integration & Connections***	***Explanations and Examples***
Students are expected to:		
PO 4. Compare and order positive fractions, decimals, and percents. Lesson 3 (using money to illustrate place value) Lessons 4, 5 & 7(comparing whole numbers) Lesson 12 (number lines) Lesson 30 (pictures of fractions, decimals & percents) Lesson 37 (pictures of fractions) Lesson 38 (fractions & mixed numbers on a number line) Lesson 39 (comparing fractions by drawing pictures) Lesson 64 (using money to model decimals) Lesson 66 (reading a centimeter scale using decimals) Lesson 67 (writing tenths & hundredths as decimal numbers) Lesson 68 (naming/modeling decimals) Lessons 69 (ordering using decimals) Lesson 70 (equivalent decimals) Lesson 75 (improper fractions as whole or mixed numbers) Lesson 100 (simplifying decimal numbers) Lesson 106 (ordering decimal numbers)	M05-S5C2-03. Select and use one or more strategies to efficiently solve the problem and justify the selection. M05-S5C2-04. Determine whether a problem to be solved is similar to previously solved problems, and identify possible strategies for solving the problem. Connections: M05-S1C1-01, M05-S1C3-01	Positive fractions include proper and improper fractions as well as mixed numbers. Students identify multiple strategies to compare and order. Some possible strategies include using a common denominator or common numerator, using benchmark fractions as listed in M05-S1C1-01, or representing all values in decimal form. Examples: • Order the following from least to greatest: $\frac{7}{5}$, 1.25, 10% • Order the following from greatest to least: 0.32, 83%, $\frac{1}{5}$, $\frac{2}{3}$ • Ms. Lopez, the girls' basketball coach, needs to pick a 5^{th} grader for the school's free-throw competition. In the last practice, Amy made 2 baskets out of three tries; Maria made 7 out of 10 free-throws; and Emily made 60% of her free-throws. Which girl should Ms. Lopez pick for the contest to give the 5^{th} graders the best chance of winning?

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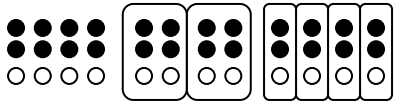
Performance Objectives	***Process Integration & Connections***	***Explanations and Examples***
Students are expected to:		
PO 5. Use ratios and unit rates to model, describe and extend problems in context. Lesson 21 (problems about equal groups) Lesson 35 (problems about comparing) Lesson 46 (word problems about fraction of a group) Lesson 59 (fractions equal to 1) Lesson 79 (finding equivalent fractions by multiplying by 1) Lesson 97 (ratios) Investigation 11 (scale drawing)	M05-S5C2-04. Determine whether a problem to be solved is similar to previously solved problems, and identify possible strategies for solving the problem. M05-S5C2-07. Analyze and evaluate whether a solution is reasonable, is mathematically correct, and answers the question. Connections: M05-S1C1-01, M05-S1C3-01, M05-S2C1-02, M05-S2C2-01, M05-S3C4-01	A ratio is a comparison of two quantities which can be written as a to b, $\frac{a}{b}$, or a:b. A rate is a ratio that compares different types of measures. A unit rate compares a quantity in terms of one unit of another quantity. Students need many opportunities to use models to demonstrate the relationships between quantities before they are expected to work with rates numerically. Continued from previous page. A comparison of 8 black circles to 4 white circles can be written as the ratio of 8:4 and can be regrouped into 4 black circles to 2 white circles (4:2) and 2 black circles to 1 white circle (2:1).  Examples: • Using the information in the table, find the number of yards in 24 feet. Feet | 3 | 6 | 9 | 15 | 24 Yards | 1 | 2 | 3 | 5 | ? There are several strategies that students could use to determine the solution to this problem. o Add quantities from the table to total 24 feet (9 feet and 15 feet); therefore the number of yards must be 8 yards (3 yards and 5 yards). Continued on next page.

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<table>
<tr><th>Performance Objectives</th><th>Process Integration & Connections</th><th>Explanations and Examples</th></tr>
<tr><td>Students are expected to:</td><td></td><td></td></tr>
<tr><td></td><td></td><td>o Use multiplication to find 24 feet: 1) 3 feet x 8 = 24 feet; therefore 1 yard x 8 = 8 yards, or 2) 6 feet x 4 = 24 feet; therefore 2 yards x 4 = 8 yards.

• If you can travel 20 miles in 4 hours on a bicycle, what is the unit rate (the distance you can travel in 1 hour)?
• Compare the number of black to white circles. If the ratio remains the same, how many black circles will you have if you have 60 white circles?

● ● ● ● ○ ○ ○

<table><tr><td>Black</td><td>4</td><td>40</td><td>20</td><td>60</td><td>?</td></tr><tr><td>White</td><td>3</td><td>30</td><td>15</td><td>45</td><td>60</td></tr></table></td></tr>
<tr><td>PO 6. Express or interpret positive and negative numbers in context.

Lesson 98 (temperature)</td><td>M05-S5C2-05. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols.

Connections: M05-S1C1-03, SS05-S1C1-02, SS05-S2C1-02, SS05-S5C5-01</td><td>Context may include number lines, thermometers, elevation, credit/debit, or games such as football or golf.</td></tr>
</table>

Strand 1: Number and Operations
Concept 2: Numerical Operations

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

In Grade 5, students expand their understanding of equality, and build on their previous work in adding and subtracting fractions to include unlike denominators. They develop fluency with the operations and standard algorithms for adding and subtracting fractions and decimals and multiplying and dividing whole numbers. They extend their work with order of operations to numerical expressions.

Performance Objectives	***Process Integration & Connections***	***Explanations and Examples***
Students are expected to:		
PO 1. Add and subtract decimals through thousandths and fractions expressing solutions in simplest form. DECIMALS: Lesson 13 (adding & subtracting dollars & cents) Lesson 73 (adding & subtracting decimal numbers) Lesson 99 (add & subtract whole & decimal numbers) Lesson 102 (subtracting decimal numbers using zeros) FRACTIONS: Lesson 23 (recognizing halves) Lesson 40 & 58 (write quotient with mixed numbers) Lesson 41 (add/subtract fractions w/ common denominators) Lesson 50 (find a fraction to complete a whole) Lesson 59 (subtracting fractions from 1) Lesson 60 (find a fraction to complete a whole) Lesson 63 (subtracting a fraction from 1) Lesson 75 (changing improper fractions to whole numbers) Lesson 79 (finding equivalent fractions by multiplying by 1) Lessons 81 & 90 (reducing fractions) Lesson 91 (simplifying improper fractions) Lesson 116 (common denominators to add/subtract/compare)	M05-S5C2-05. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols. M05-S5C2-07. Analyze and evaluate whether a solution is reasonable, is mathematically correct, and answers the question. Connections: M05-S1C1-01, M05-S1C1-02, M05-S1C2-05, M05-S1C3-01, M05-S3C1-01, M05-S5C1-01	Examples: • $4-1.7$ • $0.125+0.09$ • $\frac{2}{5}+\frac{7}{8}$ • $3\frac{1}{4}-\frac{5}{6}$

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Performance Objectives	***Process Integration & Connections***	***Explanations and Examples***
Students are expected to:		
PO 2. Multiply multi-digit whole numbers. Lesson 13 (multiplication as repeated addition) Lesson 15 (making a multiplication table) Lesson 17 (multiplying one-digit numbers) Lesson 18 (multiplying three factors) Lesson 29 (multiplying by multiples of 10 and 100) Lesson 51 (multiplying by two-digit numbers) Lesson 55 (multiplying by three-digit numbers) Lesson 56 (multiplying by three-digit numbers that include 0) Lesson 86 (multiplying a fraction by a whole number)	M05-S5C2-07. Analyze and evaluate whether a solution is reasonable, is mathematically correct, and answers the question. Connections: M05-S1C1-02, M05-S1C2-05, M05-S1C3-01	Students are expected to fluently and accurately multiply multi-digit whole numbers. Multi-digit at this grade level reers to any number of digits.
PO 3. Divide multi-digit whole numbers by whole number divisors with and without remainders. Lesson 19 (relationship between multiplication and division) Lesson 20 (three ways to show division) Lesson 22 (division with and without remainders) Lesson 26 (division algorithm) Lesson 34 (division with zeros in the quotient) Lesson 40, 43 & 58 (writing quotients as mixed numbers) Lesson 42 (short division, divisibility by 3, 6 & 9) Lesson 54 (dividing by multiples of 10) Lesson 92 (dividing by two-digit numbers) Lesson 94 (using estimation to divide by two-digit numbers)	M05-S5C2-07. Analyze and evaluate whether a solution is reasonable, is mathematically correct, and answers the question. Connections: M05-S1C1-02, M05-S1C2-05, M05-S1C3-01	Students are expected to fluently and accurately divide multi-digit whole numbers. Divisors can be any number of digits at this grade level.

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Performance Objectives	***Process Integration & Connections***	***Explanations and Examples***
Students are expected to:		
PO 4. Apply the associative, commutative, and distributive properties to solve numerical problems. Lesson 6 (commutative & identity properties of addition) Lesson 8 (relationship between addition and subtraction) Lesson 13 (multiplication) Lesson 15 (commutative & zero property of multiplication) Lesson 19 (relationship between multiplication and division) Lesson 24 (associative property) Lesson 42 ("short" division and divisibility by 3, 6, and 9) Lesson 51 (use distribution to multiply by 2-digit numbers)	M05-S5C2-06. Summarize mathematical information, explain reasoning, and draw conclusions. M05-S5C2-07. Analyze and evaluate whether a solution is reasonable, is mathematically correct, and answers the question. Connections: M05-S1C2-05, M05-S5C1-01, M05-S5C2-10	The raised dot (•) is first introduced in Grade 5 to represent multiplication. This representation of multiplication transitions students into algebraic notation. Examples: • 92 + 28 = 90 + 2 + 20 + 8 = (90 + 20) + (2 + 8) • 12 x 2 = (10 x 2) + (2 x 2) • 4 • 3 = 3 • 4
PO 5 Simplify numerical expressions (Including fractions and decimals) Using the order of operations with or without grouping symbols. Lesson 6 (commutative & identity properties of addition) Lesson 8 (addition and subtraction as inverse operations) Lesson 9 (subtraction algorithm) Lesson 15 (commutative, identity & zero properties of multiplication) Lesson 24 (parentheses, associative property)		

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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 5, students use estimation skills to verify the reasonableness of their solutions. They make reasonable estimates with whole numbers for sums, differences, products and quotients. They also make reasonable estimates for sums and differences of fractions and decimals.

Performance Objectives	***Process Integration & Connections***	***Explanations and Examples***
Students are expected to:		
PO 1. Make estimates appropriate to a given situation or computation with whole numbers, fractions, and decimals Lesson 33 (rounding numbers and estimating) Lesson 48 (review expanded notation) Lesson 52 (review place value to 100,000,000,000) Lesson 62 (estimate with rounded & compatible numbers) Lesson 94 (use estimation to divide by two-digit numbers) Lesson 101 (round mixed numbers to nearest whole number) Lesson 104 (round decimal number to nearest whole number) *The use of estimation is encouraged daily throughout Saxon Intermediate 5.*	M05-S5C2-01. Analyze a problem situation to determine the question(s) to be answered. M05-S5C2-06. Summarize mathematical information, explain reasoning, and draw conclusions. Connections: M05-S1C1-01, M05-S1C1-04, M05-S1C1-05, M05-S1C2-01, M05-S1C2-02, M05-S1C2-03, M05-S2C1-02, M05-S2C1-03, M05-S2C2-01, M05-S2C3-02, M05-S2C4-02, M05-S3C1-01, M05-S3C3-01, M05-S3C4-01, M05-S4C4-01, M05-S4C4-02, M05-S4C4-04, M05-S4C4-05	Students should estimate using all four operations with whole numbers and addition and subtractions with fractions and decimals. Estimation skills include identifying when estimation is appropriate, determining the level of accuracy needed, selecting the appropriate method of estimation, and verifying solutions or determining the reasonableness of situations using various estimation strategies. Estimation strategies for calculations with fractions and decimals extend from students' work with whole number operations and can be supported through the use of physical models. Estimation strategies include, but are not limited to: • front-end estimation with adjusting (using the highest place value and estimating from the front end making adjustments to the estimate by taking into account the remaining amounts), • clustering around an average (when the values are close together an average value is selected and multiplied by the number of values to determine an estimate), Continued on next page

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Performance Objectives	***Process Integration & Connections***	***Explanations and Examples***
Students are expected to:		
		• rounding and adjusting (students round down or round up and then adjust their estimate depending on how much the rounding affected the original values), • using friendly or compatible numbers such as factors (students seek to fit numbers together - i.e., rounding to factors and grouping numbers together that have round sums like 100 or 1000), and • using benchmark numbers that are easy to compute (students select close whole numbers for fractions or decimals to determine an estimate). Specific strategies also exist for estimating measures. Students should develop fluency in estimating using standard referents (meters, yard, etc) or created referents (the window would fit about 12 times across the wall). Example: • Jared is making a frame for a picture that is $10\frac{3}{4}$ inches wide and $15\frac{1}{8}$ inches tall. He has a 4-ft length of metal framing material. Estimate whether he will have enough framing material. Explain your estimation process and answer.

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 5, students apply their understanding of whole numbers, fractions, and decimals as they construct, analyze, and describe data. Students apply this understanding of data in other core content areas and in their lives.

Performance Objectives	***Process Integration & Connections***	***Explanations and Examples***
Students are expected to:		
PO 1. Collect, record, organize, and display data using multi-bar graphs or double line graphs. Investigation 5 (organizing & analyzing data) Investigation 6 (line graphs) Investigation 7 (display data) Lesson 93 (comparative bar graphs) Lesson 108 (schedules, tables)	M05-S5C2-05. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols. Connections: M05-S2C1-02, SC05-S1C2-05, SC05-S1C4-02, SS05-S4C1-06	

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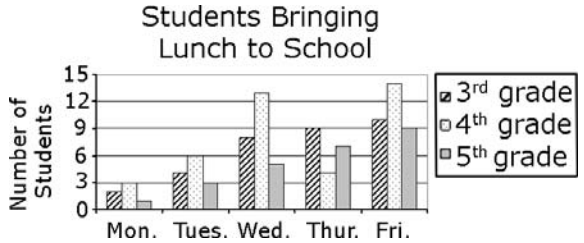
Performance Objectives	***Process Integration & Connections***	***Explanations and Examples***
Students are expected to:		
PO 2. Formulate and answer questions by interpreting and analyzing displays of data, including multi-bar graphs or double line graphs. Investigation 5 (organizing & analyzing data) Investigation 6 (line graphs) Investigation 7 (displaying data) Lesson 93 (comparative bar graphs) Lesson 108 (schedules, tables)	M05-S5C2-02. Identify relevant, missing, and extraneous information related to the solution to a problem. M05-S5C2-06. Summarize mathematical information, explain reasoning, and draw conclusions. Connections: M05-S1C1-05, M05-S1C3-01, M05-S2C1-01, M05-S2C1-03, M05-S3C4-01, M05-S5C2-09, SC05-S1C1-01, SC05-S1C1-02, SC05-S1C3-01, SS05-S4C6-02, SS05-S4C6-03	Students are expected to estimate and make computations using a data set. Example: • Answer the questions using the graph below. o How many 4th graders brought lunch on Tuesday? o How many more 5th graders than 3rd graders brought their lunch on Thursday? o Susan said that more 5th graders than 3rd graders brought their lunch to school this week. Is Susan's statement true? 

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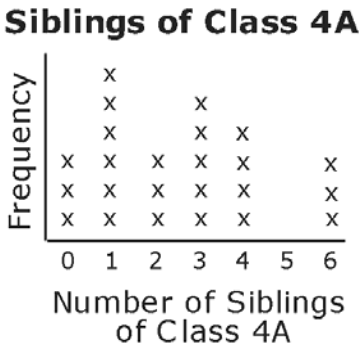
Performance Objectives	***Process Integration & Connections***	***Explanations and Examples***
Students are expected to:		
PO 3. Use mean, median, mode, and range to analyze and describe the distribution of a given data set. Lesson 50 (average) Lesson 84 (mean, median, mode, range)	M05-S5C2-02. Identify relevant, missing, and extraneous information related to the solution to a problem. M05-S5C2-06. Summarize mathematical information, explain reasoning, and draw conclusions. Connections: M05-S1C3-01, M05-S2C1-02, SC05-S1C3-01	Students use sets of data as well as graphical representation of data sets arising from real-world contexts. Example: • What is the median number of siblings that students in this class have? What is the mode of the data? What is the mean number of siblings? What is the range of the number of siblings? What do the mean, median, mode, and range of number of siblings tell you about the students in the class? 

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

Understand and apply the basic concepts of probability.

In Grade 5, students extend their knowledge of fractions to be able to state the theoretical probability of an event as a fraction, decimal, or percent. They predict, record, and compare results in actual experiments. Students begin to understand how probability is determined and make predictions related to probability.

Performance Objectives	***Process Integration & Connections***	***Explanations and Examples***
Students are expected to:		
PO 1. Describe the theoretical probability of events and represent the probability as a fraction, decimal, or percent. Lesson 57 (probability)	M05-S5C2-05. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols. M05-S5C2-07. Analyze and evaluate whether a solution is reasonable, is mathematically correct, and answers the question.	Example: • A bag contains 4 green marbles, 6 red marbles, and 10 blu drawn randomly from the bag, what is the probability it will probability that it will not be red? Connections: M05-S1C1-01, M05-S1C1-05, M05-S1C3-01, M05-S
PO 2. Explore probability when performing experiments by • predicting the outcome, • recording the data, • comparing outcomes of the experiment to predictions, and comparing the results of multiple repetitions of the experiment. Lesson 57 (probability) Investigation 9 (performing probability experiments)	M05-S5C2-05. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols. M05-S5C2-08. Make and test conjectures based on data or information collected from explorations and experiments.	Students should have opportunities to perform experiments using s or other objects. Connections: M05-S2C2-01

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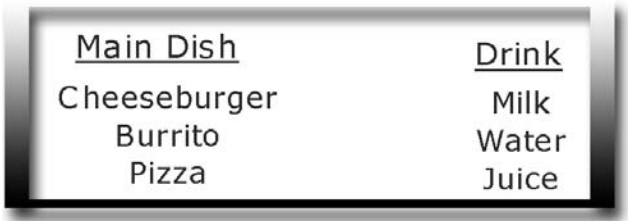
Strand 2: Data Analysis, Probability, and Discrete Mathematics
Concept 3: Systematic Listing and Counting

Understand and demonstrate the systematic listing and counting of possible outcomes.

In Grade 5, students will extend their understanding of counting problems and their relation to probability. They will analyze different representations and make connections to the multiplication principle of counting.

Performance Objectives	***Process Integration & Connections***	***Explanations and Examples***
Students are expected to:		
PO 1. Analyze relationships among representations and make connections to the multiplication principle of counting. Lesson 4 "Focus Strategy" (make an organized list) "Problem Solving" in the "Power-Up" section of Lessons 5, 7, 8, 9, 10, 12, 15, 19, 21, 23, 30, 34, 37, 40, 43, 49, 51, 63, 67, 70, 76, 81, 84, 90, 92, 97, 102 and 107.	M05-S5C2-03. Select and use one or more strategies to efficiently solve the problem and justify the selection. M05-S5C2-07. Analyze and evaluate whether a solution is reasonable, is mathematically correct, and answers the question. Connections: M05-S2C3-02, M05-S5C2-09, M05-S5C2-10	Students create and use multiple representations such as charts, systematic lists, and tree diagrams. They note the similarities and differences among the representations and connect them to the multiplication principle of counting. Example: • Use multiple representations to show the number of meals possible if each meal consists of one main dish and one drink. The menu is shown below. Analyze the various representations and describe how the representations illustrate the multiplication principle of counting.  Continued on next page

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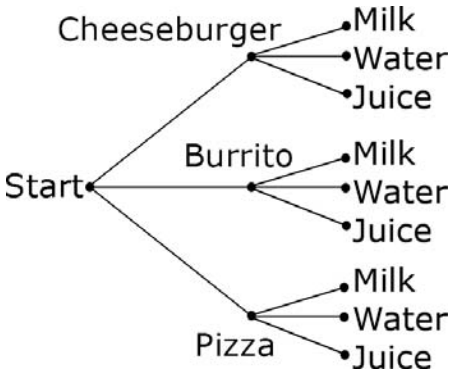
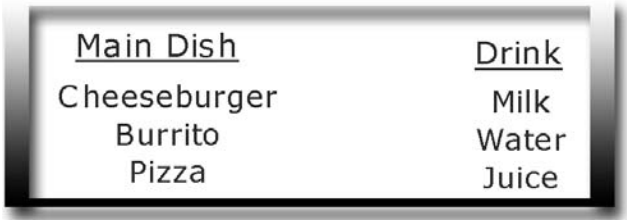
Performance Objectives	***Process Integration & Connections***	***Explanations and Examples***
Students are expected to:		
		 Both of the representations above illustrate a 3 • 3 relationship, which connects to the multiplication principle. Students explain where the multiplication principle appears in each representation. In this example, there are 3 • 3 = 9 possible meals.

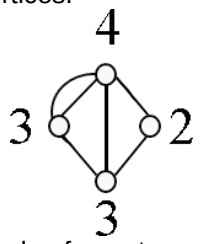
	Milk	Water	Juice
Cheeseburger	x	x	x
Burrito	x	x	x
Pizza	x	x	x

Performance Objectives	***Process Integration & Connections***	***Explanations and Examples***
Students are expected to:		
PO 2. Solve a variety of counting problems and explain the multiplication principle of counting. Lesson 4 "Focus Strategy" (make an organized list) "Problem Solving" in the "Power-Up" section of Lessons 5, 7, 8, 9, 10, 12, 15, 19, 21, 23, 30, 34, 37, 40, 43, 49, 51, 63, 67, 70, 76, 81, 84, 90, 92, 97, 102 and 107.	M05-S5C2-04. Determine whether a problem to be solved is similar to previously solved problems, and identify possible strategies for solving the problem. M05-S5C2-05. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols. Connections: M05-S1C3-01, M05-S2C2-01, M05-S2C3-01	Examples: • How many different ways can you arrange the letters CAT? Illustrate your solution and relate it to the multiplication principle of counting. • Create a meal by choosing one main dish and one drink from the menu. How many possible meals can be made from the menu? Make a systematic list of your possibilities. How can you use the multiplication principle of counting to determine the number of meals? 

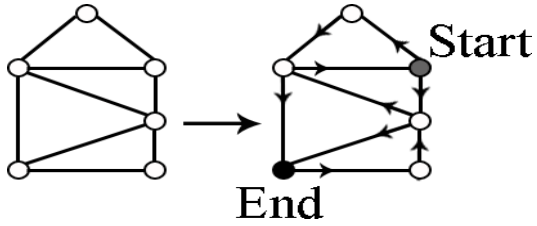
Strand 2: Data Analysis, Probability, and Discrete Mathematics
Concept 4: Vertex-Edge Graphs

Understand and apply vertex-edge graphs.

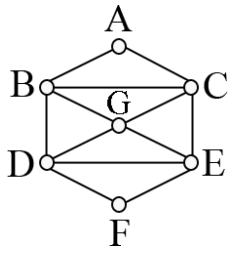
In Grade 5, students continue to develop their understanding of vertex-edge graphs by investigating and solving problems involving Euler paths and circuits.

Performance Objectives	***Process Integration& Connections***	***Explanations and Examples***
Students are expected to:		
PO 1. Investigate properties of vertex-edge graphs • Euler paths, • Euler circuits, and • degree of a vertex. *Not addressed in Saxon Intermediate 5.* *For additional information, we recommend you go to the origin of Arizona's discrete math standard at http://dimacs.rutgers.edu/lp/institutes/dm.html*	M05-S5C2-05. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols. M05-S5C2-08. Make and test conjectures based on data or information collected from explorations and experiments. Connections: M05-S2C4-02	The number of edges that meet at a vertex is called the degree of the vertex. In the vertex-edge graph below the numbers indicate the degree of the corresponding vertices.  Below is an example of a vertex-edge graph. The graph below and to the right, shows a possible Euler path one could travel. There are several different Euler paths in this graph. An Euler path travels along every edge in the graph exactly once. Vertices may be revisited, but edges may not be repeated. An Euler circuit is an Euler path that ends where it begins. 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:		
		 Students should be provided guided explorations and make observations about the characteristics of Euler paths and circuits in graphs. Discussions should include ideas of connectedness, paths, circuits, odd and even vertices, and if the graph contains an Euler path, Euler circuit, or both. Ultimately, students should understand that: • If a graph is connected and has no vertices of odd degree, then the graph has an Euler circuit. An Euler circuit can begin and end at any vertex. • If a graph is connected and has exactly two vertices of odd degree, then the graph has an Euler path. An Euler path begins at one of the vertices of odd degree and ends at the other vertex of odd degree. This discussion may lead to: Is every path a circuit? And Is every circuit a path?

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:		
PO 2. Solve problems related to Euler paths and circuits. *Not addressed in Saxon Intermediate 5.* *For additional information, we recommend you go to the origin of Arizona's discrete math standard at http://dimacs.rutgers.edu/lp/institutes/dm.html*	M05-S5C2-01. Analyze a problem situation to determine the question(s) to be answered. M05-S5C2-03. Select and use one or more strategies to efficiently solve the problem and justify the selection. M05-S5C2-04. Determine whether a problem to be solved is similar to previously solved problems, and identify possible strategies for solving the problem. Connections: M05-S1C3-01, M05-S2C4-01, M05-S5C2-10	If a vertex-edge graph is connected and has no vertices of odd degree, then the graph has an Euler circuit. An Euler circuit can begin and end at any vertex. Example: • Peter's cat was lost. He canvassed his neighborhood with a flyer describing his missing cat. It was important that Peter visit every street in his neighborhood as soon as possible. Trace a route he might take. Is he able to start at one vertex, travel every edge, and return to his starting vertex?  One possible circuit is C, E, G, C, B, D, F, E, D, G, B, A, C. Are there other possible paths?

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 5, students extend their work with numerical sequences to include fractions and decimals and improve their communication of algebraic reasoning as they analyze sequences.

Performance Objectives	***Process Integration & Connections***	***Explanations and Examples***
Students are expected to:		
PO 1. Recognize, describe, create, and analyze a numerical sequence involving fractions and decimals using addition and subtraction. Lesson 1 (sequences) "Problem Solving" in the "Power-Up" section of Lessons 2, 11, 33 Investigation 4 (pattern recognition) "Problem Solving" in the "Power-Up" section of Lessons 48, 50, 53, 91, 96, 101, 115, 117	M05-S5C2-03. Select and use one or more strategies to efficiently solve the problem and justify the selection. M05-S5C2-04. Determine whether a problem to be solved is similar to previously solved problems, and identify possible strategies for solving the problem. Connections: M05-S1C2-01, M05-S1C3-01, M05-S3C4-01	Sequential numerical patterns should involve use of fractions, decimals, and/or whole numbers. Examples: • 3, $3\frac{1}{2}$, 4, $4\frac{1}{2}$, … • 9, 8.75, 8.25, 7.5, … -0.25 -0.5 -0.75 • Create a numerical sequence which involves fractions or decimals and addition or subtraction. Trade sequences with a partner. Analyze and describe the rule your partner used to create the sequence.

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

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

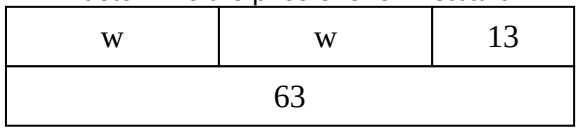
Describe and model functions and their relationships.

In Grade 5, there are no performance objectives in this concept.

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

Represent and analyze mathematical situations and structures using algebraic representations.

In Grade 5, students use variables to write algebraic equations and apply properties to solve those equations.

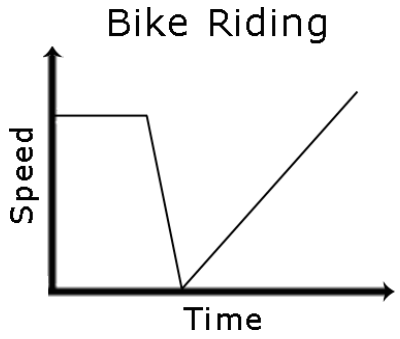
Performance Objectives	***Process Integration & Connections***	***Explanations and Examples***
Students are expected to:		
PO 1. Create and solve two-step equations that can be solved using inverse operations with whole numbers. Investigation 1 (translating & writing word problems) Lesson 10 (missing addends) Lesson 11 (word problems about combining) Lesson 14 (missing numbers in subtraction) Lesson 16 (word problems about separating) Lesson 17 "Focus Strategy" (write an equation) Lesson 18 (missing factors) Lesson 21 (problems about equal groups) Lesson 26 (missing factors) Lesson 35 (problems about comparing & elapsed time) Lesson 46 (word problems about a fraction of a group) Lesson 49 (solving two-step word problems)	M05-S5C2-01. Analyze a problem situation to determine the question(s) to be answered. M05-S5C2-02. Identify relevant, missing, and extraneous information related to the solution to a problem. Connections: M05-S1C3-01, M05-S5C2-10	Students are expected to create and solve equations representing a given context. Example: • The soccer club is going on a trip to the water park. The cost of attending the trip is $63. Included in that price is $13 for lunch and the cost of 2 wristbands, one for the morning and one for the afternoon. Write an equation representing the cost of the field trip and determine the price of one wristband. 

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

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 5, students will build on their knowledge of change over time and extend this to include describing patterns of change as constant, increasing, or decreasing.

Performance Objectives	***Process Integration & Connections***	***Explanations and Examples***
Students are expected to:		
PO 1. Describe patterns of change including constant rate and increasing or decreasing rate. Investigation 6 (line graphs)	M05-S5C2-02. Identify relevant, missing, and extraneous information related to the solution to a problem. M05-S5C2-05. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols. Connections: M05-S1C1-05, M05-S1C3-01, M05-S2C1-02, M05-S3C1-01, M05-S5C2-10, SC05-S1C3-01	Example: • Describe the change in speed over time shown by the graph. 

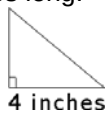
The bulleted items within a performance objective indicate the specific content to be taught.

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.

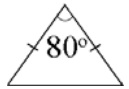
Concept 1: Geometric Properties

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

In Grade 5, students analyze and categorize polygons by their properties. They build upon their knowledge of polygons to relate and compare two- and three-dimensional figures.

Performance Objectives	***Process Integration & Connections***	***Explanations and Examples***
Students are expected to:		
PO 1. Draw and label 2-dimensional figures given specific attributes including angle measure and side length. Lesson 31 (pairs of lines, angles) Lesson 32 (congruent polygons) Lesson 36 (classifying triangles) Lesson 45 (classifying quadrilaterals) Lesson 61 (using letters to identify geometric figures Investigation 10 (measure of angles) Investigation 11 (scale drawings)	M05-S5C2-05. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols. M05-S5C2-07. Analyze and evaluate whether a solution is reasonable, is mathematically correct, and answers the question. Connections: M05-S4C1-03, M05-S4C1-04, M05-S4C4-03, M05-S5C2-10	Examples: • Draw a triangle with a 90° angle and one leg that is 4 inches long.  • Draw a quadrilateral with two sets of parallel sides and four right angles.

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:		
PO 2. Solve problems by understanding and applying the property that the sum of the interior angles of a triangle is 180˚. *Not explicitly addressed in Saxon Intermediate 5*	M05-S5C2-01. Analyze a problem situation to determine the question(s) to be answered. M05-S5C2-02. Identify relevant, missing, and extraneous information related to the solution to a problem. Connections: M05-S4C4-03	Example: • What is the measurement of each of the unknown angles in the following isosceles triangle? 
PO 3. Classify quadrilaterals by their properties. Lesson 45 (classifying quadrilaterals)	M05-S5C2-05. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols. M05-S5C2-06. Summarize mathematical information, explain reasoning, and draw conclusions. Connections: M05-S4C1-01, M05-S4C1-04, M05-S4C4-04, M05-S4C4-05, M05-S5C1-02, M05-S5C2-10	Properties of quadrilaterals may include • Properties of sides—parallel, perpendicular, congruent • Properties of angles—types of angles, congruent

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:		
PO 4. Compare attributes of 2-dimensional figures with 3-dimensional figures by drawing and constructing nets and models. Lesson 32 (polygons) Lesson 36 (classifying triangles) Lesson 45 (classifying quadrilaterals) Lesson 61 (using letters to identify geometric figures) Lesson 83 (properties of geometric solids) Lesson 89 (analyzing prisms)	M05-S5C2-03. Select and use one or more strategies to efficiently solve the problem and justify the selection. M05-S5C2-08. Make and test conjectures based on data or information collected from explorations and experiments. Connections: M05-S4C1-01, M05-S4C1-03	Students construct models and nets of three dimensional figures, describing them by the number of edges, vertices, and faces. Students also describe the types of faces needed to create the three dimensional figure. Students make and test conjectures by determining what is needed to create a specific three-dimensional figure. Example: • Describe the shapes of the faces needed to construct a rectangular pyramid. Cut out the shapes and create a model. Did your faces work? Why or why not?

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 5, there are no performance objectives in this concept.

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 5, there are no performance objectives in this concept.

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

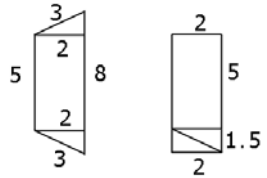
Strand 4: Geometry and Measurement
Concept 4: Measurement

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

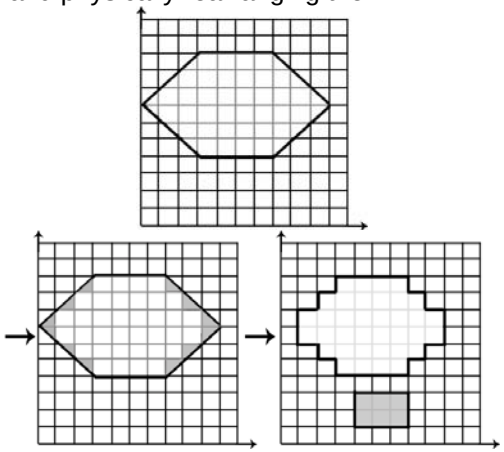
In Grade 5, students extend their thinking about measurement to include measuring angles and determining the appropriate unit and degree of accuracy for measurements made in context. Students solve problems involving time, area, and perimeter.

Performance Objectives	***Process Integration & Connections***	***Explanations and Examples***
Students are expected to:		
PO 1. Solve problems using elapsed time. Lesson 24 (locate dates on a perpetual calendar) Lesson 28 (elapsed time) Lesson 35 (problems about elapsed time)	M05-S5C2-01. Analyze a problem situation to determine the question(s) to be answered. M05-S5C2-04. Determine whether a problem to be solved is similar to previously solved problems, and identify possible strategies for solving the problem. Connections: M05-S1C3-01	Example: • Anthony started painting a room at 11:45 AM. If he finishes after 2½ hours, what time does he complete the job?
PO 2. State an appropriate measure and degree of accuracy in a given context. Lesson 27 (transformations) Lesson 44 (measuring lengths with a ruler) Lesson 47 (simplify mixed measures) Lesson 65 (decimal parts of the meter) Lesson 66 (reading a centimeter scale) Lesson 74 (units of length) Lesson 85 (units of capacity)	M05-S5C2-06. Summarize mathematical information, explain reasoning, and draw conclusions. Connections: M05-S1C3-01, M05-S4C4-03, SC05-S1C2-04	Types of measurements include, but are not limited to, measurement for length, capacity, angles, time, and mass in both U.S. Customary and metric units.

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:		
PO 3. Measure angles between 0 and 360 degrees. Investigation 10 (measure of angles)	M05-S5C2-03. Select and use one or more strategies to efficiently solve the problem and justify the selection. Connections: M05-S4C1-01, M05-S4C1-02, M05-S4C4-02	
PO 4. Solve problems involving the area of 2-dimensional figures by using the properties of parallelograms and triangles. Lessons 72 & 115 (area) "Problem Solving" in the "Power-Up" activity of Lessons 82, 83 & 114 Lesson 101 (estimating area) Lesson 114 (formulas for perimeter, area, volume)	M05-S5C2-03. Select and use one or more strategies to efficiently solve the problem and justify the selection. M05-S5C2-05. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols. Connections: M05-S1C3-01, M05-S4C1-03, M05-S5C1-02	Students are expected to determine the area of the figures listed below by applying what they know about finding the area of triangles and parallelograms.  Using the figure on the left, students can divide the area of the trapezoid into a rectangle and two triangles. These shapes can be rearranged as shown in the figure on the right. By applying the properties of parallelograms and triangles, students determine the measures of the figure and calculate the area. In a parallelogram, opposite sides are congruent; therefore the side opposite the side with a measurement of 5 must also measure 5. Since the entire length of the side is 8, that leaves 3 remaining. Three is equally divided between the two triangles, leaving a height of 1.5. The two congruent triangles together form a rectangle with a base of 2 and a height of 1.5. This area can be calculated and added to the area of the rectangle with a base of 2 and a height of 5 to get the total area of the trapezoid.

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:		
PO 5. Solve problems involving area and perimeter of regular and irregular polygons using reallotment of square units. Lesson 53 (perimeter) Lessons 72 & 115 (area) Lesson 101 (estimating area) Lesson 114 (formulas for perimeter, area, volume) "Problem Solving" in the "Power-Up" activity of Lessons 57, 61, 69, 82, 83, 95, 104 & 114.	M05-S5C2-03. Select and use one or more strategies to efficiently solve the problem and justify the selection. M05-S5C2-05. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols. Connections: M05-S1C3-01, M05-S4C1-03, M05-S5C1-02	Students determine the area of the hexagon using the grid below and by combining the triangular parts to create complete squares as demonstrated in the second and third grids. Students demonstrate the reallotment of square units by cutting the triangular parts from the diagram and physically rearranging them. 

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 5, students extend their work analyzing common algorithms for calculation with fractions and decimals, explaining why the procedures work on the basis of properties of operations and place value. They also use their understanding of geometric properties to develop algorithms for calculating area and perimeter of polygons.

Performance Objectives	***Process Integration & Connections***	***Explanations and Examples***
Students are expected to:		
PO 1. Analyze common algorithms for adding and subtracting fractions and decimals using the associative, commutative, and distributive properties. *The opportunity to design simple algorithms using whole numbers is best addressed by the daily "Mental Math" activities provided in the "Power-Up" box.*	M05-S5C2-06. Summarize mathematical information, explain reasoning, and draw conclusions. M05-S5C2-07. Analyze and evaluate whether a solution is reasonable, is mathematically correct, and answers the question. Connections: M05-S1C1-01, M05-S1C1-02, M05-S1C2-01, M05-S1C2-04, M05-S5C2-10	Students are expected to apply the associative, commutative, and distributive properties as well as concepts of place value. The example listed below illustrates one way to approach adding fractions that builds on the understanding of relating fractions to decimals. Examples: • Analyze the algorithm shown below for finding the sum $2.059 + 0.76$. Do you think this method will work for finding the sum of different decimals? For all decimals? 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:		
		o expand using place value $\left(2+\frac{0}{10}+\frac{5}{100}+\frac{9}{1000}\right)+\left(\frac{7}{10}+\frac{6}{100}\right)$ o use the commutative property to group by place value $2+\frac{0}{10}+\frac{7}{10}+\frac{5}{100}+\frac{6}{100}+\frac{9}{1000}$ o use the associative property to combine like terms $2+\left(\frac{0}{10}+\frac{7}{10}\right)+\left(\frac{5}{100}+\frac{6}{100}\right)+\frac{9}{1000}$ o add $2+\frac{7}{10}+\frac{11}{100}+\frac{9}{1000}$ o regroup $2+\frac{7}{10}+\frac{10}{100}+\frac{1}{100}+\frac{9}{1000}$ o use the associative property to combine like terms $2+\left(\frac{7}{10}+\frac{1}{10}\right)+\frac{1}{100}+\frac{9}{1000}$ o add $2+\frac{8}{10}+\frac{1}{100}+\frac{9}{1000}=2.819$

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:		
PO 2. Develop an algorithm or formula to calculate areas and perimeters of simple polygons. Lessons 72 & 115 (area) Lesson 101 (estimating area)	M05-S5C2-06. Summarize mathematical information, explain reasoning, and draw conclusions. Connections: M05-S4C1-03, M05-S4C4-04, M05-S4C4-05, M05-S5C2-10	Using grids, geoboards, or other manipulatives, students are expected to determine the area and perimeter of a variety of polygons, and then develop a general algorithm or formula for finding the area of rectangles and triangles and the perimeter of any simple polygon.

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

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 5, students will select and use efficient strategies to solve problems, evaluate their method and solution, and develop arguments to defend their choices in problems that integrate the content of strands one through four.

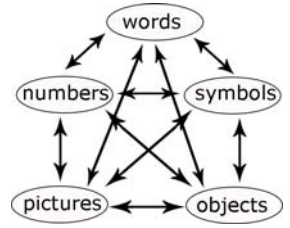
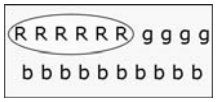
Performance Objectives	***Process Integration & Connections***	***Explanations and Examples***
Students are expected to:	Some of the Strand 5 Concept 2 performance objectives are listed throughout the grade level document in the Process Integration Column (2nd column). Since these performance objectives are connected to the other content strands, the process integration column is not used in this section next to those performance objectives.	
PO 1 Analyze a problem situation to determine the question(s) to be answered *Daily expectation throughout Saxon Intermediate 5 Beginning with the* "Focus on Problem Solving" – pages 1-8		

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:	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 2. Identify relevant, missing, and extraneous information related to the solution to a problem. "Focus on Problem Solving" – page 1 of *Saxon Intermediate 5* Investigation 1 (word problems) Lesson 11 (word problems about combining) Lesson 16 (word problems about separating) Lesson 21 (problems about equal groups) Lesson 35 (problems about comparing & elapsed time) Lesson 46 (word problems about fraction of a group) Lesson 49 (solving two-step word problems)		
PO 3. Select and use one or more strategies to efficiently solve the problem and justify the selection. *Daily expectation throughout Saxon Intermediate 5* *Beginning with the* "Focus on Problem Solving" – pages 1-8 *Specifically addressed by the daily "Problem Solving" activities provided in the "Power-Up" box.*		Strategies may include, but are not limited to, finding a pattern; making a table or organized list; drawing a picture or diagram; working backwards; solving a simpler problem; and guess, check, and revise. Focus should be on the students' selection and justification of strategies to help them recognize why some strategies might work better in a given situation than another.

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:	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 4. Determine whether a problem to be solved is similar to previously solved problems, and identify possible strategies for solving the problem. *Daily expectation throughout Saxon Intermediate 5* *Beginning with the* "Focus on Problem Solving" – pages 1-8 *Specifically addressed by the daily "Problem Solving" activities provided in the "Power-Up" box.*		

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. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols. *Daily expectation throughout Saxon Intermediate 5* *Beginning with the* "Focus on Problem Solving" – pages 1-8 *Specifically addressed by the daily "Problem Solving" activities provided in the "Power-Up" box.*		The following graphic shows how a problem can be illustrated using different representations. Using multiple representations can provide a richer understanding of the processes involved in solving a problem. 6 out of 20 $\frac{6}{20} = \frac{3}{10}$  $P(red) = \frac{\text{outcome}}{\text{sample space}}$ 

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:	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 6. Summarize mathematical information, explain reasoning, and draw conclusions. *Daily expectation throughout Saxon Intermediate 5* *Beginning with the* "Focus on Problem Solving" – pages 1-8 *Specifically addressed by the daily "Problem Solving" activities provided in the "Power-Up" box.*		
PO 7. Analyze and evaluate whether a solution is reasonable, is mathematically correct, and answers the question. *Daily expectation throughout Saxon Intermediate 5* *Beginning with the* "Focus on Problem Solving" – pages 1-8 *Specifically addressed by the daily "Problem Solving" activities provided in the "Power-Up" box.*		

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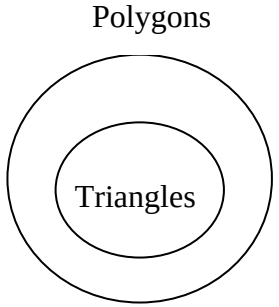
Students are expected to:	Some of the Strand 5 Concept 2 performance objectives are listed throughout the grade level document in the Process Integration Column (2nd column). Since these performance objectives are connected to the other content strands, the process integration column is not used in this section next to those performance objectives.	
PO 8. Make and test conjectures based on data or information collected from explorations and experiments. Investigation 5 (organizing & analyzing data) Lesson 57 (probability) Investigation 9 (performing probability experiments) Lesson 93 (comparative bar graphs)		
PO 9. Identify simple valid arguments using *if…then* statements based on graphic organizers. Investigation 7 (2-set Venn diagrams)	M05-S5C2-05. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols. Connections: M05-S1C1-02, M05-S2C1-02, M05-S2C3-01, M05-S5C2-10	Use the Venn diagram to determine if the statements are valid. o If a figure is a triangle, then it is a polygon (valid). o If a figure is a polygon, then it is a triangle(invalid). 

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:	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 10. Construct *if… then* statements to generalize rules for computation, geometric properties and algebraic functions. *Thought not formally introduced in Saxon Intermediate 5, we recommend that teachers encourage the use of* if…then… *statements with the Written Practice questions highlighted by the following icons: Analyze, Connect, Explain, and Justify.*		Geometric properties include properties of sides (parallel, perpendicular, congruent), properties of angles (type, measurement, congruent), and properties of symmetry (point and line). Examples: • If the opposite sides on a parallelogram are parallel and congruent, then rectangles are parallelograms. • If the function is $x = y + 2$ and $x = 8$, then $y = 6$.