CURRICULUM OBJECTIVES

	1		
MATHEMATICAL			
OPERATIONS,			
AVERAGE,			
MEDIAN, AND			
MODE			
Review of	1	define: whole numbers, even numbers, odd numbers, digit	
Operations			
	2	define: addition, subtraction, multiplication, division	
	3	define and use: addend, sum, difference, multiple	
	4	define and use: operations, product, dividend, divisor	
	5	define and use: quotient, remainder	
	6	explain relation between: counting and addition	
	7	explain relation between: addition and subtraction	
	8	explain relation between: addition and multiplication	
	9	explain relation between: subtraction and division	
	10	addition, subtraction, division facts and times tables	
	11	perform addition and subtraction of whole numbers	
	12	perform multiplication and division of whole numbers	
	13	perform borrowing and carrying	
	14	use signs: +, -, x, \div , =, <, >	
	15	perform mathematical operations in columns	
	16	explain importance of neat columns and legibility	
	17	explain importance of accuracy, checking for errors	
	18	checking for errors using inverse operations	
	19	explain zero and its effects on mathematical operations	
Average (Mean)	20	find the average of two numbers	
	21	find average of a group of numbers	
Median	22	find the median of three numbers	
	23	find the median of two numbers	
	24	find the median of an odd number of items	
	25	find the median of an even number of items	
	26	explain percentile	
	27	tallying	
Mode	28	finding the mode of a group of numbers	
	29	tallying	
Order of Operations	30	following the order of operations	
-	31	mnemonic: BEDMAS	
FACTORS AND			
PRIME NUMBERS			

Terms	1	define factor	
	2	define product	
	3	define multiple	
	4	define GCF (Greatest Common Factor)	
	5	define LCM (Least Common Multiple)	
	6	define prime number and prime factor	
	7	define prime factorization	
Factors and Prime	8	use factor trees to find factors	
Numbers			
	9	use factor trees to explain prime factors	
	10	use divisibility test to find factors	
	11	find GCM	
	12	find LCM	
EXPONENTS	1		
Terms	1	define exponential form	
	2	define power, exponent, base	
	3	define exponential notation	
Exponents	4	express like factors using exponents	
-	5	express exponents using factors, expanded form	
	6	identify the base and the exponent in power form	
	7	read power form as squared, cubed, to the fourth power, or	
		fourth power	
	8	find the value of exponents	
	9	explain the Law of Exponents (briefly)	
	10	perform addition and subtraction involving exponents	
	11	perform multiplication and division involving exponents	
SQUARES AND			
SQUARE ROOTS			
Terms	1	define square	
	2	define square root	
	3	define perfect square	
	4	define algorithm	
Square and Square Roots	5	inverse relationship between squares and square roots	
	6	recall the perfect squares from 1-25	
	7	methods for determining square root: estimation and	
		averaging	
	8	methods for determining square root: algorithms	
	9	methods for determining square root: calculator	
PROBLEM			
SOLVING WITH			
WHOLE			
NUMBERS			
Types of Problems	1	any combination of mathematical operations with whole	
		numbers	

	2	any combination of mathematical operations with averages,	
		medians, modes, factors, prime numbers	
	3	any combination of mathematical operations with	
		exponents, squares of numbers, square roots	
Strategies	4	develop good work habits	
	5	read all parts of question carefully	
	6	determine what is asked for or required	
	7	separate information given from question being asked	
	8	record information given and solution required separately	
	9	decide what arithmetic process will solve the problem	
	10	work neatly and arrange work in rows where possible	
	11	label the answer in terms of values given in question	
	12	estimate an answer	
	13	check every step and compare with estimated answer	
	14	compare estimated answer with answer found	
	15	translate English statements into mathematical expressions	
	16	draw pictures of problem	
	17	supply missing information if necessary	
	18	write full statements to answer questions	
	19	develop calculator skills	
	20	use clue words to solve word problems; e.g. total, sum, how	
		much, how many, increased, altogether, less, fewer, more,	
		difference, left, remains, times, at, divide, and each	
FRACTIONS			
Terms	1	define fraction, numerator, denominator	
	2	define mixed number, proper fraction	
	3	define improper fractions	
	4	define common denominator	
Fractions	5	the proper way to write fractions	
	6	compare and reduce fractions	
	7	write equivalent fractions	
	8	add fractions: like and unlike denominators	
	9	add fractions: find common denominators	
	10	subtract fractions: like and unlike denominators	
	11	subtract fractions: find common denominators	
	12	reduce fractions to lowest terms	
	13	cancelling fractions	
	14	multiply fractions	
	15	divide fractions	
	16	use division rule: cancel, invert 2 nd fraction, then multiply	
	17	change mixed numbers to improper fractions, as appropriate	
	18	change improper fractions to mixed numbers, as appropriate	
	19	report answer in lowest terms or mixed numbers, as	
		appropriate	
DECIMALS			

Terms	1	define: decimal, decimal system	
	2	define mixed decimal	
	3	define terminating decimals	
	4	define repeating decimals	
	5	define lowest common multiple (LCM)	
Decimals	6	use of the decimal point	
	7	convert mixed numbers to decimals	
	8	multiply and divide by powers of 10	
	9	zero as a place holder	
	10	add and subtract decimals	
	11	place decimal points under each other	
	12	borrowing and carrying decimals	
	13	multiply decimals and placement of decimal in final answer	
	14	divide decimals and placement of decimal in final answer	
	15	expressing remainders as decimals	
	16	round off decimals	
	17	estimate when working with decimals	
	18	work with money	
	19	compare decimals and fractions	
	20	convert decimals to fractions	
	21	convert fractions to decimals	
PERCENT			
Terms	1	define percent	
	2	use of the "%" sign	
Percent	3	add and subtract with percents	
	4	multiply and divide with percents	
	5	convert fraction to percent	
	6	convert percent to fraction	
	7	convert decimals to percents	
	8	convert percents to decimals	
	9	convert fractions to decimals to percents	
PROBLEM			
SOLVING WITH			
FRACTIONS,			
DECIMALS,			
PERCENTS			
Types of Problems	1	any combination of math operations involving fractions,	
		decimals, and/or percents	
Strategies	2	develop good work habits	
	3	read all parts of question carefully	
	4	determine what is asked for or required	
	5	separate information given from question being asked	
	6	record information given and solution required separately	
	7	decide what arithmetic process will solve the problem	
	8	work neatly and arrange work in rows where possible	

	9	label the answer in terms of values given in question	
	10	estimate an answer	
	11	check every step and compare with estimated answer	
	12	compare estimated answer with answer found	
	13	translate English statements into mathematical expressions	
	14	draw pictures of problem	
	15	supply missing information if necessary	
	16	write full statements to answer questions	
	17	develop calculator skills	
	18	use clue words to solve word problems; e.g. total, sum, how	
		much, how many, increased, altogether, less, fewer, more,	
		difference, left, remains, times, at, and each	
INTRODUCTION			
TO RATIO,			
PROPORTION,			
AND PERCENT			
Percent	1	definition and calculation of percent	
	2	use formula " $r/100 = P/W$ " to find percent of a number	
	3	use formula " $r/100 = P/W$ " to find what percent one number	
	4	1s of another D/W^2 to find a nearly number of the second seco	
	4	use formula $P/100 = P/W$ to find a number when a percent	
	5	is given	
	5	discuss other terms: r represents Percent rate	
	0	discuss other terms: P represents part of the number	
	/	number	
Patio	8	define ratio	
Natio	0	how to write ratios	
	10	reduce ratios	
	10	distinguish between equivalent and non equivalent ratios	
	11	approved and write equivalent ratios	
Proportion	12	define propertion	
	13 14	explain relation between ratio and proportion	
	14	how to write proportions	
	16	discuss proportional	
	17	discuss mean	
	18	discuss extreme	
	19	discuss product	
	20	discuss true proportion	
	21	discuss direct proportion	
PROBLEM		Proposition	
SOLVING WITH			
PERCENT. RATIO.			
AND			
PROPORTION			

Types of Problems	1	requiring any combination of mathematical operations	
		involving ratio, percent, and proportion	
Strategies	2	develop good work habits	
	3	read all parts of question carefully	
	4	determine what is asked for or required	
	5	separate information given from question being asked	
	6	record information given and solution required separately	
	7	decide what arithmetic process will solve the problem	
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	17	develop calculator skills	
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		much, how many, increased, altogether, less, fewer, more,	
		difference, left, remains, times, at, divide, and each	
LINES AND			
ANGLES			
Terms	1	define lines: point, line, line segment, ray	
	2	define lines: vertex, angle, perpendicular, parallel lines	
	3	define angles: acute, right, obtuse, straight, complete, reflex	
	4	define transversal lines	
	5	define alternate angles	
	6	define corresponding angles	
	7	define interior angles	
	8	define angle relations: complementary, supplementary	
	9	define angle relations: adjacent, vertical, opposite, exterior	
	10	investigate angle relations when transversal intersects two	
		parallel lines	
Construction	11	draw perpendicular lines and 90 degree angles	
	12	construct parallel lines	
Angles	13	label angles: 3 capital letters, middle one is vertex	
	14	find relation of angles when transversal cuts parallel lines	
	15	discuss angles, using circle as a base for measuring angles	
	16	discuss degree as unit of measure for angles	
	17	use protractor to measure angles	
	18	classify angles and angle relation	
Protractor	19	use three step approach to measuring an angle: center point	
		of protractor on vertex of angle, one arm of angle on base	
		line of protractor, and decide on measurement units/scale	

INTRODUCTION			
TO GEOMETRIC			
FIGURES			
Definition	1	define geometry	
Circles	2	define and/or diagram: circle, radius, diameter	
	3	define and/or diagram: circumference, chord, arc, segment,	
		sector	
	4	define and/or diagram: tangent, semi-circle	
	5	measure radius, diameter, and circumference	
	6	investigate relation between radius, diameter, circumference	
	7	explain and use π	
	8	use compass to construct circle, given radius and diameter	
Polygons	9	define polygon	
	10	types of polygons: triangle, quadrilateral, pentagon	
	11	types of polygons: hexagon, octagons	
	12	recognize that polygons are named by number of sides	
	13	distinguish between polygons and non-polygons	
	14	distinguish between regular and irregular polygons	
	15	identify concave, convex, and regular polygons	
	16	types of triangles: scalene, isosceles, equilateral	
	17	types of triangles: acute, obtuse, right triangles; hypotenuse	
	18	explain Pythagorean Theorem	
	19	types of quadrilaterals and characteristics: trapezoid	
	20	parallelograms (rectangle, square, rhombus)	
Three-dimensional	21	define polyhedron	
	22	explain relation between polyhedrons and polygons	
	23	types: cube, prism, pyramid, cones, spheres, cylinders	
Working with	24	circle: find radius/diameter, given circumference	
Geometric Figures			
	25	circle: find circumference, given radius/diameter	
	26	triangle: use Pythagorean Theorem to find length of one	
		side of a triangle	
	27	triangle: use Pythagorean Theorem to confirm that triangle	
		is right triangle	
THE METRIC			
SYSTEM			
Metric System	1	explain metric system and its base of ten	
	2	explain International System (SI Units)	
	3	fundamental units: length – metre (m)	
	4	fundamental units: mass – gram (g)	
	5	fundamental units: capacity – litre (L)	
	6	fundamental units: time – second (s)	
	7	tundamental units: temperature (degrees C)	
	8	metric prefixes and abbreviations	
	9	milli, (m) e.g. mm, mg mL	

	10	centi, (c) e.g. cm, cg, cL	
	11	deci, (d) e.g. dm, dg, dL	
	12	unit (metre, gram, litre) m, g, L	
	13	deka, (da) e.g. dam, dag, daL	
	14	hecto, (h) e.g. hm, hg, hL	
	15	kilo, (k) e.g. km, kg, kL	
	16	derived units such as area (square m.)	
	17	derived units such as volume (cubic cm.)	
	18	derived units such as capacity (cubic dm)	
	19	concept of place value	
	20	convert one metric unit of measure into another	
AREA, PERIMETER, AND VOLUME			
Perimeter	1	define perimeter	
	2	explain that circumference is the perimeter of a circle	
	3	formula for finding perimeter of polygons: Perimeter (P) = sum of length of all sides	
	4	formula for finding perimeter of regular polygons:	
		Perimeter (P) = number of sides (n) x length of sides (s)	
	5	practice finding perimeter of a variety of figures: square,	
		rectangle, pentagon, decagon, equilateral, irregular shapes	
Area	6	define area	
	7	measure area in square units	
	8	formula: area of square: $A = side x side = s^2$	
	9	formula: area of a rectangle: $A = \text{length } x \text{ width} = 1 x w$	
	10	formula: area of triangle: $A = \frac{1}{2}$ base x height $= \frac{1}{2}$ x b x h	
	11	formula: area of parallelogram: $A = base x height = b x h$	
	12	formula: area of circle: A = pi x radius squared = πr^2	
	13	area of irregular shapes	
	14	surface area of 3-dimensional figures	
	15	application of area: e.g. flooring coverings, paint, etc.	
	16	practice finding area of rectangle, square, triangle	
	1/	shapes	
Volume	18	define volume	
	19	measure volume in cubic units	
	20	formulat values of a subst $V_{\rm side}$ wide while S^3	
		formula: volume of a cube: $v = side x side x side = S$	
	21	formula: volume of a rectangular prism: $V = \text{length } x \text{ width}$ x height = l x w x h	
	22	formula: volume of a cylinder: $V = pi x$ radius squared x	
		height = $\pi x r^2 x h$	
	23	Applications of volume: e.g. amount of gravel to buy,	

		capacity of fuel tank, etc.	
PROBLEM			
SOLVING			
INVOLVING			
MEASUREMENT			
Types of Problems	1	requiring any combination of mathematical operations	
		involving the metric system	
	2	requiring any combination of mathematical operations	
		involving area, perimeter, and volume	
Strategies	3	develop good work habits	
	4	read all parts of question carefully	
	5	determine what is asked for or required	
	6	separate information given from question being asked	
	7	record information given and solution required separately	
	8	decide what arithmetic process will solve the problem	
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	15	draw pictures of problem	
	16	supply missing information if necessary	
	17	write full statements to answer questions	
	18	develop calculator skills	
	19	use clue words to solve word problems; e.g. total, sum, how	
		much, how many, increased, altogether, less, fewer, more,	
		difference, left, remains, times, at, divide, and each	
INTRODUCTION			
TO INTEGERS			
Integers	1	review of thermometer temperature reading	
	2	definition of integers	
	3	using a number line	
	4	standard form of integers: signs of operation	
	5	standard form of integers: signs of quantity	
	6	use of negative and positive integers: + shows gain	
	7	use of negative and positive integers: - shows loss	
	8	order integers from least to greatest and vice versa	
	9	add, subtract, multiply, divide with integers	
	10	practical applications of integers (golf, banking, etc.)	
PROBLEM			
SOLVING WITH			
INTEGERS			
Types of Problems	1	requiring any combination of mathematical operations	
		involving integers	

Strategies	2	develop good work habits	
	3	read all parts of question carefully	
	4	determine what is asked for or required	
	5	separate information given from question being asked	
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		difference, left, remains, times, at, divide, and each	
INTRODUCTION			
TO EQUATIONS:			
EQUALITIES AND			
INEQUALITIES			
Terms	1	define equation	
	2	use and understand: variable, constant	
	3	use and understand: algebraic expressions, term, factors,	
		coefficient	
	4	use and understand: replacement and solution	
	5	order of operations (BEDMAS)	
	6	symbols: +, -, x, \div , =, and $$	
	7	symbols: (), [], { }	
	8	equality and inequality	
	9	use of "•" in place of "x" for multiplying	
Equations	10	use letters to represent numbers	
	11	order of operations	
	12	solve equations	
	13	use opposite operations to isolate the variable	
	14	Principle of Equations: doing same thing on both sides	
	15	use distributive property	
	16	build equations	
	17	solve equations with integers	
	1/	sorre equations with integers	
	17	combine like terms to solve equations	
	17 18 19	combine like terms to solve equations translate English statements into mathematical statements	
	17 18 19 20	combine like terms to solve equationstranslate English statements into mathematical statementsuse mathematical symbols appropriate to grade level	

SOLVING WITH			
EQUATIONS AND			
EQUALITIES			
Types of Problems	1	requiring any combination of mathematical operations	
		involving equations (equalities)	
Strategies	2	develop good work habits	
	3	read all parts of question carefully	
	4	determine what is asked for or required	
	5	separate information given from question being asked	1
	6	record information given and solution required separately	1
	7	decide what arithmetic process will solve the problem	1
	8	work neatly and arrange work in rows where possible	1
	9	label the answer in terms of values given in question	
	10	estimate an answer	
	11	check every step and compare with estimated answer	
	12	compare estimated answer with answer found	
	13	translate English statements into mathematical expressions	<u> </u>
	14	draw pictures of problem	<u> </u>
	15	supply missing information if necessary	
	16	write full statements to answer questions	<u> </u>
	17	develop calculator skills	<u> </u>
	18	use clue words to solve word problems; e.g. total, sum, how	
		much, how many, increased, altogether, less, fewer, more,	
		difference, left, remains, times, at, divide, and each	
INTRODUCTION			
TO GRAPHS			
Types of Graphs	1	bar graph, line graph, pictograph	
	2	circle graphs, co-ordinate graphs	
Steps to Creating	3	determine what type of graph to use	
Good Graphs			
	4	collect and organize information	
	5	prepare graph outline, name horizontal and vertical scales	
	6	name the graph and interpret graph	
	7	good use of space, scales accurate, neatness	
	8	descriptive titles, data expressed accurately with tally	
Line Graphs	9	define line graph	
	10	shows changes and relationships between quantities	
	11	construct line graph: determine scale	
	12	construct line graph: draw and label lines, name the graph	
	13	interpret line graphs	
	14	practical applications: e.g. comparing retail sales by month	
Bar Graphs	15	define bar graph	
	16	length of solid vertical bars shows its value	
	17	construct bar graph: determine scale	
	18	construct bar graph: draw and label "x" and "y" axis, plot	

		the data	
	19	construct bar graph: draw bars (equal width), label and	
		name graph	
	20	interpret bar graphs	
	21	practical applications: e.g. comparing profits by year	
Circle Graphs	22	define circle graph	
	23	emphasizes relative size of parts to whole	
	24	construct circle graph: make table showing facts given,	
		convert facts to %, calculate % of 360 degrees, then	
		construct circle with compass; use protractor to construct	
		number of degrees in each central angle, label parts and	
		name graph	
Co-ordinate Graphs	25	define co-ordinate graph	
	26	define coordinate axes, origin, quadrants, grid	
	27	define ordered pairs, table of values	
	28	choose scale, plot points, find co-ordinates of a point	
	29	Practical applications: textile design, longitude/latitude	
PROBLEM			
SOLVING USING			
GRAPHS			
Types of Problems	1	requiring any combination of mathematical operations	
		involving graphs	ļ
	2	read and produce bar graphs and line graphs	
	3	read and produce circle graphs and co-ordinate graphs	ļ
Strategies	4	develop good work habits	
	5	read all parts of question carefully	
	6	determine what is asked for or required	
	7	separate information given from question being asked	
	8	record information given and solution required separately	
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