

Teacher: Core Pace 5
 Course: PACE MATH Grade 5

Year: 2011-12
 Month: All Months

S e p t e m b e r	Number Properties and Patterns ~ All bold and italicized text in this map indicates concepts introduced at level.						
	Standards	Enduring Understandings	Content	Skills	Lessons	Resources	Vocabulary
			Review for NECAP	Practice prior year's skills	Online Resources- Links	Ms. Math Number Sense NECAP question packet Historical Connections in Mathematics, Napier calculators protractors 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
	M.01.NO.06.04-		Number	Applies		Ms. Math	Common

<p>Accurately solves problems involving single or multiple operations on fractions (proper, improper, and mixed), or decimals; and addition or subtraction of integers; percent of a whole; or problems involving greatest common factor or least common multiple. M.NO.6.1.6- Mentally calculates change back from \$5.00, \$10.00, \$20.00, \$50.00, and \$100.00; multiplies a two-digit whole number by a one-digit number 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,</p>		<p>properties - odd, even, remainders, divisibility, and prime factorization Field properties - commutative, associative, identity, distributive, and additive inverses Greatest Common Factor Least Common Multiple Logic problems (Discrete Mathematics - Derry standard) Order of Operations with and without parentheses Mental math multiplication and division of whole numbers and multiples of tens and hundreds. Estimation</p>	<p>number properties to solve problems and simplify computation Identifies field properties demonstrated in equations Accurately solves problems involving GCF or LCM Applies the Order of Operations Applies a variety of mental computation strategies Applies estimating strategies</p>		<p>Number Sense Historical Connections in Mathematics, Eratosthenes (primes), Euclid (GCF, LCM), Gauss (odds/evens, remainders) Glencoe number sense and patterns chapter Challenge Math Math at Hand, GCF, factors, multiples, primes, 050 - 063, and properties, 220 - 230 Cranium Crackers Book 3, Order of Operations Math Games, Challenge your Mind, Back to Order</p>	<p><u>Vocabulary</u> Least Common Multiple, Greatest Common Factor, divisibility, factor, multiple, prime factorization, factor tree, prime, composite, commutative, associative, distributive, identity, order of operations <u>NECAP Vocabulary</u></p>	<p>c 1 S c 1</p>
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<p>respectively, divides 3- and 4-digit multiples of powers of ten by their compatible factors, and determines the part of a whole number using benchmark percents (1%, 10%, 25%, 50%, and 75%).</p> <p>M.NO.6.1.7- 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.6.1.8- Applies properties of</p>						
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numbers (odd, even, remainders, divisibility, and prime factorization) and field properties (commutative, associative, identity [including the multiplicative property of one, distributive, and additive inverses) to solve problems and to simplify computations.						
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Objectives	Integers						
	Standards	Enduring Understandings	Content	Skills	Lessons	Resources	Vocabulary
	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, decimals to decimals, or		<i>Relative magnitude of integers using models and number line</i> <i>Addition of integers</i> <i>Subtraction of integers</i>	Identifies, orders, and compares integers. Uses models or number lines and equality and inequality symbols to identify, compare, and order integers. Solves problems involving single or multiple operations		Ms. Math integer packet red/black counters Glencoe Investigating integers chapter Math at Hand, 045 - 048, and 199 - 211	Common Vocabulary Integer, positive integer, negative integer, opposite, zero pair NECAP Vocabulary

<p>percents to percents); or integers in context using models or number lines.</p> <p>M.01.NO.06.02- Demonstrates understanding of the relative magnitude of numbers by ordering or comparing numbers with whole number bases and whole number exponents, integers, or rational numbers within and across number formats (fractions, decimals, or whole number percents from 1-100) using number lines or equality and inequality symbols.</p> <p>M.01.NO.06.04- Accurately solves problems involving single or multiple operations on fractions (proper, improper, and mixed), or decimals; and addition or subtraction of</p>			<p>with adding and subtracting integers.</p>			
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	integers; percent of a whole; or problems involving greatest common factor or least common multiple.						
	M.GM.5.1.9- Demonstrates understanding of spatial relationships using location and position by interpreting and giving directions between locations on a map or coordinate grid (all four quadrants); plotting points in four quadrants in context and determining horizontal and vertical distances between points on a coordinate grid in the first quadrant.	Coordinate grids Spatial relationships using location and position on a coordinate grid (<i>all 4 quadrants</i>)	Locates and plots points in all four quadrants. Determines horizontal and vertical distances between points on a coordinate grid in the first quadrant.		Graph paper coordinate grids Glencoe chapters for coordinate grids Historical Connections in Mathematics, Descartes, Agnesi Math at Hand, 265 - 266	<u>Common Vocabulary</u> axis, x-axis (horizontal), y-axis (vertical), origin, quadrant, coordinates (ordered pair) <u>NECAP Vocabulary</u>	
N o v e m b	Decimals & Exponents-Concepts and Operations ~		This unit may go into December. Benchmark 1 is given after this 12/9/11 and scored by 12/14/11.				
	Standards	Enduring Understandings	Content	Skills	Lessons	Resources	Vocabulary
	M.01.NO.06.02-		Relative	Illustrates		Glencoe	<u>Common</u>

e r	<p>Demonstrates understanding of the relative magnitude of numbers by ordering or comparing numbers with whole number bases and whole number exponents, integers, or rational numbers within and across number formats (fractions, decimals, or whole number percents from 1-100) using number lines or equality and inequality symbols.</p> <p>M.01.NO.06.03- Demonstrates conceptual understanding of mathematical operations by describing or illustrating the meaning of a power by representing the relationship between the base (whole number) and the exponent (whole number); and the effect on the magnitude of a</p>		<p>magnitude of numbers according to place value</p> <p><i>Whole number bases and exponents</i></p> <p>Decimal concepts and place value</p> <p>Scientific notation (Derry standard)</p>	<p>meaning of a power</p> <p>Describes, orders, and compares decimals and exponents</p> <p><i>across formats and using equality and inequality symbols</i></p> <p>Writes and evaluates exponents</p>		<p>decimal chapters</p> <p>Challenge Math, Chapter 1, Astronomy and Large Numbers</p> <p>Historical Connections in Mathematics, Germain and Newton (exponents)</p> <p>Math at Hand, exponents 006 - 007 and 065, decimals 011 - 022,</p>	<p><u>Vocabulary</u> exponent, squared, power, base, cubed, square root, perfect square, scientific notation, standard form</p> <p><u>NECAP Vocabulary</u></p>
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<p>whole number when multiplying or dividing it by a whole number, decimal, or fraction.</p>						
<p>M.01.NO.06.03- Demonstrates conceptual understanding of mathematical operations by describing or illustrating the meaning of a power by representing the relationship between the base (whole number) and the exponent (whole number); and the effect on the magnitude of a whole number when multiplying or dividing it by a whole number, decimal, or fraction.</p> <p>M.01.NO.06.04- Accurately solves problems involving single or multiple operations on fractions (proper, improper, and mixed), or decimals; and</p>		<p>Adding/subtracting decimals <i>Multiplication of decimals</i> <i>Division of decimals (includes decimals in divisor and dividend)</i> Effect on magnitude of whole numbers when multiplying or dividing by whole numbers or decimals Single or multiple operations on decimals Mentally making change back from \$5.00, \$10.00, <i>\$20.00, \$50.00, and \$100.00</i></p>	<p>Review adding and subtracting decimals Multiplies decimals with correct placement of decimal point in the product. Divides decimals with correct placement of decimal point in the quotient <i>Accurately solves problems involving single or multiple operations with decimals</i></p> <p>Applies strategies to solve problems and simplify computation Uses a variety of mental computation</p>		<p>Glencoe decimals chapters Challenge Math chapter 5, decimals Ms. Math Decimal Packet Math at Hand, decimals 136 - 155</p>	<p><u>Common Vocabulary</u> repeating decimal, bar notation, terminating decimal, compatible numbers</p> <p><u>NECAP Vocabulary</u></p>

<p>addition or subtraction of integers; percent of a whole; or problems involving greatest common factor or least common multiple. M.NO.6.1.6- Mentally calculates change back from \$5.00, \$10.00, \$20.00, \$50.00, and \$100.00; multiplies a two-digit whole number by a one-digit number 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, divides 3- and 4-digit multiples of powers of ten by their compatible factors, and determines the part of a whole number using</p>			<p>strategies Estimates using appropriate strategy</p>			
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<p>benchmark percents (1%, 10%, 25%, 50%, and 75%). M.NO.6.1.7- 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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D Measurement ~ See Appendix B for benchmark measurements.

D e c e m b e r	Standards	Enduring Understandings	Content	Skills	Lessons	Resources	Vocabulary
	M.GM.6.1.7- Measures and uses units of measures appropriately and consistently, and makes		Time Temperature Capacity Weight	Reads or measures accurately (time-minute, day, year; temp-C and F to 1 degree; quarts to		Scott Foresman teacher toolkit Glencoe measurement sections Math at	<p><u>Common Vocabulary</u> capacity</p> <p><u>NECAP Vocabulary</u></p>

<p>conversions within systems when solving problems across the content strands.</p>			<p>ounce, gallon, pint, <i>liter</i>; pound to ounce) Converts to equivalent measures (time - hours to day, minutes to hour, seconds to minute, days to week, days to year; capacity - ounces to quart, quarts to gallon, pints to quart, <i>milliliters to liter</i>; weight - ounces to pound) Makes conversions to solve problems</p>		<p>Hand, 319 - 332 liquid measures</p>	
<p>M.GM.6.1.7- Measures and uses units of measures appropriately and consistently, and makes conversions within systems when solving problems across the content strands.</p>		<p>Metric Measurement - length Metric Measurement - mass Customary measurement - length</p>	<p><i>Measures accurately (centimeter to 1/10 centimeter, meter to 1/100 meter, kilometer in rate and scale questions, gram to 1/10 gram, kilogram)</i> Converts units of length (centimeters to meter,</p>		<p>tape measures meter sticks metric rulers balance scales rulers Glencoe measurements sections Scott Foresman Teacher tool kit Historical Connections in Mathematics, Lagrange</p>	<p><u>Common Vocabulary</u> mass <u>NECAP Vocabulary</u></p>

			<i>millimeters to centimeter,</i> millimeters to meter) Measures accurately to <i>1/16 inch,</i> foot, yard, and (mile in scale and rate questions) Converts measurements (inches to foot, feet to yard, inches to yard) Makes conversions to solve problems		(metric measurement) Math at Hand, weight/mass 316-318, length 326 - 327	
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Fractions - General concepts ~ This unit may go into January.

Standards	Enduring Understandings	Content	Skills	Lessons	Resources	Vocabulary
M.01.NO.06.02- Demonstrates understanding of the relative magnitude of numbers by ordering or comparing numbers with whole number bases and whole number exponents, integers, or rational numbers within and across number formats (fractions, decimals, or		Relative magnitude of numbers <i>Relation of fractions to decimals</i> Properties of numbers - <i>multiplicative property of one</i> Equivalency	Orders and compares <i>across formats using equality and inequality symbols</i> Applies properties of numbers Simplifies fractions Converts between fractions and		Challenge math chapter 6 Equivalent fraction/multiplication table Fabulous fractions, AIMS book I have, Who has? Glencoe fraction chapters tangrams Math at Hand, 028 - 044	<u>Common Vocabulary</u> cross products, simplest form (lowest terms), simplify, (reduce), equivalent fraction <u>NECAP Vocabulary</u>

<p>whole number percents from 1-100) using number lines or equality and inequality symbols.</p> <p>M.GM.6.1.7- Measures and uses units of measures appropriately and consistently, and makes conversions within systems when solving problems across the content strands.</p> <p>M.NO.6.1.8- Applies properties of numbers (odd, even, remainders, divisibility, and prime factorization) and field properties (commutative, associative, identity [including the multiplicative property of one, distributive, and additive inverses) to solve problems and to simplify computations.</p>			decimals.			
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J Fractions - Operations ~ This unit may go into February.

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Standards	Enduring Understandings	Content	Skills	Lessons	Resources	Vocabulary
<p>M.01.NO.06.03- Demonstrates conceptual understanding of mathematical operations by describing or illustrating the meaning of a power by representing the relationship between the base (whole number) and the exponent (whole number); and the effect on the magnitude of a whole number when multiplying or dividing it by a whole number, decimal, or fraction.</p> <p>M.01.NO.06.04- Accurately solves problems involving single or multiple operations on fractions (proper, improper, and mixed), or decimals; and addition or subtraction of integers; percent of a whole; or problems</p>		<p>Proper fractions - all operations, <i>including multiplying and dividing</i></p> <p>Improper fractions - all operations, <i>including multiplying and dividing</i></p> <p>Mixed numbers - all operations, <i>including multiplying and dividing</i></p> <p>Greatest Common Factor</p> <p>Least Common Multiple</p> <p><i>Effect on magnitude of numbers when multiplying or dividing by a fraction</i></p>	<p>Review grade 4 PACE fraction computation skills</p> <p>Rounds fractions</p> <p>Estimates sums, differences, products, and quotients of fractions and mixed numbers</p> <p>Demonstrates conceptual understanding of all fractions operations</p> <p>Demonstrates conceptual understanding of multiplication and division of fractions with area model</p> <p>Multiplies and divides fractions using cross products</p> <p>Accurately finds LCM and GCF</p> <p><i>Accurately solves problems using single</i></p>		<p>Challenge math chapter 6</p> <p>I have, Who has?</p> <p>Math at Hand, 157 - 176</p> <p><u>Common Vocabulary</u> common denominator, cross reducing, reciprocal</p> <p>Glencoe fractions chapters</p>	<p><u>NECAP Vocabulary</u></p>

involving greatest common factor or least common multiple.			<i>or multiple operations with fractions</i>			
			Accurately solves problems using fraction of a whole or of another fraction			

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Ratio, Proportion, and Percent ~ This unit may go into March. Benchmark 2 will be given after this unit by 3/22/12. scored by 3/22/12.

Standards	Enduring Understandings	Content	Skills	Lessons	Resources	Vocabulary
M.01.NO.06.01- Demonstrates conceptual understanding of rational numbers with respect to ratios (comparison of two whole numbers by division a/b , $a : b$, and $a \tilde{=} b$, where $b \neq 0$); and rates (e.g., a out of b, 25%) using models, explanations, or other representations.		<i>Rational numbers with respect to ratio Ratio using models (include scales), explanations, or other representations</i>	Demonstrates conceptual understanding of ratio and rate Expresses ratios and rates as fractions Demonstrates conceptual understanding of ratio and proportion using real world problems Solves proportions using cross products Finds actual length from a scale drawing		Challenge Math chapter 11 Historical Connections in Mathematics III (Thales) Glencoe ratio, proportion, and percent chapter Historical Connections in Mathematics, Thales (shadow proportions), Fibonacci (golden ratio) Math at Hand, 181 - 188	<u>Common Vocabulary</u> ratio, proportion, rate, scale <u>NECAP Vocabulary</u>
M.01.NO.06.02- Demonstrates		<i>Relative magnitude of</i>	Demonstrates understanding		Challenge Math chapter	<u>Common Vocabulary</u>

<p>understanding of the relative magnitude of numbers by ordering or comparing numbers with whole number bases and whole number exponents, integers, or rational numbers within and across number formats (fractions, decimals, or whole number percents from 1-100) using number lines or equality and inequality symbols.</p> <p>M.01.NO.06.04- Accurately solves problems involving single or multiple operations on fractions (proper, improper, and mixed), or decimals; and addition or subtraction of integers; percent of a whole; or problems involving greatest common factor or least common multiple.</p>		<p><i>rational numbers across number formats (fractions, decimals, or whole number percents from 1-100) using number lines or equality symbols</i></p> <p><i>Percent of a whole</i></p>	<p>of percent concepts</p> <p><i>Mentally determines the part of a whole number using benchmark percents (1%, 10%, 25%, 50%, and 75%)</i></p> <p>Accurately solves problems using percent of a whole</p> <p>Accurately finds percent given a part of a whole</p> <p>Compares percents, fractions, and decimals</p>		<p>10 Glencoe ratio, proportion, percent chapter Math at Hand, 189 - 197</p>	<p>percent, interest</p> <p><u>NECAP Vocabulary</u></p>	<p>3 C E E (3</p>
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<p>M.NO.6.1.6- Mentally calculates change back from \$5.00, \$10.00, \$20.00, \$50.00, and \$100.00; multiplies a two-digit whole number by a one-digit number 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, divides 3- and 4-digit multiples of powers of ten by their compatible factors, and determines the part of a whole number using benchmark percents (1%, 10%, 25%, 50%, and 75%).</p>						
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M a r c	Data Collection and Graphing						
	Standards	Enduring Understandings	Content	Skills	Lessons	Resources	Vocabulary

h	M.04.DSP.06.01- Interprets a given representation (circle graphs, line graphs, or stem-and-leaf plots) to answer questions related to the data, to analyze the data to formulate or justify conclusions, to make predictions, or to solve problems.		Circle graphs Line graphs <i>Stem-and-leaf plots</i>	Interprets, analyzes, and answers questions about graphs and plots Uses data to make predictions and solve problems Justifies conclusions		Glencoe graphs and statistics chapter Math at Hand, 248 - 284	<u>Common Vocabulary</u> circle graph, line graph, stem & leaf plot, data, scale, interval <u>NECAP Vocabulary</u>
	M.04.DSP.06.02- 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 dispersion (range) to analyze situations, or to solve problems.		Measurements of central tendency - mean, median, mode <i>Dispersion (range)</i>	Analyzes patterns, trends or distributions in a variety of contexts Solves problems using measures of central tendency Uses data to determine mean, median, mode, and range		Glencoe statistics chapter AIMS activity Rally around the Room Math at Hand, 255 - 263	<u>Common Vocabulary</u> average, mean, median, mode, range, trend <u>NECAP Vocabulary</u>
	M.DSP.6.1.3- Organizes and displays data using tables, line graphs, or stem-and-leaf plots to answer questions related to the		Tables Line graphs <i>Stem-and-leaf plots</i> Graphing project	Collects data Organizes data Appropriately displays data and includes all necessary elements Analyzes data		compasses Graph paper rulers protractors computer Math at Hand, 264 - 284	<u>Common Vocabulary</u> distribution, cluster, outlier, gap, survey <u>NECAP Vocabulary</u>

<p>data, to analyze the data to formulate or justify conclusions, to make predictions, or to solve problems.</p> <p>M.DSP.6.1.6- In response to a teacher or student generated question or hypothesis decides the most effective method to collect the data (numerical or categorical) necessary to answer the question; collects, organizes, and appropriately displays the data; analyzes the data to draw conclusions about the question or hypothesis being tested, and when appropriate makes predictions; and asks new questions and</p>			<p>to draw conclusions Analyzes data to make predictions Analyzes data to ask questions and make connections to real world situations</p>			
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	makes connections to real world situations.						
A p p r i l	Geometry - Two Dimensional (Plane Figures)						
	Standards	Enduring Understandings	Content	Skills	Lessons	Resources	Vocabulary
	M.02.GM.05.01- Uses properties or attributes of angles (right, acute, or obtuse) or sides (number of congruent sides, parallelism, or 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.02.GM.06.01- Uses properties or attributes of angles (right, acute, or obtuse) or sides (number of congruent sides, parallelism, or perpendicularity) to identify, describe,		Angles - right, acute, or obtuse Sides - number of congruent sides, parallelism, or perpendicularity Triangles - right, acute, obtuse, <i>scalene</i> , <i>isosceles</i> , equiangular, or equilateral Quadrilaterals - rectangles, squares, rhombi, trapezoids, or parallelograms Sum of angles in triangles and quadrilaterals	Measures and constructs angles to within a 2 degree accuracy Identifies, describes, classifies, and sorts with an emphasis on angles, perpendicularity, and parallelism Distinguishes among different types of triangles, and quadrilaterals Demonstrates understanding of classification of hierarchy of quadrilaterals Sketches 2-dimensional figures, given definitions and/or properties Justifies conclusions Calculates missing angle in triangle or quadrilateral		protractors Glencoe geometry chapters AIMS, Hard Hatting in a Geo World AIMS book A Patchwork or Math and Science, Activity: Trying Triangles origami tangrams Historical Connections in Mathematics, Somerville (pythagorean theorem) Math at Hand, 344 - 367	<u>Common Vocabulary</u> straight angle, equiangular, bisect, compass, mid-point, equilateral, isosceles, scalene, diagonal, point, intersect, perpendicular, parallel, Pythagorean theorem, hypotenuse, kite, arrowhead <u>NECAP Vocabulary</u>

<p>classify, or distinguish among different types of triangles (right, acute, obtuse, equiangular, scalene, isosceles, or equilateral) or quadrilaterals (rectangles, squares, rhombi, trapezoids, or parallelograms). 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. M.GM.6.1.7- 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.06.05- Demonstrates conceptual understanding of</p>		<p>Congruency Similarity of triangles, rectangles,</p>	<p>Demonstrates conceptual understanding of similarity and</p>		<p>Geoboards Graph paper coordinate grids</p>	<p><u>Common Vocabulary</u> transformation, translation,</p>

<p>similarity by describing the proportional effect on the linear dimensions of polygons or circles when scaling up or down while preserving the angles of polygons, or by solving related problems (including applying scales on maps). Describes effects using models orsc explanations. M.GM.5.1.5- Demonstrates conceptual understanding of similarity by describing the proportional effect on the linear dimensions of triangles and rectangles when scaling up or down while preserving angle measures, or by solving related problems (including applying scales on maps). Describes effects using models orsc</p>		<p>other <i>polygons, or circles</i> Line and rotational symmetry Scale drawings</p>	<p>congruency <i>Predicts and describes the transformational steps needed to show congruency Composes and decomposes two-dimensional objects using models or explanations Describes the proportional effect on linear dimensions when scaling up or down</i> Shows conceptual understanding that angles maintain congruency when scaling up or down Makes scale drawings, keeping sides in proportion and angles congruent <i>Identifies vertices of polygons as they are reflected, rotated, and translated on a coordinate grid</i></p>		<p>pentominos Glencoe geometry chapters Scott Foresman Teacher tool kit Math at Hand, 370 - 381</p>	<p>rotation, reflection, scale, proportion, congruent, similar, symmetry <u>NECAP Vocabulary</u></p>
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<p>explanations. M.GM.5.1.9- Demonstrates understanding of spatial relationships using location and position by interpreting and giving directions between locations on a map or coordinate grid (all four quadrants); plotting points in four quadrants in context and determining horizontal and vertical distances between points on a coordinate grid in the first quadrant.</p> <p>M.GM.6.1.4- Demonstrates conceptual understanding of congruency by predicting and describing the transformational steps (reflections, translations, and rotations) needed to show congruence (including the degree of rotation) and as the result of composing and</p>						
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decomposing two- and three-dimensional objects using models or explanations; and using line and rotational symmetry to demonstrate congruent parts within a shape.

Geometry - 3-dimensional (Solids)

Standards	Enduring Understandings	Content	Skills	Lessons	Resources	Vocabulary
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 shapes (rectangular prisms, triangular prisms, cylinders, spheres, pyramids, or cones). M.02.GM.06.03- Uses properties or attributes (shape of bases, number of lateral faces, number of bases, number of edges, or number of		Properties or attributes - shape of bases, number of lateral faces, number of bases, number of edges, or number of vertices Rectangular prisms Triangular prisms Cylinders Spheres Pyramids Cones Model building - rectangular and triangular prisms, cones, cylinders, and	Identifies, compares, and describes solids and their nets using properties or attributes Demonstrates conceptual understanding of spatial reasoning and visualizaton Demonstrates conceptual understanding of congruency as a result of composing and decomposing three-dimensional objects Describes the shadow of certain figures		AIMS book Hard Hatting in a Geo World Ms. Math Platonic Solids packet Glencoe geometry chapters power solids Historical Connections in Mathematics, Euler (faces, vertices, edges) Math at Hand, 382 - 392	Common Vocabulary prism, cone, sphere, face, edge, vertex, base, polyhedron, tetrahedron, net NECAP Vocabulary

<p>vertices) to identify, compare, or describe three-dimensional shapes (rectangular prisms, triangular prisms, cylinders, spheres, pyramids, or cones).</p> <p>M.GM.5.1.10- Demonstrates conceptual understanding of spatial reasoning and visualization by building models of rectangular and triangular prisms, cones, cylinders, and pyramids from two- or three-dimensional representations.</p> <p>M.GM.6.1.4- Demonstrates conceptual understanding of congruency by predicting and describing the transformational steps (reflections, translations, and rotations) needed to show congruence (including the degree of</p>		<p><i>pyramids</i></p>	<p>(Derry standard)</p>			
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<p>rotation) and as the result of composing and decomposing two- and three-dimensional objects using models or explanations; and using line and rotational symmetry to demonstrate congruent parts within a shape.</p>						
<p>Perimeter, Area, and Volume ~</p>		<p>Expresses all measures using appropriate units. This unit may be combined with geometry units.</p>				
Standards	Enduring Understandings	Content	Skills	Lessons	Resources	Vocabulary
<p>M.02.GM.05.06- Demonstrates conceptual understanding of perimeter of polygons, and the area of rectangles or right triangles through models, manipulatives, or formulas, the area of polygons or irregular figures on grids, and volume of rectangular prisms (cubes) using a variety of models, manipulatives, or formulas. Expresses all measures using appropriate</p>		<p>Perimeter of polygons <i>Area of quadrilaterals</i> <i>Area of right and other triangles</i> Area of polygons on grids Area of irregular figures on grids <i>Relationship of circle measures (radius to diameter and circumference)</i> <i>Volume of rectangular prisms, including cubes</i></p>	<p>Demonstrates conceptual understanding of perimeter, area, and volume through models, manipulatives, formulas, or <i>solving problems</i> Finds perimeter of a rectangle given the area and the length of one side, and finds the area of a rectangle given the perimeter and the length of one side</p>		<p>Geoboards AIMS materials: linker cubes Challenge Math chapters 7, 8, and 9 Glencoe geometry chapters Historical Connections in Mathematics, Archimedes (volume), Heron and Agnesi (area and perimeter), Eratosthenes (circumference) Math at Hand, 294 - 312</p>	<p><u>Common Vocabulary</u> regular polygon, height, base, cubic units, square units, diameter, circumference, radius, pi, chord, center, volume, formula <u>NECAP Vocabulary</u></p>

<p>units. M.02.GM.06.06- Demonstrates conceptual understanding of perimeter of polygons, the area of quadrilaterals or triangles, and the volume of rectangular prisms by using models, formulas, or by solving problems; and demonstrates understanding of the relationships of circle measures (radius to diameter and diameter to circumference) by solving related problems. Expresses all measures using appropriate units.</p>			<p>Determines the area of triangles and quadrilaterals Finds the area of polygons including irregular figures using composition and decomposition and/or using a grid Solves problems involving circle relationships, (radius, diameter, circumference) Determines volume with or without models and a well as by using the algorithm, $l \times w \times h$ Demonstrates understanding that volume is area of the base times height</p>			
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May

End of Year Review

Standards	Enduring Understandings	Content	Skills	Lessons	Resources	Vocabulary	Assess
		Review for End of Year testing	Practices skills from the PACE curriculum				

Algebra						
Standards	Enduring Understandings	Content	Skills	Lessons	Resources	Vocabulary
<p>M.03.FA.06.01- Identifies and extends to specific cases a variety of patterns (linear and nonlinear) represented in models, tables, sequences, graphs, or in problem situations; or writes a rule in words or symbols for finding specific cases of a linear relationship; or writes a rule in words or symbols for finding specific cases of a nonlinear relationship; and writes an expression or equation using words or symbols to express the generalization of a linear relationship (e.g., twice the term number plus 1 or $2n + 1$).</p> <p>M.03.FA.06.02- Demonstrates conceptual</p>		<p>Linear patterns represented in models, tables, sequences, graphs, or in problem situations</p> <p>Nonlinear patterns represented in models, tables, sequences, graphs, or in problem situations</p> <p>Linear relationships</p> <p>Constant rates of change</p> <p>Slope</p> <p>Expressions and equations</p> <p>Function tables</p> <p>Graphing functions</p>	<p>Identifies patterns</p> <p>Extends arithmetic sequences to specific cases</p> <p>Demonstrates conceptual understanding of linear relationships as a constant rate of change</p> <p>Constructs graphs of real occurrences</p> <p>Interprets graphs of real occurrences</p> <p>Describes the slope of linear relationships (faster, slower, greater, or smaller)</p> <p>Demonstrates conceptual understanding of algebraic expressions using letters to represent unknown quantities</p> <p>Demonstrates conceptual understanding of equality by showing equivalence</p>		<p>Challenge Math chapter 3</p> <p>AIMS book: What's Next? Historical Connections in Mathematics, Fibonacci</p> <p>Glencoe algebra sections Math at Hand, 235 - 246</p> <p>Graph paper</p>	<p>Common Vocabulary algebra, variable, evaluate, expression, solve, equation, function table, input, output, Fibonacci numbers, triangular numbers, square numbers, linear, non-linear, proportional, slope, rate of change, pattern, sequence</p> <p>NECAP Vocabulary</p>

<p>understanding of linear relationships ($y = kx$; $y = mx + b$) as a constant rate of change by constructing or interpreting graphs of real occurrences and describing the slope of linear relationships (faster, slower, greater, or smaller) in a variety of problem situations; and describes how change in the value of one variable relates to change in the value of a second variable in problem situations with constant rates of change.</p> <p>M.03.FA.06.03- Demonstrates conceptual understanding of algebraic expressions by using letters to represent unknown quantities to write linear algebraic expressions involving two or more of the four operations;</p>			<p>between two expressions using models or different representations of the expressions</p> <p><i>Writes a rule in words or symbols for finding specific cases of a linear or nonlinear relationship. Writes an expression or equation using words or symbols to express the generalization of a linear relationship.</i></p> <p>Completes function tables and constructs corresponding graphs</p> <p>Solves two step equations with and without models</p> <p>Evaluates word problems as algebraic equations</p>			
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<p>or by evaluating linear algebraic expressions (including those with more than one variable); or by evaluating an expression within an equation.</p> <p>M.03.FA.06.04- Demonstrates conceptual understanding of equality by showing equivalence between two expressions using models or different representations of the expressions (expressions consistent with the parameters of M.03.FA.06.03, solving multi-step linear equations of the form $ax \pm b = c$, where a, b, and c are whole numbers with a $\neq 0$.</p>						
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Probability ~ Benchmark 3 Assessment will be given after this unit by 6/5/2012 and scored by 6/8/2012.

Standards	Enduring Understandings	Content	Skills	Lessons	Resources	Vocabulary
M.04.DSP.06.04- Uses counting techniques to solve problems		Counting techniques using a variety of	Uses counting techniques to determine		Glencoe probability chapters Challenge	Common Vocabulary chance, likelihood

<p>in context involving combinations or simple permutations using a variety of strategies (e.g., organized lists, tables, tree diagrams, models, Fundamental Counting Principle, orsc others). M.DSP.6.1.5- predicts the theoretical probability of an event and tests the prediction through experiments and simulations; and designs fair games. M.DSP.6.1.5.B- 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 in a problem-solving situation.</p>		<p>strategies (organized lists, tables, tree diagrams, models, <i>Fundamental Counting Principle</i>) Theoretical probability Experimental probability Game design Independent events</p>	<p>combinations or permutations Determines theoretical probability <i>in a problem-solving situation using a variety of strategies</i> Determines experimental probability <i>in a problem-solving situation</i> Makes predictions and <i>tests predictions through experiments and simulations</i> <i>Tests predictions through simulations</i> <i>Designs fair games and determines why a game is unfair</i> Finds the probability of independent events</p>		<p>Math chapter 3 coins dice spinners Math at Hand, 285 - 292</p>	<p>(odds), outcome, sample, event, independent event, theoretical, experimental, tree diagram <u>NECAP Vocabulary</u></p>
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