

WNCP B.C. MATHEMATICS AT A GLANCE OVERVIEW – GRADE 4

Mathematical Processes

C = Communication

PS = Problem Solving

V = Visualization

R = Reasoning

CN = Connections

T = Technology

ME = Mental Mathematics and Estimation

NOTE: Text in *italics* is from the suggested achievement indicators.

STRAND: NUMBER		Mathematical Processes
General Outcome: Develop number sense		
<i>It is expected that students will:</i>		
A1	Represent and describe whole numbers to 10 000, pictorially and symbolically.	C CN V
A2	Compare and order numbers to 10 000.	C CN
A3	Demonstrate an understanding of addition of numbers with answers to 10 000 and their corresponding subtractions (limited to 3 and 4-digit numerals) by: (a) using personal strategies for adding and subtracting (b) estimating sums and differences (c) solving problems involving addition and subtraction.	C CN ME PS R
A4	Explain the properties of 0 and 1 for multiplication, & the property of 1 for division.	C CN R
A5	Describe and apply mental mathematics strategies, such as: (a) skip counting from a known fact (b) using doubling or halving (c) using doubling or halving and adding or subtracting one more group (d) using patterns in the 9s facts (e) using repeated doubling to determine basic multiplication facts to 9 x 9 and related division facts.	C CN ME PS R
A6	Demonstrate an understanding of multiplication (2 or 3-digit by 1-digit) to solve problems by: (a) using personal strategies for multiplication with & without concrete materials (b) using arrays to represent multiplication (c) connecting concrete representations to symbolic representations (d) estimating products.	C CN ME PS RV
A7	Demonstrate an understanding of division(1-digit divisor and up to 2-digit dividend) to solve problems by: (a) using personal strategies for dividing with and without concrete materials (b) estimating quotients (c) relating division to multiplication.	C CN ME PS RV
A8	Demonstrate an understanding of fractions less than or equal to one by using concrete and pictorial representations to: (a) name and record fractions for the parts of a whole or a set (b) compare and order fractions (c) illustrate and explain that for different wholes, two identical fractions may not represent the same quantity (d) provide examples of where fractions are used.	C CN PS RV
A9	Describe and represent decimals (tenths and hundredths) concretely, pictorially and symbolically.	C CN RV
A10	Relate decimals to fractions(to hundredths) <i>concretely, pictorially & symbolically.</i>	CN RV
A11	Demonstrate an understanding of addition and subtraction of decimals (limited to 100ths) to solve problems by: (a) using compatible numbers (b) estimating sums and differences (c) using mental math strategies.	C ME PS

STRAND: STATISTICS & PROBABILITY (DATA ANALYSIS)		Mathematical Processes
General Outcome: Collect, display and analyze data to solve problems.		
D1	Demonstrate an understanding of many-to-one correspondence.	C RVT
D2	Construct and interpret pictographs and bar graphs involving many-to-one correspondence to draw conclusions.	C PS RV

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STRAND: PATTERNS AND RELATIONS (PATTERNS)		Mathematical Processes
General Outcome: Use patterns to describe the world and solve problems.		
B1	Identify and describe patterns found in tables and charts, including a multiplication chart.	C CN PS V
B2	Reproduce a pattern shown in a table or chart using concrete materials.	C CN V
B3	Represent and describe patterns and relationships using charts and tables to solve problems.	C CN PS R V
B4	Identify and explain mathematical relationships using charts and diagrams to solve problems.	CN PS R V
STRAND: PATTERNS & RELATIONS (VARIABLES & EQUATIONS)		Mathematical Processes
General Outcome: Represent algebraic expressions in multiple ways.		
B5	Express a given problem as an equation in which a symbol is used to represent an unknown number (<i>concretely, pictorially or symbolically</i>).	CN PS R
B6	Solve one-step equations involving a symbol to represent an unknown number (<i>using manipulatives</i>).	C CN PS R V

STRAND: SHAPE AND SPACE (MEASUREMENT)		Mathematical Processes
General Outcome: Use direct or indirect measurement to solve problems.		
C1	Read and record time using digital and analog clocks, including 24-hour clocks.	C CN V
C2	Read and record calendar dates in a variety of formats.	C V
C3	Demonstrate an understanding of area of regular and irregular 2-D shapes by: <ul style="list-style-type: none"> (a) recognizing that area is measured in square units (b) selecting and justifying referents for the units cm^2 or m^2 (c) estimating area by using referents for cm^2 or m^2 (d) determining and recording area (cm^2 or m^2) (e) constructing different rectangles for a given area (cm^2 or m^2) in order to demonstrate that many rectangles may have the same area. 	C CN ME PS R V
STRAND: SHAPE AND SPACE (3-D OBJECTS & 2-D SHAPES)		Mathematical Processes
General Outcome: Describe the characteristics of 3-D objects and 2-D shapes, and analyze the relationships among them.		
C4	Describe and construct rectangular and triangular prisms.	C CN R V
STRAND: SHAPE AND SPACE (TRANSFORMATIONS)		Mathematical Processes
General Outcome: Describe and analyze position and motion.		
C5	Demonstrate an understanding of line symmetry (<i>with and without manipulatives</i>) by: <ul style="list-style-type: none"> (a) identifying symmetrical 2-D shapes (b) creating symmetrical 2-D shapes (c) drawing one or more lines of symmetry in a 2-D shape. 	C CN V