NORTHWESTERN LOCAL SCHOOLS

SUBJECT: MATH   GRADE 5   DATE: November 2009

FIRST QUARTER							
		ESSENTIAL INDICATORS	**RESOURCES**			**SUPPORTING INDICATORS**	**RESOURCES**
NNSO	2	Find and use the prime factorization of composite numbers, for example,: a. Use the prime factorization to recognize the greatest common factor (GCD). b. Use the prime factorization to recognize the least common multiple (LCM). c. Apply the prime factorization to solve problems and explain solutions (Grade 6 indicator)		PFA	3	Use variables as unknown quantities in general rules when describing patterns and other relationships.	
NNSO	13	Estimate the results of computations involving whole numbers, fractions and decimals, using a variety of strategies		DAP	7	LIST AND EXPLAIN ALL POSSIBLE OUTCOMES IN A GIVEN SITUATION.	
NNSO	7	USE COMMUNTATIVE, ASSOCIATIVE, distributive, IDENTIFY and inverse PROPERTIES TO SIMPLYFY AND PERFORM COMPUTATIONS.		DAP	1	Read, construct and interpret **FREQUENCY TABLES**, circle graphs and line graphs.	
NNSO	11	EXPLAIN HOW PLACE VALUES IS RELATED TO ADDITION AND SUBTRACTION OF DECIMALS; E.G., 0.2 + 0.14; THE TWO TENTHS IS ADDED TO THE ONE TENTH BECAUSE THEY ARE BOTH TENTHS		DAP	4	Determine appropriate date to be collected to answer questions proposed by students or teacher, collect and display data, and clearly communicate findings.	
NNSO	4	ROUND DECIMALS TO A GIVEN PLACE VALUE AND ROUND PRACTIONS (INCLUDING MIXED NUMBERS) TO THE NEAREST HALF.					
M	1	IDENITFY AND SELECT APPROPRIATE UNITS TO MEASURE ANGLES; I.E. DEGREES					
GSS	1	Draw circles and identify and determine relationships among the radius diameter, center and circumference; e.g. radius is half the diameter, the ratio of the circumference of a circle to its diameter is an approximation of it.					
GSS	7	UNDERSTAND THAT THE MEASURE OF AN ANGLE IS DETERMINED BY THE DE GREE OF ROTATIOH OF AN ANGLE SIDE RATHER THAN THE LENGTH OF EITHER SIDE					
DAP	8	Determine and use the range, mean, median and mode, **AND EXPLAIN WHAT EACH DOES AND DOES NOT INDICATE ABOUT THE SET OF DATA.**					

NNSO	Number, Number Sense and Operation	PFA	Pattern, Function, Algebra	GSS	Geometry and Spatial Sense
M	Measurement	DAP	Data Analysis and Probability		

SUBJECT: MATH   GRADE 5   DATE: November 2009

SECOND QUARTER						
		ESSENTIAL INDICATORS	**RESOURCES**			**SUPPORTING INDICATORS**	**RESOURCES**

		ESSENTIAL INDICATORS	RESOURCES			SUPPORTING INDICATORS	RESOURCES
NNSO	6	REPRESENT AND COMPARE NUMBERS LESS THAN 0 BY EXTENDING THE NUMBERLINE AND USING FAMILIAR APPLICATION: E.G., TEMPERATURE, OWING MONEY.		*NNSO*	5	Recognize and identify perfect squares and their roots.	
NNSO	1	USE MODELS AND VISUAL REPRESENTATIONS TO DEVELOP THE CONCEPT OF RATIO AS PART-TO-PART AND PART-TO-WHOLE, AND THE CONCEPT OF PERCENT AS PART-T0-WHOLE.		*NNSO*	8	Identify and use relationships between operations to solve problems.	
M	6	USE STRATEGIES TO DEVELOP FORMULAS FOR DETERMINING PERIMETER AND AREA OF TRIANGLES, RECTANGLES, AND PARALLELOGRAMS, AND VOLUME OF RECTANGULAR PRISMS.		*NNSO*	2	Use various forms of "one" to demonstrate the equivalence of fractions: e.g. $\frac{18}{24} = \frac{9}{12}$ $\frac{2}{2} = \frac{3}{4}$ $\frac{6}{6}$	
N	3	DEMONSTRATE AND DEXCRIBE THE DIFFERENCES BETWEEN COVERING THE FACES(SURFACES AREA) AND FILLING THE INTERIOR (VOLUME) OF THREE-DIMENSIONAL OBJECTS.		*GSS*	8	PREDICT WHAT THREE-DIMENSIONAL OBJECT WILL RESULT FROM FOLDING A TWO-DIMENSIONAL NET, THEN CONFIRM THE PREDICTIONS BY FOLDING THE NET.	
GSS	5	USE PHYSICAL MODELS TO DETERMINE THE SUM OF THE INTERIOR ANGLES OF TRIANGLES AND QUADRILATERALS.		*PFA*	8	Identify and use relationships between operations to solve problems, Number, Number Sense and Operations	
GSS	3	LABEL VERTEX RAYS, INTERIOR AND EXTERIOR FOR AN ANGLE.					
PFA	6	Use strategies to develop formulas for determining perimeter and area of triangle rectangles, and parallelograms, and volume of rectangular prisms. Measurement					
DAP	9	USE 0.1 AND RATIOS BETWEEN 0 AND 1 TO REPRESENT THE PROBABILITY OF OUTCOMES FOR AN EVENT, AND ASSOCIATE THE RATIO WITH THE LIKELIHOOD OF THE OUTCOME.					
DAP	3	READ AND INTERPRET increasingly complex displays of data, such as double bar graphs.					

| NNSO | Number, Number Sense and Operation | PFA | Pattern, Function, Algebra | GSS | Geometry and Spatial Sense |
| M | Measurement | DAP | Data Analysis and Probability | | |

SUBJECT: MATH   GRADE 5   DATE: November 2009

THIRD QUARTER						
ESSENTIAL INDICATORS			RESOURCES	SUPPORTING INDICATORS		RESOURCES
NNSO	3	IDENTIFY AND GENERATE EQUIVALENT FORMS OF FRATIONS, DECIMALS AND PERCENTS.		*M*	7	Use benchmark angles (e.g., 45°, 90°, 120°) to estimate the measure of angles, and use a tool to measure and draw angles.
NNSO	12	Use physical models, points of reference, and equivalent forms to add and subtract commonly used fractions with like and unlike denominators and decimals.		*GSS*	4	Describe and use properties of similar and congruent figures to solve problems.
NNSO	10	JUSTIFY WHY FRACTIONS NEED COMMON DENOMINATORS TO BE ADDED OR SUBTRACTED.		*PFA*	6	Describe how the quantitative change in a variable affects the value of a related variable: e.g., describe how the rate of growth varies over time, based upon data in a table or graph.
M	5	MAKE CONVERSIONS WITHIN THE SAME MEASUREMENT SYSTEM WHILE PERFORMING COMPUTATIONS.		*PFA*	No #	Benchmark A: Describe, extend and determine the rule for patterns and relationships occurring numeric patterns. Computation, geometry, graphs and other applications.
M	5	Make simple unit conversions within a measurement system: e.g., inches to feet, kilograms to grams, quarts to gallons (Grade 4)		*PFA*	1	**JUSTIFY A GENERAL RULE** for a pattern or a function by using physical materials, visual representations, words, tables or graphs.
GSS	2	USE STANDARD LANGUAGE TO DESCRIBE LINE, SEGMENT, RAY, ANGLE, SKE, PARALLEL AND PERPENDICULAR.		*DAP*	5	MODIFY INITIAL CONCLUSIONS, PROPOSE AND JUSTIFY NEW INTERPRETATIONS AND PREDICTIONS AS ADDITIONAL DATA ARE COLLECTED. (Coordinate with science teacher for "Science Inquiry" and "Scientific Ways of Knowing: indicators)
PFA	4	CREATE AND INTERPRET THE MEANING OF EQUATIONS AND INEQUALITIES REPRESENTING PROBLEM SITUATIONS.		*DAP*	10	COMPARE WHAT SHOULD HAPPEN (THEORETICAL/EXPECTED RESULTS) WITH WHAT DID HAPPEN (EXPERIMENTAL/ACTUAL RESULTS) IN A SIMPLE EXPERIMENT.
DAP	8	Identify the probability of events within a simple experiment such as three chances out of eight.		*DAP*	11	Make predictions based on experimental and theoretical probabilities, (Coordinate with science teacher for "Science Inquiry" indicators).

NNSO	Number, Number Sense and Operation	PFA	Pattern, Function, Algebra	GSS	Geometry and Spatial Sense
M	Measurement	DAP	Data Analysis and Probability		

NORTHWESTERN LOCAL SCHOOLS

SUBJECT: MATH   GRADE 5   DATE: November 2009

FOURTH QUARTER						
ESSENTIAL INDICATORS			RESOURCES	SUPPORTING INDICATORS		RESOURCES
NSO	9	USE ORDER OF OPERATIONS, INCLUDING USE OF PARENTHESES TO SIMPLIFY NUMERICAL EXPRESSIONS.		M	4	Demonstrate understanding of the differences among linear units, square units and cubic units.	
GSS	6	EXTEND UNDERSTANDING OF COORDINATE SUSTEM TO INCLUDE POINTS WHOSE X OR Y VALUES MAY BE NEGATIVE NUMBERS.		M	2	Identify paths between points on a grid or coordinate plane and compare the lengths of the paths; e.g., shortest path, paths or equal length.	
				PFA	5	Model problems with physical materials and visual representations, and use models, graphs and tables to draw conclusions and make predictions.	
				PFA	2	Use calculators or computers to develop patterns, and generalize them using tables and graphs.	
				DAP	2	Select and use a graph that is appropriate for the type of data to be displayed e.g., numerical vs. CATERORICAL DATA, DISCRETE VS. CONTINUOUS DATA.	

NNSO	Number, Number Sense and Operation	PFA	Pattern, Function, Algebra	GSS	Geometry and Spatial Sense
M	Measurement	DAP	Data Analysis and Probability		