Map: **Math-Grade 4 (Revised) 2010**   Grade Level: **4**   School Year: **2010-2011**

Author: **Tom Steinmeyer**   District/Building: **Island Trees/Michael F. Stokes School**

Created: **05/04/2005**   Last Updated: **07/28/2010**

	Essential Questions	Content	Skills	Assessments	Standards/PIs	Resources/Notes
Unit 1	How does the knowledge of multiplication and division help us utilize math more efficiently?	Multiplication and Division Facts 0-12 Using Various Strategies to Enhance Our Ability to Calculate **Vocabulary** *fact family* *product* *factor* *multiple* *quotient* *divisor* *dividend* *Commutative Property of Multiplication* *Associative Property of Multiplication* *Identity Property of Multiplication* *Zero Property of Multiplication* *Distributive Property of Multiplication* *algebra* *algebraic equation /expression*	*Relate* multiplication and division through fact families and recognizing patterns *Identify* 0-12 as divisors *Utilize* multiplication properties and rules of division *Recognize* multiplication and division facts by 0-12 *Analyze* and solve problems *Apply* multiplication and division facts(0-12) in a variety of contexts when problem solving *Create* arrays that represent and model multiplication and division problems		**MST3-4.N.6** **MST3-4.N.15** **MST3-4.N.16** **MST3-4.N.17** **MST3-4.N.13** **MST3-4.N.1** **MST3-4.N.2** **MST3-4.N.3** **MST3-4.N.4** **MST3-4.N.5** **MST3-4.A.2** **MST3-4.N.26** **MST3-4.PS.4** **MST3-4.CN.6** **MST3-4.R.8** **MST3-4.R.10** **MST3-4.PS.12** **MST3-4.RP.5** **MST3-4.R.3** **MST3-4.R.4** **MST3-4.R.5** **MST3-4.A.1** **MST3-4.A.3** **MST3-4.A.5**	
	How does understanding place value allow us to recognize the value of a	Place value: Compare and Order Whole Numbers	*Relate* the place			

	Essential Questions	Content/Vocabulary	Skills		Standards	
	number?	Place Value to the Millions **Vocabulary** *digit* *estimate* *expanded form* *equal to (=)* *greater than (>)* *less than (<)* *place value* *rounding(round)* *standard form* *word form* *short word form*	value structure to the base ten number system **Read** and **write** whole numbers through millions **Identify** the place value of a digit in whole numbers through 999,999 **Compare** and order whole numbers through hundred thousands **Round** numbers through thousands **Analyze** and solve problems using skills and strategies **Recognize** equivalent representations for numbers up to four digits **Identify 0-12** as factors			
Unit 2	How do addition and subtraction help us in our everyday lives? How can algebraic expressions be written,analyzed, and solved?	Adding and Subtracting Whole Numbers **Vocabulary** *expression* *estimate*	**Estimate** whole number sums and differences **Evaluate** expressions and **explore** patterns to		MST3-4.M.8 MST3-4.N.14 MST3-4.S.1 MST3-4.S.2 MST3-4.S.3	

		find a rule		MST3-4.S.4
Why is rounding (estimating) useful when solving math problems?	*Commutative Property of Addition*			MST3-4.S.5
	Associative Property of Addition	**Determine** the probability of an event		MST3-4.S.6
				MST3-4.PS.1
	equation			MST3-4.PS.2
	addend	**Analyze** and solve problems using skills and strategies		MST3-4.PS.3
	difference	**Add** up to five-digit whole numbers, including money		MST3-4.PS.5
	solve			MST3-4.PS.6
	parentheses	**Subtract** up to five-digit whole numbers, including money		MST3-4.PS.7
	pattern			MST3-4.PS.8
	sum			MST3-4.PS.17
	rounding (round)	**Make** change using amounts up to $100		MST3-4.PS.20
	algebra			MST3-4.CN.1
	algebraic equation / expression	**Formulate** problems and solutions from everyday situations		MST3-4.CN.3
				MST3-4.PS.10
		Analyze and solve problems using critical thinking skills and strategies		MST3-4.PS.11
				MST3-4.PS.13
		Regroup across zeros		MST3-4.PS.14
				MST3-4.PS.15
				MST3-4.PS.22
				MST3-4.RP.1
How does understanding data and probability enhance our ability to understand and organize information?	Data and Probability : Organize,Analyze,and Interpret Information			MST3-4.RP.4
		Collect, **organize**, & **describe** data using median & mode		MST3-4.RP.6
	Vocabulary			MST3-4.CM.5
		Read, create, and **interpret** bar graphs, pictographs, line graphs, and stem-and-leaf plots		MST3-4.CN.8
	data			MST3-4.R.1
	survey			
	bar graph	**Formulate** conclusions and **make predictions** based on data and graphs		
	line graph			
	pictograph			
	probability			

		tree diagram *stem and leaf plot* *mean(average)* *median* *mode* *outcome* *table* *chart* *tally chart* *frequency table* *circle graph (pie chart)* *collect* *organize* *interpret* *predict*			
Unit 3	How does knowing how to multiply simplifly the ability to compute numbers? How can multiplying larger numbers be simplified by identifying patterns of zeros in a multiplication problem?	Multiply two-, three-, and four-digit numbers by one-digit numbers ***Vocabulary*** ***Distributive Property of Multiplication*** *estimate* *factor* *multiple* *product*	**Multiply** numbers of 10, 100, and 1000 by one-digit numbers using the zero trick **Estimate** products **Multiply** larger numbers by one-digit numbers, including money **Relate** and **describe** various meanings of multiplication and division and		MST3-4.N.18 MST3-4.N.2O MST3-4.PS.24 MST3-4.CM.9

	regroup	**recognize** their inverse relationship			
	round	**Analyze** and **solve** problems using critical thinking skills and **apply** various problem solving strategies			
	compatible numbers				
	Vocabulary				
How can algebraic expressions be identified, described, and extended?	*algebra*				
	algeraic expression				
	function table				
How can extra or missing information be identified when problem solving?	*expression*				
	identify				
	input / output table				
How can rules be identified in a function (input / output table)?	*rule(s)*				
	pattern(s)				

	Essential Questions	Content	Skills	Assessments	Standards/PIs	Resources/Notes
Unit 4	How does the ability to multiply larger numbers enhance our understanding of more difficult computation? How does understanding various problem solving strategies help us better tackle and solve a word problem?	Multiplying by two-digit numbers *Vocabulary* *Distributive Property of Multiplication* *estimate* *factor* *multiple* *product* *regroup* *round*	*Multiply* multiples of 10, 100, and 1,000 by two-digit numbers *Estimate* larger products *Multiply* two- and three-digit numbers by two-digit numbers, including money *Select* and *demonstrate* appropriate computational and operational methods to solve problems *Analyze* and *solve* problems utilizing critical thinking skills and problem solving strategies		**MST3-4.N.19**	

Unit 5				
	How do we incorporate time and measurement of length, capacity, mass, and temperature into our daily lives? How does an understanding of the Metric System and Customary System allow us to better relate to the world around us? How can the Customary System and the Metric System be compared? Why is it important to be proficient with both? How can understanding units of time relate to our everyday lives? How can elapsed time be calculated and applied?	Telling Time and Using a Calendar Measuring in Customary Units vs. Metric Units *Vocabulary* *standard units* *square units* *cubic units* *convert* *Metric System (units)* *Customary System (units)* *length* *width* *height* *distance* *inches* *feet* *yards* *miles* *pound* *ounce* *teaspoon* *tablespoon* *ton* *cup* *pint* *quart* *gallon* *volume* *capacity*	*Estimate* time and use time to the seconds and *determine* elapsed time *Utilize* a calendar to determine how days, weeks, months, and years correlate *Estimate, measure, and convert* U.S. customary units of length, capacity, weight, and temperature *Estimate, measure, and convert* metric units of length, capacity, mass, and temperature *Recognize* and *utilize* appropriate tools to assist in the determination of various measurements *Explain* the difference between weight and mass	MST3-4.M.1 MST3-4.M.2 MST3-4.M.3 MST3-4.M.4 MST3-4.M.5 MST3-4.M.6 MST3-4.M.7 MST3-4.M.9 MST3-4.M.10 MST3-4.N.21 MST3-4.N.22 MST3-4.N.27 MST3-4.PS.19 MST3-4.RP.2 MST3-4.RP.8 MST3-4.RP.9 MST3-4.CM.4 MST3-4.CM.6 MST3-4.CM.8 MST3-4.CN.7 MST3-4.R.6 MST3-4.R.7 MST3-4.R.9 MST3-4.PS.21 MST3-4.PS.23 MST3-4.PS.25 MST3-4.RP.3 MST3-4.RP.7 MST3-4.CM.7 MST3-4.CN.2	

		millimeters			
		centimeters			
		meters			
		kilometers			
		mass			
		milligram			
		gram			
		kilogram			
		liter			
		milliliter			
		perimeter			
		area			
		elapsed time			
		second / minute / hour			
		day / week / month / year			
		convert			
		temperature			
		degrees			
		Celsius			
		Fahrenheit			
		Division by One-Digit Divisors With Remainders	***Divide*** multiples of 10, 100, and 1,000 by one-digit divisors		
		Calculation of Averages Using the Basic Long	***Utilize*** compatible numbers to estimate		

	How does our knowledge of multiplication of larger numbers assist us in dividing by one-digit divisors? How can various problem solving strategies help us understand how to tackle and solve a word problem?	Division Process *Vocabulary* *divide* *remainder* *divisor* *dividend* *quotient* *array* *average(mean)*	quotients ***Divide*** two- and three-digit numbers by one-digit numbers ***Interpret*** and ***explain*** the meaning of a remainder ***Calculate*** averages ***Analyze*** and ***solve*** problems utilizing critical thinking skills and problem solving strategies			
Unit 6	How does the ability to recognize shapes and angles enhance our awareness of the world around us? How does understanding various problem solving strategies help us better tackle and solve word problems?	Geometric Shapes Points, Lines, Segments, Rays, and Angles Congruent vs. Similar Shapes Slides, Flips, Turns, and Symmetry Finding Perimeter, Area, Volume, and Circumference with Appropriate Formulas	***Explore*** and ***identify*** closed figures made up of three or more sides ***Distinguish*** between two- and three-dimensional figures ***Recognize*** and ***describe*** the differences between lines, line segments, rays, angles, and parts of a circle		MST3-4.G.1 MST3-4.G.2 MST3-4.G.3 MST3-4.G.4 MST3-4.G.5 MST3-4.G.6 MST3-4.G.7 MST3-4.G.8	

How can shapes and angles be compared? How are two-dimensional shapes different from three-dimensional shapes? How can area and perimeter be calculated and applied when problem solving?	*Vocabulary* *geometry (geometric)* *two-dimennsional (plane) figures* *three-dimensional (space) figures* *polygon* *square* *rectangle* *triangle* *equilateral* *scalene* *isosceles* *degrees* *hexagon* *pentagon* *octagon* *quadrilateral* *rhombus* *trapezoid* *parallelogram* *square pyramid* *cylinder* *cube* *cone* *triangular prism* *triangular pyramid* *vertex (vertices)* *edge(s)* *face(s)* *prism*	*Draw* and *identify* perpendicular, parallel, and intersecting lines *Identify* congruent, similar, and symmetrical figures, slides, flips, and turns *Calculate* perimeter, area, and volume; *estimate* the circumference of a circle *Analyze* and *solve* problems using critical thinking skills and various problem solving strategies		**MST3-4.PS.18** **MST3-4.CN.5** **MST3-4.R.2** **MST3-4.CM.1O** **MST3-4.CM.11** **MST3-4.A.4**

		rectangular prism				
		sphere				
		perpendicular				
		parallel				
		intersect				
		angle				
		ray				
		line				
		line segment				
		point (endpoint)				
		plane				
		right angle				
		acute angle				
		obtuse angle				
		circumference				
		diameter				
		radius				
		perimeter				
		area				
		slide(translation)				
		rotation(turn)				
		flip(reflection)				
		symmetry				
		congruent				
		similar				
		coordinate plane				
		origin				
		x axis				
		y axis				
		plot				

	Essential Questions	Content	Skills	Assessments	Standards/PIs	Resources/Notes
Unit 7	How does understanding a part of a whole help us to recognize and manipulate fractions?	Comparing, Ordering, Adding, and Subtracting Fractions with Like and Unlike Denominators Manipulating Mixed Numbers vs. Improper Fractions *Vocabulary* *denominator* *equivalent (fraction)* *fraction* *numerator* *mixed number* *part* *whole* *improper fraction* *reduce* *simplify* *like* *unlike* *order* *model* *compare* *shade(d)* *region* *number line*	*Identify* parts of a region or set *Calculate* equivalent fractions *Compare* and *order* fractions *Utilize* manipulatives and visual models to *compare* and *order* unit fractions *Convert* mixed numbers and improper fractions *Add* and *subtract* fractions with like and unlike denominators *Identify* and *label* fractions on a number line		**MST3-4.N.7** **MST3-4.N.8** **MST3-4.N.9** **MST3-4.N.23** **MST3-4.PS.16** **MST3-4.CM.1** **MST3-4.CM.2** **MST3-4.CM.3** **MST3-4.CN.4**	

Unit 8	How does an understanding of fractions correlate with an understanding of decimals? How can decimals be compared, ordered, added, and subtracted? How are decimals related to and utilized in regards to money and time?	Decimal Place Value to the Hundredths *Vocabulary* *decimal* *decimal point* *hundredth* *thousandth* *tenth* *place value* *compare* *order* *round* *base ten blocks*	*Relate* fractions and mixed numbers to decimals *Compare* and *order* decimals through hundredths *Estimate* decimal sums and differences *Add* and *subtract* decimals through hundredths *Read* and *write* decimals to hundredths, using money as a context *Analyze* and *solve* problems using critical thinking skills and various problem solving strategies		**MST3-4.N.10** **MST3-4.N.11** **MST3-4.N.12** **MST3-4.N.24** **MST3-4.N.25**
Unit 9	How does an understanding of division by one-digit divisors assist us in division by two-digit divisors?	Division by two-digit divisors with possible remainders *Vocabulary* *divisor* *dividend* *quotient* *remainder* *estimate* *compatible numbers*	*Divide* with tens and hundreds *Utilize* compatible numbers to *estimate* quotients *Divide* by two-digit divisors *Analyze* and *solve* problems by utilizing critical thinking skills and mathmatical problem solving strategies strategies		**MST3-4.N.16** **MST3-4.N.17** **MST3-4.N.20** **MST3-4.N.22**

	Essential Questions	Content	Skills	Assessments	Standards/PIs	Resources/Notes
Unit 10	How does an understanding of mathematical vocabulary and previously learned concepts prepare us for more challenging tasks in grade 5?	***Cumulative Review*** Multiplication and division facts and revisit larger numbers to multiply and divide Algebra and algebraic patterns Problem Solving Skills: Critical Thinking and Reasoning Strategies Geometry Fractions and decimals Place Value, rounding (estimating) Data and Probability Time and Measurement	***Relate*** multiplication and division through fact families and patterns ***Estimate*** larger products **Multiply** two- and three-digit numbers by two-digit numbers ***Utilize*** compatible numbers to estimate quotients ***Divide*** two- and three-digit numbers by two-digit numbers **Write** and **find** the value of addition,subtraction, multiplication,and division equations. ***Identify***, ***describe***,and ***extend*** numeric and nonnumeric patterns ***Choose*** and ***implement*** the best strategy to solve a problem ***Identify*** extra or missing information **Identify** rules and patterns for an input / output table ***Solve*** multi-step word problems ***Identify*** KEY words / essential vocabulary when problem solving ***Compare***, ***order***, ***add***, and ***subract*** both fractions and decimals ***Apply*** time and measurement concepts and skills in a wide	**MST3-4.N.15** **MST3-4.N.16** **MST3-4.N.17** **MST3-4.N.19** **MST3-4.N.1** **MST3-4.N.2** **MST3-4.N.3** **MST3-4.N.4** **MST3-4.N.5** **MST3-4.PS.9**	

| | | variety of contexts | | | |
| | | *Create, organize, analyze,* and *interpret* data tables, charts, and graphs in a wide variety of contexts | | | |

Key to Standards used in this Map

MST3-4.PS.1 [1 occurence] - MST Standard 3 - Problem Solving Strand - Students will build new mathematical knowledge through problem solving. - Performance Indicator 4.PS.1 - explore, examine, and make observations about a social problem or mathematical situation [Grade 4]

MST3-4.PS.2 [1 occurence] - MST Standard 3 - Problem Solving Strand - Students will build new mathematical knowledge through problem solving. - Performance Indicator 4.PS.2 - understand that some ways of representing a problem are more helpful than others [Grade 4]

MST3-4.PS.3 [1 occurence] - MST Standard 3 - Problem Solving Strand - Students will build new mathematical knowledge through problem solving. - Performance Indicator 4.PS.3 - interpret information correctly, identify the problem, and generate possible solutions [Grade 4]

MST3-4.PS.4 [1 occurence] - MST Standard 3 - Problem Solving Strand - Students will solve problems that arise in mathematics and in other contexts. - Performance Indicator 4.PS.4 - act out or model with manipulatives activities involving mathematical content from literature [Grade 4]

MST3-4.PS.5 [1 occurence] - MST Standard 3 - Problem Solving Strand - Students will solve problems that arise in mathematics and in other contexts. - Performance Indicator 4.PS.5 - formulate problems and solutions from everyday situations [Grade 4]

MST3-4.PS.6 [1 occurence] - MST Standard 3 - Problem Solving Strand - Students will solve problems that arise in mathematics and in other contexts. - Performance Indicator 4.PS.6 - translate from a picture/diagram to a numeric expression [Grade 4]

MST3-4.PS.7 [1 occurence] - MST Standard 3 - Problem Solving Strand - Students will solve problems that arise in mathematics and in other contexts. - Performance Indicator 4.PS.7 - represent problem situations in oral, written, concrete, pictorial, and graphical forms [Grade 4]

MST3-4.PS.8 [1 occurence] - MST Standard 3 - Problem Solving Strand - Students will solve problems that arise in mathematics and in other contexts. - Performance Indicator 4.PS.8 - select an appropriate representation of a problem [Grade 4]

MST3-4.PS.9 [1 occurence] - MST Standard 3 - Problem Solving Strand - Students will apply and adapt a variety of appropriate strategies to solve problems. - Performance Indicator 4.PS.9 - use trial and error to solve problems [Grade 4]

MST3-4.PS.10 [1 occurence] - MST Standard 3 - Problem Solving Strand - Students will apply and adapt a variety of appropriate strategies to solve problems. - Performance Indicator 4.PS.10 - use process of elimination to solve problems [Grade 4]

MST3-4.PS.11 [1 occurence] - MST Standard 3 - Problem Solving Strand - Students will apply and adapt a variety of appropriate strategies to solve problems. - Performance Indicator 4.PS.11 - make pictures/diagrams of problems [Grade 4]

MST3-4.PS.12 [1 occurence] - MST Standard 3 - Problem Solving Strand - Students will apply and adapt a variety of appropriate strategies to solve problems. - Performance Indicator 4.PS.12 - use physical objects to model problems [Grade 4]

MST3-4.PS.13 [1 occurence] - MST Standard 3 - Problem Solving Strand - Students will apply and adapt a variety of appropriate strategies to solve problems. - Performance Indicator 4.PS.13 - work in collaboration with others to solve problems [Grade 4]

MST3-4.PS.14 [1 occurence] - MST Standard 3 - Problem Solving Strand - Students will apply and adapt a variety of appropriate strategies to solve problems. - Performance Indicator 4.PS.14 - make organized lists to solve numerical problems [Grade 4]

MST3-4.PS.15 [1 occurence] - MST Standard 3 - Problem Solving Strand - Students will apply and adapt a variety of appropriate strategies to solve problems. - Performance Indicator 4.PS.15 - make charts to solve numerical problems [Grade 4]

MST3-4.PS.16 [1 occurence] - MST Standard 3 - Problem Solving Strand - Students will apply and adapt a variety of appropriate strategies to solve problems. - Performance Indicator 4.PS.16 - analyze problems by identifying relationships [Grade 4]

MST3-4.PS.17 [1 occurence] - MST Standard 3 - Problem Solving Strand - Students will apply and adapt a variety of appropriate strategies to solve problems. - Performance Indicator 4.PS.17 - analyze problems by identifying relevant versus irrelevant information [Grade 4]

MST3-4.PS.18 [1 occurence] - MST Standard 3 - Problem Solving Strand - Students will apply and adapt a variety of appropriate strategies to solve problems. - Performance Indicator 4.PS.18 - analyze problems by observing patterns [Grade 4]

MST3-4.PS.19 [1 occurence] - MST Standard 3 - Problem Solving Strand - Students will apply and adapt a variety of appropriate strategies to solve problems. - Performance Indicator 4.PS.19 - state a problem in their own words [Grade 4]

MST3-4.PS.20 [1 occurence] - MST Standard 3 - Problem Solving Strand - Students will monitor and reflect on the process of mathematical problem solving. - Performance Indicator 4.PS.20 - determine what information is needed to solve a problem [Grade 4]

MST3-4.PS.21 [1 occurence] - MST Standard 3 - Problem Solving Strand - Students will monitor and reflect on the process of mathematical problem solving. - Performance Indicator 4.PS.21 - discuss with peers to understand a problem situation [Grade 4]

MST3-4.PS.22 [1 occurence] - MST Standard 3 - Problem Solving Strand - Students will monitor and reflect on the process of mathematical problem solving. - Performance Indicator 4.PS.22 - discuss the efficiency of different representations of a problem [Grade 4]

MST3-4.PS.23 [1 occurence] - MST Standard 3 - Problem Solving Strand - Students will monitor and reflect on the process of mathematical problem solving. - Performance Indicator 4.PS.23 - verify results of a problem [Grade 4]

MST3-4.PS.24 [1 occurence] - MST Standard 3 - Problem Solving Strand - Students will monitor and reflect on the process of mathematical problem solving. - Performance Indicator 4.PS.24 - recognize invalid approaches [Grade 4]

MST3-4.PS.25 [1 occurence] - MST Standard 3 - Problem Solving Strand - Students will monitor and reflect on the process of mathematical problem solving. - Performance Indicator 4.PS.25 - determine whether a solution is reasonable in the context of the original problem [Grade 4]

MST3-4.RP.1 [1 occurence] - MST Standard 3 - Reasoning and Proof Strand - Students will recognize reasoning and proof as fundamental aspects of mathematics. - Performance Indicator 4.RP.1 - use representations to support mathematical ideas [Grade 4]

MST3-4.RP.2 [1 occurence] - MST Standard 3 - Reasoning and Proof Strand - Students will recognize reasoning and proof as fundamental aspects of mathematics. - Performance Indicator 4.RP.2 - determine whether a mathematical statement is true or false and explain why [Grade 4]

MST3-4.RP.3 [1 occurence] - MST Standard 3 - Reasoning and Proof Strand - Students will make and investigate mathematical conjectures. - Performance Indicator 4.RP.3 - investigate the use of knowledgeable guessing by generalizing mathematical ideas [Grade 4]

MST3-4.RP.4 [1 occurence] - MST Standard 3 - Reasoning and Proof Strand - Students will make and investigate mathematical conjectures. - Performance Indicator 4.RP.4 - make conjectures from a variety of representations [Grade 4]

MST3-4.RP.5 [1 occurence] - MST Standard 3 - Reasoning and Proof Strand - Students will develop and evaluate mathematical arguments and proofs. - Performance Indicator 4.RP.5 - justify general claims or conjectures, using manipulatives, models, and expressions [Grade 4]

MST3-4.RP.6 [1 occurence] - MST Standard 3 - Reasoning and Proof Strand - Students will develop and evaluate mathematical arguments and proofs. - Performance Indicator 4.RP.6 - develop and explain an argument using oral, written, concrete, pictorial, and/or graphical forms [Grade 4]

MST3-4.RP.7 [1 occurence] - MST Standard 3 - Reasoning and Proof Strand - Students will develop and evaluate mathematical arguments and proofs. - Performance Indicator 4.RP.7 - discuss, listen, and make comments that support or reject claims made by other students [Grade 4]

MST3-4.RP.8 [1 occurence] - MST Standard 3 - Reasoning and Proof Strand - Students will select and use various types of reasoning and methods of proof. - Performance Indicator 4.RP.8 - support an argument by trying many cases [Grade 4]

MST3-4.RP.9 [1 occurence] - MST Standard 3 - Reasoning and Proof Strand - Students will select and use various types of reasoning and methods of proof. - Performance Indicator 4.RP.9 - disprove an argument by finding counterexamples [Grade 4]

MST3-4.CM.1 [1 occurence] - MST Standard 3 - Communication Strand - Students will organize and consolidate their mathematical thinking through communication. - Performance Indicator 4.CM.1 - understand and explain how to organize their thought process [Grade 4]

MST3-4.CM.2 [1 occurence] - MST Standard 3 - Communication Strand - Students will organize and consolidate their mathematical thinking through communication. - Performance Indicator 4.CM.2 - verbally explain their rationale for strategy selection [Grade 4]

MST3-4.CM.3 [1 occurence] - MST Standard 3 - Communication Strand - Students will organize and consolidate their mathematical thinking through communication. - Performance Indicator 4.CM.3 - provide reasoning both in written and verbal form [Grade 4]

MST3-4.CM.4 [1 occurence] - MST Standard 3 - Communication Strand - Students will communicate their mathematical thinking coherently and clearly to peers, teachers, and others. - Performance Indicator 4.CM.4 - organize and accurately label work [Grade 4]

MST3-4.CM.5 [1 occurence] - MST Standard 3 - Communication Strand - Students will communicate their mathematical thinking coherently and clearly to peers, teachers, and others. - Performance Indicator 4.CM.5 - share organized mathematical ideas through the manipulation of objects, drawings, pictures, charts, graphs, tables, diagrams, models, symbols, and expressions in written and verbal form [Grade 4]

MST3-4.CM.6 [1 occurence] - MST Standard 3 - Communication Strand - Students will communicate their mathematical thinking coherently and clearly to peers, teachers, and others. - Performance Indicator 4.CM.6 - answer clarifying questions from others [Grade 4]

MST3-4.CM.7 [1 occurence] - MST Standard 3 - Communication Strand - Students will analyze and evaluate the mathematical thinking and strategies of others. - Performance Indicator 4.CM.7 - restate mathematical solutions shared by other students [Grade 4]

MST3-4.CM.8 [1 occurence] - MST Standard 3 - Communication Strand - Students will analyze and evaluate the mathematical thinking and strategies of others. - Performance Indicator 4.CM.8 - consider strategies used and solutions found in relation to their own work [Grade 4]

MST3-4.CM.9 [1 occurence] - MST Standard 3 - Communication Strand - Students will use the language of mathematics to express mathematical ideas precisely. - Performance Indicator 4.CM.9 - increase their use of mathematical vocabulary and language when communicating with others [Grade 4]

MST3-4.CM.1O [1 occurence] - MST Standard 3 - Communication Strand - Students will use the language of mathematics to express mathematical ideas precisely. - Performance Indicator 4.CM.10 - describe objects, relationships, solutions and rationale using appropriate vocabulary [Grade 4]

MST3-4.CM.11 [1 occurence] - MST Standard 3 - Communication Strand - Students will use the language of mathematics to express mathematical ideas precisely. - Performance Indicator 4.CM.11 - decode and comprehend mathematical visuals and symbols to construct meaning [Grade 4]

MST3-4.CN.1 [1 occurence] - MST Standard 3 - Connections Strand - Students will recognize and use connections among mathematical ideas. - Performance Indicator 4.CN.1 - recognize, understand, and make connections in their everyday experiences to mathematical ideas [Grade 4]

MST3-4.CN.2 [1 occurence] - MST Standard 3 - Connections Strand - Students will recognize and use connections among mathematical ideas. - Performance Indicator 4.CN.2 - compare and contrast mathematical ideas [Grade 4]

MST3-4.CN.3 [1 occurence] - MST Standard 3 - Connections Strand - Students will recognize and use connections among mathematical ideas. - Performance Indicator 4.CN.3 - connect and apply mathematical information to solve problems [Grade 4]

MST3-4.CN.4 [1 occurence] - MST Standard 3 - Connections Strand - Students will understand how mathematical ideas interconnect and build on one another to produce a coherent whole. - Performance Indicator 4.CN.4 - understand multiple representations and how they are related [Grade 4]

MST3-4.CN.5 [1 occurence] - MST Standard 3 - Connections Strand - Students will understand how mathematical ideas interconnect and build on one another to produce a coherent whole. - Performance Indicator 4.CN.5 - model situations with objects and representations and be able to make observations [Grade 4]

MST3-4.CN.6 [1 occurence] - MST Standard 3 - Connections Strand - Students will recognize and apply mathematics in contexts outside of mathematics. - Performance Indicator 4.CN.6 - recognize the presence of mathematics in their daily lives [Grade 4]

MST3-4.CN.7 [1 occurence] - MST Standard 3 - Connections Strand - Students will recognize and apply mathematics in contexts outside of mathematics. - Performance Indicator 4.CN.7 - apply mathematics to solve problems that develop outside of mathematics [Grade 4]

MST3-4.CN.8 [1 occurence] - MST Standard 3 - Connections Strand - Students will recognize and apply mathematics in contexts outside of mathematics. - Performance Indicator 4.CN.8 - recognize and apply mathematics to other disciplines [Grade 4]

MST3-4.R.1 [1 occurence] - MST Standard 3 - Representation Strand - Students will create and use representations to organize, record, and communicate mathematical ideas. - Performance Indicator 4.R.1 - use verbal and written language, physical models, drawing charts, graphs, tables, symbols, and equations as representations [Grade 4]

MST3-4.R.2 [1 occurence] - MST Standard 3 - Representation Strand - Students will create and use representations to organize, record, and communicate mathematical ideas. - Performance Indicator 4.R.2 - share mental images of mathematical ideas and understandings [Grade 4]

MST3-4.R.3 [1 occurence] - MST Standard 3 - Representation Strand - Students will create and use representations to organize, record, and communicate mathematical ideas. - Performance Indicator 4.R.3 - recognize and use external mathematical representations [Grade 4]

MST3-4.R.4 [1 occurence] - MST Standard 3 - Representation Strand - Students will create and use representations to organize, record, and communicate mathematical ideas. - Performance Indicator 4.R.4 - use standard and nonstandard representations with accuracy and detail [Grade 4]

MST3-4.R.5 [1 occurence] - MST Standard 3 - Representation Strand - Students will select, apply, and translate among mathematical representations to solve problems. - Performance Indicator 4.R.5 - understand similarities and differences in representations. [Grade 4]

MST3-4.R.6 [1 occurence] - MST Standard 3 - Representation Strand - Students will select, apply, and translate among mathematical representations to solve problems. - Performance Indicator 4.R.6 - connect mathematical representations with problem solving [Grade 4]

MST3-4.R.7 [1 occurence] - MST Standard 3 - Representation Strand - Students will select, apply, and translate among mathematical representations to solve problems. - Performance Indicator 4.R.7 - construct effective representations to solve problems [Grade 4]

MST3-4.R.8 [1 occurence] - MST Standard 3 - Representation Strand - Students will use representations to model and interpret physical, social, and mathematical phenomena. - Performance Indicator 4.R.8 - use mathematics to show and understand physical phenomena [Grade 4]

MST3-4.R.9 [1 occurence] - MST Standard 3 - Representation Strand - Students will use representations to model and interpret physical, social, and mathematical phenomena. - Performance Indicator 4.R.9 - use mathematics to show and understand social phenomena [Grade 4]

MST3-4.R.10 [1 occurence] - MST Standard 3 - Representation Strand - Students will use representations to model and interpret physical, social, and mathematical phenomena. - Performance Indicator 4.R.10 - use mathematics to show and understand mathematical phenomena [Grade 4]

MST3-4.N.1 [2 occurences] - MST Standard 3 - Number Sense and Operations Strand - Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems. [Number Systems] - Performance Indicator 4.N.1 - skip count by 1,000's [Grade 4]

MST3-4.N.2 [2 occurences] - MST Standard 3 - Number Sense and Operations Strand - Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems. [Number Systems] - Performance Indicator 4.N.2 - read and write whole numbers to 10,000 [Grade 4]

MST3-4.N.3 [2 occurences] - MST Standard 3 - Number Sense and Operations Strand - Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems. [Number Systems] - Performance Indicator 4.N.3 - compare and order numbers to 10,000 [Grade 4]

MST3-4.N.4 [2 occurences] - MST Standard 3 - Number Sense and Operations Strand - Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems. [Number Systems] - Performance Indicator 4.N.4 - understand the place value structure of the base ten number system: 10 ones = 1 ten, 10 tens = 1 hundred, 10 hundreds = 1 thousand, 10 thousands = 1 ten thousand [Grade 4]

MST3-4.N.5 [2 occurences] - MST Standard 3 - Number Sense and Operations Strand - Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems. [Number Systems] - Performance Indicator 4.N.5 - recognize equivalent representations for numbers up to four digits and generate them by decomposing and composing numbers [Grade 4]

MST3-4.N.6 [1 occurence] - MST Standard 3 - Number Sense and Operations Strand - Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems. [Number Systems] - Performance Indicator 4.N.6 - understand, use, and explain the associative property of multiplication [Grade 4]

MST3-4.N.7 [1 occurence] - MST Standard 3 - Number Sense and Operations Strand - Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems. [Number Systems] - Performance Indicator 4.N.7 - develop an understanding of fractions as locations on number lines and as divisions of whole numbers [Grade 4]

MST3-4.N.8 [1 occurence] - MST Standard 3 - Number Sense and Operations Strand - Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems. [Number Systems] - Performance Indicator 4.N.8 - recognize and generate equivalent fractions (halves, fourths, thirds, fifths, sixths, and tenths) using manipulatives, visual models, and illustrations [Grade 4]

MST3-4.N.9 [1 occurence] - MST Standard 3 - Number Sense and Operations Strand - Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems. [Number Systems] - Performance Indicator 4.N.9 - use concrete materials and visual models to compare and order unit fractions or fractions with the same denominator (with and without the use of a number line) [Grade 4]

MST3-4.N.10 [1 occurence] - MST Standard 3 - Number Sense and Operations Strand - Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems. [Number Systems] - Performance Indicator 4.N.10 - develop an understanding of decimals as part of a whole [Grade 4]

MST3-4.N.11 [1 occurence] - MST Standard 3 - Number Sense and Operations Strand - Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems. [Number Systems] - Performance Indicator 4.N.11 - read and write decimals to hundredths, using money as a context [Grade 4]

MST3-4.N.12 [1 occurence] - MST Standard 3 - Number Sense and Operations Strand - Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems. [Number Systems] - Performance Indicator 4.N.12 - use concrete materials and visual models to compare and order decimals (less than 1) to the hundredths place in the context of money [Grade 4]

MST3-4.N.13 [1 occurence] - MST Standard 3 - Number Sense and Operations Strand - Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems. [Number Theory] - Performance Indicator 4.N.13 - develop an understanding of the properties of odd/even numbers as a result of multiplication [Grade 4]

MST3-4.N.14 [1 occurence] - MST Standard 3 - Number Sense and Operations Strand - Students will understand meanings of operations and procedures, and how they relate to one another. [Operations] - Performance Indicator 4.N.14 - use a variety of strategies to add and subtract numbers up to 10,000 [Grade 4]

MST3-4.N.15 [2 occurences] - MST Standard 3 - Number Sense and Operations Strand - Students will understand meanings of operations and procedures, and how they relate to one another. [Operations] - Performance Indicator 4.N.15 - select appropriate computational and operational methods to solve problems [Grade 4]

MST3-4.N.16 [3 occurences] - MST Standard 3 - Number Sense and Operations Strand - Students will understand meanings of operations and procedures, and how they relate to one another. [Operations] - Performance Indicator 4.N.16 - understand various meanings of multiplication and division [Grade 4]

MST3-4.N.17 [3 occurences] - MST Standard 3 - Number Sense and Operations Strand - Students will understand meanings of operations and procedures, and how they relate to one another. [Operations] - Performance Indicator 4.N.17 - use multiplication and division as inverse operations to solve problems [Grade 4]

MST3-4.N.18 [1 occurence] - MST Standard 3 - Number Sense and Operations Strand - Students will understand meanings of operations and procedures, and how they relate to one another. [Operations] - Performance Indicator 4.N.18 - use a variety of strategies to multiply two-digit numbers by one-digit numbers (with and without regrouping) [Grade 4]

MST3-4.N.19 [2 occurences] - MST Standard 3 - Number Sense and Operations Strand - Students will understand meanings of operations and procedures, and how they relate to one another. [Operations] - Performance Indicator 4.N.19 - use a variety of strategies to multiply two-digit numbers by two-digit numbers (with and without regrouping) [Grade 4]

MST3-4.N.20 [2 occurences] - MST Standard 3 - Number Sense and Operations Strand - Students will understand meanings of operations and procedures, and how they relate to one another. [Operations] - Performance Indicator 4.N.20 - develop fluency in multiplying and dividing multiples of 10 and 100 up to 1,000 [Grade 4]

MST3-4.N.21 [1 occurence] - MST Standard 3 - Number Sense and Operations Strand - Students will understand meanings of operations and procedures, and how they relate to one another. [Operations] - Performance Indicator 4.N.21 - use a variety of strategies to divide two-digit dividends by one-digit divisors (with and without remainders) [Grade 4]

MST3-4.N.22 [2 occurences] - MST Standard 3 - Number Sense and Operations Strand - Students will understand meanings of operations and procedures, and how they relate to one another. [Operations] - Performance Indicator 4.N.22 - interpret the meaning of remainders [Grade 4]

MST3-4.N.23 [1 occurence] - MST Standard 3 - Number Sense and Operations Strand - Students will understand meanings of operations and procedures, and how they relate to one another. [Operations] - Performance Indicator 4.N.23 - add and subtract proper fractions with common denominators [Grade 4]

MST3-4.N.24 [1 occurence] - MST Standard 3 - Number Sense and Operations Strand - Students will understand meanings of operations and procedures, and how they relate to one another. [Operations] - Performance Indicator 4.N.24 - express decimals as an equivalent form of fractions to tenths and hundredths [Grade 4]

MST3-4.N.25 [1 occurence] - MST Standard 3 - Number Sense and Operations Strand - Students will understand meanings of operations and procedures, and how they relate to one another. [Operations] - Performance Indicator 4.N.25 - add and subtract decimals to tenths and hundredths using a hundreds chart [Grade 4]

MST3-4.N.26 [1 occurence] - MST Standard 3 - Number Sense and Operations Strand - Students will compute accurately and make reasonable estimates. [Estimation] - Performance Indicator 4.N.26 - round numbers less than 1,000 to the nearest tens and hundreds [Grade 4]

MST3-4.N.27 [1 occurence] - MST Standard 3 - Number Sense and Operations Strand - Students will compute accurately and make reasonable estimates. [Estimation] - Performance Indicator 4.N.27 - check reasonableness of an answer by using estimation [Grade 4]

MST3-4.A.1 [1 occurence] - MST Standard 3 - Algebra Strand - Students will represent and analyze algebraically a wide variety of problem solving situations. [Variables and Expressions] - Performance Indicator 4.A.1 - evaluate and express relationships using open sentences with one operation [Grade 4]

MST3-4.A.2 [1 occurence] - MST Standard 3 - Algebra Strand - Students will perform algebraic procedures accurately. [Equations and Inequalities] - Performance Indicator 4.A.2 - use the symbols <, >, =, and ? (with and without the use of a number line) to compare whole numbers and unit fractions and decimals (up to hundredths) [Grade 4]

MST3-4.A.3 [1 occurence] - MST Standard 3 - Algebra Strand - Students will perform algebraic procedures accurately. [Equations and Inequalities] - Performance Indicator 4.A.3 - find the value or values that will make an open sentence true, if it contains < or > [Grade 4]

MST3-4.A.4 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Patterns, Relations and Functions] - Performance Indicator 4.A.4 - describe, extend, and make generalizations about numeric and geometric patterns [Grade 4]

MST3-4.A.5 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Patterns, Relations and Functions] - Performance Indicator 4.A.5 - analyze a pattern or a whole-number function and state the rule, given a table or an input/output box [Grade 4]

MST3-4.G.1 [1 occurence] - MST Standard 3 - Geometry Strand - Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes. [Shapes] - Performance Indicator 4.G.1 - identify and name polygons, recognizing that their names are related to the number of sides and angles (triangle, quadrilateral, pentagon, hexagon, and octagon) [Grade 4]

MST3-4.G.2 [1 occurence] - MST Standard 3 - Geometry Strand - Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes. [Shapes] - Performance Indicator 4.G.2 - identify points and line segments when drawing a plane figure [Grade 4]

MST3-4.G.3 [1 occurence] - MST Standard 3 - Geometry Strand - Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes. [Shapes] - Performance Indicator 4.G.3 - find perimeter of polygons by adding sides [Grade 4]

MST3-4.G.4 [1 occurence] - MST Standard 3 - Geometry Strand - Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes. [Shapes] - Performance Indicator 4.G.4 - find the area of a rectangle by counting the number of squares needed to cover the rectangle [Grade 4]

MST3-4.G.5 [1 occurence] - MST Standard 3 - Geometry Strand - Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes. [Shapes] - Performance Indicator 4.G.5 - define and identify vertices, faces, and edges of three-dimensional shapes [Grade 4]

MST3-4.G.6 [1 occurence] - MST Standard 3 - Geometry Strand - Students will identify and justify geometric relationships, formally and informally. [Geometric Relationships] - Performance Indicator 4.G.6 - draw and identify intersecting, perpendicular, and parallel lines [Grade 4]

MST3-4.G.7 [1 occurence] - MST Standard 3 - Geometry Strand - Students will identify and justify geometric relationships, formally and informally. [Geometric Relationships] - Performance Indicator 4.G.7 - identify points and rays when drawing angles [Grade 4]

MST3-4.G.8 [1 occurence] - MST Standard 3 - Geometry Strand - Students will identify and justify geometric relationships, formally and informally. [Geometric Relationships] - Performance Indicator 4.G.8 - classify angles as acute, obtuse, right, and straight [Grade 4]

MST3-4.M.1 [1 occurence] - MST Standard 3 - Measurement Strand - Students will determine what can be measured and how, using appropriate methods and formulas. [Units of Measurement] - Performance Indicator 4.M.1 - select tools and units (customary and metric) appropriate for the length measured [Grade 4]

MST3-4.M.2 [1 occurence] - MST Standard 3 - Measurement Strand - Students will determine what can be measured and how, using appropriate methods and formulas. [Units of Measurement] - Performance Indicator 4.M.2 - use a ruler to measure to the nearest standard unit [Grade 4]

MST3-4.M.3 [1 occurence] - MST Standard 3 - Measurement Strand - Students will determine what can be measured and how, using appropriate methods and formulas. [Units of Measurement] - Performance Indicator 4.M.3 - know and understand equivalent standard units of length [Grade 4]

MST3-4.M.4 [1 occurence] - MST Standard 3 - Measurement Strand - Students will determine what can be measured and how, using appropriate methods and formulas. [Units of Measurement] - Performance Indicator 4.M.4 - select tools and units appropriate to the mass of the object being measured (grams and kilograms) [Grade 4]

MST3-4.M.5 [1 occurence] - MST Standard 3 - Measurement Strand - Students will determine what can be measured and how, using appropriate methods and formulas. [Units of Measurement] - Performance Indicator 4.M.5 - measure mass, using grams [Grade 4]

MST3-4.M.6 [1 occurence] - MST Standard 3 - Measurement Strand - Students will determine what can be measured and how, using appropriate methods and formulas. [Units of Measurement] - Performance Indicator 4.M.6 - select tools and units appropriate to the capacity being measured (milliliters and liters) [Grade 4]

MST3-4.M.7 [1 occurence] - MST Standard 3 - Measurement Strand - Students will determine what can be measured and how, using appropriate methods and formulas. [Units of Measurement] - Performance Indicator 4.M.7 - measure capacity, using milliliters and liters [Grade 4]

MST3-4.M.8 [1 occurence] - MST Standard 3 - Measurement Strand - Students will use units to give meaning to measurements. [Units] - Performance Indicator 4.M.8 - make change, using combined coins and dollar amounts [Grade 4]

MST3-4.M.9 [1 occurence] - MST Standard 3 - Measurement Strand - Students will use units to give meaning to measurements. [Units] - Performance Indicator 4.M.9 - calculate elapsed time in hours and half hours, not crossing a.m./p.m. [Grade 4]

MST3-4.M.10 [1 occurence] - MST Standard 3 - Measurement Strand - Students will use units to give meaning to measurements. [Units] - Performance Indicator 4.M.10 - calculate elapsed time in days and weeks, using a calendar [Grade 4]

MST3-4.S.1 [1 occurence] - MST Standard 3 - Statistics and Probability Strand - Students will collect, organize, display, and analyze data. [Collection of Data] - Performance Indicator 4.S.1 - design investigations to address a question from given data [Grade 4]

MST3-4.S.2 [1 occurence] - MST Standard 3 - Statistics and Probability Strand - Students will collect, organize, display, and analyze data. [Collection of Data] - Performance Indicator 4.S.2 - collect data using observations, surveys, and experiments and record appropriately [Grade 4]

MST3-4.S.3 [1 occurence] - MST Standard 3 - Statistics and Probability Strand - Students will collect, organize, display, and analyze data. [Organization and Display of Data] - Performance Indicator 4.S.3 - represent data using tables, bar graphs, and pictographs [Grade 4]

MST3-4.S.4 [1 occurence] - MST Standard 3 - Statistics and Probability Strand - Students will collect, organize, display, and analyze data. [Analysis of Data] - Performance Indicator 4.S.4 - read and interpret line graphs [Grade 4]

MST3-4.S.5 [1 occurence] - MST Standard 3 - Statistics and Probability Strand - Students will make predictions that are based upon data analysis. [Predictions from Data] - Performance Indicator 4.S.5 - develop and make predictions that are based on data [Grade 4]

MST3-4.S.6 [1 occurence] - MST Standard 3 - Statistics and Probability Strand - Students will make predictions that are based upon data analysis. [Predictions from Data] - Performance Indicator 4.S.6 - formulate conclusions and make predictions from graphs [Grade 4]