

Teacher: Core Pace 4
 Course: PACE MATH Grade 4

Year: 2011-12
 Month: All Months

S e p t e m b e r	Number Sense ~ All bold and italicized text in this map indicates concepts introduced at this grade level.						
	Standards	Enduring Understandings	Content	Skills	Lessons	Resources	Vocabulary
			Review for NECAP	Practice prior year's skills	Online Resources- Links	Portaportal Interactive Math Links	NECAP Vocabulary analyze, classify, compute, customary vs metric units, determine level of accuracy, distinguish, draw a conclusion, evaluate, expression vs equation, formulate, infer, interpret, justify, model, notation, predict, produce, reason, record, relate, relationships, represent, response, rule for a pattern, simplify, solution, trends, unit of measure

<p>M.01.NO.04.01- Demonstrates conceptual understanding of rational numbers with respect to: whole numbers from 0 to 999,999 through equivalency, composition, decomposition, or place value using models, explanations, or other representations; and positive fractional numbers (benchmark fractions: $\frac{a}{2}$, $\frac{a}{3}$, $\frac{a}{4}$, $\frac{a}{5}$, $\frac{a}{6}$, $\frac{a}{8}$, or $\frac{a}{10}$, where a is a whole number greater than 0 and less than or equal to the denominator) as a part to whole relationship in area, set, or linear models where the number of parts in the whole are equal to, and a multiple or factor of the</p>		<p><i>Place value of whole numbers from 0 to 9,999,999</i> Exponents related to place value Composition and decomposition of whole numbers from 0 to 9,999,999</p> <p>Mental Math facts Addition of 4-digit numbers Subtraction of 4-digit numbers</p>	<p>Demonstrates conceptual understanding of place value as powers of 10 grow, using models, explanations, or other representations Represents numbers in standard, word, and expanded form</p> <p>Compares and orders whole numbers</p> <p><i>Mentally multiplies whole number facts to a product of 144</i> Mentally adds two-digit whole numbers <i>Mentally adds 2-digit and 3-digit whole numbers that are multiples of ten, and 4-digit whole numbers that are multiples of 100</i> <i>Mentally subtracts</i></p>		<p>Scott Foresman Math Chapter 2 Section A Math at Hand, place value 004-013, estimation and rounding 094-115, addition 118-126, subtraction 127-135 Calculators Place Value Charts I have __, who has __? cards</p>	<p><u>Common Vocabulary</u> digit, place value, period, exponent, million, billion, addend, minuend, subtrahend, front-end estimation, expanded form, standard form, word form, operation</p> <p><u>NECAP Vocabulary</u></p>

<p>denominator; and decimals as hundredths within the context of money, or tenths within the context of metric measurements (e.g., 2.3 cm) using models, explanations, or other representations. M.01.NO.05.01-</p> <p>Demonstrates conceptual understanding of rational numbers with respect to: whole numbers from 0 to 9,999,999 through equivalency, composition, decomposition, or place value using models, explanations, or other representations; and positive fractional numbers (proper, mixed number, and improper) (halves, fourths, eighths, thirds, sixths, twelfths, fifths, or powers of ten (10, 100, 1000)),</p>			<p><i>combinations of 2-digit and 3-digit whole numbers that are multiples of ten</i></p> <p>Estimates sums and differences using appropriate strategy</p> <p>Rounds numbers to a specific place value.</p>			
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<p>decimals (to thousandths), or benchmark percents (10%, 25%, 50%, 75% or 100%) as a part to whole relationship in area, set, or linear models using models, explanations, or other representations.</p> <p>M.NO.4.1.6- Mentally adds and subtracts whole number facts through 20; multiplies whole number facts to a product of 100, and calculates related division facts; adds two-digit whole numbers, combinations of two-digit and 3-digit whole numbers that are multiples of ten, and 4-digit whole numbers that are multiples of 100 (limited to two addends) and subtracts a one-digit whole number from a two-digit whole number and subtracts combinations of</p>						
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<p>two-digit and three-digit whole numbers that are multiples of ten</p> <p>M.NO.4.1.7- Makes estimates in a given situation by identifying when estimation is appropriate, selecting the appropriate method of estimation, and evaluating the reasonableness of solutions appropriate to grade level</p> <p>GLEs across content strands.</p> <p>M.NO.5.1.6- Mentally calculates change back from \$1.00, \$5.00, and \$10.00; calculates multiplication and related division facts to a product of 144; multiplies a two-digit whole number by a one-digit whole number</p> <p>two-digit whole numbers that are multiples of ten, a three-digit whole number that is a</p>						
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<p>multiple of 100 by a two- or three-digit number which is a multiple of 10 or 100, respectively, and divides 3- and 4-digit multiples of powers of ten by their compatible factors</p> <p>M.NO.5.1.7- Makes estimates in a given situation by identifying when estimation is appropriate, selecting the appropriate method of estimation, determining the level of accuracy needed given the situation, analyzing the effect of the estimation method on the accuracy of results, and evaluating the reasonableness of solutions appropriate to grade level GLEs across content strands.</p>						
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O
c Decimals and Making Change

t o b e r	Standards	Enduring Understandings	Content	Skills	Lessons	Resources	Vocabulary
	M.01.NO.04.01- Demonstrates conceptual understanding of rational numbers with respect to: whole numbers from 0 to 999,999 through equivalency, composition, decomposition, or place value using models, explanations, or other representations; and positive fractional numbers (benchmark fractions: $\frac{a}{2}$, $\frac{a}{3}$, $\frac{a}{4}$, $\frac{a}{5}$, $\frac{a}{6}$, $\frac{a}{8}$, or $\frac{a}{10}$, where a is a whole number greater than 0 and less than or equal to the denominator) as a part to whole relationship in area, set, or linear models where the number of parts in the whole are equal to, and a multiple or factor of the denominator; and decimals as		Decimal concepts <i>Place value of decimals to thousandths</i> Rounding decimals	<i>Orders decimals using models, number lines, explanation, or other representations</i> Demonstrates understanding within the context of money Identifies, compares, and represents decimals through thousandths, with and without models Identifies and writes equivalent decimals Identifies decimal representations as part of a whole Rounds decimals to correct place value Names decimals using place value terminology		Scott Foresman Math Chapter 2, Section A Math at Hand, decimals 011-018	<u>Common Vocabulary</u> tenths, hundredths, thousandths <u>NECAP Vocabulary</u>

<p>hundredths within the context of money, or tenths within the context of metric measurements (e.g., 2.3 cm) using models, explanations, or other representations.</p> <p>M.01.NO.04.02- Demonstrates understanding of the relative magnitude of numbers from 0 to 999,999 by ordering or comparing whole numbers; and ordering, comparing, or identifying equivalent proper positive fractional numbers; or decimals using models, number lines, or explanations.</p> <p>M.01.NO.05.01- Demonstrates conceptual understanding of rational numbers with respect to: whole numbers from 0 to 9,999,999 through equivalency,</p>						
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<p>composition, decomposition, or place value using models, explanations, or other representations; and positive fractional numbers (proper, mixed number, and improper) (halves, fourths, eighths, thirds, sixths, twelfths, fifths, or powers of ten (10, 100, 1000)), decimals (to thousandths), or benchmark percents (10%, 25%, 50%, 75% or 100%) as a part to whole relationship in area, set, or linear models using models, explanations, or other representations.</p> <p>M.01.NO.05.02- Demonstrates understanding of the relative magnitude of numbers by ordering, comparing, or identifying equivalent positive fractional numbers,</p>						
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<p>decimals, or benchmark percents within number formats (fractions to fractions, decimals to decimals, or percents to percents); or integers in context using models or number lines.</p>							
<p>M.01.NO.04.04- Accurately solves problems involving multiple operations on whole numbers or the use of the properties of factors and multiples; and addition or subtraction of decimals and positive proper fractions with like denominators. (Multiplication limited to 2 digits by 2 digits, and division limited to 1 digit divisors.) M.01.NO.05.04- Accurately solves problems involving multiple operations on</p>		<p><i>Addition of decimals (to at least the hundredths place)</i> <i>Subtraction of decimals (to at least the hundredths place)</i> Word problems</p>	<p>Demonstrates conceptual understanding of decimal operations Applies the Order of Operations <i>with parentheses</i> <i>Applies the associative and commutative properties</i> Solves problems using decimals and/or money, including two-step problems Estimates sums and differences Applies the additive property of</p>		<p>Scott Foresman, Chapter 2, Section C Math at Hand, addition 125-126, subtraction 135</p>	<p><u>Common Vocabulary</u> associative, commutative <u>NECAP Vocabulary</u></p>	<p>S a d 1</p>

<p>whole numbers or the use of the properties of factors, multiples, prime, or composite numbers; and addition or subtraction of fractions (proper) and decimals to the hundredths place. (Division of whole numbers by up to a two-digit divisor.)</p> <p>M.NO.4.1.7- Makes estimates in a given situation by identifying when estimation is appropriate, selecting the appropriate method of estimation, and evaluating the reasonableness of solutions appropriate to grade level GLEs across content strands.</p> <p>M.NO.4.1.8- Applies properties of numbers (odd, even, multiplicative property of zero, and remainders) and</p>			<p>zero (identity property)</p> <p>Add and subtract decimals correctly aligning decimal points</p>			
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<p>field properties (commutative, associative, and identity) to solve problems and to simplify computations.</p> <p>M.NO.5.1.7- Makes estimates in a given situation by identifying when estimation is appropriate, selecting the appropriate method of estimation, determining the level of accuracy needed given the situation, analyzing the effect of the estimation method on the accuracy of results, and evaluating the reasonableness of solutions appropriate to grade level GLEs across content strands.</p> <p>M.NO.5.1.8- Applies properties of numbers (odd, even, and divisibility) and field properties (commutative, associative, identity, and</p>						
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distributive) to solve problems and to simplify computations.						
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<p>M.NO.5.1.6- Mentally calculates change back from \$1.00, \$5.00, and \$10.00; calculates multiplication and related division facts to a product of 144; multiplies a two-digit whole number by a one-digit whole number two- digit whole numbers that are multiples of ten, a three-digit whole number that is a multiple of 100 by a two- or three-digit number which is a multiple of 10 or 100, respectively, and divides 3- and 4-digit multiples of powers of ten by their compatible factors</p>		<p>Making change</p>	<p><i>Mentally calculates change back from \$1.00, \$5.00, and \$10.00</i></p>		<p>Play money</p>	<p><u>NECAP Vocabulary</u></p>	<p>SI ch of 10</p>
<p>Multiplication ~ This unit may run into November</p>							

Standards	Enduring Understandings	Content	Skills	Lessons	Resources	Vocabulary	Asses
		Review multiplication facts			I have _, who has _? cards		
M.NO.4.1.8- Applies properties of numbers (odd, even, multiplicative property of zero, and remainders) and field properties (commutative, associative, and identity) to solve problems and to simplify computations. M.NO.5.1.8- Applies properties of numbers (odd, even, and divisibility) and field properties (commutative, associative, identity, and distributive) to solve problems and to simplify computations.		Properties of numbers - odd, even, <i>associative, commutative, distributive, multiplicative property of zero</i> , identity, multiplicative property of one	Applies properties of numbers to solve problems		Scott Foresman Chapter 3, Section A, Chapter 4, Lesson 4-10 Math at Hand, multiplication 136-143	<u>Common Vocabulary</u> associative, commutative, distributive, factor, product <u>NECAP Vocabulary</u>	SI oc pr 10
M.01.NO.04.04- Accurately solves problems involving multiple operations on		<i>Multiplication of whole numbers - (2- and 3-digit by 1-digit)</i> <i>Multiplication</i>	Accurately solves problems Accurately solves problems		Scott Foresman, Chapter 3, Section A Math at Hand,	<u>Common Vocabulary</u> multiple <u>NECAP</u>	S di m 10

<p>whole numbers or the use of the properties of factors and multiples; and addition or subtraction of decimals and positive proper fractions with like denominators. (Multiplication limited to 2 digits by 2 digits, and division limited to 1 digit divisors.) M.01.NO.05.04- Accurately solves problems involving multiple operations on whole numbers or the use of the properties of factors, multiples, prime, or composite numbers; and addition or subtraction of fractions (proper) and decimals to the hundredths place. (Division of whole numbers by up to a two-digit divisor.) M.NO.4.1.6- Mentally adds</p>		<p><i>of whole numbers - (2- and 3-digit by 2-digit)</i> Word problems</p>	<p>involving multiple operations Estimates using appropriate strategy <i>Accurately solves problems using the properties of factors, multiples, prime, or composite numbers</i> Mentally multiplies a 2-digit whole number by a 1-digit whole number Mentally multiplies two-digit whole numbers that are multiples of ten <i>Mentally multiplies a 3-digit whole number that is a multiple of 100 by a 2- or 3-digit number that is a multiple of 10 or 100, respectively</i></p>	<p>multiplication 136-143 Historical Connections in Mathematics - Napier Calculators</p>	<p><u>Vocabulary</u></p>
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<p>and subtracts whole number facts through 20; multiplies whole number facts to a product of 100, and calculates related division facts; adds two-digit whole numbers, combinations of two-digit and 3-digit whole numbers that are multiples of ten, and 4-digit whole numbers that are multiples of 100 (limited to two addends) and subtracts a one-digit whole number from a two-digit whole number and subtracts combinations of two-digit and three-digit whole numbers that are multiples of ten</p> <p>M.NO.5.1.6- Mentally calculates change back from \$1.00, \$5.00, and \$10.00; calculates multiplication and related division facts to</p>						
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<p>a product of 144; multiplies a two-digit whole number by a one-digit whole number two-digit whole numbers that are multiples of ten, a three-digit whole number that is a multiple of 100 by a two- or three-digit number which is a multiple of 10 or 100, respectively, and divides 3- and 4-digit multiples of powers of ten by their compatible factors</p>						
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Division - One-digit Divisor ~ Benchmark 1 to be given after this unit, by 12/9/11, and turned in by 12/14

N o v e r	Standards	Enduring Understandings	Content	Skills	Lessons	Resources	Vocabulary
	<p>M.01.NO.04.03- Demonstrates conceptual understanding of mathematical operations by describing or illustrating the relationship between repeated subtraction and division (no remainders); the inverse</p>		<p><i>Relationship between subtraction and division with no remainders</i> <i>Inverse relationship between multiplication and division of whole numbers</i></p>	<p>Describes and illustrates the relationship between division and other operations (sub. and mult.) Solves problems using order of operations <i>Mentally</i></p>		<p>Scott Foresman, Chapter 4, Section A Math at Hand, division 144-145</p>	<p><u>Common Vocabulary</u> dividend, divisor, quotient <u>NECAP Vocabulary</u></p>

<p>relationship between multiplication and division of whole numbers; or the addition or subtraction of positive fractional numbers with like denominators using models, number lines, or explanations.</p> <p>M.01.NO.04.04- Accurately solves problems involving multiple operations on whole numbers or the use of the properties of factors and multiples; and addition or subtraction of decimals and positive proper fractions with like denominators. (Multiplication limited to 2 digits by 2 digits, and division limited to 1 digit divisors.)</p> <p>M.NO.4.1.6- Mentally adds and subtracts whole number facts through 20; multiplies</p>			<p><i>calculates multiplication and related division facts to a product of 144</i></p>			
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<p>whole number facts to a product of 100, and calculates related division facts; adds two-digit whole numbers, combinations of two-digit and 3-digit whole numbers that are multiples of ten, and 4-digit whole numbers that are multiples of 100 (limited to two addends) and subtracts a one-digit whole number from a two-digit whole number and subtracts combinations of two-digit and three-digit whole numbers that are multiples of ten</p> <p>M.NO.5.1.6- Mentally calculates change back from \$1.00, \$5.00, and \$10.00; calculates multiplication and related division facts to a product of 144; multiplies a two-digit whole number</p>						
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<p>by a one-digit whole number two-digit whole numbers that are multiples of ten, a three-digit whole number that is a multiple of 100 by a two- or three-digit number which is a multiple of 10 or 100, respectively, and divides 3- and 4-digit multiples of powers of ten by their compatible factors</p>						
<p>M.01.NO.04.04- Accurately solves problems involving multiple operations on whole numbers or the use of the properties of factors and multiples; and addition or subtraction of decimals and positive proper fractions with like denominators. (Multiplication limited to 2 digits by 2 digits, and division limited</p>	<p>Compatible numbers Rules of divisibility Prime numbers Composite numbers Factors Division of whole numbers by a 1-digit divisor, no remainder Division of whole numbers by a 1-digit divisor, with remainder Remainder</p>	<p>Applies rules of divisibility (2, 3, 5, 9, 10) Estimates using compatible numbers Mentally divides 3- and 4-digit multiples of powers of ten by their compatible factors Accurately solves problems Demonstrates conceptual understanding of the meaning of a</p>		<p>Scott Foresman, Chapter 4, Section B and 4-13, 4-14 Math at Hand, division 146-150 Ms. Math Number Sense packet Hundreds chart</p>	<p><u>Common Vocabulary</u> compatible numbers, divisibility, prime number, composite number, remainder <u>NECAP Vocabulary</u></p>	<p>S 1</p>

<p>to 1 digit divisors.) M.01.NO.05.03- Demonstrates conceptual understanding of mathematical operations by describing or illustrating the meaning of a remainder with respect to division of whole numbers using models, explanations, or solving problems. M.01.NO.05.04- Accurately solves problems involving multiple operations on whole numbers or the use of the properties of factors, multiples, prime, or composite numbers; and addition or subtraction of fractions (proper) and decimals to the hundredths place. (Division of whole numbers by up to a two-digit divisor.) M.NO.4.1.6- Mentally adds</p>			<p><i>remainder by describing or illustrating using models, explanations, or solving problems</i></p>			
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<p>and subtracts whole number facts through 20; multiplies whole number facts to a product of 100, and calculates related division facts; adds two-digit whole numbers, combinations of two-digit and 3-digit whole numbers that are multiples of ten, and 4-digit whole numbers that are multiples of 100 (limited to two addends) and subtracts a one-digit whole number from a two-digit whole number and subtracts combinations of two-digit and three-digit whole numbers that are multiples of ten</p> <p>M.NO.4.1.7- Makes estimates in a given situation by identifying when estimation is appropriate, selecting the appropriate method of estimation, and</p>						
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<p>evaluating the reasonableness of solutions appropriate to grade level GLEs across content strands. M.NO.5.1.6- Mentally calculates change back from \$1.00, \$5.00, and \$10.00; calculates multiplication and related division facts to a product of 144; multiplies a two-digit whole number by a one-digit whole number two-digit whole numbers that are multiples of ten, a three-digit whole number that is a multiple of 100 by a two- or three-digit number which is a multiple of 10 or 100, respectively, and divides 3- and 4-digit multiples of powers of ten by their compatible factors M.NO.5.1.7- Makes estimates</p>						
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<p>in a given situation by identifying when estimation is appropriate, selecting the appropriate method of estimation, determining the level of accuracy needed given the situation, analyzing the effect of the estimation method on the accuracy of results, and evaluating the reasonableness of solutions appropriate to grade level GLEs across content strands. M.NO.5.1.8- Applies properties of numbers (odd, even, and divisibility) and field properties (commutative, associative, identity, and distributive) to solve problems and to simplify computations.</p>							
<p>D e c e</p>	<p>Division - Two-digit Divisor ~</p>	<p>Benchmark 1 Assessment to be given before this unit, by December 9th and December 14th.</p>					
	<p>Standards</p>	<p>Enduring</p>	<p>Content</p>	<p>Skills</p>	<p>Lessons</p>	<p>Resources</p>	<p>Vocabulary</p>

m	Understandings						
b e r	<p>M.01.NO.05.04- Accurately solves problems involving multiple operations on whole numbers or the use of the properties of factors, multiples, prime, or composite numbers; and addition or subtraction of fractions (proper) and decimals to the hundredths place. (Division of whole numbers by up to a two-digit divisor.)</p> <p>M.NO.5.1.6- Mentally calculates change back from \$1.00, \$5.00, and \$10.00; calculates multiplication and related division facts to a product of 144; multiplies a two-digit whole number by a one-digit whole number two-digit whole numbers that are</p>		<p>Compatible numbers</p> <p><i>Rules of divisibility</i></p> <p><i>Division of at least 3-digit whole numbers by a 2-digit divisor, with remainder</i></p>	<p>Applies rules of divisibility (2, 3, 5, 9, 10)</p> <p>Estimates using compatible numbers</p> <p><i>Estimates using appropriate strategy</i></p> <p>Demonstrates conceptual understanding of mathematical operations</p> <p>Accurately solves problems involving multiple operations</p> <p>Applies the Order of Operations <i>with parentheses</i></p>		<p>Scott Foresman, Chapter 5 Section A and B Math at Hand division 151-152, order of operations 212-214</p>	<p><u>NECAP Vocabulary</u></p>

<p>multiples of ten, a three-digit whole number that is a multiple of 100 by a two- or three-digit number which is a multiple of 10 or 100, respectively, and divides 3- and 4-digit multiples of powers of ten by their compatible factors</p> <p>M.NO.5.1.7- Makes estimates in a given situation by identifying when estimation is appropriate, selecting the appropriate method of estimation, determining the level of accuracy needed given the situation, analyzing the effect of the estimation method on the accuracy of results, and evaluating the reasonableness of solutions appropriate to grade level GLEs across</p>						
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content strands. M.NO.5.1.8- Applies properties of numbers (odd, even, and divisibility) and field properties (commutative, associative, identity, and distributive) to solve problems and to simplify computations.							
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y** Data Collection and Graphing

Standards	Enduring Understandings	Content	Skills	Lessons	Resources	Vocabulary
M.04.DSP.04.01- Interprets a given representation (line plots, tables, bar graphs, pictographs, or circle graphs) to answer questions related to the data, to analyze the data to formulate or justify conclusions, to make predictions, or to solve problems. M.04.DSP.05.01- Interprets a given representation (tables, bar graphs, circle graphs, or line graphs) to answer questions		<i>Line plots</i> Tables Bar graphs <i>Line graphs</i> <i>Pictographs</i>	Interprets and analyzes line plots, tables, bar graphs, pictographs, and circle graphs Uses data to formulate or justify conclusions, make predictions, and <i>solve problems</i>		Scott Foresman - Grade 5, Chapter 1, Section A Math at Hand 272- 284 Graph paper	<u>Common Vocabulary</u> line plot, frequency table, bar graph, line graph, pictograph <u>NECAP Vocabulary</u>

<p>related to the data, to analyze the data to formulate or justify conclusions, to make predictions, or to solve problems.</p>						
<p>M.04.DSP.04.02- Analyzes patterns, trends, or distributions in data in a variety of contexts by determining or using measures of central tendency (median or mode), or range. M.04.DSP.05.02- Analyzes patterns, trends, or distributions in data in a variety of contexts by determining or using measures of central tendency (mean, median, or mode) or range to analyze situations, or to solve problems.</p>		<p><i>Measures of central tendency - mean, median, mode, and range</i></p>	<p><i>Analyzes patterns, trends, or distributions in data in a variety of contexts</i> Determines mean, median, mode, and range from lists, tables, or plots</p>		<p>Scott Foresman - Grade 5, Chapter 1, Section 1-4 and Chapter 4, Section 4-9 Math at Hand 256-263</p>	<p><u>Common Vocabulary</u> mean, median, mode, range, trend <u>NECAP Vocabulary</u></p>
<p>M.04.DSP.05.03- Identifies or describes representations or elements of representations that best display</p>		<p>Tables <i>Line plots</i> Bar graphs Line graphs <i>Pictographs</i></p>	<p><i>Organizes data</i> <i>Displays data</i> and recognizes and uses appropriate elements of</p>		<p>Scott Foresman Grade 5, Chapter 1, Section B Math at Hand 269-</p>	<p><u>Common Vocabulary</u> tally, data</p>

<p>a given set of data or situation, consistent with the representations required in M.04.DSP.05.01. M.DSP.4.1.3- Organizes and displays data using tables, line plots, bar graphs, and pictographs to answer questions related to the data, to analyze the data to formulate or justify conclusions, to make predictions, or to solve problems. M.DSP.5.1.3- Organizes and displays data using tables, bar graphs, or line graphs to answer questions related to the data, to analyze the data to formulate or justify conclusions, to make predictions, or to solve problems.</p>			<p>graphs including scale and interval</p> <p>Answers questions related to the data</p> <p>Analyzes data</p> <p>Formulates or justifies conclusions</p> <p>Makes predictions</p> <p>Solves problems</p> <p>Identifies or describes representations or elements of representations that best display a given set of data or situation</p>	<p>271</p> <p>Graph paper</p>	<p><u>NECAP Vocabulary</u></p>
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Fractions - General Concepts ~ This unit may go into February.

Standards	Enduring Understandings	Content	Skills	Lessons	Resources	Vocabulary	A
M.01.NO.04.01- Demonstrates conceptual		Fractional numbers: Proper,	Review basic fraction concepts		Scott Foresman Chapter 7,	<u>Common Vocabulary</u>	S fi p

<p>understanding of rational numbers with respect to: whole numbers from 0 to 999,999 through equivalency, composition, decomposition, or place value using models, explanations, or other representations; and positive fractional numbers (benchmark fractions: $\frac{a}{2}$, $\frac{a}{3}$, $\frac{a}{4}$, $\frac{a}{5}$, $\frac{a}{6}$, $\frac{a}{8}$, or $\frac{a}{10}$, where a is a whole number greater than 0 and less than or equal to the denominator) as a part to whole relationship in area, set, or linear models where the number of parts in the whole are equal to, and a multiple or factor of the denominator; and decimals as hundredths within the context of money, or tenths within the context of</p>		<p>Mixed, Improper (halves, fourths, eighths, thirds, sixths, <i>twelfths</i>, <i>fifths</i>, or <i>powers of ten (10, 100, 1,000)</i>)</p>	<p>Demonstrates understanding of part to whole relationships in area, set, or <i>linear models</i> Orders using models, number lines, or explanations Compares using models, number lines, or explanations Compares fractions (and decimals) using equality and inequality symbols <i>Identifies equivalent fractions</i>, including simplest form Identifies fractions and their equivalents from any area model, including parts of a set</p>	<p>Sections 7-1 - 7-11 Math at Hand, 028 - 042 Overhead Fraction Circles Fraction bars I have __, who has __? cards</p>	<p>numerator, denominator, mixed number, improper fraction, equivalent <u>NECAP Vocabulary</u></p>	<p>1</p>
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<p>metric measurements (e.g., 2.3 cm) using models, explanations, or other representations.</p> <p>M.01.NO.04.02- Demonstrates understanding of the relative magnitude of numbers from 0 to 999,999 by ordering or comparing whole numbers; and ordering, comparing, or identifying equivalent proper positive fractional numbers; or decimals using models, number lines, or explanations.</p> <p>M.01.NO.05.01- Demonstrates conceptual understanding of rational numbers with respect to: whole numbers from 0 to 9,999,999 through equivalency, composition, decomposition, or place value using models, explanations, or other</p>						
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<p>representations; and positive fractional numbers (proper, mixed number, and improper) (halves, fourths, eighths, thirds, sixths, twelfths, fifths, or powers of ten (10, 100, 1000)), decimals (to thousandths), or benchmark percents (10%, 25%, 50%, 75% or 100%) as a part to whole relationship in area, set, or linear models using models, explanations, or other representations.</p> <p>M.01.NO.05.02- Demonstrates understanding of the relative magnitude of numbers by ordering, comparing, or identifying equivalent positive fractional numbers, decimals, or benchmark percents within number formats (fractions to fractions,</p>						
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decimals to decimals, or percents to percents); or integers in context using models or number lines.						
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Percents ~ Benchmark 2 will be given after this unit, by 3/16/12 and turned in by 3/22/12.

Standards	Enduring Understandings	Content	Skills	Lessons	Resources	Vocabulary
M.01.NO.05.01- Demonstrates conceptual understanding of rational numbers with respect to: whole numbers from 0 to 9,999,999 through equivalency, composition, decomposition, or place value using models, explanations, or other representations; and positive fractional numbers (proper, mixed number, and improper) (halves, fourths, eighths, thirds, sixths, twelfths, fifths, or powers of ten (10, 100, 1000)), decimals (to thousandths), or		Percent (10%, 25%, 50%, 75%, 100%), as part to whole relationship	Demonstrates conceptual understanding of percent as a part to whole relationship (using models, explanations or other representations) Orders and compares (percent to percent)		Scott Foresman, Chapter 12, Section B Math at Hand, percents 189 - 197 Ms. Math Number Sense packet	Common Vocabulary percent NECAP Vocabulary

<p>benchmark percents (10%, 25%, 50%, 75% or 100%) as a part to whole relationship in area, set, or linear models using models, explanations, or other representations.</p> <p>M.01.NO.05.02- Demonstrates understanding of the relative magnitude of numbers by ordering, comparing, or identifying equivalent positive fractional numbers, decimals, or benchmark percents within number formats (fractions to fractions, decimals to decimals, or percents to percents); or integers in context using models or number lines.</p>						
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Fractions - Operations ~

Standards	Enduring Understandings	Content	Skills	Lessons	Resources	Vocabulary
M.01.NO.04.03-		Proper	<i>Demonstrates</i>		Scott	<u>Common</u>

<p>Demonstrates conceptual understanding of mathematical operations by describing or illustrating the relationship between repeated subtraction and division (no remainders); the inverse relationship between multiplication and division of whole numbers; or the addition or subtraction of positive fractional numbers with like denominators using models, number lines, or explanations. M.01.NO.04.04- Accurately solves problems involving multiple operations on whole numbers or the use of the properties of factors and multiples; and addition or subtraction of decimals and positive proper fractions with like</p>		<p>Fractions Greatest Common Factor Least common multiple Addition and subtraction of fractions with like and unlike denominators</p>	<p><i>understanding of GCF and LCM and adding and subtracting fractions with like and unlike denominators</i> <i>Accurately solves problems involving GCF and LCM and the addition and subtraction of fractions with like and unlike denominators</i></p>		<p>Foresman, Chapter 8, Sections A and B Math at Hand, 157-166 Calculators I have _, who has _? cards</p>	<p><u>Vocabulary</u> simplest form (simplify), Greatest Common Factor, Least Common Multiple, <u>NECAP Vocabulary</u></p>
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<p>denominators. (Multiplication limited to 2 digits by 2 digits, and division limited to 1 digit divisors.)</p> <p>M.01.NO.05.03- Demonstrates conceptual understanding of mathematical operations by describing or illustrating the meaning of a remainder with respect to division of whole numbers using models, explanations, or solving problems.</p> <p>M.01.NO.05.04- Accurately solves problems involving multiple operations on whole numbers or the use of the properties of factors, multiples, prime, or composite numbers; and addition or subtraction of fractions (proper) and decimals to the hundredths place. (Division</p>						
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	of whole numbers by up to a two-digit divisor.)						
A p p r i l	Measurement ~ Specifics for fourth grade PACE: see Appendix B for measurement benchmarks.						
	Standards	Enduring Understandings	Content	Skills	Lessons	Resources	Vocabulary
	M.GM.4.1.7- Measures and uses units of measures appropriately and consistently, and makes conversions within systems when solving problems across the content strands. M.GM.5.1.7- Measures and uses units of measures appropriately and consistently, and makes conversions within systems when solving problems across the content strands.		Time Temperature Capacity Weight Customary measurement - length Metric measurement - length Metric measurement - mass	Reads accurately Converts to equivalent measures (<i>pints</i> , quarts, <i>ounces</i> , <i>gallons</i>) <i>Converts ounces to pounds</i> Accurately measures to <i>1/8 inch</i> , foot, <i>yard</i> , (<i>mile used in scale questions</i>) Converts units (inches to foot, <i>foot to yard</i> , <i>inches to yard</i>) Measures accurately (<i>centimeter to 0.5 centimeter</i> , <i>meter to 0.5 centimeter</i> , <i>kilometer in scale questions</i> , grams to whole gram, <i>kilogram</i>)		Scott Foresman, Chapter 11, Sections 11-6, 11-8, 11-10 Scott Foresman, Chapter 8, Section C Scott Foresman, Chapter 10, Section A and Chapter 11, Section B Math at Hand, 319 - 325 Math at Hand, 316-318, 327, 294 Mini-clocks Metric rulers and metersticks Balance scale Rulers and yardsticks	<u>Common Vocabulary</u> elapsed time, Fahrenheit, Celsius, fluid ounce, cup, pint, quart, gallon, ounce, pound, ton, inch, foot, yard, mile, milliliter, liter, milligram, gram, kilogram, millimeter, centimeter, decimeter, meter, kilometer <u>NECAP Vocabulary</u>

Converts units of length accurately (centimeters to meter, *millimeters to centimeter*)

Geometry - 2-Dimensional Shapes (Plane Figures) ~ This unit may go into May.

Standards	Enduring Understandings	Content	Skills	Lessons	Resources	Vocabulary
M.02.GM.04.01- Uses properties or attributes of angles (number of angles) or sides (number of sides, length of sides, parallelism, or perpendicularity) to identify, describe, or distinguish among triangles, squares, rectangles, rhombi, trapezoids, hexagons, or octagons; or classify angles relative to 90o as more than, less than, or equal to. M.02.GM.05.01- Uses properties or attributes of angles (right, acute, or obtuse) or sides (number of congruent sides, parallelism, or		Polygons (<i>triangles, squares, rectangles, rhombi, trapezoids, pentagons, hexagons, octagons, parallelograms</i>) Angles (number and relative size) Sides - number, length, <i>parallelism, perpendicularity</i>	Identifies, describes, <i>classifies</i> , and sorts with emphasis on angles, perpendicularity, and parallelism <i>Distinguishes among different types of polygons</i> <i>Classifies angles relative to 90 degrees</i> Justifies conclusions Demonstrates understanding of classification hierarchy of quadrilaterals		Scott Foresman, Chapter 6, Section A Math at Hand, angles 344 - 347, polygons 356 - 366 Protractors Tangrams	<u>Common Vocabulary</u> polygon, open, closed, plane figure, rhombus, trapezoid, pentagon, hexagon, octagon, parallelogram, quadrilateral, right, acute, obtuse, perpendicular, parallel, intersect, ray, line, line segment, vertex, point, endpoint, protractor <u>NECAP Vocabulary</u>

<p>perpendicularity) to identify, describe, classify, or distinguish among different types of triangles (right, acute, obtuse, equiangular, or equilateral) or quadrilaterals (rectangles, squares, rhombi, trapezoids, or parallelograms). M.GM.4.1.7- Measures and uses units of measures appropriately and consistently, and makes conversions within systems when solving problems across the content strands.</p>					
<p>M.02.GM.04.04- Demonstrates conceptual understanding of congruency by matching congruent figures using reflections, translations, or rotations (flips, slides, or turns), or as the result of composing or decomposing shapes using</p>	<p>Congruent shapes Congruency using reflections (<u>f</u>lips) Congruency using translations (<u>s</u>lides) Congruency using rotations (<u>t</u>urns)</p>	<p>Demonstrates understanding of congruency by matching figures Composes using models or explanations Decomposes using models or explanations</p>		<p>Scott Foresman, Chapter 6, Section B Math at Hand 372 - 379 Computer - Draw program Tangrams</p>	<p><u>Common Vocabulary</u> congruent, <u>f</u>lip (<u>r</u>eflection), <u>s</u>lide (<u>t</u>ranslation), <u>t</u>urn (<u>r</u>otation) <u>NECAP Vocabulary</u></p>

<p>models or explanations. M.GM.4.1.7- Measures and uses units of measures appropriately and consistently, and makes conversions within systems when solving problems across the content strands.</p>						
<p>M.02.GM.04.05- Demonstrates conceptual understanding of similarity by applying scales on maps, or applying characteristics of similar figures (same shape but not necessarily the same size) to identify similar figures, or to solve problems involving similar figures. Describes relationships using models orsc explanations. M.GM.4.1.7- Measures and uses units of measures appropriately and consistently, and makes</p>		<p>Similar shapes</p>	<p>Applies scales on maps Identifies similar figures Solves problems Describes relationships using models or explanations Makes scale drawings, keeping sides in proportion</p>		<p>Scott Foresman, Chapter 6, Section B Math at Hand, scale drawings 370, similarity 369 Graph paper</p>	<p><u>Common Vocabulary</u> similarity, scale <u>NECAP Vocabulary</u></p>

<p>conversions within systems when solving problems across the content strands.</p>						
<p>M.GM.4.1.9- Demonstrates understanding of spatial relationships using location and position by interpreting and giving directions between locations on a map or coordinate grid (first quadrant); plotting points in the first quadrant in context and finding the horizontal and vertical distances between points on a coordinate grid in the first quadrant. M.GM.4.1.10- Demonstrates conceptual understanding of spatial reasoning and visualization by copying, comparing, and drawing models of triangles, squares,</p>		<p>Spatial Relationships between distances on maps or between points on the first quadrant of the coordinate grid Model drawing - triangles, squares, rectangles, rhombi, trapezoids, hexagons, octagons, and circles</p>	<p>Demonstrates understanding using location and position Plots points in the first quadrant in context (games, mapping) Interprets and gives directions between locations Finds horizontal and vertical distances between coordinates in the first quadrant Demonstrates understanding of spatial reasoning and visualization</p>		<p>Math at Hand, translations on grid 376 - 377 Graph paper Coordinate grids</p>	<p><u>Common Vocabulary</u> coordinate grid, ordered pairs, coordinates <u>NECAP Vocabulary</u></p>

rectangles, rhombi, trapezoids, hexagons, octagons, and circles; and builds models of rectangular prisms from two- or three-dimensional representations.							
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May
 Geometry - 3-Dimensional Shapes (Solids)

Standards	Enduring Understandings	Content	Skills	Lessons	Resources	Vocabulary
M.02.GM.04.03- Uses properties or attributes (shape of bases or number of lateral faces) to identify, compare, or describe three-dimensional shapes (rectangular prisms, triangular prisms, cylinders, or spheres). M.02.GM.05.03- Uses properties or attributes (shape of bases, number of lateral faces, or number of bases) to identify, compare, or describe three-dimensional		Solids (rectangular prisms, triangular prisms, <i>cylinders, spheres, cones, pyramids</i>) Properties or attributes - shape of bases, number of lateral faces, <i>number of bases</i> Model building - rectangular prisms from <i>two</i> or three dimensional representations	Identifies, compares, and describes solids using properties or attributes Demonstrates conceptual understanding of spatial reasoning and visualization of solids and their nets Builds models of rectangular prisms		Scott Foresman, Chapter 11, Section A Math at Hand, 382 - 392 AIMS Hard-hatting in a Geo World Power Solids	<u>Common Vocabulary</u> prism, cylinder, sphere, cone, cube, pyramid, solid, net, base, face, edge, vertex <u>NECAP Vocabulary</u>

shapes (rectangular prisms, triangular prisms, cylinders, spheres, pyramids, or cones). M.GM.4.1.10- Demonstrates conceptual understanding of spatial reasoning and visualization by copying, comparing, and drawing models of triangles, squares, rectangles, rhombi, trapezoids, hexagons, octagons, and circles; and builds models of rectangular prisms from two- or three-dimensional representations.						
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Perimeter and Area ~ May be combined with geometry units

Standards	Enduring Understandings	Content	Skills	Lessons	Resources	Vocabulary	A
M.02.GM.04.06- Demonstrates conceptual understanding of perimeter of polygons, and the area of rectangles, polygons or		Perimeter of polygons Area of rectangles Area of polygons <i>Area of polygons and</i>	Demonstrates conceptual understanding of area and perimeter through models, manipulatives, <i>formulas</i> and		Scott Foresman, Chapter 10, Sections B and C Math at Hand, 294 - 301 Graph paper	<u>Common Vocabulary</u> perimeter, area (array) <u>NECAP</u>	S q 5

<p>irregular shapes on grids using a variety of models, manipulatives, or formulas. Expresses all measures using appropriate units. M.GM.4.1.7- Measures and uses units of measures appropriately and consistently, and makes conversions within systems when solving problems across the content strands.</p>		<p><i>irregular shapes on grids</i></p>	<p>problem solving Expresses all measures using appropriate units Demonstrates understanding of relationship between area and perimeter and applies to problem-solving</p>			<p><u>Vocabulary</u></p>
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Algebra ~ This unit may go into June.

Standards	Enduring Understandings	Content	Skills	Lessons	Resources	Vocabulary
<p>M.03.FA.04.01- Identifies and extends to specific cases a variety of patterns (linear and nonlinear) represented in models, tables or sequences; and writes a rule in words or symbols to find the next case. M.03.FA.05.01- Identifies and extends to</p>		<p>Linear and <i>nonlinear</i> patterns using models Linear and <i>nonlinear</i> patterns using tables Linear and <i>nonlinear</i> patterns using sequences Linear and nonlinear patterns used in <i>problem situations</i></p>	<p>Demonstrates conceptual understanding of linear and nonlinear patterns Identifies patterns <i>Extends</i> arithmetic sequences <i>to specific cases</i> <i>Writes a rule in words or symbols</i></p>		<p>Scott Foresman, Chapter 1, Section 1-7 Math at hand, 232 - 241 and 244 - 245</p>	<p><u>Common Vocabulary</u> algebra, pattern, sequence, rule, function table, input, output <u>NECAP Vocabulary</u></p>

<p>specific cases a variety of patterns (linear and nonlinear) represented in models, tables, sequences, or in problem situations; and writes a rule in words or symbols for finding specific cases of a linear relationship.</p>						
<p>M.FA.4.1.2- Demonstrates conceptual understanding of linear relationships ($y = kx$) as a constant rate of change by identifying, describing, or comparing situations that represent constant rates of change. M.FA.5.1.2- Demonstrates conceptual understanding of linear relationships ($y = kx$) as a constant rate of change by identifying, describing, or comparing situations that represent</p>		<p>Linear relationships as a constant rate of change (ex. distance over time, hourly wages) Linear relationships ($y=kx$)</p>	<p>Demonstrates conceptual understanding of linear relationships Identifies, describes, and compares linear relationships</p>		<p>Math at Hand, 245 - 246</p>	<p><u>NECAP Vocabulary</u></p>

constant rates of change						
M.03.FA.04.03- Demonstrates conceptual understanding of algebraic expressions by using letters or symbols to represent unknown quantities to write simple linear algebraic expressions involving any one of the four operations; or by evaluating simple linear algebraic expressions using whole numbers.		Algebraic expressions	Demonstrates conceptual understanding of algebraic expressions Uses letters or symbols to represent unknown quantities when writing <i>linear algebraic expressions involving any two</i> of the four operations Evaluates <i>linear algebraic expressions</i> using whole numbers		Scott Foresman, Chapter 5, Section 8 Math at Hand, 237 - 239	<u>Common Vocabulary</u> expression, variable, evaluate <u>NECAP Vocabulary</u>
M.03.FA.05.03- Demonstrates conceptual understanding of algebraic expressions by using letters to represent unknown quantities to write linear algebraic expressions involving any two of the four operations; or by evaluating linear algebraic expressions using whole						

numbers.						
<p>M.03.FA.04.04- Demonstrates conceptual understanding of equality by showing equivalence between two expressions using models or different representations of the expressions, by simplifying numerical expressions where left to right computations may be modified only by the use of parentheses (expressions consistent with the parameters of M(F&A)â€“4â€“3), and by solving one-step linear equations of the form $ax = c$, $x \pm b = c$, where a, b, and c are whole numbers with $a \neq 0$.</p> <p>M.03.FA.05.04- Demonstrates conceptual understanding of equality by showing equivalence between two expressions using models or different representations of the expressions (expressions</p>		<p>Equality One-step linear equations <i>Equations with replacement sets</i></p>	<p>Shows equivalence between two expressions <i>Simplifies numerical expressions containing parentheses</i> <i>Solves one-step linear equations</i> <i>Solves multi-step equations when provided with a replacement set ($2x + 3 = 11$; $x = 2, 3, 4, \text{ or } 5$)</i> Evaluates word problems as algebraic equations</p>		<p>Scott Foresman, Chapter 10, Section 14 Math at Hand 232-234</p>	<p><u>Common Vocabulary</u></p> <p>equation, equivalence, simplify expression, solve</p> <p><u>NECAP Vocabulary</u></p>

consistent with the parameters of M.03.FA.05.03, by solving one-step linear equations of the form $ax = c$, $x \hat{A} \pm b = c$, or $x/a = c$, where a , b , and c are whole numbers with $a \neq 0$; or by determining which values of a replacement set make the equation (multi-step of the form $ax \hat{A} \pm b = c$ where a , b , and c are whole numbers with $a \neq 0$) a true statement.						
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Probability ~ Benchmark 3 assessment to be given after this unit, by 6/5/12 and scored by 6/8/12.

Standards	Enduring Understandings	Content	Skills	Lessons	Resources	Vocabulary
M.04.DSP.04.04- Uses counting techniques to solve problems in context involving combinations or simple permutations using a variety of strategies. M.04.DSP.04.05- For a probability event in which the sample space may or may not contain equally likely outcomes, determines the theoretical probability of an		Probability Events Combinations Simple permutations Counting techniques (handshake problems, menu ordering, clothes matching) Logic problems	Predicts and expresses the likelihood of <i>part to whole relationships as fractions. Determines theoretical and experimental probability.</i> Determines if a game is fair. Solves problems using counting techniques. (Strategies: organized		Scott Foresman, Chapter 12, Section C Math at Hand, 285 - 292 Coins and dice	<u>Common Vocabulary</u> probability, likely, unlikely, certain, impossible, chance, experimental, theoretical, tree diagram, outcome <u>NECAP Vocabulary</u>

<p>event and expresses the result as part to whole. M.04.DSP.05.05- For a probability event in which the sample space may or may not contain equally likely outcomes, determines the experimental or theoretical probability of an event and expresses the result as a fraction.</p>			<p>lists, table, tree diagram, or student selected others.</p>			
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