

Wylie ISD Curriculum

Subject Area	Math	Bundle #:	1
Grade/Level	4	Weeks:	1-3
Overview			
Place Value, Compare and Order decimals, Add and Subtract decimals, Problem Solving (word problems)			
TEKS - Texas Knowledge & Skills			
Knowledge & Skill Statement	Student Expectation	Student Learning Outcome Clarification	
<p><i>(4.1) Number, operation, and quantitative reasoning. The student uses place value to represent whole numbers and decimals. The student is expected to</i></p>	<p>(4.1A) use place value to read, write, compare, and order whole numbers through the 999,999,999</p>	<p>Including but not limited to:</p> <ul style="list-style-type: none"> • distinguish the difference between a digit and a number • convert, write or describe standard to written through 999,999,999 • convert, write or describe written to standard through 999,999,999 • convert between standard and expanded notation (ex. $790,410 = 700,000 + 90,000 + 400 + 10$) • describe place and value (ex. $97,831,465$ - the nine is in the ten millions place and the value is 90,000,000) • compare and order numbers use symbols and words for "greater than" ($>$), "less than" ($<$) and "equal" ($=$) • represent place value concepts using whole numbers through 999,999 with numerals, words, expanded notation and concrete objects • sequence number or words associated with numbers with charts, tables, and graphs • use large numbers in context • create a number smaller, in-between, or larger than given numbers 	
	<p>(4.1B) use place value to read, write, compare, and order decimals involving tenths and hundredths, including money, using concrete_objects and pictorial models.</p>	<p>Including but not limited to:</p> <ul style="list-style-type: none"> • use place value to read, write, compare, and order decimals involving tenths and hundredths, including money, using concrete_objects • use place value to read, write, compare, and order decimals involving tenths and hundredths, including money, using pictorial models • distinguish between place and value including 2.75, 5 is in the hundredths place and the value is .05 or 5 hundredths • compare and order decimal numbers using comparative symbols and words • appropriately uses the word "and" to represent the decimal • changes decimal numeral form into word form and word 	

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		<p>form to numeral representation</p> <ul style="list-style-type: none"> • create a number smaller, in-between, or larger than given numbers
<p><i>(4.3) Number, operation, and quantitative reasoning. The student adds and subtracts to solve meaningful problems involving whole numbers and decimals. The student is expected to:</i></p>	<p>(4.3B) add and subtract decimals to the hundredths place using concrete objects and pictorial models.</p>	<p>Including but not limited to:</p> <ul style="list-style-type: none"> • model and explain addition and subtraction problems using a variety of concrete objects and pictorial models including money •
<p><i>(4.14) Underlying processes and mathematical tools. The student applies Grade 4 mathematics to solve problems connected to everyday experiences and activities in and outside of school. The student is expected to:</i></p>	<p>(4.14A) identify the mathematics in everyday situations.</p>	<ul style="list-style-type: none"> • incorporate real life experiences within all TAKS Objectives 1-5 • create problems or graphs when given mathematical information or expressions • Relate decimal numbers to everyday life.
	<p>(4.14B) solve problems that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness.</p>	<p>Incorporate a problem solving strategy within all TAKS Objectives 1-5</p> <ul style="list-style-type: none"> • read, interpret, and assess the problem for the known and unknown information • assess the problem for missing information • assess the problem for unnecessary information • understand the questions being asked • explore solving the problem using manipulatives or pictures • communicate problem solving strategy orally and in journals • estimate a reasonable solution • record and communicate with pictures, numbers and symbols • evaluate solution and creates questions regarding process • justify answers • Use a problem-solving model to solve a place value, money, addition or subtraction problem.

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Subject Area	Math	Bundle #:	2
Grade/Level	4	Weeks:	4-6
Overview			
Rounding Whole Numbers, Addition, Subtraction, Perimeter, Problem Solving (word problems)			
TEKS - Texas Knowledge & Skills			
Knowledge & Skill Statement	Student Expectation	Student Learning Outcome Clarification	
<p><i>(4.3) Number, operation, and quantitative reasoning. The student adds and subtracts to solve meaningful problems involving whole numbers and decimals. The student is expected to:</i></p>	<p>(4.3A) use addition and subtraction to solve problems involving whole numbers.</p>	<p>Including but not limited to:</p> <ul style="list-style-type: none"> • use addition and subtract together involving whole numbers through 999,999 in problem solving situations including data from charts, tables, and graphs • recognize that addition and subtraction are inverse operations • solve problems using addition and subtraction of whole numbers in flexible ways by composing and decomposing numbers • analyze different problem situation to determine the operation(s) needed to solve problems • solve multi-step problems that use terminology including less than, more than, greater than, fewer than (Ex: Robb has 50 fewer than Juan) <p>Addition of Whole Numbers</p> <ul style="list-style-type: none"> • Use addition to solve problems involving whole numbers. <p>Subtraction of Whole Numbers</p> <ul style="list-style-type: none"> • Use subtraction to solve problems involving whole numbers. 	
<p><i>(4.5) Number, operation, and quantitative reasoning. The student estimates to determine reasonable results. The student is expected to:</i></p>	<p>(4.5A) Round whole numbers to the nearest ten, hundred, or thousand to approximate reasonable results in problem situations.</p>	<p>Including but not limited to:</p> <ul style="list-style-type: none"> • round to estimate reasonable answers before solving problem situations (single digit numbers are not rounded) • verify problem solving solutions by using rounding or estimation to show answers are reasonable • demonstrate the difference between rounding (to a specific place value) and estimating (using numbers that are easy to compute to determine a reasonable solution) • apply strategies according to real world problems 	

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		<p>including</p> <ul style="list-style-type: none"> ○ Addition and subtraction of 2 numbers: Round to the highest place value of the smallest number used in computation (1237- 246 would be 1200-200) ○ Multiplication and division: Front end estimation - round to the highest place value of each number (42 x 5 would be 40 x 5) <p>Use rounding to approximate reasonable results in addition and subtraction problem situations.</p>
<p><i>(4.11) Measurement. The student applies measurement concepts. The student is expected to estimate and measure to solve problems involving length, (including perimeter) and area. The student uses measurement tools to measure capacity/volume and weight/mass. The student is expected to:</i></p>	<p>(4.11A) estimate and use measurement tools to determine length (including perimeter), area, capacity and weight/mass using standard units, SI (metric) and customary.</p>	<p>Including but not limited to:</p> <ul style="list-style-type: none"> • understand measure means to decide "what" is to be measured and select the appropriate unit • estimates length, area, capacity, weight/mass prior to any measuring • identify tools and units needed to measure length (perimeter), area, capacity, weight/mass and solve problems • use tools to measure and find perimeter and area including composite figures (two or more 2 dimensional geometric figures combined to make an irregular shape) • demonstrates measurement using a variety of different units and tools • measure using different starting point on measuring tools • identifies what concept (perimeter, area, capacity, weight/mass) is being asked in a real life situations (ex: the amount of carpet needed to cover the square dining room floor) • Measure to solve problems involving perimeter.
<p><i>(4.14) Underlying processes and mathematical tools. The student applies Grade 4 mathematics to solve problems connected to everyday experiences and activities in and outside of school. The student is expected to:</i></p>	<p>(4.14A) identify the mathematics in everyday situations.</p>	<ul style="list-style-type: none"> • incorporate real life experiences within all TAKS Objectives 1-5 • create problems or graphs when given mathematical information or expressions • Estimate to determine reasonable results.
	<p>(4.14B) solve problems that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for</p>	<ul style="list-style-type: none"> • incorporate a problem solving strategy within all TAKS Objectives 1-5 • read, interpret, and assess the problem for the known and unknown information • assess the problem for missing information

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	<p>reasonableness.</p>	<ul style="list-style-type: none"> • assess the problem for unnecessary information • understand the questions being asked • explore solving the problem using manipulatives or pictures • communicate problem solving strategy orally and in journals • estimate a reasonable solution • record and communicate with pictures, numbers and symbols • evaluate solution and creates questions regarding process • justify answers <ul style="list-style-type: none"> • Use a problem-solving model to solve problems involving addition and subtraction of decimals.
	<p>(4.14C) select or develop an appropriate problem-solving plan or strategy, including drawing a picture, looking for a pattern, systematic guessing and checking, acting it out, making a table, working a simpler problem, or working backwards to solve a problem.</p>	<ul style="list-style-type: none"> • integrate a problem solving strategy within all TAKS Objectives 1-5 • read, interpret, and assess the problem for the known, extraneous and unknown information • understand the questions being asked • explore solving the problem using different strategies • communicate problem solving strategy orally and in journals • estimate a reasonable solution • record and communicate with pictures, numbers and symbols • evaluate solution and create questions regarding process justify answers
	<p>(4.14D) use tools including real objects, manipulatives, and technology to solve problems.</p>	<ul style="list-style-type: none"> • use tools including real objects, manipulatives, or technology (ie. calculators, spreadsheets, graphing programs) within all TAKS objectives 1-5 • represent from concrete to written computation • explore with manipulatives or pictures • represent equations symbolically or numerically • use tools to justify answer <ul style="list-style-type: none"> • Use concrete models such as decimal squares to add and subtract decimal numbers.

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Subject Area	Math	Bundle #:	3
Grade/Level	4	Weeks:	7-9
Overview			
Arrays, Fact Families, Multiplication with 10 and 100, Area, Compatible Numbers, Ordered Pairs in a table, Problem Solving (word problems)			
TEKS - Texas Knowledge & Skills			
Knowledge & Skill Statement	Student Expectation	Student Learning Outcome Clarification	
<i>(4.4) Number, operation, and quantitative reasoning. The student multiplies and divides to solve meaningful problems involving whole numbers. The student is expected to:</i>	(4.4A) model factors and products using arrays and area models.	Including but not limited to: <ul style="list-style-type: none"> • create various concrete models of arrays <ul style="list-style-type: none"> ○ investigate the relationship of the dimensions (rows and columns) to the factors of a given number ○ investigate the area of the model to the product of the factors ○ distinguish between 3 x 8 and a 8 x 3 array (row vs column) • create various area models understanding different composition and decomposition of same factors can result in the same product • relate different arrays and area models (including 4x3 and 3x4 and 6 x 2 and 2 x 6 and 1 x 12 and 12 x 1) as equivalence sets (different factors of the same product) • use correct terminology when describing models • interpret multiplication as repeated addition or multiples • verbally describes the relationship of division and multiplication in the models using correct terminology <p style="text-align: center;">Use area models and arrays to represent factors and products.</p>	
	(4.4C) recall and apply multiplication facts through 12 x 12.	Including but not limited to: <ul style="list-style-type: none"> • apply various multiplication strategies to help recall multiplication facts • apply multiplication facts with efficiency <p style="text-align: center;">Recall and apply multiplication facts.</p>	
<i>(4.5) Number, operation, and quantitative reasoning. The student estimates to determine reasonable results. The student is expected to:</i>	(4.5B) use strategies including rounding and compatible numbers to estimate solutions to multiplication and division problems.	Including but not limited to: <ul style="list-style-type: none"> • use various strategies to estimate solutions to multiplication and division of problems • emphasis estimating before solving problem situations • estimate solutions by using compatible numbers in 	

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		<p>multiplication and division</p> <ul style="list-style-type: none"> ○ numbers that are easy to compute mentally (do not always end in 0) <ul style="list-style-type: none"> ▪ Ex. 92×12 <p style="margin-left: 20px;">could be 92×10 or 90×10</p> or 90×12 <ul style="list-style-type: none"> ▪ Ex. $285 \div 9$ could be $270 \div 10$ <ul style="list-style-type: none"> • Use strategies such as compatible numbers to estimate products.
<p><i>(4.6) Patterns, relationships, and algebraic thinking. The student uses patterns in multiplication and division. The student is expected to:</i></p>	<p>(4.6A) use patterns and relationships to develop strategies to remember basic multiplication and division facts including the patterns in related multiplication and division number sentences (fact families including $9 \times 9 = 81$ and $81 \div 9 = 9$)</p>	<p>Including but not limited to:</p> <ul style="list-style-type: none"> • use patterns to develop strategies to remember basic multiplication and division facts (use of known fact families to develop and recall inverse relationships including $9 \times 9 = 81$ and $81 \div 9 = 9$) • use relationships to develop strategies to remember basic multiplication and division facts (including doubles plus one, doubles minus one etc) • understand multiplication is for combining and division is for separating • complete a given pattern (beginning, middle or extend) • Explore patterns that aid in remembering basic multiplication facts.
	<p>(4.6B) use patterns to multiply by 10 and 100</p>	<p>Including but not limited to:</p> <ul style="list-style-type: none"> • generate patterns of multiplying by 10 in a variety of ways including vertical and horizontal tables, lists, use calculator etc) • generate patterns by multiplying by 100 in a variety of ways (including vertical and horizontal tables, lists, use of calculator, etc) • describe and generalize the pattern of multiplying by 10 • describe and generalize the pattern of multiplying by 100 • use knowledge of patterns to solve multiplication of unknown products including 989×100 • complete the missing number in a number sentence, table, etc • Describe and identify patterns when multiplying by 10 and 100.

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<p><i>(4.7) Patterns, relationships, and algebraic thinking. The student uses organizational structures to analyze and describe patterns and relationships. The student is expected to:</i></p>	<p>(4.7A) describe the relationship between two sets of related data including ordered pairs in a table.</p>	<p>Including but not limited to:</p> <ul style="list-style-type: none"> • evaluate two sets of related data presented in a variety of ways (ex: real-life situation, lists, tables, charts, graphic organizers including Venn diagrams and other diagrams) • generate table with process column of paired numbers based on meaningful applications • identify patterns in a table (vertical and horizontal) of related number pairs based on a meaningful problem • investigates the relationship between the related pair numbers • describe the pattern "What's the rule?" using mathematical words, numbers and symbols • use reasonableness to verify solution <p>Determine the relationship between sets of related data.</p>
<p><i>(4.11) Measurement. The student applies measurement concepts. The student is expected to estimate and measure to solve problems involving length, (including perimeter) and area. The student uses measurement tools to measure capacity/volume and weight/mass. The student is expected to</i></p>	<p>(4.11A) estimate and use measurement tools to determine length (including perimeter), area, capacity and weight/mass using standard units, SI (metric) and customary.</p>	<ul style="list-style-type: none"> • understand measure means to decide "what" is to be measured and select the appropriate unit • estimates length, area, capacity, weight/mass prior to any measuring • identify tools and units needed to measure length (perimeter), area, capacity, weight/mass and solve problems • use tools to measure and find perimeter and area including composite figures (two or more 2 dimensional geometric figures combined to make an irregular shape) • demonstrates measurement using a variety of different units and tools • measure using different starting point on measuring tools • identifies what concept (perimeter, area, capacity, weight/mass) is being asked in a real life situations (ex: the amount of carpet needed to cover the square dining room floor) • Measure to solve problems involving area.
<p><i>(4.14) Underlying processes and mathematical tools. The student applies Grade 4 mathematics to solve problems connected to everyday experiences and activities in and outside of school. The student</i></p>	<p>(4.14B) solve problems that incorporate understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness.</p>	<ul style="list-style-type: none"> • incorporate a problem solving strategy within all TAKS Objectives 1-5 • read, interpret, and assess the problem for the known and unknown information • assess the problem for missing information • assess the problem for unnecessary information

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<p><i>is expected to:</i></p>		<ul style="list-style-type: none"> • understand the questions being asked • explore solving the problem using manipulatives or pictures • communicate problem solving strategy orally and in journals • estimate a reasonable solution • record and communicate with pictures, numbers and symbols • evaluate solution and creates questions regarding process • justify answers • Create a number sentence that represents a multiplication situation.
	<p>(4.14C) select or develop an appropriate problem-solving plan or strategy, including drawing a picture, looking for a pattern, systematic guessing and checking, acting it out, making a table, working a simpler problem, or working backwards to solve a problem.</p>	<ul style="list-style-type: none"> • integrate a problem solving strategy within all TAKS Objectives 1-5 • read, interpret, and assess the problem for the known, extraneous and unknown information • understand the questions being asked • explore solving the problem using different strategies • communicate problem solving strategy orally and in journals • estimate a reasonable solution • record and communicate with pictures, numbers and symbols • evaluate solution and create questions regarding process • justify answers
	<p>(4.14D) use tools including real objects, manipulatives, and technology to solve problems.</p>	<ul style="list-style-type: none"> • use tools including real objects, manipulatives, or technology (ie. calculators, spreadsheets, graphing programs) within all TAKS objectives 1-5 • represent from concrete to written computation • explore with manipulatives or pictures • represent equations symbolically or numerically • use tools to justify answer • Use area models and arrays to represent factors and products.
<p><i>(4.15) Underlying processes and mathematical tools. The student communicates about Grade 4 mathematics using informal language. The student is expected to:</i></p>	<p>(4.15B) relate informal language to mathematical language and symbols</p>	<ul style="list-style-type: none"> • explain and record observations are tested in all objectives 1-5 • describe the process orally and in words (informally) • relate informal language to mathematical language • relate informal language to mathematical symbols

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Subject Area	Math	Bundle #:	4
Grade/Level	4	Weeks:	10-12
Overview			
Multiplication (2x2), Problem Solving (word problems)			
TEKS - Texas Knowledge & Skills			
Knowledge & Skill Statement	Student Expectation	Student Learning Outcome Clarification	
<i>(4.4) Number, operation, and quantitative reasoning. The student multiplies and divides to solve meaningful problems involving whole numbers. The student is expected to:</i>	(4.4B) represent multiplication and division situations in picture, word, and number form	Including but not limited to: <ul style="list-style-type: none"> ▪ demonstrate connection that multiplication and division are inverse operations ▪ uses correct terminology when representing multiplication and division ▪ create number sentences and relate to fact families ▪ create a multiplication or division number sentence (equation) given a problem situation ▪ interpret multiplication and division as working with equal groupings (a factor and a divisor represent equal groupings) <ul style="list-style-type: none"> ex: 3×7 would be 3 equal groups of 7 $3 \times 7 = 21$ so $21 \div 7$ is 3 equal groups of 7 Represent multiplication situations using pictures, words, and numbers.	
	(4.4D) use multiplication to solve problems (no more than two digits, times two digits, without technology).	Including but not limited to: <ul style="list-style-type: none"> ▪ apply multiplication (up to 2 digits by 2 digits) to problem situations ▪ extract necessary information needed to solve multi-step problems (ignoring extraneous information) and recognizes the operation(s) needed to solve and checks for reasonableness ▪ demonstrate multiplication problem solving methods ▪ apply understanding of concepts including dozen (12), one week (7 days) half-dozen (6) 	
<i>(4.14) Underlying processes and mathematical tools. The student applies Grade 4 mathematics to solve problems connected to everyday experiences and activities in and outside of school. The student is expected to:</i>	(4.14B) solve problems that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness.	Including but not limited to: <ul style="list-style-type: none"> • incorporate a problem solving strategy within all TAKS Objectives 1-5 • read, interpret, and assess the problem for the known and unknown information • assess the problem for missing information • assess the problem for unnecessary information • understand the questions being asked • explore solving the problem using manipulatives or 	

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		<ul style="list-style-type: none"> • pictures • communicate problem solving strategy orally and in journals • estimate a reasonable solution • record and communicate with pictures, numbers and symbols • evaluate solution and creates questions regarding process • justify answers • Create a number sentence that represents a multiplication situation.
	(4.14C) select or develop an appropriate problem-solving plan or strategy, including drawing a picture, looking for a pattern, systematic guessing and checking, acting it out, making a table, working a simpler problem, or working backwards to solve a problem.	<p>Including but not limited to:</p> <ul style="list-style-type: none"> • integrate a problem solving strategy within all TAKS Objectives 1-5 • read, interpret, and assess the problem for the known, extraneous and unknown information • understand the questions being asked • explore solving the problem using different strategies • communicate problem solving strategy orally and in journals • estimate a reasonable solution • record and communicate with pictures, numbers and symbols • evaluate solution and create questions regarding process • justify answers
	(4.14D) use tools including real objects, manipulatives, and technology to solve problems	<p>Including but not limited to:</p> <ul style="list-style-type: none"> • use tools including real objects, manipulatives, or technology (ie. calculators, spreadsheets, graphing programs) within all TAKS objectives 1-5 • represent from concrete to written computation • explore with manipulatives or pictures • represent equations symbolically or numerically • use tools to justify answer <p>Develop strategies to use with multiplication.</p>
<i>(4.15) Underlying processes and mathematical tools. The student communicates about Grade 4 mathematics using informal language. The student is expected to:</i>	(4.15B) relate informal language to mathematical language and symbols.	<p>Including but not limited to:</p> <ul style="list-style-type: none"> • generalization from patterns or sets of examples can be tested in all objectives 1-5 • identify attributes of examples • identify non examples to given statement • analyze the pattern, examples, or non-examples to make a prediction or an assumption analyze situations that include nonsense words

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Subject Area	Math	Bundle #:	5
Grade/Level	4	Weeks:	13-15
Overview			
Division (no more than 3 digit by 1), Problem Solving (word problems)			
TEKS - Texas Knowledge & Skills			
Knowledge & Skill Statement	Student Expectation	Student Learning Outcome Clarification	
<i>(4.4) Number, operation, and quantitative reasoning. The student multiplies and divides to solve meaningful problems involving whole numbers. The student is expected to:</i>	(4.4B) represent multiplication and division situations in picture, word, and number form.	Including but not limited to: <ul style="list-style-type: none"> • demonstrate connection that multiplication and division are inverse operations • uses correct terminology when representing multiplication and division • create number sentences and relate to fact families • create a multiplication or division number sentence (equation) given a problem situation • interpret multiplication and division as working with equal groupings (a factor and a divisor represent equal groupings) <ul style="list-style-type: none"> ▪ ex: 3×7 would be 3 equal groups of 7 ▪ $3 \times 7 = 21$ so $21 \div 7$ is 3 equal groups of 7 • Represent division situations using picture, word, and number form. 	
	(4.4E) use division to solve problems involving one-digit divisors (no more than one-digit divisors and three digit dividends without technology).	Including but not limited to: <ul style="list-style-type: none"> • understands that division represents sharing equally or forming equal groups • extract necessary information needed to solve the problem (ignoring extraneous information) and recognizes the operation(s) needed to solve and checks for reasonableness • use various strategies to solve problems involving division(one-digit divisor and three digit dividends) • represent remainders with interpretation • demonstrate connection that multiplication and division are inverse operations • Develop strategies to use with division. 	
<i>(4.14) Underlying processes and mathematical tools. The student applies Grade 4 mathematics to solve problems connected to everyday experiences and activities</i>	(4.14B) solve problems that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness.	<ul style="list-style-type: none"> • incorporate a problem solving strategy within all TAKS Objectives 1-5 • read, interpret, and assess the problem for the known and unknown information • assess the problem for missing information • assess the problem for unnecessary information 	

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<p><i>in and outside of school. The student is expected to:</i></p>		<ul style="list-style-type: none"> • understand the questions being asked • explore solving the problem using manipulatives or pictures • communicate problem solving strategy orally and in journals • estimate a reasonable solution • record and communicate with pictures, numbers and symbols • evaluate solution and creates questions regarding process • justify answers • Use a problem-solving model to solve division problems.
	<p>(4.14C) select or develop an appropriate problem-solving plan or strategy, including drawing a picture, looking for a pattern, systematic guessing and checking, acting it out, making a table, working a simpler problem, or working backwards to solve a problem.</p>	<ul style="list-style-type: none"> • integrate a problem solving strategy within all TAKS Objectives 1-5 • read, interpret, and assess the problem for the known, extraneous and unknown information • understand the questions being asked • explore solving the problem using different strategies • communicate problem solving strategy orally and in journals • estimate a reasonable solution • record and communicate with pictures, numbers and symbols • evaluate solution and create questions regarding process • justify answers • Use compatible numbers to estimate solutions
	<p>(4.14D) use tools including real objects, manipulatives, and technology to solve problems</p>	<ul style="list-style-type: none"> • use tools including real objects, manipulatives, or technology (ie. calculators, spreadsheets, graphing programs) within all TAKS objectives 1-5 • represent from concrete to written computation • explore with manipulatives or pictures • represent equations symbolically or numerically • use tools to justify answer
<p><i>(4.15) Underlying processes and mathematical tools. The student communicates about Grade 4 mathematics using informal language. The student is expected to:</i></p>	<p>(4.15B) relate informal language to mathematical language and symbols.</p>	<ul style="list-style-type: none"> • explain and record observations are tested in all objectives 1-5 • describe the process orally and in words (informally) • relate informal language to mathematical language • relate informal language to mathematical symbols • Create a number sentence that represents a division situation.

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Subject Area	Math	Bundle #:	6
Grade/Level	4	Weeks:	16-18
Overview			
Angles, Line Segments, Two and Three Dimensional Geometric Figures, Transformations, Symmetry, Problem Solving (word problems)			
TEKS - Texas Knowledge & Skills			
Knowledge & Skill Statement	Student Expectation	Student Learning Outcome Clarification	
<i>(4.8) Geometry and spatial reasoning. The student identifies and describes attributes of geometric figures using formal and geometric language. The student is expected to:</i>	(4.8A) identify and describe right, acute, and obtuse angles.	Including but not limited to: <ul style="list-style-type: none"> • identify and describe right, acute, and obtuse angles using concrete objects including straws, pattern blocks, pipe cleaners, corner of paper, etc <ul style="list-style-type: none"> ○ right angle measures 90°, created by perpendicular lines ○ acute angle measures between 0° and 90° ○ obtuse angle measures between 90° and 180° • degree symbol (ex: 90°) • identify angles according to labels (ex: angle A) 	
	(4.8B) identify and describe parallel and intersecting (including perpendicular) lines using concrete objects and pictorial models	Including but not limited to: <ul style="list-style-type: none"> • identify lines using a variety of concrete objects and pictorial models <ul style="list-style-type: none"> ○ parallel lines (vertical, horizontal, diagonal and even & uneven length) ○ intersecting lines <ul style="list-style-type: none"> ▪ perpendicular lines • describe lines found in a variety of concrete objects and pictorial models <ul style="list-style-type: none"> ○ parallel lines ○ intersecting lines <ul style="list-style-type: none"> ▪ perpendicular lines (form right angles of 90°) • generalize lines cannot be both parallel and perpendicular if in the same plane • uses (parallel) \parallel and (perpendicular) \perp notation • demonstrate an understanding that lines extend (checking for intersecting lines beyond models) • identify lines according to two points on a line (ex: line \overleftrightarrow{XY}) or by one (line \overline{T}) 	
	(4.8C) use essential attributes to define two-and three-dimensional geometric figures	Including but not limited to: <ul style="list-style-type: none"> • define two- and three-dimensional geometric figures using essential attributes • identify, classify, and describe attributes of two-and three-dimensional figures when given a variety of models, everyday objects and nets • compare and contrast both two- and three-dimensional figures according to attributes (include nets) describing similarities and differences using formal geometric vocabulary • identify attributes according to labels (sides, edges, angles, vertices, faces) • Identify essential attributes of a two-dimensional geometric figure. • Given the essential attributes of two- and three-dimensional geometric figures, identify the two- and three-dimensional geometric figures. 	
<i>(4.9) Geometry and spatial reasoning. The student connects transformations to congruence and symmetry. The student is expected</i>	(4.9A) Demonstrate translations, reflections, and rotations using concrete models.	Including but not limited to: <ul style="list-style-type: none"> • demonstrate the physical movement of a concrete object to model the 3 different types of transformations <ul style="list-style-type: none"> ○ translations (slides vertically, horizontally, or both) ○ rotations (turn or rotated) 	

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<p>to:</p>		<ul style="list-style-type: none"> ○ reflections (flipped over or reflected) • describe the 3 types of transformations using correct mathematical vocabulary (ex: the transformation of the figure is a translation because the figure slides to the right and up) • describe the difference among translations, reflections, and rotations • Demonstrate transformations.
	<p>(4.9B) Use translations, reflections, and rotations to verify that two shapes are congruent.</p>	<p>Including but limited to:</p> <ul style="list-style-type: none"> • verify translation, reflections, and rotations produce two congruent shapes by a variety of strategies (ex: cut and compare, patty paper, measuring, line of reflection etc) • describe that 2 shapes are congruent using the correction transformation as justification (Ex: A rotation of the triangle generated a congruent triangle of same size and shape.) • recognize shapes that are congruent but may have different orientation <p>Identify congruent shapes using translations, reflections, and/or rotations.</p>
	<p>(4.9C) use reflections to verify that a shape has symmetry</p>	<p>Including but not limited to:</p> <ul style="list-style-type: none"> • verify that a shape has symmetry using a variety of methods of reflections (mirrors, patty paper, folding, etc) • use reflections (across a vertical line, across a horizontal line, or across a diagonal line) when testing for symmetry • identifies multiple lines of symmetry in a shape • Use reflections to identify lines of symmetry in a given shape.
<p><i>(4.14) Underlying processes and mathematical tools. The student applies Grade 4 mathematics to solve problems connected to everyday experiences and activities in and outside of school. The student is expected to:</i></p>	<p>(4.14A) identify the mathematics in everyday situations.</p>	<ul style="list-style-type: none"> • incorporate real life experiences within all TAKS Objectives 1-5 • create problems or graphs when given mathematical information or expressions
	<p>(4.14D) use tools including real objects, manipulatives, and technology to solve problems</p>	<ul style="list-style-type: none"> • use tools including real objects, manipulatives, or technology (ie. calculators, spreadsheets, graphing programs) within all TAKS objectives 1-5 • represent from concrete to written computation • explore with manipulatives or pictures • represent equations symbolically or numerically • use tools to justify answer • Identify right, acute, and obtuse angles.
<p><i>(4.15) Underlying processes and mathematical tools. The student communicates about Grade 4 mathematics using informal language. The student is expected to:</i></p>	<p>(4.15A) explain and record observations using objects, words, pictures, numbers, and technology.</p>	<ul style="list-style-type: none"> • integrate explain and record observations within all TAKS objectives 1-5 • describe the process orally and in words using journal writing/drawing • compare explanations describing what is the same and what is different

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Subject Area	Math	Bundle #:	7
Grade/Level	4	Weeks:	19-21
Overview			
Number Lines, Fractions, Decimals, Problem Solving (word problems)			
TEKS - Texas Knowledge & Skills			
Knowledge & Skill Statement	Student Expectation	Student Learning Outcome Clarification	
<i>(4.2) Number, operation, and quantitative reasoning. The student describes and compares fractional parts of whole objects or sets of objects. The student is expected to:</i>	(4.2A) use concrete objects and pictorial models to generate equivalent fractions	Including but not limited to: <ul style="list-style-type: none"> • demonstrate an understanding of equivalence by analyzing a concrete model(s) and pictorial models to generate an equivalent fraction that uses a different fractional parts (different denominator(s)) • demonstrate an understanding of equivalence by constructing multiple models of a given fraction that use different denominators • generate a model of a fraction using equivalence Ex: $12/16 = 9/12$ • generate a model of a fraction using equivalence in simplest form Ex: $12/16 = 3/4$ • Use concrete models such as fraction bars or fraction circles to generate equivalent fractions. 	
	(4.2B) model fraction quantities greater than one using concrete objects and pictorial models	Including but not limited to: <ul style="list-style-type: none"> • recognize fractions are represented by equal size parts of a whole or by a set of objects • model fraction quantities greater than one (improper fractions) using concrete objects • model fraction quantities greater than one (improper fractions) using pictorial models • describe the difference between proper and improper fractions • use "out of" when distinguishing part vs whole (1 out of 2 equal parts) • describe fractional parts using name and symbols in multiple ways with emphasis on $4/4 = 1$ whole 	
	(4.2C) compare and order fractions using concrete objects and pictorial models	Including but not limited to: <ul style="list-style-type: none"> • analyze concrete objects and pictorial models (whole objects or sets of objects) to compare fractional parts using comparison terminology (less than one whole or equal to one whole or greater than one whole) • analyze concrete objects and pictorial models (whole objects or sets of objects) to compare fractional parts using comparison symbols (less than (<), equal to (=), greater than (>)) • determine the order of fractions using concrete objects • determine the order of fractions using pictorial models 	

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		<ul style="list-style-type: none"> Using concrete or pictorial models to compare and order fractions.
	(4.2D) relate decimals to fractions that name tenths and hundredths using concrete objects and pictorial models.	<p>Including but not limited to:</p> <ul style="list-style-type: none"> relate decimals to fractions using concrete objects and pictorial models relate fractions to decimals using concrete objects and pictorial models generalize equivalence relationship using models <p>Ex. $1/2$ to 0.5 and 0.50 Ex: $3/4$ to 0.75 Ex: $6/4$ to 1.25 Ex: 0.01 to $1/100$ Ex: $30/100$ to $3/10$ to .3</p> <ul style="list-style-type: none"> Examine fraction models that represent tenths and hundredths and relate decimals to the models.
<i>(4.10) Geometry and spatial reasoning. The student recognizes the connection between numbers and their properties and points on a number line. The student is expected to:</i>	(4.10A) locate and name points on a number line using whole numbers, fractions including halves and fourths, and decimals including tenths	<p>Including but not limited to:</p> <ul style="list-style-type: none"> determine a strategy for locating and naming of whole numbers and fractional values (halves and fourths) and decimals (tenths and hundredths including .5 and .25) locate and name points on a number line that may or may not begin with zero locate and name points on a number line according to increments other than 1 (think skip counting) ex: (8, 15, ?, 29) demonstrate an understanding of the relationship between the whole number and a fraction on a number line and ruler (customary and metric) demonstrate an understanding of whole numbers on a number line with relationship to the vertical number line on the thermometer, the circular number line on a clock, etc. <ul style="list-style-type: none"> Locate and name points on a number line using fractions.
	(4.13B) interpret bar graphs	<p>Including but not limited to:</p> <ul style="list-style-type: none"> read and interpret all parts of vertical and horizontal bar and double bar graphs (labels, keys, data) interpret and analyze graphs by combining given information in graphs to solve problems recognize X and Y axis on bar graphs <ul style="list-style-type: none"> Use the information on a bar graph to answer questions.
<i>(4.14) Underlying processes and mathematical tools. The student applies Grade 4 mathematics to solve problems connected to</i>	(4.14A) identify the mathematics in everyday situations.	<p>Including but not limited to:</p> <ul style="list-style-type: none"> incorporate real life experiences within all TAKS Objectives 1-5 create problems or graphs when given mathematical information or expressions

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<p><i>everyday experiences and activities in and outside of school. The student is expected to:</i></p>		<ul style="list-style-type: none"> • Relate decimal numbers to everyday life. • Use concrete models to compare and order decimals involving tenths and hundredths.
	<p>(4.14B) solve problems that incorporate understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness</p>	<p>Including but not limited to:</p> <ul style="list-style-type: none"> • incorporate a problem solving strategy within all TAKS Objectives 1-5 • read, interpret, and assess the problem for the known and unknown information • assess the problem for missing information • assess the problem for unnecessary information • understand the questions being asked • explore solving the problem using manipulatives or pictures • communicate problem solving strategy orally and in journals • estimate a reasonable solution • record and communicate with pictures, numbers and symbols • evaluate solution and creates questions regarding process • justify answers <ul style="list-style-type: none"> • Use a problem-solving model to solve problems involving addition and subtraction of decimals.
	<p>(4.14D) use tools including real objects, manipulatives, and technology to solve problems</p>	<p>Including but not limited to:</p> <ul style="list-style-type: none"> • use tools including real objects, manipulatives, or technology (ie. calculators, spreadsheets, graphing programs) within all TAKS objectives 1-5 • represent from concrete to written computation • explore with manipulatives or pictures • represent equations symbolically or numerically • use tools to justify answer <ul style="list-style-type: none"> • Use concrete models such as fraction bars or fraction circles to generate equivalent fractions.
<p><i>(4.16) Underlying processes and mathematical tools. The student uses logical reasoning to make sense of his or her world. The student is expected to:</i></p>	<p>(4.16A) make generalizations from patterns or sets of examples and non-examples.</p>	<p>Including but not limited to:</p> <ul style="list-style-type: none"> • generalization from patterns or sets of examples can be tested in all objectives 1-5 • identify attributes of examples • identify non examples to given statement • analyze the pattern, examples, or non-examples to make a prediction or an assumption • analyze situations that include nonsense words
	<p>(4.16B) justify why an answer is reasonable and explain the solution process.</p>	<p>Including but not limited to:</p> <ul style="list-style-type: none"> • justify why an answer is reasonable and explain the solution process within all TAKS objectives 1-5 • justify and prove their solutions orally with peers and classroom discussions • justify and prove solutions with pictures, concrete objects, and/or numbers

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Subject Area	Math	Bundle #:	8
Grade/Level	4	Weeks:	22-24
Elapsed time, Temperature, Volume, Problem Solving (word problems)			
TEKS - Texas Knowledge & Skills			
Knowledge & Skill Statement	Student Expectation	Student Learning Outcome Clarification	
<i>(4.11) Measurement. The student applies measurement concepts. The student is expected to estimate and measure to solve problems involving length, (including perimeter) and area. The student uses measurement tools to measure capacity/volume and weight/mass. The student is expected to</i>	(4.11C) use concrete models of standard cubic units to measure volume	Including but not limited to: <ul style="list-style-type: none"> • estimate the approximate volume before exploration • exploration of filling rectangular prisms (including square prisms-cubes) with cubes and approximating volume by counting the total number of cubes (centimeter or inch) blocks, etc • connect concrete models to pictorial models and determines volume visually by counting and conceptualizing layers of cubes • appropriately label volume as cubic units • explore by building 3-dimensional figures and filling them with cubes (rectangular prisms) and begin to connect the relationship l = length, w = number of lengths, and h = number of layers (3 dimensions so cubic units) • Use concrete models to measure volume. 	
	(4.11D) estimate volume in cubic units	Including but not limited to: <ul style="list-style-type: none"> • estimate the approximate volume before exploration • appropriately labels volume as cubic units • connect concrete models to pictorial models and determines volume visually by counting and conceptualizing layers of cubes • Use concrete models to estimate volume. 	
<i>(4.12) Measurement. The student applies measurement concepts. The student measures time and temperature (in degrees Fahrenheit and Celsius). The student is expected to:</i>	(4.12A) use a thermometer to measure temperature and changes in temperature	Including but not limited to: <ul style="list-style-type: none"> • conduct hands-on experiments measuring various temperatures • describe the temperatures using the appropriate label of Fahrenheit and Celsius degrees • associate thermometer with a number line and understands that the increments may vary on different thermometers (can vary by increments of 1, 2, 5, 10 	

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		<ul style="list-style-type: none"> etc) • read different thermometer measurements and describes the two temperatures (the temperature decreased by, increased by, dropped by, or rose by) • Measure to solve problems involving temperature.
	(4.12B) use tools, including a clock with gears or a stopwatch, to solve problems involving elapsed time	<p>Including but not limited to:</p> <ul style="list-style-type: none"> • explores elapsed time using clock with gears or stopwatch • determines the in-between time after reading two given clocks or times • explains the solution process of finding an unknown elapsed time involving hours and minutes • recognizes that time is not a base 10 system • moves from concrete (clock) to pictorial (drawing of clocks and explain of process) to abstract (calculating of elapsed time) <ul style="list-style-type: none"> • Use tools to solve problems involving elapsed time.
<i>(4.14) Underlying processes and mathematical tools. The student applies Grade 4 mathematics to solve problems connected to everyday experiences and activities in and outside of school. The student is expected to:</i>	(4.14A) identify the mathematics in everyday situations.	
<i>(4.16) Underlying processes and mathematical tools. The student uses logical reasoning to make sense of his or her world. The student is expected to:</i>	(4.16A) make generalizations from patterns or sets of examples and non-examples.	<p>Including but not limited to:</p> <ul style="list-style-type: none"> • generalization from patterns or sets of examples can be tested in all objectives 1-5 • identify attributes of examples • identify non examples to given statement • analyze the pattern, examples, or non-examples to make a prediction or an assumption • analyze situations that include nonsense words <ul style="list-style-type: none"> • Possible Strategy: Table

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Subject Area	Math	Bundle #:	9
Grade/Level	4	Weeks:	25-27
Overview			
Conversions of Lengths, Capacity, Estimating Measurement, Weight, Mass, Problem Solving (word problems)			
TEKS - Texas Knowledge & Skills			
Knowledge & Skill Statement	Student Expectation	Student Learning Outcome Clarification	
<p><i>(4.11) Measurement. The student applies measurement concepts. The student is expected to estimate and measure to solve problems involving length, (including perimeter) and area. The student uses measurement tools to measure capacity/volume and weight/mass. The student is expected to:</i></p>	<p>(4.11A) estimate and use measurement tools to determine length (including perimeter), area, capacity and weight/mass using standard units, SI (metric) and customary.</p>	<p>Including but not limited to:</p> <ul style="list-style-type: none"> • understand measure means to decide "what" is to be measured and select the appropriate unit • estimates length, area, capacity, weight/mass prior to any measuring • identify tools and units needed to measure length (perimeter), area, capacity, weight/mass and solve problems • use tools to measure and find perimeter and area including composite figures (two or more 2 dimensional geometric figures combined to make an irregular shape) • demonstrates measurement using a variety of different units and tools • measure using different starting point on measuring tools • identifies what concept (perimeter, area, capacity, weight/mass) is being asked in a real life situations (ex: the amount of carpet needed to cover the square dining room floor) • Estimate the mass of objects using SI (metric) units and the weight of the objects using customary units. 	
	<p>(4.11B) perform simple conversions between different units of length, between different units of capacity, and between different units of weight within the customary measurement system.</p>	<p>Including but not limited to:</p> <ul style="list-style-type: none"> • estimates solution prior to conversions • develops idea of conversions with hands-on application • understands the difference between capacity (amount object holds; weight (gravitational pull on an 	

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		<p>object)</p> <ul style="list-style-type: none"> • performs simple conversions between different units of length in problem solving including: <ul style="list-style-type: none"> ○ 36 inches is how much of a foot? • understands relationships of customary units of capacity: • performs simple conversions between different units of capacity in problems solving including: <ul style="list-style-type: none"> ○ 1 quart is how much of a gallon? • understands relationships of customary units of weight: • performs simple conversions between different units of weights in problem solving including: <ul style="list-style-type: none"> ○ 5 pounds is how many ounces • Convert units of weight within the customary system of measurement
	<p>(4.11E) explain the difference between weight and mass</p>	<p>Including but not limited to:</p> <ul style="list-style-type: none"> • explain weight as <ul style="list-style-type: none"> ○ the amount of gravitational pull on an object ○ the weight of an object can vary depending on the amount of the gravitational pull ex: Bathroom scale measuring the weight of one self: <ul style="list-style-type: none"> ▪ your bodily weight would differ at sea level when measured compared to your bodily weight on the airplane ○ weight can be measured using a scale (ex: bathroom scale, or balance scale) ○ weight is measured using customary or SI (metric) units (ounce, pound, ton, gram, kilogram, milligram) • explain mass as <ul style="list-style-type: none"> ○ the amount of matter something contains ○ mass of an object no matter where measured, will always be the same (constant) ○ mass is measured in SI (metric) units

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		<ul style="list-style-type: none"> ○ (gram, kilogram, milligram) ○ mass can be measured using a balance ex: balance scale containing an object(s) in each container: <ul style="list-style-type: none"> ▪ if the arm of the balance is perfectly horizontal, then the mass of the objects in each container is equal ▪ if the arm of the balance is not perfectly horizontal, then the mass of objects in one of the containers is greater than or less than the mass in the other container. • Explain the difference between weight and mass.
	(4.13B) interpret bar graphs	<p>Including but not limited to:</p> <ul style="list-style-type: none"> • read and interpret all parts of vertical and horizontal bar and double bar graphs (labels, keys, data) • interpret and analyze graphs by combining given information in graphs to solve problems • recognize X and Y axis on bar graphs • Use the information on a bar graph to answer questions.
<i>(4.14) Underlying processes and mathematical tools. The student applies Grade 4 mathematics to solve problems connected to everyday experiences and activities in and outside of school. The student is expected to:</i>	(4.14A) identify the mathematics in everyday situations.	<p>Including but not limited to:</p> <ul style="list-style-type: none"> • incorporate real life experiences within all TAKS Objectives 1-5 • create problems or graphs when given mathematical information or expressions
	(4.14D) use tools including real objects, manipulatives, and technology to solve problems.	<p>Including but not limited to:</p> <ul style="list-style-type: none"> • use tools including real objects, manipulatives, or technology (ie. calculators, spreadsheets, graphing programs) within all TAKS objectives 1-5 • represent from concrete to written computation • explore with manipulatives or pictures • represent equations symbolically or numerically • use tools to justify answer

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		<ul style="list-style-type: none"> Identify the appropriate unit to describe the mass or weight of an object and estimate the mass or weight of the object.
<p><i>(4.15) Underlying processes and mathematical tools. The student communicates about Grade 4 mathematics using informal language. The student is expected to:</i></p>	<p>(4.15B) relate informal language to mathematical language and symbols.</p>	<p>Including but not limited to:</p> <ul style="list-style-type: none"> explain and record observations are tested in all objectives 1-5 describe the process orally and in words (informally) relate informal language to mathematical language <p>relate informal language to mathematical symbols</p>
<p><i>(4.16) Underlying processes and mathematical tools. The student uses logical reasoning to make sense of his or her world. The student is expected to:</i></p>	<p>(4.16A) make generalizations from patterns or sets of examples and non-examples.</p>	<p>Including but not limited to:</p> <ul style="list-style-type: none"> generalization from patterns or sets of examples can be tested in all objectives 1-5 identify attributes of examples identify non examples to given statement analyze the pattern, examples, or non-examples to make a prediction or an assumption analyze situations that include nonsense words <p style="text-align: center;">• Possible Strategy: Table</p>

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Subject Area	Math	Bundle #:	11
Grade/Level	4	Weeks:	31-33
Overview			
Fractions (mixed and improper/adding and subtracting), Place Value (to hundred billions)			
TEKS - Texas Knowledge & Skills			
Knowledge & Skill Statement	Student Expectation	Student Learning Outcome Clarification	
<p><i>(4.1) Number, operation, and quantitative reasoning. The student uses place value to represent whole numbers and decimals. The student is expected to</i></p>	<p>(4.1A) use place value to read, write, compare, and order whole numbers through the 999,999,999</p>	<p>Including but not limited to:</p> <ul style="list-style-type: none"> • convert, write or describe standard to written through 999,999,999,999 - digits to words • convert, write or describe written to standard through 999,999,999,999 - words to digits • convert between standard form and expanded notation (ex. $790,410,032,465 = 700,000,000,000 + 90,000,000,000 + 400,000,000 + 30,000 + 2,000 + 400 + 60 + 5$) • compare and order numbers using symbols and words for "greater than" (>), "less than" (<) and "equal" (=) • represent place value concepts using whole numbers through 999,999,999 with numerals, words, expanded notation and concrete objects • sequence numbers or words associated with numbers • use large numbers in context • create a number smaller, in-between, or larger than given numbers • Use data from charts, tables and graphs to read, write, compare and order whole numbers through 999,999,999,999 	
<p><i>(4.2) Number, operation, and quantitative reasoning. The student describes and compares fractional parts of whole objects or sets of objects. The student is expected to:</i></p>	<p>(4.2B) model fraction quantities greater than one using concrete objects and pictorial models</p>	<p>Including but not limited to:</p> <ul style="list-style-type: none"> • recognize fractions are represented by equal size parts of a whole or by a set of objects • generate a mixed number equivalent to a given improper fraction 	

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		<ul style="list-style-type: none"> • generate an improper fraction equivalent to a given mixed number • use "out of" when distinguishing part vs whole • describe fractional parts using name and symbols in multiple ways of both mixed numbers and improper fractions (with emphasis that 4 out of 4 is one whole) Ex: $\frac{7}{4}$ (improper) is equivalent to $1\frac{3}{4}$ (mixed number), 7 out of 4 equal parts • demonstrate using concrete and pictorial objects that the same improper fraction and mixed number are equivalent • describe the difference between proper and improper fractions • Use data from charts, tables and graphs to read, write, compare and order to find equivalent forms of mixed numbers and improper fractions
<p><i>(4.14) Underlying processes and mathematical tools. The student applies Grade 4 mathematics to solve problems connected to everyday experiences and activities in and outside of school. The student is expected to:</i></p>	<p>(4.14B) solve problems that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness</p>	<p>Including but not limited to:</p> <ul style="list-style-type: none"> • incorporate problem solving within all TAKS Objectives 1-5 • read, interpret, and assess the problem for the known and unknown information • assess the problem for missing information • assess the problem for unnecessary information • understand the questions being asked • explore solving the problem using manipulatives or pictures • communicate problem solving strategy orally and in journals • estimate a reasonable solution • record and communicate with pictures, numbers and symbols • evaluate solution and creates questions regarding process • justify answers

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	$= 81$ and $81 \div 9 = 9$	<p>problem situations</p> <ul style="list-style-type: none">• select from and use equations to represent meaningful problem situations• understand equations may include numerical representation only or variable representation (letter for unknown value)• use labels of the problem situation when reading the equation to see if it make sense and matches the problem using reasonableness• connect diagrams, equations, and descriptions of meaningful problem situation• justify equation or selection of equation• represent concretely, pictorially and abstractly
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