CURRICULUM OBJECTIVES

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 2nd 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	
	22	convert repeating decimals to fractions	
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	
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 is of another	
	4	use formula "$r/100 = P/W$" to find a number when a percent is given	
	5	discuss other terms: "r" represents Percent rate	
	6	discuss other terms: "P" represents part of the number	
	7	discuss other terms: "W" represents the whole (entire) number	
Ratio	8	define ratio	
	9	how to write ratios	
	10	reduce ratios	
	11	distinguish between equivalent and non-equivalent ratios	
	12	compare and write equivalent ratios	
Proportion	13	define proportion	
	14	explain relation between ratio and proportion	
	15	how to write proportions	
	16	discuss proportional	
	17	discuss mean	
	18	discuss extreme	
	19	discuss product	
	20	discuss true proportion	
	21	discuss direct proportion	
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 Geometric Figures	24	circle: find radius/diameter, given circumference	
	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	
CHARACTERISTICS			

OF GEOMETRIC FIGURES			
Terms	1	define symmetry	
	2	define line symmetry	
	3	define line of symmetry	
	4	define plane of symmetry	
	5	define axis of symmetry	
	6	define congruence	
	7	identify point segment	
	8	identify ray	
	9	identify plane	
	10	identify vertex (vertices)	
	11	identify hypotenuse	
	12	identify side	
	13	define similarity as it applies to geometric figures	
Symmetry	14	find more than one line of symmetry in certain shapes	
	15	draw lines of symmetry, using compass and straight edge	
	16	complete symmetrical figure, given area and line of symmetry	
	17	in paper, construct shapes with more than 1 line of symmetry	
	18	draw diagrams to illustrate planes of symmetry for cylinder, prism, cone, and sphere	
	19	Determine number of planes of symmetry for cylinder, prism, cone, and sphere	
Congruence	20	identify congruent figures (same size and shape)	
	21	match vertices, segments and sides	
	22	check congruence by comparing figures in various positions	
	23	use slides, flips, and turns	
	24	test for congruence: superimpose tracing of one figure over another figure	
	25	use a compass to mark congruent segments	
	26	congruent angles	
	27	importance of congruence: i.e. congruent stairs are safer	
	28	congruent three-dimensional objects	
	29	triangle: axioms of congruence: SSS, SAS, ASA: all triangles	
	30	right triangle: axioms of congruence: RSA and RSS	
Similarity	31	similar figures have equal corresponding angles	
	32	similar figures have proportional corresponding sides	
	33	use similarity relations to calculate unknown values	
CONSTRUCTION			

OF GEOMETRIC FIGURES			
Terms	1	define: vertex, ray, arms of an angle, degree, and rotation	
	2	define: right angle, acute and obtuse angles, and straight angle	
	3	define complementary and supplementary angles	
Drawing Figures	4	drawing instruments: ruler, compass, divider, pencil, protractor, set square of triangle 30 degrees/60 degrees or 45 degrees	
	5	construct line segments, using ruler and compass	
	6	construct an angle equal to another angle, using ruler and compass	
	7	right bisect a line segment, using ruler and compass	
	8	construct and measure angles, using ruler, compass, and protractor	
	9	designate angles: 3 capital letters – middle letter at vertex	
	10	review triangles: acute, obtuse, right	
	11	review triangles: equilateral (equiangular), isosceles, scalene	
	12	construct and measure parallel lines	
	13	construct and measure triangles	
	14	construct and measure equivalent angles	
	15	construct and measure squares	
	16	construct and measure rectangles	
	17	construct and measure parallelograms	
	18	bisect angles, using ruler and compass	
	19	construct altitudes and perpendiculars, using ruler and compass	
	20	construct a triangle congruent to a given triangle, using ruler, compass, and protractor	
	21	practical constructions and applications	
PROBLEM SOLVING WITH GEOMETRIC FIGURES			
Types of Problems	1	requiring any combination of mathematical operations involving whole geometric figures	
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	
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	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, divide and each	
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	fundamental 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 = length x width = l x w	
	10	formula: area of triangle: A = ½ base x height = ½ 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	
	17	practice finding area of cube, parallelogram, circle, irregular shapes	
Volume	18	define volume	
	19	measure volume in cubic units	
	20	formula: volume of a cube: V = side x side x side = s^3	
	21	formula: volume of a rectangular prism: V = length x width x height = l x w x h	
	22	formula: volume of a cylinder: V = pi x radius squared x height = $\pi \times r^2 \times h$	
	23	applications of volume: e.g. amount of gravel to buy, capacity of fuel tank, etc.	
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.)	
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, ÷, =, and √	

	7	symbols: ( ), [ ], { }	
	8	symbols: , >, <, ,	
	9	equality and inequality	
	10	use of "·" in place of "x" for multiplying	
Equations	11	use letters to represent numbers	
	12	order of operations	
	13	solve equations	
	14	use opposite operations to isolate the variable	
	15	Principle of Equations: doing same thing on both sides	
	16	use distributive property	
	17	build equations	
	18	solve equations with integers	
	19	combine like terms to solve equations	
	20	translate English statements into mathematical statements	
	21	use mathematical symbols appropriate to grade level	
Equalities and Inequalities	22	define equality and inequality	
	23	using terms equality and inequality correctly	
	24	solving inequalities	
	25	combine like terms to solve inequalities	
PROBLEM SOLVING WITH EQUATIONS AND EQUALITIES			
Types of Problems	1	requiring any combination of mathematical operations involving equations (equalities) and inequalities	
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	
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	12	compare estimated answer with answer found	
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	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, divide, and each	
INCOME			
Compute Income	1	hourly wages: compute hours worked per week	
	2	find weekly wage based on hourly rate	
	3	find monthly wage based on hourly rate	
	4	weekly wages: find hourly rate from weekly wage and hours worked	
	5	find monthly wages and annual wage	
	6	monthly/bi-weekly wages: find hourly rate from monthly wage and hours worked	
	7	find weekly and monthly wages	
	8	calculations involving overtime pay	
	9	piece work and calculations	
	10	commission: define and calculate: given rate and amount of sales	
	11	define and discuss: fees, tips, pensions, and bonuses	
Deductions	12	define: net income, take-home pay, gross income	
	13	explain and fill in Tax Exemption Return (TD1)	
	14	deduction: income tax, Canada Pension, Employment Insurance	
	15	other deductions: union dues, health and life insurance	
Income Tax	16	define terms and become familiar with current forms	
	17	read information from T4 slips	
	18	read information from General Tax Guide	
	19	calculate: Total Income, Net Income, Taxable Income	
	20	calculate tax payable: balance due or refund	
	21	complete a tax return for a given case	
	22	discuss disadvantages of selling refund to tax preparers	
MONEY MANAGEMENT			
Money Management	1	recognizing needs as opposed to wants	
	2	setting immediate goals (health, clothing, housing)	
	3	setting short-range goals (improving earning)	
	4	setting intermediate and long-range goals (financial independence, travel, luxury items)	
	5	putting goals set in order of priority	
	6	achieving goals through budget and money management	
	7	practice money management with sample net incomes	
	8	control spending: use ledgers and journals	
Credit	9	define credit	
	10	types of credit: installment plans, equalized payments	
	11	types of credit: credit cards, bank loans	
	12	compare interest rates on overdue payments	
	13	contrast credit cards with debit cards	

	14	investigate bank interest charges on loans	
	15	how to manage credit cards	
	16	advantages of credit: taking advantage of sales	
	17	advantages of credit: collecting rewards/air miles	
	18	disadvantages of credit: overspending	
	19	disadvantages of credit: bankruptcy	
	20	disadvantages of credit: items cost much more	
BANKING			
Financial Institutions	1	chartered banks, trust companies, mortgage loan, credit union	
	2	contrast bank, trust company, credit union	
	3	services: savings, loans, money orders, safekeeping	
	4	services: business deposits, travel services, mail service	
	5	services: investment services, line of credit	
	6	types of accounts: true savings – high interest on small amounts	
	7	types of accounts: checking/savings	
	8	types of accounts: personal checking: no interest, monthly charge	
	9	types of accounts: term deposits, GICs: money locked in at a higher rate of interest	
	10	discuss advantages of each type of account	
	11	using a banking machine	
	12	advantages and disadvantages of using a banking machine	
	13	advantages and disadvantages of using telephone or internet banking	
Bank Forms	14	fill out deposit and withdrawal slips	
	15	fill out checks, money orders, and traveller's check	
Balance Account	16	balance a sample account, given a balance, series of withdrawals, deposits, checks, and bank charges	
	17	discuss bank charges/include in calculating bank balance	
	18	reading a passbook and bank statement	
	19	regular (at least monthly) bank reconciliation	
	20	importance of keeping accurate up-to-date records	
	21	effect of and charges for overdrafts and NSF checks	
CALCULATING INTEREST			
Terms	1	define simple and compound interest, rate of interest, and principal	
	2	define mortgage and amortization	
	3	concept of making money work for you	
Simple Interest	4	define and calculate I = Prt	
	5	calculate simple interest for various amounts, times, and rates	
	6	calculate value of investment at maturity	

Compound Interest	7	define compound interest	
	8	find compound interest using Compound Interest Tables	
	9	calculate value of investment at maturity	
	10	discuss advantages/disadvantages of compound interest	
Mortgages	11	define mortgage	
	12	read an amortization table	
	13	find monthly payments	
	14	find total interest paid over the term of a mortgage	
	15	find total amount paid at end of term	
	16	discuss flexible and fixed mortgages	
	17	discuss benefits of weekly or bi-weekly payments	
	18	discuss anniversary dates for pay downs	
	19	discuss penalties for early repayment	
	20	benefits of shopping for the best rate for your purpose	
PROBLEM SOLVING IN PERSONAL FINANCE			
Types of Problems	1	Requiring any combination of mathematical operations involving income, money management, banking, or interest	
	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	
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	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, divide, and each	