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correlated to

Arizona

Academic Content Standards

Mathematics Standard

Articulated by Grade Level

Grades 3-4

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correlated to
Arizona Academic Content Standards
Mathematics Standard Articulated by Grade Level
Grade 3

Strand 1:
Number Sense and Operations

Concept 1: Number Sense

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

Performance Objectives, Grade 3	Math to Know
PO 1. Read whole numbers in contextual situations (through six-digit numbers).	Handbook: 2-3, 5-6, 9, 10, 12, 13, 16
PO 2. Identify six-digit whole numbers in or out of order.	Handbook: 1-15
PO 3. Write whole numbers through six digits in or out of order.	Handbook: 4, 6, 7, 12-14
PO 4. State whole numbers, through six digits, with correct place value, by using models, illustrations, symbols, or expanded notation (e.g., $53,941 = 50,000 + 3,000 + 900 + 40 + 1$).	Handbook: 2, 3, 5-9
PO 5. Construct models to represent place value concepts for the one's, ten's, and hundred's places.	Handbook: 5-7, 12, 146, 148, 149, 160-162, 173, 174, 176, 186, 188
PO 6. Apply expanded notation to model place value through 9,999 (e.g., $5,378 = 5,000 + 300 + 70 + 8$).	Handbook: 6-7
PO 7. Sort whole numbers into sets containing only odd numbers or only even numbers.	Handbook: 91
PO 8. Compare two whole numbers, through six-digits.	Handbook: 12-15

Performance Objectives, Grade 3	Math to Know
PO 9. Order three or more whole numbers through six-digits numbers (least to greatest, or greatest to least).	Handbook: 14-15
PO 10. Make models that represent proper fractions (halves, thirds, fourths, eighths, and tenths).	Handbook: 212-216, 220, 221, 223-226, 228-235
PO 11. Identify symbols, words, or models that represent proper fractions (halves, thirds, fourths, eighths, and tenths).	Handbook: 212-213, 223-225, 228-235
PO 12. Use proper fractions in contextual situations.	Handbook: 215-217, 221, 224, 226, 228-230, 232-235
PO 13. Compare two proper fractions with like denominators.	Handbook: 224, 226
PO 14. Order three or more proper fractions with like denominators (halves, thirds, fourths, eighths, and tenths).	Handbook: 226
PO 15. Count amounts of money through \$20.00 using pictures or actual bills and coins.	Handbook: 18-19
PO 16. Use decimals through hundredths in contextual situations.	Handbook: 18-19, 24-25, 27, 29, 155-158, 168-171, 179, 192, 193
PO 17. Compare two decimals, through hundredths, using models, illustrations, or symbols.	Handbook: 27-29
PO 18. Order three or more decimals, through hundredths, using models, illustrations, or symbols.	Handbook: 29
PO 19. Determine the equivalency among decimals, fractions, and percents (e.g., half-dollar = 50¢ = 50% and $1/4 = 0.25 = 25%$).	Handbook: 30-31
PO 20. Identify whole-number factors and/or pairs of factors for a given whole number through 24.	Handbook: 62, 66-67, 70, 88-89
PO 21. Determine multiples of a given whole number with products through 24 (skip counting).	Handbook: 64, 90

C o n c e p t 2 : N u m e r i c a l O p e r a t i o n s

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

Performance Objectives, Grade 3	Math to Know
PO 1. Demonstrate the process of subtraction using manipulatives through three-digit whole numbers.	Handbook: 50-51, 160-167
PO 2. Add two three-digit whole numbers.	Handbook: 146-149, 151-152
PO 3. Subtract two three-digit whole numbers.	Handbook: 160, 162-166
PO 4. Add a column of numbers.	Handbook: 153
PO 5. Select the grade-level appropriate operation to solve word problems.	Handbook: 149-151, 155-158, 160-164, 167, 171, 174, 176-177, 179-181, 185-199, 202-204, 228-235, 388-389
PO 6. Solve word problems using grade-level appropriate operations and numbers.	Handbook: 149-151, 155-158, 160-164, 167, 171, 174, 176-177, 179-181, 185-199, 202-204, 228-235, 368-385
PO 7. Demonstrate the process of multiplication as repeatedly adding the same number, counting by multiples, combining equal sets, and making arrays.	Handbook: 60-61, 64-65
PO 8. Demonstrate the process of division with one-digit divisors (separating elements of a set into smaller equal sets, sharing equally, or repeatedly subtracting the same number).	Handbook: 74-80, 82
PO 9. Demonstrate families of equations for multiplication and division through 9s.	Handbook: 77, 82-83
PO 10. State multiplication and division facts through 9s.	Handbook: 66-71, 85
PO 11. Demonstrate the commutative and identity properties of multiplication.	Handbook: 66, 67, 70, 82-84, 241, 246
PO 12. Identify multiplication and division as inverse operations.	Handbook: 77, 82-83
PO 13. Apply grade-level appropriate properties to assist in computation.	Handbook: 240-249

Performance Objectives, Grade 3	Math to Know
PO 14. Apply the symbols: $_$, \div , $/$, $*$, $\%$, and the grouping symbols () and “,”.	Handbook: 6-11, 242-245
PO 15. Use grade-level appropriate mathematical terminology.	Handbook: 1-400
PO 16. Add or subtract fractions with like denominators (halves, thirds, fourths, eighths, and tenths) appropriate to grade level.	Handbook: 227, 228, 232
PO 17. Apply addition and subtraction in contextual situations, through \$20.00.	Handbook: 158, 171

C o n c e p t 3 : E s t i m a t i o n

Use estimation strategies reasonably and fluently.

Performance Objectives, Grade 3	Math to Know
PO 1. Solve grade-level appropriate problems using estimation.	Handbook: 132-141, 390-391
PO 2. Estimate length and weight using U.S. customary units.	Handbook: 346, 358, 421
PO 3. Record estimated and actual linear measurements for real-life objects (e.g., length of fingernail, height of desk).	Handbook: 346, 420-421
PO 4. Compare estimations of appropriate measures to actual measures.	Handbook: 346, 358, 420-421
PO 5. Evaluate the reasonableness of estimated measures.	Handbook: 421

Strand 2: Data Analysis, Probability, and Discrete Mathematics

Concept 1: Data Analysis (Statistics)

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

Performance Objectives, Grade 3	Math to Know
PO 1. Formulate questions to collect data in contextual situations.	Handbook: 265, 266
PO 2. Construct a horizontal bar, vertical bar, pictograph or tally chart with appropriate labels and title from organized data.	Handbook: 267, 270-274
PO 3. Interpret data found in line plots, pictographs, and single-bar graphs (horizontal and vertical).	Handbook: 270-274
PO 4. Answer questions based on data found in line plots, pictographs, and single-bar graphs (horizontal and vertical).	Handbook: 270-274
PO 5. Formulate questions based on graphs, charts, and table to solve problems.	Handbook: 267-283, 285-290
PO 6. Solve problems using graphs, charts, and tables.	Handbook: 266-268, 270-277, 280-283

Concept 2: Probability

Understanding and apply the basic concepts of probability.

Performance Objectives, Grade 3	Math to Know
PO 1. Name the possible outcomes for a probability experiments.	Handbook: 294-295, 298-299
PO 2. Make predictions about the probability of events being more likely, less likely, equally likely or unlikely.	Handbook: 294-297
PO 3. Predict the outcome of a grade-level appropriate probability experiment.	Handbook: 297
PO 4. Record the data from performing a grade-level appropriate probability experiment.	Handbook: 298-299

Performance Objectives, Grade 3	Math to Know
PO 5. Compare the outcome of an experiment to predictions made prior to performing the experiment.	Handbook: 297

**Concept 3: Discrete Mathematics –
Systematic Listing and Counting**
Understand and demonstrate the systematic listing and counting of possible outcomes.

Performance Objectives, Grade 3	Math to Know
PO 1. Make a diagram to represent the number of combinations available when 1 item is selected from each of 3 sets of 2 items (e.g., 2 different shirts, 2 different hats, 2 different belts).	Handbook: 298-299

**Strand 3:
Patterns, Algebra, and Functions**

Concept 1: Patterns
Identify patterns and apply pattern recognition to reason mathematically.

Performance Objectives, Grade 3	Math to Know
PO 1. Communicate a grade level appropriate iterative pattern, using symbols or numbers.	Handbook: 374-375
PO 2. Extend a grade-level appropriate repetitive pattern (e.g., 5, 10, 15, 20, ... rule: add five or count by five's).	Handbook: 374-375
PO 3. Solve grade-level appropriate pattern problems.	Handbook: 374-375

Concept 2: Functions and Relationships
Describe and model functions and their relationships.

Performance Objectives, Grade 3	Math to Know
PO 1. Describe the rule used in a simple grade-level appropriate function (e.g., T-chart, input/output model, and frames and arrows).	Handbook: 260-261

Concept 3: Algebraic Representations

Represent and analyze mathematical situations and structures using algebraic representations.

Performance Objectives, Grade 3	Math to Know
PO 1. Use variables in contextual situations.	Handbook: 250-252, 255-257, 260-261
PO 2. Solve equations with one variable using missing addends to sums of 18 (e.g., $_ + 9 = 18$, $9 + _ = 18$); and using minuend through 18 (e.g., $18 - _ = 9$, $18 - 9 = _$).	Handbook: 255-256

Concept 4: Analysis of Change

Analyze change in a variable over time and in various concepts.

Performance Objectives, Grade 3	Math to Know
PO 1. Identify the change in a variable over time (e.g., an object gets taller, colder, heavier).	Handbook: 260-261, 280-281
PO 2. Make predictions based on a variable (e.g., increase in allowance as you get older).	Handbook: 260-261

Strand 4: Geometry and Measurements

Concept 1: Geometric Properties

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

Performance Objectives, Grade 3	Math to Know
PO 1. Build geometric figures with other common shapes (e.g., tangrams, pattern blocks, geoboards).	Handbook: 314
PO 2. Name concrete objects and pictures of 3-dimensional solids (cones, spheres, and cubes).	Handbook: 327-331
PO 3. Describe relationships between 2-dimensional and 3-dimensional objects (squares/cubes, circles/spheres, triangles/cones).	Handbook: 327-331
PO 4. Recognize similar shapes.	Handbook: 320-321

Performance Objectives, Grade 3	Math to Know
PO 5. Identify a line of symmetry in a 2-dimensional shape.	Handbook: 322-323

C o n c e p t 2 : T r a n s f o r m a t i o n o f S h a p e s

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

Performance Objectives, Grade 3	Math to Know
PO 1. Recognize same shape in different positions (turn/rotation).	Handbook: 318-319, 324-325

C o n c e p t 3 : C o o r d i n a t e G e o m e t r y

Specify and describe spatial relationships using coordinate geometry and other representational systems.

Performance Objectives, Grade 3	Math to Know
PO 1. Identify points in the first quadrant of a grid using ordered pairs.	Handbook: 258-259, 261

C o n c e p t 4 : M e a s u r e m e n t - U n i t s o f M e a s u r e - G e o m e t r i c O b j e c t s

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

Performance Objectives, Grade 3	Math to Know
PO 1. Select the appropriate measure of accuracy: <ul style="list-style-type: none"> • length – centimeters, meters, kilometers, • capacity/volume – liters, and • mass/weight – grams. 	Handbook: 347, 357, 359
PO 2. Tell time with one minute precision (analog).	Handbook: 334-336
PO 3. Determine the passage of time across months (units of days, weeks, months) using a calendar.	Handbook: 341-343
PO 4. Measure a given object using the appropriate unit of measure: <ul style="list-style-type: none"> • length – centimeters, millimeters, meters, kilometers, • capacity/volume – liters, and • mass/weight – grams. 	Handbook: 347, 357, 359, 420

Performance Objectives, Grade 3	Math to Know
PO 5. Record temperatures to the nearest degree in degrees Fahrenheit and degrees Celsius as shown on a thermometer.	Handbook: 360, 361
PO 6. Compare units of measure to determine more or less relationships for: <ul style="list-style-type: none"> • length – inches to feet, centimeters to meters, • time – minutes to hours, hours to days, days to weeks, months to years, and • money – pennies, nickels, dimes, quarters, and dollars. 	Handbook: 17, 335-337, 341-343, 362-363
PO 7. Determine relationships for: <ul style="list-style-type: none"> • volume – cups and gallons, • weight – ounces and pounds, and • money– extend to amounts greater than one dollar. 	Handbook: 17-19, 356, 358
PO 8. Compare the length of two objects using U.S. customary or metric units.	Handbook: 346, 347, 420-421
PO 9. Determine the perimeter using a rectangular array.	Handbook: 353
PO 10. Represent area using a rectangular array.	Handbook: 350-352

Strand 5: Structure and Logic

Concept 1: Algorithms and Algorithmic Thinking

Use reasoning to solve mathematical problems in contextual situations.

Performance Objectives, Grade 3	Math to Know
PO 1. Discriminate necessary information from unnecessary information in a given grade-level appropriate word problem.	Handbook: 398-399

Concept 2: Logic, Reasoning, Arguments, and Mathematical Proof

Evaluate situations, select problem-solving strategies, draw logical conclusions, develop and describe solutions and recognize their applications.

Performance Objectives, Grade 3	Math to Know
PO 1. Draw conclusions based on existing information (e.g., All students in Ms. Dean's 1 st grade class are less than 7 years old. Rafael is in Ms. Dean's class. Conclusion: Rafael is less than 7 years old.)	Handbook: 396-397



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Mathematics Standard Articulated by Grade Level
Grade 4

Strand 1:
Number Sense and Operations

Concept 1: Number Sense

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

Performance Objectives, Grade 4	Math to Know
PO 1. Read whole numbers in contextual situations.	Handbook: 2, 3, 5, 6, 9, 10, 12-13, 16
PO 2. Identify whole numbers in or out of order.	Handbook: 1-15
PO 3. Write whole numbers in or out of order.	Handbook: 4, 6-7, 12-14
PO 4. State place values for whole numbers (e.g., In the number 203,495 what is the value of the 2?).	Handbook: 2, 3, 5-7, 9
PO 5. Construct models to represent place value concepts for the one's, ten's, hundred's, and thousand's places.	Handbook: 6, 7
PO 6. Apply expanded notation to model place value (e.g., $203,495 = 200,000 + 3,000 + 400 + 90 + 5$).	Handbook: 6, 7
PO 7. Compare two whole numbers	Handbook: 12-15
PO 8. Order three or more whole numbers.	Handbook: 14-15
PO 9. Make models that represent mixed numbers.	Handbook: 218-219
PO 10. Identify symbols, words, or models that represent mixed numbers.	Handbook: 218-219

Performance Objectives, Grade 4	Math to Know
PO 11. Use mixed numbers in contextual situations.	Handbook: 230-231, 234-235
PO 12. Compare two unit fractions (e.g., $\frac{1}{2}$ to $\frac{1}{5}$) or proper or mixed numbers with like denominators.	Handbook: 224-225
PO 13. Order three or more unit fractions or proper or improper fractions with like denominators.	Handbook: 226
PO 14. Use decimals in contextual situations.	Handbook: 18-19, 24-25, 27, 29, 155-158, 168-171, 179, 192-193
PO 15. Compare two decimals.	Handbook: 27-29
PO 16. Order three or more decimals.	Handbook: 29
PO 17. Determine the equivalency among decimals, fractions, and percents (e.g., $\frac{49}{100} = 0.49 = 49\%$).	Handbook: 30-31
PO 18. Identify all whole number factors and pairs of factors for a given whole number through 144.	Handbook: 62, 66, 67, 70, 88, 89
PO 19. Determine multiples of a given whole number with products through 144.	Handbook: 64, 90

C o n c e p t 2 : N u m e r i c a l O p e r a t i o n s

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

Performance Objectives, Grade 4	Math to Know
PO 1. Add whole numbers.	Handbook: 34-46, 146-153
PO 2. Subtract whole numbers.	Handbook: 46-59, 159-167
PO 3. Select the grade-level appropriate operation to solve word problems.	Handbook: 149-151, 155-158, 160-164, 167-171, 174, 176-177, 179-181, 185-199, 202-204, 228-235, 388-389
PO 4. Solve word problems using grade-level appropriate operations and numbers.	Handbook: 149-151, 155-158, 160-164, 167-171, 174, 176-177, 179-181, 185-199, 202-204, 228-235, 368-385
PO 5. Multiply multi-digit numbers by two-digit numbers.	Handbook: 180-183

Performance Objectives, Grade 4	Math to Know
PO 6. Divide with one-digit divisors.	Handbook: 76-85
PO 7. State multiplication and division facts through 12s.	Handbook: 66-71, 84-87
PO 8. Demonstrate the associative property of multiplication.	Handbook: 243
PO 9. Apply grade-level appropriate properties to assist in computation.	Handbook: 240-249
PO 10. Apply the symbol: • and () for multiplication, and , .	Handbook: 12-13, 250
PO 11. Use grade-level appropriate mathematical terminology.	Handbook: 1-400
PO 12. Add or subtract fractions with like denominators, no regrouping.	Handbook: 227-228, 232
PO 13. Simplify numerical expressions using the order of operations with grade-appropriate operations on number sets.	Handbook: 242-243

C o n c e p t 3 : E s t i m a t i o n

Use estimation strategies reasonably and fluently.

Performance Objectives, Grade 4	Math to Know
PO 1. Solve grade-level appropriate problems using estimation.	Handbook: 132-141, 390-391
PO 2. Use estimation to verify the reasonableness of a calculation (e.g., Is $3284 - 343 = 1200$ reasonable?).	Handbook: 132-140
PO 3. Estimate length and weight using U.S. customary units.	Handbook: 346, 358, 421
PO 4. Estimate and measure for distance.	Handbook: 346, 420-421

Strand 2: Data Analysis, Probability, and Discrete Mathematics

Concept 1: Data Analysis (Statistics)

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

Performance Objectives, Grade 4	Math to Know
PO 1. Formulate questions to collect data in contextual situations.	Handbook: 265, 266
PO 2. Construct a single-bar graph, line graph or two-set Venn diagram with appropriate labels and title from organized data.	Handbook: 269, 273-275, 280-281
PO 3. Interpret graphical representations and data displays including single-bar graphs, circle graphs, two-set Venn diagrams, and line graphs that display continuous data.	Handbook: 269, 273-274, 280-283
PO 4. Answer questions based on graphical representations and data displays including single-bar graphs, circle graphs, two-set Venn diagrams, and line graphs that display continuous data.	Handbook: 269, 273-274, 280-283
PO 5. Identify the mode(s) of given data.	Handbook: 288-289
PO 6. Formulate predictions from a given set of data.	Handbook: 297
PO 7. Solve contextual problems using graphs, charts, and tables.	Handbook: 266-268, 270-277, 280-283

Concept 2: Probability

Understand and apply the basic concepts of probability.

Performance Objectives, Grade 4	Math to Know
PO 1. Name the possible outcomes for a probability experiments.	Handbook: 294-295, 298-299
PO 2. Describe the probability of events as being more likely, less likely, equally likely or unlikely.	Handbook: 294-297

Performance Objectives, Grade 4	Math to Know
PO 3. Predict the outcome of a grade-level appropriate probability experiment.	Handbook: 297
PO 4. Record the data from performing a grade-level appropriate probability experiment.	Handbook: 298-299
PO 5. Compare the outcome of an experiment to predictions made prior to performing the experiment.	Handbook: 297
PO 6. Make predictions from the results of student-generated experiments using objects (e.g., coins, spinners, number cubes).	Handbook: 297

**Concept 3: Discrete Mathematics –
Systematic Listing and Counting**

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

Performance Objectives, Grade 4	Math to Know
PO 1. Find all possible combinations when one item is selected from each of two sets containing up to three objects (e.g., how many outfits can be made with 3 pants and 2 tee shirts?).	Handbook: 298-299

**Strand 3:
Patterns, Algebra, and Functions**

Concept 1: Patterns

Identify patterns and apply pattern recognition to reason mathematically.

Performance Objectives, Grade 4	Math to Know
PO 1. Communicate a grade level appropriate iterative pattern using symbols or numbers.	Handbook: 374-375
PO 2. Extend a grade-level appropriate iterative pattern.	Handbook: 374-375
PO 3. Create grade-level appropriate iterative patterns.	Handbook: 374-375

Concept 2: Functions and Relationships

Describe and model functions and their relationships.

Performance Objectives, Grade 4	Math to Know
PO 1. Describe the rule used in a simple grade-level appropriate function (e.g., T-chart, input/output model).	Handbook: 260-261

Concept 3: Algebraic Representations

Represent and analyze mathematical situations and structures using algebraic representations.

Performance Objectives, Grade 4	Math to Know
PO 1. Evaluate expressions involving the four basic operations by substituting given whole numbers for the variable.	Handbook: 251-252, 255-257
PO 2. Use variables in contextual situations.	Handbook: 250-252, 255-257, 260-261
PO 3. Solve one-step equations with one variable represented by a letter or symbol using multiplication of whole numbers, (e.g., $12 = n - 4$).	Handbook: 257

Concept 4: Analysis of Change

Analyze change in a variable over time and in various concepts.

Performance Objectives, Grade 4	Math to Know
PO 1. Identify the change in a variable over time (e.g., an object gets taller, colder, heavier).	Handbook: 280-281
PO 2. Make predictions based on a variable (e.g., increase in homework time as you progress through the grades.).	Handbook: 260-261

Strand 4: Geometry and Measurement

Concept 1: Geometric Properties

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

Performance Objectives, Grade 4	Math to Know
PO 1. Identify the properties of 2-dimensional figures using appropriate terminology.	Handbook: 311, 312, 314, 316
PO 2. Identify models or illustrations of prisms, pyramids, cones, cylinders, and spheres.	Handbook: 328-329
PO 3. Draw points, lines, and line segments (open of closed endpoints), rays, or angles.	Handbook: 302-306
PO 4. Classify angles (e.g., right, acute, obtuse, straight).	Handbook: 308-309
PO 5. Classify triangles as right, acute, or obtuse.	Handbook: 314-315
PO 6. Identify congruent geometric shapes.	Handbook: 317
PO 7. Identify similar shapes.	Handbook: 320-321
PO 8. Draw a 2-dimensional shape that has line symmetry.	Handbook: 322-323

Concept 2: Transformation of Shapes

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

Performance Objectives, Grade 4	Math to Know
PO 1. Demonstrate translation using geometric figures.	Handbook: 318
PO 2. Identify a tessellation.	Handbook: 324-325

C o n c e p t 3 : C o o r d i n a t e G e o m e t r y

Specify and describe spatial relationships using coordinate geometry and other representational systems.

Performance Objectives, Grade 4	Math to Know
PO 1. Name the coordinates of a point plotted in the first quadrant.	Handbook: 258-259, 261

C o n c e p t 4 : M e a s u r e m e n t - U n i t s o f M e a s u r e - G e o m e t r i c O b j e c t s

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

Performance Objectives, Grade 4	Math to Know
PO 1. Identify the appropriate measure of accuracy for the area of an object (e.g., sq. feet or sq. miles).	Handbook: 350, 421
PO 2. Compute elapsed time using a clock (e.g., hours and minutes since or until...) or a calendar (e.g., days, weeks, years since or until...).	Handbook: 338-339, 341
PO 3. Select an appropriate tool to use in a particular measurement situation.	Handbook: 356, 359, 420-421, 424-425
PO 4. Approximate measurements to the appropriate degree of accuracy.	Handbook: 356, 359
PO 5. Compare units of measure to determine <i>more</i> or <i>less</i> relationships including: <ul style="list-style-type: none"> • length - yards and miles, meters and kilometers, and • weight - pounds and tons, grams and kilograms. 	Handbook: 362-363
PO 6. State equivalent relationships (e.g., 3 teaspoons = 1 tablespoon, 16 cups = 1 gallon, 2000 pounds = 1 ton).	Handbook: 356, 358-359
PO 7. Compare the weight of two objects using both U.S. customary and metric units.	Handbook: 346-347, 420-421
PO 8. Determine the perimeter of simple polygons (e.g., square, rectangle, triangle).	Handbook: 348-349
PO 9. Determine the area of squares and rectangles.	Handbook: 350-352

Performance Objectives, Grade 4	Math to Know
PO 10. Differentiate between perimeter and area of quadrilaterals.	Handbook: 348-352

Strand 5: Structure and Logic

Concept 1: Algorithms and Algorithmic Thinking

Use reasoning to solve mathematical problems in contextual situations.

Performance Objectives, Grade 4	Math to Know
PO 1. Discriminate necessary information from unnecessary information in a given grade-level appropriate word problem.	Handbook: 398-399
PO 2. Develop an algorithm to calculate the perimeter of simple polygons.	Handbook: 348-349

Concept 2: Logic, Reasoning, Arguments, and Mathematical Proof

Evaluate situations, select problem-solving strategies, draw logical conclusions, develop and describe solutions and recognize their applications.

Performance Objectives, Grade 4	Math to Know
PO 1. Draw a conclusion from a Venn diagram.	Handbook: 269
PO 2. Identify simple valid arguments using <i>if...then</i> statements based on graphic organizers (e.g., 2-set Venn diagrams and pictures).	Handbook: 396-397



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