Mathematics - Grade 4
2024 - 2025

Students working at grade-level expectations will achieve the following learning objectives:

Number
Number Review from Grade 3: Read, write, model, and round numbers up to 10,000.
Read, write, model, and round numbers using the base-10 system up to 100,000.
Identify even and odd numbers based on the last digit and the results of the four operations (e.g., the sum of even numbers is always even).
Estimate quantities up to 10,000.
Round decimals with tenths or hundredths to the nearest whole number.
Automatically recall and use basic number facts.
Expand written addition and subtraction up to 100,000.
Use mental and written strategies for addition (with multiple addends) and subtraction of whole numbers up to 100,000.
Develop number sense by comparing numbers and using different symbols (e.g., 7000 - 2000 = 4000 + 1000).
Model addition and subtraction equations up to 100,000, both with and without regrouping, first horizontally, then vertically with carrying and borrowing.
Review division and multiplication by a 1-digit number.
Practice multiplication and division by multiples of 10.
Use mental and written strategies for multiplication and division (with or without remainders) involving 2-digit numbers as the multiplicand, multiplier, dividend, and divisor.
Create and solve multi-digit multiplication and division problems.
Use the correct terms and proper spelling for the different operations: addition (addend, sum), subtraction (minuend, subtrahend, difference), multiplication (multiplicand, multiplier, product), and division (dividend, divisor, quotient).
Develop mental arithmetic skills within the number range of 10,000 and later expand to 100,000.
Solve real-life word problems using all operations with numbers up to 100,000, involving up to three steps.
Understand fractions: name the parts of a fraction, identify equivalent fractions, recognize greater and lesser fractions, and add and subtract fractions with the same denominator.
Simplify fractions using manipulatives.
Read, write, and model improper fractions and mixed numbers.
Convert simple improper fractions to mixed numbers and vice versa (e.g., convert one and a half to an improper fraction)
Read, write, compare, and order decimal fractions (denominator is equal to multiples of 10) to hundredths.

Model decimal fractions to hundredths.
Read, write, and model the addition and subtraction of decimals to the hundredth place.
Round decimals with tenths to the nearest whole number.
Read, write, and model percentages.
Read, write, compare, and order percentages
Understand the relationship between fractions, decimals, and percentages interchangeably and recall basic facts (e.g., ¼ = 0.25 = 25%).
Comparing decimals and decimal fractions.
Select and justify the most appropriate and efficient method for solving a problem, such as mental estimation, mental arithmetic, or other strategies.
Solve real-life money problems involving all operations with decimals, including calculating total cost and determining change.
Find factors, common factors, and the greatest common factor (GCF) of numbers.
Find multiples, common multiples, and the least common multiple (LCM) of numbers.
Patterns and Functions
Model and describe the rules in more complex number patterns, including those involving fractions and decimals
Understand and use the relationships between inverse operations in arithmetic, specifically between addition and subtraction, multiplication, and division.
Identify and model number patterns in shapes (e.g., start with a set number of sticks, then increase the number of sticks by 3 for each new triangle).
Solve real-life word problems using patterns and functions involving up to two steps.
Measurement
Review all measurements and conversions from Grade 3, including length, mass, volume, and time.
Select and use appropriate standard units of measurement when estimating, describing, comparing, and measuring.
Use measuring tools with simple scales accurately.
Convert units of length, such as millimeters (mm) to centimeters (cm), meters (m) to centimeters (cm), and vice versa.
Understand that the accuracy of a measurement depends on the situation and the precision of the measuring tools used.
Understand the difference between area and perimeter.
Estimate, measure, calculate, label, and compare the perimeter and area of rectangles, squares, and composite figures using formal methods and standard units of measurement.
Measure the area of an object in square centimeters (cm^2) and square meters (m^2).
Calculate elapsed time in 5-minute intervals.
Measure time using seconds, a 24-hour clock, and understanding the difference between duration and a specific point in time.
Convert between different time units, such as years to days, minutes to seconds, hours to minutes, and days to hours.
Mark times on clocks and write them in both AM and PM formats.
Use and construct timetables (12-hour and 24-hour) and timelines.
Write and estimate the volume of an object in cubic centimeters (cm^3).

Rewrite volumes in milliliters (mL) and liters (L), such as converting 1400 mL to 1 liter and 400 mL.
Rewrite mass in kilograms (kg) and grams (g), such as converting 1400 g to 1 kg 400 g.
Estimate, measure, label, and compare temperatures (positive only) using formal methods and standard units of measurement, such as degrees Celsius (°C).
Solve real-life word problems involving measurement up to three steps.

Shape and Space
Use the geometric vocabulary of 2-D and 3-D shapes: parallel, edge, vertex, sides, angles, regular, and irregular.
Combine and transform at least two 2-D shapes to create another 2-D shape.
Convert a 2-D shape into a 3-D shape and vice versa.
Describe, classify, and model 3-D shapes according to their properties: bases, corners, and edges.
Review angle as a measure of rotation.
Understand and use the vocabulary related to types of angles: obtuse, acute, straight, right, reflex, and revolution.
Estimate, measure, identify, compare, and draw angles.
Understand, identify, and draw (with multiple) lines of symmetry.
Create symmetrical patterns with more complex tessellations.
Draw symmetrical patterns by reflection.
Understand and use the vocabulary for types of lines: parallel, perpendicular, horizontal, and vertical.
Draw perpendicular and parallel lines using a ruler and a set square.
Understand scale and use it to draw and label items on a map.
Describe the position of an object using grid references and compass directions (cardinal and intercardinal directions).
Understand, describe, and apply reflection, translation, and rotation to objects (connected to studying symmetrical patterns).
Solve real-life word problems involving multiple concepts of shapes and space.

Data Handling
Understand when to use different types of graphs (e.g., Venn diagram to show relationships and overlaps between different sets of data and bar graph to compare the quantities of different categories).
Understand how to create survey questions that elicit the desired information when conducting a survey (e.g., Yes/No, Multiple Choice, Rating Scale, Simple Open-ended).
Create, interpret, discuss, and compare data displays (pictograph, pie chart, bar/line graph), including how well they communicate information.
Design a survey and systematically collect, organize, and record the data in displays: frequency table, pictograph, bar graph, circle graph (pie chart), line graph, and dot plot.
Find, describe, and explain the range, mode, median, and mean in a data set and understand their use.
Identify the likelihood of certain events happening in a more complex situation using terms such as impossible, very unlikely, unlikely, possible, equally likely, likely, probable, and most likely.
Identify the probability of an event when rolling a die, spinning a wheel, picking a counter from a bag, drawing a card from a deck, etc.
Solve real-life word problems with data handling and probability involving two or three steps.