Math

GRADE 3

STANDARD 1
The student understands and applies the concepts and procedures of *number sense and operations.*

To meet this standard, the student will:

Benchmark 3.1.1: Represent whole numbers using concrete materials, drawings, numerals, and number words

Indicators:

- 3.1.1.1 Recognize and read numerals from 0 to 100,000
- 3.1.1.2 Read and write whole numbers to 100,000 in standard, expanded, and written form (ex. 2,476=2000+400+70+6= two thousand four hundred seventy six.
- 3.1.1.3 Represent the place value of whole numbers from 0 to 100,000 using concrete materials, drawings and symbols
- 3.1.1.4 Model numbers grouped in 100's, 10's, and 1's and use zero as a place holder
- 3.1.1.5 Use ordinal numbers to hundredth
- 3.1.1.6 Recognize and write money amounts with groups of coins and bills

Benchmark 3.1.2: Compare and order whole numbers using concrete materials, drawings, and ordinals

Indicators:

- 3.1.2.1 Compare numbers using <, >, and =
- 3.1.2.2 Compare money amounts using <, >, and =
- 3.1.2.3 Count by 1's, 2's, 5's, 10's, 25's and 100's to 1000 using various starting points
- 3.1.2.4 Count backwards by 2's, 5's, and 10's from 100 using multiples of 2, 5, and 10 as starting points and by 100's from any number less than 1001
- 3.1.2.5 Locate and order whole numbers to 1000 on a number line and partial number line
- 3.1.2.6 Show counting by 2's, 5's, and 10's to 50 on a number line and extrapolate to tell what goes before or after the given sequence

Benchmark 3.1.3: Represent common fractions and mixed numbers using concrete materials

Indicators:

- 3.1.3.1 Represent and explain common fractions, presented in real-life situations, as part of a whole, part of a set, and part of a measure using concrete materials and drawings (e.g., find one-third of a length of ribbon by folding)
- 3.1.3.2 Name and write common fractions
- 3.1.3.3 Compare and order simple fractions
- 3.1.3.4 Estimate common fractions
- 3.1.3.5 Add and subtract simple fractions with common denominators
- 3.1.3.6 Name and write simple mixed numbers
- 3.1.3.7 Represent tenths and hundredths as fractions and decimals

Benchmark 3.1.4: Understand and use explain basic operations (addition, subtraction, multiplication, division) involving whole numbers by modeling

Indicators:

- 3.1.4.1 Add two numbers from 2 to 4 digits
- 3.1.4.2 Subtract two numbers from 2 to 4 digits
- 3.1.4.3 Add and subtract money amounts and represent the answer in decimal notation (e.g., 5 dollars and 75 cents plus 10 cents is 5 dollars and 85 cents, which is $5.85)
- 3.1.4.4 Interpret multiplication and division sentences in a variety of ways (e.g., using base ten materials, arrays relative to addition or subtraction)
- 3.1.4.5 Multiply whole number through 12 x 12
- 3.1.4.6 Use models to demonstrate multiplication and division
- 3.1.4.7 Use multiplication and division fact families

Benchmark 3.1.5: Justify in verbal the method chosen for addition and subtraction, estimation, mental computation, concrete materials, algorithms, calculators

Indicators:

- 3.1.5.1 Pose and solve simple number problems orally (e.g. how many students wore shorts today?)
- 3.1.5.2 Describe their thinking and method used as they solve problems
- 3.1.5.3 Decide when to use a mental math versus computation
- 3.1.5.4 Describe and explain the variety of strategies for problem solving
- 3.1.5.5 Use appropriate strategies (e.g., pencil and paper, estimation, concrete materials) to solve number problems involving whole numbers
- 3.1.5.6 Determine whether the results are reasonable
- 3.1.5.7 Decide when there is too much or too little information
- 3.1.5.8 Use various estimation strategies (e.g., clustering in tens, rounding to hundreds) to solve problems, then check results for reasonableness
- 3.1.5.9 Round whole numbers to the nearest 10's, 100's, and 1000's

Benchmark 3.1.6: Be proficient at mental calculations for addition, subtraction, multiplication, and division

Indicators:

- 3.1.6.1 Mentally add and subtract one-digit and two-digit numbers
- 3.1.6.2 Recall addition and subtraction facts to 18
- 3.1.6.3 Mentally multiply up to 9x9
- 3.1.6.4 Mentally divide up to 81 divided by 9
- 3.1.6.5 Identify numbers that are divisible by 2, 5, or 10

Benchmark 3.1.8: Understand the significance of numbers within the surrounding environment

Indicators:

- 3.1.8.1 Identify and describe numbers to 1000 in real-life situations to develop a sense of number (e.g., tell how high a stack of 1000 pennies would be)
- 3.1.8.2 Understand the relationship between money and numbers
- 3.1.8.3 Recognize God's desire for order through numbers

Math

GRADE 3

STANDARD 2
The student understands and applies and concepts and procedures of *patterns and algebra*.

To meet this standard, the student will:

Benchmark 3.2.1: Recognize that patterning results from repetition

Indicators:

3.2.1.1 Understand patterns in which operations are repeated (e.g., multiplication), transformations are repeated, or multiple changes are made to attributes

3.2.1.2 Recognize the addition and multiplication properties (commutative, identity, associative, and zero)

Benchmark 3.2.2: Identify, extend, and create linear and non-linear geometric patterns, number and measurement patterns, and patterns in their environment

Indicators:

3.2.2.1 Identify patterns in which at least two attributes change (e.g., size, color)

3.2.2.2 Create a pattern in which two or more attributes change (e.g., size, color, position)

3.2.2.3 Discuss the choice of a pattern rule

3.2.2.4 Given an equation, find the missing value that makes it true (e.g. 4 + ___= 13)

3.2.2.5 Given a rule, extend a pattern and describe it in informal mathematical language (e.g., starting at 3, add 3 to each number to create a pattern)

3.2.2.6 Identify examples of patterns from the Bible

Benchmark 3.2.3: Create charts to display patterns

Indicators:

3.2.3.1 Use addition, ~~and~~ subtraction, multiplication and division facts to generate simple patterns in a hundreds chart

3.2.3.2 Use environmental data to create models of patterns (e.g., Monday – sunny, Tuesday – rainy) and display the patterns on a chart

Benchmark 3.2.4: Identify relationships between and among patterns

Indicators:

3.2.4.1 Identify relationships between addition, subtraction, multiplication, and division

3.2.4.2 Translate between simple verbal and algebraic expressions

Math

GRADE 3

STANDARD 3

The student understands and applies the concepts and procedures of *geometry*.

To meet this standard, the student will:

Benchmark 3.3.1: Identify, describe, compare, and classify geometric angels and polygons

Indicators:

- 3.3.1.1 Identify basic geometric figures in a plane (such as point, line, ray, angle)
- 3.3.1.2 Classify lines as intersecting, perpendicular, or parallel
- 3.3.1.3 Classify polygons by number of sides and angles
- 3.3.1.4 Solve two-dimensional geometric puzzles (e.g. pattern blocks, tangrams)
- 3.3.1.5 Compare and sort two-dimensional shapes according to two or more attributes
- 3.3.1.6 Match and describe congruent (identical) and similar three-dimensional figures and two-dimensional shapes

Benchmark 3.3.2: Explore transformations of geometric figures using concrete materials and drawings

Indicators:

- 3.3.2.1 Explore the concept of lines of symmetry in two-dimensional shapes (e.g., discover that squares have four lines of symmetry)
- 3.3.2.2 Identify transformations, such as flips, slides, and turns (reflections, translations, and rotations), using concrete materials and drawings
- 3.3.2.3 Perform rotations using concrete materials (e.g., quarter turn, half turn, three-quarter turn)
- 3.3.2.4 Describe how to get from one point to another on a grid (e.g., two squares right followed by one square up).

Benchmark 3.3.3: Investigate the attributes, draw and build three-dimensional objects and models

Indicators:

- 3.3.3.1 Identify the types and parts of three dimensional shapes
- 3.3.3.2 Investigate the similarities and differences among a variety of prisms using concrete materials and drawings
- 3.3.3.3 Compare and sort three-dimensional figures according to two or more geometric attributes (e.g., size, number of faces)
- 3.3.3.4 Describe and name prisms and pyramids by the shape of their base (e.g., square-based pyramid)
- 3.3.3.5 Build rectangular prisms from given nets and explore the attributes of the prisms
- 3.3.3.6 Use two-dimensional shapes to make a three-dimensional model using a variety of building materials (e.g., cardboard, construction sets)

Benchmark 3.3.4: Use mathematical language effectively to describe geometric concepts, reasoning, and investigations

Indicators:

3.3.4.1 Use mathematical language to describe geometric ideas

3.3.4.2 Use problem solving strategies (like models and various viewpoints) to solve problems

3.3.4.3 Explain the process followed in making a structure or a picture from three- dimensional figures or two-dimensional shapes

Math

GRADE 3

STANDARD 4
The student understands and applies the concepts and procedures of *measurement.*

To meet this standard, the student will:

Benchmark 3.4.1: Demonstrate an understanding of and ability to apply measurement terms: inches, feet, yards, miles, days, weeks, years

Indicators:

3.4.1.1 Explain the use of standard units of measurement and the relationships between linear measures (e.g., inches are smaller than feet)

3.4.1.2 Estimate, measure, and record linear dimensions of objects (using inches, feet and yards) to the nearest half inch

3.4.1.3 Estimate and measure the passage of time in five-minute intervals, and in days, weeks, months, and years

Benchmark 3.4.2: Identify relationships between and among measurement concepts (linear, capacity, mass)

Indicators:

3.4.2.1 Select the most appropriate unit of measure to measure length (inches, feet, yards and metric)

3.4.2.2 Select the most appropriate unite of measure to measure capacity (cups, pints, quarts, gallons) and metric

3.4.2.3 Select the most appropriate unite of measure to measure weight (ounces, pounds, tons) and metric

Benchmark 3.4.3: Solve problems related to their day-to-day environment using measurement and estimation

Indicators:

3.4.3.1 Compare and order objects by their linear dimensions (e.g. in finding the height of the school fence)

3.4.3.2 Tell and write time to the nearest minute in 12-hour notation using digital and analog clocks

3.4.3.3 Determine elapsed time

3.4.3.4 Estimate, read, and record temperature to the nearest degree Fahrenheit and Celsius

3.4.3.5 Demonstrate the relationship between all coins and bills up to $100

3.4.3.6 Make purchases and change for money amounts up to $10, and estimate, count, and record the value up to $10 of a collection of coins and bills

3.4.3.7 Read and write money amounts using two forms of notation (89¢ and $0.89)

Benchmark 3.4.4: Estimate, measure, and record the perimeter and the area of two-dimensional shapes, and compare the perimeters and areas

Indicators:

3.4.4.1 Measure the perimeter of two-dimensional shapes and compare the perimeters

3.4.4.2 Estimate and measure the area of shapes and compare and order the shapes by area

Key: 1. Grade 1.1 Standard 1.1.1 Benchmark 1.1.1.1 Indicator

Math

GRADE 3

STANDARD 5
The student understands and applies the concepts and procedures of *data analysis and probability*.

To meet this standard, the student will:

Benchmark 3.5.1: Sort, classify, and cross-classify objects and data

Indicators:

3.5.1.1 Use two or more attributes (e.g., color, texture, length) to sort objects and data
3.5.1.2 Relate objects to numbers on a graph with many-to-one correspondence (e.g., 1 Canadian flag represents 100 Canadian citizens) as in photographs

Benchmark 3.5.2: Collect and organize data

Indicators:

3.5.2.1 Select appropriate methods (e.g., charts, Venn diagrams) to cross-classify objects
3.5.2.2 Generate questions that have a finite number of responses for their own surveys
3.5.2.3 Use their questions as a basis for collecting data
3.5.2.4 Organize data in Venn diagrams and charts using several criteria
3.5.2.5 Construct bar graphs (with discrete classes on one axis and numbers on the other) and pictographs using scales with multiples of 2, 5, and 10

Benchmark 3.5.3: Interpret displays of data, present the information, and discuss it using mathematical language

Indicators:

3.5.3.1 Interpret data from graphs (e.g. frequency tables, bar graphs, pictographs, line plots and line graphs

Benchmark 3.5.4: Demonstrate an understanding of probability concepts

Indicators:

3.5.4.1 Conduct simple probability experiments (e.g. rolling a number cube, spinning a spinner) and predict the results, making a graph to display results
3.5.4.2 Apply the concept of likelihood to events in solving simple problems
3.5.4.3 Predict the possible outcomes and probability that an event will occur

Benchmark 3.5.5: Relate meaningful experiences about probability

Indicator:

3.5.5.1 Use mathematical language (e.g., possible, impossible event, outcome) in discussion to describe probability