

WNCP B.C. GRADE 3 & 4 MATHEMATICS AT A GLANCE

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

STRAND: NUMBER

GENERAL OUTCOME: Develop number sense.

Grade 3 Prescribed Learning Outcomes

- A1** Say the number sequence forward and backward from 0 to 1000 by:
 (a) 5s, 10s or 100s using any starting point
 (b) 3s using starting points that are multiples of 3
 (c) 4s using starting points that are multiples of 4
 (b) 25s, using starting points that are multiples of 25.
- A2** Represent and describe numbers to 1000 concretely, pictorially and symbolically.
- A3** Compare and order numbers to 1000.
- A4** Estimate quantities less than 1000 using referents.
- A5** Illustrate, concretely and pictorially, the meaning of place value for numerals to 1000.
- A6** Describe and apply mental mathematics strategies for adding two 2-digit numerals, such as:
 (a) adding from left to right
 (b) taking one addend to the nearest multiple of ten and then compensating
 (c) using doubles.
- A7** Describe and apply mental mathematics strategies for subtracting two 2-digit numerals, such as:
 (a) taking the subtrahend to the nearest multiple of ten and then compensating
 (b) thinking of addition
 (c) using doubles.
- A8** Apply estimation strategies to predict sums and differences of two 2-digit numerals in a problem-solving context.
- A9** Demonstrate an understanding of addition and subtraction of numbers with answers to 1000 (limited to 1, 2 and 3-digit numerals) by:
 (a) using personal strategies for adding and subtracting with and without the support of manipulatives
 (b) creating and solving problems in context that involve addition and subtraction of numbers concretely, pictorially and symbolically.
- A10** Apply mental mathematics strategies and number such as:
 (a) using doubles
 (b) making 10
 (c) using the commutative property
 (d) using the property of zero
 (e) thinking addition for subtraction
 to recall basic addition facts to 18 and related subtraction facts.

Grade 4 Prescribed Learning Outcomes

- May be reviewed but do not assess**
- A1** Represent and describe whole numbers to 10 000, pictorially and symbolically.
- A2** Compare and order numbers to 10 000.
- May be reviewed but do not assess**
- 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.
- 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.

WNCP B.C. GRADE 3 & 4 MATHEMATICS AT A GLANCE

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

STRAND: NUMBER (continued)

Grade 3 Prescribed Learning Outcomes

A11 Demonstrate an understanding of multiplication to 5×5 by:

- (a) representing & explaining multiplication using equal grouping and arrays
- (b) creating and solving problems in context that involve multiplication
- (c) modelling multiplication using concrete and visual representations, and recording the process symbolically
- (d) relating multiplication to repeated addition
- (e) relating multiplication to division.

(RECALL OF BASIC FACTS NOT INTENDED)

A12 Demonstrate an understanding of division by:

- (a) representing and explaining division using equal sharing and equal grouping
- (b) creating and solving problems in context that involve equal sharing / grouping
- (c) modelling equal sharing and equal grouping using concrete and visual representations, and recording the process symbolically
- (d) relating division to repeated subtraction
- (e) relating division to multiplication

(limited to division related to multiplication facts up to 5×5)

May be explored informally but do not assess

A13 Demonstrate an understanding of fractions (*concretely, pictorially & symbolically*) by:

- (a) explaining that a fraction represents a part of a whole
- (b) describing situations in which fractions are used
- (c) comparing fractions of the same whole with like denominators.

May be explored informally but do not assess

Grade 4 Prescribed Learning Outcomes

A6 Demonstrate an understanding of multiplication (2 or 3-digit by 1-digit) to solve problems by:

- (a) using personal strategies for multiplication with and without concrete materials
- (b) using arrays to represent multiplication
- (c) connecting concrete representations to symbolic representations
- (d) estimating products.

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.

A4 Explain the properties of 0 and 1 for multiplication, and the property of 1 for division.

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) model and explain that for different wholes, two identical fractions may not represent the same quantity
- (d) provide examples of where fractions are used.

A9 Describe and represent decimals (tenths and hundredths) concretely, pictorially and symbolically.

A10 Relate decimals to fractions (to hundredths) (*concretely, pictorially & symbolically*).

A11 Demonstrate an understanding of addition and subtraction of decimals (limited to 100ths) by:

- (a) using compatible numbers
- (b) estimating sums and differences
- (c) using mental math strategies to solve problems.

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STRAND: STATISTICS & PROBABILITY (DATA ANALYSIS)

General Outcome: Collect, display and analyze data to solve problems.

Grade 3 Prescribed Learning Outcomes

D1 Collect first-hand data and organize it using:
 (a) tally marks (b) line plots
 (c) charts (d) lists
 to answer questions.

May be explored informally but do not assess

D2 Construct, label and interpret bar graphs to solve problems.

Grade 4 Prescribed Learning Outcomes

May be reviewed but do not assess

D1 Demonstrate an understanding of many-to-one correspondence.

D2 Construct and interpret pictographs and bar graphs involving many-to-one correspondence to draw conclusions.

STRAND: PATTERNS AND RELATIONS (PATTERNS)

General Outcome: Use patterns to describe the world and solve problems.

B1 Demonstrate an understanding of increasing patterns by:
 (a) describing (b) extending
 (c) comparing (d) creating
 patterns using manipulatives, diagrams, sounds, and actions (numbers to 1000).

B2 Demonstrate an understanding of decreasing patterns by:
 (a) describing (b) extending
 (c) comparing (d) creating
 patterns using manipulatives, diagrams, sounds, and actions (numbers to 1000).

May be explored informally but do not assess

B1 Identify and describe patterns found in tables and charts, including a multiplication chart.

B2 Reproduce a pattern shown in a table or chart using concrete materials.

B3 Represent and describe patterns and relationships using charts and tables to solve problems.

B4 Identify and explain mathematical relationships using charts and diagrams to solve problems.

STRAND: PATTERNS & RELATIONS (VARIABLES & EQUATIONS)

General Outcome: Represent algebraic expressions in multiple ways.

May be explored informally but do not assess

B3 Solve one-step addition and subtraction equations involving symbols representing an unknown number (*using manipulatives*).

B5 Express a given problem as an equation in which a symbol is used to represent an unknown number (*concretely, pictorially or symbolically*).

B6 Solve one-step equations involving a symbol to represent an unknown number (*using manipulatives*).

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STRAND: SHAPE AND SPACE (MEASUREMENT)

General Outcome: Use direct or indirect measurement to solve problems.

Grade 3 Prescribed Learning Outcomes

- C1** Relate the passage of time to common activities using non-standard and standard units (minutes, hours, days, weeks, months, years).
- C2** Relate the number of seconds to a minute, the number of minutes to an hour and the number of days to a month in a problem-solving context.
- C3** Demonstrate an understanding of measuring length (cm and m) by:
 (a) selecting and justifying referents for the units cm and m
 (b) modelling and describing the relationship between the units cm and m
 (c) estimating length using referents
 (d) measuring and recording length, width and height.
- C4** Demonstrate an understanding of measuring mass (g and kg) by:
 (a) selecting and justifying referents for the units g and kg
 (b) modelling and describing the relationship between the units g and kg
 (c) estimating mass using referents
 (d) measuring and recording mass.
- C5** Demonstrate understanding of perimeter of regular and irregular shapes by:
 (a) estimating perimeter using referents for centimetre or metre
 (b) measuring and recording perimeter (cm and m)
 (c) constructing different shapes for a given perimeter (cm, m) to demonstrate that many shapes are possible for a perimeter.

Grade 4 Prescribed Learning Outcomes

- C1** Read and write time using digital and analog clocks, including 24-hour clocks.
- C2** Read and write calendar dates in a variety of formats.
- May be reviewed but do not assess**
- C3** Demonstrate understanding of area of regular and irregular 2-D shapes by:
 (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.

STRAND: SHAPE AND SPACE (3-D OBJECTS & 2-D SHAPES)

General Outcome: Describe the characteristics of 3-D objects and 2-D shapes, and analyze the relationships among them.

- C6** Describe 3-D objects according to the shape of faces, number of edges and vertices.
- C7** Sort regular and irregular polygons, according to the number of sides, including:
 (a) triangles (b) quadrilaterals (c) pentagons (d) hexagons (e) octagons.

- C4** Describe and construct rectangular and triangular prisms.

May be reviewed but do not assess

STRAND: SHAPE AND SPACE (TRANSFORMATIONS)

General Outcome: Describe and analyze position and motion.

May be explored informally but do not assess

- C5** Demonstrate an understanding of line symmetry by:
 (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.