

Morrilton Junior High School

7th Grade Mathematics Pacing Guide

CONTENT STANDARD/ Student Learning Expectations (SLE) Coded: Color Tan - 2007, Purple - 2008, Red - 2007 & 2008	Objective	Task Analysis	Essential Vocabulary *teacher word	Materials/Resources
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Enduring Understanding - Successful problem solvers possess a set of core beliefs that support their work: problem solving is important, takes significant time and repeated efforts, and requires reflection.

Essential Question - What are the specific strategies that have wide application in attacking problems and can help in problem solving?

<p>NO.3.7.2 Solve with and without appropriate technology, multi-step problems using a variety of methods and tools (i.e., objects, mental computation, paper and pencil) (POWER STANDARD)(2008 - SCORED 0.7 OUT OF 4 ON NON-RELEASED OPEN RESPONSE)</p>	<p>Solve with and without appropriate technology, multi-step problems using a variety of methods and tools Ex. objects, mental computation, paper and pencil</p>	<p>with and without appropriate technology: *represent multi-step problems using manipulatives (including 2 or more steps) *solve problems mentally *solve multi-step problems with paper and pencil</p>	<p>mental computation technology Distributive Property rational numbers like terms problem solving strategy</p>	
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First Quarter

1. Enduring Understanding - Real numbers are either rational or irrational.

1a. Essential Question - What kinds of numbers make up the set of real numbers?

<p>NO.1.7.6 Recognize subsets of the real number system (natural, whole, integers, rational, and irrational numbers) (POWER STANDARD)(2008 - LESS THAN 50% ON NON-RELEASED ITEM)</p>	<p>Identify subsets of the real number system (natural, whole, integers, rational, and irrational numbers)</p>	<p>*demonstrate that natural numbers are counting numbers beginning with 1 and that they build on one another *identify whole numbers as numbers whose value includes zero and all natural numbers *integers are all whole numbers and their opposites *apply the definition of a rational number (any number that can be written as a/b where a is any integer and b is any integer except 0. Including any terminating decimals, repeating decimals and perfect squares) *recognize that a fraction whose denominator is zero is undefined *identify irrational numbers as numbers that have infinite but non-repeating decimal representations (Ex. π; any square root that is not a perfect square) *identify subsets of the real number system</p>	<p>real number system natural numbers whole numbers integers rational numbers irrational numbers perfect square square root undefined fraction</p>	
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2. Enduring Understanding - Exponential and scientific notation are efficient ways of expressing numbers.				
2a. Essential Question - What is the purpose of exponents?				
NO.1.7.2 Demonstrate, with and without appropriate technology, an understanding of place value using powers of 10 and write numbers greater than one in scientific notation	A. Demonstrate, with and without appropriate technology, an understanding of place value using powers of 10 B. Write numbers greater than one in scientific notation	with and without appropriate technology: *write the number in expanded notation Ex. $10^3 = 10 \times 10 \times 10$ *multiply and divide by multiples of 10 *demonstrate the value of a decimal when dividing or multiplying by a power (multiple) of 10 *demonstrate that exponents are repeated multiplication *identify the whole number of a scientific notation number as a value ≥ 1 and < 10	scientific notation exponents place value expanded notation power base	
NO.1.7.3 Convert between scientific notation and standard notation using numbers greater than one (POWER STANDARD)	Convert between scientific notation and standard notation using numbers greater than one	*multiply and divide by powers of ten to convert between standard and scientific notation	scientific notation standard notation powers of ten	
3. Enduring Understanding - Fractions, decimals, and percents can be used interchangeably.				
3a. Essential Question - What determines an appropriate representation for a number?				
NO.1.7.5 Compare and represent integers, fractions, decimals and mixed numbers and find their approximate location on a number line (POWER STANDARD)(2008 - LESS THAN 50% ON NON-RELEASED ITEM)	Compare and represent integers, fractions, decimals and mixed numbers and find their approximate location on a number line	*locate integers on a number line *locate fractions on a number line *locate decimals on a number line *locate mixed numbers on a number line *locate and compare the values of integers, fractions, decimals and mixed numbers on a number line	integers number line	
M.13.7.6 Find the distance between two points on a number line and locate the midpoint (POWER STANDARD)	A. Find the distance between two points on a number line B. Locate the midpoint	*plot two points on a number line *find the distance between two points *average two numbers on a number line to locate the midpoint	distance midpoint number line	
NO.1.7.4 Find decimal and percent equivalents for mixed numbers and explain why they represent the same value (POWER STANDARD)	A. Find decimals for mixed numbers & explain why they represent the same value B. Find percent equivalents of mixed numbers & explain why they represent the same value	*explain how a part relates to a whole *restate a mixed number as a whole number + fraction *convert fractions by dividing denominator into numerator *write a decimal as a mixed number *express mixed numbers as percents > 100 *demonstrate that the percent can be found by finding the fraction-to-decimal equivalent and then multiply the decimal by 100	decimal percent equivalents convert	
NO.1.7.1 Relate, with and without models and pictures, concepts of ratio, proportion, and percent, including percents less than 1 and greater than 100 (POWER STANDARD)	A. Show with and without models and pictures the concept of ratio including ratios < 1 and > 100 B. Show with and without models and pictures the concept of percent including percents < 1 and > 100 C. Show with and without models & pictures proportion including proportions < 1 and > 100 D. Relate with and without models and pictures concepts of ratio, percent, and proportions including percents < 1 and > 100	*explain how a part relates to a whole and vice versa *match decimals and percents of the same value *represent percents out of 100 *describe a situation in which a percent might be between 1 & 100 *draw a picture or model a number as a decimal and percent	part-to-part part-to-whole ratio proportion percent	

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NO.3.7.4 Apply factorization, LCM, and GCF to solve problems using more than two numbers and explain the solution (POWER STANDARD)	A. Apply factorization to solve problems using more than two numbers and explain the solution B. Apply LCM to solve problems using more than two numbers and explain the solution C. Apply GCF to solve problems using more than two numbers and explain the solution	*find multiples and factors of given numbers *find the prime factorization of a number (Ex. tree diagram) *identify numbers as prime or composite *find the LCM and GCF of more than two numbers *apply and explain solutions	prime numbers composite numbers prime factorization LCM GCF	
NO.3.7.6 Solve, with and without technology, real-world percent problems Ex. I=PRT (POWER STANDARD) (2007 - LESS THAN 50% RELEASED ITEM #39) (2008 - LESS THAN 50% ON RELEASED ITEM #2)	Solve, with and without technology, real-world percent problems Ex. I=PRT	with and without appropriate technology: * Solve percent problems Ex. What number is 50% of 80? 80 is what percent of 50? 80 is 50% of what number? *use fractions, decimals and percents interchangeably * Apply knowledge of percent to real-world situations Ex. I = PRT	technology percent interest principal rate time	
4. Enduring Understanding - Integers have magnitude and direction.				
4a. Essential Question - How do operations with integers compare to operations with whole numbers?				
NO.2.7.4 Model and develop addition, subtraction, multiplication and division of integers (POWER STANDARD) (2007 - LESS THAN 50% ITEM #7)	A. Model and develop addition and subtraction of integers B. Model and develop multiplication and division of integers	*model addition and subtraction of positive and negative numbers using manipulatives *model multiplication and division of positive and negative numbers using manipulatives	integers absolute value opposites inverse operations	
NO.2.7.3 Apply rules (conventions) for order of operations to integers and positive rational numbers including parentheses, brackets or exponents (POWER STANDARD)	A. Apply rules (conventions) for order of operations to integers including parentheses, brackets or exponents B. Apply rules (conventions) for order of operations to positive rational numbers including parentheses, brackets or exponents	*solve problems with integers using order of operations *solve problems with positive rational numbers using order of operations *use rules for order of operations including: •grouping symbols (), [] •fraction bar •exponents •multiplication & division left to right •addition & subtraction left to right	order of operations integers rational numbers exponents grouping symbols (brackets, parentheses)	

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<p>NO.2.7.1 Apply the Distributive Property of multiplication over addition or subtraction to simplify computations with integers, fractions and decimals (POWER STANDARD)</p>	<p>A. Apply the Distributive Property of multiplication over addition or subtraction to simplify computations with integers B. Apply the Distributive Property of multiplication over addition or subtraction to simplify computations with fractions C. Apply the Distributive Property of multiplication over addition or subtraction to simplify computations with decimals</p>	<p>*solve using Distributive Property to simplify computations with addition or subtractions of integers 5(2+3) 5(2+3) 5(5) 5(2)+5(3) 25 10 + 15 25</p> <p>5(3-2) 5(3-2) 5(3)-5(2) 5(1) 15-10 5 5</p> <p>*solve using Distributive Property to simplify computations with addition or subtraction to solve problems with fractions 2(5 + 1/2) 2(5 - 1/2) 10 + 1 10 - 1 11 9</p> <p>*solve using Distributive Property to simplify computations with addition or subtraction to solve problems with decimals 5.03 (3) 5(3) + .03(3) 15 + .09 15.09</p> <p>*use subtraction to make multiplication of decimals easier (mental math) 5(10.98) 5(11) - 5(.02) 50+4.90 55 - .10 54.9 54.9</p>	<p>Distributive Property integers solve simplify evaluate decompose</p>	

5. Enduring Understanding - Algebraic representations generalize patterns and relationships.

5a. Essential Question - Why are mathematical rules necessary?

<p>NO.3.7.1 Compute, with and without appropriate technology, with integers and positive rational numbers using real-world situations to solve problems (POWER STANDARD)</p>	<p>Compute, with and without appropriate technology, with integers and positive rational numbers using real-world situations to solve problems</p>	<p>with and without appropriate technology: *solve word problems using addition of positive integers, decimals, and fractions (including mixed numbers) *solve word problems using subtraction of positive integers, decimals, and fractions (including mixed numbers) *solve word problems using multiplication of positive integers, decimals, and fractions (including mixed numbers) *solve word problems using division of positive integers, decimals, and fractions (including mixed numbers) *explain solution</p>	<p>technology integers positive rational numbers absolute value</p>	
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6. Enduring Understanding - Computational estimations produce approximate results.

6a. Essential Question - What determines a reasonable estimation for a given situation?

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NO.3.7.3 Determine when an estimate is sufficient and use estimation to decide whether answers are reasonable in problems including fractions and decimals (POWER STANDARD)	A. Determine when an estimate is sufficient B. Use estimation to decide whether answers are reasonable in problems including fractions and decimals	*determine when an estimate is sufficient *use estimation strategies to check for reasonableness of solutions	estimate estimation reasonable	
7. Enduring Understanding - Powers and roots are related.				
7a. Essential question - How are powers and roots related?				
NO.3.7.5 Represent and solve problem situations that can be modeled by and solved using concepts of absolute value, exponents and square roots (for perfect squares) with and without appropriate technology (POWER STANDARD) (2007 - LESS THAN 50% ON RELEASED ITEM #34 & #40)	A. Represent and solve problem situations that can be modeled by and solved using concepts of absolute value with and without appropriate technology B. Represent and solve problem situations that can be modeled by and solved using concepts of exponents with and without appropriate technology C. Represent and solve problem situations that can be modeled by and solved using concepts of square roots (for perfect squares) with and without appropriate technology	with and without appropriate technology: *write and solve problems using the concept of absolute value *write and solve problems using exponents *write and solve problems using square roots	absolute value exponents square roots perfect squares technology	

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Second Quarter				
1. Enduring Understanding - Patterns and relationships can be expressed graphically, numerically, symbolically, and verbally.				
1a. Essential Question - What can be learned from an identified pattern/function?				
A.4.7.2 Identify and extend patterns in real-world situations	Identify and extend patterns in real-world situations	*use skills in A.4.7.1 *find missing terms and numbers in a pattern or a function table *predict patterns in real-world situations *write a rule to extend a pattern to the nth term	patterns term arithmetic sequence geometric sequence	
A.4.7.3 Interpret and write a rule for a two operation function table Ex. multiply by 2, add 1	Interpret and write a rule for a two-operation function table Ex. multiply by 2, add 1	*A.4.6.2 *interpret and write the algebraic rule for one- and two-operation function tables	function table	
A.4.7.1 Create and complete a function table (input/output) using a given rule with two operations	Create and complete a function table (input/output) using a given rule with two operations	*identify (x-value) as input and (y-value) as output *apply a given rule with two operations to create and complete a function table	function table input/output	
A.6.7.3 Create and complete a function table (input/output) using a given rule with two operations in real-world situations (2008 - LESS THAN 50% ON NON-RELEASED ITEM)	Create and complete a function table (input/output) using a given rule with two operations in real-world situations	*create and complete a function table using a given rule with two operations in real-world situations	function table input/output	
A.7.7.1 Use, with and without appropriate technology, tables and graphs to compare and identify situations with constant or varying rates of change	Use, with and without appropriate technology, tables and graphs to compare and identify situations with constant or varying rates of change	*use tables to identify situations with constant or varying rates of change (Ex.. $d=rt$) *use graphs to identify situations with constant or varying rates of change	technology rates constant rate of change varying rates of change	
2. Enduring Understanding - Functional relationships can be expressed verbally, graphically, numerically, and symbolically and are used to solve real-world problems.				
2a. Essential Question - How can a function be identified?				
A.6.7.1 Use tables and graphs to represent linear equations by plotting, with and without appropriate technology, points in a coordinate plane	A. Use tables to represent linear equations by plotting, with and without appropriate technology, points in a coordinate plane B. Graph linear equations by plotting, with and without appropriate technology, points in a coordinate plane	*use tables to represent the relationship in a linear equation, with and without appropriate technology *use graphs to represent the relationship in a linear equation on a coordinate plane, with and without appropriate technology	linear equations technology coordinate plane x-axis y-axis ordered pairs origin	

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2b. Essential Question - What can be learned from studying functions?				
A.5.7.2 Solve simple linear equations using integers and graph on a coordinate plane Ex. use a T chart	A. Solve simple linear equations using integers B. Graph simple linear equations in a coordinate plane	*solve linear equations *graph solution points on a coordinate plane using a T chart	linear equations integers coordinate plane quadrant x-axis y-axis origin	
G.10.7.1 Plot points in the coordinate plane	Plot points in the coordinate plane	*identify four quadrants on coordinate plane *identify x and y axis *use ordered pairs to plot points on coordinate plane	coordinate plane x-axis y-axis ordered pairs quadrants origin	
A.6.7.2 Represent, with and without appropriate technology, linear equations by plotting and graphing points in the coordinate plane using all four quadrants given data in a table from a real-world situation	Represent, with and without appropriate technology, linear equations by plotting and graphing points in the coordinate plane using all four quadrants given data in a table from a real-world situation	*same as A.6.7.1 with real-world applications	technology linear equations coordinate plane quadrants origin x-axis y-axis	
3. Enduring Understanding - Algebraic representations generalize patterns and relationships.				
3a. Essential Question - Why are equations and inequalities useful?				
A.5.7.4 Write and evaluate algebraic expressions using positive rational numbers(2007 - LESS THAN 2 ON OPEN RESPONSE A)	A. Write algebraic expressions using positive rational numbers B. Evaluate algebraic expressions using positive rational numbers	*write and solve algebraic expressions with one or more variables using positive rational numbers	algebraic expressions rational numbers variables	
A.5.7.3 Translate phrases and sentences into algebraic expressions and equations including parentheses and positive and rational numbers and simplify algebraic expressions by combining like terms (2007 - LESS THAN 50% ON RELEASED ITEM #23)	A. Translate phrases into algebraic expressions B. Translate sentences into equations including parentheses, positive numbers and rational numbers C. Simplify algebraic by combining like terms	*express word phrases using variables, positive numbers, rational numbers, and operations *explain use of the Distributive Property to simplify like terms *simplify algebraic expressions by combining like terms	algebraic expressions equations rational numbers coefficient constant variable	
A.5.7.1 Solve and graph one-step linear equations and inequalities using a variety of methods (Ex. hands-on, inverse operations, symbolic) with real-world application, with and without technology(2007 - LESS THAN 50% ON RELEASED ITEM #27)	A. Solve and graph one-step linear equations using a variety of methods (Ex. hands-on, inverse operations, symbolic) with real-world application with and without technology B. Solve and graph one-step linear inequalities using a variety of methods (Ex. hands-on, inverse operations, symbolic) with real-world application with and without technology	*identify phrases that indicate inequalities in real-world situations *solve one-step linear equations and inequalities, with and without appropriate technology, using a variety of methods *graph one-step equations and inequalities on a number line	linear equations inequalities inverse operations technology variables	
NO.2.7.2 Apply the addition, subtraction, multiplication and division properties of equality to one-step equations with integers, fractions, and decimals	A. Apply the addition, subtraction, multiplication and division properties of equality to one-step equations with integers B. Apply the addition, subtraction, multiplication and division properties of equality to one-step equations with fractions C. Apply the addition, subtraction, multiplication and division properties of equality to one-step equations with decimals	*know the properties of equality for addition, subtraction, multiplication, and division and apply to one-step equations using integers *know the properties of equality for addition, subtraction, multiplication, and division and apply to one-step equations using fractions *know the properties of equality for addition, subtraction, multiplication, and division and apply to one-step equations using decimals	equations integers properties of equality inverse operations one-step equations	
4. Enduring Understanding - Graphical representations and statistical measures influence interpretations and predictions about data.				

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4a. Essential Question - How can the results of a statistical investigation be used to support an argument?				
DAP.14.7.1 Identify different ways of selecting samples and compose appropriate questions Ex. survey response, random sample, representative sample and convenience sample (POWER STANDARD)	Identify different ways of selecting samples and compose appropriate questions Ex. survey response, random sample, representative sample and convenience sample	*develop appropriate questions for surveys *identify survey response, random sample, representative sample & convenience sample	sample vs. population random sample survey response representative sample convenience sample	
DAP.14.7.2 Explain which types of display are appropriate for various data sets (line graph for change over time, circle graph for part-to-whole comparison, scatter plot for trends) (POWER STANDARD)	A. Explain that line graphs are appropriate for graphing change over time B. Explain that circle graphs are appropriate for graphing part-to-whole comparisons C. Explain that scatter plots are appropriate graphing trends	*identify that line graphs are used to graph change over time *identify that circle graphs are used to graph part-to-whole comparisons *identify that scatter plots are used to graph trends	line graph circle graph part-to-whole comparison scatter plot trends	
DAP.15.7.2 Analyze, with and without appropriate technology, a set of data by using and comparing measures of central tendencies (mean, median, mode) and measures of spread (range, quartile, interquartile range) (POWER STANDARD)	A. Analyze, with and without appropriate technology, a set of data by using and comparing measures of central tendencies (mean, median, mode) B. Analyze, with and without appropriate technology, a set of data by using and comparing measures of spread (range, quartile, interquartile range)	with and without appropriate technology: *find the mean, median and mode for a set of data *compare the mean, median, mode for a set of data *find measures of spread (range, quartile, interquartile range) for a set of data *compare measures of spread using a box-and-whiskers plot *analyze measures of central tendency and measures of spread (including outliers) for a set of data	technology central tendencies mean average median mode measure of spread range quartile interquartile range outliers	
DAP.15.7.1 Analyze data displays, including ways that they can be misleading (POWER STANDARD)	Analyze data displays, including ways that they can be misleading	*identify data display composition: •scale •data sample population techniques •misuse of central tendencies	misleading scale intervals central tendencies	

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<p>DAP.14.7.3 Construct and interpret circle graphs, box-and-whisker plots, histograms, scatter plots and double line graphs, with and without appropriate technology (POWER STANDARD0 (2007 - LESS THAN 50%, RELEASED ITEM #1)</p>	<p>A. Construct and interpret circle graphs with and without appropriate technology B. Construct and interpret box-and-whisker plots with and without appropriate technology C. Construct and interpret histograms with and without appropriate technology D. Construct and interpret scatter plots with and without appropriate technology E. Construct and interpret double line graphs with and without appropriate technology</p>	<p>with and without appropriate technology: *circle •explain part-to-whole correlation •demonstrate taking numbers from fractions to decimals to percents to degrees •use a protractor to create angles •construct circle graph *interpret data *box-and-whisker plots •represent each quartile as 25% •analyze and record the spread *interpret central tendencies •find medians and extremes •construct box-and-whisker plot & identify outliers, if any *histogram •create a frequency table, place the frequency of occurrence on y-axis & intervals of continuous data on x-axis •construct histogram (similar to a bar graph except bars touch) •compare independent variables to dependent variables *interpret data *scatter plot •determine dependent (y) variable & independent (x) variable •plot points (x,y) •decide the overall correlation *interpret data *double line graphs •determine dependent (y) & independent (x) variable •identify the data sets (2 or more) •plot points & connect data set independently •evaluate and compare changes over time *title, label & key all graphs appropriately</p>	<p>double bar graphs circle graphs box-and-whisker plots histograms scatter plots double line graphs technology correlation trend line line of best fit stem-and-leaf plots Venn diagrams</p>	

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5. Enduring Understanding - Sampling affects the relationship between experimental and theoretical probability.				
5a. Essential Question - How are experimental and theoretical probability related?				
DAP.17.7.1 Understand that probability can take any value between 0 and 1 (events that are not going to occur have probability 0, events certain to occur have probability 1)(POWER STANDARD) (2007 - LESS THAN 50% RELEASED ITEM #21)	Demonstrate that probability can take any value between 0 and 1(events that are not going to occur have probability 0, events certain to occur have probability 1)	*describe events that will not occur as probability 0 *describe events that will certainly occur as probability of 1 *create situations in which the probability falls between 0 & 1	probability certainty outcome most likely least likely equally likely	
DAP.17.7.2 Design, with and without appropriate technology, an experiment to test a theoretical probability and explain how the results may vary Ex. suggested materials for simulations are: two-color counters, a number cube, and spinners (POWER STANDARD) (2007 - LESS THAN 2 ON OPEN RESPONSE B)	Design, with and without appropriate technology, an experiment to test a theoretical probability and explain how the results may vary Ex. suggested materials for simulations are two-color counters, a number cube, and spinners	with and without appropriate technology: *create theoretical probabilities and test them (experiment) *explain how results vary *formulate reasons why theoretical and experimental results vary	technology theoretical probability experimental probability	
Third Quarter				
1. Enduring Understanding - Linear relationships are characterized by a constant rate of change.				
1a. Essential Question - Why are linear functions useful?				
DAP.16.7.1 Make, with and without appropriate technology, conjectures of possible relationships in a scatter plot and approximate the line of best fit (trend line)	A. Make, with and without appropriate technology, conjectures of possible relationships in a scatter plot B. Approximate the line of best fit (trend line)	*given a scatter plot determine a relationship between the dependent and independent variables *make a conjecture about possible relationships between variables *construct a line of best fit to most appropriately represent the "average" relationship between dependent and independent variables	technology conjectures scatter plot line of best fit trend line dependent variable independent variable relationship	

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2. Enduring Understanding - Selection of standard measurement tools and units depends on real-world situations.				
2a. Essential question - Why are scientific units and tools used to measure different attributes?				
M.12.7.1 Understand, select and use the appropriate units and tools (metric and customary) to measure length, weight, mass and volume to the required degree of accuracy for real-world problems Note: Use the appropriate tool to measure degrees of angles. Students are given a protractor to use on the Benchmark test. There have been test questions concerning the use of the protractor.	For real-world problems to the required degree of accuracy: A. Select and use the appropriate units and tools (metric and customary) to measure length B. Select and use the appropriate units and tools (metric and customary) to measure weight C. Select and use the appropriate units and tools (metric and customary) to measure mass D. Select and use the appropriate units and tools (metric and customary) to measure volume E. Select and use the appropriate tool to measure angle degrees (protractor)	*state the common standard units *apply the prefixes of the metric system *select the appropriate tool to measure in applicable units (Ex. ruler, meter stick, gallon, liter, grams, pound, tons, protractor, degrees, etc.) *apply the appropriate tool to measure length, weight, mass, and volume of a variety of real-world objects *use a variety of measurement tools (graduated cylinder, triple beam balance, meter stick, protractor and others)	customary measurement hours to minutes feet to inches quarts to gallons benchmark prefixes: milli-, centi-, kilo- length weight mass volume degree metric units gram/liter/meter pounds gallons yards capacity protractor	
M.13.7.2 Draw and measure distance to the nearest mm and 1/16 inch accurately. (POWER STANDARD) (2008- LESS THAN 50% ON RELEASED ITEM #3)	A. Draw and measure distance to the nearest 1/16 inch accurately B. Draw and measure distance to the nearest mm accurately	*know measuring begins with the first tic mark *be able to record distance to the nearest 1/16 inch *be able to draw a line to the nearest 1/16 inch *be able to record distance to the nearest mm *be able to draw a line to the nearest mm	accurately precision tic mark/origin	
M.12.7.2 Understand relationships among units within the same system (POWER STANDARD) (2007 - LESS THAN 50% RELEASED ITEM #17)(2008 - LESS THAN 50% ON NON-RELEASED ITEM)	Compare units within the same system	*compare standard units *compare metric units	seconds↔minutes↔hours↔days inches↔feet↔yards↔miles ounces↔cups↔pints↔quarts↔gallons benchmark prefixes kilo↔deci↔centi↔milli- grams liters meters	
M.13.7.1 Solve real-world problems involving two or more elapsed times, counting forward and backward (calendar and clock) (POWER STANDARD) (2007 - LESS THAN 50% RELEASED ITEM #20)	A. Solve real-world problems involving two or more elapsed times, counting forward and backward on a calendar B. Solve real-world problems involving two or more elapsed times, counting forward and backward on a clock	*explain time concepts (clock and calendar; Ex. number of days in each month) in the context of counting forward and backward *solve real-world situations involving two or more elapsed times	elapsed time	
3. Enduring Understanding - Relationships exist among the angles, sides, lengths, perimeters, areas, and volumes of geometric figures.				
3a. Essential Question - How are interior angles and the number of sides of the polygon related?				

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G.8.7.4 Use paper or physical models to determine the sum of the measures of interior angles of triangles and quadrilaterals (POWER STANDARD)	A. Use paper or physical models to determine the sum of the measures of interior angles of triangles B. Use paper or physical models to determine the sum of the measures of interior angles of quadrilaterals	*fold/cut paper to make physical models of quadrilaterals & triangles *demonstrate that the measures of the sum of the interior angles of quadrilaterals is 360° *demonstrate that the measures of the sum of the interior angles of triangles is 180° *find a missing angle given two angles in a triangle *find a missing angle given three angles in a quadrilateral	interior angles quadrilaterals triangles non-overlapping overlapping diagonals	
4. Enduring Understanding - Geometric figures can change position and maintain the same attributes on a coordinate plane.				
4a. Essential Question - How does the movement of a geometric figure affect its attributes?				
G.10.7.2 Plot points that form the vertices of a geometric figure and draw, identify and classify the figure (POWER STANDARD) (2007 - LESS THAN 50% ON RELEASED ITEM #2)	Plot points that form the vertices of a geometric figure and draw, identify and classify the figure	*identify vertices of polygons *replicate (draw) polygons on a coordinate plane using ordered pairs *classify figures according to number of vertices	vertices faces edges	
G.9.7.2 Perform translations and reflections of two-dimensional figures using a variety of methods (paper folding, tracing, graph paper) POWER STANDARD (2008 - LESS THAN 50% ON NON-RELEASED ITEM)	A. Perform translations of two-dimensional figures using a variety of methods (paper folding, tracing, graph paper) B. Perform reflections of two-dimensional figures using a variety of methods (paper folding, tracing, graph paper)	*fold/cut paper to perform translations of 2-dimensional figures *trace to perform translations of 2-dimensional figures *use graph paper to perform translations of 2-dimensional figures *fold/cut paper to perform reflections of 2-dimensional figures *trace to perform reflections of 2-dimensional figures *use graph paper to perform reflections of 2-dimensional figures	rotation translation reflection two-dimensional figure	

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CONTENT STANDARD/ Student Learning Expectations (SLE) Coded: Purple - 2008, Red - 2007 & 2008	Objective	Task Analysis	Essential Vocabulary *teacher word	Materials/Resources
5. Enduring Understanding - Relationships exist among angles, sides and triangles.				
5a. Essential question - How can properties of triangles be applied to solve problems?				
G.8.7.6 Develop the properties of similar figures (ratio of sides and congruent angles)(POWER STANDARD)	Develop the properties of similar figures (ratio of sides and congruent angles)	*categorize shapes *explain the concept of similarity and scale *identify similar figures according to properties of sides and angles	similar figures congruent angles ratio scale	
M.13.7.5 Apply properties (scale factors, ratio, and proportion) of congruent or similar triangles to solve problems involving missing lengths and angle measures.(POWER STANDARD)	Apply properties (scale factors, ratio, and proportion) of congruent or similar triangles to solve problems involving missing lengths and angle measures	*identify corresponding parts of triangles *set up proportion formulas (scale factors, ratios) using variables to find a missing length of a triangle *apply correlation properties to find a missing angle of a triangle	scale factors ratio proportion congruent similar correlation	
6. Enduring Understanding - Constructions are based on properties of geometric figures.				
6a. Essential Question - How are geometric properties used in constructions?				
G.8.7.1 Identify, draw, classify and compare geometric figures using models and real-world examples (POWER STANDARD)	A. Identify, draw, classify and compare 2-D geometric figures using models and real-world examples B. Identify, draw, classify and compare 3-D geometric figures using models and real-world examples	*identify and model 2-dimensional geometric figures including regular and irregular polygons *classify 2-dimensional geometric figures *compare 2-dimensional geometric figures using real-world examples *draw 2-dimensional geometric figures *identify and model 3-dimensional figures *classify geometric 3-dimensional figures *compare geometric 3-dimensional figures using real-world examples *draw 3-dimensional geometric figures	regular polygon irregular polygon two-dimensional figures three-dimensional figures (pyramid, cone, sphere, cylinder, cube, prism) quadrilaterals (rectangle, square, parallelogram, trapezoid, rhombus) circle ellipse triangles (scalene, isosceles, equilateral, right, acute, obtuse) pentagons, hexagons, octagon, decagon, n-gon	
G.8.7.2 Investigate geometric properties and their relationships in one-, two-, and three-dimensional models, including convex and concave polygons (POWER STANDARD) (2008 - LESS THAN 50% ON RELEASED ITEM #1)	Investigate geometric properties and their relationships in one-, two-, and three-dimensional models, including convex and concave polygons	*draw convex and concave polygons *compare and contrast the characteristics of one-, two-, and three-dimensional models to see relationships among them	one-dimensional model two-dimensional model three-dimensional model angles convex polygon concave polygon classification of polygons by sides classification of polygons by angles	

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CONTENT STANDARD/ Student Learning Expectations (SLE) Coded: Purple - 2008, Red - 2007 & 2008 Color Tan - 2007,	Objective	Task Analysis	Essential Vocabulary *teacher word	Materials/Resources
<p>G.8.7.3 Recognize the pairs of angles formed and the relationship between the angles including two intersecting lines and parallel lines cut by a transversal (vertical, supplementary, complementary, corresponding, alternate interior, alternate exterior angles and linear pair)(POWER STANDARD)</p>	<p>A. Identify the pairs of angles formed and the relationship between the angles of two intersecting lines (vertical, adjacent, linear pair, supplementary, perpendicular) B. Identify the pairs of angles formed and the relationship between parallel lines cut by a transversal (vertical, supplementary, corresponding, alternate interior, alternate exterior angles and linear pair) C. Identify the pairs of angles and the relationship that exists to form complementary angles</p>	<p>*identify vertical angles and know that they are congruent *identify supplementary angles and know that they are congruent to 180° *identify complementary angles and know that they are congruent to 90° *identify corresponding angles and know that they are congruent *identify alternate interior angles/alternate exterior angles and know that they are congruent *identify linear pairs and adjacent angles *identify the relationship of the angles formed by a transversal and parallel lines</p>	<p>angles right angle acute angle obtuse angle intersecting lines transversal vertical angles supplementary angles complementary angles corresponding angles alternate interior angles alternate exterior angles linear pair alternate pair parallel lines interior exterior adjacent congruent</p>	

7. Enduring Understanding - Relationships exist among the angles, sides, lengths, perimeters, and areas of two-dimensional.

7a. Essential Question - How are the areas of rectangles, parallelograms, triangles, trapezoids, and circles related?

<p>M.13.7.3 Develop and use strategies to solve problems involving area of a trapezoid and circumference and area of a circle (POWER STANDARD)</p>	<p>A. Develop and use strategies to solve problems involving area of a trapezoid B. Develop and use strategies to solve problems involving circumference of a circle C. Develop and use strategies to solve problems involving area of a circle</p>	<p>*use a variety of strategies to solve for area of a trapezoid *apply formula for area of trapezoid *use a variety of strategies to solve for finding the circumference of a circle *apply the formula for circumference of a circle *use a variety of strategies to solve for finding the area of a circle *apply the formula for area of a circle</p>	<p>trapezoid altitude/height base 1, base 2 circumference area of a circle radius pi (π)</p>	
<p>M.12.7.3 Find different areas for a given perimeter and find a different perimeter for a given area(POWER STANDARD) (2007 - LESS THAN 50% RELEASED ITEM #38)</p>	<p>A. Find different areas for a given perimeter B. Find a different perimeter for a given area</p>	<p>*given a perimeter, solve for area of various shapes *label using appropriate units *given an area, identify all perimeter combinations using whole numbers *label using appropriate units</p>	<p>linear units volume perimeter area square units</p>	

8. Enduring Understanding - Generalizations can be made to represent the relationship between area and volume.

8a. Essential Question - How do the dimensions of a geometric figure affect area, surface area, and volume?

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CONTENT STANDARD/ Student Learning Expectations (SLE) Color Coded: Purple - 2008, Red - 2007 & 2008	Objective	Task Analysis	Essential Vocabulary *teacher word	Materials/Resources
<p>M.13.7.4 Derive and use formulas for surface area and volume of prisms and cylinders and justify them using geometric models and common materials (POWER STANDARD)</p>	<p>A. Derive and use formulas for surface area of prisms and justify them using geometric models and common materials B. Derive and use formulas for surface area of cylinders and justify them using geometric models and common materials C. Derive and use formulas for volume of prisms and justify them using geometric models and common materials D. Derive and use formulas for volume of cylinders and justify them using geometric models and common materials</p>	<p>*use the formulas for finding the areas of common shapes: circles, squares, triangles and rectangles *draw nets and use them to find the formula for the surface area of a prism *use the formula to find the surface area of a prism *use real world items to compare to nets *apply appropriate units to surface area *draw nets and use them to find the formula for the surface area of a cylinder *use the formula to find the surface area of a cylinder *use manipulatives to find a formula for the volume of rectangular prisms *apply the derived formula of volume to a variety of rectangular prisms (including common item i.e., matchbox, tissue box, shoebox, etc.) *identify the surface area parts of a cylinder as a rectangle attached to two circles at each end *use manipulatives to find a formula for the volume of cylinders *apply the derived formula of volume to a variety of cylinders (paper towel roll, soup can, etc.)</p>	<p>surface area volume prisms cylinders nets derived formula</p>	
<p>8b. Essential Question - How can formulas be developed using models?</p>				
<p>M.13.7.7 Estimate and compute the area of more complex or irregular two-dimensional shapes by dividing them into more basic shapes (POWER STANDARD)</p>	<p>Estimate and compute the area of more complex or irregular two-dimensional shapes by dividing them into more basic shapes</p>	<p>*apply the formulas for finding the areas of basic shapes: circles, quadrilateral, triangles *divide irregular/complex figures into basic 2-dimensional shapes *find the area of basic shapes and combine these areas to find the area of the irregular figure</p>	<p>regular two-dimensional shapes irregular two-dimensional shapes area complex</p>	
<p>G.8.7.5 Model and develop the concept that pi (π) is the ratio of the circumference to the diameter of any circle (POWER STANDARD) (2007 - LESS THAN 50% RELEASED ITEM #36)</p>	<p>Model and develop the concept that pi (π) is the ratio of the circumference to the diameter of any circle</p>	<p>*measure the radius and diameter *measure the circumference of circle *discover a relationship between the diameter and circumference (known as pi) *apply the formula for finding the circumference of a circle</p>	<p>pi (π) ratio circumference diameter radius chord</p>	

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CONTENT STANDARD/ Student Learning Expectations (SLE) Coded: Color Tan - 2007, Purple - 2008, Red - 2007 & 2008	Objective	Task Analysis	Essential Vocabulary *teacher word	Materials/Resources
9. Enduring Understanding - Geometric relationships exist between two-dimensional and three-dimensional figures.				
9a. Essential Question - How are two-dimensional and three-dimensional figures related?				
G.11.7.1 Build three-dimensional solids from two-dimensional patterns (nets) (POWER STANDARD)	Build three-dimensional solids from two-dimensional patterns (nets)	*match 2-dimensional patterns to 3-dimensional solids *build 3-dimensional solids from a given 2-dimensional pattern (net)	rectangular prism pyramids cylinders cones 3-dimensional solids 2-dimensional patterns nets	
G.11.7.2 Construct a building out of cubes from a set of views (front, top, side) (POWER STANDARD)	Construct a building out of cubes from a set of views (front, top, side)	*practice visualization skills using sets of cubes (front, back, right side, left side and top) *construct buildings using cubes	cubes	
G.9.7.1 Examine the congruence, similarity, and line or rotational symmetry of objects using transformations (POWER STANDARD) (2008 - LESS THAN 50% ON RELEASED ITEM #10)	Examine the congruence, similarity, and line or rotational symmetry of objects using transformations	*describe transformations-translations, reflections, and rotations *identify symmetrical objects using transformations *identify congruence/similarity in relationship to transformations	congruence similarity line symmetry rotational symmetry transformations translations reflections rotations	