

Fourth Grade Mathematics							
The Learning Institute Module	# of Times Tested	AR Department of Education		Objective	Task Analysis	Essential Vocabulary *teacher word	Materials/ Resources
		CONTENT STANDARD/ Student Learning Expectations (SLE)					
<i>Ongoing Student Learning Expectation to be Addressed Each Nine Weeks</i>							
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?							
	5 MC 1 OR	NO.3.4.4 Solve simple problems using operations involving addition, subtraction, and multiplication using a variety of methods and tools (application) Ex. objects, mental computation, paper and pencil and with and without appropriate technology	Solve simple problems using operations involving addition, subtraction, and multiplication using a variety of methods and tools (application)	*use objects to solve simple problems using operations involving addition, subtraction and multiplication *use mental computation and/or technology to solve simple problems using operations involving addition, subtraction and multiplication *use paper and pencil to solve simple problems using operations involving addition, subtraction and multiplication	mental computation operations	calculators HC various lessons in Ch..3, Ch. 8	
FIRST NINE WEEKS							
1. Enduring Understanding - Place value patterns are repeated in large numbers.							
1a. Essential Question - How are place value patterns repeated in large numbers?							
Module 1	1	NO.3.4.1 Demonstrate, with and without appropriate technology, computational fluency in multi-digit addition and subtraction in contextual problems (application)	Demonstrate, with and without appropriate technology, computational fluency in multi-digit addition and subtraction in contextual problems (application)	*identify the relevant information in the problem *use mathematical vocabulary to determine the method necessary to solve the problem *solve contextual problems with and without appropriate technology	sum difference total how many more increase decrease compatible numbers compensatory numbers	Calculators HC 3.1,3.2,3.3	

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Module 1	6	NO.3.4.5 Use estimation strategies to solve problems and judge the reasonableness of the answer (analysis)		Use estimation strategies to solve problems and judge the reasonableness of the answer (analysis)	*distinguish between estimating and exact answer *round numbers up to nearest thousand *round numbers using front-end estimation *use estimation strategies to solve contextual problems and judge reasonableness of the estimate	round front-end estimation	HC 1.4, 3.2
Module 1	7	NO.1.4.2 Use the place value structure of the base ten number system and be able to represent and compare whole numbers to millions (using models, illustrations, symbols, expanded notation and problem solving) Ex: 1,246,477 ___ 1,244 (application)		A. Show in writing (using models, illustrations, symbols, expanded notation and problem solving) whole numbers to the millions using place value structure of the base ten number system (application) B. Compare in writing whole numbers to the millions pla	a. *recite/identify place value to millions. *write numbers in standard form *use base ten blocks to create numbers to the millions	expanded notation standard form symbol place value base ten	Base ten blocks Place value chart HC 1.2, 1.3, 2.1 Place value Macarena Song-(Fouche at Trice) Promethean lesson
Module 1	2	NO.1.4.3 Use mathematical language and symbols to compare and order any whole numbers with and without appropriate technology (<, >, =) (analysis)		A. Compare in writing any whole numbers using mathematical language and symbols with and without appropriate technology (analysis) B. Order in writing any whole number using mathematical language and symbols with and without appropriate technology (analysis)	a. *identify the meaning of each symbol <, >, = *use the symbols <, >, = and mathematical language to compare whole numbers b. *order numbers using a number line *distinguish between ordering from least to greatest and from greatest to least *order a set of numbers using multiple strategies (technology, number lines, place value, symbols)	greater than less than equal order least greatest	HC 2.1,2.2 Alligator activity (Fouche/Trice)
2. Enduring Understanding - Symbol notation is used to represent mathematical relationships.							
2a. Essential Question - How are symbols used to represent mathematical relationships including							
Module 1	4	A.5.4.2 Express mathematical relationships using simple equations and inequalities (>, <, =, ≠) (analysis) Ex. 4 x 5 ___ 8 x 2 + 3		Write mathematical relationships using simple equations and inequalities (>, <, =, ≠) (analysis)	*describe that = means having the same value *use (<, >, =, ≠) to compare computed quantities	inequality equality equal sign equations	HC 4.3 ,4.5

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3. Enduring Understanding - A numeric expression represents a quantity.							
3a. Essential Question - When are numeric expressions used?							
Module 1	1	NO.1.4.1 Recognize equivalent representations for the same whole number and generate them by composing and decomposing numbers (larger numbers) (comprehension) Ex. 1,076 = 1,000 + 70 + 6; 500 + 500 + 25 + 25 + 25 + 1; 250 + 250 + 250 + 250 + 75 + 1, etc	Recognize equivalent representations for the same whole number and generate them by composing and decomposing numbers (comprehension)	*define equivalent *compose numbers (put together) *decompose numbers (take apart)	compose decompose equivalent expanded notation standard notation word form	HC 1.2	
4. Enduring Understanding - Mathematical properties of our number system aid in computation.							
4a. Essential Question - How do number properties assist in computation?							
Module 1	0	NO.2.4.1 Develop an understanding of the associative and zero properties of multiplication using objects (synthesis)	Demonstrate an understanding of the associative and zero properties of multiplication using objects (application)	*identify that parentheses means to complete first *identify Commutative Property as the Order Property *identify Associative property as the Grouping Property *illustrate and model examples of the properties using objects *recognize and discover that the products are the same when using the commutative and the associative properties *recognize and discover that the product is always zero when multiplying by zero	parenthesis Associative Property of multiplication Commutative Property of multiplication Zero Property of multiplication	HC 8.5	

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5. Enduring Understanding - Pattern and functional relationships can be represented graphically and							
5a. Essential Question - What is the relationship between patterns and functions?							
Module 1	8 MC 3 OR	A.4.4.2 Use repeating and growing numeric and geometric patterns to make predictions and solve problems (synthesis)	Use repeating and growing numeric and geometric patterns to make predictions and solve problems (synthesis)	*recognize repeating and growing patterns in a group of numbers *describe repeating and growing patterns in a group of numbers *continue repeating and growing pattern in a group of numbers *recognize repeating and growing geometric patterns *describe repeating and growing geometric patterns *continue repeating and growing geometric patterns *recognize the type of pattern and make predictions	patterns repeating patterns growing patterns geometric patterns multiples numeric patterns	HC 4.4, 10.1, 11.1	
Module 1	10	A.4.4.3 Determine the relationship between sets of numbers by selecting the rule (2 step rule in words) (analysis)	Identify the rule that determines the relationship between sets of numbers (analysis)	*determine the probable operation between the numbers (add, subtract, multiply or divide) *check the rule *continue the pattern if the rule is correct *choose another operation if the rule is incorrect	input output probable relationship	AR - 3	
6. Enduring Understanding - Proficiency with basic facts aids in estimation and computation with larger and							
6a. Essential Question - What strategies aid in mastering multiplication and division facts?							
Module 1	0	A.4.4.1 Identify a number that is more or less than any whole number using multiples of 10, 100 and/or 1000 (comprehension) Ex. 100 more than 4987 is 5087	Identify a number that is more than or less than any whole number using multiples of 10, 100 and/or 1000 (comprehension)	*recite/identify place value *define multiples *list a number which is more than or less than a given number using multiples of 10, 100, or 1,000	multiples whole number		

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7. Enduring Understanding - Standard units provide common language for communicating measurements.							
7a. Essential Question - How are units of measure related?							
Module 1	2	M.12.4.2 Distinguish the temperature in contextual problems using the Fahrenheit scale on a thermometer (analysis)	Interpret the temperature in contextual problems using the Fahrenheit scale on a thermometer (analysis)	*identify benchmarks on Fahrenheit thermometer: 32°=freezing; 212°=boiling *match real-world situations in a contextual problem with the temperature	Fahrenheit thermometer degrees=°	HC 20.1, 20.4	
Module 1	0	M.13.4.6 Read temperatures on Fahrenheit and Celsius scales (one degree intervals) (comprehension)	Read temperatures on Fahrenheit and Celsius scales (comprehension)	*read temperatures on Fahrenheit and Celsius scales	Celsius	HC 20.2	
8. Enduring Understanding - Proficiency with basic facts aids in estimation and computation with larger and							
8a. Essential Question - What strategies aid in mastering multiplication and division facts?							
8b. Essential Question - How can models for multiplication be used to divide?							
Module 1	0	NO.3.4.2 Demonstrate fluency with combinations for multiplication and division facts (12 x 12) and use these combinations to mentally compute related problems (30 x 50) (application)	Compute multiplication and division facts through 12's and use multiplication and division facts to mentally compute related problems (application)	*memorize multiplication facts 0-12's *memorize division facts 0-12's *identify combinations of factors that equal the same product *solve problems with factors that are multiples of 10 *solve more complex, related multiplication and division problems using knowledge of basic facts (ex. use 3 x 5 to determine 30 x 50 and 12 ÷ 3 to determine 120 ÷ 30)	factor product Distributive Property	HC 8.2 , 8.5, 9.2, 10.3	
Module 2	6	NO.2.4.4 Represent and explain division as measurement and partitive division including equal groups, related rates, price, rectangular arrays (area model), combinations and multiplicative comparison See Appendix for more details Ex: • translate contextual situations involving division into conventional mathematical symbols • explain how a remainder may impact an answer in a real-world situation	Represent and explain division as measurement and partitive division (comprehension)	*express that division is comprised of the total number in all groups, number of groups and number in each group *explain the impact of a remainder determines the whole number answer (Ex. 48 people ÷ 9 people per van so how many vans are needed? or Ex. 7	rate rectangular array combinations *multiplicative comparison *partitive division	HC 9.4, 13.1, 13.2, 14.6	

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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?						
	5 MC 1 OR	NO.3.4.4 Solve simple problems using operations involving addition, subtraction, and multiplication using a variety of methods and tools (application) Ex. objects, mental computation, paper and pencil and with and without appropriate technology	Solve simple problems using operations involving addition, subtraction, and multiplication using a variety of methods and tools (application)	*use objects to solve simple problems using operations involving addition, subtraction and multiplication *use mental computation and/or technology to solve simple problems using operations involving addition, subtraction and multiplication *use paper and pencil to solve simple problems using operations involving addition, subtraction and multiplication	mental computation operations	calculators HC various lessons in Ch..3, Ch. 8
SECOND NINE WEEKS						
1. Enduring Understanding - Symbol notation is used to represent mathematical relationships.						
1a. Essential Question - How are symbols used to represent mathematical relationships including						
Module 2	1	NO.2.4.3 Use conventional mathematical symbols to write equations for contextual problems involving multiplication (analysis) See Appendix for examples	Write equations for contextual problems involving multiplication using conventional mathematical symbols (analysis)	*differentiate between expressions and equations *describe an equation as two expressions that are equal to each other *write an equation from a real-world problem using multiplication	equations expressions	HC 8.3 , 9.3

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Module 2	7	A.5.4.3 Use a variable to represent an unknown quantity in a number sentence involving contextual situations and find the value (application) Ex. Susie bought 48 pencils. If the pencils came in packages of 12, how many packages of pencils did she buy? $P = 48 \div 12$		A. Use a variable to represent an unknown quantity in a number sentence involving contextual situations (application) B. Find the value of the variable to solve contextual situations (comprehension)	*use variable in contextual situations instead of symbols *use variable in all positions of the equation ($n=5 \times 2$; $10=5 \times n$; $10=n \times 2$; $5 \times 2=n$) *solve an equation to find the value of a variable by using strategies such as inverse operations	variable contextual situation inverse value	HC 4.3, 8.1
2. Enduring Understanding - Proficiency with basic facts aids in estimation and computation with larger and							
2a. Essential Question - What strategies aid in mastering multiplication and division facts?							
Module 2	3	NO.2.4.2 Apply number theory • determine if any number is even or odd • use the terms multiple, factor, and divisible by in an appropriate context • generate and use divisibility rules for 2, 5, and 10 • demonstrate various multiplication & division relationships (application)		A. Apply number theory to determine if any number is even or odd B. Apply number theory to demonstrate various multiplication & division relationships (application)	a. *identify an odd and even number b. *identify inverse operations *write division and multiplication fact families for given numbers *use related multiplication facts to find answers to division facts *use related division facts to find answers to multiplication facts	odd even inverse operation fact family multiple factor divisible	HC 8.1, 16.2, 16.5, AR - 1
3. Enduring Understanding - Objects can be described and compared using geometric attributes.							
3a. Essential Question - What are points, lines, line segments, rays and angles, and how are they related?							
Module 3	2	G.8.4.3 Identify, draw, and describe a line, line segment, a ray, an angle , intersecting, perpendicular , and parallel lines (comprehension)		Describe a line, line segment, ray, angle, intersecting, perpendicular, and parallel lines (comprehension)	*identify line, line segment, ray, angle, intersecting, perpendicular, and parallel lines *draw line, line segment, ray, angle, intersecting, perpendicular, and parallel lines *describe line, line segment, ray, angle, intersecting, perpendicular, and parallel lines	line line segment ray angle intersecting perpendicular parallel vertex	HC 17.1, 17.2

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4. Enduring Understanding - Objects can be described and compared using various geometric attributes.							
4a. Essential Question - How can objects be represented and compared using geometric attributes?							
Module 3	8	G.8.4.1 Identify, describe and classify three-dimensional solids by properties including the number of vertices, edges, and shapes of faces using models (comprehension)	Classify three-dimensional solids by properties including the number of vertices, edges, and shapes of faces using models (comprehension)	*identify and describe three-dimensional geometric solids by name, number of vertices, edges, shapes of faces and numbers of faces *classify three-dimensional geometric solids by name, number of vertices, edges, shapes of faces and numbers of faces	three-dimensional solids vertices edges faces properties cube, cone, sphere, cylinder, rectangular prism, triangular prism, pyramid	HC 30.1, 30.2	
Module 3	2	G.8.4.4 Identify and describe intersecting, perpendicular and parallel lines in problem solving context (comprehension)	Identify and describe intersecting, perpendicular and parallel lines (comprehension)	*identify intersecting, perpendicular and parallel lines in context for problem solving *use road maps, pictures, and real-world objects to demonstrate intersecting perpendicular and parallel lines	intersecting perpendicular parallel	HC 17.3	
Module 3	7 MC 1 OR	G.8.4.2 Identify regular and irregular polygons including octagon (comprehension) See the Polygons page in the Appendix	Identify regular and irregular polygons including octagon (comprehension)	*identify regular polygons up to eight sides *identify irregular polygons up to eight sides	polygons irregular polygons trapezoid rhombus parallelogram triangle quadrilateral square rectangle pentagon hexagon heptagon octagon	HC 18.1, 18.2, 18.3, 18.4	

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Module 3	7 MC OR 2	G.11.4.2 Create new figures by combining and subdividing models of existing figures in multiple ways and record results in a table (synthesis)		Create new figures by combining and subdividing models of existing figures in multiple ways and record results in a table (synthesis)	*identify regular shapes *use pattern blocks to make regular shapes *identify and record combinations of pattern blocks that will make a shape *explain multiple combinations to make regular shapes *subdivide shapes into smaller shapes and record results in a table		HC 19.4, AR-6
5. Essential Question - How are angles classified?							
Module 3	2	G.8.4.5 Classify angles relative to 90° as more than, less than or equal to (analysis)		Classify angles relative to 90° as more than, less than or equal to (analysis)	*identify angles less than 90° (acute), equal to 90° (right angle) and more than 90° (obtuse), 180° (straight) *classify angles less than 90° (acute), equal to 90° (right angle) and more than 90° (obtuse) 180° (straight)	acute angle obtuse angle right angle straight angle vertex degrees	HC 17.2
6. Enduring Understanding - A transformation is a specific movement of an object.							
6a. Essential Question - What are translations, rotation, and reflections?							
Module 3	2	G.9.4.1 Determine the result of a transformation of a two-dimensional figure as a slide (translation), flip (reflection) or turn (rotation) and justify the answer (evaluation)		Determine the result of a transformation of a two-dimensional figure as a slide (translation), flip (reflection) or turn (rotation) and justify the answer (evaluation)	*define slide (translation), flip (reflection) and turn (rotation) *identify transformations which occurred when given a result using concrete objects or pictures *justify answer	transformation slide-translation flip-reflection turn-rotation two-dimensional	HC 19.1, 19.5
7. Enduring Understanding - The perimeters, area, and volumes of rectangular objects depend on their							
7a. Essential Question - What tools and units are used to measure the attributes of an object?							
Module 3	6	M.13.4.7 Use appropriate customary and metric measurement tools for length, capacity and mass (application)		Use appropriate customary and metric measurement tools for length, capacity and mass (application)	*define length, capacity and mass using the customary and metric measures *determine appropriate tools and units for a given context (feet vs. mile, balance vs. quart, etc.) *use appropriate tools to measure length, capacity and mass with both customary and metric	length capacity mass	HC 25.1, 25.2, 25.3

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8. Essential Question - How are perimeter, area, and volume related?							
Module 3	6 MC 1 OR	M.13.4.9 Use strategies for finding the perimeter of a rectangle (application)	Use strategies for finding the perimeter of a rectangle (application)	*define rectangle (including a square) and perimeter *apply strategies to solve a problem, including adding all sides and using formulas	rectangle perimeter linear	HC 28.1, 28.2, 28.4, 29.3	
Module 3	4 MC 3 OR	M.13.4.10 Use strategies for finding the area of a rectangle (application)	Use strategies for finding the area of a rectangle (application)	*define area *use arrays to develop the formula for area of a rectangle *apply strategies to solve a problem, including covering with squares and 1/2 squares and using a formula	area square units	HC 29.2, 29.3	
Module 3	4	M.13.4.11 Use strategies to find the volume (cubic units) of rectangular prisms and cubes (application)	Use strategies to find the volume (cubic units) of rectangular prisms and cubes (application)	*define rectangular prisms (cube) and volume *fill rectangular prism and cube with cubic units to develop formulas for volume *apply strategies to solve a problem	prism volume cubic units	HC 30.3, 30.4	
9. Enduring Understanding - Standard units provide common language for communicating measurements.							
9a. Essential Question - How are units of measure related?							
Module 3	3 MC 1 OR	M.13.4.5 Apply money concepts in contextual situations Ex. • determine the better buy • determine change back with the least amount of currency • compare money (application)	A. Apply money concepts in contextual situations to determine the better buy B. Apply money concepts in contextual situations to change back with the least amount of currency C. Apply money concepts in contextual situations to compare money (application)	a. *compare prices and determine the better buy b. *determine the correct amount of change with the least amount of currency c. *compare money in contextual situations	currency change	AR- 4, AR-8, AR-9	
10. Essential Question - How are graphs, tables, and symbols used to represent relationships?							
Module 3	0	G.10.4.1 Locate and identify points on a coordinate grid and name the ordered pair (quadrant one only) using common language and geometric vocabulary (horizontal and vertical) (comprehension)	Locate and identify points on a coordinate grid and name the ordered pair in quadrant one only (comprehension)	*define horizontal and vertical *locate points on a coordinate grid *name ordered pair for a specific location	ordered pairs coordinate grid horizontal vertical coordinate x-axis y-axis point of origin	HC 20.6 promethean board - Gadgets & Gadgets	

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		Essential Question - What are the specific strategies that have wide application in attacking problems and can help in problem solving?				
	5 MC 1 OR	NO.3.4.4 Solve simple problems using operations involving addition, subtraction, and multiplication using a variety of methods and tools (application) Ex. objects, mental computation, paper and pencil and with and without appropriate technology	Solve simple problems using operations involving addition, subtraction, and multiplication using a variety of methods and tools (application)	*use objects to solve simple problems using operations involving addition, subtraction and multiplication *use mental computation and/or technology to solve simple problems using operations involving addition, subtraction and multiplication *use paper and pencil to solve simple problems using operations involving addition, subtraction and multiplication	mental computation operations	calculators HC various lessons in Ch..3, Ch. 8
THIRD NINE WEEKS						
		1. Enduring Understanding - Multiplication and division are inverses.				
		1a. Essential Question - What strategies can be used to learn basic multiplication and division facts?				
		1b. Essential Question - What strategies are used to estimate products and quotients?				
Module 4	1	A.7.4.1 Identify, describe and generalize relationships in which quantities change proportionally (comprehension) Ex. If a car travels at a rate of 50 mph, how far will it travel in three hours?	Identify, describe and generalize relationships in which quantities change proportionally (comprehension)		rate chart proportional generalize	HC 4.4, 9.6
Module 4	2	A.5.4.1 Select and/or write number sentences (equations) to find the unknown in problem-solving contexts involving two-digit by one-digit division using appropriate labels (comprehension)	Select and/or write number sentences (equations) to find the unknown in problem-solving contexts involving two-digit by one-digit division using appropriate labels (comprehension)	*identify key division words *determine the probable operation *select or write the number sentence (equation)	equation number sentence variable	HC 9.3 , 14.3, AR- 5

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2. Enduring Understanding - Proficiency with basic facts aids in estimation and computation with larger and							
2a. Essential Question - What strategies aid in mastering multiplication and division facts?							
Module 4	3 MC 1 OR	NO.3.4.3 Attain, with and without appropriate technology, computational fluency in multiplication and division using contextual problems using <ul style="list-style-type: none"> • two-digit by two-digit multiplication (larger numbers with technology), • up to three-digit by two-digit division (larger numbers with technology), • strategies for multiplication and dividing numbers, • performance of operations in more than one way, • estimation of products and quotients in appropriate situations, and • relationships between operations (synthesis) 	A. Develop and use strategies for multiplication up to two-digit by two-digit, including estimation and with and without appropriate technology B. Develop and use strategies for division up to three-digit by two-digit, including estimation and with and without appropriate technology C. Develop and use relationships between multiplication and division (synthesis)	*identify vocabulary needed to solve multiplication and division contextual problems *use calculator *multiply two-digit numbers by two-digit numbers *divide up to three-digit numbers by two-digit numbers *use strategies for multiplication and division *perform operations in more than one way (examples for multiplication: repeated addition, partial products, arrays with base ten blocks; division: repeated subtraction, partial quotients, put in groups, arrays with base ten blocks) *use estimation strategies to find products and quotients in appropriate situations *check work for multiplication and division problems by using inverse operations (ex. use multiplication to check a division problem) *solve contextual problems using multiplication and division strategies	quotient strategy estimation inverse operation array remainder divisor dividend product	HC 8.3, 10.2, 11.4, 12.3	
3. Enduring Understanding - Elapsed time is the measure of the duration of an event.							
3a. Essential Question - What is the difference between length of time and time of day?							
Module 4	2	M.12.4.1 Recognize that 60 seconds equals one minute (comprehension)	Identify that 60 seconds equals one minute (comprehension)	*define number of seconds in a minute		HC 5.1 & AR-7	
Module 4	6	M.13.4.2 Solve problems involving conversions between minutes and hours (application)	Solve problems involving conversions between minutes and hours (application)	*convert hours to minutes *convert minutes to hours *apply in contextual situations		HC 5.1 & AR-7	

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Module 4	1	M.13.4.3 Restate the time in multiple ways given an analog clock to the nearest one minute (knowledge)		Restate the time in multiple ways given an analog clock to the nearest one-minute (knowledge)	*restate time in multiple ways to the nearest one minute (2:47 is 47 minutes past 2 and 13 minutes before 3, etc.)	analog	HC 5.1
Module 4	4	M.13.4.1 Using a calendar to determine elapsed time from month to month (application)		Use a calendar to calculate elapsed time from month to month (application)	*identify patterns on a calendar extending from month to month *continue pattern to previous or future months *explain changes in time from month to month	elapsed time	HC 5.4
Module 4	5	M.13.4.4 Determine elapsed time in contextual situations to five-minute intervals with beginning time unknown. (application) Ex. Mary watched a movie for 1 hour and 15 minutes. The movie ended at 8:15. When did the movie begin?		Calculate elapsed time in contextual situations to five-minute intervals with beginning time unknown (application)	*recognize process in context such as going forward or backward *calculate time to five minute intervals *determine the beginning time when given the ending time and the elapsed time	intervals calculate elapsed time	HC 5.2, 5.3 Elapse Time Arrows (Fouche at Trice) Body clock (Fraday at Kilp)
4. Enduring Understanding - Representation of data depends on the characteristics of that data.							
4a. Essential Question - What data display is appropriate for a given set of data?							
Module 4	5 MC 1 OR	A.6.4.1 Create a chart or table to organize given information and to understand relationships and explain the results (synthesis) Ex. Troy must read independently for 2 hours a week. If Troy reads 20 minutes a day, how long will it take him to read a total of two hours?		Create a chart or table to organize given information and to understand relationships and explain the results (synthesis)	*draw a chart with title and labels *insert information into chart *complete chart *explain results and relationships		HC 2.3, 4.4

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5. Enduring Understanding - The perimeters, area, and volumes of rectangular objects depend on their							
5a. Essential Question - What tools and units are used to measure the attributes of an object?							
Module 5	2	M.13.4.8 Estimate and measure length, capacity/volume and mass using appropriate customary and metric units Length: 1/2 inch, 1 cm Perimeter: inches, feet, centimeters, meters Area: square inches, square feet, square centimeters, square meters Weight: pounds/ounces Mass: kilograms/grams Capacity: cups, pints, quarts, gallons Volume: liters (evaluation)		Estimate and measure length, capacity/volume and mass using appropriate customary and metric units Length: to the nearest 1/2 inch, 1 cm Perimeter: inches, feet, centimeters, meters Area: square inches, square feet, square centimeters, square meters Weight: pounds/ounces Mass: kilograms/grams Capacity: cups, pints, quarts, gallons Volume: liters (evaluation)	*develop estimation strategies using common objects (width of little finger = about 1 cm; distance from the floor to the doorknob = about 1 meter) *estimate then measure length with ruler (customary and metric) *estimate then measure perimeter in feet, centimeters and meters *estimate then measure the area of a square in feet, centimeters and meters *estimate then measure weight in pounds and ounces *estimate then measure mass with kilograms and grams *estimate then measure capacity with cups, pints, quarts and gallons *estimate then measure volume with liters	perimeter area weight mass capacity	HC 24.3, 24.4, 24.5, 25.1, 25.2, 25.3
6. Enduring Understanding - Standard units provide common language for communicating measurements.							
6a. Essential Question - How are units of measure related?							
Module 5	0	M.12.4.4 Create and complete a conversion table to show relationships between units of measurement in the same system (small to large is allowed) (synthesis)		Create and complete a conversion table to show relationships between units of measurement in the same system for metric and customary (synthesis)	*create a conversion chart *explain a proportional change *complete chart	conversion proportional	HC 24.3, 24.4, 24.5, 24.6

The Learning Institute Module	# of Times Tested	AR Department of Education		Objective	Task Analysis	Essential Vocabulary *teacher word	Materials/ Resources
		CONTENT STANDARD/ Student Learning Expectations (SLE)					
Module 5	13 MC 1 OR	M.12.4.3 Use the relationship among units of measurement (application) Length: 12 in = 1 ft 3 ft = 1 yd 36 in = 1 yd 100 cm = 1 m Capacity: 2 cups = 1 pint 2 pints = 1 quart 4 quarts = 1 gallon Weight: 16 ounces = 1 lb		Use the relationship among units of measurement in customary and metric (application) Length: 12 in = 1 ft 3 ft = 1 yd 36 in = 1 yd 100 cm = 1 m Capacity: 2 cups = 1 pint 2 pints = 1 quart 4 quarts = 1 gallon Weight: 16 ounces = 1 lb	*identify units of measurement in customary and metric *apply equivalencies in units of measurement when converting within the same system	metric customary length capacity weight units	HC 24.3, 24.4, 24.5, 25.2
7. Essential Question - How is probability represented numerically?							
Module 5	6 MC 1 OR	DAP.17.4.1 Use fractions to predict probability of an event (synthesis) Ex. There are 5 blue tiles, 3 red tiles, and 2 green tiles. What is the probability of pulling out a green tile?		Use fractions to predict probability of an event (synthesis) Ex. There are 5 blue tiles, 3 red tiles, and 2 green tiles What is the probability of pulling out a green tile?	*identify the denominator which is the total number of pieces *identify the numerator which is the fractional piece of the total number *define probability *predict chance of "pulling out", "picking" and "choosing" *express the probability of an event as a fraction	probability denominator numerator predict prediction	HC 23.3, 23.4

Fourth Grade Mathematics							
The Learning Institute Module	# of Times Tested	AR Department of Education		Objective	Task Analysis	Essential Vocabulary *teacher word	Materials/ Resources
		CONTENT STANDARD/ Student Learning Expectations (SLE)					
<i>Ongoing Student Learning Expectation to be Addressed Each Nine Weeks</i>							
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?							
Module 6	5 MC 1 OR	NO.3.4.4 Solve simple problems using operations involving addition, subtraction, and multiplication using a variety of methods and tools (application) Ex. objects, mental computation, paper and pencil and with and without appropriate technology	Solve simple problems using operations involving addition, subtraction, and multiplication using a variety of methods and tools (application)	*use objects to solve simple problems using operations involving addition, subtraction and multiplication *use mental computation and/or technology to solve simple problems using operations involving addition, subtraction and multiplication *use paper and pencil to solve simple problems using operations involving addition, subtraction and multiplication	mental computation operations	calculators HC various lessons in Ch..3, Ch. 8	
FOURTH NINE WEEKS							
1. Essential Question - How is the likelihood of an event determined and communicated?							
Module 5	1	DAP.17.4.3 Find all possible combinations of two or three sets of objects (comprehension)	Find all possible combinations of two or three sets of objects (comprehension)	*use symbols, words, organized lists or pictures to record all possible combinations *compute the total		HC 23.5	
2. Enduring Understanding - The expected outcome of an event is a prediction of what might actually happen in the long run.							
2a. Essential Question - How is the probability of an event determined and described?							
Module 5	9	DAP.17.4.2 Conduct simple probability experiments, record the data and draw conclusions about the likelihood of possible outcome (roll number cubes, pull tiles from a bag, spin spinner, or determine the fairness of the game) (evaluation)	Conduct simple probability experiments, record the data and draw conclusions about the likelihood of possible outcome (evaluation)	*create probability experiments and record the results *use results to draw conclusions	fair unfair probability outcome	HC 23.2, 23.3, 23.4 Promethean board Marble lesson (use m & m or skittles)	

The Learning Institute Module	# of Times Tested	AR Department of Education		Objective	Task Analysis	Essential Vocabulary *teacher word	Materials/ Resources
		CONTENT STANDARD/ Student Learning Expectations (SLE)					
3. Essential Question - How are numbers that represent fractional parts compared?							
Module 5	4	NO.1.4.4 Write a fraction to name part of a whole, part of a set, a location on a number line , and the division of whole numbers , using models up to 12/12 (comprehension)	NO.1.4.4 Write a fraction to name part of a whole, part of a set, a location on a number line, and the division of whole numbers, using models up to 12/12 Ex. 1/4 = 1/4 = * 0 1/4 1/2 1 1/4 = One cookie shared by 4 children (comprehension)	*identify the denominator as the number of equal parts *identify the numerator as the parts being described *determine the name of the fractions that are modeled as a part of a whole up to 12/12 *determine the name of the fractions that are modeled as a part of a set *know distance between 0 and 1 on a number line can be divided into fractional parts and can be named as fractions *determine the name of fractions that are modeled on a number line *determine the name of fractions that are modeled as division of a whole number (Ex. 1/3 of 9 = 9 ÷ 3)	denominator numerator fraction set number line fractional parts whole numbers	HC 21.1, 21.2, 21.4 Fractions w/Paper plates	
Module 5	0	NO.1.4.8 Write a fraction that is equivalent to a given fraction with the use of models (comprehension) Ex. 1/3 = 2/6 = 4/12	Write a fraction that is equivalent to a given fraction with the use of models (comprehension)	*define equivalent fraction *match benchmark fractions (Ex. 1/2=2/4=3/6; 1/4=2/8) with models and pictures *create and write an equivalent fraction to a given fraction using models	equivalent fraction	HC 21.2	
Module 5	0	NO.1.4.5 Utilize models, benchmarks, and equivalent forms to recognize that the size of the whole determines the size of the fraction (application)	Use models, benchmarks, and equivalent forms to recognize that the size of the whole determines the size of the fraction (application)	*identify benchmark fractions 0, 1/8, 1/6, 1/4, 1/3, 1/2, 3/4, 1 *use model to show the same fractional parts can have different names that are equivalent (Ex. 2/4=1/2) *use manipulatives to create equivalent fractions that have different denominators *use different size manipulatives to show the size of the whole determines the size of the fraction (Ex. 1/2 small pizza and 1/2 large pizza are not the same)	benchmark fractions (EX: 0, 1/8, 1/6, 1/4, 1/3, 1/2, 3/4, 1). manipulatives	HC 12.1, 21.2, 21.3	

The Learning Institute Module	# of Times Tested	AR Department of Education		Objective	Task Analysis	Essential Vocabulary *teacher word	Materials/ Resources
		CONTENT STANDARD/ Student Learning Expectations (SLE)					
4. Essential Question - How are common and decimal fractions alike and different?							
Module 6	1	NO.1.4.7 Write an equivalent decimal for a given fraction relating to money (comprehension) Ex. 1/10 = \$0.10, 1/4 = \$0.25	Write an equivalent decimal for a given fraction relating to money (comprehension)	*identify that 1/10 = \$.10; 1/4=\$.25; 1/2=\$.50; 3/4=\$.75; 4/4=\$1.00 *represent money amounts in fractions to their equivalent decimal	equivalent	HC 26.1	
5. Enduring Understanding - Both common and decimal fractions can represent fractional parts.							
5a. Essential Question - How are numbers that represent decimals compared?							
Module 6	0	NO.1.4.6 Use the place value structure of the base ten number system and be able to represent and compare decimals to hundredths (using models, illustrations, symbols, expanded notation and problem solving) (first time the context has not been money) (analysis) Ex. 3.87 ___ 3.78	A. Represent in writing (using models, illustrations, symbols, expanded notation and problem solving) decimals to hundredths (analysis) B. Compare in writing decimals to the hundredths (analysis)	a. *represent decimals as part of a whole *represent decimals using expanded notation *recite/identify place value of decimals to the hundredths *create models of decimals to hundredths b. *use symbols (<, >, =), models, illustrations, and expanded notation to compare decimals to hundredths	tenths place value decimals hundredths expanded notation	HC 26.1, 16.2, 26.3, 26.4, 26.5, 27.1	
6. Enduring Understanding - Representation of data depends on the characteristics of that data.							
6a. Essential Question - What data display is appropriate for a given set of data?							
Module 5	1	DAP.16.4.1 Make predictions for a given set of data (synthesis)	Make predictions for a given set of data (synthesis)	*make predictions for a particular set of data		HC 23.2	
Module 6	0	DAP.15.4.2 Match a set of data with a graphical representation of the data (comprehension)	Match a set of data with a graphical representation of the data (comprehension)	*identify information presented in a graph *select the correct graph that represents the corresponding data and select the correct data represented by a graph		HC 7.5, AR- 5	

The Learning Institute Module	# of Times Tested	AR Department of Education		Objective	Task Analysis	Essential Vocabulary *teacher word	Materials/ Resources
		CONTENT STANDARD/ Student Learning Expectations (SLE)					
Module 6	5	DAP.14.4.1 Create a data collection plan after being given a topic and collect, organize, display, describe and interpret simple data using frequency tables or line plots, pictographs and bar graphs (synthesis)		Create a data collection plan after being given a topic and collect, organize, display, describe and interpret simple data using frequency tables or line plots, pictographs and bar graphs (synthesis)	*define frequency table, line plots, pictographs and bar graphs *identify the organizer that would best fit data collection plan *collect, organize and display data *describe information *interpret information	frequency table line plot pictograph bar graph	HC 6.1, 6.3, 7.1, 7.3
Module 6	12 MC 3 OR	DAP.15.4.1 Represent and interpret data using pictographs, bar graphs and line graphs in which symbols or intervals are greater than one (analysis)		Represent and interpret data using pictographs, bar graphs and line graphs in which symbols or intervals are greater than one (analysis)	*define pictograph, bar graph and line graph *identify the value for the symbol in the key *represent and interpret data using pictographs, bar graphs and line graphs in which symbols or intervals are greater than one	intervals pictograph bar graph line graph value scale	HC 1.5, 6.6, 7.1, 7.2, 7.3, 7.5
7. Enduring Understanding - A three-dimensional figure can be analyzed in terms of its two-dimensional							
7a. Essential Question - How are one-, two-, or three-dimensional shapes described and classified?							
Module 6	2	G.11.4.1 Construct a three-dimensional model composed of cubes when given an illustration (synthesis)		Construct a three-dimensional model composed of cubes when given an illustration (synthesis)	*duplicate 3-D shapes when shown a model or an illustration	duplicate cube	AR 10 Elastic Activity (Frady at Kilp) 2D/3D